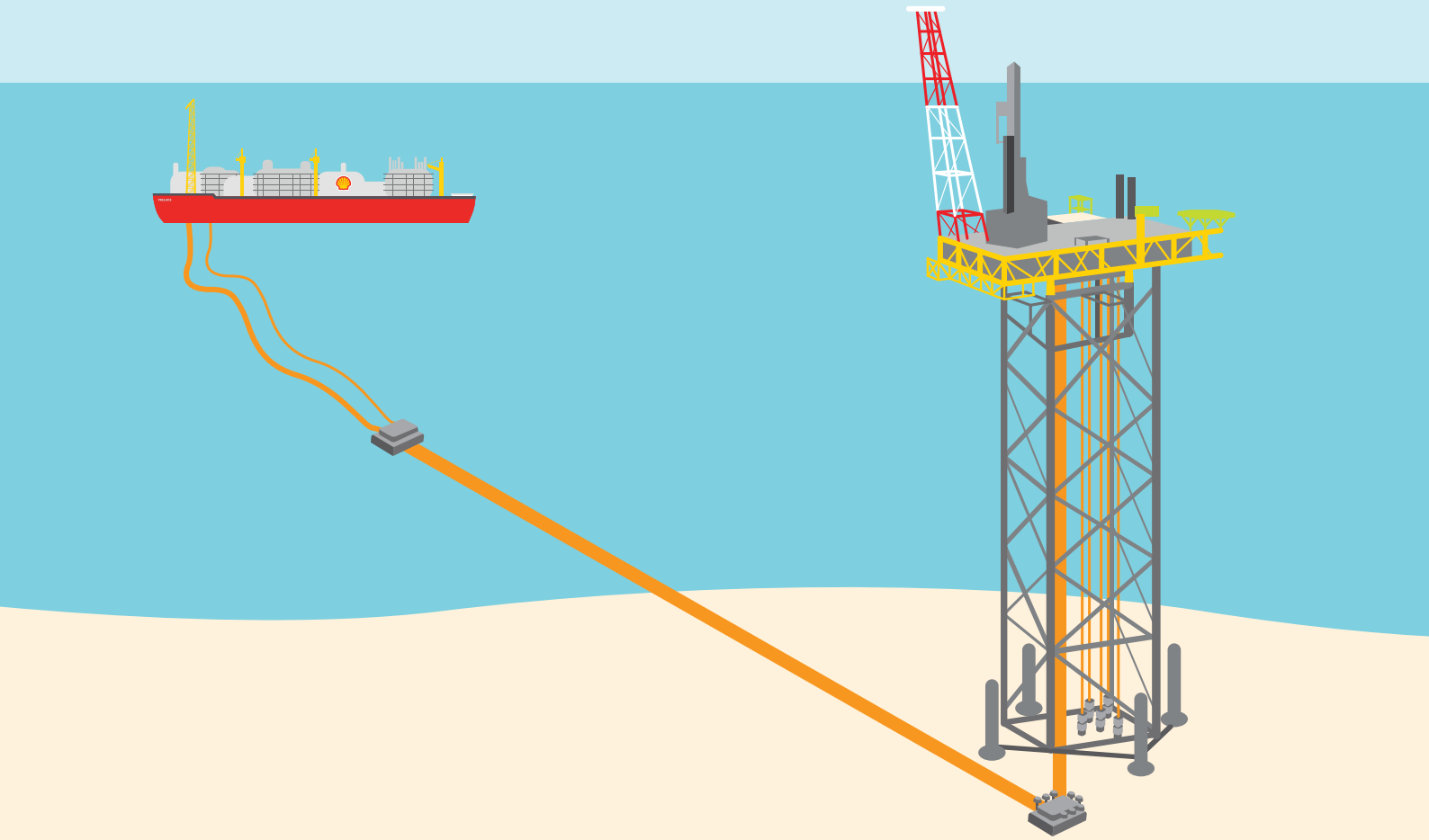

SGH | Energy

Crux Development Drilling Environment Plan

Crux Development Drilling Environment Plan

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REVISION HISTORY					
Ver.	**Change Description**	**Date**	**Originator**	**Reviewed by**	**Approved by**
01	Issued for Approval	21/07/2022	Environmental Approvals Advisor	Crux Environment Lead Well Engineering Manager – Australia West Substructure Delivery Manager Crux Senior Engineer – Drilling Template Senior Wells Engineer Drilling Fluids Coordinator Crux HSSE Manager	Crux Project Manager
02	Approved for Use	26/07/2022	Environmental Approvals Advisor	Crux Environment Lead Well Engineering Manager – Australia West Substructure Delivery Manager Crux Senior Engineer – Drilling Template Senior Wells Engineer Drilling Fluids Coordinator Crux HSSE Manager	Crux Project Manager
03	Draft – for consultation	21/04/2023	Environmental Approvals Advisor	Crux Environment Lead Well Engineering Manager – Australia West Crux Senior Engineer – Drilling Template Senior Wells Engineer Drilling Fluids Coordinator Crux HSSE Manager	Crux Project Manager
04	IFA	18/07/2023	Environmental Approvals Advisor	Environment Manager – TA2 Well Engineering Manager – Australia West Crux Senior Engineer – Drilling Template Senior Wells Engineer Drilling Fluids Coordinator Crux HSSE Manager Legal Council	Business Opportunity Manager
05	AFU	28/07/2023	Environmental Approvals Advisor	Environment Manager – TA2 Well Engineering Manager – Australia West Crux Senior Engineer – Drilling Template Senior Wells Engineer Drilling Fluids Coordinator Crux HSSE Manager	Business Opportunity Manager

REVISION HISTORY					
Ver.	**Change Description**	**Date**	**Originator**	**Reviewed by**	**Approved by**
				Legal Council	
06	IFA	09/11/2023	Environmental Approvals Advisor	Environment Manager – TA2 Well Engineering Manager – Australia West Crux Senior Engineer – Drilling Template Senior Wells Engineer Drilling Fluids Coordinator Crux HSSE Manager Legal Council	Business Opportunity Manager

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1 Environment Plan Summary Statement

This Crux Development Drilling Environment Plan (EP) summary has been prepared from material provided in this EP. The summary consists of the following as required by Regulation 11(4):

EP Summary material requirement	Relevant section of EP containing EP Summary material
The location of the activity	Section 6.2
A description of the receiving environment	Section 7
A description of the activity	Section 5.8
Details of the environmental impacts and risks	Section 9
The control measures for the activity	Section 9
The arrangements for ongoing monitoring of the titleholder's environmental performance	Section 10.4.1
Response arrangements in the oil pollution emergency plan	Sections 9.15 and 10.7
Consultation already undertaken and plans for ongoing consultation	Section 5
Details of the titleholders nominated liaison person for the activity	Section 10.5.5

2 Requirements

This section is intended to fulfil the requirements of Regulation 13 (4) of the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth) ('OPGGS(E) Regulations') and meet NOPSEMA's expectations stated in the Environment Plan Content Requirements Guidance Note (2019). Regulation 13 (4) – Requirements of the OPGGS(E) Regulations stipulates that an EP must:

> *"(a) describe the requirements, including legislative requirements, that apply to the activity and are relevant to the environmental management of the activity; and*
>
> *(b) demonstrate how those requirements will be met."*

The Environment Plan Content Requirements Guidance Note (NOPSEMA 2020) provides additional information on NOPSEMA's expectations of EP content relating to Regulation 13 (4). NOPSEMA does not expect that requirements that are not relevant to the environmental management of petroleum activities be included in the EP.

This section contains the following, which are intended to meet the requirements stated above:

- Legislation
- Standards and guidelines
- International agreement and conventions.

3 Introduction

The Shell-operated Crux development is located in Commonwealth waters in the northern Browse Basin, 190 kilometres (km) offshore north-west Australia and 620 km north-east of Broome, in approximately 165 metres (m) water depth.

The Crux gas field has been identified as a source of backfill gas to the existing Prelude Floating Liquefied Natural Gas (FLNG) facility as depicted in Figure 3-1.

The project is being progressed by the Crux Joint Venture Participants with Shell Australia as majority operator and encompasses the Production Licence AC/L10.

The first environmental approval for Crux was the Crux Offshore Project Proposal (OPP), which was accepted in August 2020 by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

The Crux development drilling program (inclusive of drilling template and docking pile installation) is the first significant infield activity planned to occur to support the execution of the Crux development. Subsequent to the acceptance of the OPP, Shell is required to obtain acceptance of an Environment Plans (EP) prior to the execution of any petroleum activities within the project area. During the execution phase of the project, Shell proposes to develop a number of separate EPs which incorporate the various stages of the project (described below). Table 3-1 provides a road map of these EPs and the indicative submission timing to NOPSEMA, which are required to support the project activities.

Table 3-1: Crux project indicative Environment Plan road map

Environment Plan	Activity descriptor	Indicative Submission Timing (to NOPSEMA)
Crux Drilling Template Installation EP	Installation of the Crux Drilling template.	July 2023
Crux Seabed Survey EP	Geotechnical and geophysical survey activities along the proposed Crux pipeline route.	July 2023
Crux Development Drilling EP (this EP)	Drilling and suspension of the five Crux development wells.	July 2023
Crux Installation and Cold Commissioning EP	Installation of all remaining Crux infrastructure and commissioning activities prior to the introduction of hydrocarbons.	Quarter four 2023
Crux Hot Commissioning, Start-up and Operations EP	Well completions, hot commissioning (introduction of hydrocarbons), start-up and operations of the Crux infrastructure.	Quarter four 2024
Prelude FLNG Operations EP (revision)	Revision to existing EP to enable the acceptance and processing of Crux gas.	Quarter one 2025

Environmental management for activities associated with the Crux development drilling activity is undertaken in agreement with this EP, which was prepared in accordance with the requirements of the OPGGS(E) Regulations, and describes the following:

- Shell's Health, Security, Safety and Environment and Social Performance (HSSE & SP) Commitment and Policy and the environmental performance objectives that derive from the Policy.

- The consultation process undertaken with the Relevant Persons and the associated resolution of and/or responses to any objections or claims.
- The area of operations, the proposed activities, and its expected time frame
- The environmental management framework for the activity including legislation and other requirements.
- The existing physical, natural, social, and economic environments of the region, including issues or sensitivities particular to the activity.
- The impacts and risks to the environment from both planned (normal) and unplanned (abnormal) operations
- The Environmental Performance Outcomes (EPOs), Environmental Performance Standards (EPSs) and Measurement Criteria (MC) against which environmental performance is measured.
- The Implementation Strategy, including key roles and responsibilities that are employed to achieve the program's environmental performance goals[1]
- A system for documenting, monitoring, reporting, and reviewing the success of the Implementation Strategy to facilitate improvement of environmental performance and external reporting as required.

[1] The Shell Browse Oil Pollution Emergency Plan (OPEP) (HSE_PRE_013075), APPEA OSMP Framework and the Operational and Scientific Monitoring Bridging Implementation Plan (HSE_PRE_016370) are presented as standalone documents, submitted together with this EP.

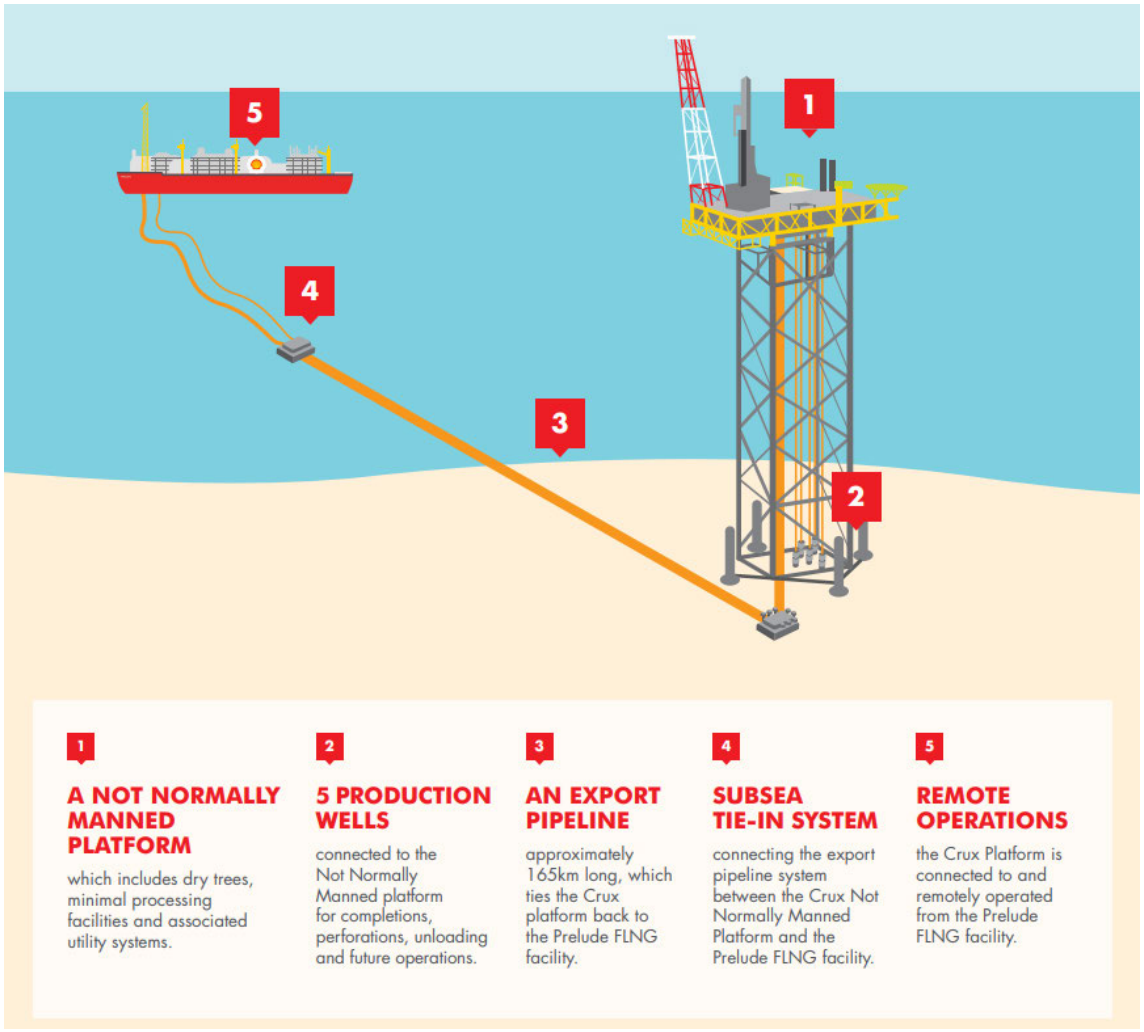

Figure 3-1: Crux development concept overview, noting that this EP is only related to the development drilling and installation of drilling template and docking piles.

3.1 Legislation

This section describes the Australian legislation that is applicable to the environmental management of the petroleum activities within the scope of this EP. The name of each piece of legislation is provided, along with a description of its relevance to the petroleum activities. A link to the section of the EP related to how these legislative requirements have been considered is also provided.

As the planned activities considered in the EP take place entirely in Commonwealth waters, legislation relating to the environmental management of the petroleum activities considered in this EP are primarily Commonwealth Acts and subsidiary legislation. Key Acts include the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) (OPGGS Act) and the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act). These Acts and subsidiary legislation are discussed in Sections 3.1.1 and 3.1.2 respectively; additional Commonwealth legislation is considered in Section 3.1.3.

Large volume unplanned hydrocarbon releases may under some circumstances impact upon the environment within the jurisdiction of adjacent states including Western Australia and the Northern

Territory. State legislation that may be applicable to the environmental management of such hydrocarbon releases has also been considered in Section 3.1.3.

3.1.1 Offshore Petroleum and Greenhouse Gas Storage Act 2006

The OPGGS Act provides the regulatory framework for petroleum exploration, production, and greenhouse gas activities in Commonwealth waters. The OPGGS Act is supported by a range of subsidiary legislation, including:

- the *Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2009* (Cth) which ensure that facilities are designed, constructed, installed, operated, modified, and decommissioned in Commonwealth waters only in accordance with Safety Cases that have been accepted by NOPSEMA.
- the *Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011* (Cth) which require that a Well Operations Management Plan (WOMP) is assessed and accepted by NOPSEMA for existing or proposed offshore facilities; and
- the OPGGS(E) Regulations.

The OPGGS Act manages all offshore petroleum activities, including decommissioning, under Sections 572 and 270. While there are no immediate plans for decommissioning (the scope of this EP is for drilling production wells for future operations) all equipment being installed above the mudline has been designed to ensure a number of decommissioning options are technically feasible. This includes design provisions to allow complete removal and onshore disposal of this equipment.

Subsection 572(2) provides that while structures, equipment and other property remain in the title area, they must be maintained in good condition and repair. Following installation, the equipment will be registered in an asset inventory register that will be used to manage future inspection and/or maintenance activities.

The Crux philosophy for Inspection, Maintenance and Repair (IMR) is to inspect and maintain the installed portfolio of equipment such that its mechanical condition remains fit for the purposes specified in its original design requirements. These include but are not limited to integrity, availability, service life, and abandonment requirements. Typical IMR activities consist of:

- visual inspection of equipment condition.
- inspection and, as appropriate, refurbishment of cathodic protection equipment.
- ongoing management of a detailed integrity database which includes details of the location and condition of all equipment.
- repair/replacement and reinstatement of failed equipment items to support continued field operation; and
- provision of contracts, tooling and spares to support an effective IMR response over life-of-field.

The future requirement for IMR activities for the wells infrastructure, drilling template and docking piles are described in Section 5.8.

The management of the asset inventory register and IMR activities during the operate phase will be described as part of the Crux operations phase environment plan.

Shell's commitment to decommissioning planning and execution is described within Section 5.6.6 of the Crux OPP. Shell refers to this description as information previously given under Regulation 31(1) of the OPGGS (E) Regulations.

The OPGGS(E) Regulations require the environmental impacts and risks of offshore petroleum and greenhouse gas storage activities be managed to a level that is acceptable and as low as reasonably practicable (ALARP). The OPGGS(E) Regulations are discussed further below.

3.1.1.1 Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009

The OPGGS(E) Regulations provide for the protection of the environment in Commonwealth waters by requiring that petroleum and greenhouse gas storage activities be managed in a way that:

- reduces the environmental impacts and risks of the activity to a level that is ALARP.
- reduces the environmental impacts and risks of the activity to an acceptable level; and
- is consistent with the principles of Ecologically Sustainable Development (ESD), as defined in section 3A of the EPBC Act, which includes:
  - decision-making processes should effectively integrate both long-term and short-term economic, environmental, social, and equitable considerations.
  - if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
  - 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; and
  - improved valuation, pricing and incentive mechanisms should be promoted.

The methodology applied to assess environmental impacts and risks from the petroleum activities considered in this EP details how impacts and risks are managed to a level that is acceptable, ALARP and consistent with the principles of ESD. This methodology is described in Section 8 and Sections 9.1 and 9.2, with aspect-specific demonstrations provided in each of the impact and risk assessment in Sections 9.3 to 9.15.

Regulation 13(3) of the OPGGS(E) Regulations requires EPs to consider Matters of National Environmental Significance (MNES) protected under the EPBC Act, including the following:

- The world heritage values of a declared World Heritage property within the meaning of the EPBC Act.
- The national heritage values of a National Heritage place within the meaning of that Act.
- The ecological character of a declared Ramsar wetland within the meaning of that Act.
- The presence of a listed threatened species or listed threatened ecological community within the meaning of that Act.
- The presence of a listed migratory species within the meaning of that Act; and
- Any values and sensitivities that exist in, or in relation to, part or all of:
  - a Commonwealth marine area within the meaning of that Act; and
  - Commonwealth land within the meaning of that Act.

MNES that may credibly be impacted, or are at risk of being impacted, are described in Section 7 and are considered in the assessment of environmental impacts and risks.

Regulation 10A of the OPGGS(E) Regulations states the criteria for acceptance of an EP. These are summarised in Table 3-2, along with the sections of this EP that relate to each of the criteria.

Table 3-2: Relationships between OPGGS(E) Regulation 10A requirements and EP sections

OPGGS (E) Regulation	Requirement	Relevant Section of EP
10A (a)	The EP is appropriate for the nature and scale of the activity	Sections 5.8 and 10 detail the nature and scale of the petroleum activities considered within this EP. Section 7 describes the environmental receptors that may credibly be impacted, or are at risk of being impacted, by the planned and unplanned activities. Sections 9.3 to 9.15 provide the environmental impact and risk assessments based on the context provided by Section 5.8 and Section 7 (as well as Shell's internal context and the context provided by Relevant Persons).
10A (b)	The EP demonstrates that the environmental impacts and risks of the activity will be reduced to ALARP	Sections 9.1 to 9.2 detail the method by which Shell demonstrates environmental impacts and risks are managed to a level that is ALARP. Aspect-specific ALARP demonstrations are provided in the impact and risk assessments provided in Sections 9.3 to 9.15.
10A (c)	The EP demonstrates that the environmental impacts and risks of the activity will be of an acceptable level	Section 8 details the method by which Shell demonstrates environmental impacts and risks are managed to a level that is acceptable. Aspect-specific demonstrations of acceptability are provided in the impact and risk assessments provided in Sections 9.3 to 9.15.
10A (d)	The EP provides or appropriate EPOs, EPSs, and MC.	EPOs, EPSs and MCs are detailed in Sections 9.3 to 9.15.
10A (e)	The EP includes an appropriate implementation strategy and monitoring, recording, and reporting arrangements	The implementation strategy for the EP is provided in Section 10.
10A (f)	The EP 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.	Section 5.8 details the planned petroleum activities considered in this EP, none of which will occur within a World Heritage Area.
10A (g) (i) & 10A (g) (ii)	The EP demonstrates that: (i) the titleholder has carried out the consultations required by Division 2.2A; and (ii) the measures (if any) that the titleholder has adopted, or proposes to adopt, because of the consultations are appropriate	The consultation undertaken in relation to the EP are detailed in Section 5, including Shell's responses to any claims or objections made by Relevant Persons. Any management measures adopted in response to stakeholder consultation outcomes are considered in the aspect-specific impact and risk assessments in Sections 9.3 to 9.15 and also within Sections 5, 7, 8 and 10.

OPGGS (E) Regulation	Requirement	Relevant Section of EP
10A (h)	The EP complies with the Act and the regulations.	Section 3.1.1 (i.e. this section) shows the relationship between the Act, regulations and components of the EP.

3.1.1.2 Offshore Project Proposal (OPP) Acceptance

The Crux project constitutes an offshore project that requires approval under the OPGGS Act and OPGGS (E) Regulations. Subsequently, Shell developed the Crux Offshore Project Proposal (Crux OPP) to meet this requirement.

The impact assessment included in the Crux OPP was aligned to meet the requirements of an OPP regulated under the OPGGS (E) Regulations and administered by NOPSEMA.

The Crux OPP was accepted by NOPSEMA in August 2020.

The purpose of the OPP was to describe:

- the project area, the proposed activities, and its expected timeframe.
- the environmental management framework for the proposal, including legislation and other requirements.
- the existing natural, social, and economic environments of the local and regional setting, including issues or sensitivities particular to the proposal.
- the possible impacts and risks to the environment from both planned (normal) and unplanned (emergency) operations.
- Shell's HSSE & SP Commitment and Policy and the environmental performance objectives that derive from the Policy; and
- a framework for the forward environmental management and performance, including definition of key management controls and Environmental Performance Outcomes (EPOs), from which environmental performance will be measured and monitored throughout the life of the project.

Acceptance of the Crux OPP confirmed that Shell and its Joint Venture Participants have demonstrated an acceptable level of environmental impact for all Crux project phases during the concept and early engineering stage. To allow Shell to start any activities within the Crux offshore petroleum title area, additional activity specific Environment Plans are required to be accepted by NOPSEMA.

3.1.2 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act and supporting regulations provide for the protection of the environment and the conservation of biodiversity in Australia. Amendments to the OPGGS Act and OPGGS(E) Regulations in February 2014, undertaken as part of the streamlining of environmental approvals for petroleum activities in Commonwealth waters, require impacts and risks to matters protected under Part 3 of the EPBC Act (i.e., MNES) be considered in the EP. Following the streamlining arrangements, NOPSEMA became the sole environmental regulator for petroleum activities (i.e. regulates activities under the OPGGS Act and EPBC Act) in Commonwealth waters.

The matters protected under Part 3 of the EPBC Act that are required by the OPGGS(E) Regulations are outlined above in Section 3.1.1. As part of the streamlining arrangements, matters protected under Part 3 of the EPBC Act must be considered by NOPSEMA when assessing an EP.

Related EPBC Act Guidance

In addition to the relevant specific management/recovery plans and conservation advices specific to MNES, DoEE also has a suite of Policy Statements and related guidance under the EPBC Act.

Of specific relevance to this proposal, particular consideration is given to the following:

- Matters of National Environmental Significance – Significant Impact Guidelines 1.1 published by the DoEE (DoE 2013a). These have been used to inform the definition of acceptability of impacts, and are described in further detail in Section 8, and carried into the subsequent evaluation of impacts and risks in Section 9; and
- EPBC Act Policy Statement 'Indirect consequences' of an action: Section 527E of the EPBC Act (Department of Sustainability, Environment, Water, Population and Communities ((DSEWPaC) 2013a). This has been consideration in the specific context of indirect consequences of a proposal with regard to GHG emissions, and is addressed by the inclusion of Section 9.12 of this EP.

3.1.2.1 Australian Marine Park Management Plans

The EPBC Act provides for the declaration of Australian Marine Parks (AMPs) based on the International Union for the Conservation of Nature (IUCN) principles and guidelines for categorising protected areas. Australia has established a network of AMPs throughout Commonwealth waters, which are managed under a series of region-based management plans. These plans detail the management objectives of the AMPs, the environmental values within each of the AMPs and the activities that area permissible within the zones of the AMPs. AMPs are part of the Commonwealth Marine Area, which is an MNES.

Marine parks and reserves have been progressively established in Western Australia since 1987. These marine parks and reserves help to conserve marine biodiversity and are managed by the Parks and Wildlife Service division of the Department of Biodiversity, Conservation and Attractions. There are 13 Australian Marine Parks off the north-west coast of Western Australia that make up the North-west Network. Covering 335,341 square kilometres, marine parks in the north-west include coral reefs, soft sediments, canyons, and limestone pavements. Recent additions to the Western Australian Marine Park network include the Mayala Marine Park Joint Management Plan, the Lalang-gaddam Marine Park Joint Management Plan, and the Bardi Jawi Gaarra Marine Park Joint Management Plan.

These AMPs are described in Section 7.3.6 and managed under the Australian Marine Parks – North Marine Parks Network Management Plan 2018 (Director of National Parks 2018a) and Australian Marine Parks – North-west Marine Parks Network Management Plan 2018 (Director of National Parks 2018b). The values of the Marine Parks Networks are broadly defined as:

- Natural values—habitats, species and ecological communities within marine parks, and the processes that support their connectivity, productivity, and function.
- Cultural values—living and cultural heritage recognising Indigenous beliefs, practices and obligations for country, places of cultural significance and cultural heritage sites.
- Heritage values—non-Indigenous heritage that has aesthetic, historic, scientific, or social significance.
- Socio-economic values—the benefit of marine parks for people, businesses, and the economy.

The planned petroleum activities considered within this EP will not credibly impact upon any AMPs or adversely impact their values. However, an unplanned hydrocarbon spill from a worst-case loss of well containment was identified as potentially impacting upon several AMPs.

The requirements of the management plans for AMPs are considered as part of Shell's determination of the acceptability of environmental impacts and risks. Refer to Section 8 to Section 9 for further information.

3.1.2.2 Recovery Plans and Conservation Advice

Species and communities listed as threatened under the EPBC Act are MNES and receive protection under Commonwealth law. The Threatened Species Scientific Committee may publish conservation advice for a threatened species, which provides information on threats and conservation management. Recovery plans relating to threatened species may also be published by the Commonwealth Department of Climate Change, Energy, Environment and Water (DCCEEW). Recovery plans are intended to provide a framework to prevent further decline, and facilitate the recovery, of threatened species. Recovery plans may contain actions that warrant consideration during the assessment of environmental impacts and risks. Recovery plans may also identify habitat critical for the survival of a species; such habitat is protected under the EPBC Act.

Shell has identified a number of threatened species that may credibly be impacted, or are at risk of being impacted, by the petroleum activities considered in this EP. Details on these species, along with relevant information from recovery plans and conservation advice, are provided in Section 7.3.5.

3.1.3 Other Legislation

Legislation applicable to the environmental management of the petroleum activities considered in this EP, along with a justification as to why they are relevant, are provided in Table 3-3.

Table 3-3: Summary of Relevant Legislation

Legislation	Summary	Relevance to the Project
Aboriginal and Torres Strait Islander Heritage Protection Act 1984	Protects areas and objects that are of particular significance to Aboriginal and/or Torres Strait Islander People	The EP will take into consideration any heritage values (see Section 7.4 for details).
Aboriginal Cultural Heritage Act 2021 (WA)	This Act provides for the recognition, protection, conservation and preservation of Aboriginal cultural heritage in Western Australia.	The EP will take into consideration any heritage values (see Section7.4 for details).
Aboriginal Sacred Sites Act 1989 (NT)	This Act is the legislation that responds to requests to protect sites, maintains registers of sites and includes the requests and requirements for consultation with Aboriginal custodians to determine the constraints on any works or proposed impacts to sites.	The EP will take into consideration any heritage values (see Section 7.4.2 for details).
Australian Heritage Council Act 2003	This Act identifies areas of heritage value, including those listed on the World Heritage List, National Heritage List and the Commonwealth Heritage List (all of which are MNES under the EPBC Act).	The EP will take into consideration any heritage values (see Section 7.4 for details).

Legislation	Summary	Relevance to the Project
Australian Maritime Safety Authority Act 1990	Provides that a function of the Australian Maritime Safety Authority (AMSA) is to combat pollution in the marine environment. AMSA is the control agency for vessel-based non-petroleum activity spills in commonwealth waters.	Vessel emergencies, including oil spills in Commonwealth waters.
Australian Ballast Water Management Requirements (Commonwealth of Australia, 2020), Version 8	The Australian Ballast Water Management Requirements (Version 8) set out the obligations on vessel operators with regards to the management of ballast water and ballast tank sediment when operating within Australian seas.	Applies to all internationally sources vessels operating in Australian Waters which could have the potential for the introduction of IMS and potential ballast water exchange.
Biodiversity Conservation Act 2016 (WA) *Biodiversity Conservation Regulations 2018*	Requires Western Australian (WA) conservation management agencies to take a lead role in oiled wildlife response in Western Australia. The Department of Biodiversity Conservation and Attractions (DBCA) has the responsibility and statutory authority to treat, protect and destroy wildlife.	Oiled wildlife response will comply with this Act.
Biosecurity Act 2015, Biosecurity Amendment (Biofouling Management) Regulations 2021 / Australian Biofouling Management Requirements (Version 1, 2022)	The Act and its supporting legislation are the primary legislative means for managing risk of pests and diseases entering Australian territory. The Act includes requirements for pre-arrival reporting, ballast water management plans and certificates.	The EP will comply with biosecurity requirements, specifically in relation to biofouling and ballast water requirements.
Emergency Management Act 2005 (WA)	Requires the WA Department of Transport (DoT) (Hazard Management Agency) shall be the Control Agency for spills within or entering WA state waters. It is the legislative basis for the WA WestPlan – MOP.	Emergencies including oil spills which enter state waters.
Environment Protection & Biodiversity Conservation Act 1999 (EPBC Act) *Environment Protection and Biodiversity Conservation Regulations 2000*	Commonwealth Department of Climate Change, Energy, Environment and Water administers the Act, which provides the protection and management of nationally and internationally important flora, fauna, ecological communities, and heritage places—defined in the EPBC Act as matters of national environmental significance (NES). These include nationally threatened species and ecological communities, migratory species, and Commonwealth marine areas. The Act regulates assessment and approval of proposed actions likely to have a significant impact on a matter of NES. The approval decision is made by a delegate of the Australian Government Environment Minister.	This Act applies to all aspects of the activity that have the potential to impact MNES. NOPSEMA manages compliance with the relevant regulations and plans under the Act for this EP.

Legislation	Summary	Relevance to the Project
	Regulations provide for a wide range of detail essential for the operation of the Act, including regulations relating to management of Commonwealth reserves, information requirements for assessment processes, enforcement, granting of various permits, publication requirements and criteria that need to be met in relation to a wide variety of decision-making processes provided for under the Act.	Where activities have existing approvals under the Act, these will continue to apply. See Section 3.1.2
Environment Protection (Sea Dumping) Act 1981 *Environment Protection (Sea Dumping) Regulations 1983*	This Act protects is intended to prevent pollution of the sea by prohibiting the discharge of potentially harmful materials to the sea.	Chemical inventories used during the drilling campaign may potentially breach this convention if unpermitted via this EP and deliberately discharged to the sea.
Hazardous Waste (Regulation of Exports and Imports) Act 1989	This Act regulates the export, import and transport of hazardous waste to ensure that hazardous waste is managed appropriately so that human health and the environment are protected from the harmful effects of the waste.	The project will comply with the export, import and transport requirements for hazardous waste.
Heritage Act 2011 (NT)	This Act covers the management and protection of Aboriginal and Macassan heritage places and defines requirements to conserve that heritage through regulating work on heritage places, providing for heritage agreements that enable conversation and forming the Heritage Council.	The EP will take into consideration any heritage values (see Section 7.4 for details).
National Environment Protection (National Pollutant Inventory) Measure 1998 (established under the *National Environment Protection Council Act 1994*)	This measure provides the framework for the development and establishment of the National Pollutant Inventory (NPI), which provides publicly available information on the types and amounts of 93 toxic substances being emitted into the Australian environment. These substances have been identified as important due to their possible effect on human health and the environment.	The project will comply with the NPI National Environment Protection Measures (NEPM) through the reporting of relevant NPI substances.
National Environment Protection Council Act 1994	This Act establishes the National Environment Protection Council (NEPC). The primary functions of the NEPC are to define National Environment Protection Measures (NEPMs) to ensure that Australians have equivalent protection from air, water, soil and noise pollution, and assess and report the implementation and effectiveness of NEPMs.	The project will comply with the requirements of the relevant NEPMs.

Legislation	Summary	Relevance to the Project
National Greenhouse and Energy Reporting Act 2007 *National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015*	The Act provides a single, national framework for the reporting and distribution of information related to greenhouse gas (GHG) emissions, GHG projects, energy production and energy consumption. Reporting obligations are imposed upon corporations that meet emissions/energy thresholds. The Act includes National Greenhouse and Energy Reporting (NGER) requirements and the Safeguard Mechanism requirements.	Shell reports as a corporate group under the Act which includes emissions from activities under its operational control. Where operational control is determined to sit with Shells contractors, it is the contractor's responsibility to adhere to the Act.
Navigation Act 2012 *Navigation Regulations 2013* Marine Order 21 (Safety and emergency arrangements) 2016 Marine Order 27 (Safety of navigation and radio equipment) 2016 Marine Order 28 (Operations standards and procedures) 2015 Marine Order 30 (Prevention of collisions) 2016 Marine order 60 (Floating offshore facilities) 2001 Marine Order 71 (Masters and deck officers) 2014	This Act relates to maritime safety and the prevention of pollution of the marine environment in Australian waters. It gives effect to several international conventions relating to maritime issues to which Australia is a signatory. The Act also has subordinate legislation contained in Regulations and Marine Orders.	The project, including vessels, will adhere to the Act and subsidiary legislation enabled by the Act, such as Marine Orders relating to the international conventions listed in Section 3.3.
Offshore Petroleum and Greenhouse Gas Storage Act 2006 *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009*	Legislation concerning Australian offshore petroleum exploration & production in Commonwealth Waters. National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) is an independent safety and environmental management Authority funded by levies on industry participants and regulates matters with powers conferred directly from OPGGS Act and via Regulations concerned with: ☐ occupational health & safety law at facilities and offshore operations under Schedule 3 ☐ environmental management ☐ structural integrity of Wells under Resource management regulations. NOPSEMA may also declare a 500-metre petroleum safety zone around wells associated with drilling operations. Regulations administered by NOPSEMA to ensure offshore petroleum activity is carried out in a manner	This Act applies to all aspects of the proposed petroleum activity. NOPSEMA manages compliance with the relevant regulations and plans under the Act for this EP. See Section 3.1.2

Legislation	Summary	Relevance to the Project
	consistent with the principles of ecologically sustainable development and in accordance with an accepted environment plan, in particular: ☐ assessment of EPs, including associated OPEPs (previously oil spill contingency plans) ☐ investigation of accidents, occurrences, and circumstances with regard to deficiencies in environmental management.	
Offshore Petroleum and Greenhouse Gas Storage (Regulatory Levies) Regulations 2004	Regulations prescribing the amount and method of calculation for imposition of levies relating to the regulation of offshore petroleum activity, including well levies and environment plan levy.	A levy will be applied to the petroleum activity under this EP.
Ozone Protection and Synthetic Greenhouse Gas Management Act 1989 and Regulations 1995	The Act protects the environment by reducing emissions of ozone depleting substances (ODSs) and synthetic greenhouse gases (SGGs). It controls the manufacture, import and export of ODSs and SGGs and products containing these gases.	The project will adhere to restrictions on import and use of ODSs/SGGs through implementing appropriate measures that control procuring of products which contain these gases.
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) 2014 Marine Order 93 (Marine pollution prevention — noxious liquid substances) 2014 Marine Order 94 (Marine pollution prevention — packaged harmful substances) 2014 Marine Order 95 (Marine pollution prevention — garbage) 2018 Marine Order 96 (Marine pollution prevention — sewage) 2018	The Act regulates discharges from ships to protect the sea from pollution. This includes regulation of discharges of oil or oily mixtures, noxious liquid substances, packaged harmful substances, sewage and garbage to the sea. The Act imposes a duty to report certain incidents involving prohibited discharges and to maintain record books and management plans. The Act and subsidiary Marine Orders enact the International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 (MARPOL).	The Mobile Offshore Drilling Unit (MODU) and vessels within the Operational Area are subject to this Act and will adhere to the requirements for discharges and waste management outlined in the relevant MARPOL and Marine Orders (as appropriate to vessel class).

Legislation	Summary	Relevance to the Project
Marine Order 97 (Marine pollution prevention — air pollution) 2013		
Underwater Cultural Heritage Act 2018	An Act to protect Australia's underwater cultural heritage. The Act came into effect on 1 July 2019, replacing the Historic Shipwrecks Act 1976. This act protects Australia's shipwrecks and broadens protection to sunken aircraft and other types of underwater cultural heritage.	Planned petroleum activities will not interfere with any underwater cultural heritage sites (see Section 7.4.3.2 for details).

3.2 Standards and Guidelines

3.2.1 Industry Good Practice Standards

In Australia, the petroleum exploration and production industry operate within an industry code of environmental practice developed by the Australian Petroleum Production and Exploration Association (APPEA) (APPEA 2008). This code provides guidelines for activities and has evolved from the collective knowledge and experience of the oil and gas industry both nationally and internationally. The code provides the Australian petroleum industry with guidance on management measures to protect the environment during exploration, production, and decommissioning phases. Shell is a signatory to the APPEA guidelines and will align with their intent in the implementation of this EP.

The following Australian guidelines are also applicable to the project:

- GN1344 Environment Plan Content Requirements Guidance Note (NOPSEMA 2020)
- GN1785 Petroleum activities and Australia marine parks (NOPSEMA 2018a)
- GN1488 Oil Pollution Risk Management (NOPSEMA 2018b)
- IP1349 Operational and Scientific Monitoring Programs (NOPSEMA 2016)
- IP1765 Acoustic impact evaluation and management (NOPSEMA 2018c)
- Australian Ballast Water Management Requirements (Department of Agriculture and Water Resources 2017)
- National Biofouling Management Guidance for the Petroleum Production and Exploration Industry 2009 (Department of Agriculture, Fisheries and Forestry 2009)
- Technical Guideline for the Preparation of Marine Pollution Contingency Plans for Marine and Coastal Facilities (AMSA 2015a)
- Advisory Note for Offshore Petroleum Industry Consultation with Respect of Oil Spill Contingency Plans (AMSA 2017), and the corresponding Marine Oil Pollution: Response and Consultation Arrangements (Department of Transport 2020).

The following international guidelines are also applicable to the project:

- Improving Social and Environmental Performance: Good Practice Guidance for the Oil and Gas Industry (International Petroleum Industry Environmental Conservation Association (IPIECA) 2017)

- Environmental Management in Oil and Gas Production (United Nations Environment Programme and Oil Industry International Exploration and Production Forum 1997).

3.2.2 International Standards and Guidelines

Shell refers to World Bank (WB)/International Finance Corporation (IFC) guidelines as the basis for many of its operation guidelines, as aligned with the Shell HSSE & SP Control Framework. The WB/IFC guidelines are the minimum environmental, social and health standards for WB funded projects, unless the standards of the host country are more stringent.

The WB/IFC guidelines of primary relevance to the project include:

- IFC Performance Standards on Environmental and Social Sustainability (IFC 2012)
- General Environmental, Health, and Safety (EHS) Guidelines (IFC 2007)
- EHS Guidelines for Offshore Oil and Gas Development (IFC 2015).

3.2.3 Shell Health, Security, Safety, Environment and Social Performance Management Framework

Shell maintains and implements a Health, Security, Safety, Environment and Social Performance Management Framework, which contains a range of standards and guidelines. It is the means by which Shell ensures that the industry good practice standards and international standards and guidelines detailed in Sections 3.2.1 and 3.2.2 are implemented. It forms the basis of the implementation strategy of this EP. Refer to Section 4 for further information.

3.3 International Agreements and Conventions

Australia is signatory to several international conventions and agreements that are relevant to the environmental management of the petroleum activities considered in this EP. These are typically implemented by Commonwealth legislation, much of which is detailed above in Section 3. Relevant international agreements and conventions, along with a justification of their relevance to the petroleum activities considered in this EP, are provided in Table 3-4.

Table 3-4: Summary of relevant international agreements and conventions

Agreement / Convention	Summary	Relevance to the Project
Convention on the Conservation of Migratory Species of Wild Animals 1979 (the Bonn Convention)	This convention aims to conserve migratory fauna species throughout their ranges, particularly where their range crosses international jurisdictional boundaries. It is implemented in Commonwealth law by the EPBC Act, which makes provision for species listed under the Bonn Convention to be listed as migratory under the EPBC Act. Species listed as migratory under the EPBC Act are MNES.	Several species listed as migratory under the EPBC Act were identified as potentially being impacted by the petroleum activities considered in this EP. Refer to Section 7.3.5.
The East Asian–Australasian Flyway Partnership 2006 (EAAFP)	Adopted in the list of the World Summit on Sustainable Development as a Type II initiative which is informal and voluntary, the Partnership was launched on 6 November 2006 and aims to protect migratory waterbirds, their habitat, and the livelihoods of people dependent upon them. There are currently 37 Partners including 18 countries, 6 intergovernmental agencies, 12 international non-	Several migratory birds' species that use the EAAF were identified as potentially being impacted by the petroleum activities considered in this EP. Refer to Section 7.3.5.

Agreement / Convention	Summary	Relevance to the Project
	governmental organisations (NGOs) and 1 international private enterprise.	
The Agreement on the Conservation of Albatrosses and Petrels (ACAP)	ACAP through its 13 Parties strives to conserve albatrosses and petrels by coordinating international activities to mitigate threats to their populations.	Several albatross and petrel species were identified as potentially being impacted by the petroleum activities considered in this EP. Refer to Section 7.3.5.
Agreement between the Government of Australia and the Government of Japan for the Protection of Migratory Birds in Danger of Extinction and their Environment 1974 (JAMBA)	This agreement aims to conserve migratory bird species that travel between Japan and Australia. This includes many species of shorebirds that use the EAAF. It is implemented in Commonwealth law by the EPBC Act, which makes provision for species listed under JAMBA to be listed as migratory under the EPBC Act. Species listed as migratory under the EPBC Act are MNES.	Several birds listed as migratory under the EPBC Act were identified as potentially being impacted by the petroleum activities considered in this EP. Refer to Section 7.3.5.
Agreement between the Government of Australia and the Government of the People's Republic of China for the Protection of Migratory Birds and their Environment 1986 (CAMBA)	This agreement aims to conserve migratory bird species that travel between China and Australia. This includes many species of shorebirds that use the EAAF. It is implemented in Commonwealth law by the EPBC Act, which makes provision for species listed under CAMBA to be listed as migratory under the EPBC Act. Species listed as migratory under the EPBC Act are MNES.	Several birds listed as migratory under the EPBC Act were identified as potentially being impacted by the petroleum activities considered in this EP. Refer to Section 7.3.5.
Agreement between the Government of Australia and the Government of the Republic for Korea for the Protection of Migratory Birds and their Environment 2007 (ROKAMBA)	This agreement aims to conserve migratory bird species that travel between the Republic of Korea and Australia. This includes many species of shorebirds that use the EAAF. It is implemented in Commonwealth law by the EPBC Act, which makes provision for species listed under ROKAMBA to be listed as migratory under the EPBC Act. Species listed as migratory under the EPBC Act are MNES.	Several birds listed as migratory under the EPBC Act were identified as potentially being impacted by the petroleum activities considered in this EP. Refer to Section 7.3.5.
International Convention on Wetlands of International Importance 1975 (Ramsar)	This convention aims to conserve and promote the sustainable human use of wetlands. Many wetlands have been identified as important habitat for migratory bird species, and Ramsar wetlands are of importance in conserving many species of migratory shorebirds and waders. Ramsar wetlands are protected under the EPBC Act and are MNES.	The Ashmore Reef Ramsar wetland was identified as potentially being impacted in the event of an unplanned release of large volumes of hydrocarbons (e.g. loss of well control). Refer to Section 7.3.4.
Memorandum of Understanding between the	This memorandum recognises the long history of traditional Indonesian fishermen exploiting biological	The Crux project is situated adjacent to the MoU box. Refer to Section 7.4.4.

Agreement / Convention	Summary	Relevance to the Project
Government of Australia and the Government of the Republic of Indonesia Regarding the Operations of Indonesian Traditional Fishermen in Areas of the Australian Exclusive Fishing Zone and Continental Shelf 1974	resources within Timor Sea waters within Australia's exclusive economic zone. The memorandum provides for an area (commonly referred to at the Memorandum of Understanding (MoU) box) within which traditional Indonesian fishing is permitted. The area includes several offshore reefs, including Ashmore Reef, Cartier Island, Scott Reef and Seringapatam Reef.	
London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 (London Convention)	This convention is an agreement to control pollution of the sea by intentional disposal at sea of potentially harmful materials. It is implemented under Commonwealth law by the *Environment Protection (Sea Dumping) Act 1981*.	Chemical inventories onboard vessels and MODUs may potentially breach this convention if unpermitted via this EP and deliberately discharged to the sea.
Minamata Convention on Mercury 2017	The Minamata Convention on Mercury requires parties to address adverse effects of mercury to protect human health and the environment. Australia is a signatory to, and ratified in 2021, the Convention. No specific federal legislation has been introduced to give effect to the Minamata Convention, with effect given by existing Commonwealth, State, and Territory legislation.	Mercury may pose a risk to the environment if not managed appropriately. There are no planned operations that will produce any formation fluids to the MODU during the drilling operations, therefore no Mercury from formation fluids is anticipated to be produced during the drilling phase, and as such no mercury is to be brought to surface or discharged overboard during the drilling operations. Section 9.10 considers the impacts and risks of mercury to the environment and how Shell manages these risks. This is with particular regard to trace mercury in bulk powders (cement, bentonite and barite) used in drilling operations.
International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 (MARPOL)	This convention is an agreement to minimise the pollution of the marine environment by ships. The convention provides a standardised approach to the environmental management of international and domestic shipping. The convention is implemented in Commonwealth law by the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* and a series of Marine Orders made under this Act.	All marine support vessels are required to comply with MARPOL.

Agreement / Convention	Summary	Relevance to the Project
International Convention on Standards of Training, Certification and Watch keeping for Seafarers 1978 (STCW)	This convention provides a standardised approach to the qualifications and competencies of masters, officers and watch personnel. It is implemented in Commonwealth law by the *Navigation Act 2012* and a series of Marine Orders made under this Act.	All project vessels and crew are required to comply with STCW.
International Convention for the Safety of Life at Sea 1974 (SOLAS)	This convention provides internationally agreed minimum standards for the construction, equipment, and operation of vessels. It is implemented in Commonwealth law by the *Navigation Act 2012* and a series of Marine Orders made under this Act.	All project vessels are required to comply with SOLAS.
International Regulations for Preventing Collisions at Sea 1972 (COLREGS)	These regulations provide internationally agreed rules for the navigation of vessels, which are intended to reduce the likelihood of vessel collisions. COLREGS are implemented in Commonwealth law by the *Navigation Act 2012* and a series of Marine Orders made under this Act.	All project vessels are required to comply with COLREGS.
Paris Agreement on Climate Change (2015)	The Paris Agreement is an instrument made under the UNFCCC, with the central aim of strengthening the global response to the threat of climate change by keeping the global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius in order to prevent dangerous human caused interference with the climate system. It deals with GHG emissions mitigation, adaptation, and finance. The agreement's language was negotiated by representatives of 196 state parties, including Australia, and adopted by consensus on 12 December 2015, before entering in to force in late 2016. Australia has since ratified the Paris Agreement. The Paris Agreement requires each party to: • volunteer its own Nationally Determined Contributions (NDCs), to report against them annually, and improve them if it is determined that the collective commitment to NDCs is considered ineffective or insufficient to keep global temperature increases to less than 2°C below pre-industrial levels. This allows for variation in	The Paris Agreement provides the international framework and context around Australia's NDC, which is important to establishing the defined acceptable level of GHG emissions from the Crux project.

Agreement / Convention	Summary	Relevance to the Project
	emissions reduction performance according to the development status of the country; and • determine, plan, and regularly report on the contribution that it undertakes to mitigate global warming. No mechanism forces a country to set a specific emissions target by a specific date, but each target should go beyond previously set targets. The Intergovernmental Panel on Climate Change (IPCC) released a report in October 2018 on the 1.5 degrees Celsius target; it concluded that global emissions need to reach net zero around mid-century to give a reasonable chance of limiting warming to 1.5 degrees Celsius.	

4 Shell Environmental Management Framework

4.1 Shell Health, Security, Safety, Environment and Social Performance Management Framework

Shell, as a subsidiary of Shell plc, is a member of the Shell group of companies (and in this EP, where there is reference to Shell's activities globally, the term "Shell Group" is used).

The Shell Group operates under a common set of business principles, supported by policies, standards and business controls which are implemented throughout the organisation structure. In support of the business principles, there is a Shell Group HSSE and SP Policy which requires every Shell Company to manage HSSE and SP in a systematic manner.

The Shell Group HSSE and SP Control Framework is a corporate management framework which applies to every Shell Group company, contractor, and joint venture under Shell's operational control.

4.2 HSSE & SP Policy

The Shell Commitment and Policy on HSSE & SP applies across the Shell Group and is designed to protect people and the environment. The policy, endorsed and adopted by Shell, is presented in Figure 4-1. The policy illustrates the commitment made by the senior management and all staff of Shell to achieve not only compliance with environmental standards set by the Australian Government and the Company, but also to seek continual improvements in performance.

Key features of the policy are:

- systematic approach to HSSE and SP management designed to ensure compliance with the law and to achieve continuous performance improvement.
- targets for improvement and measurement, appraisal, and performance reporting.
- requirement for contractors to manage HSSE and SP in line with this policy; and
- effective engagement with neighbours and impacted communities.

Shell Commitment and Policy on Health, Security, Safety, the Environment, and Social Performance

Commitment

In Shell we are all committed to:

- Pursue the goal of no harm to people;
- Respect nature by protecting the environment, reducing waste, making a positive contribution to biodiversity, and reducing Greenhouse Gases;
- Use material and energy efficiently to provide our products and services;
- Respect our neighbours and contribute to the societies in which we operate;
- Develop energy resources, products and services consistent with these aims;
- Operate assets safely, efficiently and responsibly;
- Publicly report on our performance;
- Play a leading role in promoting best practice in our industries;
- Manage HSSE & SP matters as any other critical business activity; and
- Create a working environment which is psychologically safe and enables learning in support of this commitment.

In this way we aim to achieve a performance we can be proud of, to earn the confidence of customers, shareholders and society at large, to be a good neighbour and to contribute to sustainable development.

Policy

Every Shell Company:

- Has a systematic approach designed to ensure compliance with the law and achieve continuous performance improvement;
- Sets targets for improvement and measures, appraises and reports performance;
- Requires Contractors to manage HSSE & SP in line with this policy;
- Requires joint ventures under its operational control to apply this policy, and uses its influence to promote it in its other ventures;
- Engages effectively with neighbours and impacted communities; and
- Includes HSSE & SP performance in the appraisal of staff and rewards accordingly.

Originally published in March 1997 and updated January 2023.

Wael Sawan
Chief Executive Officer - Shell

Cecile Wake
SVP / Country Chair - Shell Australia

Figure 4-1: Shell Australia's HSSE & SP Policy

4.3 HSSE & SP Control Framework

All Shell's operations are conducted in accordance with Shell's HSSE & SP Control Framework, a comprehensive corporate management framework. This Framework defines a set of mandatory requirements that define minimum HSSE & SP principles and expectations, which are documented in a set of manuals. Figure 4-2 outlines the various control framework manuals applicable to Crux development drilling program.

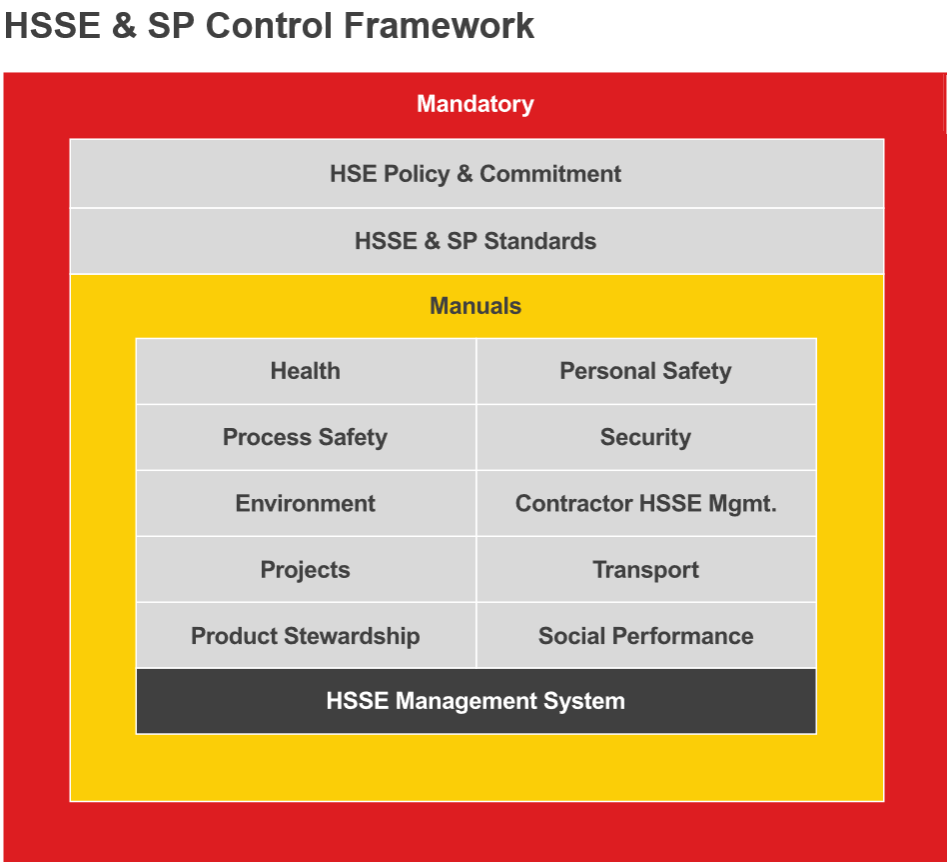

Figure 4-2: Shell HSSE & SP Control Framework

4.4 HSSE & SP Management System (MS)

The Shell HSSE & SP-MS provides a structured and documented system for the effective management of impacts and risks and demonstrates how the requirements of the Shell Group HSSE & SP Control Framework are implemented throughout Shell. The Shell HSSE & SP-MS Manual consists of the following elements:

- Leadership and Commitment
- Policy and Objectives
- Organisation, Responsibility and Resources, Standard and Documents
- Risk Management
- Planning and Procedures
- Implementation, Monitoring and Reporting
- Assurance

- Management Review.

The HSSE & SP-MS is subject to a continuous improvement 'plan, do, check, review' loop, with the eight elements as listed above. There are numerous, specific ongoing (typically annual) assurance activities against each of the eight elements in the HSSE & SP-MS Manuals, to ensure that the system is being implemented, is effective and to identify areas for improvement.

Environmental management for Crux is through the implementation of the Shell HSSE & SP-MS, supplemented by project specific HSSE systems/procedures as set out in this EP.

Shell implements specific pre- and post-contract award processes and activities aimed at ensuring that contracts consistently and effectively cover the management of HSSE & SP risks and deliver effective management of HSSE & SP risks for contracted activities. Contractor HSSE & SP Management is governed by the Shell HSSE & SP Control Framework.

As a minimum, all relevant field active contractors' HSSE & SP-MS will be assessed to ensure they meet materially equivalent outcomes to Shell's HSSE & SP-MS.

5 Relevant Persons Consultation

5.1 Background

Pursuant to the OPGGS(E) Regulations a titleholder must carry out consultation in the course of preparing an Environment Plan (EP).

In carrying out the duty to consult with relevant persons the titleholder must:

i. 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.

ii. allow a relevant person a reasonable period for the consultation; and

iii. inform the relevant person that they may request information not be published.

Effective consultation enables relevant authorities, persons, and organisations whose functions, interests or activities may be affected by the proposed activity to put forward their views and to contribute to a titleholder's understanding of the environment that may be affected by the proposed activity and any associated impacts and risks. Effective consultation enables a titleholder to adopt appropriate measures in response to any concerns conveyed by the relevant person.

As the source of backfill to Prelude FLNG, proactive engagement has been ongoing for the Crux project since the Prelude gas field was first discovered in early 2007. A range of relevant persons have been consulted throughout this time, including the State and Federal Government, commercial fishing associations, industry bodies, non-government organisations and local relevant persons in Broome and the Dampier Peninsula as well as Indigenous peoples, including Yawuru, Bardi Jawi and Larrakia people.

As part of the ongoing stakeholder engagement Shell undertakes, specific consultation for the Crux project commenced in relation to the drilling of the first appraisal wells in 2007. Consultation carried out includes:

- August 2020: public invited to comment on the Crux Offshore Project Proposal accepted and published by NOPSEMA.
- July 2021: consultation undertaken for the FDP, Production and Pipeline Licences submitted to NOPTA.
- February 2022: consultation commenced for the Crux Development Drilling EP.

Figure 5-1 provides a timeline for the consultation completed during the course of preparing the Crux Development Drilling EP. This timeline is provided by way of illustration only and does not capture all of Shell's consultation activities (which are discussed in detail below).

ID	Activity	Start date	End date
1	**Advertising / Public Notices**		
1.1	Print advertising campaign – calling out for self-identification of RPs	13-Mar-23	31-Mar-23
1.2	Radio advertising campaign - calling out for self-identification of RPs	3-Apr-23	28-Apr-23
1.3	Social media campaign– calling out for self-identification of RPs	12-Mar-23	7-Apr-23
1.4	Drop-in session promotion print publication		
1.41	Derby (advertised on social media)	24-Mar-23	
1.42	Broome	20-Apr-23	
1.43	Port Hedland	26-Apr-23	
1.44	Exmouth	3-May-23	
1.45	Darwin	10-May-23	
2	**Website**		
2.1	Website optimisations	14-Mar-23	
2.2	Draft Crux Drilling Template Installation Environment Plan published	28-Apr-23	
2.3	Draft Crux Seabed Survey Environment Plan published	28-Apr-23	
2.4	Draft Crux Development Drilling Environment Plan published	3-May-23	
3	**Consultation Material**		
3.1	Consultation material mail out - sufficient information	27-Mar-23	28-Apr-23
3.2	Follow up emails. Phone calls, texts or other channels	28-Apr-23	27-Oct-23
4	**Drop-in sessions**		
4.01	Derby	4-Apr-23	
4.02	Broome	27-Apr-23	
4.03	Port Hedland	3-May-23	
4.04	Exmouth	10-May-23	
4.05	Darwin	17-May-23	
5	**Community Information Sessions**		
5.01	Broome	27-Apr-23	
5.02	Darwin	17-May-23	
5	**Indigenous Forums**		
5.01	Perth	19-Apr-23	
5.02	Broome	10-May-23	
5.03	Darwin	31-May-23	
5.04	Specific, targeted consultation sessions with NTRB, RNTBCs, PBCs or Aboriginal Corporations	18-May-23	17-Oct-23
6	**Industry Forums**		
6.01	Perth	27-Apr-23	

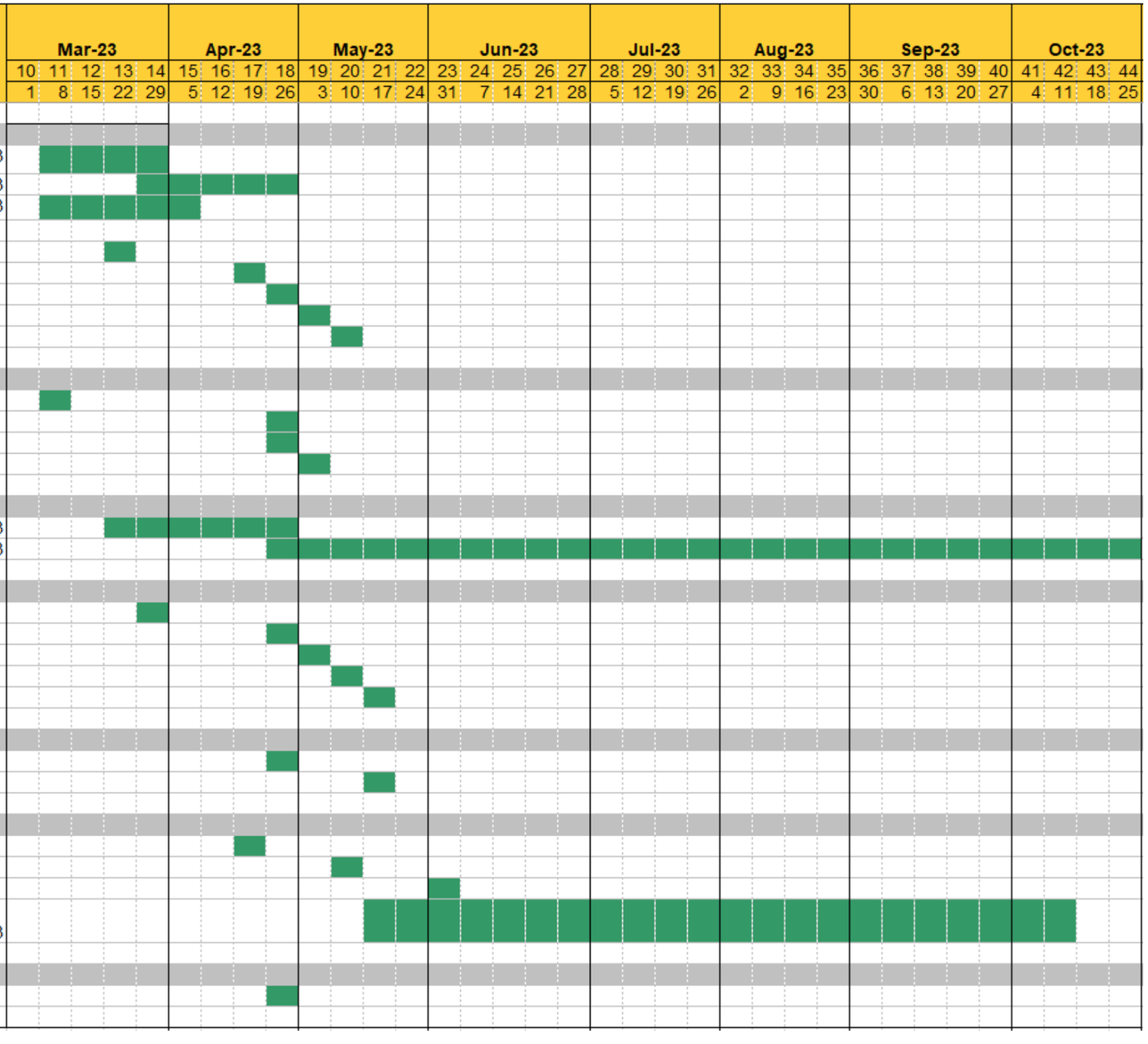

Figure 5-1: Crux Project consultation timeline

In compliance with Regulation 3 of the OPGGS(E) Regulations, Shell ensures the environmental impacts and risks of the activity are reduced to As Low As Reasonably Practicable (ALARP) and to an acceptable level.

The consultation process enables the titleholder to ascertain, understand, and address all the environmental impacts and risks that might arise from its proposed activity, including information that the titleholder would otherwise not be aware of. The consultation process informs the titleholder's understanding of the environment, including (amongst other things) people and communities, the heritage value of places, and their social and cultural features which may be affected by a titleholder's proposed activities.

Shell recognises the need to consult on both planned and unplanned activities. The Environment that May Be Affected (EMBA), which in this EP is defined as the 'Planning Area', has been determined based on the unlikely event of a hydrocarbon release from Shell's activities described in this EP. The Planning Area is further described and depicted in Section 7. The Planning Area is used as an initial input to develop a broad list of persons and organisations that may have functions, interests or activities in the geographical area that may be affected by Shell's activities. Each person or organisation's functions, interests or activities are then further assessed in the context of the effect that Shell's activities may have on their functions, interests or activities, to determine whether the person or organisation is a relevant person for the purposes of consultation.

The scope and duration of Shell's operations in Commonwealth and State waters in Australia, along with a track record of consistent engagement with a diverse group of individuals and organisations, has allowed Shell to compile a comprehensive list of contacts for this consultation process. This list was not intended to be an exhaustive list of those to be consulted, but rather served as a starting point to identify relevant persons for consultation on Shell's proposed activities. The list has been developed through years of experience and contains valuable insights on the specific information that different individuals and organisations want to receive during consultation. Additionally, it includes the most appropriate means of communication and up-to-date contact information, which Shell regularly reviews and updates.

For all relevant persons, Shell consults on the basis of informed consultation, participation and co-design:

- Relevant persons are free to raise issues without being under pressure (e.g., unreasonable timeframes due to approval timeline) or duress.
- Consultation ensures that all relevant persons are aware of the consultation period and have had the opportunity to be consulted.
- Sufficient and appropriate information is provided to enable persons to identify whether they are relevant or have a connection to the EP.
- Shell will advise each relevant person that they may request information provided during consultation not be published, reflecting the legal requirements in regulation 11A(4).

Shell recognises the *Consultation in the course of preparing an environment plan* guidance released by NOPSEMA in May 2023 and the recent judicial guidance in *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 (Tipakalippa Decision), on the purpose of consultation as follows:

- At paragraph 54 of the Tipakalippa Decision: *… the information that the titleholder is obliged to provide NOPSEMA is also designed to 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 Tipakalippa Decision: *…its purpose [regulation 11A] 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.*

Consultation supports this outcome by providing the titleholder an opportunity to receive information from relevant persons that may be affected by its proposed activity. Consultation enables the titleholder to gain a better understanding of how relevant persons with an objective stake in the Planning Area perceive those environmental impacts and risks. Consultation enables the titleholder to refine or modify the measures it proposes to address those impacts and risks by taking into account the information gained through the consultations. This is likely to improve the minimisation of environmental impacts and risks from the activity.

The consultation process also assists the titleholder to meet its obligation under section 280 or section 460 of the OPGGS Act which requires that it must carry out the petroleum or greenhouse gas activity respectively in a manner that does not interfere with navigation, fishing, conservation of resources of the sea and seabed, other offshore electricity infrastructure and petroleum activities, and the enjoyment of native title rights and interests (within the meaning of the *Native Title Act 1993* (Cth) (NTA)) to a greater extent than is necessary for the reasonable exercise of the titleholder's rights and obligations.

Shell recognises that whilst it is required to consult with each relevant person pursuant to the OPGGS(E) Regulations, participating in consultation is not obligatory for relevant persons and the OPGGS(E) Regulations do not impose any obligation to seek or reach an agreement on the subject for consultation. Shell understands there may be individuals within a community (who hold communal interests) who are unable to participate for various reasons and the absence of their participation does not invalidate the consultation process, provided that reasonable efforts were made to identify the relevant persons and to consult with them.

An overview of Shell's consultation methodology for EPs is set out below, including how sub-regulation 11A(1) of the OPGGS(E) Regulations has been applied to identify relevant persons, the application of the consultation methodology and assessment of relevant persons for this EP, as well as the consultation information provided to relevant persons, feedback provided and Shell's assessment of the merit of objections or claims. This section also includes engagement with persons or organisations that Shell contacted directly on an individual basis.

The consultation methodology set out in this EP demonstrates that consultation has occurred with relevant persons in accordance with regulation 11A of the OPGGS(E) Regulations. The consultation methodology incorporates Shell's increased understanding of relevant persons through updates to its known relevant persons list, experience with other EPs, and other external feedback. Other adjustments were made in response to discussions, regulations, and suggestions made during the regulatory process of submitting and assessing this EP.

To ensure that organisations and individuals who may be affected by the proposed activity are aware of Shell's consultation process for the EP and can provide feedback in accordance with the intended outcome of consultation, an adaptive methodology has been implemented. This approach includes advertising in local, state, and national newspapers. This section summarises consultation activities with relevant persons, as well as engagement with individuals or organisations that were not relevant persons but Shell still chose to contact.

5.2 Key Principles for EP Consultation

Key principles for consultation in preparation of an EP in accordance with regulation 11A are outlined in Table 5-1.

Table 5-1: Key Principles for EP Consultation

Key principle	Key concept
Consultation provides an opportunity for free and open exchange of information to occur between a titleholder and relevant person that may be affected by a proposed activity.	• The process provides a genuine opportunity for relevant persons to be heard and provide feedback. • An inclusive approach is taken by which the titleholder seeks to identify and consult with relevant persons throughout the development of the EP, takes reasonable measures to allow relevant persons an opportunity to self-identify, and identifies potentially relevant persons taking a broad (rather than narrow) approach to functions, interests or activities within the Planning Area. •The process includes mechanisms for titleholders to receive information from relevant persons that they might not have otherwise received. • The process enables a titleholder to gain better understanding about the environment that may be affected and measures that may be necessary to mitigate the potential environmental impacts and risks associated with the petroleum activity. • Consultation does not carry with it any obligation on the titleholder either to seek or reach agreement; nor requires consent on the activity subject to the consultation; however, the titleholder should be receptive to suggestions from a relevant person, where these may improve the overall environmental outcome. Appropriate engagement techniques are selected and consultation is tailored to the needs of relevant persons, including location, timing, cultural sensitivities, and the most suitable way to conduct engagements.
The consultation process must be capable of practicable and reasonable discharge.	• The obligation to consult is a real-world obligation that must be construed in a practical and pragmatic way that makes a process both reasonable and workable. • Where communal interests are held, the process of consultation needs to reasonably reflect the characteristics of the communal interests affected, and does not necessarily require communications with each and every

Key principle	Key concept
	person who is a member of the relevant community. • The obligation to identify relevant persons for the purpose of consultation must be reasonably capable of being discharged (i.e. relevant persons need to be ascertainable) within a reasonable time.
Consultation involves provision of sufficient information on a proposed activity to relevant persons and allows for a reasonable period of time for a relevant person to consider the information.	• Information provided to a relevant person should be sufficient to allow them to make an informed assessment of the possible consequences of the proposed activity on their functions, interests or activities. • The nature, scale, and complexity of a proposed activity, as well as the extent of potential impacts and risks on a relevant person's functions, interests, or activities, is considered when determining a reasonable period for consultation.
Relevant person participation in the consultation process is voluntary	• The voluntary participation of relevant persons in the consultation process is respected. The titleholder collaborates with them to determine their preferred method of consultation where possible. • Relevant persons are not obligated to respond to a titleholder's request to participate in the consultation process. • A titleholder is not required to wait indefinitely for a response where sufficient information and reasonable period of time has been afforded to the relevant person.

5.3 Regulations & Guidance

This methodology has been developed in accordance with the relevant regulations and guidelines, including:

- Tipakalippa Decision
- NOPSEMA Guideline GL2086 – Consultation in the course of preparing an environment plan – May 2023
- NOPSEMA Guidance Note GN1847 – Responding to public comment on environment plans – July 2022
- NOPSEMA Guidance Note GN1344 – Environment plan content requirements – December 2022
- NOPSEMA Guideline GL1721 – Environment Plan Decision Making Guideline – December 2022

- NOPSEMA Guidance Note GN1488 – Oil pollution risk management – July 2021
- NOPSEMA Guidance Note GN1785 – Petroleum activities and Australian Marine Parks – June 2020
- NOPSEMA Guideline GL1887 – Consultation with Commonwealth agencies with responsibilities in the marine area – January 2023
- NOPSEMA Brochure – Consultation on offshore petroleum environmental plans – May 2023
- NOPSEMA Policy PL2098 – Engaging gender-restricted information Draft Policy – May 2023
- NOPSEMA Policy PL1347 – Environment Plan Assessment Policy – December 2022
- Department of Climate Change, Energy, the Environment and Water (DCCEEW): Sea Countries of the North-West; Literature review on Indigenous connection to and uses of the North-West Marine Region
- DCCEEW – Draft Guidelines for working in the near and offshore environment to protect Underwater Cultural Heritage – 2023
- DCCEEW – The Interim Engaging with First Nations People and Communities on Assessments and Approvals under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) (interim guidance)
- International Finance Corporation Performance Standard 7 - 2012
- Australian Fisheries Management Authority: Petroleum industry consultation with the commercial fishing industry – 2023
- Commonwealth Department of Agriculture, Fisheries and Forestry (DAFF) - Guidance framework for supporting cooperative coexistence of seismic surveys and commercial fisheries in Australia's Commonwealth marine area DAFF - Offshore Installations Biosecurity Guide - 2020
- Commonwealth Department of Industry, Science and Resources - Streamlining Offshore Petroleum Environmental Approvals: Program Report – February 20214
- WA Department of Primary Industries and Regional Development: Guidance statement for oil and gas industry consultation with the Department of Fisheries – 2013
- WA Department of Transport: Offshore Petroleum Industry Guidance Note, Marine Oil Pollution: Response and Consultation Arrangements – July 2020
- WA Department of Mines, Industry Regulation and Safety - Consultation Guidance Note (for the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009) – April 2012
- Northern Territory Environment Protection Authority – Stakeholder Engagement and Consultation: Environmental Impact Assessment – Guidance for Proponents – January 2021
- Western Australian Fishing Industry Council – Consultation approach for unplanned events
- IAP2 Public Participation Spectrum

As operator, Shell has consulted with relevant persons identified in accordance with the NOPSEMA Decision-making guideline (N-04750-GL1721 December 2022) under the OPGGS(E) Regulations for this EP.

The term ‘relevant person’ is defined in Regulation 11A of the OPGGS(E) Regulations. The methodology outlined in this EP sets out the processes that have been applied to identify and determine who are relevant persons for the purposes of Regulation 11A(1)(a) to (e) of the OPGGS(E) Regulations.

These requirements are summarised in Table 5-2.

Table 5-2: Division 2.2A, Regulation 11A of the OPGGS(E) Regulations

Legislation	Summary	Requirement
Division 2.2A—Consultation in preparing an environment plan 11A Consultation with relevant authorities, persons and organisations, etc	Relevant Persons	1. In the course of preparing an environment plan, or a revision of an environment plan, a titleholder must consult each of the following (a *relevant person*): a. each Department or agency of the Commonwealth to which the activities to be carried out under the environment plan, or the revision of the environment plan, may be relevant; b. each Department or agency of a State or the Northern Territory to which the activities to be carried out under the environment plan, or the revision of the environment plan, may be relevant; c. the Department of the responsible State Minister, or the responsible Northern Territory Minister; d. a person or organisation whose functions, interests or activities may be affected by the activities to be carried out under the environment plan, or the revision of the environment plan; e. any other person or organisation that the titleholder considers relevant.
	Sufficient Information	2. For the purpose of the consultation, the 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.
	Reasonable period	3. The titleholder must allow a relevant person a reasonable period for the consultation.
	Sensitive information	4. The titleholder must tell each relevant person the titleholder consults that: a. the relevant person may request that particular information the relevant person provides in the consultation not be published; and b. information subject to such a request is not to be published under this Part.

Source: OPGGS(E) Regulations

5.3.1 Tipakalippa Decision

In its decision handed down on 2 December 2022, the Full Court of the Federal Court of Australia considered the meaning of 'relevant person' within regulation 11A(d) of the OPGGS(E) Regulations.

The proceedings (brought by Mr Tipakalippa) challenged NOPSEMA's decision to accept Santos' Drilling and Completions EP, submitted as part of the Barossa Project. Mr Tipakalippa alleged that Santos did not consult with him or his clan and, as a result, NOPSEMA's approval was invalid.

The OPGGS(E) Regulations do not define what is meant by 'functions, interests or activities', and the construction of the words in this phrase was clarified by the Full Court. The meaning of these words is discussed in further detail in Table 5-3 below.

The Full Court also made observations on other aspects of consultation which are set out below.[2]

- Superficial or tokenistic consultation will not be enough.
- Where interests are held communally, or across a group, the titleholder has a degree of 'decisional choice' in identifying which persons are to be approached within the group, the manner of communication and the method of consultation.

The Federal Courts decision also clarifies that EPs must demonstrate that consultation has occurred as required by regulation 11A. In practice, this means that:

- Once titleholders have proactively identified and engaged in consultation with relevant persons, the titleholder must demonstrate to NOPSEMA that the requisite consultation has occurred, i.e., by ensuring that the EP sets out its understanding of who a relevant person is (with reference to the Full Court's reasons).
- If the titleholder has proceeded on an incorrect interpretation of the regulations, it may not be possible for NOPSEMA to be satisfied that the titleholder has carried out the consultations required by the OPGGS(E) Regulations.

5.3.2 NOPSEMA Consultation Guideline

NOPSEMA released a Guideline titled *'Consultation in the course of preparing an environment plan*' (the NOPSEMA Consultation Guideline) following the Tipakalippa Decision. The NOPSEMA Consultation Guideline clarifies the legal requirements for consultation by titleholders while preparing their EPs prior to submission to NOPSEMA.

In particular, the NOPSEMA Consultation Guideline provides guidance on the following aspects:

- the interpretation of 'relevant person' and each term in the phrase 'functions, interests or activities' as contained in regulation 11A(1)(d) of the OPGGS(E) Regulations; and
- matters that should be considered in designing and implementing consultation processes.

5.3.3 Key Terms and Definitions

The meaning of key terms and definitions are summarised in Table 5-3 below by reference to the NOPSEMA Consultation Guideline (which is informed by the Full Court's observations in the Tipakalippa Decision).

Table 5-3: List of Key Definitions

Term	Definition
Activities	In relation to subregulation 11A(1)(d), activities are considered to be what other persons or organisations are already doing.
Claims	Assertion or information about the potential adverse impacts from the petroleum activities to which the EP relates.
Environment	OPGGS(E) Regulations defines this as:

[2] Since the Tipakalippa Decision was handed down, regulation 11A has been the subject of two further Federal Court decisions (Cooper v NOPSEMA [2023] FCA 1112; Cooper v NOPSEMA [2002] FCA 1158). The Federal Court's observations on the requirements of consultation in the Cooper proceedings are consistent with the Tipakalippa Decision and emphasise the importance of consultation in ensuring that titleholders provide NOPSEMA with relevant information about the environmental impacts and risks of a proposed activity.

Term	Definition
	(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 value of places; and includes (e) the social, economic and cultural features of the matters mentioned in paragraphs (a), (b), (c) and (d).
Functions	In relation to subregulation 11A(1)(d), functions refer to a power or duty to do something.
Interests	In relation to subregulation 11A(1)d, "interest" includes an 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. However, an interest does not extend to general public interest in an activity[3].
Nature and scale of effect on relevant persons functions, interests or activities	This is a broad screening assessment done for some selected relevant persons where a clearer distinction is warranted between the nature of a relevant persons functions, interests or activities may be affected. This is split into two categories; **High (nature and scale)**: Planned impacts which may be significant will occur to a known interest such as a cultural value or feature. Impacts are likely to be long term. **Low (nature and scale)**: Impacts are either from highly unlikely events, such as a major spill or planned impacts are not likely to be significant, nor long term and does not involve the direct desecration of a cultural feature.
Objection	A reason or argument about the potential adverse impacts arising from the petroleum activities to which the EP relates.
Planning Area	This is the environment that may be affected by the activity. The spatial extent of the Planning Area is determined from stochastic spill modelling or National Energy Resources Australia (NERA) reference cases using the low hydrocarbon exposure thresholds (no ecological impact) as recommended by NOPSEMA. Note, the Planning Area does not define the area of affect to a relevant person's functions, interest or activities, but instead it is used as an initial input to develop a broad list of possible relevant persons that may be affected in a geographical area for the activity. Each potentially relevant person is then further assessed in direct context of the effect the activity may have on their own specific functions, interests and activities.
Reasonable period (also known as the consultation window)	A reasonable time for relevant persons to identify the effect of a proposed activity on their functions, interests or activities and provide a response detailing their objections or claims. Shell generally defines a reasonable period for a relevant person to review and provide an initial response as being 30 calendar days, subject to the nature and scale of the proposed activity (however, Shell

[3] Tipakalippa Decision, paragraph [154].

Term	Definition
	has provided Indigenous relevant persons with a minimum consultation window of three months). Where dialogue with relevant persons is ongoing after this period, Shell will continue to consult with these persons until Shell believes that it has provided sufficient evidence/justification to close the consultation (i.e. they have been provided sufficient information and a reasonable period).
Reasonable efforts	During the consultation window, Shell will make all reasonable efforts to make contact with all identified relevant persons for the EP (where a reasonable and workable avenue exists). Shell recognises that specific consultation channels to pass on information may be more appropriate for certain groups of relevant persons.
Relevant matter	The matter raised does not fit the criteria descriptions for objections or claims with/without merit. However, the matter raised is relevant to the planned activity, comprises a request to Shell for further relevant information, or provides information to Shell that is relevant to the activity or the EP.
Not a relevant matter	Input does not relate to the planned activity or the relevant person's or organisation's functions, interests or activities affected by the activity. Matters that are not relevant may also be generic in nature with no specific issues raised (e.g. salutations, acknowledgements, meeting arrangements, etc.).
Relevant person	Can be a person, organisation, department or agency that falls within one of the categories defined by subregulation 11A(1) of the OPGGS(E) Regulations; however, it does not include those whose functions, interests or activities will only be affected by an activity in an immaterial or negligible way[4].

5.4 Overview of Relevant Person Methodology Workflow

Figure 5-2 presents Shell's workflow for the identification of and consultation with Relevant Persons. Identifying, categorising and engaging with relevant persons is shown in Steps 1 to 17. Assessment of objections or claims and relevant matters are dealt with in Steps 18 – 25. Refer to Section 5.6.9 for more details on assessment of merit of objections or claims.

5.5 Identifying Relevant Persons

The NOPSEMA Consultation Guideline provides the following key guidance as to the process for the identification of relevant persons:

- The process must provide for sufficiently broad capture of ascertainable persons and organisations whose functions, interests or activities may be affected by the activity.
- The process should include reference to multiple sources of information, such as publicly available materials, review of databases and registers, published guidance, previous history, as well as advice from authorities and other relevant persons.

[4] Tipakalippa Decision paragraph [67], noting that, subregulation 3(c) of the OPGGS(E) provides that the petroleum activity is to be carried out in a manner by which the environmental impacts and risks of the activity will be of an acceptable level.

- Titleholders must clearly identify in their EPs who is a relevant person and the rationale the titleholder has used to determine who they consider falls within that definition.

Relevant person identification as an inherently iterative process as Shell may become aware of relevant persons both during the process of consultation and also after the development and submission of an EP. Nonetheless, outlined elsewhere in this EP, Shell has done extensive work to ensure it identified relevant persons in the course of preparation of this EP, for the purpose of complying with regulation 11A of the OPGGS(E) Regulations.

A broad capture of relevant persons was augmented by advertisements in local, regional and national print, social media and broadcast, encouragement of identified relevant persons during engagement activities, such as the forums and community sessions as outlined in this EP, to share and communicate with those who they may think were relevant, those who self-identified, and also information shared with Shell through other third parties (such as industry).

To identify relevant persons, Shell's methodology first identified a person or organisation's functions, interests, or activities then based on their overlap with the Planning Area described in this EP, identified persons or organisations that may be affected by Shell's planned or unplanned activities. This includes government departments or agencies that may be involved in incident response or a regulatory or decision-making capacity regarding planning for the unlikely event of a worst-case hydrocarbon release incident response.

Where Shell identifies persons or organisations such as commercial fishers, tourism operators, or relevant cultural authorities whose functions, interests or activities within the Planning Area may be affected by a hydrocarbon release, Shell would, at the relevant time of this unlikely event occurring, engage in the context of emergency response with these parties as appropriate to the nature and scale of the incident, as per the procedures and contact lists in the Oil Pollution Emergency Plan.

During the consultation process, new information may become available to inform the extent of effect of Shell's activity on a person's functions, interests or activities, which may result in an identified relevant person being removed from the relevant persons list. For example, new information may become available which further informs/clarifies a person's actual functions, interests or activities and how they could be affected which are not to the extent as previously perceived by Shell during the initial identification process.

As noted above, Shell used oil spill modelling to assist in the process of identifying potentially relevant persons for the activities proposed to be conducted under this EP. Shell adopted a conservative approach to this modelling, which is explained further below. If less conservative and, arguably, more appropriate oil spill modelling was used, the Planning Area would be significantly reduced and fewer potentially relevant persons would have been identified.

Shell also notes that there may be persons who have functions, interests or activities within the Planning Area, as calculated by the oil spill modelling included in the EP at the initial time of submission, but those functions, interests or activities may not be affected by Shell's activities. Where no environmental or ecological impacts are predicted within a geographical area, there can be no corresponding impacts on a person's functions, interests or activities. There may also be instances where potential environmental or ecological impacts are predicted to occur within an area; however, despite a geographical overlap this will not necessarily equate to an impact on a person's functions, interests or activities.

In other cases, Shell may identify a group of relevant persons that may be potentially affected; however, is unable to confirm individual contact details as these are not ascertainable through normal mechanisms (e.g. associated government agencies, organisations or groups who hold these details or who can advise who these individuals are). As such, consulting with such relevant persons is not capable of being discharged within a reasonable time due to the "opacity as to the

identity of those with whom consultations are to take place"[5]. The opportunity exists for such persons to contact Shell, via Shell's publicly accessible website.

5.5.1 Identification of Relevant Persons

The identification of relevant persons was completed by adopting a systematic research approach which is outlined in Figure 5-3.

[5] Tipakalippa Decision, paragraph [136].

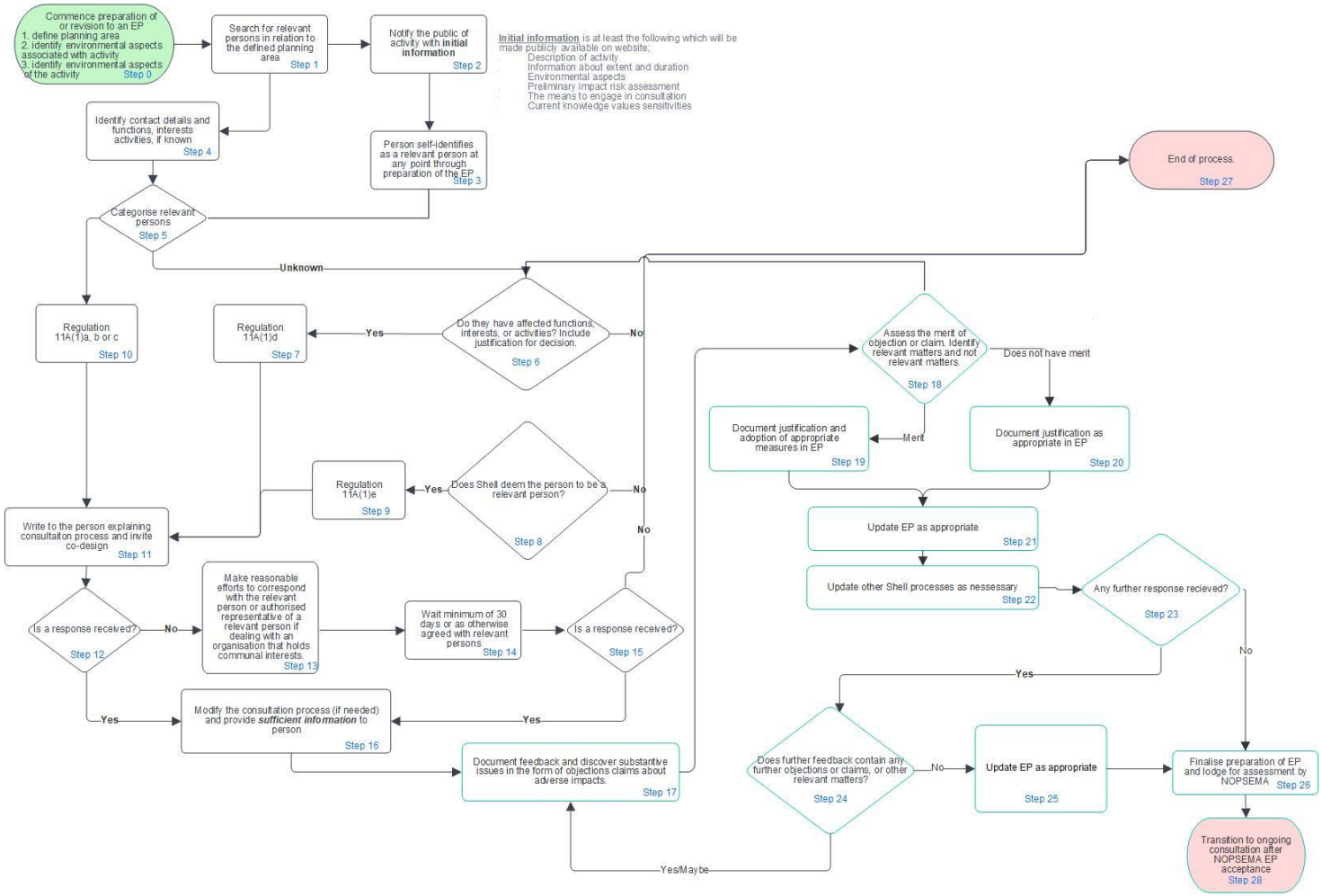

Figure 5-2: Relevant Persons Workflow

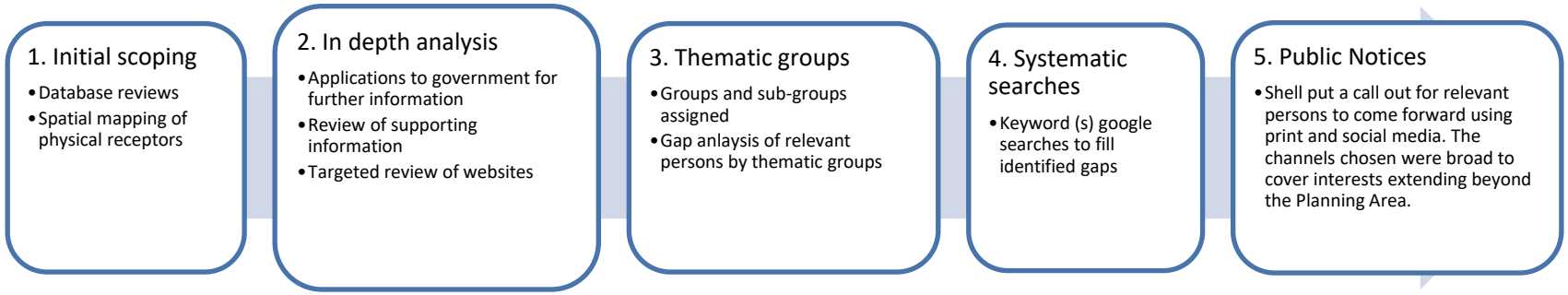

Figure 5-3: Methodology for the Identification of Relevant Persons

The initial scoping of relevant persons involved a comprehensive assessment of the following aspects:

- Project activities related to the EP.
- Potential spatial extent of the Planning Area and the different zones and thresholds within those areas.
- Environmental, cultural, economic, and social attributes of the Planning Area.

The initial scoping task informed Shell's understanding of:

- The potential cultural and social values and sensitivities of the Planning Area
- The potential functions, interests, or activities that may be affected by Shell's proposed activities.

This, in turn, enabled a more granular search for potentially relevant persons.

Each identified potentially relevant person was assigned to a thematic group e.g., commercial operators, Indigenous People.

These thematic groups and subgroups were tracked across the relevant persons identification process to ensure the process was capturing a broad range of potentially relevant persons. For example, early review of identified relevant persons in the thematic grouping of commercial operators highlighted limited geographic and thematic (subgroup) coverage and a corresponding need for increased search efforts in this thematic area.

Hence, targeted key word searches were also used to identify potentially relevant persons, such as Indigenous and non-Indigenous tourism operators with activities in the marine environment. As each thematic grouping evolved, it became the target of systematic on-line searches to identify additional persons or organisations whose functions, interests, or activities may be affected by the project activities.

Other initiatives included (see Table 5-4):

- posting public notices;
- convening drop-in sessions and indigenous forums; and
- asking already identified relevant persons whether they were aware of any other persons Shell should contact.

5.5.2 Description of Research Methodology

Table 5-4 presents the research methodology used during the search for relevant persons. A comprehensive review was conducted using a range of research activities to inform the identification of relevant persons. The details of, and methodology adopted during each research activity is presented below in Table 5-4.

Table 5-4: Research Methodology

Research Activity	Detail
1. Existing Shell Australia database reviews	Shell holds an extensive database of organisations and persons identified for projects and existing operations, including from the Crux Offshore Project Proposal and Prelude Floating Liquefied Natural Gas (FLNG) facility) located off the Western Australian coastline. Existing relevant person datasets and associated recent relevant persons correspondence were reviewed in January 2023. These were merged into a register of potentially relevant persons.
2. Review of public databases and spatial mapping of datasets	A comprehensive review of publicly available databases to identify physical receptors, environmental, social and cultural

Research Activity	Detail
	values and sensitivities overlapping with the Planning Area and a further 50 km buffer was conducted. Searches of databases were also undertaken for cultural heritage (Indigenous and non-Indigenous). The 50 km buffer allowed us to be prudent by going beyond the Planning Area in case a relevant person or social and cultural values could be identified at the edge of the Planning Area. Searches included the following: • National Native Title Tribunal (NTTT) register of Native Title Registrations, Claims, Determinations (including Prescribed Body Corporates (PBCs) and Registered Native Title Bodies Corporate (RNTBC) for the determinations), Future Acts and Indigenous Land Use Agreements. • Spatial data from the NNTT database to identify Land Councils and NT Aboriginal Trusts, and any additional Native Title material was extracted for the Planning Area. • Protected Areas including legislated lands and waters of WA and NT (e.g. Commonwealth and National Parks and Reserves), WA Lands of Interest, RAMSAR Wetlands, Australian Marine Parks, Indigenous Protected Areas (IPAs). • Heritage Areas including world and national heritage listed places, WA Heritage Council State Register, WA Heritage List, WA Heritage Council Local Heritage Survey, NT Heritage Register. • WA Aboriginal Cultural Heritage database and WA Aboriginal Cultural Heritage Survey database. (Where available information on knowledge holders was also extracted.) • Application made to the Aboriginal Areas Protection Authority (AAPA) requesting Abstract of Record for the Planning Area within Territorial waters. • Petroleum exploration and operations license holders. • Key Ecological Features (KEFs) and Biologically Important Areas (BIAs). • Underwater cultural heritage including the Australasian Underwater Cultural Heritage Database. • Local Government Authorities and Town Councils. • Population centres including Indigenous communities (Indigenous, remote, town based, seasonal and permanent). • Military land. • Commonwealth fisheries, state and territory fishers, aquaculture license holders and pearl lease holders. Spatial mapping of datasets enabled an understanding of overlaps with the Crux Development Drilling EP Planning Area.
3. Review of background reports and supporting information for database searches	Using the outcomes of the initial database searches (refer to research activity 2.), relevant supporting information was accessed and reviewed to inform the identification of potentially relevant persons and organisations, their functions, interests, or activities. Key supporting information reviewed included: • Native Title application documents and any associated court documents, Indigenous Land Use Agreements (ILUAs) and Future Acts. This review identified potentially relevant RNTBCs, PBCs and RATSIBs organisations as

Research Activity	Detail
	well as individual Indigenous people and family groups. Saturation was reached once all identified Native Title claims, determinations etc. within the Planning Area (including the additional 50 km buffer) were exhausted. • WA Aboriginal cultural heritage survey reports overlapping with the Planning Area. Research organisations, Indigenous organisations and Indigenous Knowledge Holders were identified as potentially relevant persons. This review informed an understanding of overlapping cultural and social values in the Planning Area. • Management plans associated with identified protected areas, KEFs and BIAs, such as Australian Marine Parks. This process identified relevant persons (people and organisations) including Indigenous Groups with research interests in the marine environment. • Management plans and future application plans for all identified IPAs. • Health Country Plans for all Land Councils identified through database searches. • WA State of the Fisheries Report (2020/21) (DPIRD, 2021) with a focus on the WA fisheries overlapping with the Planning Area and Bio Regions. • Commonwealth Fisheries reports.
4. Review of research journals	An online search for journal articles related to Saltwater People, Totems and Indigenous use of sea-country was conducted to inform an understanding of cultural values potentially overlapping with the Planning Area. This process also identified potentially relevant persons (persons and organisations) (e.g., Indigenous groups who identify as Saltwater People).
5. Targeted review of websites and other sources associated with Indigenous Organisations	In addition to searches and assessments listed above in points 2, 3 & 4, also considered was: **Representation**: • By whom and what organisation as well as legal standing of the organisation; • Parties to ILUAs that have since had a native title determination made over the Crux Development Drilling EP Planning Area; • If an Aboriginal Corporation was an appointed LACHS; • A targeted review of all Land Council, RNTBC and PBC websites and social media platforms was undertaken to identify potentially relevant persons (persons and organisations) and their interests, functions or activities overlapping with the Crux Development Drilling EP Planning Area; • Importantly this process enabled the outcomes of the KEFs and BIA database searches (refer to research activity 2.) to be considered within the context of Indigenous cultural values (i.e., totems, cultural activities and Indigenous land and resource use activities). This process informed the identification of some geographically remote organisations as potentially relevant persons.
6. Targeted review of websites for peak bodies	A targeted review of the websites and social media platforms associated with a range of peak bodies, representing interests identified through database searches (e.g., recreational fishing, commercial fishing, commonwealth fisheries) was undertaken to

Research Activity	Detail
	confirm functions, interests, or activities, and to identify additional and related potential relevant persons (persons and organisations) and their interests, functions or activities overlapping with the Crux Development Drilling EP Planning Area. This review included recreational and commercial fisheries including aquaculture activities.
7. Targeted review of websites for Local Government Authorities	A targeted review of the websites and social media platforms associated with Local Government Authorities (LGAs) identified through the database searches and spatial mapping was undertaken to identify additional potentially relevant persons and to scope functions, interests, or activities of each relevant local government authority. This process, representing interests identified through database searches (such as recreational fishing, commercial fishing, commonwealth fisheries), was conducted to confirm functions, interests, or activities, and to identify additional and related potentially relevant persons (persons and organisations) and their interests, functions or activities overlapping with the Planning Area.
8. Review of local community directories	Where available on the internet, a search of local community services directories for each Local Government Area with an area intersecting the Planning Area for potentially relevant persons (people and organisations) and associated functions, interests or activities was conducted. This process identified a number of interest groups, service providers, sport and recreation organisations as well as accommodation providers.
9. Targeted keyword search for Indigenous and non-Indigenous commercial operations	An online search for potentially relevant persons (persons and organisations) using key words and place-based search terms (e.g. fish+Broome, swim+Eighty Mile Beach) was conducted. Table 5-5 lists the key search terms used.
10. Broad based keyword search	Online searches for potentially relevant persons (persons and organisations) were deployed systematically, with search terms such as 'Broome + water sports' and 'Exmouth + tourism'. Table 5-5 lists the key search terms used. Search results were interrogated until limitations became evident.
11. Public advertising campaign and engagement with identified relevant persons	Shell also sought to identify potentially relevant persons by placing advertisements in local, regional and national print, social media and broadcast media. During engagement activities, such as the forums and community sessions outlined in this EP, Shell also encouraged relevant persons to share and communicate with those whom they considered may be relevant and those who self-identified.
12. Crux Offshore Project Proposal persons or organisation who made public comment	The Crux Offshore Project Proposal was published for public comment during the assessment process. There were no limitations on where public comments could come from.

Table 5-5: Key Internet Search Terms

Search Terms
aboriginal art centres + Broome
aboriginal art centres + Derby
beach accommodation + Broome /Kimberley/Eighty Mile Beach/Exmouth/Quondong Beach/Dampier Peninsula

Search Terms
beachfront accommodation + Broome /Kimberley/Eighty Mile Beach/Exmouth/Quondong Beach/Dampier Peninsula
bird watching + Broome /Kimberley/Eighty Mile Beach/Exmouth/Quondong Beach/Dampier Peninsula
Broome + helicopter
Broome academic + research organisation
caravan parks + Kimberley + Western Australia
coastal accommodation + Kimberley Western Australia
commercial fishing + Northern Territory
commercial fishing + Western Australia
conservation + Broome /Kimberley/Eighty Mile Beach/Exmouth/Quondong Beach/Dampier Peninsula
cultural experiences + Broome
cultural experiences + Carnarvon
cultural experiences + Ningaloo
cultural tours + Karratha
Exmouth academic + research organisation
fishing tours + Broome
Indigenous fishing + Northern Territory
Indigenous Protected Areas + Australia
Land Council + Northern Territory
Land Council + Western Australia
Mud Bay + Northern Territory
[name of Local Government] + community directory
Native Title + Northern Territory
Native Title + Western Australia
ocean views hotel + Broome /Kimberley/Eighty Mile Beach/Exmouth/Quondong Beach/Dampier Peninsula
Sea Country + Northern Territory
Sea Country + Totems
Sea Country + Western Australia
surf + Broome /Kimberley/Eighty Mile Beach/Exmouth/Quondong Beach, Dampier Peninsula
surf lifesavers + Broome/Kimberley/Eighty Mile Beach/Exmouth/Quondong Beach/Dampier Peninsula
things to do + Broome /Kimberley/Eighty Mile Beach/Exmouth/Quondong Beach/Dampier Peninsula
Tiwi Island Charters
totem + Tiwi/sawfish/whale/dolphin/turtle
tourism + Beachfront accommodation + Broome /Kimberley/Eighty Mile Beach/Exmouth/Quondong Beach,/Dampier Peninsula
tours + Broome
tours + Exmouth
volunteer and emergency services + Broome

Search Terms
volunteer and emergency services + Darwin
volunteer and emergency services + Exmouth
volunteer and emergency services + Onslow
water sports + Kimberley + Western Australia
watersports or water sports +Broome /Kimberley/Eighty Mile Beach/Exmouth/Quondong Beach/Dampier Peninsula

During the initial scoping task, two thematic groupings of relevant persons were identified as having particularly defined functions, interests, and activities in the Crux Development Drilling EP Planning Area: Indigenous People and commercial fishing operators.

Further and targeted effort was taken to identify relevant persons within each of these thematic groups. A further two thematic groups, being commercial operators and interest groups, were also identified as having potentially relevant persons (particularly organisations) with defined interests and activities in the Crux Development Drilling EP Planning Area. Further efforts were applied to identify relevant persons in these thematic groups.

A description of the methodology for the identification of relevant persons in the thematic groups of Indigenous People, commercial fisheries, commercial operators and interest groups, and the relevance of these groups for this EP, is set out below.

5.5.2.1 Indigenous People

Shell has a history of engaging with Indigenous people at various levels, including local communities, Indigenous groups (Native Title determined or otherwise), and governing bodies. Shell has a deep appreciation and respect for the Traditional Owners and Custodians of the land and seas where it operates. This extends to the Crux project. For the purposes of reporting on consultation, people and organisations with attributes described above are captured in this thematic group (Indigenous People).

Offshore projects intersect heavily with Sea Country – a part of the landscape that is equally important to Indigenous People as Land Country. Many elements within Sea Country are deeply rooted in Indigenous cultures, including their history and creation stories. Marine life, cultural sites, and places of significance are directly connected to the wellbeing and everyday life of Indigenous Peoples. Further, the health and wellbeing of Sea Country is one and the same as the health and wellbeing of the Indigenous People themselves. The approach to the identification of Indigenous People as relevant persons is guided by Indigenous relationship to Sea Country.

Additional methods (apart from those described in Figure 5-3) of identifying Indigenous People that may be relevant persons included the following activities:

- Identification and review of the total values and sensitivities of the physical environment that may be affected by the planned activities for each EP, including the spatial extent of the activities.
- Desktop research to identify any published Sea Country research (including anthropological reports where available) that could identify marine and avian species that may represent spiritual totems, relevant to the activities in the EP.
- Review of available Indigenous cultural heritage survey reports (including ethnographic reports) and supporting information for selected Indigenous cultural heritage sites identified within the Planning Area.
- Further research based around sub groupings as described below.
- Direct requests to relevant land councils or representative bodies to further identify any relevant persons.

- Any person identified by another relevant person or representative body where they consider it appropriate for cultural or other reasons (i.e., ownership of a particular site).

Shell acknowledges that existing data or information relating to Sea Country values and sensitivities in both public and from other sources is currently limited and does not exist to the same degree as research on Land Country.

5.5.2.2 Native Title Holders

Native Title recognises the traditional rights and interests to land and waters of Indigenous People. Native Title Holders are recognised by Australian legal systems as holding rights and interests (which may be exclusive or non-exclusive) in relation to land and sea within determination boundaries. For the purposes of the relevant persons identification process, all Native Title applicants, determined or otherwise, were regarded as relevant for the EP consultation process. The identification process was extended beyond the western construct of mappable boundaries and approached the concept of relevance of Indigenous groups and individuals with a degree of flexibility. Where one group's Native Title boundaries may not intersect with the Planning Area, they may still hold values and interests within that Planning Area. To this end, initial searches conducted included all Native Title applications and determinations within a further 50 km buffer added to the Planning Area.

Using spatial data from the NNTT database, all relevant Native Title information (i.e., claims, registrations, determinations and ILUAs) were extracted for each Planning Area. All applications, supporting information (where available) and court outcomes (where available) were interrogated. Saturation was reached once all identified Native Title applicants and holders within the Planning Area (including the additional 50 km buffer) were exhausted.

The names of Native Title applicants and holders were identified on the extracted Native Title information. Identified relevant persons included individuals and organisations (drawing on the NOPSEMA Consultation Guidelines that relevant persons can indeed be individuals, organisations, or groups).

5.5.2.3 Native Title and First Nations Representative Bodies

Using the same process as described in Section 5.5.2.2, together with the strong working knowledge of Native Title and Indigenous governance structures held by Shell personnel, Native Title Representative Bodies (NTRBs), Prescribed Bodies Corporate (PBCs), Registered Native Title Bodies Corporate (RNTBCs) and Native Title Service Providers (NTSPs) were identified. NTRBs and NTSPs are funded by the National Indigenous Australians Agency to assist native title claimants and holders. NTRBs and NTSPs can also be referred to as Representative Aboriginal/Torres Strait Islander Bodies (RATSIBs).

NTRBs and NTSPs were generally identified directly from the NNTT catalogue entries and included the Northern Land Council (NTRB) within the Northern Territory RATSIB Area, Kimberley Land Council (NTRB) within the Kimberley RATSIB Area, Yamatji Marlpa Aboriginal Corporation (NTRB) within the Pilbara RATSIB Area and Geraldton RATSIB Area. These NTRBs have a function in relation to the administration of Native Title and may represent Native Title applicants and holders' interests in relation to existing Native Title claims and determinations that extend into Sea Country. They may also be the contact point for specific RNTBCs, PBCs or native title applicants for the purposes of consultation. Where this is the case, it is identified for the particular person or organisation in Table 5-12.

5.5.2.4 Land Councils

Aboriginal Land Councils (Land Councils) have the legal power to help Indigenous People negotiate with governments and private companies over projects on their land. They also support Indigenous People to manage their land and sea, including issuing permits to enter, fish, film and perform other activities on Aboriginal land. Land Council boundaries in the WA and NT were reviewed through the databases searches and Land Councils with area intersecting the Planning Area were identified as potentially relevant persons. Saturation was achieved through spatial

mapping and the identification of Land Council areas with borders or overlap with the Planning Area.

Systematic searching of the websites of potentially relevant Land Councils enabled further interrogation of potential functions, interests, or activities. Land and Sea Ranger Groups and programs associated with Land Councils were identified through these searches. Healthy Country Plans were also identified and reviewed and provided vital information to understand values and sensitivities (e.g. Sea Country use and/or totems that potentially overlapped with the relevant Planning Areas).

5.5.2.5 Aboriginal Trusts

Aboriginal Trusts were established under the *Aboriginal Land Rights (Northern Territory) Act 1976* (ALRA). ALRA recognises the traditional ownership and occupation of the land by Indigenous People and the importance of their connection to land. In the NT, Traditional Owners can be granted Aboriginal freehold land ownership under the ALRA. The ownership of this land is held by Land Trusts, which are in turn managed by Land Councils.

Under the ALRA Traditional Owners have exclusive rights over their land and they have a level of say about what happens on that land and the ability to impose conditions on how their land is used should they agree to an organisation using it. Spatial mapping of Aboriginal freehold land across the NT, and the identification of the associated Aboriginal Trusts was undertaken as part of the search for potentially relevant persons. This also included a search for any Aboriginal Trusts associated with Aboriginal freehold land that intersected with or was adjacent to the Planning Area.

5.5.2.6 Aboriginal Corporations

Aboriginal and Torres Strait Islander Corporations (Aboriginal Corporations) are registered under the *Corporations (Aboriginal and Torres Strait Islander) Act 2006* (CATSI Act) and includes RNTBCs. The identification of Aboriginal Corporations was conducted primarily through the desktop review of Traditional Owner websites and Healthy Country Plans. When a Traditional Owner group did not have a website, searches were conducted through search engines and social media to identify Facebook accounts and/or news or media articles.

5.5.2.7 Family Groups and Individuals

Family groups and individuals were identified independent of Native Title information. The rationale for this is, based on the Tipakalippa Decision; family groups and individuals may hold different values and interests from those of the Native Title applicants and holders as a collective group. These relevant persons are difficult to identify through desktop research and other communications channels, such as public advertisements and community consultation were also conducted in order to enable other relevant persons to self-identify. The list of relevant persons was derived from a comprehensive review of Native Title information, Healthy Country Plans, Land Council websites, plans of management for protected areas including National Parks and Marine Parks, WA Aboriginal cultural heritage survey reports, government websites, media and community (drop-in centres) consultation as further described in section 5.6.8.1. An abstract of records for all land intersecting with the Planning Area from NT AAPA provided further information used to identify potential sacred sites (recorded and registered) and enable sourcing of knowledge holder information.

5.5.2.8 Commercial Fisheries

One of the primary relevant persons with activities that may be impacted by project activities in the Planning Area is commercial fishers. Shell used a variety of resources, including data files and fishery reports, to identify relevant persons according to the criteria set out above. The method of identifying potential commercial fishers that may be relevant persons included the following activities:

- Identified and mapped designated State, Territory (where available) and Commonwealth Fisheries overlapping with the Planning Area and identified spatial overlaps with the Planning Area.

- Identified concession holders for overlapping Commonwealth Fisheries and obtained concession holder contact details from AFMA (letters were sent to all in the EP Planning Area).
- For WA Managed Fisheries:
  - Identified 60Nm fish cube areas overlapping with each Planning Area and applied to DPIRD for effort and catch data for each WA fishery for fish cubes that were within a planned impact area (e.g. noise) based on modellings.
  - Obtained concession holder contact details for overlapping WA Managed fisheries within the EP Planning Area (letters were sent to all in the EP Planning Area).
- Applied to NT Fisheries for information on effort and catch data and concession holder contact details within the identified NT commercial fisheries.
- Reviewed WA State of the Fisheries Report 2020/21 to inform an understanding of effort and catch in the identified WA fisheries, including permit holders.
- Systematic on-line search and review for the websites of peak commercial fishing industry bodies including Western Australia Fishing Industry Council Inc (WAFIC), Northern Territory Seafood Council and the Northern Prawn Fisheries Industry (NPFI).
- Engagement of WAFIC to assist in identification and consultation with relevant WA managed fisheries.

5.5.2.9 International persons

According to the worst-case credible oil spill model results, there is a possibility that the Indonesian and Timor Leste coastline could be contacted by entrained and dissolved oil. Therefore, there is a possibility there are relevant persons within these countries also.

The purpose of oil spill modelling, consistent with the NOPSEMA procedure on oil pollution risk management guidance (GN1488), *"is purely for the evaluation of oil pollution risks and to inform preparedness and response planning for oil spill risk management"* (NOPSEMA, 2023). Although Shell chose to use the Planning Area to help understand the geographic extent of its risks, and subsequent consultation of Relevant Persons in Australia, this approach is not seen as appropriate for international Relevant Persons for the reasons detailed below.

Low impact and low likelihood: Major spills are very unlikely, with the likelihood of a loss of well control occurring estimated at less than 1 well in 50,000 (2e-5 probability) (see Section 9.14.1.1). Industry puts a high focus on well control and major spill prevention with highly effective and independent barriers put in place to prevent a top event occurring in the first instance. In the highly unlikely event that a loss of well control were to occur, then there are also multiple, highly effective and independent barriers, which would limit the magnitude of a spill and therefore the likelihood of a spill ever reaching the Indonesian and Timor Leste coastlines. These are detailed in Section 9.14.8 and include:

- Activation of the BOP (blow out preventer) – highly effective and immediate.
- Installation of a Capping stack, highly effective and deployable within ~21 days.
- Drilling of a relief well, estimated within 80 days.

Spill Modelling used is highly conservative: The Technical note in Appendix B discusses model conservatisms and limitations.

- By necessity over such a large domain, the model incorporates many simplifications that lead to over prediction of oil concentrations. The further away from the source, errors are compounded, particularly in nearshore areas where many physical processes are omitted (e.g. coastline resolution, surface waves, intertidal wetting and drying, refloating of oil, etc). Predictions of shoreline contact are therefore highly conservative. The modelling also does not take into consideration any spill prevention and mitigation that would be

implemented in response to an incident discussed above. It is expected that if the Crux modelling was re-run using current parameterisation, based on current scientific literature it would demonstrate that no dissolved or entrained oil would reach Indonesia or Timor Leste (S Langtry, Pers comm).

- While the model applies a constant 3% per day biodegradation rate (see Technical note in Appendix B), the actual biodegradation rates for the more bioavailable, soluble components are likely to be far greater. Varskog (1999), for example, provides half-lives of 0.5 days for BTEX and 1.5 days for naphthalene compounds. Had these been applied in the model it is envisaged that the predicted extent of dissolved oil would be far less.
- Exposure thresholds applied in the model (Table) are derived from ecotoxicity tests, typically conducted on the most sensitive species and life stages, over periods of 48 to 96 hours. In real spills, exposures of this duration would rarely occur. For example, the deterministic modelling (Section 9.14.4.1) shows that, as the spill is transported away from the source, it becomes increasingly patchy and covers a small area (relative to the Planning Area) resulting in concentration levels that are intermittent and transient. Comparing predicted concentrations at any single point with instantaneous thresholds must therefore be done with care. The Technical Note in Appendix B suggests that if the model was based on time-weighted exposures such as the 48 - 96 hour period used in the ecotoxicology tests, the outer extent of the Planning Area could be reduced by up to 80%, which would then not impact the Indonesian and Timor Leste coastlines.

Negligible nature and Scale of affect on functions, interests or activities of Relevant Persons in Indonesia or Timor Leste: The nature and scale of affects on the functions, interests or activities of persons in Indonesia and Timor Leste is predicted to be negligible. The Indonesian and Timor-Leste coastlines are over 300 km away from Crux and modelling predicts the minimum time to exposure as 28 days. Over this time, the toxic aromatic fraction would have reduced substantially through weathering (evaporation and biodegradation) leaving the persistent residual component that is practically benign and nontoxic. In the modelling results, it is this residual that drives the size of the Planning Area even though it has limited potential to adversely affect biological, economic or social resources.

Reasonable efforts to *identify* Relevant Persons in Indonesia and Timor Leste have occurred: Shell sought to ascertain the identities of Relevant Persons in Indonesia and Timor Leste through broadcast advertising, social media and the EP webpage. Shell provided sufficient information through the EP webpage, information booklets and broadcast media advertisements to enable Relevant Persons in Indonesia and Timor Leste to make themselves known to Shell.

Further, the Crux Offshore Project Proposal has been publicly available since 2019. Those who made comment during the public comment period have also been carried forward as Relevant Persons. No one from outside of Australia was identified as a relevant person from public comments made on the Crux OPP.

Shell believes this approach to identification of relevant persons in Indonesia and Timor Leste is appropriate given the low nature and scale of potential impacts on their functions, interests or activities. Going forward, the opportunity for Relevant Persons outside of Australia to make themselves known to Shell will be available through the EP webpage.

Reasonable efforts to *consult* with Relevant Persons in Indonesia and Timor Leste have occurred:

Shell has provided all Relevant Persons in Indonesia and Timor Leste with sufficient information about the proposed activities within this EP in the form of information sheets, fact sheets and the draft of this EP available on the EP webpage. Relevant persons have had a reasonable opportunity to access this information by way of notifications Shell has made through broadcast media and social media which provided accessible forms of translations in local languages.

A reasonable period for consultation has also been allowed for all Relevant Persons in Indonesia and Timor Leste. Shell made sufficient information available in April and May 2023 and has allowed persons in Indonesia and Timor Leste at least 30 days to consider the information and provide feedback.

Shell has received no feedback from persons outside Australia in the course of preparing this EP Shell believes that it has made reasonable efforts to consult with Relevant Persons in Indonesia and Timor Leste in the preparation of this EP, having regard to the low likelihood of the possibility of negligible affects on their functions, interests or activities.

Shell does not consider it proportionate or reasonable for more specific, targeted consultation to occur, beyond what Shell has already carried out. To do so would require very extensive efforts by Shell (from both a time and resourcing perspective), given the geographical area and size of the population concerned, which Shell estimates to be in excess of 100 million people. Shell's position is that further consultation efforts would be unworkable and well beyond what is considered reasonably practicable.

The opportunity for Relevant Persons outside of Australia to provide feedback will also be available moving forward through the EP webpage and relevant matters and other inputs can still be considered by Shell through its ongoing consultation process, including updates of the EP through the MOC process as required and further outlined in section 10.1.3 (section 5.8).

5.5.2.10 Indonesian Traditional Fishers

As described in Section 7.4.4.1 - Traditional Fishing, the Planning Area overlaps the MoU Box. However, Indonesian traditional fishing effort is focussed on shallow waters such as those at Seringapatam Reef and the Scott Reef complex where target sedentary reef-species are generally encountered, rather than the deep waters of the operational area.

The MoU Box overlaps Australian waters, and the majority of traditional fishing activities occur at reefs and islands within AMPs whose values are described in Section 7.3.6. The AMPs are managed by the Director of National Parks with whom Shell has consulted for this activity.

During consultation with AFMA in September 2023, AFMA confirmed to Shell that it does not directly license or regulate the traditional fishers that may be operating in the MoU Box, nor do they maintain a register of contact details for the Indonesian traditional fishers. As there is no requirement for traditional fishers to be licensed by either the Australian or Indonesian governments, there is no publicly available information to identify these individuals.

The obligation to identify relevant persons for the purpose of consultation must be reasonably capable of discharge within a reasonable time and all relevant persons must be ascertainable. Based on the opacity as to the identity of any traditional fishers operating within the MoU Box, Shell has not been able to identify or contact them in a manner which is considered to be both reasonable and workable.

This is an example of where Shell has identified a group of relevant persons that may be potentially affected. However, Shell is unable to confirm individual contact details as these are not ascertainable through normal mechanisms (e.g. associated Australian government agencies, organisations or representative bodies who may hold these contact details). As such, consulting with such relevant persons is not capable of being discharged within a reasonable time due to the "opacity as to the identity of those with whom consultations are to take place"[6].

Nevertheless, it can be inferred that the interests of traditional fishers (healthy fish communities) would be the same as those licensed commercial fishers operating in Australia that Shell has been able to contact via Commonwealth and State/Territory agencies such as AFMA, WA DPIRD, DITT and WAFIC. It is considered that feedback received by Shell, in relation to potential impacts to fish communities and harm to fish stocks, would be similar to traditional fishers in the MoU Box who share the same interests.

Consultation outcomes from Commonwealth and State/Territory agencies in relation to commercial fisheries included some aspects of Shell's preparedness in response to an unplanned oil spill event and impacts to fisheries. Shell has an operational and scientific monitoring plan (OSMP) which includes suitable monitoring programs to determine the impact of oil spill on commercial, traditional and recreational fisheries, which includes various assessments depending

[6] Tipakalippa Decision paragraph [136].

on type, nature and scale of the spill. In the event of an unplanned oil spill, consultation with the Indonesian government will be managed by DFAT.

5.5.2.11 Commercial Operators

Commercial operators form a large group of identified relevant persons for this EP. Commercial operators include Indigenous and non-Indigenous tourism operators and marine transport operators. Commercial operators were primarily identified through online searches (including purposive and snowballing searching) coupled with expert and local knowledge. Online searches were deployed systematically, with search terms such as 'Broome + water sports' and 'Exmouth + tourism' used (see Table 5-5 for a list of key search terms used). Search results were interrogated until saturation became evident.

5.5.2.12 Interest Groups

Interest groups form a large proportion of relevant persons who are difficult to identify through desktop research. Interest groups are defined as casual and formal collections comprised of members of the public who have an interest that lies within the Planning Area. Examples of formal interest groups include conservation and environment focused groups as well as activity-based groups (e.g., Fishing Clubs). Examples of casual interest groups include bird watchers, wreck diving, and history enthusiasts.

Identification of these relevant persons was conducted in two ways: through local knowledge of interest groups likely to exist in the Western Australian setting, and through Google searching key terms (described elsewhere). Saturation is difficult to reach and identify in this category through desktop research alone. Therefore, community consultation and interrogating hyper-local knowledge was a critical element of the identification process.

5.5.3 Identification of Relevant Persons by Category

The relevant persons identified for the Drilling Template Installation EP as related to these regulations, including the rational for inclusion, are described in Table 5-6. The research methodology used by Shell to identify relevant persons is described in Table 5-4. Further detail about specific categories of relevant persons referred to in regulation 11A is set out below. The outcome

5.5.3.1 Relevant Persons – Regulation 11A(1)(a) (b) and (c)

These include relevant persons as outlined in the regulation:

> (a) each Department or agency of the Commonwealth to which the activities to be carried out under the environment plan, or the revision of the environment plan, may be relevant.
>
> (b) each Department or agency of a State or the Northern Territory to which the activities to be carried out under the environment plan, or the revision of the environment plan, may be relevant.
>
> (c) the Department of the responsible State Minister, or the responsible Northern Territory Minister.

5.5.3.2 Relevant Persons – Regulation 11A(1)(d)

Persons whose functions, interests or activities may be affected by the activities to be carried out under an environment plan are relevant persons under regulation 11A(1)(d). Relevant persons considered to meet the requirements of regulation 11A(1)(d) have been identified based on:

- An assessment of the totality of the relevant environment, values and sensitivities and potential activity impacts and risks.
- The overlap of functions, interests, or activities with the operational and planning areas.
- Desktop research, as summarised above.
- Advertisements and other public publications and broadcasts, described below.

Persons or organisations were contacted directly through email, telephone and/or mail. This included information on consultation method and channels available for communication.

The list of relevant persons identified was not exhaustive and was further refined as consultation progressed, including any additional relevant persons that self-identified through the broadcast and print media advertising campaign.

5.5.3.3 Relevant Persons – Regulation 11A(1)(e)

Regulation 11A(1)(e) pertains to any other person or organisation that the titleholder considers relevant. Persons or organisations who self-identified were considered if they should be identified as relevant persons assigned to this category, this consideration if further detailed in Table 5-6.

5.5.3.4 Not relevant Persons- Regulation 11A

Where Shell received feedback relevant to general project or business operations, these questions or comments were responded to and managed as part of Shell's standard community consultation mechanisms and processes. Most of these queries related to job opportunities or enquiries on becoming a supplier to Shell. All persons who self-identified through the public advertisement campaign, were provided an information pack, including factsheets on the EPs, to enable them to determine whether their functions, interests or activities would be impacted. Where no further response was received, these persons were not categorised as relevant for the purposes of this EP.

Table 5-6: Assessment of relevant persons for the development drilling environment plan

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Commonwealth and State Government Departments or Agencies				
Australian Hydrographic Office (AHO) - Department of Defence Operations Branch	Maritime	Manage the development, maintenance and disposal of the Defence estate, including unexploded ordinance. Department of Defence agency responsible for the publication and distribution of nautical charts and other information required for the safety of ships navigating in Australian waters. The AHO issues fortnightly Notices to Mariners for relevant nautical products.	Yes	11A 1(a)
Australian Maritime Safety Authority (AMSA)	Maritime	Responsible for maritime safety, adherence to advice, protocols, regulations. Issue radio-navigation warnings.	Yes	11A 1(a)
Australian Communications and Media Authority (ACMA)	Media	Responsible for matters relating to maritime communications and licensing, as well as matters relating to telecommunications networks.	Yes	11A 1(a)
Australian Fisheries Management Authority (AFMA)	Environment	Responsible for the efficient management and sustainable use of Commonwealth fish resources. Activity is within a Commonwealth fishery area. AFMA expects petroleum operators to consult directly with fishing operators or via their fishing association body about all activities and projects which may affect day to day fishing activities.	Yes	11A 1(a)
Director of National Parks (DNP)	Environment	The Director of National Parks is a corporation established under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), the principal Commonwealth legislation for establishing and managing protected areas. The corporation is constituted by the person appointed to the office named the Director of National Parks.	Yes	11A 1(a)
National Native Title Tribunal (NNTT)	Native Title	Commonwealth government authority responsible for administering the Native Title Act 1993 (Cth) across multiple functions including reviews, mediations, and determinations for: Native title applications, and ILUAs.	Yes	11A 1(a)
Australian Border Force (Maritime Border Command)	Maritime	Responsible for maritime security. Deters and prevents illegal activities in the Australian Marine Domain.	Yes	11A 1(a)
Department of Foreign Affairs (DFAT)	National	Facilitates international relations with governments and other organisations. Specifically, DFAT will have functions relating to oil spills in international waters or foreign countries jurisdictions.	Yes	11A 1(a)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Clean Energy Regulator (CER)	Regulator	Responsible for implementing legislation to reduce carbon emissions and increase the use of clean energy.	Yes	11A 1(a)
Department of Jobs, Tourism, Science and Innovation (JTSI)	WA Department	Deliver initiatives on behalf of the WA Government that supports the full spectrum of economic activity in WA, including large-scale mining and industrial operations.	Yes	11A 1(b)
Department of Primary Industries and Region Development (DPIRD) – Fisheries Division	WA Department	Department responsible for management of WA State fisheries - including licence holders, and maintenance of fisheries.	Yes	11A 1(b)
Department of Climate Change, Energy, the Environment and Water (DEECCW)	Commonwealth Department	Responsible for preventing, responding to and recovering pests and diseases that threaten the economy and environment. Responsible for protecting Australia's ocean systems, threatened marine species and coastal blue carbon ecosystems.	Yes	11A 1(a)
Department of Industry, Science, and Resources (DISR) Including NOPTA	Commonwealth Department	Responsible for the OPGGSA. They are the policy maker for the offshore petroleum sector.	Yes	11A 1(a)
The Department of Agriculture Fisheries and Forestry's (DAFF)	Commonwealth Department	DAFF maintain and create agricultural export opportunities, to provide gains for Australian agriculture, fishing and forestry. They manage biosecurity risks to Australia to protect our multi-billion-dollar industries and our way of life. They engage with international counterparts to reinforce Australia's role in shaping how the global agriculture and fibre sector addresses food security, productivity, trade, sustainability and the impacts of climate change.	Yes	11A 1(a)
Department of Transport (DoT)	WA Department	Legislated responsibility for oil pollution response in State Waters.	Yes	11A 1(b)
Department of Water & Environmental Regulation (DWER)	WA Department	The department is responsible for environment and water regulation, serving as a 'one stop shop' for industry and developers, with the aim of streamlining and simplifying regulation.	Yes	11A 1(b)
Federal Member for Kimberley - Melissa Price	WA Federal Member	Member for region that borders or includes much of the Development Drilling Planning Area. Likely to be interested in constituent values and interests.	Yes	11A 1(b)
State Member for Kimberley - Divina Grace D'Anna	WA State Member	State Member for region very close to project area. Likely to have an interest in various aspects of the project.	Yes	11A 1(b)
Environment Protection Authority (EPA)	WA Department	Primary environmental regulator for WA. They partner with business, government and the community to reduce pollution and waste, protect human health, and prevent degradation of the environment.	Yes	11A 1(b)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Department of Environment, Parks and Water Security (DEPWS)	NT Department	This department functions to foster and protect the environment and natural resources in the NT. This includes water, land resource management, environmental issues and the parks and wildlife functions.	Yes	11A 1(b)
Indigenous Land and Sea Corporation (ILSC)	Statutory Body (First Nations)	An Australian federal government statutory authority with national responsibilities to assist Aboriginal and Torres Strait Islander people to acquire land and to manage assets to achieve cultural, social, environmental and economic benefits for Indigenous peoples and future generations.	Yes	11A 1(a)
Department of Planning Lands and Heritage (DPLH) Including Heritage Council of WA and Aboriginal Cultural Material Committee (ACMC)	WA Department	Responsible for planning and managing all land use and heritage considerations within the state.	Yes	11A 1(b)
Aboriginal Areas Protection Authority NT (AAPA)	Non-Government Organisation	The Aboriginal Areas Protection Authority ('the Authority') is an independent statutory authority established under the Northern Territory Aboriginal Sacred Sites Act. The Authority is responsible for overseeing the protection of Aboriginal sacred sites on land and sea across the whole of Australia's Northern Territory.	Yes	11A 1(b)
Department of Biodiversity, Conservation and Attractions (DBCA)	WA Department	Western Australian government department responsible for managing lands and waters described in the Conservation and Land Management Act 1984, the Rottnest Island Authority Act 1987, the Swan and Canning Rivers Management Act 2006, the Botanic Gardens and Parks Authority Act 1998, and the Zoological Parks Authority Act 2001, and implementing the state's conservation and environment legislation and regulations. The Department reports to the Minister for Environment and the Minister for Tourism.	Yes	11A 1(b)
Department of Mines, Industry Regulation and Safety (DMIRS)	WA Department	Its mission is to support a safe, fair and responsible future for the Western Australian community, industry, energy and resources sector.	Yes	11A 1(c)
Department of Industry Tourism and Trade (DITT) **Marine safety branch**	NT Department	The department supports industry development through globally competitive strategy, policy and promotion and delivers a regulatory framework that enables responsible growth, market access and stakeholder certainty.	Yes	11A 1(c)
Commercial Fisheries				
A12 Aquarium (9 licence holders)	NT Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
A4 Offshore Net Line (8 licence holders)	NT Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
A4 Spanish Mackerel (9 licence holders)	NT Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
A6 Demersal (12 licence holders)	NT Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
A13 Trepang (1 licence holders)	NT Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
A18 Timor Reef (10 licence holders)	NT Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11a 1(d)
Australia Bay Seafoods	WA Commercial Fishery	Self-identified via online form.	Yes	11a 1(e)
Abalone Managed Fishery Licence (25 licence holders)	WA Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
Aquatic Life Group	WA Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
Broome Prawn	WA Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
Commonwealth Fisheries Association	Industry Representative	Peak body representing the collective rights, responsibilities and interests of a diverse commercial fishing industry in Commonwealth regulated fishers. There are commonwealth regulated fisheries in the Development Drilling Planning Area	Yes	11A 1(d)
Individual Fishery Licence Holder	Individual	Fishing vessel operator. Self-identified through online form.	Yes	11A 1(e)
Kimberley Crab Managed Fishery Licence (1 licence holder)	WA Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
Kimberley Prawn Managed Fishery Licence (65 licence holders)	WA Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
Mackerel Managed Fishery Licence	WA Commercial Fishery	Commercial fishing activities and interests in the operational area for the Crux project.	Yes	11A 1(d)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
(24 licence holders)				
Marine Aquarium Fish Managed Fishery Licence (11 licence holders)	WA Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
Northern Demersal Scalefish Managed Fishery Licence (6 licence holders)	WA Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
North-West Slope Trawl Fishery (3 licence holders)	Commonwealth Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
Pearl Oyster Fishery	WA Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
Seafood Industry Association	Industry Representative	Industry representative for Seafood Industry.	Yes	11A 1(d)
South-West Coast Salmon (7 licence holders)	WA Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
Specimen Shell Managed Fishery Licence (30 licence holders)	WA Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
West Coast Deep Sea Crustacean Managed Fishery Licence (4 licence holders)	WA Commercial Fishery	Commercial fishing activities and interests in the operational area for the Crux project.	Yes	11A 1(d)
Western Australian Fishing Industry Council (WAFIC)	Industry Representative	Industry representative for WA Fishing Industry.	Yes	11A 1(d)
Western Tuna and Billfish Fishery (59 licence holders)	Commonwealth Fishery	Concession holder with permission to fish in Commonwealth Fisheries that intersect with the Development Drilling Planning Area	Yes	11A 1(d)
Seafarms Group Ltd	Aquaculture	Planning to build one of the world's largest Prawn Farms near Kununurra. Activities and Interests in the Development Drilling Planning Area	Yes	11A 1(d)
Clipper Pearls Pearl Farm	Pearl Oyster Fishery	Aquaculture - Pearl Farm activities in the Development Drilling Planning Area	Yes	11A 1(d)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Gascoyne Demersal Scalefish Managed Fishery Licence (21 licence holders)	WA Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area	Yes	11A 1(d)
Cygnet Bay Pearl Farm	Pearl Oyster Fishery	Aquaculture - Pearl Farm activities in the Development Drilling Planning Area.	Yes	11A 1(d)
Maxima Opportunity Group	Aquaculture	Aquaculture activities and interests within the Development Drilling Planning Area.	Yes	11A 1(d)
WA Seafood Exporters	WA Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
Northern Prawn Fishery Industry Pty Ltd	Northern Prawn Fishery Industry Pty Ltd	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
Western Rock Lobster Council	Industry Representative	Industry representative for Small Pelagic Fishery Industry.	Yes	11A 1(d)
Aquaculture Sites		Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
Australian Northern Prawn Fishery	Commonwealth Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
Exmouth Gulf Prawn Managed Fishery Licence	WA Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
Kimberley Gillnet and Barramundi Managed Fishery Licence	WA Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
Nickol Bay Prawn Managed Fishery Licence	WA Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
North Coast Shark	WA Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
Onslow Prawn Managed Fishery Licence	WA Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
Pilbara Crab Managed Fishery Licence	WA Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
Pilbara Fish Trawl Interim Managed Fishery Permit	WA Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Pilbara Trap Managed Fishery Licence	WA Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
Trochus IOE	WA Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
West Coast Rock Lobster Managed Fishery Licence	WA Commercial Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
Western Deepwater Fishery	Commonwealth Fishery	Commercial fishing activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
Pearl Producers Association	Pearling	Peak body representing interests of the Pinctada maxima pearling Industry Licencees in WA who have activities that overlap with the Development Drilling Planning Area	Yes	11A 1(d)
Australian Southern Bluefin Tuna Industry Association	Industry Representative	Industry representative for commercial fishing of Bluefin Tuna in southern waters of Australia.	Yes	11A 1(d)
Southern Bluefin Tuna Management Advisory Committee (SBTMAC)	Industry Representative	Industry representative for Southern Bluefin Tuna Management Industry.	Yes	11A 1(d)
Tropical Tuna Management Advisory Committee	Industry Representative	Industry representative for Tropical Tuna Management.	Yes	11A 1(d)
TUNA Australia	Industry Representative	Represents statutory fishing right owners, holders, fish processors and sellers, and associate members of the Eastern and Western tuna and billfish fisheries of Australia.	Yes	11A 1(d)
Titleholders and Operators				
Carnarvon Energy Ltd	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
Finder No 1	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
Jadestone Energy	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
Melbana Energy AC/P70	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
PTTEP Australasia (Ashmore Cartier)	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
Santos Ltd	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Vulcan Exploration P/L	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
INPEX	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
3D Oil Ltd	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
Arafura Oil	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
BP Developments Australia	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
Buru Energy Ltd	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
Chevron Australia	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
Coastal Oil & Gas	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
Energy Resources Ltd	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
Eni Australia Ltd	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
ENOG Resources Australia Block WA-4-488 P/L	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
Esperanca Timor Oan Lda	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
Good H2 Darwin	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
Imperial Oil & Gas	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
IPB WA 424P	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
KATO Energy (WA)	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
KUFPEC (Perth)	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
MEO International	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
Mobile Australia Resources Company	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
Neptune Energy Bonaparte	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
NT Gas Aust	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
Pathfinder Energy	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
SapuraOMV Upstream (WA)	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Skye Petroleum	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
SundaGas Banda Uniperssoal Lda	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
Timor Gap EP	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
Timor Resources	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
Vermilion Oil & Gas Australia	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
Western Gas	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
Woodside Energy Ltd	Industry	Petroleum proponent holders within the Development Drilling Planning Area	Yes	11A 1(d)
Commercial Operators				
Mudz Enterprise	Tourism Operator	Indigenous Tourism Operator near the Development Drilling Planning Area	Yes	11A 1(d)
Oolin Sunday Island Cultural Tours	Tourism Operator	Indigenous Tourism Operator near the Development Drilling Planning Area	Yes	11A 1(d)
The Great Escape Charter Company	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
True North Kimberley Cruises	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Unreel Adventure Safaris	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Derby Lodge	Tourist accommodation provider	The Derby Lodge is a hotel located in the town of Derby, Western Australia. Possibly relevant due to proximity to the project area and may have interests in the potential impact of project activities.	Yes	11A 1(d)
Goombaragin Eco Retreat	Tourism accommodation providers	Beachfront accommodation next to the Development Drilling Planning Area	Yes	11A 1(d)
In WA Adventures	Tourism Operator	Tourism operator with activities conducted in the Development Drilling Planning Area	Yes	11A 1(d)
AAT Kings Darwin Day Tours	Tourism Operator	Tourism Operator with activities conducted in the Development Drilling Planning Area	Yes	11A 1(d)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Absolute Ocean Charters	Tourism Operators	Commercial Boat Operator with activities (including whale watching) in the Development Drilling Planning Area	Yes	11A 1(d)
Adventure Wild Kimberley Tours	Tourism Operator	Tourism Operator with activities (including boat tours) occurring in the Development Drilling Planning Area	Yes	11A 1(d)
Alure Fishing Charters NT	Tourism Operator	Tourism Operator with activities conducted in the Development Drilling Planning Area	Yes	11A 1(d)
Apartments at Blue Seas Resort	Accommodation	Accommodation provider in in Broome with ocean views. Likely to have interest in project activities that may affect water quality and health around Exmouth	Yes	11A 1(d)
Aurora Expeditions	Tourism Operator	Operates activity-based cruises on the northern WA Coastline and is a member of KMTA	Yes	11A 1(d)
Auriga Marine	Transport Operators	Transport Operator conducting operations in and over the ocean in the NT.	Yes	11A 1(d)
Australian Pinnacle Tours	Tourism Operator	Tour operator - of particular relevance are their operations in Broome.	Yes	11A 1(d)
Australia's Coral Coast	Tourism Operator	Tourism portal for Coral Coast tourism operators (aimed at patrons).	Yes	11A 1(d)
Baiyungu Dreaming	Tourism Operator	Indigenous Tourism Operator near the Development Drilling Planning Area	Yes	11A 1(d)
Banana Well Getaway	Tourism Operator	Indigenous Tourism Operator near the Development Drilling Planning Area	Yes	11A 1(d)
Barn Hill Beach Side Station Bay	Tourism accommodation providers	Beachfront caravan park south of Broome with fishing and other coastal recreation opportunities.	Yes	11A 1(d)
Bayside Holiday Apartments	Tourism accommodation providers	Accommodation in Broome - likely to have beachfront activities.	Yes	11A 1(d)
Berkley River Lodge	Tourism accommodation providers	Remote lodge in the East Kimberley situated on the mouth of the Berkley River. Interests associated with environmental impacts and risks.	Yes	11A 1(d)
Birds Eye View Ningaloo	Business Operator	Possibly relevant due to proximity to the shore and may have interests in ocean activities.	Yes	11A 1(d)
Blue Seas Resort	Tourism accommodation providers	Possibly relevant due to proximity to the shore and may have interests in ocean activities.	Yes	11A 1(d)
Bluesun Kimberley	Tourism accommodation providers	Possibly relevant due to proximity to the shore and may have interests in ocean activities.	Yes	11A 1(d)
Borrgoron Cultural Tours	Tourism Operator	Indigenous Tourism Operator near Cygnet Bay Pearl Farm.	Yes	11A 1(d)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Breezes Apartments	Tourism accommodation providers	Possibly relevant due to proximity to the shore and may have interests in ocean activities.	Yes	11A 1(d)
Broome Adventure Company - Turtle Kayak	Tourism Operator	Kayaking tour company located in Broome. Operates within the Development Drilling Planning Area, has social interests.	Yes	11A 1(d)
Broome Cruises / Rottnest Cruises	Tourism Operator	Cruise boat located in the Kimberleys. Operates the Development Drilling Planning Area, has social interests.	Yes	11A 1(d)
Broome Dinosaur Adventures	Tourism Operator / Cruises	Cruise boat located in the Kimberleys. Operates the Development Drilling Planning Area, has social interests. Operates tours in the Broome area, including walking tour of the Catalina wrecks at very low tides.	Yes	11A 1(d)
Broome International Airport	Transport Operators	Broome International Airport supports the regional hub of north-western Australia. Considered the 'Gateway to the Kimberley', BIA meets the needs and expectations of Community, Tourism and Industry, including development of Liquefied Natural Gas (LNG) in the Browse Basin. BIA is privately owned.	Yes	11A 1(d)
Broome Surf School	Business Operator	Water activities in Broome - close to the Development Drilling Planning Area	Yes	11A 1(d)
Broome Time Resort	Tourism accommodation providers	Possibly relevant due to proximity to the Development Drilling Planning Area and may have interests in the potential impact of project activities.	Yes	11A 1(d)
Broome Tours	Tourism Operator	Possibly relevant due to proximity to the Development Drilling Planning Area and may have interests in the potential impact of project activities.	Yes	11A 1(d)
Broome Trike Tours	Tourism Operator	Possibly relevant due to proximity to the Development Drilling Planning Area and may have interests in the potential impact of project activities.	Yes	11A 1(d)
Broome Vacation Village Caravan Park	Tourism accommodation providers	Possibly relevant due to proximity the Development Drilling Planning Area and may have interests in the potential impact of project activities.	Yes	11A 1(d)
Broome Whale Watching	Tourism Operator	Whale watching boat located in Broome. Operates within the Development Drilling Planning Area, has social interests.	Yes	11A 1(d)
Broome's Gateway Pet Friendly Caravan Park & Lodge	Tourism accommodation providers	Possibly relevant due to proximity to the Development Drilling Planning Area and may have interests in the potential impact of project activities.	Yes	11A 1(d)
Bruce Wiggan - Artist in Residence	Tourism Operator	Indigenous Tourism Operator near the Development Drilling Planning Area.	Yes	11A 1(d)
Cable Beach Club Resort and Spa	Tourism accommodation providers	Possibly relevant due to proximity the Development Drilling Planning Area and may have interests in the potential impact of project activities.	Yes	11A 1(d)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Cape Immersion Tours	Tourism Operator	Possibly relevant due to proximity to the Development Drilling Planning Area and may have interests in the potential impact of project activities.	Yes	11A 1(d)
Clearwater Island Lodge	Tourism accommodation providers	Located on Tiwi Islands and is popular for guests seeking fishing charters. Also marketed as Munupi Wilderness Lodge	Yes	11A 1(d)
Coconutz BnB	Tourism accommodation providers	Possibly relevant due to proximity to the Development Drilling Planning Area and may have interests in the potential impact of project activities.	Yes	11A 1(d)
Coral Expeditions	Tourism Operator	Operates cruises on the Kimberley coast. Member of Kimberley Marine Tourism Association (KMTA)	Yes	11A 1(d)
Cygnet Bay Sea Safaris	Tourism Operator	Cygnet Bay Sea Safaris is a tourism company based in Western Australia that offers a range of sea-based tours and activities in the spectacular Kimberley region. The company's tours include whale watching, island exploration, and scenic flights. Possibly relevant due to proximity to the project area and may have interests in the potential impact of project activities.	Yes	11A 1(d)
Diversity Charter Company	Tourism Operator	Cruise boat located in the Kimberleys. Operates within the Development Drilling Planning Area, has social interests. Member of KMTA	Yes	11A 1(d)
Dumbara Burru Caravan Park	Tourism Operator	Indigenous Tourism Operator near the Development Drilling Planning Area	Yes	11A 1(d)
Echidna Walkabout Nature Tours	Tourism Operator	Echidna Walkabout Nature Tours is an eco-tourism company in Australia that offers immersive and educational wildlife tours, with a focus on conservation efforts and sustainable tourism practices. Possibly relevant due to proximity to the project area and may have interests in the potential impact of project activities.	Yes	11A 1(d)
Eco Beach Resort	Tourism accommodation providers	Coastal resort located in West Kimberley. Falls within the Development Drilling Planning Area, has social interests.	Yes	11A 1(d)
Eighty Mile Beach Caravan Park	Tourism accommodation providers	Coastal caravan park located in Eighty Mile Beach. Possibly relevant due to proximity to the Development Drilling Planning Area and may have interests in the potential impact of project activities.	Yes	11A 1(d)
Exmouth Adventure Co	Tourism Operator	Boat tours located in Exmouth. Operates within the Development Drilling Planning Area, has social interests.	Yes	11A 1(d)
Exmouth Boat & Kayak Hire	Tourism Operator	Possibly relevant due to proximity to the Development Drilling Planning Area and may have interests in the potential impact of project activities.	Yes	11A 1(d)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Exmouth Escape Resort	Tourism accommodation providers	Possibly relevant due to proximity to the Development Drilling Planning Area and may have interests in the potential impact of project activities.	Yes	11A 1(d)
Exmouth Holidays	Tourism accommodation providers	Holiday accommodation business in Exmouth with holiday properties to let that have beachfront views, private boat jetties and direct water access.	Yes	11A 1(d)
Exmouth Surf Centre	Business Operator	Possibly relevant due to proximity to the Development Drilling Planning Area and may have interests in the potential impact of project activities.	Yes	11A 1(d)
Exmouth Villas	Tourism accommodation providers	Possibly relevant due to proximity to the Development Drilling Planning Area and may have interests in the potential impact of project activities.	Yes	11A 1(d)
Experience Oz	Tourism Operator	Possibly relevant due to proximity to the Development Drilling Planning Area and may have interests in the potential impact of project activities.	Yes	11A 1(d)
Experience Murujuga	Tourism Operator	Indigenous Tourism Operator near the Development Drilling Planning Area	Yes	11A 1(d)
Faraway Bay	Tourism accommodation providers	Coastal resort located in East Kimberley. Falls within the Development Drilling Planning Area, has social interests.	Yes	11A 1(d)
Fishabout Fishing Tours - Bathurst Island	Tourism Operator	Fishing tours and travel agent with operations in WA and NT.	Yes	11A 1(d)
Fishing Melville Island Lodge	Tourism accommodation providers	Tourism Provider with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Fly Broome	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Gnylmarung Campground	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Go Horizontal Falls Tours	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Gambanan Wilderness Retreat	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Gwoonwardu Mia	Cultural Centre	Cultural centre in Gascoyne region. Interests include associated environmental impacts and risks. Also has cultural interests connected with the sea.	Yes	11A 1(d)
Jilinya Adventures	Tourism Operator	Indigenous Tourism Operator near the Development Drilling Planning Area	Yes	11A 1(d)
Karma IV Charters	Charter boat operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
KAS Helicopters	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Kimberley Air Tours	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Kimberley Boat Cruises	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Kimberley Coastal Camp	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Kimberley Cruise Centre	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Kimberley Entrance Caravan Park	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Kimberley Pearl Charters	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Kimberley Ports Authority	Port Authority	Commercial Operator with activities on and adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Kimberley Quest - Beyond Adventure	Tourism Operator	Commercial cruise operators in Kimberley	Yes	11A 1(d)
Kimberley River Lodge	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Kimberley Travellers Lodge	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Kimberley Wild Expeditions	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Kings Ningaloo Reef Tours	Charter boat operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Kuri Bay Sport Fishing Tours	Charter boat operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Lady M Cruising	Tourism Operator	Cruise company operating in Kimberley. Member of KMTA	Yes	11A 1(d)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Live Ningaloo	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Mackerel Islands Resort (Thevenard & Direction Islands)	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Mantarays Ningaloo Beach Resort	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Mantiyupwi Motel	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Mantra Frangipani Broome	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Matt Wright Wild Territory	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Middle Lagoon	Tourism accommodation providers	Campground located near the beach at Middle Lagoon near Cape Leveque.	Yes	11A 1(d)
Moonlight Bay Suites	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Mud Crab Motel	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Munupi Wilderness Lodge (also known as Clearwater Island Lodge)	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Ningaloo Caravan and Holiday Resort	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Ningaloo Glass Bottom Boat	Tourism Operator	Boat tour in Exmouth includes snorkelling tours. Operates within the Development Drilling Planning Area and has social interests.	Yes	11A 1(d)
Ningaloo Lighthouse Holiday Park	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Ningaloo Lodge Exmouth	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Ningaloo Whaleshark-N-Dive	Charter boat Operator	Whale shark boat tours located in Exmouth. Operates within the Development Drilling Planning Area, has social interests.	Yes	11A 1(d)
Oaks Broome Hotel	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Ocean Eco Adventures	Charter boat operator	Boat tours located in the Exmouth. Operates within the Development Drilling Planning Area, has social interests.	Yes	11A 1(d)
Ochre Moon B&B	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Odyssey Australia (Odyssey Traveller)	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area.	Yes	11A 1(d)
Odyssey Expeditions	Tourism Operator	Cruise boat located in the Kimberley's. Operates within the Development Drilling Planning Area, has social interests.	Yes	11A 1(d)
One Tide Charters	Tourism Operator	Kimberley cruise operator with activities in the marine environment	Yes	11A 1(d)
Pearl Luggers Broome	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Phat Time Fishing	Charter boat operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Pilbara Tours	Tourism Operator	Indigenous Tourism Operator near the Development Drilling Planning Area	Yes	11A 1(d)
Pinctada McAlpine House	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Pindan Bar & Restaurant Broome Sanctuary Resort	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Port of Darwin	Port Operations	Commercial Operator with activities, functions, and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
Potshot	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
RAC Exmouth Cape Holiday Park	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Red Dirt 4WD Rentals	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Reel Teaser Fishing Adventures	Charter boat operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area.	Yes	11A 1(d)
Roebuck Bay Hotel	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Sealink Northern Territory	Transport Operators	Commercial Operator with activities in or adjacent to the Development Drilling Planning Area.	Yes	11A 1(d)
Seashells Resort	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Seaswift	Transport Operators	Commercial Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Seven Spirit Bay (Resort)	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Short St Gallery	Art Gallery - Aboriginal Artists	Commercial Operator with activities in or adjacent to Planning Areas. Cumulative interests by virtue of being Indigenous Operated.	Yes	11A 1(d)
Slick Fishing Charters Broome	Charter boat operator	Commercial Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Southern Cross Cultural Walk - Lullumb	Tourism Operator	Indigenous Tourism Operator near the Development Drilling Planning Area	Yes	11A 1(d)
Spinifex Hotel	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Spirit Safaris	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Sundowner Camel Tours	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area.	Yes	11A 1(d)
The Flying Sandgroper	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Go Beyond Broome	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
The Mangrove Hotel	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
The Pearle of Cable Beach	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
The Travelling Naturalist	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area.	Yes	11A 1(d)
Three Islands Whale Shark Dive	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area.	Yes	11A 1(d)
Tiwi Island Adventures	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area.	Yes	11A 1(d)
Tiwi Island Retreat	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Tropicana Inn Broome	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Ultimate Watersports	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Venture North	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area.	Yes	11A 1(d)
View Ningaloo	Tourism accommodation providers	Accommodation provider located near the ocean. Likely to have interests and potentially activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Walk Darwin Pty Ltd	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area.	Yes	11A 1(d)
West Coast Flyboarding	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area.	Yes	11A 1(d)
West Kimberley Fishing Tours	Charter boat operator	Commercial Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Willie Pearl Lugger Cruises	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Wula Gura Nyinda Eco Adventures	Tourism Operator	Indigenous Tourism Operator near the Development Drilling Planning Area	Yes	11A 1(d)
YKNOT Fishing Charters	Charter boat Operator	Commercial Operator with activities in or adjacent to the Development Drilling Planning Area.	Yes	11A 1(d)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Eco Abrolhos	Tourism Operator	Cruise operator on the WA Kimberley coastline and Abrolhos Islands with marine based activities. Member of KMTA	Yes	11A 1(d)
Broome Recreation and Aquatic Centre	Recreational Centre	Community recreational and aquatic centre	Yes	11A 1(d)
Interest Groups				
Australian Wildlife Conservancy	Environment	NFP focused on conservation of threatened wildlife and ecosystems in Australia.	Yes	11A 1(d)
10,000 Birds	Environment (Birding)	Likely to have interests in project activities that may impact the health, feeding, and breeding grounds of any migratory or seabirds in the Development Drilling Planning Areas.	Yes	11A 1(e)
Australasian Seabird Group	Environment	Established to promote seabird research and conservation in Australasia and the South Pacific.	Yes	11A 1(e)
BirdLife WA	Environment	Peak Body for Birdwatching in WA. Area covers WA as well as Cocos (Keeling) Islands, Christmas Island and Ashmore Reef. 6 regional groups. Carry out research projects with DBCA e.g., Australasian Bittern Recovery Team	Yes	11A 1(e)
Maritime Archaeological Association of Western Australia	History	Interest Group focused on Maritime Archaeology - potential for interests to intersect if Project activities impact any archaeological sites.	Yes	11A 1(d)
North Kimberley Land Conservation Committee	Environment	Environment interest group that intersects on Planning Areas.	Yes	11A 1(d)
Recfishwest	Peak Body	Peak Body for Recreational Fishing in Western Australia.	Yes	11A 1(d)
Australasian Wader Studies Group (AWSG)	Environment	Organisation that has functions, activities, and interests in the Development Drilling Planning Area. Activities including monitoring shorebird populations, partnership with research institutions, formulate and promote policies for conservation of shorebirds and their habitat, promote wetland conservation and assist with nomination of sites for RAMSAR listing.	Yes	11A 1(d)
Birding in Kimberley	Environment	Interest group engaging in birding activities.	Yes	11A 1(d)
Birdlife Top End	Environment	Central forum for community activities centred around the conservation of birds and their habitats. Conducts Migratory Shorebird Monitoring Program at several sites around Darwin. Monitors Key Biodiversity Areas	Yes	11A 1(d)
Broome Bird Observatory	Environment	Shorebird research in the East-Asian Australasian Flyway	Yes	11A 1(d)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Broome Fishing Club	Recreational Fishing	Recreational fishing club with membership with interests in the marine environment	Yes	11A 1(d)
Broome Surf Life Saving Club	Recreation	Water activities in Broome - close to project areas.	Yes	11A 1(d)
Carnarvon Yacht Club	Recreation	Interest group with activities in the marine environment	Yes	11A 1(d)
Diving WA Shipwrecks	Activity-Based	Public group with a website - long history diving shipwrecks in WA and working in Tourism and Conservation. Sit on the MAAWA board and/or are members.	Yes	11A 1(d)
Finnis-Reynolds Catchment Groups	Environment	Environment management group working in area that borders the ocean in NT.	Yes	11A 1(d)
Kimberley Birdwatching	Environment	Birdwatching group with interest in animals who may be affected by Project activities.	Yes	11A 1(d)
King Bay Game Fishing Club	Activity-Based	Fishing club with activities and interests in the Development Drilling Planning Area.	Yes	11A 1(d)
Port Hedland Game Fishing Club	Recreational Fishing	Fishing club with activities and interests in the Development Drilling Planning Area	Yes	11A 1(d)
Roebuck Bay Working Group Inc	Environment	Interest group with environmental focus in the Development Drilling Planning Area	Yes	11A 1(d)
Non-Government Organisations				
Ben and Jerry's	Environment	Activist with strong interest in climate change, supporting action against sea country petroleum and gas activities.	Yes	11A 1(d)
Exmouth Sea Shepherd	Environment	Environmental activists	Yes	11A 1(d)
Surfrider Foundation Australia	Environment	Dedicated to the protection and enjoyment of the world's ocean, waves, and beaches, for all people	Yes	11A 1(d)
Astron Environmental	Consultancy	Environmental consultancy group specialising in environmental management, energy, government, land development and conservation projects	Yes	11A 1(d)
Australian Conservation Foundation	Environment	Recognised conservation organisation with interests in marine environment that likely extent into the Development Drilling Planning Area.	Yes	11A 1(d)
Australian Marine Conservation Society	Environment	The Australian Marine Conservation Society (AMCS) is a peak conservation body with strong interest in activities in the marine environment.	Yes	11A 1(d)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Australian Marine Oil Spill Centre (AMOSC)	Industry	AMOSC has an interest and a function in relation to the management of the oil industry's response to major oil spill. AMOSC's also play a role in training and coordinating industry personnel ready to provide immediate emergency oil spill response.	Yes	11A 1(d)
Conservation Council of WA	Environment	NGO in WA with an Environment focus.	Yes	11A 1(d)
Environmental Defenders Office WA	Environment	The Environmental Defender's office of WA (EDOWA) is a not-for-profit and non-Government organisation that specialises in public interest environmental law.	Yes	11A 1(d)
Environs Kimberley	Environment	Environs Kimberley. Saving the nature of the Kimberley. Donate. As the peak environmental NGO for the Kimberley region in far north-west Australia, Environs Kimberley is dedicated to looking after the health of the land and waters of the region.	Yes	11A 1(d)
Greenpeace	Environment	Activist with strong interest in climate change, supporting action against sea country petroleum and gas activities.	Yes	11A 1(d)
High Seas Alliance	International	The High Seas Alliance is a partnership of organizations and groups aimed at building a strong common voice and constituency for the conservation of the high seas.	Yes	11A 1(d)
Martuwarra Fitzroy River Council	Environment	NGO in WA with an Environment focus.	Yes	11A 1(d)
Protect Ningaloo	Environment	NGO in WA with an Environment focus.	Yes	11A 1(d)
Protecting the Kimberley	Environment	NGO in WA with an Environment focus.	Yes	11A 1(d)
Save the Kimberley	Environment	NGO in WA with an Environment focus.	Yes	11A 1(d)
Sea Turtle.org	Environment	NGO in WA with an Environment focus.	Yes	11A 1(d)
The Wilderness Society	Environment	NGO in WA with an Environment focus.	Yes	11A 1(d)
United Nations	International	NGO in WA with an Environment focus.	Yes	11A 1(d)
WA Marine Science Institute	Environment	NGO with Environment protection focus that will have interest in the Development Drilling Planning Area and project activities.	Yes	11A 1(d)
WA Parks Foundation	Environment	NGO in WA with an Environment focus.	Yes	11A 1(d)
WWF	Environment	NGO with Environment protection focus that will have interest in the Development Drilling Planning Area and project activities.	Yes	11A 1(d)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
AIATSIS (Australian Institute of Aboriginal and Torres Strait Islander Studies)	Research Institute	AIATSIS is an Indigenous-led, national institute that celebrates, educates, and inspires people from all walks of life to connect with the knowledge, heritage and cultures of Australia's First Peoples	Yes	11A 1(d)
Broome Historical Society & Museum	Heritage	Possibly relevant due to proximity to the project area and may have interests in the potential impact of project activities on historical and heritage items/places.	Yes	11A 1(d)
Broome Visitors Centre	Visitor Information	Tourism outlet - assisting with Broome accommodation, Broome tours, Kimberley tours, details on The Gibb River Road, Cape Leveque and the Dampier Peninsula, car hire, Cable Beach accommodation, what's on in Broome, hotels in Broome and more. Possibly relevant due to proximity to the project area and may have interests in the potential impact of project activities.	Yes	11A 1(d)
Conservation Volunteers Australia	Environment	Conservation Volunteers is a non-profit organization that operates in Australia, New Zealand, and around the world. The organisation provides opportunities for volunteers to participate in conservation projects and initiatives, including habitat restoration, wildlife monitoring, and environmental education. Has social and environmental interests.	Yes	11A 1(d)
Derby Visitor Centre	Visitor Information	The Derby Visitor Centre is a tourist information centre located in the town of Derby, Western Australia. The centre provides a range of services and resources for visitors to the region, including travel advice, maps, brochures, and information on local attractions and activities. Possibly relevant due to proximity to the project area and may have interests in the potential impact of project activities.	Yes	11A 1(d)
Regional Development Australia Kimberley	Regional Development	Regional Development Australia (RDA) is an Australian Government initiative that brings together all levels of government to enhance the development of Australia's regions.	Yes	11A 1(d)
Top End Regional Economic Growth Committee (REGC)	Regional Development	An independent advisory committee for the Top End, providing a direct voice to government to ensure the region's economic challenges and opportunities are considered in relevant strategic regional planning.	Yes	11A 1(d)
Northern Territory Land Corporation	Regional Development	NT Land Corporation (NTLC) is a corporate entity and land manager. The NT Land Corporation holds and maintains land in the NT for various purposes including future National Parks, land for future townships, ports, logistics and industrial uses. Some of these land holders intersect with the Development Drilling Planning Area e.g., the Gunn Point Peninsula. The NTLC has a function in relation to the protection and administration of this land	Yes	11A 1(d)
Land Development Corporation (LDC) NT	Non-Government Organisation	They are strategically planning for the future by developing industrial, commercial and residential land for private and Government investment.	Yes	11A 1(d)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Academic and Research				
Deep History of Sea Country Research Project	Academic Project	The Deep History of Sea Country Research Project is a collaborative research initiative that aims to document and preserve the cultural and environmental heritage of Indigenous Sea Countries in northern Australia. The project involves a range of Indigenous and non-Indigenous researchers, community members, and relevant persons, and focuses on using traditional knowledge, scientific research, and technological innovation to better understand and protect Australia's marine environments.	Yes	11A 1(d)
Fisheries Research and Development Corporation (FRDC)	Fisheries	Statutory corporation that manages research and development investment by the Australian Government and the Australian fishing and aquaculture commercial, recreational, and Indigenous sectors	Yes	11A 1(d)
Kimberley Marine Research Station	Research Institute	Operational marine science hub for independent research on the coastal and marine environments of the Kimberley. Research activities and interests in marine environment	Yes	11A 1(d)
Minderoo Foundation Exmouth Research Centre	Research Institute	The Minderoo Foundation Exmouth Research Lab has interests and activities related to high-impact marine research particularly in the World Heritage listed Ningaloo Reef.	Yes	11A 1(d)
Nulungu Research Institute	Research Institute	Nulungu Research Institute is a Kimberley-based organisation of Indigenous and non-Indigenous researchers, each with extensive practical and theoretical knowledge. Has social and cultural interests.	Yes	11A 1(d)
Australian National University	Academic Project	Research institution that has been identified as possibly engaging in research located within the Development Drilling Planning Area, therefore having interests.	Yes	11A 1(d)
The Ecology Centre (UQ)	Environment	Potential interest in the Development Drilling Planning Area through research activities.	Yes	11A 1(d)
CSIRO	Research	Federal government agency that is responsible for scientific research and innovation in a range of fields. The organisation conducts research in areas such as agriculture, health, energy, and the environment, and aims to provide scientific solutions to key challenges facing Australia and the world. May have social and environmental interests.	Yes	11A 1(d)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Industry Representative Bodies				
Australian Energy Producers	Industry Representative	APPEA is the peak national body representing Australia's upstream oil and gas sector.	Yes	11A 1(d)
Amateur Fishermen's Association NT	Recreational Fishing	Peak Body for recreational fishing in the NT. Has a function representing recreational fishers who operate in the Development Drilling Planning Areas.	Yes	11A 1(d)
Australia's North-West Tourism	Peak Body	Tourism marketing agency in Broome, promoting tourism in the Kimberley and Pilbara regions.	Yes	11A 1(d)
Broome Chamber of Commerce and Industry	Peak Body	The Broome Chamber of Commerce & Industry is a peak industry body that has been representing and supporting businesses in Broome	Yes	11A 1(d)
Kimberley Marine Tourism Association	Peak Body	Tourism Peak Body with membership base across Kimberley. Members may have activities in the Development Drilling Planning Areas	Yes	11A 1(d)
North Territory Guided Fishing Industry Association (NTGFIA)	Recreational Fishing	Identified in Tiwi Islands Sea Country Plan as key relevant person. The peak body responsible for promoting, developing, and maintaining the guided fishing industry in the Territory. Interests extend to both coastal rivers, estuaries and open waters of the Timor and Arafura Seas.	Yes	11A 1(d)
Western Australian Game Fishing Association (WAGFA)	Game Fishing	Industry representative for Small Pelagic Fishery Industry.	Yes	11A 1(d)
Service Providers				
Broome Sea Rescue	Volunteer & Emergency Services	Emergency services located in Broome. Operates within the Development Drilling Planning Area, has social interests.	Yes	11A 1(d)
Broome Volunteer Fire and Rescue Service	Volunteer & Emergency Services	Emergency services located in Broome. Operates within the Development Drilling Planning Area, has social interests. Possibly relevant and would become involved in the case of an incident on the Crux platform.	Yes	11A 1(d)
Dampier Surf Life Saving Club	Volunteer & Emergency Services	Dampier Surf Life Saving Club is a volunteer surf lifesaving club located in Dampier, Western Australia. The club provides surf lifesaving services, including beach patrols, first aid, and rescue services, to the local community and visitors to the area. Possibly relevant due to proximity to the project area and may have interests in the potential impact of project activities.	Yes	11A 1(d)
Exmouth State Emergency Service	Volunteer & Emergency Services	Possibly relevant due to proximity to the project area and may have interests in the potential impact of project activities.	Yes	11A 1(d)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Exmouth Volunteer Marine Rescue	Volunteer & Emergency Services	Possibly relevant due to proximity to the project area and may have interests in the potential impact of project activities.	Yes	11A 1(d)
Kimberley Information & Travel Centre	Visitor Information	Information service focused on Kimberley travel information.	Yes	11A 1(d)
Marine Rescue Onslow	Volunteer & Emergency Services	Volunteer marine rescue group - activities and functions in the Development Drilling Planning Area.	Yes	11A 1(d)
Marine Rescue Port Hedland	Volunteer & Emergency Services	Sea rescue	Yes	11A 1(d)
Ningaloo Aquarium and Discovery Centre	Visitor Information	Information centre and commercial provider in area adjacent to the Development Drilling Planning Area	Yes	11A 1(d)
Ningaloo Centre	Visitor Information	Visitor centre in Exmouth. Has social and environmental interests in the marine environment.	Yes	11A 1(d)
North Regional TAFE	Education	North Regional TAFE is the largest provider of training and vocational services in the north of Western Australia, servicing communities and industries across a region.	Yes	11A 1(d)
NT Emergency Service Darwin Volunteer Unit	Volunteer & Emergency Services	Volunteer emergency service in Darwin.	Yes	11A 1(d)
Onslow Health Service	Volunteer & Emergency Services	Emergency services located in Onslow. Operates within the Development Drilling Planning Area, has social interests.	Yes	11A 1(d)
St John - Sub Centre Exmouth	Volunteer & Emergency Services	Volunteer emergency service in Exmouth.	Yes	11A 1(d)
St John - Sub Centre Onslow	Volunteer & Emergency Services	Volunteer emergency service in Onslow.	Yes	11A 1(d)
Local Councils				
Broome Shire Council	Local Government	Local Government area responsible where transit of personnel occurs for project. Interest in economic development of region and Broome as LNG transit hub. Responsible for development approvals in Broome Shire should any further infrastructure be required for the project (not planned at this stage).	Yes	11A 1(d)
City of Palmerston Municipal Council	Local Government	Government body/group with functions or interests in the Development Drilling Planning Area	Yes	11A 1(d)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Darwin City Council	Local Government	City of Darwin is the local government body responsible for the municipality of Darwin. Interest in economic development of region.	Yes	11A 1(d)
Darwin Municipal Council	Local Government	Includes waterfront areas that intersect with the Development Drilling Planning Area. Council has a governance function and controls activities along the waterfront	Yes	11A 1(d)
Darwin Waterfront Precinct Municipality	Local Government	Darwin Waterfront Corporation is a statutory authority responsible for developing, managing and servicing the Darwin Waterfront Precinct.	Yes	11A 1(d)
East Arnhem Regional Council	Local Government	Includes remote Aboriginal community of Galiwin'ku located on Wessel Islands, Milingimbi, Ramingining, Gapuwiyak on land and proximate to the Development Drilling Planning Area. Council has a governance function and controls activities/infrastructure along the waterfront	Yes	11A 1(d)
Kimberley Development Commission	Local Government	The Kimberley Development Commission is a statutory authority of the government of Western Australia. Their role is to promote the economic and social development in the Kimberley.	Yes	11A 1(d)
Litchfield Council	Local Government	Local government council on the land of the Larrakia, Woolner and Djowei Aboriginal people.	Yes	11A 1(d)
Shire of Derby/West Kimberley	Local Government	Government body/group with functions or interests in the Development Drilling Planning Area.	Yes	11A 1(d)
Tiwi Islands Regional Council	Local Government	Government body/group with functions or interests in the Development Drilling Planning Area.	Yes	11A 1(d)
Victoria Daly Regional Council	Local Government	Government body/group with functions or interests in the Development Drilling Planning Area including bordering waterfront.	Yes	11A 1(d)
Wagait Shire Council	Local Government	Government body/group with functions or interests in the Development Drilling Planning Area, including bordering waterfront.	Yes	11A 1(d)
West Arnhem Region Council	Local Government	Government body/group with functions or interests in the Development Drilling Planning Area, including bordering waterfront.	Yes	11A 1(d)
West Daly Regional Council	Local Government	Government body/group with functions or interests in the Development Drilling Planning Area, including bordering waterfront.	Yes	11A 1(d)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category	Tier
Indigenous Organisations and People					
Balanggarra Aboriginal Corporation	Native Title Determination	Statutory function, activities and interests due to role as RNTBC/ PBC. Represent native title holders.	Yes	11A 1(d)	1
Bardi and Jawi Niimidiman Aboriginal Corporation (BJNAC)	RNTBC / Native Title Determination	Statutory function, activities and interests due to role as RNTBC/ PBC for Bardi and Jawi people. Represent native title holders.	Yes	11A 1(d)	1
Dambimangari Aboriginal Corporation (DAC)	RNTBC	Statutory function, activities and interests due to role as RNTBC/ PBC. Represent native title holders. Wunambal Gaambera, Dambimangari and Willinggin people make up the Wanjina Wunggurr Community, with each group managing its own Country.	Yes	11A 1(d)	1
Djarindjin Aboriginal Corporation (DAC)	Aboriginal Corporation	Djarindjin Aboriginal Corporation (DAC) operate the airport for Prelude.	Yes	11A 1(d)	1
Kimberley Land Council (KLC)	Land Council	KLC is the peak Indigenous body in the Kimberley region working with Indigenous people to secure native title, conduct conservation and land management activities and develop cultural business enterprises. Also a Native Title Representative Body. KLC identified the following organisations that would have an interest: • Nyangumarta Karajarri Aboriginal Corporation; • Karajarri Traditional Lands Association Aboriginal Corporation; • Yawuru Aboriginal Corporation; • Gogolanyngor Aboriginal Corporation; • Wanjina Wunggurr (Native Title) Aboriginal Corporation; • Mayala Inninalang Aboriginal Corporation; • Balanggarra Aboriginal Corporation; and • Miriuwung & Gajerrong #1 (Native Title Prescribed Body Corporate) Aboriginal Corporation. • Nyul Nyul Aboriginal Corporation; • Nimanburr Aboriginal Corporation; • Walalakoo Aboriginal Corporation; • Warrwa People Aboriginal Corporation; and • Bardi & Jawi Niimidiman Aboriginal Corporation	Yes	11A 1(d)	1

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category	Tier
Mayala Inninalang Aboriginal Corporation (incl Mayala 2)	RNTBC	Statutory function, activities and interests due to role as RNTBC/ PBC. Represent native title holders. KLC confirmed they are the correct contact point.	Yes	11A 1(d)	1
Wanjina-Wunggurr Aboriginal Corporation	RNTBC	Statutory function, activities and interests due to role as RNTBC/ PBC. Represent native title holders. KLC confirmed they are the correct contact point. Wunambal Gaambera, Dambimangari and Willinggin people make up the Wanjina Wunggurr Community, with each group managing its own Country.	Yes	11A 1(d)	1
Wilinggin Aboriginal Corporation	Aboriginal Corporation	Wilinggin Aboriginal Corporation is the agent of Wanjina-Wunggurr Aboriginal Corporation in relation to the interests of the Ngarinyin people and activities on Country, which includes, but is not limited to, management of Indigenous Protected Area (IPA) as well as fire and carbon projects within the Wilinggin native title determination. Wunambal Gaambera, Dambimangari and Willinggin people make up the Wanjina Wunggurr Community, with each group managing its own Country.	Yes	11A 1(d)	1
Wunambal Gaambera Aboriginal Corporation	Aboriginal Corporation	Conduct Land business and interest transactions of the Wunambal Gaambera people, who hold Native Title over land and seas (Wanjina Wunggurr (Uunguu) NT determination. Wunambal Gaambera, Dambimangari and Willinggin people make up the Wanjina Wunggurr Community, with each group managing its own Country.	Yes	11A 1(d)	1
Dak Djerat Guwe People	Native Title Claim	Native title claimants. This group has been identified as potentially having separate and unique functions, interests, and activities in their land and/or sea country.	Yes	11A 1(d)	2
Dhimurru Aboriginal Corporation	Aboriginal Corporation	Manage natural and cultural resources of Yolngu people - seafloor and habitat mapping, as well as surveys of fish and benthic communities.	Yes	11A 1(d)	2
Gogolanyngor Aboriginal Corporation	RNTBC	Statutory function, activities and interests due to role as RNTBC/ PBC. Represent native title holders. KLC confirmed they are the correct contact point.	Yes	11A 1(d)	2
Goolarabooloo Millibinyarri Indigenous Corporation	Aboriginal Corporation	GMIC represents the traditional law and culture families of the Goolarabooloo people	Yes	11A 1(d)	2
Karajarri Traditional Lands Association (KTLA) (Including Nyangumarta Karajarri Aboriginal Corporation).	Native Title Holders/ RNTBC	Statutory function, activities and interests due to role as RNTBC/ PBC. Represent native title holders. The Karajarri community has a native title determination across shared country for two different tribal groups who share traditional laws and cultural connection to the area. Nyangumarta Karajarri Aboriginal Corporation refers to a shared portion of land between Karajarri and Nyangumarta Warran determinations and KLC are the contact point.	Yes	11A 1(d)	2

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category	Tier
Larrakia Development Corporation	Aboriginal Corporation	Peak body for Larrakia people. Functions, activities, interests	Yes	11A 1(d)	2
Miriuwung-Gajerrong (Western Australia)	RNTBC	Statutory function, activities and interests due to role as RNTBC/ PBC. Represent native title holders. KLC confirmed they are the correct contact point.	Yes	11A 1(d)	2
Murujuga Aboriginal Corporation Including the land and sea unit	Aboriginal Corporation	Function, activities and interests due to role as administering entity for Burryp and Mailand Industrial Estates. Representing Ngarluma, Mardudhunera, Yaburara, Yindjibarndi, and Wong-Goo-Tt-Oo	Yes	11A 1(d)	2
Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC)	Aboriginal Corporation	Statutory function, activities and interests due to role as RNTBC/ PBC. Represent native title holders.	Yes	11A 1(d)	2
Ngarrawanji Aboriginal Corporation	PBC	Self-identified through the process.	Yes	11A 1(e)	2
Nimanburr Aboriginal Corporation	RNTBC	Statutory function, activities and interests due to role as RNTBC/ PBC. Represent native title holders. KLC confirmed they are the correct contact point.	Yes	11A 1(d)	2
Northern Land Council (NLC)	Land Council	NLC is the peak Indigenous body in the north part of the Northern Territory working with Indigenous people to secure native title, conduct conservation and land management activities and develop cultural business enterprises. Also a Native Title Representative Body.	Yes	11A 1(d)	2
Nyangumarta Warrarn Aboriginal Corporation	Native Title Determination	Statutory function, activities and interests due to role as RNTBC/ PBC. Represent native title holders.	Yes	11A 1(d)	2
Nyul Nyul PBC Aboriginal Corporation	RNTBC	Statutory function, activities and interests due to role as RNTBC/ PBC. Represent native title holders. This group was identified by the KLC to Shell, including that the KLC is the correct contact point.	Yes	11A 1(d)	2
Tiwi Land Council (TLC)	Aboriginal Land Trust/ Land Council	Statutory function, activities and interests due to role as Land Council. Represents Tiwi people in the protection of land, sea and environment. The TLC is responsible to ensure that activities on the Tiwi islands are undertaken only after consultation with the relevant Tiwi Clan group. The TLC is made up of four members from each of the Clan groups of the Tiwi Islands.	Yes	11A 1(d)	2
Walalakoo Aboriginal Corp	RNTBC	Statutory function, activities and interests due to role as RNTBC/ PBC. Represent native title holders.	Yes	11A 1(d)	2
Wanparta Aboriginal Corporation	RNTBC	Statutory function, activities and interests due to role as RNTBC/ PBC. Represent native title holders.	Yes	11A 1(d)	2

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category	Tier
Warrwa Mawadjala Gadjidgar	Native Title Determination	Statutory function, activities and interests due to role as RNTBC/ PBC. Represent native title holders. KLC confirmed they are the correct contact point.	Yes	11A 1(d)	2
Wirrawandi Aboriginal Corporation	RNTBC	Statutory function, activities and interests due to role as RNTBC/ PBC. Represent native title holders.	Yes	11A 1(d)	2
Yamatji Marlpa Aboriginal Corporation (YMAC)	Aboriginal Corporation	Yamatji Marlpa Aboriginal Corporation (YMAC) is the native title representative body for the Pilbara, Midwest, Murchison, and Gascoyne regions of Western Australia.	Yes	11A 1(d)	2
Nyamba Buru Yawuru Aboriginal Corporation	RNTBC	Statutory function, activities and interests due to role as RNTBC/ PBC. Represent native title holders.	Yes	11A 1(d)	2
Anindilyakwa Land Council	Aboriginal Land Council	Swordfish interest	Yes	11A 1(d)	3
Ardi'ol Art & Culture	First Nations Group	Saltwater people and clan group of the Bardi tribe with interests in Ardyaloon (One Arm Point) and activities and interests in the Development Drilling Planning Area	Yes	11A 1(d)	3
Ardyaloon Trochus Hatchery and Aquaculture Centre	Indigenous Fisheries	The peak representative body for Indigenous aquaculture activities in the Kimberley. Lead organisation with Bardi Ardyaloon Hatchery. Has functions and interests in the Development Drilling Planning Area	Yes	11A 1(d)	3
Arnhem Land Aboriginal Land Trust	Aboriginal Land Trust	Est under ALRA. Hold ownership of Aboriginal Land that intersects and extends within (islands) the Development Drilling Planning Area. Controls via Permit access the intertidal zone.	Yes	11A 1(d)	3
Ashburton Aboriginal Corporation	Aboriginal Corporation	Aboriginal Corp - no coastal intersection.	Yes	11A 1(d)	3
Bardi Jawi Rangers	Land and Sea Management	Indigenous Rangers have functions, activities, and interests to maintain the health of country and sea - linked to Native Title Determinations, IPA agreements or Federal/ State funding	Yes	11A 1(d)	3
Bawaka Experience	Business Operator	Indigenous tour business in NT. Activities interest	Yes	11A 1(d)	3
Bidyadanga Aboriginal Community La Grange Inc.	Aboriginal Corporation	Local Aboriginal corporation for remote community. Activities and interests in area.	Yes	11A 1(d)	3
Bulgul Land and Sea (Management) Rangers	Land and Sea Management	Indigenous Rangers have functions, activities, and interests to maintain the health of country and sea - linked to Native Title Determinations, IPA agreements or Federal/ State funding. Undertaking beach patrols, monitoring of flatback turtle, ghost net clearance, sacred site protection, and work with Finnis-Reynolds Catchment Groups.	Yes	11A 1(d)	3

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category	Tier
Cheeditha Art Group	First Nations Tourism Operator	Indigenous Tourism Operator near the Development Drilling Planning Area.	Yes	11A 1(d)	3
Crocodile Islands Rangers / Maringa Ocean Patrol	Land and Sea Management	Indigenous Rangers have functions, activities, and interests to maintain the health of country and sea - linked to Native Title Determinations, IPA agreements or Federal/ State funding.	Yes	11A 1(d)	3
Croker Island	RNTBC/ Native Title Determination	Statutory function, activities and interests due to role as RNTBC/ PBC. Represent native title holders.	Yes	11A 1(d)	3
Delissaville/Wagait/Larrakia Aboriginal Land Trust	Aboriginal Land Trust	The trust is responsible for managing and protecting traditional lands and waters on behalf of the Larrakia people of the region, including conservation and cultural heritage management. Has social, cultural, and environmental interests.	Yes	11A 1(d)	3
Djarindjin Campgrounds	Accommodation / Tourism Operator	Indigenous Tourism Operator near the Development Drilling Planning Area	Yes	11A 1(d)	3
Djelk IPA/ Bawinanga (Djelk) Rangers	Land and Sea Management	Indigenous Rangers have functions, activities, and interests to maintain the health of country and sea - linked to Native Title Determinations, IPA agreements or Federal/ State funding	Yes	11A 1(d)	3
Garngi Land and Sea Management / Garngi Community Rangers	Land and Sea Management	Indigenous Rangers have functions, activities, and interests to maintain the health of country and sea - linked to Native Title Determinations, IPA agreements or Federal/ State funding	Yes	11A 1(d)	3
Gooniyandi Aboriginal Corporation	Native Title Holders	Statutory function, activities and interests due to role as RNTBC/ PBC. Represent native title holders.	Yes	11A 1(d)	3
Gumurr Marthakal Rangers	Land and Sea Management	Indigenous Rangers have functions, activities, and interests to maintain the health of country and sea - linked to Native Title Determinations, IPA agreements or Federal/ State funding. In the process of declaring an Indigenous Protected Area and related management plan.	Yes	11A 1(d)	3
Individual Indigenous Person	Individual	Self-identified through the process	Yes	11A 1(e)	3
Jaru PBC	PBC	Self-identified through the process.	Yes	11A 1(e)	3
Jikilaruwu (Bathurst Island)	Tiwi Landowning Group	Indigenous Landownership group. Activities/ interests	Yes	11A 1(d)	3

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category	Tier
Joombarn-Buru Aboriginal Corporation	Aboriginal Corporation	Self-identified through the process.	Yes	11A 1(e)	3
Julyardi Aboriginal Corporation	Aboriginal Corporation	Social programs	Yes	11A 1(d)	3
Kalumburu Aboriginal Corporation	Aboriginal Corporation	Local Aboriginal corporation for remote community situated on the coast. Falls within the Development Drilling Planning Area.	Yes	11A 1(d)	3
Kariyarra Aboriginal Corporation	RNTBC	Statutory function, activities and interests due to role as RNTBC/ PBC. Represent native title holders.	Yes	11A 1(d)	3
Kimberley Aboriginal and Language Cultural Centre (KALACC)	Cultural Centre	Law and cultural business. Activities, interests	Yes	11A 1(d)	3
Kimberley Country Indigenous Guided Walks	Indigenous Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area. Cumulative interests due to being Indigenous operated.	Yes	11A 1(d)	3
Kimberley Cultural Adventures	Indigenous Tourism Operator	Indigenous Tourism Operator near the Development Drilling Planning Area	Yes	11A 1(d)	3
Kimberley Jiyigas	Interest Group	Collective of Kimberley Indigenous women that provides a platform for facilitating the united collective voice.	Yes	11A 1(d)	3
Kimberley Ranger Network	Land and Sea Management	Indigenous Rangers have functions, activities, and interests to maintain the health of country and sea - linked to Native Title Determinations, IPA agreements or Federal/ State funding. Activities, interests	Yes	11A 1(d)	3
Kooljaman at Cape Leveque	Tourism Operator	Indigenous Tourism Operator near the Development Drilling Planning Area	Yes	11A 1(d)	3
KRED	Aboriginal Corporation	Social and economic development across the Kimberley. Functions, activities, interests.	Yes	11A 1(d)	3
Kullari Regional Communities Incorporated (KRCI)	Community Development	Indigenous not for profit organisation predominantly funded by the Federal Government. A mission to provide Aboriginal People with assistance, programs, and activities to enhance individual skills, community self-	Yes	11A 1(d)	3

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category	Tier
		management, economic development and a pathway to accredited training and employment.			
Legune Pastoral Lease	Native Title Determination	Statutory function, activities and interests due to role as RNTBC/ PBC.	Yes	11A 1(d)	3
Lombadina Aboriginal Corporation (LAC) Including Lombadina Accommodation & Tours	Aboriginal Corporation	Tourism and commercial activities/ interests	Yes	11A 1(d)	3
Mabu Buru Tours	Indigenous Tourism Operator	Indigenous Tourism Operator near the Development Drilling Planning Area	Yes	11A 1(d)	3
Malak Malak Land and Water Management Rangers	Land and Sea Management	Indigenous Rangers have functions, activities, and interests to maintain the health of country and sea - linked to Native Title Determinations, IPA agreements or Federal/ State funding.	Yes	11A 1(d)	3
Malawu (Bathurst Island)	Tiwi Landowning Group	Indigenous landownership group on Tiwi Islands	Yes	11A 1(d)	3
Mantiyupwi (Bathurst and Melville Island)	Tiwi Landowning Group	Indigenous landownership group on Tiwi Islands	Yes	11A 1(d)	3
Mardbalk Land and Sea Management / Warruwi Community Mardbalk Marine Rangers	Land and Sea Management	Indigenous Rangers have functions, activities, and interests to maintain the health of country and sea - linked to Native Title Determinations, IPA agreements or Federal/ State funding.	Yes	11A 1(d)	3
Marrikawuyanga (Melville Island)	Tiwi Landowning Group	Indigenous landownership group on Tiwi Islands	Yes	11A 1(d)	3
Mercedes Cove Exclusive Coastal Retreat	Tourism accommodation providers	Indigenous Tourism Operator near the Development Drilling Planning Area	Yes	11A 1(d)	3
Mowanjum Aboriginal Art & Culture Centre	Art Gallery - Aboriginal Artists	Aboriginal art gallery and representative for Derby artists.	Yes	11A 1(d)	3
Mungullah Community Aboriginal Corporation	Land Council	Aboriginal corporation. This survey discusses sites of significance in the Ningaloo Marine Park area.	Yes	11A 1(d)	3
Munupi (Melville Island)	Tiwi Landowning Group	Indigenous landownership group on Tiwi Islands	Yes	11A 1(d)	3

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category	Tier
Munupi Aboriginal Corporation	Aboriginal Corporation	Registered charity/not for profit. Suspect links to the Munupi Aboriginal Arts and Craft Association	Yes	11A 1(d)	3
Nagula Jarndu Women's Arts and Resource Centre	Art Gallery - Aboriginal Artists	Commercial Operator with activities in or adjacent to the Development Drilling Planning Area	Yes	11A 1(d)	3
Narlijia Experiences Broome	Indigenous Tourism Operator	Indigenous Tourism Operator near the Development Drilling Planning Area	Yes	11A 1(d)	3
Ngarla and Ngarla #2 (Determination Area A)	Native Title Determination	Addressed by Wanparta Aboriginal Corporation RNTBC. Refer to relevant person 123.	No	NA	NA
Ngurrangga Tours	Indigenous Tourism Operator	Indigenous Tourism Operator near the Development Drilling Planning Area	Yes	11A 1(d)	3
Northern Australian Indigenous Land and Sea Management Alliance	Land and Sea Management	Indigenous led not-for-profit assisting Indigenous people manage their country.	Yes	11A 1(d)	3
NT Indigenous Business Network	Business Operator	The peak body representing Indigenous businesses in the Territory.	Yes	11A 1(d)	3
Nyikina Mangala Rangers	Land and Sea Management	Indigenous Rangers have functions, activities, and interests to maintain the health of country and sea - linked to Native Title Determinations, IPA agreements or Federal/ State funding.	Yes	11A 1(d)	3
Pudakul Aboriginal Cultural Tours	Tourism Operator	Tourism Operator with activities in or adjacent to the Development Drilling Planning Area. Cumulative interests due to being Indigenous operated.	Yes	11A 1(d)	3
Saltwater Cultural Tours	Business Operator	Activities due to marine business out of Darwin	Yes	11A 1(d)	3
Specialised Indigenous Services	Individual	Descendant and elder of the Bardi Jawi and Karajarri from the West Kimberley. Has strong cultural interest in traditional land and sea country	Yes	11A 1(d)	3
Tarntipi Bushcamp	Indigenous business	Eco resort - activities/ interests	Yes	11A 1(d)	3
Thamurrur Rangers	Land and Sea Management	Indigenous Rangers have functions, activities, and interests to maintain the health of country and sea - linked to Native Title Determinations, IPA agreements or Federal/ State funding.	Yes	11A 1(d)	3

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category	Tier
Tiwi Marine Rangers	Land and Sea Management	Indigenous Rangers have functions, activities, and interests to maintain the health of country and sea - linked to Native Title Determinations, IPA agreements or Federal/ State funding.	Yes	11A 1(d)	3
Tiwi Resources Pty Ltd	Aboriginal Corporation	Purpose is to gain economic opportunities for the Tiwi People	Yes	11A 1(d)	3
WAITOC Aboriginal Tours & Experiences	Indigenous Tourism Operator	Indigenous Tourism Operator near the Development Drilling Planning Area	Yes	11A 1(d)	3
Wangaba Roebourne	Tourism Operator	Indigenous Tourism Operator near the Development Drilling Planning Area	Yes	11A 1(d)	3
Wooramulla Eco Cultural Journeys	Tourism Operator	Indigenous Tourism Operator near the Development Drilling Planning Area	Yes	11A 1(d)	3
Yagbani Aboriginal Corporation	Aboriginal Corporation	Training, employment, and support to the Aboriginal people of Warruwi	Yes	11A 1(d)	3
Yimpinari (Melville Island)	Tiwi Landowning Group	Indigenous landownership group on Tiwi Islands	Yes	11A 1(d)	3
Wulirankuwu (Melville Island)	Tiwi Landowning Group	Indigenous landownership group on Tiwi Islands	Yes	11A 1(d)	3
Wurankuwu (Bathurst Island)	Tiwi Landowning Group	Indigenous landownership group on Tiwi Islands	Yes	11A 1(d)	3
Yugul Mangi Rangers	Land and Sea Management	Indigenous Rangers have functions, activities, and interests to maintain the health of country and sea - linked to Native Title Determinations, IPA agreements or Federal/ State funding. Within the Laynhapuy IPA	Yes	11A 1(d)	3

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Self-identified via online form				
Person 1	Individual	Interested in the Crux Installation and Cold Commissioning EP.	No	-
Person 2	Individual	Seeking a job at Shell.	No	-
Person 3	Individual	Interested in the Crux project.	No	-
Person 4	Individual	Interested in the Crux project.	No	-
Person 5	Individual	Interested in the Crux project.	No	-
Person 6	Individual	Seeking a job at Shell.	No	-
Person 7	Individual	Interested in the Crux project.	No	-
Person 8	Individual	Seeking a job at Shell.	No	-
Person 9	Individual	Seeking a job at Shell.	No	-
Person 10	Individual	Seeking a job at Shell.	No	-
Person 11	Individual	Interest in Broome for the Crux Development drilling EP.	No	-
Person 12	Individual	Seeking a job at Shell.	No	-
Person 13	Individual	Seeking a job at Shell.	No	-
Person 14	Individual	Interested in the Crux project.	No	-
Person 15	Individual	Interested in the Crux project.	No	-
Person 16	Individual	Seeking a job at Shell.	No	-
Person 17	Individual	Seeking a job at Shell.	No	-
Person 18	Individual	Interested in the seabed.	No	-
Person 19	Individual	Interested in Crux.	No	-
Person 20	Individual	Seeking a job at Shell.	No	-
Person 21	Individual	Seeking a job at Shell.	No	-

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Person 22	Individual	Interested in Environmental Plans	No	-
Person 23	Individual	Interested in Telecom Commissioning.	No	-
Person 24	Individual	Seeking a job at Shell.	No	-
Person 25	Individual	Seeking a job at Shell.	No	-
Person 26	Individual	Interested in the Crux project.	No	-
Person 27	Individual	Seeking a job at Shell.	No	-
Person 28	Individual	Seeking a job at Shell.	No	-
Person 29	Individual	Drilling.	No	-
Person 30	Individual	Seeking a job at Shell.	No	-
Person 31	Individual	Interested in the Crux project.	No	-
Person 32	Individual	Seeking a job at Shell.	No	-
Person 33	Individual	Interested in Subsea operations.	No	-
Person 34	Individual	Seeking a job at Shell.	No	-
Person 35	Individual	Anti oil and gas	No	-
Person 36	Individual	Interested in monitoring equipment	No	-
Person 37	Individual	Interested in laboratory / production	No	-
Person 38	Individual	Interested in offshore projects	No	-
Person 39	Individual	Seeking a job at Shell.	No	-
Person 40	Individual	Seeking a job at Shell.	No	-
Person 41	Individual	Interested in the Crux project.	No	-
Person 42	Individual	Seeking a job at Shell.	No	-
Person 43	Individual	Interested in the Crux project.	No	-

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Person 44	Individual	Interested in the Crux project.	No	-
Person 45	Individual	Interested in the Crux project.	No	-
Person 46	Individual	Seeking a job at Shell.	No	-
Person 47	Individual	Seeking a job at Shell.	No	-
Person 48	Individual	Seeking a job at Shell.	No	-
Person 49	Individual	Interested in the Crux project.	No	-
Person 50	Individual	Seeking a job at Shell.	No	-
Person 51	Individual	Environmental Harm.	No	-
Person 52	Individual	Seeking a job at Shell.	No	-
Person 53	Individual	Interested in the Crux project.	No	-
Person 54	Individual	Interested in the project timeline.	No	-
Person 55	Individual	Seeking a job at Shell.	No	-
Person 56	Individual	Interested in the Crux project.	No	-
Person 57	Individual	Interested in the Crux project.	No	-
Person 58	Individual	Interested in the Crux project.	No	-
Person 59	Individual	Interested in the Crux project.	No	-
Person 60	Individual	Seeking a job at Shell.	No	-
Person 61	Individual	Interested in the Crux project.	No	-
Person 62	Individual	Interested in the Crux project.	No	-
Person 63	Individual	Interested in the Crux project.	No	-
Person 64	Individual	Interested in the Crux project.	No	-
Person 65	Individual	Interested in the Crux project.	No	-

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Person 66	Individual	Seeking a job at Shell.	No	-
Person 67	Individual	Interested in the Crux project.	No	-
Person 68	Individual	Seeking a job at Shell.	No	-
Person 69	Individual	Interested in the Crux project.	No	-
Person 70	Individual	Interested in the Crux project.	No	-
Person 71	Individual	Seeking a job at Shell.	No	-
Self-identified via community drop-in sessions				
Person 72	Individual	Attended the Derby drop-in session, with an interest in employment opportunities.	No	
Person 73	Individual	Attended the Broome drop-in session, with an interest in the Crux project.	No	
Person 74	Individual	Attended the Broome drop-in session, with an interest in the Crux project.	No	
Person 75	Individual	Attended the Darwin drop-in session, with an interest in the Crux project	No	
Person 76	Individual	Attended the Broome drop-in session, with an interest in the Crux project.	No	
Person 77	Individual	Attended the Exmouth drop-in session, with an interest in potential environmental risks around spills.	Yes	11A 1(e)
Person 78	Individual	Attended the Broome drop-in session, with an interest in employment opportunities.	No	
Person 79	Individual	Attended the Derby drop-in session, with an interest in employment opportunities.	No	
Person 80	Individual	Attended the Derby drop-in session, with an interest in the Crux project site in relation to Cockatoo Island.	Yes	11A 1(e)
Person 81	Individual	Attended the Derby drop-in session, with concerns around climate change.	Yes	11A 1(e)
Person 82	Individual	Attended the Broome drop-in session, with an interest in the Crux project.	No	
Person 83	Individual	Attended the Exmouth drop-in session, with an interest in potential environmental risks around spills.	Yes	11A (1e)
Person 84	Individual	Attended the Exmouth drop-in session, with an interest in the Crux project.	Yes	11A (1e)
Person 85	Individual	Attended the Derby drop-in session, with an interest in the Crux project.	Yes	11A (1e)
Person 86	Individual	Attended the Exmouth drop-in session, with an interest in the Crux project.	Yes	11A (1e)

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Person 87	Individual	Attended the Broome drop-in session, with an interest in the Crux project.	No	
Person 88	Individual	Attended the Broome drop-in session, with an interest in employment opportunities.	No	
Person 89	Individual	Attended the Darwin drop-in session, with an interest in the Crux project	Yes	11A (1e)
Person 90	Individual	Attended the Broome drop-in session, with an interest in helicopter routes used in the Crux project.	Yes	
Main Roads WA – Pilbara Region	Organisation	Contacted in Port Hedland, given an overview of the Crux project and provided with factsheets.	Yes	11A 1(e)
Person 91	Individual	Attended the Derby drop-in session, with an interest in the Crux project.	Yes	11A (1e)
Person 92	Individual	Attended the Broome drop-in session, with an interest in employment opportunities.	No	
Person 93	Individual	Attended the Derby drop-in session, with an interest in employment opportunities.	No	
Person 94	Individual	Attended the Derby drop-in session, with an interest in local opportunities.	No	
Pilbara Development Commission	Organisation	Contacted in Port Hedland, given on overview of the Crux project and provided with fact sheets.	Yes	11A 1(e)
Pilbara Ports Authority	Organisation	Contacted in Port Hedland, given an overview of the Crux project and provided with factsheets.	Yes	11A 1(e)
Port Hedland Chamber of Commerce & Industry	Organisation	Contacted in Port Hedland, given an overview of the Crux project and provided with factsheets.	Yes	11A 1(e)
Person 95	Individual	Attended the Derby drop-in session, with an interest in employment opportunities.	No	
Person 96	Individual	Attended the Darwin drop-in session, with an interest in the Crux project	Yes	11A (1e)
Shire of Port Hedland	Organisation	Contacted in Port Hedland, given an overview of the Crux project and provided with factsheets.	Yes	11A 1(e)
Person 97	Individual	Attended the Derby drop-in session, with an interest in the safety of the Crux project.	No	
Town of Port Hedland – Rangers	Organisation	Contacted in Port Hedland, given an overview of the Crux project and provided with factsheets.	Yes	11A 1(e)
Person 98	Individual	Attended the Derby drop-in session, with an interest in engagement opportunities for Traditional Owners.	Yes	11A 1(e)
Person 99	Individual	Attended the Broome drop-in session, with an interest in the Crux project	No	
Person 100	Individual	Attended the Broome drop-in session, with an interest in the Crux project	No	
Person 101	Individual	Attended the Broome drop-in session, with an interest in the Crux project	No	

Individual or Organisation Name	Group	Rationale	Relevant for the development drilling EP	Link to OPGGS(E)R 2009 Regulation 11A Category
Person 102	Individual	Attended the Broome drop-in session, with an interest in the Crux project	No	
Person 103	Individual	Attended the Broome drop-in session, with an interest in the Crux project	No	
Person 104	Individual	Attended the Broome drop-in session, with an interest in the Crux project	Yes	11A 1(e)
Person 105	Individual	Attended the Broome drop-in session, with an interest in the Crux project	No	
Person 106	Individual	Attended the Broome drop-in session, with an interest in the Crux project	No	
Person 107	Individual	Attended the Broome drop-in session, with an interest in the Crux project	No	
Person 108	Individual	Attended the Broome drop-in session, with an interest in the Crux project	Yes	11A 1(e)
Person 109	Individual	Attended the Broome drop-in session, with an interest in the Crux project	No	
Person 110	Individual	Attended the Darwin drop-in session, with an interest in the Crux project	No	
Person 111	Individual	Attended the Darwin drop-in session, with an interest in the Crux project	No	
Person 112	Individual	Attended the Darwin drop-in session, with an interest in the Crux project	Yes	11A 1(e)
Person 113	Individual	Attended the Darwin drop-in session, with an interest in the Crux project	No	
Person 114	Individual	Attended the Darwin drop-in session, with an interest in the Crux project	No	
Person 115	Individual	Attended the Darwin drop-in session, with an interest in the Crux project. Asked about opportunities local content / Shell to sponsor/collaborate/partner	No	
Person 116	Individual	Attended the Darwin drop-in session, with an interest in the Crux project	No	
Person 117	Individual	Attended the Darwin drop-in session, with an interest in the Crux project	Yes	11A 1(e)
Person 118	Individual	Attended the Darwin drop-in session, with an interest in the Crux project	No	
Person 119	Individual	Attended the Darwin drop-in session, with an interest in the Crux project	Yes	11A 1(e)
Person 120	Individual	Attended the Darwin drop-in session, with an interest in the Crux project	Yes	11A 1(e)
Person 121	Individual	Attended the Darwin drop-in session, with an interest in the Crux project	No	
Person 122	Individual	Attended the Broome Information session, with an interest in the Crux project	No	

5.6 Consultation Approach

5.6.1 Providing Sufficient Information

Sub-regulation 11A (2) requires titleholders to provide relevant persons with sufficient information to allow relevant persons to make an informed assessment of the possible consequences of the proposed activities on their functions, interests, or activities. This section demonstrates that Shell has provided sufficient information to relevant persons because:

- Information provided was detailed enough to allow people to make an informed decision as to how their functions, interests or activities may be affected
- Information provided to relevant persons was tailored to their functions, interests, and activities with the information Shell had available at the time.
- Further information requested was provided as requested where the request was considered reasonable or related to EP content or supporting information.
- Raised awareness of NOPSEMA's guideline for relevant persons.
- Published the draft EP for this EP given the Federal Court decision timing.

The reasons listed above are expanded on in the following sections.

5.6.1.1 Information given allowed informed decisions by relevant persons

The initial call out for relevant persons, and the iterations of information provided throughout the consultation process was developed to ensure that the relevant person could make an informed decision as to how the activities proposed within the EP could affect their functions interest and activities. This includes the sequencing of information being available to relevant persons from the initial broad advertisements, where links to the EP webpage allowed access to the EP factsheet, so that anyone who was prompted to seek further information from the initial advertisements could access the information detailed within Section 5.6.2.2 below.

5.6.1.2 Tailored information to the relevant persons functions, interests, and activities

In determining information requirements, Shell considered the functions, interests and activities of the relevant persons and the nature and scale of environmental impacts and risks that affect them. Shell recognised that different categories of relevant persons required different levels of consultation effort on this basis. Further, Shell adheres to published guidance for good practice consultation relevant to different sectors and disciplines, as described below. The methodology used by Shell to provide relevant persons with sufficient information is outlined below and the evidence of the information provided can be found in Appendix A.

Materials were developed with subject matter experts, including communications professionals, to ensure the content was comprehensible and appropriate for the recipient. Instead of a 'one size fits all' approach, a suite of materials was developed to support the following communications:

- Crux advertising campaign across print, radio and social media
- Factsheets (sent directly as well as being available on Shell's website);
- Additional information materials, such as additional factsheets or online materials, as well as tailored information requested by a specific relevant person or group, such as Indigenous persons or groups;
- Emails;
- Letters;
- Phone-calls;
- Face-to-face meetings (virtually or face-to-face) with presentation slides and/or take-away materials;

- Maps outlining the proposed activity and overlaps with a relevant person's area of interest, for example fisheries maps;
- Animations and videos showing the proposed activity;
- Images providing a reference for the proposed activity;
- NOPSEMA's Consultation Brochure;
- Community drop-in sessions;
- Industry briefings;

Further information was provided throughout the consultation process in response to questions or concerns raised, in an iterative manner. The details of this tailored information for each relevant persons depended on the nature of the question or concerns raised.

All of the following materials were made available to relevant persons through correspondence. The same materials were made available on Shell's website for others.

- an overview of the activity (Refer to Appendix A).
- a location map with relevant exclusion zones (Refer to Appendix A).
- the description of the environment (Refer to Appendix A).
- a summary of the environmental impacts and risks (Refer to Appendix A).
- a summary of the risk mitigation and management control measures (Refer to Appendix A).

In addition, Shell also prepared and published factsheets with further information on:

- the obligations of titleholders in consulting on Environment Plans
- the roles and responsibilities of relevant persons.
- Further information from relevant persons was sought on environment values and sensitivities such as cultural values or features.
- the various means relevant persons can self-identify and/or provide feedback or ask questions about the proposed activity.
- specific areas or issues of interest to relevant persons, based on their feedback

5.6.1.3 Provided further information for relevant persons on request

Shell created targeted consultation material that was appropriate to the category of persons, such as specific information sheets or presentation materials. This was prepared on Shell's own initiative or due to information requested by the relevant person. For example, commercial fishing licence holders and representative bodies received additional information relevant to their fishery, or bespoke information and materials created for Indigenous People, as appropriate (Refer to Appendix A).

To ensure information was appropriately provided to relevant persons, Shell invited feedback, sought advice, provided information, and invited participation in forums or community drop-in sessions. Feedback on the clarity, relevance and usefulness of the materials was adopted from relevant persons throughout the consultations and the information provided was refined and improved because of that feedback (Refer to Appendix A).

5.6.1.4 Raise awareness of NOPSEMA's guideline for relevant persons

NOPSEMA released its Guideline: *Consultation in the course of preparing an environment plan* (N-04750-GL2086) on 12 May 2023, during the preparation of this EP. The Guideline encourages titleholders to provide relevant persons with a copy of the NOPSEMA Consultation on offshore environment plans Brochure as part of consultation. As soon as Shell became aware of the

Brochure, it was posted on Shell's public website and was included in follow-up communications with relevant persons (Refer to Appendix A).

5.6.1.5 Publication of the draft EP

Shell made the draft EP publicly available on the Crux project website on 03 May 2023 as the EP was already drafted at the time the Tipakalippa appeal decision was handed down by the Federal Court. The EP was published to enable relevant persons to self-select additional information, if needed. In doing so, relevant persons were also able to see any information provided in context, and in further detail than the summaries.

5.6.2 Providing a reasonable period for consultation

Sub-regulation 11A(3) provides that titleholders must give relevant persons a reasonable period for consultation to occur. Shell allows a minimum of 30 days from the date that sufficient information is provided to a relevant person, for the person to review the information and respond to Shell on the impact that Shell's proposed activities may have on their functions, interests or activities. As noted below, in many cases, where no response is received within a 30 day period, Shell has sent follow-up communications to the relevant persons in question.

Shell recognises that additional time may be required for relevant persons to provide feedback due to availability and accessibility issues and assesses requests for additional time on a case-by-case basis. Shell also recognises that where interests are held communally, such as with Indigenous people, more than 30 days may be required. Where this occurred, it is documented in further detail in Table 5-10 and Table 5-11.

Shell acknowledges that participating in consultation is voluntary for relevant persons, and that in some circumstances Shell may be limited in the form of consultation it can undertake, e.g. if a relevant person does not make contact details available.

If comments are received from relevant persons after submission of the final version of the EP to NOPSEMA they will not have been considered or incorporated into the preparation of appropriate control measures included in the EP. In this event, Shell will consider comments and feedback as part of the Implementation Strategy for the EP (refer Section 10). Should the feedback or comments identify a significant measure or control that requires implementation or update to meet the intended outcome of consultation, Shell will apply its Management of Change and Review process (noting the obligations under regulations 8 and 17 of the OPGGS(E) Regulations).

5.6.3 Consultation Channels

Table 5-7: Consultation Channels

Channel	Purpose
Consultation emails	This is the initial contact made to relevant persons and contains project and EP information, including contact details with various options to obtain more information, ask questions or provide feedback. All relevant persons identified through the relevant person search were sent an initial email that advised on obligation of titleholders to undertake consultation and the role of relevant persons, including inviting feedback on how they would like to be consulted. Consultation emails also included follow-up emails to ensure potentially relevant persons were aware of where to find information where they might consider and assess potential impacts. Relevant email communications following the publishing of the NOPSEMA consultation broacher, included a reference or link to that for the relevant persons information.
Factsheets	Short sharp digestible documents that give the key facts. They should never be considered the sole way to communicate and may not be appropriate for all relevant persons.
Information Booklet	An overview of the Crux project in one booklet, outlining all the various stages of the project and relevant activities and EP that Shell was consulting on.

Channel	Purpose
Indigenous People Forum	A forum designed for Indigenous People in two stages with the first to present the information and the second a few weeks later to allow for Indigenous People to digest and share the information and come back with their feedback in an environment that provides for Indigenous-only discussions. These forums are available to Indigenous People in addition to other mechanisms available including on-country visits and direct meetings. These were offered to Indigenous relevant persons in addition to any other request for engagement (e.g., one on one, on-Country visits) and the other channels outlined in this table.
Industry Briefing	An opportunity for relevant persons in Regulation 11A(1)(a) (b) and (c) to hear directly from Shell and ask questions. The briefing was held at Shell's offices in Perth with a Teams link as dial-in.
Information Sessions	A means to gather similar relevant persons and present to them the content they require from the EP submission with an opportunity to ask questions. These were held in: • Broome • Darwin
Drop-in Sessions	Allows appropriate and adapted consultation delivered in a flexible way to offer relevant persons an opportunity to have two-way dialogue with Shell and view information on the project. These drop-in sessions were widely advertised to ensure appropriate representation and locations chosen appropriate to the relevant persons group: • Derby • Broome • Darwin • Port Hedland • Exmouth
Tailored face to face / Teams meetings	Where requested by relevant persons or where Shell deemed it was appropriate to suggest the option during initial contact communications for the consultation process, such as with Indigenous Organisation relevant persons including NTRB, RNTBC, PBC's and associated Aboriginal Corporations. These provided an additional opportunity to provide formal EP consultation materials and discuss any questions or feedback and any relevant matters of interest to the relevant person or organisation in a two-way forum. Meetings were attended by Indigenous Affairs and Cultural Heritage, Social Performance and Environmental subject matter experts as considered relevant to the meeting.
Online materials and information	The website allows for more information to be included than a factsheet and allows relevant persons to handpick what interests them. Time was invested prior to each EP submission to ensure the website was up to date. The addition of a form to allow relevant persons to self-identity. A summary of website traffic during the consultation period is provided in Appendix A.
Sharing the entire draft EP via Shell's website	This ensures a transparent approach to what is included in the EP for those who want more detail.
Newspaper adverts / Local radio	Adverts placed in print media or local radio where print media was not available to allow relevant persons to self-identify. These ads were placed in regional locations along the geographic spread of the largest Planning Area. Ads were also placed to raise awareness of local drop-in sessions.

Channel	Purpose
Social Media	Social media posts were placed tactically across social media to allow relevant persons to self-identify. These ads targeted regional locations across the geographic spread of the largest Planning Area. A summary of the results of the social media activity are provided in **Appendix A.**
Industry support	Sharing information via membership/industry groups. For example, recfish west or APPEA.
WAFIC	WAFIC provided fee for service consultation to directly engage with WA managed fisheries who had activities or interests in the EP operations areas. Tailored materials were provided to relevant fisheries and two sessions (hosted at WAFIC's office and over Microsoft Teams) were offered to those seeking further information.
Traditional communications	Email, telephone, posted mail

5.6.4 Government Departments or Agencies

Consultation channels used for relevant Commonwealth and State Government Departments or Agencies were email and the industry briefing. If no response was received to the initial email, at least one follow-up email was sent. If there was still no response, it was assumed that the department or agencies have no objection or comment on the proposed activity. This was considered reasonable as government departments have systems and the resources to consult on matters of relevance to their portfolio.

In addition, Shell held a targeted information session for relevant persons from Government Departments or Agencies. A formal presentation on the EP was completed followed by an open forum discussion where attendees were provided with an opportunity to ask questions.

5.6.5 Indigenous People and Organisations

Shell acknowledges that Indigenous peoples are Australia's First Peoples and the Traditional Owners of the land and waters on which we work and live. Shell has been operating in Australia for over 120 years, developing proud partnerships with more than thirty indigenous communities. Shell is committed to building meaningful relationships with Indigenous communities based on honesty, integrity, and respect.

The Full Federal Court has held that there is good reason to adopt pragmatic and practical approaches to consultation conducted in accordance with regulation 11A. Consultation may be through properly notified and conducted meetings, or other engagements that facilitate genuine two-way dialogue between the titleholder and relevant persons such as approaches suggested by NTRBs, RNTBCs or PBCs. Meetings should be widely advertised to ensure appropriate representation. However, it is recognised that meetings may not be attended by all members of a group.

When approaching consultation with Indigenous relevant persons, Shell started with a broad approach, reviewing the Planning Area, which overlaps a number of Native Title determinations (Figure 7-24) further described within Section 7.4.1.2.2, with a further 50km buffer for all searches to ensure a broad capture of potentially relevant persons.

This identified more than 100 Aboriginal organisations as fitting the criteria of relevant persons comprising:

- Land Councils
- Aboriginal Land Trusts – which exist in the Northern Territory and include land held in trust for use by Aboriginal people by another entity.
- Native Title Representative Bodies (NTRB)

- Registered Native Title Bodies Corporate (RNTBCs – the formal name given to a group once Native Title has been determined),
- Prescribed Bodies Corporate (PBCs – the legal entity formed by a group of Native Title Claimants during the determination process, but used interchangeably with RNTBC),
- Aboriginal Corporations – Aboriginal run or managed businesses, often operating on behalf of, or under a RNTBC, but also independently, and including Aboriginal Tourism providers.
- Land and Sea Management Groups – primarily Ranger Groups, many of whom operate under a RNTBC, but some who operate independently on an IPA, or as the result of an ILUA.
- Aboriginal Arts and Cultural centres
- Native Title Claim groups.
- Advisory Committees
- Individuals

Following extensive research and community consultation, it was clear that not all groups considered themselves responsible for cultural and spiritual care of land and sea to equal or similar degrees. For example:

1. NTRBs including NLC, KLC and YMAC often provide administration services such as payroll, legal and human resource services to RNTBCs or PBCs who have chosen to use the NTRB as an umbrella organisation under which to function, in addition to their primary role of assisting with matters pertaining to Native Title claims and determinations. NTRBs were used by Shell where appropriate to advise on Indigenous groups who could be relevant or have sea country or are located on the coast, preferred consultation approaches and to distribute consultation information to RNTBCs as deemed appropriate by the NTRB. However, the NTRBs do not consider it appropriate to represent the views of the RNTBCs or other groups who use their services, although in some circumstances they operate as a conduit or formal contact point for RNTBCs.
2. Where an Aboriginal corporation operates under the umbrella of a RNTBC, they tend to be focused on running a business or service, and Native Title responsibilities (land and sea care and management) falls to the RNTBC and other appropriate sub-groups. This includes most (but not all) tourism service providers.
3. Advisory Committees are comprised of individual RNTBCs, ranger groups and other Land Management groups, and do not speak with one voice on land, sea and cultural values.
4. Arts and Cultural Centres tend to be focused on their business, and again, defer land and sea cultural issues to the appropriate PBC or RNTBC.

Shell has very conservatively considered that planned impacts to Indigenous Peoples' functions, interests or activities (including cultural values or features) are unlikely to extend beyond 400 km from the Crux operational area (Figure 5-4 and Figure 5-5), therefore this was considered a reasonable basis for including this distance as a criteria in tier 1 area to focus consultation efforts on those closest to the planned activities outlined in this EP and those who could provide inputs into cultural features closest to our planned activities. These groups formed the priority for Shell's consultation approach as described below. However, regardless of which tier a group was placed in, Shell's overarching approach was to be collaborative and responsive in consultation, taking on Indigenous Persons' or Organisations' feedback about the method of consulting. This is further explained later in this section. Table 5-8 below identifies the key Indigenous groups who were categorised into Tier 1, Tier 2 and Tier 3. Figure 5-4 and Figure 5-5 show the spatial location of Tier 1 and Tire 2 groups in relation to the 400 km line and the Planning Area..

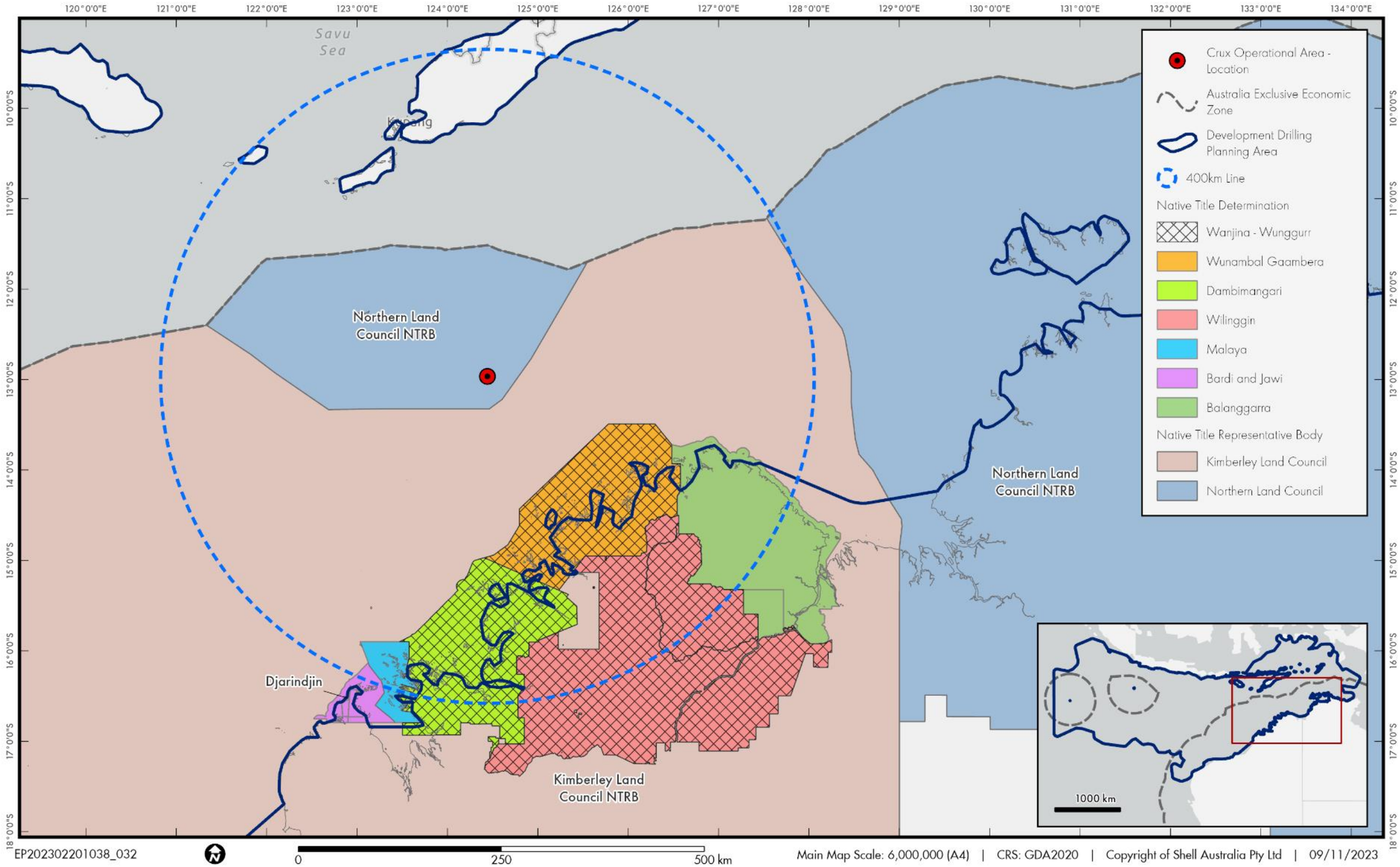

Figure 5-4: Map of 400km area around the Crux operational area showing Tier 1 Indigenous relevant persons

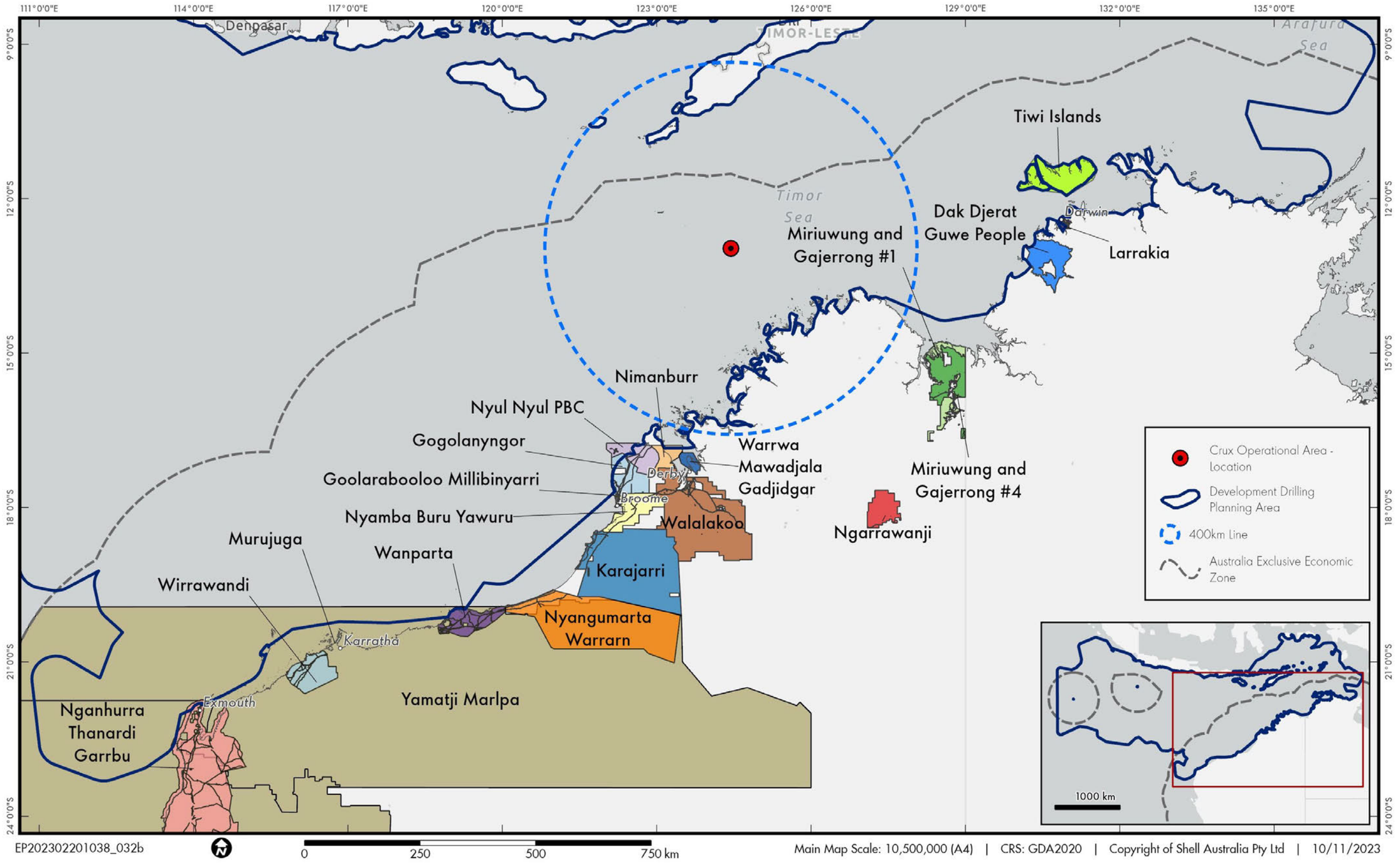

Figure 5-5: Map of 400km area around the Crux operational area showing Tier 2 Indigenous relevant persons (excludes Tier 1 and some Tier 2 groups where spatial data was not available)

Table 5-8: Approach to consultation with relevant Indigenous persons and organisations

Contact methodology	Overview of Indigenous relevant person	Indigenous relevant persons	Consultation Efforts
Tier 0	• Direct planned impact to functions, interests, or activities of PBC, NTRB or RNTBC or those they represent. • Includes planned desecration or potential significant impacts to known cultural values or features.	• There are no Indigenous relevant persons who have interests or activities such as cultural values or features within the operational area of this EP which will be impacted by the planned impacts of the activities. This is supported by the fact an independent underwater cultural heritage survey by Cosmos Archaeology in 2023 stated there are not tangible Indigenous features in the Crux project area as it is beyond the ancient coastline at 130m below LAT, where there has never been any human occupation.	As a minimum, this would include genuine two-way dialogue with a representative of the communal interest affected seeking to reach agreement on the levels of proposed impacts to the cultural feature or value.

Tier 1	• **Closest to planned activities - located within 400km of the operational area** on the Australian mainland, in the Kimberley, Western Australia.
	  ◦ PBC, NTRB or RNTBC (excluding tier 0).
	  ◦ Aboriginal corporation functioning under the authority of an RNTBC (excluding tier 0).
		• Balanggarra Aboriginal Corporation
		• Bardi and Jawi Niimidiman Aboriginal Corporation (BJNAC)
		• Djarindjin Aboriginal Corporation (DAC)
		• Kimberley Land Council (KLC)
		• Northern Land Council (NLC)
		• Mayala Inninalang Aboriginal Corporation (incl Mayala 2)
		• Wanjina-Wunggurr Aboriginal Corporation
		  ◦ Dambimangari Aboriginal Corporation
		  ◦ Wilinggin Aboriginal Corporation
		  ◦ Wunambal Gaambera Aboriginal Corporation
			Precedence placed on consultation with these groups with focussed efforts, including attempting to contact by multiple forms of communication and seeking to establish long term relationships, where not already established and sought by relevant group.

Tier 2	• PBC, NTRB or RNTBC who are coastally adjacent to the planning area (excluding tier 0, tier 1 and tier 3). • Aboriginal corporations who are coastally adjacent to the planning area (excluding tier 0, tier 1 and tier 3).	• Dak Djerat Guwe People • Gogolanyngor Aboriginal Corporation • Goolarabooloo Millibinyarri Indigenous Corporation • Karajarri Traditional Lands Association (KTLA) • Larrakia Development Corporation • Miriuwung-Gajerrong (Western Australia) • Murujuga Aboriginal Corporation (including the land and sea unit) • Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC) • Ngarrawanji Aboriginal Corporation • Nimanburr Aboriginal Corporation • Nyangumarta Warrarn Aboriginal Corporation • Nyul Nyul PBC Aboriginal Corporation • Tiwi Land Council	Concerted effort to contact these groups by attempting multiple forms of communication as necessary, to gather inputs on cultural values or features and other matters to inform preparation of the EP.

Contact methodology	Overview of Indigenous relevant person	Indigenous relevant persons	Consultation Efforts
		• Walalakoo Aboriginal Corporation • Wanparta Aboriginal Corporation • Warrwa Mawadjala Gadjidgar • Wirrawandi Aboriginal Corporation • Yamatji Marlpa Aboriginal Corporation • Yawuru Aboriginal Corporation	
Tier 3	• PBC, NTRB or RNTBC whose members are at the periphery of the Planning Area (excluding tier 0 , tier 1 and tier 2). • All other Indigenous people or organisations	Remaining Indigenous RPs	Emailed sufficient information with at least one follow-up.

When engaging with Indigenous relevant persons, Shell adopted a culturally appropriate tailored approach, in addition to the broader community engagement plan outlined in this EP. For example, where many face to face meetings occurred with RNTBC's and Aboriginal Corporations, Shell tailored the presentation material or verbal delivery of information to what Shell considered to be the primary ways their functions, interests or activities could be affected, or what was considered to be culturally appropriate to a particular group, such as have a local photo representing the title slide and acknowledgement of country. Tailoring of a verbal nature can be evidenced within meeting summaries emails or minutes within the consultation summary, Table 5-8.

At the commencement of consultation, Shell approached Indigenous relevant persons, including NTRB's, with a co-design strategy, offering various options (such as on-country visits, meetings, yarning circles, phone calls, Indigenous Forums) to consult. This offered the opportunity for consultation to be led by Indigenous relevant persons, or the groups like NTRBs which represented them. This helped ensure that engagements could be culturally appropriate, respectful and tailored to meet the needs of each person or group. We then conducted consultation based on co-design feedback. A summary of the relevant persons consultation approach taken with Indigenous Persons and Organisations is outlined in Table 5-9. Shell is also cognisant to varying degrees of potential communication barriers experienced by relevant persons and as such ensured information was delivered in layman's terms across several methods including verbal, visual and written. See section 5.6.5.1 on Indigenous Forums.

The consultation co-design approach aimed to minimise negative impacts being experienced by relevant Indigenous persons and organisations, primarily due to consultation fatigue.

Consultation summary

Table 5-9 outlines a summary of the relevant persons consultation approach taken with Indigenous persons and organisations. Further details of the consultation carried out with Indigenous persons and organisations is found in Table 5-10 and Table 5-11, along with full details of all consultation provided in Table 5-12.

Table 5-9: Summary of the consultation approach taken with Indigenous Persons and Organisations

Date	Detail	Location in Appendix A
March/April 2023	***Initial contact***: Shell's initial contact by email focussed on a co-design approach to consultation for this EP and other Crux project EPs. The email was an invite to an Indigenous Forum with a survey attached with the purpose of seeking feedback on how Indigenous relevant persons preferred to be contacted. The survey included: • attendance options for the Indigenous Forums • travel and accommodation support • a vote on the preferred location for the forum • request for feedback on preferred consultation method • an offer for on-country consultation as an alternative to the Indigenous Forums	7.01 and 7.02

Date	Detail	Location in Appendix A
19 April 2023	Indigenous Forum held in Perth.	7.03
End of April 2023	Reminder emails were sent about the Indigenous Forum in Broome including links to the Crux website and offer of travel assistance. Shell also asked for relevant persons to share this with others who may be interested.	7.09
10 May 2023	Indigenous Forum held in Broome.	7.04
Late May	Reaching out again to share: • EP factsheets • details of the Independent environmental panel • video footage from the first Indigenous forum • offer to meet with Shell. • details of the final forum in Darwin and request to pass onto others, especially with sea country.	7.10
31 May 2023	Indigenous Forum held in Darwin - a copy of the presentation is available in Appendix A.	7.05
15 August 2023	Bardi Jawi, Mayala and Walalakoo Meeting - a copy of the presentation is available in Appendix A	7.06
15 September 2023	Wunambal Gaambera Aboriginal Corporation Meeting - a copy of the presentation is available in Appendix A	7.07
19 September 2023	Dambimangari Meeting Meeting - a copy of the presentation is available in Appendix A	7.08
5 September 2023	Larriakia meeting - a copy of the presentation is available in Appendix A	7.11
24 October 2023	NTGAC meeting - a copy of the presentation is available in Appendix A	7.12
May-October 2023	Follow-ups through phone and/or email seeking consultation meetings. Consultation meetings occurred with multiple RNTBCs, PBCs and Aboriginal Corporations as summarised in Table 5-12.	
May-October 2023	Email correspondence included attachment of the NOPSEMA Consultation on Offshore Petroleum Environment Plans Brochure after publication.	8.01

Shell explored alternative approaches to consultation to achieve an effective and culturally respectful engagement method. To implement the co-design approach, which also helps demonstrate reasonable efforts, Shell adopted specific suggestions by Indigenous people or organisations, including and in particular, NTRBs like KLC, where these occurred through the consultation period. This is because Shell relied significantly on the direction and input received from NTRB's, in the consultation approach which was used with the Indigenous people and organisations they support and represent. For example, following feedback from Indigenous organisations including KLC, Yawuru, Djarindjin (at TO Forum 2 on the 10 May) and one individual Indigenous person, Shell adopted more focused consultation measures as suggested by the feedback, including but not limited to:

1. Specific advice from NTRBs on consulting and obtaining appropriate contact details to consult with certain RNTBC's was received.
2. Prioritising face to face meetings where possible.
3. Prioritising phone call contact with known leaders of different Indigenous groups to establish rapport and relationship where contact details are freely available.
4. Offering to meet at a time and location of choice with people identified by them as appropriate.
5. Holding meetings that followed a format and approach determined and agreed by both parties (Indigenous person/organisation and Shell). For example, Bardi Jawi, Walalakoo and Mayala expressed a desire to meet as one group initially, as they consider themselves a coherent people group. Shell met with representatives of the three RNTBCs in Broome, in a format and location of their choosing. To illustrate further, Shell suggested meeting at Nyamba Buru Yawuru – but the representatives from these three RNTBCs specified they did not want to meet there, but at the Mangrove Hotel. This request was accommodated.
6. The Tiwi Land Council expressed a desire that Shell meet with them at Wurrumiyanga (their offices). This request was accommodated.
7. NTGAC requested a meeting at their offices in Exmouth during a scheduled board meeting. This request was accommodated.
8. Wanparta requested a meeting with the Board members in Port Hedland. This request was accommodated.

Full details on consultation co-design measures adopted during consultation with Indigenous persons and organisations is outlined in Table 5-12.

5.6.5.1 Indigenous Forums

Following feedback from initial discussions with Indigenous Peoples there were several requests made to facilitate the consultations. A forum was designed with input from Indigenous People in two stages, with the first to present the information and the second a few weeks later to allow for Indigenous People to digest and share the information and come back with their feedback in an environment that provides for Indigenous only discussions. These forums were available to Indigenous People in addition to other mechanisms available including on-country visits and direct meetings. These were offered to Indigenous relevant persons in addition to any other request for engagement (e.g., one on one, on-Country visits).

To support informed participation by invited relevant Indigenous persons and organisations, including attendance at the forums and/or any other engagement identified by them as preferred, the following measures were put in place:

- All Indigenous participants were provided with travel allowance support to travel to the forums in April and May.

- The Registered Native Title Body Corporates or Prescribed Body Corporates could receive an administrative fee for participation in the forums and any other tailored consultation as required by them, including legal representation.
- Indigenous service providers were also sourced, such as local Indigenous facilitators for both forums in WA and NT, including a Welcome to Country being performed and a 100% Indigenous owned and operated Indigenous business specialising in group conference travel and accommodation support to Indigenous People and organisations living in metropolitan, regional, or remote areas of Australia.
- A panel of four environmental subject matter experts, including three who were wholly independent of Shell, was established. The panel was made available to all relevant Indigenous persons and Indigenous organisations identified, and associated costs covered by Shell. The key role of the four environmental panel members was to provide advice to all relevant Indigenous persons and organisations, with no obligation or expectation to feedback the content or advice to Shell. Representatives from the panel attended the Perth and Broome forums and the panel's availability was further reiterated to many Indigenous relevant persons during follow-up communications.
- Where relevant Indigenous persons and organisations indicated a preference to be engaged on-Country (or other locations) with Shell leaders, additional meetings were accommodated according to each request.
- A Recording of the Perth presentation was made available for further dissemination within Indigenous persons and organisations' broader communities and groups alongside further information on this EP in response to feedback and questions received from First Nations relevant persons.

5.6.5.2 Summary of Consultation with Tier 1 and Tier 2 Indigenous Relevant Persons

Table 5-10 provides a summary of consultation with Indigenous Relevant Persons who were consulted via Consultation Method – Tier 1 as further detailed within Table 5-8Table 5-10.

Table 5-11 provides a summary of consultation with Indigenous Relevant Persons who were consulted via Consultation Method – Tier 2, as further detailed in Table 5-8.

Table 5-10 and Table 5-11 are intended to demonstrate that consultation has been carried out for all Tier 1 and Tier 2 Indigenous Relevant Persons. The full summary of consultation for all relevant persons is provided in Table 5-12.

Table 5-10: Tier 1 Indigenous relevant persons consultation completion statement

Relevant person ID	Indigenous relevant person	Relevant person's functions, interests and activities	Petroleum activity impacts and risks which may affect relevant persons functions, interests, or activities	Nature and scale of effect on relevant persons functions, interests, or activities	Sufficient information provided	Consultation overview *For a full summary of contact,* see Table 5-12	Reasonable period provided	Appropriate measures adopted
29.	**Bardi and Jawi Niimidiman Aboriginal Corporation (BJNAC)**	• Approximately 340km from the Crux operational area to closest part of BJNAC country The function of the RNTBC is to represent Traditional Owners and hold native title in trust. • Jointly manage the Bardi Jawi Gaarra Marine Park with WA DBCA. • Sea Country • Cultural values • Cultural Features • Indigenous traditional activities (e.g., fishing) • Have responsibility for sea country within the Kimberley Marine Park.	Spill risks have the potential to affect BJNAC's functions, interests, or activities.	Low, in accordance with Table 5-3. BJNAC's functions, interests and activities do not extend near the operational area for this activity. There are no planned impacts from Shell's activities predicted to BJNAC's functions, interests, and activities. They may be affected to a limited extent if a major spill event were to occur.	Fact sheets and draft EP provided to BJNAC on 17 May 2023 Face to face meeting held on 14 August along with two other Aboriginal Corporations, (Walalakoo and Mayala) and a following face to face meeting on 25 August 2023 with a tailored presentation pack – Appendix A. Shell published in social media, radio and newspapers which were targeted at groups or individuals within this region from March to April 2023 – Appendix A.	Shell has consulted with BJNAC since 31 March 2023, when an invitation to consult, face to face, on the EP was first sent. This included an offer to meet on-country (Table 5-12). In addition to this direct contact between Shell and BJNAC, KLC informed Shell that they had passed on EP information to BJNAC on 3 May 2023. From April through to August 2023, Shell and BJNAC exchanged emails with a focus on meeting, as well as setting up a resourcing protocol in relation to the broader relationship between the parties, (i.e., broader than consultation under regulation 11A). Shell provided comments and proposed amendments to the draft resourcing protocol to BJNAC on 26 June 2023. Separately to the formal resourcing protocol which is yet to be agreed, Shell offered to cover BJNAC's reasonable costs associated with attending consultation meetings/forums (e.g., accommodation, travel, and reasonable costs of time). Shell has also provided BJNAC with the contact details of independent environmental consultants, (paid for by Shell), to support BJNAC and other relevant persons in assessing information and providing feedback to Shell. On 10 July 2023, Shell brought to the attention of BJNAC the NOPSEMA *Consultation on offshore petroleum environmental plans.* A face-to-face consultation meeting between Shell and BJNAC occurred on 14 August 2023, along with two other Aboriginal Corporations (Walalakoo and Mayala). Shell paid Indigenous peoples' reasonable costs of participating and attending the meeting. This format of meeting with other groups was requested by BJNAC. At this meeting Shell explained the activities of the EP which may affect the functions, interests or activities of the groups. Shell also asked for input on particular values or features which may be affected by Shell's activities. As a result of input provided by BJNAC, the EP was updated as summarised in the 'Appropriate measures adopted' column in this Table. BJNAC did not raise any objection or claims related to the EP. A follow up meeting was held solely with BJNAC on 25 August 2023, where the resourcing protocol to support broader engagement between Shell and BJNAC was discussed. Shell provided a further opportunity on 17 October 2023 for BJNAC to provide input to Shell for EP preparation. On 27 October 2023, Shell received confirmation from BJNAC that this email had been received. In its response, BJNAC suggested that consultation had not yet started. In a follow-up telephone call initiated by Shell on 2 November 2023, BJNAC contended that consultation would not formally start until a resource protocol was in place with Shell. Shell disagreed with BJNAC's contention and noted that it had provided BJNAC sufficient information on the EP, and a reasonable period to consider this information and respond to Shell. On 7 November 2023, Shell restated in writing that BJNAC had been provided sufficient information on the EP and a reasonable period within which to respond. Shell reiterated that it would very soon be resubmitting the EP to NOPSEMA for further assessment. From the end of March 2023, Shell undertook a targeted media campaign in the region, using print, geotargeted social media and radio ads. The campaign urged potential relevant persons to contact Shell and provided a link to the Crux project on the Shell website with access to draft Environment Plans. These materials enabled relevant persons to make an informed decision about how their	Shell has been reaching out to BJNAC since March 2023. Sufficient information (such as factsheets and website links as well as a published version of the draft EP) was provided to BJNAC in May 2023. BJNAC had more than 5 months to review the information, and make an informed assessment about how their functions, interests or activities may be affected. It also allowed reasonable time to consider the information provided and to access the offer of a consultant panel to support them in reviewing information and raising issues or input on Shell's proposed activity. Shell has also agreed to pay reasonable costs to support their participation and attendance in consultation meetings. Shell considers that BJNAC and the community it represents have been afforded a reasonable period to understand how this EP impacts their functions, interests or activities and	• Shell adopted location preferences for meeting in Broome. • Shell updated its description of heritage values in the EP (Section 7.4.2.2.2) to incorporate information received. • Shell also updated the risk assessment (Section 9.14.6.3). • Section 7.4.2.2.3 noting that a number of the heritage sites in the Planning Area have not been recorded in Government databases. • Shell committed to progressing a local spill response with BJNAC (Refer to Table 5-13).

Relevant person ID	Indigenous relevant person	Relevant person's functions, interests and activities	Petroleum activity impacts and risks which may affect relevant persons functions, interests, or activities	Nature and scale of effect on relevant persons functions, interests, or activities	Sufficient information provided	Consultation overview *For a full summary of contact,* see Table 5-12	Reasonable period provided	Appropriate measures adopted
						functions, interests, or activities may be affected, and a mechanism to consult with Shell on the EP – Appendix A. Shell considers that BJNAC and the community it represents have been afforded a reasonable opportunity to consult with Shell in preparing this EP.	engage with Shell to raise any claims or objections or for further discussion.	
Justification that consultation is complete. BJNAC's functions, interests and activities are only potentially impacted by the spill risk from Shell's activities (through dissolved/entrained oil). Any impact to BJNAC's functions, interests and activities is predicted to be slight. Other than source control options which are already planned to be implemented by Shell in the event of a spill, there are no other available options to directly mitigate or reduce the impacts of dissolved/entrained oil during spills which could occur from this activity. The nature and scale of how BJNAC's functions, interests or activities is predicted to be affected is low. Therefore, further consultation is unlikely to improve risk management or further reduce the environmental impacts of a spill in accordance with the objects of consultation in preparing an EP. Shell has consulted with BJNAC in two face-to-face meetings. Shell has provided sufficient information to inform BJNAC how their functions, interests and activities may be affected, made reasonable efforts to consult, provided a reasonable period for BJNAC to determine if their functions, interests, and activities may be affected and to review information and provide feedback to Shell. Given the remote likelihood and scale of potential risks to BJNAC's functions, interests and activities, that sufficient information and a reasonable period for consultation has been provided and appropriate measures adopted, consultation has been carried out in accordance with Regulation 10A(g).								
31.	**Dambimangari Aboriginal Corporation (DAC)** Wanjina-Wunggurr Aboriginal Corporation is the formal RNTBC for the Dambimangari, Uunguu Part A, Uunguu - Area B, Wanjina - Wunggurr Wilinggin Native Title claim, determined between 2004 and 2012. However, day to day management of the Determined area is in the hands of three separate Aboriginal Corporations: **1. Dambimangari Aboriginal Corporation** 2. Wunambal Gaambera Aboriginal Corporation and 3. Wilinggin Aboriginal Corporation.	• Approx 230 km from the Crux operational area to closest part of DAC country • Represents Indigenous people located in the North Kimberley region of Australia. • KLC is the NTRB for DAC, via WWAC. • Sea Country • Cultural values • Cultural Features • Indigenous traditional activities (e.g., fishing) • Have responsibility for sea country within the Kimberley Marine Park.	Spill risks have the potential to affect DAC's functions, interests, or activities.	Low, in accordance with Table 5-3. DAC's functions, interests and activities do not extend near the operational area for this activity. There are no planned impacts predicted to DAC's functions, interests, and activities. They may be affected to a limited extent if a major spill event were to occur.	Fact sheets and draft EP provided to DAC on 19, 25, 26 May, and 28, 31 August. Face to face meeting held with DAC Advisor on 19 September 2023, with a tailored presentation pack –Appendix A. Shell published in social media, radio and newspapers which were targeted at groups or individuals within this region from March to April 2023 – Appendix A.	Shell has been attempting to meet DAC face to face since March 2023 when an invitation to consult on the EP was first sent to them as well as their representative body, KLC. The request suggested multiple ways which consultation could occur, from on country meetings through to attendance at Indigenous forums which were run at 3 locations (Table 5-9). DAC was invited to attend a specific meeting in Broome on 2 May 2023, this was also shared via the KLC with Wanjina-Wunggurr Aboriginal Corporation. DAC was phoned on multiple occasions between May and August 2023. In addition, during this time, Shell brought to the attention of DAC the NOPSEMA *Consultation on offshore petroleum environmental plans* which Shell posted a link to on the EP webpage soon after it was published in May 2023 in order for them to be sufficiently informed about the objective of consultation and their rights in the process. A consultation meeting with a DAC advisor occurred on 19 September 2023 where Shell explained the activities of this EP and the impacts and risks which may affect DAC's functions, interests or activities. Shell also asked for input on particular values or features which may be affected by Shell's activities which we may not be aware of, and some input was provided as a result of this. Shell also asked if any other issues or input on the EP by DAC. No response was provided. Shell also reiterated the availability of independent environmental consultants which DAC could use free of charge to help them through as assessment of information related to the EP (Refer to Appendix A and the measures adopted column of this table). Shell received no further feedback or correspondence from DAC until Shell provided a further opportunity on the 17 October 2023 to provide input to Shell to support EP preparation. DAC confirmed they were not in a position to provide input on the EPs soon to be submitted to NOPSEMA. Following this, multiple attempts through phone calls and emails up to 6 November 2023, were made to clarify some items and the requirements for consultation in preparation of the EP and Shell's obligations to this end, as distinct to engagement on other matters, and ongoing consultation related to the EP. Shell also assured DAC that suitable processes and procedures were in place to address any relevant new information DAC may raise relevant to this EPs impacts and risks. Shell also made our position clear that consultation had been carried out with DAC as required by the regulations in preparation of this EP. From the end of March 2023, Shell undertook a targeted media campaign in the region, using print, geotargeted social media and radio ads. The campaign urged	Shell has been reaching out to DAC both directly and through KLC since March 2023. Sufficient information (such as factsheets and website as well as a published version of the draft EP) was provided to DAC in May 2023. DAC had more than 5 months to review the information, and make an informed assessment about how their functions, interests or activities may be affected. It also allowed reasonable time to digest information provided and to access the offer of a consultant panel to support them in reviewing information and raising issues or input on Shell's proposed activity. Shell has also agreed to pay reasonable costs to support their	Shell adopted measures, through suggestions to consult in a face-to-face meeting in Perth in September 2023. Shell also updated the acceptable levels of impact from a major spill. The update was to reflect and reinforce it is unacceptable for a spill from Crux activities to impact DAC sea country.

Relevant person ID	Indigenous relevant person	Relevant person's functions, interests and activities	Petroleum activity impacts and risks which may affect relevant persons functions, interests, or activities	Nature and scale of effect on relevant persons functions, interests, or activities	Sufficient information provided	Consultation overview *For a full summary of contact,* see Table 5-12	Reasonable period provided	Appropriate measures adopted
						potential relevant persons to contact Shell and provided a link to the Crux project on the Shell website with access to draft Environment Plans. These materials enabled relevant persons to make an informed decision about how their functions, interests, or activities may be affected, and a mechanism to consult with Shell on the EP - Appendix A. Shell's further reasonable efforts to consult with all these relevant persons has been demonstrated through offers to all relevant persons (Indigenous people or organisations) to cover all reasonable costs associated with attending consultation meetings/forums (e.g. accommodation, travel and where appropriate reasonable costs of time) and also contact details for environmental consultants, some independent, paid for by Shell to support the relevant persons in assessing information and providing feedback to Shell. DAC were requested multiple times between March and September 2023 to provide contacts for other RPs we should consult (no response provided). Shell considers that DAC and the community it represents have been afforded a reasonable opportunity to consult with Shell in preparing this EP.	participation and attendance in consultation meetings. Shell considers that DAC and the community it represents have been afforded a reasonable period to understand how this EP impacts their functions, interests or activities and engage with Shell for further discussion.	
Justification that consultation is complete. DAC's functions, interests and activities are potentially impacted by the spill risk from Shell's activities (through dissolved/entrained oil). The predicted impact to DAC's functions, interests and activities is predicted to be slight. Other than source control options which are already planned to be implemented by Shell in the event of a spill, there are no other available options to directly mitigate or reduce the impacts of dissolved/entrained oil during spills which could occur from this activity. The nature and scale of how DAC's functions, interests or activities is predicted to be affected is low. Therefore, further consultation is unlikely to improve risk management or further reduce the environmental impacts of a spill in accordance with the objects of consultation in preparing an EP. Shell has provided sufficient information to inform DAC how their functions, interests and activities may be affected, made reasonable efforts to consult, provided a reasonable period for DAC to determine if their functions, interests, and activities may be affected and to review information and provide feedback to Shell. Given the remote likelihood and scale of potential risks to DAC's functions, interests and activities, sufficient information and a reasonable period for consultation has been provided and appropriate measures adopted, consultation has been carried out in accordance with Regulation 10A(g).								
32.	**Djarindjin Aboriginal Corporation (DAC)**	• Approx 340km from the Crux operational Area to closest part of DAC. • DAC is the Aboriginal Corporation responsible for the management of the Djarindjin community located within the Bardi and Jawi Native Title Determination. • Cultural values • Cultural Features • Indigenous traditional activities.	Spill risks have the potential to affect DAC functions, interests, or activities.	Low, in accordance with Table 5-3. There are no planned impacts predicted to DAC's functions, interests, and activities. DAC's functions, interests and activities do not extend near the operational area for this activity. They may be affected to a limited extent if a major spill	Fact sheets and project overview provided at Indigenous Forum 1 (19 April 2023) and Indigenous Forum 2 (10 May 2023). Fact sheets and draft EP provided to DAC on 26 May 2023. Two-way emails and phone calls directly to DAC have occurred from April-July 2023. Direct contact made with DAC	Shell has had ongoing dialogue with DAC since March 2023 when an invitation to consult on the EP was first sent to their CEO and Chairperson. The request suggested multiple ways which consultation could occur, from on-country meetings through to attendance at Indigenous forums which were run at 3 locations. Direct contact was made with DAC staff in April 2023 when confirmation of attendance at the Indigenous Forum 1 was made by the CEO and Chairperson. DAC CEO and Chairperson attended the Indigenous Forum 1 held on 19 April 2023 and on the same day, detailed information and factsheets were provided. DAC Chairperson and CEO also attended Indigenous Forum 2 held on 10 May 2023 with follow-up factsheets and draft EP provided on 26 May 2023. Meaningful two-way dialogue and genuine consultation has occurred for several months. This is demonstrated in detail within the consultation summaries and full text records. From the end of March 2023, Shell undertook a targeted media campaign in the region, using print, geotargeted social media and radio ads. The campaign urged potential relevant persons to contact Shell and provided a link to the Crux project on the Shell website with access to draft Environment Plans. These materials enabled relevant persons to make an informed decision about how their functions, interests, or activities may be affected, and a mechanism to consult with Shell on the EP. Shell's further reasonable efforts to consult with all these relevant persons	Shell has been reaching out to DAC since March 2023. Sufficient information was provided on 19 April 2023 at the Indigenous Forum (presentation and factsheets). They received a published version of the draft EP) on 26 May 2023. DAC had more than 3 months to review the information, and make an informed assessment about how their functions, interests or activities may be affected.	Shell updated its description of heritage values in the EP (Section 7.4.2.22) to incorporate information received which included "ancient ceremonial site underwater on the Dampier Peninsula coast that's 40,000 years old and the huts on the small island reef, about 1-3km off the Dampier Peninsula that are part of their songlines". Shell updated the approach to consultation as a result of the feedback from TO Forum 2 on the 10th May which is reflected in updates made in section 5.6.5.

Relevant person ID	Indigenous relevant person	Relevant person's functions, interests and activities	Petroleum activity impacts and risks which may affect relevant persons functions, interests, or activities	Nature and scale of effect on relevant persons functions, interests, or activities	Sufficient information provided	Consultation overview *For a full summary of contact,* see Table 5-12	Reasonable period provided	Appropriate measures adopted
				event were to occur.	staff 4 April 2023 and full emails with all relevant information sent to CEO and Chairperson. Shell published in social media, radio and newspapers which were targeted at groups or individuals within this region from March to April 2023 – Appendix A.	has been demonstrated through offers to all relevant persons (Indigenous people or organisations) to cover all reasonable costs associated with attending consultation meetings/forums (e.g. accommodation, travel and where appropriate reasonable costs of time) and also contact details for environmental consultants, some independent, paid for by Shell to support the relevant persons in assessing information and providing feedback to Shell. Shell considers that DAC and the community it represents have been afforded a reasonable opportunity to consult with Shell in preparing this EP.	Shell considers that DAC and the community it represents have been afforded a reasonable period to understand how this EP impacts their functions, interests or activities and engage with Shell for further discussion.	
Justification that consultation is complete. DACs functions, interests and activities are only potentially impacted by the spill risk from Shell's activities (through dissolved/entrained oil). Any impact to DAC functions, interests and activities is predicted to be slight. Other than source control options which are already planned to be implemented by Shell in the event of a spill, there are no other available options to directly mitigate or reduce the impacts of dissolved/entrained oil during spills which could occur from this activity. Shell has had multiple, meaningful two-way dialogues with DAC representatives, and they have provided input which led to multiple measures being adopted in the EP. Therefore, further consultation is unlikely to further improve risk management or further reduce the environmental impacts of a spill in accordance with the objects of consultation in preparing an EP. Shell has provided sufficient information to inform DAC how their functions, interests and activities may be affected, made reasonable efforts to consult, provided a reasonable period for DAC to determine if their functions, interests, and activities may be affected and to review information and provide feedback to Shell. Given the remote likelihood and scale of potential risks to DAC's functions, interests and activities, that sufficient information and a reasonable period for consultation has been provided and appropriate measures adopted, consultation has been carried out in accordance with Regulation 10A(g).								
38.	**Kimberley Land Council (KLC)**	• KLC has a function as the NTRB in relation to the administration of Native Title and may represent Native Title applicants and holders' interests in relation to existing Native Title claims and determinations that extend into Sea Country. They are also the contact point for the following specific RNTBCs, PBCs or native title applicants identified as relevant persons for the purposes of this EP; • 33. Gogolanyngor Aboriginal Corporation • 44. Mayala Inninalang Aboriginal Corporation (incl Mayala 2) • 51. Nyul Nyul PBC Aboriginal Corporation • 55. Wanjina-Wunggurr Aboriginal Corporation • 56. Warrwa Mawadjala Gadjidgar	Spill risks have the potential to affect KLC's, functions, interests, or activities or the RNTBCs, PBCs or Aboriginal Corporations they represent.	Low, in accordance with Table 5-3. KLC's area of responsibility as an NTRB overlaps with the planning area. KLC's interests and activities do not extend near the operational area for this activity. There are no planned impacts predicted to KLC's functions,	Fact sheets and draft EP provided to KLC on 26 May 2023. Multiple phone calls occurred throughout May 2023. Shell published in social media, radio and newspapers which were targeted at groups or individuals within this region from March to April 2023 – Appendix A.	Shell has consulted with KLC since March 2023 when an invitation to consult on the EP was first sent. The request suggested multiple ways which consultation could occur, from on country meetings through to attendance at Indigenous forums which were run at 3 locations. Shell has also made multiple attempts to meet face to face with KLC. As the peak Indigenous body in the Kimberley, KLC were also used to make contact with the RNTBCs, PBCs and Aboriginal Corporations they represent. The KLC is the formal contact point for the following groups; • 33. Gogolanyngor Aboriginal Corporation • 44. Mayala Inninalang Aboriginal Corporation (incl Mayala 2) • 51. Nyul Nyul PBC Aboriginal Corporation • 55. Wanjina-Wunggurr Aboriginal Corporation • 56. Warrwa Mawadjala Gadjidgar • 105. Miriuwung-Gajerrong • 113. Nimanburr Aboriginal Corporation • 122. Balanggarra Aboriginal Corporation • 125. Wunambal Gaambera Aboriginal Corporation Shell therefore determined that the appropriate way to consult with these organisations was through their formal contact point, KLC. While KLC is the formal contact point, Shell also welcomed any opportunity for direct consultation, as was demonstrated with the Mayala meeting on 15 August 2023.	Shell has been reaching out to KLC since March 2023. Sufficient information (such as factsheets and website as well as a published version of the draft EP) was provided to KLC in April 2023. The KLC was also requested to forward it on to other RNTBCs, PBCs and Aboriginal Corporations. KLC had more than 6 months to review the information, and make an informed assessment about how their functions,	Shell has incorporated feedback from KLC related to how best to identify and contact Indigenous relevant persons that they have functions to represent as an NTRB. There has been no other feedback which has required updates to the EP from KLC.

Relevant person ID	Indigenous relevant person	Relevant person's functions, interests and activities	Petroleum activity impacts and risks which may affect relevant persons functions, interests, or activities	Nature and scale of effect on relevant persons functions, interests, or activities	Sufficient information provided	Consultation overview *For a full summary of contact,* see Table 5-12	Reasonable period provided	Appropriate measures adopted
		• 105. Miriuwung-Gajerrong • 113. Nimanburr Aboriginal Corporation • 122. Balanggarra Aboriginal Corporation • 125. Wunambal Gaambera Aboriginal Corporation KLCs interests and activities include, for example: • Sea Country • Cultural values • Cultural Features • Indigenous traditional activities (e.g., fishing) • Have responsibility for sea country within the Kimberley Marine Park.		interests, and activities. They may be affected to a limited extent if a major spill event were to occur.		KLC also provided an additional conduit to contact other groups in the region for which it was not a formal contact point (recognising KLC's ability to assist Shell in identifying First Nations relevant persons and organisations). Throughout all consultation with KLC, and the groups it is the formal contact point for, no objections or claims have been raised. From the end of March 2023, Shell undertook a targeted media campaign in the region, using print, geotargeted social media and radio ads. The campaign urged potential relevant persons to contact Shell and provided a link to the Crux project on the Shell website with access to draft Environment Plans. These materials enabled relevant persons to make an informed decision about how their functions, interests, or activities may be affected, and a mechanism to consult with Shell on the EP – Appendix A. Shell's further reasonable efforts to consult with all these relevant persons has been demonstrated through offers to all relevant persons to cover all reasonable costs associated with attending consultation meetings/forums (e.g. accommodation, travel and where appropriate reasonable costs of time) and also contact details for environmental consultants, some independent, paid for by Shell to support the relevant persons in assessing information and providing feedback to Shell. Shell considers that KLC and the organisations it is the formal contact point for have been afforded a reasonable opportunity to consult with Shell in preparing this EP.	interests or activities may be affected. It also allowed reasonable time to digest information provided and to access the offer of a consultant panel to support them in reviewing information and raising issues or input on Shell's proposed activity. Shell considers that KLC and the community it represents have been afforded a reasonable period to understand how this EP impacts their functions, interests or activities and engage with Shell for further discussion.	
Justification that consultation is complete. KLC is the peak Indigenous body and NTRB in the Kimberley region working with Indigenous people to secure native title, conduct conservation and land management activities and develop cultural business enterprises. KLC have received sufficient information and whilst they didn't have any claims or objections themselves, they have shared the information with the groups they represent to ensure they also get sufficient information and reasonable period to provide input, claims or objections. Shell has adopted appropriate measures related to all relevant matters raised by KLC during consultation where suggestions were made on how to better reach members they support which may be affected by the activities of this EP. Therefore, consultation has been completed in accordance with Regulation 10A(g).								
44.	**Mayala Inninalang Aboriginal Corporation (MIAC)**	• Approx 350km from the Crux operational area to closest part of MIAC. • Represent Indigenous people located in the North Kimberley region of Australia. • KLC is the NTRB for MIAC. • Sea Country • Cultural values • Cultural Features • Indigenous traditional activities (e.g., fishing) • Have responsibility for sea country within the Kimberley Marine Park.	Spill risks have the potential to affect MIAC's functions, interests, or activities.	Low, in accordance with Table 5-3. MIAC's functions, interests and activities do not extend near the operational area for this activity. There are no planned impacts predicted to MIAC's	Fact sheets and draft EP provided to MIAC via the KLC on 3 May 2023 (Appendix A). Face to face meeting held on 14 August along with two other Aboriginal Corporations, (Walalakoo and BJAC) with a tailored	Shell has consulted with MIAC since March 2023 when an invitation to consult face to face on the EP was first sent via KLC. The request suggested multiple ways which consultation could occur, from on-country meetings through to attendance at Indigenous forums which were run at 3 locations (Appendix A). From March through to August, all consultation correspondence from Shell has been sent the KLC. In addition, during this time, Shell brought to the attention of MIAC the NOPSEMA *Consultation on offshore petroleum environmental plans* which Shell posted a link to on the EP webpage soon after it was published in May 2023, in order for them to be sufficiently informed about the objective of consultation and their rights in the process. At their request, led by Bardi Jawi Niimidiman Aboriginal Corporation, a joint face-to-face meeting was held with MIAC, Bardi Jawi Niimidiman Aboriginal Corporation and Walalakoo Aboriginal Corporation on 15 August, in Broome, at a venue and with representative participants of their choosing. At the meeting, Shell explained the activities of this EP and the impacts and risks which may affect their functions, interests or activities. Shell also asked for input on particular values or features	Shell has been reaching out to MIAC through KLC since March 2023. Sufficient information (such as factsheets and website as well as a published version of the draft EP) was provided to MIAC in May 2023. MIAC had more than 3 months to review the information, and make an informed	Shell adopted additional appropriate consultation measures, through feedback received in June and July 2023, from a Walalakoo representative (joint entity) (Refer to RP54 in Table 5 17).

Relevant person ID	Indigenous relevant person	Relevant person's functions, interests and activities	Petroleum activity impacts and risks which may affect relevant persons functions, interests, or activities	Nature and scale of effect on relevant persons functions, interests, or activities	Sufficient information provided	Consultation overview *For a full summary of contact,* see Table 5-12	Reasonable period provided	Appropriate measures adopted
				functions, interests, and activities. They may be affected to a limited extent if a major spill event were to occur.	presentation pack – Appendix A. Shell published in social media, radio and newspapers which were targeted at groups or individuals within this region from March to April 2023 – Appendix A.	which may be affected by Shell's activities which we currently are not aware of and some input was provided as a result of this (Refer to Appendix A and the measures adopted column of this table). Shell also offered to hold additional meetings at locations and with participants of MIACs choosing, but no response to this has been received. Shell provided a further opportunity on the 17 October 2023 for MIAC to provide input to Shell for EP preparation, clearly restating the purpose of consultation, the request for their input on matters we may not be aware of, such as cultural values or features, or objections or claims they may have about the activity. Shell asserted that sufficient information and a reasonable period had been provided for MIAC to provide a response, however Shell offered a further 10 days to provide the requested input, before Shell needed to make final preparations of the EP in readiness of resubmission of the EP to NOPSEMA. MIAC did not respond to the offer. From the end of March 2023, Shell undertook a targeted media campaign in the region, using print, geotargeted social media and radio ads. The campaign urged potential relevant persons to contact Shell and provided a link to the Crux project on the Shell website with access to draft Environment Plans. These materials enabled relevant persons to make an informed decision about how their functions, interests, or activities may be affected, and a mechanism to consult with Shell on the EP. Shell's further reasonable efforts to consult with all these relevant persons has been demonstrated through offers to all relevant persons (Indigenous people or organisations) to cover all reasonable costs associated with attending consultation meetings/forums (e.g. accommodation, travel and where appropriate reasonable costs of time) and also contact details for environmental consultants, some independent, paid for by Shell to support the relevant persons in assessing information and providing feedback to Shell (Appendix A). Shell considers that MIAC and the community it represents have been afforded a reasonable opportunity to consult with Shell in preparing this EP.	assessment about how their functions, interests or activities may be affected. It also allowed reasonable time to digest information provided and to access the offer of a consultant panel to support them in reviewing information and raising issues or input on Shell's proposed activity. Shell has also agreed to pay reasonable costs to support their participation and attendance in consultation meetings. Shell considers that MIAC and the community it represents have been afforded a reasonable period to understand how this EP impacts their functions, interests or activities and engage with Shell for further discussion.	
Justification that consultation is complete. MIAC's functions, interests and activities are only potentially impacted by the spill risk from Shell's activities (through dissolved/entrained oil). Any impact to MIAC's functions, interests and activities is predicted to be slight. Other than source control options which are already planned to be implemented by Shell in the event of a spill, there are no other available options to directly mitigate or reduce the impacts of dissolved/entrained oil during spills which could occur from this activity. Therefore, further consultation is unlikely to improve risk management or further reduce the environmental impacts of a spill in accordance with the objects of consultation in preparing an EP. Shell has provided sufficient information to inform MIAC how their functions, interests and activities may be affected, made reasonable efforts to consult, having met in a face-to-face meeting, and provided further opportunity for follow-up meeting if they wanted. Shell has also provided a reasonable period for MIAC to determine if their functions, interest and activities may be affected and to review information, with support offered by Shell through providing options for environmental consultants to support MIAC and provide feedback to Shell. Given the remote likelihood and scale of potential risks to MIAC's functions, interests and activities, MIAC has been provided sufficient information, a reasonable period to consult, having been sufficiently informed of the purpose of consultation and their rights in the process. Therefore, consultation has been carried out in accordance with Regulation 10A(g).								
55	**Wanjina-Wunggurr Aboriginal Corporation (WWAC)** Wanjina-Wunggurr Aboriginal	• Approx 140 km from the Crux operational area to closest part of WWAC.	Spill risks have the potential to affect WWAC functions, interests, or activities.	Low, in accordance with Table 5-3. WWAC's functions, interests and	Fact sheets and draft EP provided to WWAC through KLC for onward	Wanjina Wunggurr Aboriginal Corporation (WWAC) is the RNTBC for the Dambimangari, Wanjina Wunggurr Wilinggin and Uunguu Part A and Part B Native Title Determination. KLC is the administrative contact point for WWAC, as WWAC has no employees or income as listed on the ORIC website.	Shell has been reaching out to WWAC through KLC since March 2023. Sufficient information (such as	No measures were required to be adopted as a result of consultation with WWAC for this EP.

Relevant person ID	Indigenous relevant person	Relevant person's functions, interests and activities	Petroleum activity impacts and risks which may affect relevant persons functions, interests, or activities	Nature and scale of effect on relevant persons functions, interests, or activities	Sufficient information provided	Consultation overview *For a full summary of contact,* see Table 5-12	Reasonable period provided	Appropriate measures adopted
	Corporation is the formal RNTBC for the Dambimangari, Uunguu Part A, Uunguu - Area B, Wanjina - Wunggurr Wilinggin Native Title claim, determined between 2004 and 2012. However, day to day management of the Determined area is in the hands of three separate Aboriginal Corporations: 1. Dambimangari Aboriginal Corporation 2. Wunambal Gaambera Aboriginal Corporation and 3. Wilinggin Aboriginal Corporation. The KLC is the formal contact point for WWAC as listed on the NNTT website.			activities do not extend near the operational area for this activity. There are no planned impacts predicted to WWAC's functions, interests, and activities. They may be affected to a limited extent if a major spill event were to occur.	distribution on 26 May 2023. Shell published in social media, radio and newspapers which were targeted at groups or individuals within this region from March to April 2023 – Appendix A.	Given that WWAC have no staff or employees, Shell carried out consultation with WWAC through KLC as its formal contact point. The KLC confirmed in May 2023 that it had passed information on to the WWAC. Further, Dambimangari Aboriginal Corporation (DAC), Wunambal Gaambera Aboriginal Corporation (WGAC) and Wilinggin Aboriginal Corporation (WAC) together represent the Wanjina Wunggurr community. They are all active Aboriginal Corporations who manage their own country, culture and business. Shell consulted with these three groups separately, see relevant persons numbers 31, 57 and 125. From the end of March 2023, Shell undertook a targeted media campaign in the region, using print, geotargeted social media and radio ads. The campaign urged potential relevant persons to contact Shell and provided a link to the Crux project on the Shell website with access to draft Environment Plans. These materials enabled relevant persons to make an informed decision about how their functions, interests, or activities may be affected, and a mechanism to consult with Shell on the EP – Appendix A. Shell's further reasonable efforts to consult with all these relevant persons has been demonstrated through offers to all relevant persons to cover all reasonable costs associated with attending consultation meetings/forums (e.g. accommodation, travel and where appropriate reasonable costs of time) and also contact details for environmental consultants, some independent, paid for by Shell to support the relevant persons in assessing information and providing feedback to Shell.	factsheets and website as well as a published version of the draft EP) was provided to WWAC via KLC in May 2023. WWAC had more than 5 months to review the information, and make an informed assessment about how their functions, interests or activities may be affected. It also allowed reasonable time to digest information provided and to access the offer of a consultant panel to support them in reviewing information and raising issues or input on Shell's proposed activity. Shell considers that WWAC and the community it represents have been afforded a reasonable period to understand how this EP impacts their functions, interests or activities and engage with Shell for further discussion.	
Justification that consultation is complete. WWAC's functions, interests and activities are only potentially impacted by the spill risk from Shell's activities (through dissolved/entrained oil). Any impact to WWAC's functions, interests and activities is predicted to be Low. Other than source control options which are already planned to be implemented by Shell in the event of a spill, there are no other available options to directly mitigate or reduce the impacts of dissolved/entrained oil during spills which could occur from this activity. Therefore, further consultation is unlikely to improve risk management or further reduce the environmental impacts of a spill in accordance with the objects of consultation in preparing an EP. Given the remote likelihood and scale of potential risks to WWAC's functions, interests and activities, Shell provided sufficient information to inform WWAC how their functions, interests and activities may be affected, provided information to make WWAC sufficiently informed of their rights and their opportunity to be consulted, made reasonable efforts to consult WWAC. Shell also provided a reasonable period for WWAC to determine if their functions, interests, and activities may be affected and to review information and provide feedback to Shell. Shell supported WWAC in this process by providing access to reasonable support in the form of environmental consultants to support advising WWAC and offers of reasonable financial support to attend forums. Since Shell has provided WWAC sufficient information and a reasonable period to consider the information and be able to respond, consultation has been carried out in accordance with Regulation 10A(g).								

Relevant person ID	Indigenous relevant person	Relevant person's functions, interests and activities	Petroleum activity impacts and risks which may affect relevant persons functions, interests, or activities	Nature and scale of effect on relevant persons functions, interests, or activities	Sufficient information provided	Consultation overview *For a full summary of contact,* see Table 5-12	Reasonable period provided	Appropriate measures adopted
57	**Wilinggin Aboriginal Corporation (WAC)** Wanjina-Wunggurr Aboriginal Corporation is the formal RNTBC for the Dambimangari, Uunguu Part A, Uunguu - Area B, Wanjina - Wunggurr Wilinggin Native Title claim, determined between 2004 and 2012. However, day to day management of the Determined area is in the hands of three separate Aboriginal Corporations: 1. Dambimangari Aboriginal Corporation 2. Wunambal Gaambera Aboriginal Corporation and **3. Wilinggin Aboriginal Corporation.**	• Approx 260km from Operational Area to closest part of WAC • WAC represents the eastern part of the Wanjina Wunggurr Native Title Determination and the interests of the Ngarinyin People and their country. • Only a very small part of WAC area is Sea Country • Cultural values • Cultural Features • Indigenous traditional activities (e.g., fishing) • KLC is the NTRB for WAC, via WWAC.	Spill risks have the potential to affect WAC functions, interests, or activities.	Low, in accordance with Table 5-3. WAC's functions, interests and activities do not extend near the operational area for this activity. There are no planned impacts from the Shell's activities predicted to occur to WAC's functions, interests, and activities. They may be affected to a limited extent if a major spill event were to occur.	Fact sheets and draft EP provided to WAC on 26 May 2023. Emails and phone calls directly to WAC in June 2023. Direct contact made with WAC staff 19 June 2023, and full emails with all relevant information sent to CEO and administration. Shell published in social media, radio and newspapers which were targeted at groups or individuals within this region from March to April 2023 – Appendix A.	Shell has been attempting to meet face to face with WAC since March 2023 when an invitation to consult on the EP was first sent to them as well as their representative body, KLC. The request suggested multiple ways which consultation could occur, from on-country meetings through to attendance at Indigenous forums which were run at 3 locations. Direct contact was made with WAC staff in June 2023, and on the same day, detailed information and factsheets were sent to the CEO and administration. No response was received. Multiple further attempts through phone calls and emails were made throughout September and October 2023 attempting to arrange a meeting with the WAC Board at a location of their choosing. Shell provided a further opportunity on the 17 October 2023 for WAC to provide input to Shell for EP preparation, clearly restating the purpose of consultation, the request for their input on matters we may not be aware of, such as cultural values or features, or objections or claims they may have about the activity. Shell asserted that sufficient information and a reasonable period had been provided for WAC to provide a response, however Shell offered a further 10 days to provide the requested input, before Shell needed to make final preparations of the EP in readiness of resubmission of the EP to NOPSEMA. WAC did not respond to the offer. From the end of March 2023, Shell undertook a targeted media campaign in the region in which WAC are located, using newspaper ads, geotargeted social media and radio. The campaign urged potential RPs to contact Shell and provided a link to the Shell website with details about the Crux project and the Environment Plan. These materials enabled RPs to make an informed decision about how their functions, interest or activities may be affected, and a mechanism to consult with Shell on the EP– Appendix A. Shell's further reasonable efforts to consult with all these relevant persons has been demonstrated through offers to all relevant persons to cover all reasonable costs associated with attending consultation meetings/forums (e.g. accommodation, travel and where appropriate reasonable costs of time) and also contact details for environmental consultants, some independent, paid for by Shell to support the relevant persons in assessing information and providing feedback to Shell. Shell considers that WAC and the community it represents have been afforded a reasonable opportunity to consult with Shell in preparing this EP.	Shell has been reaching out to WAC both directly and through KLC since March 2023. Sufficient information (such as factsheets and website as well as a published version of the draft EP) was provided to WAC in May 2023 and direct contact was made in June 2023, when the information was supplied again. WAC had more than 3 months to review the information, and make an informed assessment about how their functions, interests or activities may be affected. It also allowed reasonable time to digest information provided and to access the offer of a consultant panel to support them in reviewing information and raising issues or input on Shell's proposed activity. Shell has also agreed to pay reasonable costs to support their participation and attendance in consultation meetings. Shell considers that WAC and the community it represents have been afforded a reasonable period to understand how this EP impacts their	None

Relevant person ID	Indigenous relevant person	Relevant person's functions, interests and activities	Petroleum activity impacts and risks which may affect relevant persons functions, interests, or activities	Nature and scale of effect on relevant persons functions, interests, or activities	Sufficient information provided	Consultation overview *For a full summary of contact,* see Table 5-12	Reasonable period provided	Appropriate measures adopted
							functions, interests or activities and engage with Shell for further discussion.	
Justification that consultation is complete. WAC's functions, interests and activities are only potentially impacted by the spill risk from Shell's activities (through dissolved/entrained oil). Any impact to WAC's functions, interests and activities is predicted to be slight. Other than source control options which are already planned to be implemented by Shell in the event of a spill, there are no other available options to directly mitigate or reduce the impacts of dissolved/entrained oil during spills which could occur from this activity. Therefore, further consultation is unlikely to improve risk management or further reduce the environmental impacts of a spill in accordance with the objects of consultation in preparing an EP. Given the remote likelihood and scale of potential risks to WAC's functions, interests and activities, Shell provided sufficient information to inform WAC how their functions, interests and activities may be affected, provided information to make WAC sufficiently informed of their rights and their opportunity to be consulted, made reasonable efforts to consult WAC. Shell also provided a reasonable period for WAC to determine if their functions, interests, and activities may be affected and to review information and provide feedback to Shell. Shell supported WAC in this process by providing access to reasonable support in the form of environmental consultants to support advising WAC and offers of reasonable financial support to attend forums. Since Shell has provided WAC sufficient information and a reasonable period to consider the information and be able to respond, consultation has been carried out in accordance with Regulation 10A(g).								
114.	**Northern Land Council (NLC)**	• NLC has a function as the NTRB in relation to the Ashmore and Cartier Islands area.	Spill risks have the potential to affect NLC's, functions, interests, or activities.	Low, in accordance with Table 5-3. NLC's area of responsibility as an NTRB overlaps with the operational area and planning area. There are no planned impacts predicted to NLC's functions, interests, and activities. They may be affected to a limited extent if a major spill event were to occur.	Fact sheets and draft EP provided to NLC on 19 May 2023. Face to face meeting occurred on the 26 May 2023. Shell published in social media, radio and newspapers which were targeted at groups or individuals within this region from March to April 2023 – Appendix A.	Shell has consulted with NLC since March 2023 when an invitation to consult on the EP was first sent. The request suggested multiple ways which consultation could occur, from on country meetings through to attendance at Indigenous forums which were run at 3 locations. As the peak Indigenous body in the Northern Territory and Ashmore and Cartier Island territories, NLC were requested by Shell to forward information to NLC members. On the 26 May 2023 Shell met face to face with the NLC. At the meeting, Shell explained the activities of this EP and the impacts and risks which may affect their functions, interests or activities. Shell also asked for input on particular values or features which may be affected by Shell's activities which we were not aware of (Refer to Appendix A and the measures adopted column of this table). No input was provided to Shell by this request. However, NLC did raise relevant matters they would like addressed within the EP related to provision of further information related to oil spill preparedness and response. It also included adding NLC to the notification table in the EP for contact in the event of a level 2 or 3 spill. Shell addressed all the requests made by NLC to their satisfaction. From the end of March 2023, Shell undertook a targeted media campaign in the region, using print, geotargeted social media and radio ads. The campaign urged potential relevant persons to contact Shell and provided a link to the Crux project on the Shell website with access to draft Environment Plans. These materials enabled relevant persons to make an informed decision about how their functions, interests, or activities may be affected, and a mechanism to consult with Shell on the EP – Appendix A. Shell's further reasonable efforts to consult with all these relevant persons has been demonstrated through offers to all relevant persons to cover all reasonable costs associated with attending consultation meetings/forums (e.g. accommodation, travel and where appropriate reasonable costs of time) and also contact details for environmental consultants, some independent, paid for by Shell to support the relevant persons in assessing information and providing feedback to Shell. Shell considers that NLC have been afforded a reasonable opportunity to consult with Shell in preparing this EP.	Shell has been reaching out to NLC since March 2023. Sufficient information (such as factsheets and website as well as a published version of the draft EP) was provided to NLC in May 2023. Consultation with NLC is considered to be complete, noting a two-way dialogue with feedback which was incorporated into this EP. NLC was provided reasonable time to digest information and to access the offer of a consultant panel to support them in reviewing information and raising issues or input on Shell's proposed activity. Shell considers that NLC have been afforded a reasonable period to understand how this EP impacts their functions, interests or activities and	EP Table 10-4 includes requirement for NLC to be notified in the event of an emergency spill event which has the potential to impact communities and environments in the Top End.

Relevant person ID	Indigenous relevant person	Relevant person's functions, interests and activities	Petroleum activity impacts and risks which may affect relevant persons functions, interests, or activities	Nature and scale of effect on relevant persons functions, interests, or activities	Sufficient information provided	Consultation overview *For a full summary of contact,* see Table 5-12	Reasonable period provided	Appropriate measures adopted
							engage with Shell for further discussion.	
Justification that consultation is complete. NLC is the peak Indigenous body and NTRB in the north part of the Northern Territory and Ashmore and Cartier Island Territories. Shell has provided sufficient information and a reasonable period for consultation with the NLC as demonstrated by the provision of the information, followed by a face-to-face meeting and follow-up information requests and incorporation of NLC input into the development of this EP. Shell has adopted appropriate measures related to all relevant matters raised by NLC during consultation. Therefore, consultation has been completed in accordance with Regulation 10A(g).								
122	**Balanggarra Aboriginal Corporation (BAC)**	• Approx 270 km from the Crux operational area to closest part of Balanggarra Aboriginal Corporation. • Balanggarra Aboriginal Corporation is the RNTBC for the Balanggarra Native Title claim. • BAC represents the interests of the Balanggarra People and their country, located to the southeast of Crux. • KLC is the NTRB for BAC. • BAC has Sea Country that intersects with the 400km planned impacts boundary. • Cultural values • Cultural Features Indigenous traditional activities (e.g., fishing)	Spill risks have the potential to affect BAC functions, interests, or activities.	Low, in accordance with Table 5-3. BAC's functions, interests and activities do not extend near the operational area for this activity. There are no planned impacts predicted to BAC's functions, interests, and activities. They may be affected to a limited extent if a major spill event were to occur.	Fact sheets and draft EP provided to BAC on 19, 25, 26 May 2023. Email contact made with BAC on 7 September 2023, and full emails with all relevant information sent to CEO and administration. Follow up email was sent on 17 October 2023 and a final phone call to the Administration officer was made on 20 October 2023. Shell published in social media, radio and newspapers which were targeted at groups or individuals within this region from March to April 2023 – Appendix A.	Shell has been attempting to meet face to face with BAC since March 2023 when an invitation to consult on the EP was first sent to them as well as their representative body, KLC. The request suggested multiple ways which consultation could occur, from on-country meetings through to attendance at Indigenous forums which were run at 3 locations. Multiple emails were sent throughout March to May 2023, including EP fact sheet and the draft EP. A new email address was sourced on 7 September and additional emails were sent through to the CEO including detailed information and factsheets. No response was received. Multiple further attempts through phone calls and emails were made throughout September and October 2023 but no response. Shell provided a further opportunity on the 17 October 2023 for BAC to provide input to Shell for EP preparation, clearly restating the purpose of consultation, the request for their input on matters we may not be aware of, such as cultural values or features, or objections or claims they may have about the activity. Shell asserted that sufficient information and a reasonable period had been provided for BAC to provide a response, however Shell offered a further 10 days to provide the requested input, before Shell needed to make final preparations of the EP in readiness of resubmission of the EP to NOPSEMA. A follow up phone call was made on 20 October, confirming that BAC had received information directly and via the KLC. BAC did not respond to the offer. From the end of March 2023, Shell undertook a targeted media campaign in the region, using print, geotargeted social media and radio ads. The campaign urged potential relevant persons to contact Shell and provided a link to the Crux project on the Shell website with access to draft Environment Plans. These materials enabled relevant persons to make an informed decision about how their functions, interests, or activities may be affected, and a mechanism to consult with Shell on the EP – Appendix A. Shell's further reasonable efforts to consult with all these relevant persons has been demonstrated through offers to all relevant persons to cover all reasonable costs associated with attending consultation meetings/forums (e.g. accommodation, travel and where appropriate reasonable costs of time) and also contact details for environmental consultants, some independent, paid for by Shell to support the relevant persons in assessing information and providing feedback to Shell. BAC were requested multiple times between March and September 2023 to provide contacts for other RPs we should consult with (no response provided).	Shell has been reaching out to BAC both directly and through KLC since March 2023. Sufficient information (such as factsheets and website as well as a published version of the draft EP) was provided to BAC in May 2023 Phone calls confirm this information was received. Shell succeeded in making direct contact with BAC on 7 September 2023, when all information (such as factsheets and website as well as a published version of the draft EP) was provided again. BAC had more than 3 months to review the information, and make an informed assessment about how their functions, interests or activities may be affected. It also allowed reasonable time to digest information provided and to access the offer of a consultant panel to	None

Relevant person ID	Indigenous relevant person	Relevant person's functions, interests and activities	Petroleum activity impacts and risks which may affect relevant persons functions, interests, or activities	Nature and scale of effect on relevant persons functions, interests, or activities	Sufficient information provided	Consultation overview *For a full summary of contact,* see Table 5-12	Reasonable period provided	Appropriate measures adopted
						Shell considers that BAC and the community it represents have been afforded a reasonable opportunity to consult with Shell in preparing this EP.	support them in reviewing information and raising issues or input on Shell's proposed activity. Shell considers that BAC and the community it represents have been afforded a reasonable period to understand how this EP impacts their functions, interests or activities and engage with Shell for further discussion.	
Justification that consultation is complete. BAC's functions, interests and activities are only potentially impacted by the spill risk from Shell's activities (through dissolved/entrained oil). Any impact to BAC's functions, interests and activities is predicted to be slight. Other than source control options which are already planned to be implemented by Shell in the event of a spill, there are no other available options to directly mitigate or reduce the impacts of dissolved/entrained oil during spills which could occur from this activity. Therefore, further consultation is unlikely to improve risk management or further reduce the environmental impacts of a spill in accordance with the objects of consultation in preparing an EP. Given the remote likelihood and scale of potential risks to BAC's functions, interests and activities, Shell provided sufficient information to inform BAC how their functions, interests and activities may be affected, provided information to make BAC sufficiently informed of their rights and their opportunity to be consulted, made reasonable efforts to consult BAC. Shell also provided a reasonable period for BAC to determine if their functions, interests, and activities may be affected and to review information and provide feedback to Shell. Shell supported BAC in this process by providing access to reasonable support in the form of environmental consultants to support advising BAC and offers of reasonable financial support to attend forums. Since Shell has provided BAC sufficient information and a reasonable period to consider the information and be able to respond, consultation has been carried out in accordance with Regulation 10A(g).								
125.	**Wunambal Gaambera Aboriginal Corporation (WGAC)** Wanjina-Wunggurr Aboriginal Corporation is the formal RNTBC for the Dambimangari, Uunguu Part A, Uunguu - Area B, Wanjina - Wunggurr Wilinggin Native Title claim, determined between 2004 and 2012. However, day to day management of the Determined area is in the hands of three separate Aboriginal Corporations:	• Approximately 140km from the Crux operational area to closest part of WGAC country • WGAC represents the northern part of the Wanjina Wunggurr Native Title Determination and the interests of the Uunguu People. • Cultural values • Cultural features • Indigenous traditional activities (e.g., fishing) • Have responsibility for sea country within the Kimberley Marine Park.	Spill risks have the potential to affect WGAC's functions, interests, or activities.	Low, in accordance with Table 5-3. WGAC's functions, interests and activities do not extend near the operational area for this activity. There are no planned impacts from Shell's activities predicted to occur to WGAC's functions, interests, and activities. They may be affected to a limited extent if	Fact sheets and draft EP provided to WGAC on 26 May 2023. Direct contact made with WGAC on 01 September 2023. Face to face meeting held on 15 September 2023, with a tailored presentation pack– Appendix A. Shell published in social media, radio and newspapers which were targeted at groups or	Shell has been offering to meet face to face with WGAC since March 2023 when an invitation to consult on the EP was first sent to them. The request suggested multiple ways which consultation could occur, from on country meetings through to attendance at indigenous forums which were run at 3 locations. Eight further follow-up emails between March and the end of August 2023, through multiple available means including the KLC, existing contact networks which Shell's Indigenous Engagement adviser made contact with WGAC. Subsequent to this, a consultation meeting with a Wunambal Gaambera representatives occurred on 15 September 2023. At the meeting, Shell explained the activities of this EP and the impacts and risks which may affect their functions, interests or activities. Shell also asked for input on particular values or features which may be affected by Shell's activities which we were not aware of and some input was provided as a result of this (Refer to Appendix A and the measures adopted column of this table). Following an agreement at this meeting on 15 September to meet again at a face-to-face on country on 25 October 2023, multiple further attempts through phone calls and emails were made throughout September and October 2023 attempting to arrange this further meeting with the WGAC Board on country. Shell's four call attempts did not result in a further meeting occurring with WGAC. Shell provided a further opportunity on the 17 October 2023 for WGAC to provide input to Shell for EP preparation, clearly restating the purpose of consultation, the request for their input on matters we may not be aware of, such as cultural values or features, or objections or claims they may have about the activity. Shell asserted that sufficient information and a reasonable period had been provided for WGAC to provide a response, however Shell offered a further 10 days to provide the	Shell has been reaching out to WGAC since March 2023. Sufficient information (such as factsheets and website as well as a published version of the draft EP) was provided to WGAC in May 2023. WGAC had more than 5 months to review the information, and make an informed assessment about how their functions, interests or activities may be affected. It also allowed reasonable time to	Shell updated its environment description of cultural values based on information provided by the WGAC representative during a face-to-face meeting.

Relevant person ID	Indigenous relevant person	Relevant person's functions, interests and activities	Petroleum activity impacts and risks which may affect relevant persons functions, interests, or activities	Nature and scale of effect on relevant persons functions, interests, or activities	Sufficient information provided	Consultation overview *For a full summary of contact,* see Table 5-12	Reasonable period provided	Appropriate measures adopted
	1. Dambimangari Aboriginal Corporation 2. **Wunambal Gaambera Aboriginal Corporation** and 3. Wilinggin Aboriginal Corporation.			a major spill event were to occur.	individuals within this region from March to April 2023 – Appendix A.	requested input, before Shell needed to make final preparations of the EP in readiness of resubmission of the EP to NOPSEMA. WGAC did not respond to the offer even with a further call made before the period closed. From the end of March 2023, Shell undertook a targeted media campaign in the region, using print, geotargeted social media and radio ads. The campaign urged potential relevant persons to contact Shell and provided a link to the Crux project on the Shell website with access to draft Environment Plans. These materials enabled relevant persons to make an informed decision about how their functions, interests, or activities may be affected, and a mechanism to consult with Shell on the EP– Appendix A. Shell's further reasonable efforts to consult with all these relevant persons has been demonstrated through offers to all relevant persons to cover all reasonable costs associated with attending consultation meetings/forums (e.g. accommodation, travel and where appropriate reasonable costs of time) and also contact details for environmental consultants, some independent, paid for by Shell to support the relevant persons in assessing information and providing feedback to Shell. Shell considers that WGAC and the community it represents have been afforded a reasonable opportunity to consult with Shell in preparing this EP.	digest information provided and to access the offer of a consultant panel to support them in reviewing information and raising issues or input on Shell's proposed activity. Shell considers that WGAC and the community it represents have been afforded a reasonable period to understand how this EP impacts their functions, interests or activities and engage with Shell for further discussion.	
Justification that consultation is complete. WGAC's functions, interests and activities are only potentially impacted by the spill risk from Shell's activities (through dissolved/entrained oil). Any impact to WGAC's functions, interests and activities is predicted to be slight. Other than source control options which are already planned to be implemented by Shell in the event of a spill, there are no other available options to directly mitigate or reduce the impacts of dissolved/entrained oil during spills which could occur from this activity. Therefore, further consultation is unlikely to improve risk management or further reduce the environmental impacts of a spill in accordance with the objects of consultation in preparing an EP. Given the remote likelihood and scale of potential risks to WGAC's functions, interests and activities, Shell provided sufficient information to inform WGAC how their functions, interests and activities may be affected, provided information to make WGAC sufficiently informed of their rights and their opportunity to be consulted, made reasonable efforts to consult WGAC. Shell also provided a reasonable period for WGAC to determine if their functions, interests, and activities may be affected and to review information and provide feedback to Shell. Shell supported WGAC in this process by providing access to reasonable support in the form of environmental consultants to support advising WGAC and offers of reasonable financial support to attend forums. Shell has also adopted appropriate measures as a result of consultation carried out with WGAC. Since Shell has provided WGAC sufficient information, a reasonable period to consider the information and be able to respond and appropriate measures have been adopted, consultation has been carried out in accordance with Regulation 10A(g).								

Table 5-11: Tier 2 Indigenous relevant persons consultation completion statement

Indigenous relevant person and ID	RP Functions, Interests and Activities	Petroleum activity impacts and risks which may affect relevant persons functions, interests, or activities	Nature and scale of effect on relevant persons functions, interests or activities	Information provided	Consultation overview *For a full summary of contact, see* Table 5-12.	Reasonable period provided	Appropriate measures adopted
• 33. Gogolanyngor Aboriginal Corporation • 36. Karajarri Traditional Lands Association (KTLA) • 47. Ngarrawanji Aboriginal Corporation • 49. Nyamba Buru Yawuru Aboriginal Corporation (include Rubibi Community) • 51. Nyul Nyul PBC Aboriginal Corporation • 54. Walalakoo Aboriginal Corporation • 56. Warrwa Mawadjala Gadjidgar • 59. Yamatji Marlpa Aboriginal Corporation (YMAC) • 81. Dak Djerat Guwe People • 87. Goolarabooloo Millibinyarri Indigenous Corporation • 105. Miriuwung-Gajerrong (Western Australia) • 109. Murujuga Aboriginal Corporation • (Including the land and sea unit) • 111. Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC) • 113. Nimanburr Aboriginal Corporation • 114. Northern Land Council • 115. Nyangumarta Warrarn Aboriginal Corporation • 119. Tiwi Land Council • 123. Wanparta Aboriginal Corporation • 124. Wirrawandi Aboriginal Corporation • 129. Larrakia Development Corporation	• All more than 400km from Operational Area to closest part of native title interest and other known potential interests or activities. • The NRTB's and Aboriginal Corporations represent the interests of the groups they represent and their country, located coastally adjacent to the planning area. • Cultural values • Cultural Features • Indigenous traditional activities (e.g., fishing)	Spill risks have the potential to affect the relevant persons functions, interests, or activities.	Low, in accordance with Table 5-3. There are no planned impacts from the Shell's activities predicted to occur to these relevant persons functions, interests, and activities. Their functions, interests and activities do not extend near the operational area for this activity. They may be affected if a major spill event were to occur.	Fact sheets and draft EP provided to relevant persons between April and May 2023. Follow up emails and phone calls where information was available were sent between April and October 2023. Shell published in social media, radio and newspapers which were targeted at groups or individuals within this region from March to April 2023 – Appendix A.	All relevant persons have been provided with an EP factsheet and the draft EP between March and May 2023. The initial request to consult suggested multiple ways which consultation could occur, from face to face on-country meetings through to attendance at face to face indigenous forums which were run at 3 locations. Shell's further reasonable efforts to consult with all these relevant persons has been demonstrated through offers to all relevant persons to cover all reasonable costs associated with attending consultation meetings/forums (e.g., accommodation, travel and where appropriate reasonable costs of time) and also contact details for environmental consultants, some independent, paid for by Shell to support the relevant persons in assessing information and providing feedback to Shell. In addition, from the end of March 2023, Shell undertook a targeted media campaign in the region in which the relevant persons are located, using newspaper ads, geotargeted social media and radio. The campaign urged potential RPs to contact Shell and provided a link to the Shell website with details about the Crux project and the Environment Plan. These materials enabled RPs to make an informed decision about how their functions, interest or activities may be affected, and a mechanism to consult with Shell on the EP- Appendix A. More detailed consultation summaries and full text record for these relevant persons can be found in Table 5-12. Shell considers that all these relevant persons and the communities they represent have been afforded a reasonable opportunity to consult with Shell in preparing this EP. • <u>33. Gogolanyngor Aboriginal Corporation (GAC)</u> Shell has been attempting to meet face to face with GAC since March 2023 when an invitation to consult on the EP was first sent to them. The request suggested multiple ways which consultation could occur, from on-country meetings through to attendance at Indigenous forums which were run at 3 locations. Multiple emails were sent via KLC to GAC throughout March to May 2023, including EP fact sheet and the draft EP. KLC confirmed that it had also distributed the EP information to GAC on 3 May 2023. No response was received. Two phone calls were made October 2023 directly to GAC but no answer or response was received. Shell provided a further opportunity on the 17 October 2023 for GAC to provide input to Shell for EP preparation, clearly restating the purpose of consultation, the request for their input on matters we may not be aware of, such as cultural values or features, or objections or claims they may have about the activity. Shell asserted that sufficient information and a reasonable period had been provided for GAC to provide a response, however Shell offered a further 10 days to provide any input. A follow up phone call was made on 20 October, in which GAC confirmed it had received information directly and via the KLC. GAC did not raise any objection or claims or other relevant matters related to this EP. • <u>36. Karajarri Traditional Lands Association (KTLA)</u> Shell has been attempting to meet face to face with KTLA since March 2023 when an invitation to consult on the EP was first sent to them. The request suggested multiple ways which consultation could occur, from on-country meetings through to attendance at Indigenous forums which were run at 3 locations. Multiple emails were sent directly to KTLA and via KLC throughout March to May 2023, including EP fact sheet and the draft EP. KLC confirmed that it had also distributed the EP information to KTLA on 3 May 2023. No response was received.	Shell has been reaching out to these relevant persons since March 2023 and all of them have had all the information including the draft EP since May 2023. Reasonable period has also been allowed to disseminate and digest information provided and to access the offer of the independent consultant panel to support them in reviewing information and raising issues or input with Shell's proposed activity. Shell has also provided offers of financial support to help participate in the consultation process (e.g. Forum attendance costs).	Because of the lack of response from these relevant persons, this prompted a final attempt to reach the RNTBC, PBC or Aboriginal Corporation refer to EP section 5.6.5 for further details. In cases where a two-way dialogue did occur, in many cases, relevant matters were addressed through adopting appropriate measures within updates of EP content such as description of cultural values and features and associated environmental impact and risk evaluations. Refer to the consultation summary table for full details of this (Table 5-12). EP Section 7.4.2 updated to include reference to the 'Lightning Man' underwater cultural site near Croker Island. Assessment of risks to cultural heritage (Section 9.14.6.3) amended to

Indigenous relevant person and ID	RP Functions, Interests and Activities	Petroleum activity impacts and risks which may affect relevant persons functions, interests, or activities	Nature and scale of effect on relevant persons functions, interests or activities	Information provided	Consultation overview *For a full summary of contact, see* Table 5-12.	Reasonable period provided	Appropriate measures adopted
					A phone call made on 17 October 2023 directly to KTLA confirmed that all materials had been received both directly and through KLC since at least May 2023. No objections, claims or other relevant matters were raised. Shell provided a further opportunity on the 17 October 2023 for KTLA to provide input to Shell for EP preparation, clearly restating the purpose of consultation, the request for their input on matters we may not be aware of, such as cultural values or features, or objections or claims they may have about the activity. Shell asserted that sufficient information and a reasonable period had been provided for KTLA to provide a response, however Shell offered a further 10 days to provide the requested input. KTLA did not raise any objections or claims, or other relevant matters related to this EP. • 47. Ngarrawanji Aboriginal Corporation (NAC) A representative of NAC registered for and attended the first TO forum in Perth on 19 April 2023. Information about the activities of the EP, impact and risk management was shared and a request made for input on environmental values and features (including cultural) that Shell may not be aware of. An opportunity to provide further feedback following the forum was provided. No input was received. • 49. Nyamba Buru Yawuru Aboriginal Corporation (NBYAC) Shell has carried out consultation with NBYAC in preparation of this EP. Preceding a meeting that occurred, Shell received feedback from NBYAC on the consultation approach for this EP which Shell adopted their suggestions in line with the co-design approach. Subsequently Shell set up a meeting with the NBYAC board and any other representatives they chose to invite on the 18 May 2023. Information about the activities of the EP, impact and risk management were shared and a request for input on environmental values and features (including cultural) that Shell may not be aware of. An opportunity to provide further feedback following the meeting was provided. No input was received. • 51. Nyul Nyul PBC Aboriginal Corporation (NNAC) Shell carried out consultation with NNAC through KLC as its formal contact point. The KLC identified NNAC as a PBC which would have interest in the EP in May 2023 and confirmed that it had passed information on to the NNAC. Shell made multiple follow-ups through KLC throughout May-August 2023 to request any input for the EP. No input was provided. A further opportunity was provided to NNAC on the 17 October 2023 through KLC and a response was provided by KLC on behalf of NNAC requesting a consultation workshop be set up by Shell, however the board had other priority matters which would not allow any time on its agenda until 2024. Shell followed up the request via phone and by email responding on the 27 October and 7 November stating that Shell had provided sufficient information and a reasonable period and that Shell has processes in place to consider new information concerning new impacts or risks to the activity, where those impacts or risks are not provided for in the EP. • 54. Walalakoo Aboriginal Corporation (WAC) At their request, led by Bardi Jawi Niimidiman Aboriginal Corporation, a joint face-to-face meeting was held with WAC, Bardi Jawi Niimidiman Aboriginal Corporation and MIAC on 15 August, in Broome, at a venue and with representative participants of their choosing. At the meeting, Shell explained the activities of this EP and the impacts and risks which may affect their functions, interests or activities. Shell also asked for input on particular values or features which may be affected by Shell's activities which we may not be aware of and some input was provided as a result of this (Refer to Appendix A and the measures adopted column of this table). Shell also offered to hold additional meetings at locations and with participants of WACs choosing, but no response to this was received. Shell provided a further opportunity on the 17 October 2023 for WACs to provide input to Shell for EP preparation, clearly restating the purpose of consultation, the request for their input on matters we		specifically identify areas around Croker Island. EP Table 10-4 includes requirement for Larrakia to be notified in the event of an emergency spill event which has the potential to impact Larrakia country.

Indigenous relevant person and ID	RP Functions, Interests and Activities	Petroleum activity impacts and risks which may affect relevant persons functions, interests, or activities	Nature and scale of effect on relevant persons functions, interests or activities	Information provided	Consultation overview *For a full summary of contact, see* Table 5-12.	Reasonable period provided	Appropriate measures adopted
					may not be aware of, such as cultural values or features, or objections or claims they may have about the activity. Shell asserted that sufficient information and a reasonable period had been provided for WAC to provide a response, however Shell offered a further 10 days to provide the requested input. WAC did not respond to the request. • 56. Warrwa Mawadjala Gadjidgar Shell has been attempting to meet face to face with WMG since March 2023 when an invitation to consult on the EP was first sent to them via KLC. The request suggested multiple ways which consultation could occur, from on-country meetings through to attendance at Indigenous forums which were run at 3 locations. Multiple emails were sent directly to WMG and via KLC throughout March to May 2023, including EP fact sheet and the draft EP. KLC confirmed that it had also distributed the EP information to WMG on 3 May 2023. No response was received. A phone call made on 10 October 2023 directly to WMG confirmed that all materials had been received both directly and through KLC since March 2023. This also included a further opportunity to provide input into preparation of this EP. No input was received from WMG. • 59. Yamatji Marlpa Aboriginal Corporation (YMAC) Shell has consulted with YMAC since March 2023 when an invitation to consult on the EP was first sent. The request suggested multiple ways which consultation could occur, from on country meetings through to attendance at Indigenous forums which were run at 3 locations. Shell has also made multiple attempts to meet with YMAC. YMAC is the native title representative body for the Pilbara, Midwest, Murchison, and Gascoyne regions of Western Australia. YMAC provides a conduit to contact other groups but it is not their formal contact point. YMAC have been provided with sufficient information and a reasonable period since 18 May 2023. No input related to the EP has been provided by YMAC. • 81. Dak Djerat Guwe People (DDGP) Shell has consulted with the DDGP through a phone call to their legal representatives and subsequent email providing sufficient information on 6 September 2023. It was confirmed by their legal representatives the information was passed onto the correct people. Shell followed-up DDGP on two further occasions seeking any input they had on this EP. No input was provided. • 87. Goolarabooloo Millibinyarri Indigenous Corporation (GMIC) Shell has been attempting to meet face to face with GMIC since March 2023 when an invitation to consult on the EP was first sent to them. The request suggested multiple ways which consultation could occur, from on-country meetings through to attendance at Indigenous forums which were run at 3 locations. Multiple emails were sent directly to GMIC throughout March to June 2023, including EP fact sheet and the draft EP. On 4 October 2023 Shell also tried to contact GMIC via phone call. Shell provided a further opportunity on the 17 October 2023 for GMIC to provide input to Shell for EP preparation, clearly restating the purpose of consultation, the request for their input on matters we may not be aware of, such as cultural values or features, or objections or claims they may have about the activity. Shell asserted that sufficient information and a reasonable period had been provided for GMIC to provide a response, however Shell offered a further 10 days to provide the requested input. GMIC did not raise any objections or claims, or other relevant matters related to this EP.		

Indigenous relevant person and ID	RP Functions, Interests and Activities	Petroleum activity impacts and risks which may affect relevant persons functions, interests, or activities	Nature and scale of effect on relevant persons functions, interests or activities	Information provided	Consultation overview *For a full summary of contact, see* Table 5-12.	Reasonable period provided	Appropriate measures adopted
					• 105. Miriuwung-Gajerrong (Western Australia) Shell has been attempting to meet face to face with Miriuwung-Gajerrong since March 2023 when an invitation to consult on the EP was first sent to them directly and via KLC. The request suggested multiple ways which consultation could occur, from on-country meetings through to attendance at Indigenous forums which were run at 3 locations. Multiple emails and phone calls have been made directly to Miriuwung-Gajerrong and via KLC from March to October 2023, including provision of the EP fact sheet and the draft EP. KLC confirmed on 3 May 2023 that information has been sent to Miriuwung-Gajerrong. Shell has provided the opportunity for Miriuwung-Gajerrong to provide input to Shell for EP preparation, clearly restating the purpose of consultation, the request for their input on matters we may not be aware of, such as cultural values or features, or objections or claims they may have about the activity. Shell has provided sufficient information and a reasonable period for Miriuwung-Gajerrong to provide a response, however Miriuwung-Gajerrong has not raised any objections or claims, or other relevant matters related to this EP. • 109. Murujuga Aboriginal Corporation (Including the land and sea unit) (MAC) Shell has consulted with MAC since March 2023. They have been provided with sufficient information and a reasonable period and MAC confirmed they have no relevant input related to this EP on 26 October 2023. • 111. Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC) Shell provided NTGAC through the NTRB, YMAC, with sufficient information and a reasonable period to consider it. This resulted in a meeting with the NTGAC board on the 24 October 2023. At the meeting, which YMAC facilitated, Shell explained the activities of this EP and the impacts and risks which may affect their functions, interests or activities. Shell also asked for input on particular values or features which may be affected by Shell's activities which we may not be aware of (refer to Appendix A). No input on environmental values or features or any other input related to the EP was provided. • 113. Nimanburr Aboriginal Corporation (NAC) Shell has been attempting to meet face to face with NAC since March 2023 when an invitation to consult on the EP was first sent to them via KLC as their formal contact point. The request suggested multiple ways which consultation could occur, from on-country meetings through to attendance at Indigenous forums which were run at 3 locations. Multiple emails were sent to NAC via KLC from March to June 2023, including EP fact sheet and the draft EP. KLC confirmed the information has been sent to NAC on 3 May 2023. Shell provided a further opportunity on the 17 October 2023 for NAC to provide input to Shell for EP preparation, clearly restating the purpose of consultation, the request for their input on matters we may not be aware of, such as cultural values or features, or objections or claims they may have about the activity. Shell asserted that sufficient information and a reasonable period had been provided for NAC to provide a response, however Shell offered a further 10 days to provide the requested input. NAC did not raise any objections or claims, or other relevant matters related to this EP. • 115. Nyangumarta Warrarn Aboriginal Corporation (NWAC) Shell provided NWAC through the NTRB, YMAC, with sufficient information and a reasonable period to consider it. This was confirmed by YMAC on 18 May 2023 and directly confirmed with NWAC on 12 October 2023. No input on environmental values or features or any other input related to the preparation of this EP was provided.		

Indigenous relevant person and ID	RP Functions, Interests and Activities	Petroleum activity impacts and risks which may affect relevant persons functions, interests, or activities	Nature and scale of effect on relevant persons functions, interests or activities	Information provided	Consultation overview *For a full summary of contact, see* Table 5-12.	Reasonable period provided	Appropriate measures adopted
					• 119. Tiwi Land Council (TLC) Statutory function, activities and interests due to role as Land Council. Represents Tiwi people in the protection of land, sea and environment. The TLC is responsible to ensure that activities on the Tiwi islands are undertaken only after consultation with the relevant Tiwi Clan group. The TLC is made up of four members from each of the Clan groups of the Tiwi Islands. At the request of the TLC, Shell met with the Council, including additional TLC employed subject matter experts (i.e. anthropologist and environmental advisor) on 26 May 2023. At the meeting, Shell explained the activities of this EP and the impacts and risks which may affect the TLC's functions, interests or activities. Shell also asked for input on particular values or features which may be affected by Shell's activities which we were not aware of (Refer to Appendix A). Multiple information requests were made by the TLC which were subsequently responded to by Shell. Shell also specifically requested for further meetings with clan groups of the Tiwi Islands, to which the TLC said it was important to first consult with the TLC and that the TLC would make a decision about the need for further consultation with clan groups of the Tiwi Islands based on an assessment of whether their functions, interests or activities may be affected. Shell followed up with a further request to confirm the TLC's position on consultation with clan groups on 19 June 2023 and TLC responded on 11 July 2023 stating there were no further relevant matters to raise for the preparation of this EP. • 123. Wanparta Aboriginal Corporation (WAC) Shell has consulted with WAC since March 2023. At the meeting with the WAC board on 16 August 2023 Shell explained the activities of this EP and the impacts and risks which may affect their functions, interests or activities. Shell also asked for input on particular values or features which may be affected by Shell's activities which we may not be aware of (Refer to Appendix A). No input in relation to this EP was provided by WAC as a result of consultation carried out. • 124. Wirrawandi Aboriginal Corporation (WAC) Shell has been attempting to meet face to face with WAC since March 2023 when an invitation to consult on the EP was first sent to them. The request suggested multiple ways which consultation could occur, from on-country meetings through to attendance at Indigenous forums which were run at 3 locations. Six emails have been sent directly to WAC throughout March to May 2023, including EP fact sheet, the draft EP and NOPSEMA consultation brochure. No response was received to any communications sent by Shell. On 9 November 2023 Shell called WAC and confirmed that the email address used for previous emails was correct. WAC have been provided sufficient information and over 5 months to consider the information and provide feedback to Shell. • 129. Larrakia Development Corporation (LAC) Shell has consulted with LAC since March 2023. At the meeting with the LAC representatives on 5 September 2023, Shell explained the activities of this EP and the impacts and risks which may affect their functions, interests or activities. Shell also asked for input on particular values or features which may be affected by Shell's activities which we may not be aware of to which they provided some input which informed the content of this EP (Refer to Appendix A and measures adopted column in this table). No further relevant matters or objections or claims were raised by LAC.		

Indigenous relevant person and ID	RP Functions, Interests and Activities	Petroleum activity impacts and risks which may affect relevant persons functions, interests, or activities	Nature and scale of effect on relevant persons functions, interests or activities	Information provided	Consultation overview *For a full summary of contact, see* Table 5-12.	Reasonable period provided	Appropriate measures adopted
Justification that consultation is complete	All tier 2 relevant persons functions, interests and activities are only potentially impacted by the spill risk from Shell's activities (through dissolved/entrained oil). Any impact to their functions, interests and activities is predicted to be slight. Other than source control options which are already planned to be implemented by Shell in the event of a spill, there are no other available options to directly mitigate or reduce the impacts of dissolved/entrained oil during spills which could occur from this activity. Therefore, further consultation is unlikely to improve risk management or further reduce the environmental impacts of a spill in accordance with the objects of consultation in preparing an EP. Shell took those relevant persons who did not respond to requests to provide feedback, which Shell then made further attempts by alternate available means to elicit a response up until October 2023. Shell has provided sufficient information to inform them how their functions, interests and activities may be affected, made reasonable efforts to consult with all of them, provided a reasonable period for them to determine if their functions, interests, and activities may be affected and to review information and provide feedback to Shell. Shell also adopted appropriate measures from input from relevant persons it did hear from through consultation. Given the remote likelihood and scale of potential risks to their functions, interests and activities, consultation has been completed in accordance with Regulation 10A(g).						

5.6.6 Commercial Fisheries

Based on the nature of Commercial Fisheries and their interests, Shell approached consultation with these relevant persons separately to broader community consultation.

In addition to the processes outlined above for general community and industry consultation, Shell employed a variety of resources to identify and classify relevant commercial fisheries. This included fisheries that overlap the Planning Area, as well as fisheries whose interests or activities overlap the Planning Area but not the location of Shell's planned activities. Shell also determined that where licence holders are active or potentially active within the Planning Area, the licence holder should be engaged as a potentially relevant person to provide them with sufficient information to assess whether they have any interest in or may be impacted by Shell's proposed activities.

In summary, identification and consultation with commercial fisheries was conducted as follows:

- Government authorities (AFMA, DCCEEW, WA DPIRD, and NT DITT) were engaged regarding the proposed activity and engagement with potentially relevant persons from commercial fisheries groups. Materials were made available by government authorities, including WA FishCube (fishing effort) data files and fishing reports.
- Fishing industry associations that represent fisheries with license areas that overlapped the Planning Area, such as WAFIC and Commonwealth Fisheries Association, were consulted with regarding the proposed activity and engagement with their members.

In addition, WAFIC was engaged on a fee-for-service basis to engage with their members with regards the proposed activity and this EP. A summary of their feedback is set out in (Table 5-12).

This summary includes acknowledgment from NOPSEMA that WAFIC is the appropriate body to carry out these duties. In addition, Shell consulted directly with licence holders in order to provide an additional means of assurance that all relevant persons had received sufficient information to assess the proposed activity in terms of their own interests and any potential impacts.

Licence holders in commercial fisheries were consulted using the following methodology:

- Letters (WA and NT managed Fisheries in the Planning Area)
- Email and letters via registered post (Commonwealth registered fisheries)
- Tailored relevant fact sheets and information describing the proposed activity, including relevant location coordinates.
- Consultation via relevant peak industry group WAFIC, including a virtual session for those seeking further information.

5.6.7 Titleholders and Operators

Email was used to consult with petroleum titleholders and operators. If there was no response it was assumed, they had no objection or comment on the proposed activity. This was considered reasonable effort as titleholders and operators have systems and the resources to consult on matters of interest to them.

5.6.8 Community and other

This encompasses the groups identified in the relevant person search under Commercial Operators, Interest Groups, NGOs, Community Groups, academic research or persons or organisations outside of Australia. Consultation undertaken was a combination of targeted emails containing factsheets and links to the Crux website, community drop-in sessions, targeted information sessions and a media campaign. This was considered a suitable approach to consult with this group given the low nature and scale of potential affects to a relevant person's functions, interests or activities.

5.6.8.1 Community drop-in sessions

These sessions were held at accessible public locations in relevant communities and attended by Subject Matter Experts (SMEs) from relevant Shell disciplines.

Criteria for selection of locations for drop-in sessions was based on:

- whether there is a community located within or immediately adjacent to the coastal boundary of the Planning Area; and
- where there are several small communities in close proximity, the most populated community in these areas was selected as the representative location.

Awareness was generated via appropriate targeted public advertisements (both print and social media) for each session and information was also provided to local level government, local business chambers and community organisations for dissemination to amplify awareness.

Sessions were supported with consultation materials for the Planning Area. Materials were appropriate to the audience to maximise their understanding of relevant EP activities (including activity description/location, the EP process and environmental management (potential aspect and proposed control)). The materials encouraged high-level two-way discussions between SMEs and attendees to ensure adequate consultation and opportunity for relevant persons to provide feedback and inform the EP. Materials included videos, fact sheets and maps.

Community Drop-in sessions were held in the following locations:

- Broome
- Darwin
- Port Hedland
- Derby
- Exmouth

To complement these sessions, proactive visits to local organisations, such as local Shires, chambers of commerce, local port authorities, Police and tourism offices, at each of the above locations were completed to provide further opportunity for consultation.

Shell also offered community sessions in the various locations above in order to provide an opportunity for relevant persons who may be interested in the activity set out in this EP but may be geographically located outside of the Planning Area to provide comments or feedback.

5.6.8.2 Targeted Information Sessions

In addition to community drop-in session consultation, Targeted Information Sessions were held with relevant persons from the community, including the business community (via chambers of commerce). A formal presentation on the EP was completed followed by an open forum discussion where attendees were provided with an opportunity to ask questions. These sessions also acted as an awareness amplification method for community drop-in sessions and the broader EP consultation process with potentially relevant persons.

Information sessions were held in the following locations:

- Broome
- Darwin

5.6.9 Assessment of Merit of Objections and Claims

Shell's assessment of relevance and assessment of merit considers four broad categories:

1. objection or claim has merit – the objection or claim raised is relevant to both the planned activity and the relevant person's or organisation's functions, activities or interests. The objection or claim has merit if there is a reasonable / scientific basis for related effects or impacts to occur and/or there is a reasonable basis for the objection or claim to be addressed in the EP.
2. objection or claim does not have merit – the objection or claim raised may be relevant to the planned activity or the relevant person's or organisation's functions, activities, or interests, however, the objection or claim raised has no credible or scientific basis.
3. relevant matter – the matter raised does not fit the criteria descriptions for objections or claims with/without merit. However, the matter raised is relevant to the planned activity, comprises a request to Shell for further relevant information, or provides information to Shell that is relevant to the activity or the EP.
4. not a relevant matter – correspondence does not relate to the planned activity or the relevant person's, or organisation's functions, interests or activities being affected by the activity. Non relevant matters may also be generic in nature with no specific issues raised (e.g., salutations, acknowledgements, meeting arrangements, etc.).

Table 5-12 contains Shell's assessment of the feedback received from relevant persons during consultation, the merits of objections or claims, measures adopted, and any changes incorporated into the EP as a result of the feedback.

In compliance with sub-regulation 9(8) of the OPGGS(E) Regulations, sensitive information (if any) contained in an EP, as well as the full text of any response by a relevant individual to consultation under regulation 11A during the preparation of the EP, must be included in the sensitive information section of the EP and not elsewhere.

5.7 Summary of Consultation for the Environment Plan

Shell considers that consultation will be complete when:

- each relevant person has received sufficient information and reasonable time to assess the impacts of the activity on their functions, interests, or activities; and
- all objections or claims have been discussed and, where reasonably practicable, resolved by Shell.

The following tables present a summary of all consultation carried out with relevant persons during the preparation of the EP in accordance with OPPGS(E) Regulation 11A.

5.7.1 Summary of Consultation

The version previously published contained text quoted directly from responses by relevant persons, contrary to the requirements of the Offshore Petroleum and Greenhouse Gas (Environment) Regulations 2023 (section 26(8)). That text has now been redacted. This EP remains in force.

Table 5-12: Summary of Consultation for the Crux Development Drilling Environment Plan

Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
Commonwealth and State Government Departments or Agencies						
2.	**Australian Hydrographic Office (AHO) - Department of Defence Operations Branch**	27 March 2023 *(initial email)* **Email to Shell** 28 March 2023 27 April 2023 **Email from Shell** 22 May 2023	[redacted]	**Email on 22 May 2023** Close out email sent which covered the following: • thanked relevant person for their feedback. • confirming that Shell will ensure we are informed as to the risks associated with conducting activities in the and we will continue to liaise with the Australian Hydrographic Service (AHS) for Notices to Mariners (NOTMAR). • recapped on what Shell is consulting on and the obligation to consult under the regulations. • notified of the management of feedback if any details should be considered sensitive information. • reconfirmed contact details.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant/Non-Relevant Matters** The issuance of information to support a notice to mariners is a relevant matter. An existing control, performance standard (Table 9-8) and notification requirement (Table 10-5) is detailed within the EP. Shell investigated the risk of unexploded ordinance. The NAXA is located within the broader planning area of the activity. The NAXA does not intersect the operational area where seabed disturbance is planned, therefore this is not a relevant matter for the preparation of this EP. This is further described in Section 7.4.6.	Table 9-8 and Table 10-5 has been updated to reflect the requested submission timing and contact details to provide information to support issuance of a notice to mariners. No other additional measures have been adopted.
3.	**Australian Maritime Safety Authority (AMSA)**	27 March 2023 *(initial email)* **Email to Shell** 28 March 2023 04 April 2023 24 April 2023 26 April 2023 **Email from Shell** 20 April 2023 26 April 2023	[redacted]	**Email on 04 May 2023** Shell shared presentation and public EPs with AMSA post the Industry Forum. **Email on 22 May 2023** Close out email sent which covered the following: • Thanked relevant person for their feedback. • Shell notes AMSA's initial advice that we: Contact the Australian Hydrographic Office no less than 4 weeks prior to operations, with details relevant to the operations.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant/Non-Relevant Matters** Raised relevant matters in regards pre-activity notifications and vessel navigation compliance requirements. Matters	Requirement to notify AHO 4 weeks prior to operations is included as a control in EP Table 9-8 and listed in notifications table (Table 10-5) Requirement to notify AMSA's JRCC 24-48 hrs prior to vessel activities commencing is stipulated in EP

The version previously published contained text quoted directly from responses by relevant persons, contrary to the requirements of the Offshore Petroleum and Greenhouse Gas (Environment) Regulations 2023 (section 26(8)). That text has now been redacted. This EP remains in force.

Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
		04 May 2023 22 May 2023 **In person** 27 April 2023		Notify AMSA's Joint Rescue Coordination Centre by email for promulgation of radio navigation warnings at least 24-48 hours before operations commence. Adhere to vessel compliance requirements - appropriate lights and shapes to reflect the nature of operations. • recapped on what Shell is consulting on and the obligation to consult under the regulations. • notified of the management of feedback if any details should be considered sensitive information. • reconfirmed contact details.	raised have been addressed as controls, EPS and/or notifications requirements stipulated in the EP.	notifications Table 10-5. Navigation safety requirements for vessels are included as a control and EPS in Table 9-8.
4.	**Australian Communications and Media Authority (ACMA)**	27 March 2023 *(initial email)* **Email to Shell** 03 April 2023 **Email from Shell** 20 April 2023 23 May 2023	[redacted]	**Email on 23 May 2023** Close out email sent which covered the following: • thanked relevant person for their feedback. • confirmed we have a contract in place with Vocus for the Prelude fibre optic cable and hold weekly operational meetings with them. Vocus is up to date with the Crux project development and is in scope to connect the Crux platform to the existing North-West Cable System. • recapped on what we're consulting on and the obligation to consult under the regulations. • notified of the management of feedback if any details should be considered sensitive information. • reconfirmed contact details.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant/Non-Relevant Matters** Provided information regarding existing and proposed submarine cables in the Planning Area which was considered to be a relevant matter. Shell confirmed through consultation with the owner/proponents that the cables would not be affected by the activity covered by this EP.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
5.	**Australian Fisheries Management Authority (AFMA)**	27 March 2023 *(initial email)* **Email to Shell** 30 March 2023 06 April 2023 26 April 2023 12 September 2023 13 September 2023 **Email from Shell** 04 April 2023 20 April 2023 21 April 2023 26 April 2023 27 April 2023 11 September 2023 13 September 2023	[redacted]	Information was used to obtain relevant licensed fishers contact details. **Email on 11 September 2023** I'm hoping you might be able to help me, I am working on the Crux Environment Plans and we have recently become aware that there is a requirement that we consult with fisheries who operate in MOU Box 74. Is there someone at AFMA that I could talk to about this, or can you share the process for consulting with these Traditional Fishers? **Email on 13 September 2023** Thanks, greatly appreciate your help.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant/Non-Relevant Matters** Provided information reqarding fishing activity/ contacts for fishers that may be affected by the activity which is considered a relevant matter. Shell has consulted with relevant fishers during preparation of this EP. The approach to consultation with MOU Box fisher is document in Section 5.5.2.10.	EP Section 5.6.6 details the how Shell has undertaken consultation with relevant commercial fishers. Outcomes of consultation with fishers and associated fishing industry representatives is summarised in this table and considered where relevant in the description of environment (Section 7.4.4) and the assessment of impacts (eg Section 9.3; Section 9.14.6.3). The consultation approach with MOU box fishers is

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
						described in Section 5.5.2.10. Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
6.	**Director of National Parks (DNP)**	27 March 2023 *(initial email)* **Email to Shell** 14 April 2023 21 April 2023 **Email from Shell** 20 April 2023 22 May 2023 7 June 2023	[redacted]	**Email on 22 May 2023** Close out email sent which covered the following: • thanked relevant person for their feedback. • recapped on what Shell is consulting on and the obligation to consult under the regulations. • notified of the management of feedback if any details should be considered sensitive information. • reconfirmed contact details. **Email on 7 June 2023** In addition to close out email on 22 May, Shell also provided the following response. the Environment Plan demonstrates 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 the planned activities set out in this EP. While impacts to Commonwealth Marine Parks are possible in the event of an unplanned hydrocarbon spill, Shell considers it adopts appropriate controls to prevent a hydrocarbon spill and controls to respond in the highly unlikely event of a hydrocarbon spill. This EP demonstrates how Shell will identify and managed all impacts and risks on Australian marine park values (including ecosystem values) to ALARP and that the activity is not inconsistent with the management plan. In the unlikely event of a hydrocarbon release from the activities described in this EP, Shell will ensure DNP is made aware of any incidences within or in proximity to a marine park, as outlined in the Oil Pollution Emergency Arrangements (Australia) and Oil Pollution First Strike Plan. We also note your advice that you have no claims or objections at this time. Shell engages in ongoing consultation throughout the life of an EP. Should feedback be received, it will be assessed and, where appropriate, Shell will apply its Management of Change and Revision process.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant/Non-Relevant Matters** Requested to be notified in the event of an incident that is within or likely to affect an Australian Marine Park. Provided advice regarding sources of information on the objectives and values of Marine Parks and how these should be considered in the EP. Shell assessed the matters raised to be relevant matters and has addressed them accordingly in this EP.	A description of the objectives and values of Australian Marine Parks within the Planning Area, including information sourced from the North-west Marine Parks Network Management Plan and Australian Marine Parks Science Atlas is included in EP Section 7.3.6 and considered in the assessment of potential impacts from the activity (eg Section 9.14.6.3; Section 9.14.9). The listed acceptable level of impacts set during the OPP have been incorporated in this EP (Table 8-1) and assessment against these acceptable levels of impacts have been completed for relevant environmental aspects throughout Section 9. Requirement to notify DNP in the event of an incident within or likely to affect a marine park is included in Table .

The version previously published contained text quoted directly from responses by relevant persons, contrary to the requirements of the Offshore Petroleum and Greenhouse Gas (Environment) Regulations 2023 (section 26(8)). That text has now been redacted. This EP remains in force.

Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
7.	**National Native Title Tribunal (NNTT)**	27 March 2023 *(initial email)* **Email from Shell** 04 April 2023 20 April 2023 09 May 2023	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
8.	**Australian Border Force (Maritime Border Command)**	27 March 2023 *(initial email)* **Email from Shell** 04 April 2023 *(Calendar invite)* 20 April 2023 09 May 2023	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8).

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
						Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
9.	**Department of Foreign Affairs (DFAT)**	27 March 2023 *(initial email)* **Email to Shell** 26 April 2023 19 May 2023 08 June 2023 14 Sept 2023 22 Sept 2023 29 Sept 2023 **Email from Shell** 04 April 2023 *(Calendar invite for industry forum)* 20 April 2023 04 May 2023 09 May 2023 17 May 2023 07 June 2023 11 Sept 2023 14 Sept 2023 21 Sept 2023 10 October 2023	[redacted]	**Email on 7 June 2023** Close out email sent which covered the following: • Thanked relevant person for their feedback. • We note your advice that as the activities will be conducted in Australian waters, environmental management is therefore a matter for Australian domestic regulators. Shell confirms it will submit the required environmental plans for the Crux project to NOPSEMA in accordance with the relevant regulations and NOPSEMA can contact the relevant part of DFAT should this be necessary. We also note your advice DFAT can provide assistance contacting the Indonesian or Timor-Leste Governments if required. • recapped on what Shell is consulting on and the obligation to consult under the regulations. • notified of the management of feedback if any details should be considered sensitive information. • reconfirmed contact details. **Email on 11 September 2023** I am working on Environment Plan Consultation related to Shell's Crux Project and we are looking for some guidance on consulting with Traditional Fishers in MOU Box 74. Could you advise who would be best to speak to about this? **Email on 14 September 2023** Just following up my email below as I am seeking to resolve an issue, we have related to consulting with Traditional Indonesian Fishers in MOU Box 74 and would really value some advice from DFAT. I'd be happy to have a quick call on this if that's easiest. **Email on 21 September 2023** Thought I'd follow up your message from last week to check if you've heard anything from the Indonesian Branch yet? **Email on 10 October 2023** Thank you for your response on this. We have reached out to AFMA and received the same advice that you outline below - they don't have contact details for Indonesian Fishers in the MOU Box. Appreciate you sharing the contact details for the Indonesian Government.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant/Non-Relevant Matters** Shell's response to DFAT's feedback, detailing how that feedback has been actioned, is set out here. It is noted that AMFA had also be contacted regarding MOU box fishers. Shell considered the suggestion to contact the email provided for the Indonesian Ministry for Marine Affairs and Fisheries. Shell has a local presence within Indonesia, including specialist government affairs personnel, who were engaged to advise on this matter. This advice was that making contact with this department would not lead to the ascertainment of individual MOU Box fishers contact details within a reasonable period.	With regarding to MOU Box fishers, in consultation with both DFAT and AMFA, the resulting consultation approach with MOU box fishers is described in Section 5.5.2.10. Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.

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10.	**Clean Energy Regulator (CER)**	27 March 2023 *(initial email)* **Email to Shell** 06 April 2023 **Email from Shell** 04 April 2023 *(calendar invite)* 06 April 2023 20 April 2023 26 April 2023	**Email on 06 April 2023** Accepted invite to Industry Forum but did not attend.	Not applicable	No feedback, objections or claims received.	
11.	**Department of Jobs, Tourism, Science, and Innovation (JTSI)**	27 March 2023 *(initial email)* **Email to Shell** 06 April 2023 *(Calendar decline)* **Email from Shell** 04 April 2023 *(calendar invite)* 20 April 2023	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
12.	**Department of Primary Industries and Region Development (DPIRD) – Fisheries Division**	27 March 2023 *(Initial email)* **Email to Shell** 05 April 2023 06 April 2023 *(Calendar decline)* 21 April 2023 **Email from Shell**	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult

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		04 April 2023 *(Calendar invite)* 20 April 2023				with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
13.	**Department of Climate Change, Energy, the Environment and Water (DCCEEW)**	**Email to Shell** 21 April 2023 24 April 2023 26 April 2023 27 April 2023 24 May 2023 **Email from Shell** 04 April 2023 *(calendar invite)* 17 April 2023 20 April 2023 22 April 2023 *(initial email)* 04 May 2023 23 May 2023 7 June 2023 **Virtual attendance at Industry Forum** 27 April 2023	[redacted] or other UCH, and any other associated article the Minister assesses to have heritage value.	**Virtual attendance at Industry Forum on 27 April 2023** Yes, the two smaller EPs will be public within the week, and we can share the links with you. **Email on 04 May 2023** Shell thanked DEECCW for attendance at Industry Forum and provided links to draft EPs as agreed. **Email on 23 May 2023** Close out email sent. **Email on 24 May 2023** Close out email sent which covered the following: • thanked relevant person for their feedback. • recapped on what we're consulting on and the obligation to consult under the regulations. • notified of the management of feedback if any details should be considered sensitive information. • reconfirmed contact details. **Email on 7 June 2023** In addition to the close out email on 24 May 2023, Shell provided a further response as follows: 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. While impacts to Commonwealth Marine Parks are possible in the event of an unplanned hydrocarbon spill, Shell considers it adopts appropriate controls to prevent a hydrocarbon spill and controls to respond in the highly unlikely event of a hydrocarbon spill. The Environment Plan demonstrates that there are no known underwater heritage sites or shipwrecks within the Project Area and	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant/Non-Relevant Matters** DCCEEW raised the following matters that were considered relevant to the activity: • need to engage a suitably qualified and experienced maritime or underwater archaeologist to assist with identifying and managing potential impacts to UCH. • inclusion of DCCEEW UCH team in ongoing consultation processes in relation to activities that have the potential to impact UCH. • consider and engage with First Nations people in relation to	The outcomes of an archaeological UCH assessment have been incorporated into the EP description of environment (e.g. Section 7.4.1.3) and the assessment of potential impacts (e.g. Section 9.6.2.3). Extensive consultation has been undertaken with First Nations peoples (Section 5.6.5), consistent with relevant guidance (Section 5.3 – including the Interim Guidance) and outcomes used to inform EP description of the environment (e.g. Section 7.4.1.3) and assessment of potential impacts to UCH (e.g. Section 9.14.6.3). For any matters regarding the likelihood, or actual establishment of cultural heritage features within the Operational Area, ongoing consultation will be implemented with the DCCEEW Underwater Cultural

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ID	Name					
			[redacted]	identifies that there are no credible impacts to the values of any underwater heritage or shipwrecks as a result of planned activities. Submerged landscapes and sites, especially Indigenous is an emerging field. When Shell originally carried out baseline surveys in the development process of the overall project impact assessment from about 2016-2019 (outlined within Crux OPP - https://www.nopsema.gov.au/sites/default/files/documents/2021-03/A742335.pdf), the baseline surveys did not include a submerged archaeological assessment or report. However, since the growing understanding of underwater archaeology in more recent times, Shell have commenced an underwater archaeological assessment of our project area and the larger planning areas that includes the assessment and likelihood of underwater Indigenous tangible heritage, including drowned cultural landscapes and the use of predictive modelling on land usage based on known anthropological data. This assessment is still underway and is in addition to the standard searches of existing databases of Indigenous and non-Indigenous heritage. This information will be used to inform an impact assessment on any values (if any) identified through this assessment, as well as the need for subsequent development of controls where potential impacts require mitigation. The above is in addition to engaging with Indigenous people on their values and interests (including heritage). While impacts to underwater heritage sites or shipwrecks are possible in the event of an unplanned hydrocarbon spill, Shell considers it adopts appropriate controls to prevent a hydrocarbon spill and controls to respond in the highly unlikely event of a hydrocarbon spill. 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 Shell's Invasive Marine Species Management Plan. Shell has assessed the relevancy of Commonwealth fisheries issues in this EP. Shell will provide notifications to DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by proposed activities in the Planning Area prior to the commencement and at the end of the activity. Shell considers the measures and controls in the EP address DCCEEW and DAFF's functions, interests, or activities. Shell engages in ongoing consultation throughout the life of an EP. Should feedback be received, it will be assessed and, where appropriate, Shell will apply its Management of Change and Revision process.	potential UCH impacts, with regard to the Department's interim guidance. Shell has commissioned a specialist UCH assessment and relevant outcomes have been used to inform the description of environment and impact assessment in the EP. Consultation regarding potential UCH has been undertaken for the EP, including with First Nations peoples, and ongoing consultation will include the DCCEEW UCH team. .	Heritage Team (Table 5-13). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
14.	**Department of Industry, Science, and Resources (DISR)** (Including NOPTA)	**Email from Shell** 04 April 2023 (*Calendar invite)* 17 April 2023 20 April 2023	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to

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ID	Name					
		22 April 2023 *(Initial email)* 09 May 2023				date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
15.	**Department of Agriculture Fisheries and Forestry (DAFF)**	22 April 2023 *(initial email)* **Email to Shell** 27 April 2023 **Email from Shell** 24 May 2023 7 June 2023	[redacted]	**Email on 24 May 2023** Close out email sent which covered the following: • thanked relevant person for their feedback. • We understand the requirements you have set out below and will ensure we meet those with regards to the Installation of the Crux project. • Recapped on what Shell is consulting on and the obligation to consult under the regulations. • Notified of the management of feedback if any details should be considered sensitive information. • Reconfirmed contact details. **Email on 7 June 2023** In addition to the close out email on 24 May 2023, Shell further provided the following: 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. While impacts to Commonwealth Marine Parks are possible in the event of an unplanned hydrocarbon spill, Shell considers it adopts appropriate controls to prevent a hydrocarbon spill and controls to respond in the highly unlikely event of a hydrocarbon spill. The Environment Plan demonstrates that there are no known underwater heritage sites or shipwrecks within the Planning Area and identifies that there are no credible impacts to the values of any underwater heritage or shipwrecks as a result of planned activities. Submerged landscapes and sites, especially Indigenous is an emerging field. When Shell originally carried out baseline surveys in the development process of the overall project impact assessment	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant/Non-Relevant Matters** Shell reviewed the Biosecurity Offshore Installation Guide and MARS reporting requirements to ensure existing EP controls were consistent with the applicable requirements (noting the non-relevant matter detailed below). The matters relevant are those related to Invasive Marine Species introduced via biofouling and ballast water. These requirements are adequately controlled as detailed in Section 9.8. The requirement to obtain an exemption from biosecurity control under the	Section 9.8 includes controls and performance standards that ensure that the applicable requirements set out in the Offshore Installations Biosecurity Guide are implemented, including implementation of regulatory requirements and international codes. Table 9-37, EPS 6.2, 6.3 and 6.4 specifically address both MARS reporting and associated biofouling/ballast management requirements.

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ID	Name					
				from about 2016-2019 (outlined within Crux OPP - https://www.nopsema.gov.au/sites/default/files/documents/2021-03/A742335.pdf), the baseline surveys did not include a submerged archaeological assessment or report. However, since the growing understanding of underwater archaeology in more recent times, Shell have commenced an underwater archaeological assessment of our project area and the larger planning areas that includes the assessment and likelihood of underwater Indigenous tangible heritage, including drowned cultural landscapes and the use of predictive modelling on land usage based on known anthropological data. This assessment is still underway and is in addition to the standard searches of existing databases of Indigenous and non-Indigenous heritage. This information will be used to inform an impact assessment on any values (if any) identified through this assessment, as well as the need for subsequent development of controls where potential impacts require mitigation. The above is in addition to engaging with Indigenous people on their values and interests (including heritage). While impacts to underwater heritage sites or shipwrecks are possible in the event of an unplanned hydrocarbon spill, Shell considers it adopts appropriate controls to prevent a hydrocarbon spill and controls to respond in the highly unlikely event of a hydrocarbon spill. 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 Shell's Invasive Marine Species Management Plan. Shell has assessed the relevancy of Commonwealth fisheries issues in this EP. Shell will provide notifications to DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by proposed activities in the Planning Area prior to the commencement and at the end of the activity. Shell considers the measures and controls in the EP address DCCEEW and DAFF's functions, interests, or activities.	Determination is known and understood by Shell. This exemption process is not considered a relevant matter to this EP as it is related to the movements of people and goods between offshore installations and mainland Australia, not to the petroleum activity within the operational area addressed by this EP. This matter will be dealt with through existing internal and related exemption application processes.	
16.	**Department of Transport (DoT)**	27 March 2023 *(initial email)* **Email to Shell** 13 April 2023 14 June 2023 04 July 2023 05 July 2023 09 July 2023 **Email from Shell** 04 April 2023 20 April 2023 18 May 2023	[redacted]	**Email on 18 May 2023** Close out email sent which covered the following: • Thanked relevant person for their feedback. • Recapped on what Shell is consulting on and the obligation to consult under the regulations. • Notified of the management of feedback if any details should be considered sensitive information. • Reconfirmed contact details. **Email on 7 June 2023** In addition to the close out email on 18 May 2023, Shell provided the following: While impacts in the event of an unplanned hydrocarbon spill are possible, Shell considers it adopts appropriate controls to prevent a	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant/Non-Relevant Matters** DoT provided advice regarding preferred consultation processes and requested a copy of the OPEP, which are considered relevant matters. Shell has consulted with DoT	DoT's consultation guidance adopted for EP consultation, including provision of spill response documentation as set out here. Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.

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ID	Name					
		7 June 2023 14 June 2023 30 June 2023 04 July 2023 05 July 2023 **Phone call** 22 June 2023 **Virtual Meeting** 27 June 2023	**Email on 9 July 2023** Receipt of Crux Development Drilling EP and Browse Regional OPEP documents.	hydrocarbon spill and controls to respond in the highly unlikely event of a hydrocarbon spill. This EP demonstrates how Shell will identify and managed all impacts and risks to ALARP and that the activity is not inconsistent with the management plan. In the unlikely event of a hydrocarbon release from the activities described in this EP, Shell will ensure the Department of Transport is made aware of any incidences within or in proximity to a marine park, as outlined in the Oil Pollution Emergency Arrangements (Australia) and Oil Pollution First Strike Plan. **Phone call 22 June 2023** • Quick call covering the following: We want to make best use of DoT's time and don't want to waste it by them reviewing OPEP's they have reviewed before. • The Prelude OPEP which relates to a few of the EP's has been reviewed by DoT before (last time was 2020 under the last Prelude EP revision). It's still largely unchanged and is the OPEP we are linking to for the Drilling Template EP • The new Browse Regional Oil Pollution Emergency Plan (BROPEP) is Shell's adoption of the INPEX BROPEP, which DoT were heavily consulted on in its development also. The Shell BROPEP is largely unchanged. • Plan to schedule a meeting to further understand if DoT want to review both of these OPEP's again. **Meeting on 27 June 2023** Relevant actions agreed as follows: • Provide the Development Drilling EP and Browse Regional OPEP for DoT review of OPEP requirements. A 6 week turn around on this has been noted as stated in their guidance document sent to Shell on the 13th of April. Worth noting that DoTs review is not a regulatory function, it's a function they opt for via RP consultation requirements. DoT require the opportunity to provide feedback prior to acceptance of the EP/OPEP by NOPSEMA. **Email 30 June 2023** Thanks for meeting me on Tuesday to discuss Shell oil pollution emergency plans associated with the Crux Environment Plans. As discussed, the following is a summary of Shells plans and associated arrangements: The Crux Seabed Survey EP and Drilling Template Installation EP: • These is a single vessel campaign which bridge the assessment of oil spill risk and associated response arrangements to the Prelude OPEP. • The Prelude OPEP has been previously provided to DoT for review during Relevant Persons consultation between the 07 November 2019 and the 21 January 2020 and it has not been updated since. • As discussed, for the activities described within these EPs, these are viewed by Shell as an extension to the existing Prelude oil spill arrangements, therefore these	consistent with the relevant guidance and has provided copies of the spill response documents.	

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ID	Name					
				should not trigger a new review of the Prelude OPEP by DoT. • A copy of the draft Crux Seabed Survey Environment Plan and the Drilling Template Environment Plan can be found here: • crux-drilling-template-installation-environment-plan.pdf • crux-seabed-survey-environment-plan-rev-03.pdf • The existing Prelude OPEP can be found on the NOPSEMA website, here: https://docs.nopsema.gov.au/A763759 The Crux Development Drilling EP and Crux Installation and Cold Commissioning EP: • These two EPs bridge the assessment of oil spill risk and associated response arrangements to Shells new Browse Regional OPEP. • It is noted that Shell Browse Regional OPEP is an extension of the existing Inpex Browse Regional OPEP, which DoT were engaged throughout the development of. • As requested, I have transferred the Crux Development Drilling EP and Browse Regional OPEP via Large File transfer (today at 1300), for your review. A draft copy of the Crux Installation and Cold Commissioning EP will be transferred to you by the end of July as it is still under development.		
17.	**Department of Water & Environmental Regulation (DWER)**	27 March 2023 *(initial email)* **Email to Shell** 28 March 2023 **Email from Shell** 20 April 2023 09 May 2023	[redacted]	Not applicable	**Assessment** No objections or claims have been received about activity impacts or risks.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
18.	**Federal Member for Kimberley - Melissa Price**	27 March 2023 *(initial email)* **Email to Shell** 05 April 2023 **Email from Shell** 04 April 2023 *(Calendar invite)* 22 May 2023	[redacted]	**Email on 22 May 2023** Thanks for your response. We will continue to keep the Hon Melissa Price MP updated on the Crux project as it progresses.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant/Non-Relevant Matters** No relevant matters raised. Shell's response to the feedback, detailing the response and how that feedback has been actioned, is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
19.	**State Member for Kimberley - Divina Grace D'Anna**	27 March 2023 *(initial email)*	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have

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ID	Name					
		Email from Shell 04 April 2023 *(Calendar invite)* 20 April 2023 09 May 2023				been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
20.	**Environment Protection Authority (EPA)**	27 March 2023 *(initial email)* **Email from Shell** 04 April 2023 *(Calendar invite)* 20 April 2023	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been

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						completed in accordance with the OPPGS (E) Regulations.
21.	**Department of Environment, Parks, and Water Security (DEPWS)**	01 May 2023 (*registered letter*)	No response	Not applicable	No feedback, objections or claims received.	
22.	**Indigenous Land and Sea Corporation (ILSC)**	01 May 2023 (*registered letter*)	No response	Not applicable	No feedback, objections or claims received.	
23.	**Department of Planning Lands and Heritage (DPLH)** *(Includes Heritage Council of WA and Aboriginal Cultural Material Committee (ACMC)*	27 March 2023 *(initial email)* **Email to Shell** 06 April 2023 02 May 2023 **Email from Shell** 04 April 2023 *(Calendar invite)* 17 April 2023 18 May 2023 30 May 2023	[redacted]	**Email on 17 April 2023** Thanks for your email and apologies that the link didn't work for you. Try this: drilling-template-environment-plan-factsheet.pdf (shell.com.au) All of our activity is offshore, so there is no land development. **Email on 18 May 2023** Close out email sent which covered the following: • Thanked relevant person for their feedback. • Recapped on what Shell is consulting on and the obligation to consult under the regulations. • Notified of the management of feedback if any details should be considered sensitive information. • Reconfirmed contact details.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant/Non-Relevant Matters** Requested information regarding the activity and advised re Commonwealth heritage sites in/proximal to the Planning Area, which is considered a relevant matter. The information requested was provided and advice regarding heritage sites appropriately addressed in the EP.	The Commonwealth heritage listing of Ashmore Reef is described in EP Section 7.4.3.1.
24.	**Aboriginal Areas Protection Authority NT (AAPA)**	**Email to Shell** 24 May 2023 21 June 2023 **Email from Shell** 04 April 2023 *(calendar invite)* 20 April 2023 22 April 2023 (initial email) 09 May 2023 24 May 2023 06 June 2023 22 June 2023 03 July 2023 **Phone call** 26 June 2023	[redacted]	**Email on 24 May 2023** Close out email sent which covered the following: • Thanked relevant person for their feedback. • Their advice has been noted, Shell has already, or will, comply will all requirements below. • Recapped on what Shell is consulting on and the obligation to consult under the regulations. • Notified of the management of feedback if any details should be considered sensitive information. • Reconfirmed contact details. **Email on 06 June 2023** Thank you for your response regarding consultation on the Crux Environmental Plans. We note that you have advised that there are other sites that may not be captured in the register and that there are also sites that may be impacted. We have been reaching out to relevant Indigenous people along the coastline within the planning area to discuss these matters.	**Assessment** AAPA raised an objection/claim regarding the conclusions on potential risk to sites of cultural significance in the BROPEP. This is a misinterpretation of the BROPEP and not considered to have merit. The conclusions cited appear to be part of the assessment in the BROPEP of the efficacy of different response options to reduce impacts from a spill to sites of cultural significance. **Relevant/Non-Relevant Matters**	Requirement to notify TEMC in the event of a spill that may impact NT waters has been included in EP notifications Table 10-4. Section 7.4.2.2.3 includes an assessment of the AAPA database and describes the types of heritage places as they relate to the planning area. Extensive consultation has been undertaken with First Nations peoples (Section 5.6.5), and outcomes used to inform EP description of heritage sites (eg Section 7.4.2.2.3) and

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			[redacted]	We can confirm that we have actioned your request to notify AAPA in the event of a spill, and that AAPA's contact details are now included in the Oil Pollution Emergency Plan. We can also confirm that based on your feedback Shell will shortly apply for an Authority Certificate for emergency response activities, including risk management and spill clean-up /environmental rehabilitation. **Email on 22 June 2023** Apologies I missed your calls - they showed up from an anonymous number, so I was unable to call you back. I have passed this on to Advisian, who has been helping Shell with this application. They will give you a call today to discuss. **Phone call on 26 June 2023** Summary points of this call are related to the request for Authority Certificates. This is not considered relevant to this EP but will be progressed in relation to the Crux Development Drilling and Installation and Cold Commissioning EPs. **Email on 03 July 2023** Thanks for the recent phone call of 26 June, where we discussed different approaches open to Shell to fulfill its responsibility in the event of hydrocarbon spills that may impact the NT coastline, in particular the issue of operating under correct authority through the acquisition of, and compliance with, AAPA Authority Certificate. During this call, you mentioned the fact of the NT Government updating its emergency response approaches, and the discussions between APPEA and other titleholders working on EP/ OPEP engagement in the NT. Shell has since been informed by other industry operators of the outcomes of a recent APPEA meeting with the Territory Emergency Management Council, namely that, • TEMC will be the NT controlling agency, for oil spills which originate in Commonwealth waters, which then enter NT waters/impacting NT shorelines. • TEMC has gained extensive experience with remote area response operations, during the recent pandemic, and would strongly leverage this experience, including land access and working with the local councils. • TEMC, as the incident controller, would also manage all aspects of acquisition & compliance with AAPA certificates, at the time of the spill event. This approach is acceptable to Shell as a means to ensure any spill events are responsibly and appropriately managed, and as such, Shell will adopt this approach in the relevant Crux Environmental Plans where NT coastline may, in the event of an uncontrolled release, be impacted. This also addresses the issue you raised, that being that if Shell were to seek Authority Certificates for the affected NT coastline, this represents an untenable workload for AAPA.	AAPA provided information regarding sacred sites along the coastline within the Planning Area, need for consultation with custodian groups and requirements for arranging access for spill response purposes, which are considered relevant matters. The process for arranging access for spill response, including AAPA certificates, has evolved and is now administered by TEMC. Shell has consulted with First Nations relevant persons, including to establish notification requirements in the event of a spill and to identify additional information that would assist in managing impacts and risks to ALARP. Shell considers the measures and controls in the EP address the AAPA's functions, interests, or activities.	assessment of potential spill impacts to heritage sites (eg Section 9.14.6.3).

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				Thank you for your assistance to date.		
26.	**Department of Biodiversity, Conservation and Attractions (DBCA)**	27 March 2023 *(initial email)* **Email to Shell** 06 April 2023 **Email from Shell** 22 May 2023	[redacted]	**Email on 22 May 2023** Close out email sent which covered the following: Thank you for your feedback with regards the below Environment Plan (EP) for the proposed Crux project. Shell has been operating the Prelude FLNG Facility in the Browse Basin since 2017. Crux is a tie back to Prelude, which will build upon the existing operational plans in place for Prelude including the approved Prelude Oil Pollution Emergency Plan. Shell maintains adequate baseline data for our project activities and assets for receptors and sensitivities appropriate to understand the environment we operate within and the potential impacts which may occur to a particular receptor. This includes, but is not limited to, information on threatened species, biologically important areas and key ecological features. Shell has carried out extensive baseline surveys for Prelude and expanded upon these now for Crux. This information has been summarised as part of the Crux Offshore Project Proposal, which was accepted by NOPSEMA in August 2020. Shell has also carried out extensive baseline studies throughout the Browse Basin through a partnership with Inpex and the Australian Institute of Marine Science (AIMS). These baseline studies were carried out with the primary purpose of establishing baseline data in the event of a major spill. Most of the studies carried out are available on the Shell website here. Shell is aware of and appropriately manages the risk posed by major hydrocarbon releases from our operations. Shell has an approved Oil Pollution Emergency Plan for the Prelude FLNG facility which also documents the agreed linkages to State Authorities and will build upon this for future oil spill planning and preparedness for the Crux activities as part of future environment plans. This will include consideration of response preparedness arrangement for major spill events and associated operational and scientific monitoring. The Prelude FLNG has recently adopted the APPEA industry operational and scientific monitoring framework, which is a standardised approach to monitoring before, during and following a major hydrocarbon release. This standard takes a risk-based approach to monitoring approaches such as the Before-After, Control-Impact (BACI) framework and, subject to future spill planning and preparedness assessments, Crux is also likely to adopt this standard. Shell will continue to consider and apply, as appropriate, all relevant national species and managements plans relevant to our activities for the Crux project, including the current versions of the National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds and Offshore Petroleum Industry Guidance Note.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant/Non-Relevant Matters** DBCA requested to be notified in the event of a spill and provided information regarding environmental baselines and spill response, and the use of a BACI framework for impact monitoring. These matters are considered relevant and have been addressed by the EP (and associated spill response documents). Other issues raised were not considered relevant matters	Requirement to notify DBCA in the event of a spill has been included in EP notifications Table 10-4. EP Section 10.7.5 describes the OSMP which summarises baseline data sources along with the approaches (including BACI) and resourcing that will be applied to appropriately collect and evaluate environmental data in the event of spill impacts.
27.	**Department of Mines, Industry Regulation and Safety (DMIRS)**	27 March 2023 *(initial email)* **Email to Shell** 17 April 2023 **Email from Shell** 04 April 2023 *(calendar invite)* 20 April 2023 09 May 2023	**Email on 17 April 2023** Declining Industry Forum Invite.	Not applicable	No feedback, objections or claims received.	

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28.	**Department of Industry Tourism and Trade (DITT) Marine safety branch and Fisheries**	27 March 2023 *Initial email)* **Email to Shell** 21 April 2023 26 April 2023 **Email from Shell** 04 April 2023 17 April 2023 20 April 2023 08 May 2023 **In person at Darwin Drop-in** 17 May 2023	[redacted]	**In person on 17 May 2023** Shell advised that Darwin-based fishers on matters unrelated to this EP.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant/Non-Relevant Matters** Shell's response to DITT's feedback, detailing our response and how that feedback has been actioned, is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
Indigenous people and organisations						
29.	**Bardi and Jawi Niimidiman Aboriginal Corporation (BJNAC)** *(Tier 1)*	31 March 2023 *(initial email)* **Email to Shell** 14 April 2023 23 May 2023 04 July 2023 23 August 2023 27 October 2023 **Email from Shell** 12 April 2023 26 April 2023 17 May 2023 25 May 2023 26 May 2023 26 June 2023 10 July 2023 03 August 2023 04 August 2023 08 August 2023 10 August 2023 23 August 2023 28 August 2023 17 October 2023 7 November 2023	[redacted]	**Email on 17 May 2023** Thank you for your response to our most recent invitation to attend the Shell Crux project forum, following our request to meet in early February 2023 on an update to Shell's operations in Australia. In February you noted that the PBC was planning a meeting to discuss our project, but that the earliest opportunity would be late March, early April. We also refer to our emails to you on 31 March, and 12 April, setting out the specific opportunities for you to discuss the Crux Environmental Plans (EPs) and other planned Crux project activities with us as part of our Crux consultation programme. We then received your response on 14 April. We understand the importance of the PBC working through the implications of the Tipakalippa decision and appreciate that this has created additional work for the PBC and the community it represents. To this end, we would welcome receipt of your draft resourcing protocol for our consideration (noting that the 28-day period you advised for providing the resourcing protocol has elapsed). I also draw you attention to Shell's offer to make available an Independent Environmental Panel to provide advice to Indigenous groups. If you would like to access this resource, please let us know and we will facilitate an introduction. To be clear – Shell would not see any of the questions or advice shared between you and the Panel (panel member chose by you). Shell is committed to ensuring that sufficient information about the Crux drilling program, and its other Crux project activities, is provided to relevant persons in a timely manner, and a reasonable period is given to allow relevant persons to consider that information and raise any concerns or objections. Further, Shell is committed to ongoing consultation with relevant persons (in this case Bardi and Jawi Niimidiman Aboriginal Corporation), to hear and consider their feedback and concerns, throughout the implementation and operation of the Crux project.	**Assessment** No objection or claims received about activity impacts or risks. **Relevant/Non-Relevant Matters** The following relevant matters were raised regarding the activity and/ or their functions, interests, or activities: • presence of songlines up the [west Kimberley] coastline and associated cultural heritage sites that are not all registered. • important cultural connections with Country particularly to the Reef and King Sound. • preferred engagement process to ensure culturally appropriate consultation.	Description of heritage values in the EP (e.g. Section 7.4.2.2.2) updated to incorporate information received and updated information considered in risk assessment (e.g. Section 9.14.6.3). Section 7.4.2.2.3 notes that a number of the heritage sites in the Planning Area have not been recorded in Government databases. Consultation included collective engagement with the 3 neighbouring cultural groups and facilitating on-country meetings wherever requested/practicable (Section 5.6.5). Shell has provided sufficient information and a reasonable period to assess information provided. Consultation has been carried out in preparation of this EP

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		Phone call 17 October 2023 02 November 2023 x 3 **In Person** 15 August 2023 25 August 2023	[redacted]	While we await the resourcing protocol, and to allow the PBC to further understand the projects involved and what resourcing may be relevant, we attach facts sheets relevant to the Crux project and EPs for your consideration. You can also find more information about the Crux project at the links below. We understand that the PBC Board were meeting on 19-20 April to discuss this and other matters. We would be happy to provide any clarifications or further information on the project or the relevant EPs if these ended up being discussed at the meeting. The project: www.shell.com.au/crux The EPs for the project: Draft EPs for Shell Crux Project We would like to reiterate our invitation to meet with you, either on-country or through one-on-one conversations with Shell representatives via email or phone. We are planning to conclude formal consultation with relevant persons for the submission of the Crux drilling environment plan by the end of May 2023. As mentioned above, we will continue to engage with stakeholders as a fundamental part of executing the Crux project. Thanks again and we look forward to being in touch. **Email on 25 May 2023** Thanks for your response and for providing the resourcing protocol, we will review and revert back to you shortly. **Email on 26 May 2023** Close out email to all Indigenous RPs wrapping up the consultation: • sharing the videos from Forum 1. • reminding Indigenous RPs of the environment panel available to them. • recap on what Shell is consulting on and the obligation to consult under the regulations. • reconfirmed contact details. **Email on 26 June 2023** Thank you for sending through the Resourcing Protocol Agreement. Shell appreciates the work that has been completed to date and, together we can work a formal Resourcing Protocol for multipurpose use to cover any future consultations / engagements. Please find attached the proposed changes to the Resourcing Protocol Agreement including the schedule of rates as aligned with our existing prescribed body corporate Resourcing Protocols. Whilst we work together on establishing a Resourcing Protocol should consultation be required in the near term; Shell offer the below approach in the interim: We can agree a cap on the PBC's consultation costs which we will reimburse, or alternatively pre-agree amounts with the PBC for the cost of distinct parts of the consultation, in line with the agreed cost schedule- (see proposed amendments on the- cost schedule attachment). Shell concluded formal consultation with relevant persons for the submission of the Crux Seabed Survey, Drilling Template,	Shell incorporated this information into its assessment of potential impacts and processes for engagement, as reflected in the EP - see Measures adopted for detail. Other feedback included interest in investigating a local spill response capacity, for quicker initial response, and a resourcing protocol. Table 9-72 of the EP demonstrates that response timeframes for spills are adequate to ensure the risks to areas of heritage significance are ALARP. A resourcing protocol in relation to consultation for this EP was provided by BJNAC. Shell has assessed the resourcing protocol as not a relevant matter on the basis that it does not relate to BJNAC's functions, interests or activities that may be affected by the activities. Although one aspect of it relates to funding for consultation, Shell considers that this aspect has been covered separately by covering reasonable costs for the engagements to date. Nevertheless, Shell has committed to work towards getting an updated resource protocol in place with Bardi Jawi to support ongoing consultation (Section 5.8) and to participate in industry collaboration on training of indigenous peoples in spill	in accordance with the OPGGS(E) Regulations. Refer to Table 5-10 for further information supporting this.

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<table>
<tr><th colspan="2">Relevant Person</th><th rowspan="2">Dates of correspondence and follow up</th><th rowspan="2">Summary of relevant person response</th><th rowspan="2">Summary of Shell's response</th><th rowspan="2">Assessment of merits of objection or claim.
Relevant matters / non-relevant matters</th><th rowspan="2">Measures adopted and Consultation Carried Out</th></tr>
<tr><th>ID</th><th>Name</th></tr>
<tr><td></td><td></td><td></td><td></td><td>Development Drilling and Cold Commissioning and Installation environment plans at the end of May 2023, however we will continue to engage with relevant persons as a fundamental part of executing the Crux project. I understand the PBC Board were meeting on 19-20 April to discuss this and other matters. We would be happy to provide any clarifications or further information on the project or the relevant EPs if these ended up being discussed at the meeting.

Email on 10 July 2023

Thank you for your email on 4 July.

In regard to the Resourcing Protocol, we recognise the importance of this agreement as an ongoing engagement agreement between Shell and the Bardi Jawi Niimidiman Aboriginal Corporation. In the spirit of collaboration, we feel it would be better to discuss this face to face and can make Shell personnel available to attend a meeting with you at a convenient time and place. As previously outlined, prior to a formal resourcing protocol in place, Shell can assist with financial assistance to bring people together, we can pay TO's costs associated with consultation. The consultation can take place on-country or through one-on-one conversations with Shell representatives via email or phone. There would need to be a pre-agreed cap on expenses, and expenses would be paid against itemised tax invoices.

In terms of Environment Plan consultation, please find attached a NOPSEMA brochure which helps outline the requirements.

There are four Environment Plans (EPs) that Shell will be submitting to NOPSEMA as part of the Crux approvals process. The first two deal with relatively small-scale activities (surveying the seabed and installation of a drilling 'guide' template, which sits on the sea floor). These both have small potential impact areas and do not extend to the coast of Australia. The third and fourth EPs deal with the drilling of the gas wells, and the installation of the equipment and testing, and have larger potential impact areas.

The submission dates for these EPs are outlined in the table below. If we do not meet prior to submission, then Shell is happy to consult at any time with the Bardi and Jawi Niimidiman AC as part of the ongoing consultation process. Either way your feedback, claims or objections will be considered.

<table>
<tr><th>EP</th><th>Date of submission to NOPSEMA</th><th>If meeting with relevant persons occurs prior to EP submission date</th><th>If meeting with relevant persons occurs after submission date</th></tr>
<tr><td>1 – Seabed survey</td><td>20 July 2023</td><td rowspan="2">Feedback, comments and objections will be</td><td rowspan="2">Feedback, comments and objections be included as part of</td></tr>
<tr><td>2 – Drilling template</td><td>13 July 2023</td></tr>
</table></td><td>preparedness (Table 5-13).

All other issues raised were considered to not be relevant matters. Shell's response to the feedback received is set out here.</td><td></td></tr>
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3 – Development drilling	23 July 2023	included in the EP	ongoing consultation
4 – Installation and commissioning	27 November 2023		

We remain open to meeting with you at any time.

Email on 03 August 2023

I'm just following through on the emails re meeting in a few weeks.

Another group are asking for a meeting on 16 August in Port Hedland, so, if possible, if we can confirm the meeting for 15th August in Broome that would be good. If the 15th works, we will try to hold the meetings at Yawuru's conference rooms at Nyamba Buru Yawuru.

We'll start at 10, and finish after lunch. Shell will be able to cover travel and other reasonable costs on presentation of an invoice.

Email on 08 August 2023

Please find attached an agenda for Tuesday's meeting next week.

We look forward to seeing you at 9.30 at the Dampier Room, at the Mangrove Hotel. Details are on the agenda – it's at 47 Carnarvon Rd, Broome. The agenda is fairly relaxed and the focus from our side is getting to know you all and responding fully to your questions and discussions. I'm linking it all together so please call me with any issues. Morning tea and lunch provided, and we'll see you there.

Email on 10 August 2023

Please find the updated agenda with the revisions mentioned and also added in morning tea and lunch. I will have printed copies on the day. Thanks, and will speak soon,

Meeting Agenda for 15 August 2023

Agenda

1. Introductions a. Walalakoo b. Mayala c. Bardi Jawi d. Shell

2. Some background on Shell in Australia and Shell in WA

3. Crux - what it is, where it is at now. 4. Environmental issues – Q and A

5. Priorities for Aboriginal groups- Indigenous Social and Economic Impacts

6. Traditional Owner only time

7. Regroup - Where to from here – relationships into the future, opportunities

Meeting Notes from 15 August 2023

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				Walalakoo mentioned at the start that Oil and gas has been bypassing the Traditional Owners in the Kimberley and the Traditional Owners are very concerned about the impacts on their Country. Feeling of anxiousness at the start to meet as there has been no engagement with Traditional Owners in the Kimberley with Oil and Gas Companies • Walalakoo discussed the important cultural connections with Country in particularly to the Reef and King Sound and are directly affected by the oil and gas industry. There is a strong cultural block up in the Dampier Peninsula and the 3 groups of Bardi Jawi, Walalakoo and Mayala are deeply interconnected. • Bardi Jawi - Discussed the historic relationship of Shell and Bardi Jawi and that there has been economic loss to the community and fractured relationships internally due to airport decisions at Djarindjin • Discussion around RAP came up and since we are working towards a RAP. Bardi Jawi mentioned they want to work with us and assist us with working on KPI targets. • Walalakoo discussed job opportunities and asked how many Indigenous people work on Prelude. Discussion around the job opportunities we do offer as well as our Contractors. NETTS program was also mentioned. • Walalakoo also discussed history (dating back some 10 years+) with applying as a vendor with Shell and hasn't had a positive experience previously. Discussion was had around Indigenous Suppliers and supply chain in general. Mentioned processes around local content plans and procedures in place to ensure we consider local content as part of the tendering process currently. • Discussion around Oil Spill Impacts were had and the different scenarios. Questions were asked around first responders and where do they come from. Mentioned responders are in Singapore and Fremantle. 4-8 hours it takes to organize the response. Some concern with how long this would take for them to get to the scene. Interest in developing capacity of local oil spill preventive groups and Shell discussed that we are acting on this as well as a whole Industry approach. • Bardi Jawi mentioned they may be interested in conducting their own oil spill modelling independently of Shell • Bardi Jawi brought up the need for cultural awareness/ cultural competency training that Bardi Jawi can offer. • NOPSEMA have committed to cultural competency training and have been out on the Dampier Peninsula with the Traditional Owners. Part of building genuine relationships. Subtext was that Shell should engage Bardi Jawi to provide similar training. • The Traditional Owner groups have access to independent Environmental panel and can access this at any point if they would like assistance. This is something the groups will do independently. • Bardi Jawi made comment to effect that they did not consider this meeting consultation, but pre-consultation. • Bardi Jawi comments on this process being one-sided, ie; Shell talking about what it is wanting to do; no allowance for what Bardi Jawi wants to do/ offer (in the form of cultural competency training, assistance in helping industry become more sensitized to Indigenous values.		

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				• Walalakoo made strong case for engagement with TO groups and RNTBCs being seen as a direct cost, and as essential precursor activity to any proponent development. That involving TO groups later as an afterthought, or simply to meet regulatory requirements was inappropriate. • Shell talked around Shell's commitment to looking at the Social and Cultural Heritage Values and the process Shell took around this. Walalakoo flagged concerns around our assessment of Cultural Heritage sites and only the ones that currently come up as registered as there are some significant song lines up the coastline that go up to Kalamburu. The Walanadi. 3 groups have strong connection to sea country and important to view sea country as all interconnected not just piece by piece as within Shell boundaries. • Concern from Walalakoo around Well integrity and stability • Drilling fluid spills and what is Shell's management plans around that. Majority is non-toxic fluids and cause minimal impacts. • Bardi Jawi strong on Resourcing protocol needing to be addressed with Bardi Jawi before progressing any further with the relationship. Bardi Jawi highly likely to object if protocol not addressed. Concerns with Shells response to the Resourcing protocol, in particular the following: references to Native title removed, reference to engaging in good faith has been removed, removed FPIC, removed clause around cultural sensitivities. • Walalakoo and Mayala stated they are likely to develop Protocols based on Bardi Jawi Protocol. Frank discussion around Shell won't be able to accept all the requirements in the protocol and will address this and need to give a response back to Bardi Jawi • Importance of having a Social Impact Assessment as they have had with Woodside as part of NW Shelf agreement and Walalakoo will send this through • The Importance of investing in the younger generations was emphasised by Walalakoo • The groups stated that this is a preliminary discussion, and that further consultation is to be had with other members in the group. Further meetings will likely be in Derby and One Arm Point • The groups emphasized their limited capacity as PBCs and lack of ability to attend all the meetings with all of Industry. Shell noted this concern. • Meeting concluded with expressed good will and some confidence from TOs that Shell was genuinely committed to doing things differently. • Commitment from Shell to ongoing relationship and responding in particular to resourcing protocol, further meetings on country (i.e., not in Broome) as advised/ directed by the PBCs, and to working together for progress on Indigenous procurement, employment and community programming. **Email on 23 August 2023** Thank you for your time last week meeting with Shell people and myself. We came away feeling that the conversations were open and positive, and we appreciated the groups questions and feedback. Just to reiterate - it is a key Shell value to build a strong relationship with		

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				Aboriginal organisations, because of the fundamental connection of Aboriginal groups, like Bardi Jawi, to land and sea. This is also a value we hold personally. We understood from your comments that the resourcing protocol needs to be worked through and agreed upon, so that future meetings avoid any financial disadvantage to Traditional Owners and staff, and that cultural expertise and input is appropriately valued. I remember you mentioned you were going to be in Perth later this month. Is there capacity in your schedule to meet when you are here? If you have time, we'd like to get together to continue discussion on the resourcing protocol. Look forward to hearing from you, **Email on 23 August 2023** Would 11am work this Friday? I will send a meeting invite through shortly. **Email on 23 August 2023** Thanks for the meeting last week. We've now following up on the issues raised. We've written to each group about the logistics of next meetings - where to meet, who should be there, sorting out costs and so on. We look forward to seeing you again, **In Person Meeting 25 August 2023** • Introductions were made, Shell acknowledged past difficulties with Bardi Jawi and reaffirmed that Shell are wanting open and frank conversations. • Noted that Shell is wanting to establish a platform to move forward to work on developing a broad relationship scope with Bardi Jawi that not only encompasses EPs. • Bardi Jawi were happy with last week's meeting in Broome and are also keen to build a relationship with Shell that is not only around protecting ceremonial grounds and saltwater country but working toward the broader picture of recruitment and procurement opportunities. Bardi Jawi feel that some opportunities were lost to them 10 years ago. • It was acknowledged that Shell had heard the concerns around Djarindjin and wanted to work with Bardi Jawi to discuss. • While in Perth, Bardi has had meetings with NOPSEMA, DoT and AMOSC and will be attending Spillcon in Brisbane next month. It is important for Bardi Jawi to gain a greater understanding of the oil and gas industry and the risk it presents to Traditional Owners. • Both Parties are interested in establishing a resourcing protocol for all engagements (not solely focused on EPs). To support the resourcing protocol (which only outline service and rates covered for consultation) a Memorandum of Understanding (MoU) or a Letter of Intent that is acceptable to both parties will be produced. This will outline the nature and objective of engagements between the two parties to work towards developing a genuine relationship between the Parties. • Current Shell Resourcing Protocol Rates (as used in Queensland) document shared – Shell gave a run through of the intent and how they are applied. • Moving forward, once there is an agreement on rates, meeting requirements and general intentions and understandings, a Letter of		

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				Intent or MoU will define how Shell and Bardi Jawi will engage in good faith. • Two things that are extremely important to Bardi Jawi are, □ Confidentiality on Culturally Sensitive Information and □ Acting in good faith to develop an equitable relationship. • All agree that the development of a MoU, which is not just dedicated to EP consultation, was the way forward, appreciate it will still take time as the Law Bosses will need internal conversation and Shells legal team will need to review. • Shell to draft a Memorandum of Understanding (for Bardi Jawi and Shell) to support the resource protocol rates and services. • All agree that the meeting has been very positive. **Email on 28 August 2023** Great to meet on Friday – thanks, and thanks to your Elder, for being there. I'm attaching a draft of the MoU as we discussed. This has already had a pass by Shell Legal, so in essence, as it stands, it is good to go. Obviously, you need to review it with the right people in BJNAC, and once you're happy with it, and we get it back, together we can move to finalise and sign off – which will be great. I'm attaching the Resourcing Protocol too. The MoU and the Resourcing Protocol should be read together and when the MoU is finalised, the Resourcing Protocol will be a part of the full document. In the spirit of confidentiality, we trust you will share this with the right people in BJNAC but not further! Thanks – hope you had a good weekend and enjoyed the footy. **Draft MoU and Resourcing Protocol Rates contained in the Sensitive Matters Report.** **Email on 17 October 2023** Thanks for taking my call always good to stay in touch. As discussed, let us know whenever you are ready for next steps following your review of the Resourcing Protocol (for use for general relationship engagement between Shell and Bardi Jawi for all Shell's activities). Also as discussed on the separate topic of EPs, we want to keep you in the loop of the updated Shell EP timeline. Shell is re-submitting the Environmental Plans to NOPSEMA on the 27th of October. So, if there is other additional information Bardi Jawi wish to provide, beyond the information shared with Shell in Broome and Perth, please let me know before Friday 27th October. After this time, consultation for the purposes of preparing the below Environmental plans will be considered closed. Recapping the meeting we had in Broome: We discussed the four different Environmental Plans and how Bardi Jawi, as Relevant Persons (under the NOPSEMA guidelines), need to be consulted, and have an opportunity to provide input into the Plans. Specifically, this input helps inform. • our understanding of the existing environment which may be affected by Shell's proposed activities, including the cultural features of that environment.		

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				☐ how our activities might impact the existing environment (including its cultural features); and ☐ how controls and mitigation measures may be adopted to protect what is important to you. The four Environmental plans cover off on the four key stages to the Crux Project development. 1. The Drilling template – installing the drilling 'jig' or structure on the seabed 2. The Seabed survey – checking the route on the seabed floor between Crux and Prelude to make sure it is safe and clear 3. Development Drilling – drilling the wells 4. Installation and Cold Commissioning – installing the rest of the Platform, the pipelines and testing it all. Shells relationship with Bardi Jawi is important to us, and as previously discussed we are open to meeting for other areas outside of these EPs, including keeping you updated as the project progresses, future EPs required for this project and/or to keep the relationship strong. The meetings you mentioned in December could be a good opportunity for this. **Phone call on 02 November 2023 (first call)** • Consultation is now closed, and we are submitting EPs this week. • Recapped consultation that has taken place to date with Bardi Jawi (Broome workshop, Meeting in Perth and numerous fact sheets provided). • Consultation for EPs is about providing sufficient information and suitable time for the RP to provide inputs that inform the EP. We have had face to face meetings and sent through information that addresses this. • Resource protocols are not part of EP consultation they are separate. In goodwill Shell is working a resource protocol with Bardi for General relationships but as previously discussed this is not associated with EPs and are not a requirement of EPs. Reminded Gareth that the RP is sitting with them and has been since August 29We provided our resource protocol to them back in August. • Shell covers all meeting costs with TOs when there is or is not a RP in place. Bardi Jawi Representative • Bardi Jawi do not consider consultation to have started as until a formal resource protocol is in place. • If Shell wants consultation to start it needs to sign and het a resource/consultation protocol in place. • Bardi Jawi have not completed their review of the Resource protocol provided in August yet, Shell needs to wait.		

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				• All industry needs to establish these resource/consultation protocols as Bardi Jawi do not have resources to cover this type of activity. **Phone call on 2 November 2023** No response. **Phone call on 2 November 2023 (third call)** Reminder that we are submitting EPs in the next couple of days. Confirmed that BJNAC were clear but did not consider consultation to have taken place. **Email on 7 November 2023** Thank you for your email of 27 October and our recent telephone calls. Further to our email of 17 October on the four different environment plans covering the activities specified in that email (the Crux EPs), Shell is required to consult with all relevant persons about its activities under the Crux EPs, and to provide them with sufficient information and a reasonable time to consult with Shell on matters that are relevant to the Crux EPs. Shell considers that Bardi Jawi is a relevant person for the Crux EPs and has engaged with Bardi Jawi in relation to the activities proposed to be conducted pursuant to the Crux EPs since March 2023. This engagement has included meetings in Broome and Perth, as well as email discussions with Bardi Jawi Traditional Owners and representatives, about the Crux Project, as well as the provision of information to Bardi Jawi about Shell's proposed activities. The consultation period for the Crux EPs has now closed for the purposes of the submission of these EPs to NOPSEMA. However, we want to assure you that Shell has processes and procedures in place to address relevant new information that Bardi Jawi may raise in the future concerning risks and impacts of activities to be carried out under Crux EPs once they are accepted. Further, as noted in our email of 17 October, we wish to foster a good and genuine relationship with Bardi Jawi people outside of Shell's EPs, including by progressing the resourcing protocol we discussed earlier this year which will assist relationship building more broadly. I hope this gives additional context to the email I sent, and we look forward to continuing the relationship, including providing updates on the Crux Project, and hearing from Bardi Jawi people about their hopes and aspirations for country.		
30.	**Bardi Jawi Rangers**	See 38 KLC	No response	Not applicable	No feedback, objections or claims received.	
31.	**Dambimangari Aboriginal Corporation (DAC)** *(Tier 1)*	31 March 2023 (*Initial email) refer to Table* **Email to Shell** 06 Sept 2023 07 Sept 2023 15 Sept 2023	[redacted]	**Email on 26 May 2023** Close out email wrapping up the consultation: • Sharing the videos from Forum 1 • Reminder of the environment panel available • Recap on what Shell is consulting on and the obligation to consult under the regulations. • Reconfirming contact details.	**Assessment** Raised objection/claim that impact to DAC country from a major spill would be unacceptable. This is consistent with Shell's position regarding acceptability of major spills and has been	Description of cultural heritage features in Planning Area (Section 7.4.1.2.2) updated to note that sea country may extend beyond current native title boundaries. EP Table and Section 9.14.9

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		20 Sept 2023 17 October 2023 18 October 2023 23 October 2023 24 October 2023 **Email from Shell** 12 April 2023 26 April 2023 02 May 2023 19 May 2023 25 May 2023 26 May 2023 28 August 2023 31 August 2023 06 Sept 2023 07 Sept 2023 19 Sept 2023 20 Sept 2023 18 Oct 2023 23 October 2023 24 October 2023 26 October 2023 06 November 2023 **Phone calls** 16 May 2023 -no answer 31 August 2023 20 October 2023 24 October 2023 x 5 25 October 2023 x 2 26 October 2023 -no answer 27 October 2023 -no answer (incoming) -message left. 27 October 2023 -no answer (outgoing) 30 October 2023 x 2 2 November 2023	[redacted]	**Email on 28 August 2023** I am a consultant with Advisian, and I am presently assisting Shell Australia with the Crux Project, a gas project off the Kimberley coast with potential environmental impacts for Traditional Owner groups who have sea country. I've left a message on the Office phone, I tried to get in touch with (name redacted), and I have emailed before too – just trying to make sure you guys are in the loop. The Shell Crux project is an extension to Shell's Prelude gas facility, about 190km offshore north-west Australia and 620km off the coast of Broome, WA. As part of the environmental approvals process, Shell is consulting with persons and organisations who may be affected by its activities on how it plans to manage environmental impacts. Shell is also consulting in order to improve its understanding of the sensitivities and values of the regions, and in particular, welcomes receiving of additional key information, or feedback on these. So far, Shell has held a number of consultations, in Perth, Broome and Darwin, and send out information in April and again in May, via email to all the relevant identified groups. However, we recognise that emails can get lost or overlooked, and so are following up with certain organisations, like Dambimangari – in particular those with sea country, or those active on coastal areas, where the Crux project may have an impact in the unlikely event of an accident or uncontrolled hydrocarbon spill. The priority is to make sure all the relevant groups have had the opportunity to hear about Crux and be consulted. I've attached some factsheets on the project, and links to the environmental plans for your information. There are 4 Environmental Plans (at this point), but only two of these have potential impacts coastline impact (Environmental Plans 3 and 4). I've also attached a map showing the modelled full possible extent of environmental impacts associated with these 2 Environmental Plans. The project details can be accessed at: www.shell.com.au/cruxAnd the full draft Environmental Plans for the project can be accessed at: Draft Seabed EP Draft Drilling template EP Draft Development Drilling EP Please call if you have questions, comments, or concerns, and I can respond or can connect you with people in the Shell Crux project for further information. We can also organise additional information sessions via Teams or other options, if you think that would be useful for Dambi people. **Email on 31 August 2023** I am a consultant with Advisian, and I am assisting Shell Australia with the Crux Project, a gas project off the Kimberley coast. I've just spoken with reception and briefly one of the Directors and am now contacting you about Crux. Crux project is gas facility, about 190km offshore north-west Australia and 620km off the coast of Broome, WA. At its closest point, it is around 230 km from the Dambi coastline. Crux will tie in with Shell's existing gas facility, Prelude. It is all offshore, but nonetheless, TO groups, Aboriginal Corporations and PBCs along the Kimberley coast	noted in the relevant section of the EP – see Measures adopted for detail. **Relevant/Non-Relevant Matters** Provided feedback that sea country may extend past current native title borders, going a "long way from shore" which was considered a relevant matter and EP amended to incorporate - – see Measures adopted for detail.	updated to note that consultation with DAC had identified impact to their sea country from a major spill was considered unacceptable. Shell has provided sufficient information and a reasonable period to assess information provided. Consultation has been carried out in preparation of this EP in accordance with the OPGGS(E) Regulations. Refer to Table 5-10 for further information supporting this.

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		In Person 19 Sept 2023	[redacted]	need to have the opportunity to hear about Crux, ask questions and meet with Shell if they want. Details: Shell is consulting with persons and organisations who may be affected by its activities on how it plans to manage the environmental impacts. It is required to do this. Shell is also consulting in order to better understand what's valuable and important to people in the regions. In particular, Shell welcomes receiving of additional key information, or feedback on the plans. So far, Shell has held a number of consultations, in Perth, Broome and Darwin, and sent out information several times, to all the relevant identified groups. I'm attaching some factsheets on the project, and links to the environmental plans for your information are below. There are 4 Environmental Plans (at this point), but only two of these have potential impacts coastline impact (Environmental Plans 3 and 4). I've also attached a map showing the modelled full possible extent of environmental impacts associated with these 2 Environmental Plans. The project details can be accessed at: www.shell.com.au/cruxAnd the full draft Environmental Plans for the project can be accessed at: Draft Seabed EP Draft Drilling template EP Draft Development Drilling EP Please call if you have questions, comments, or concerns. We can organise additional information sessions on country, in Derby, or via Teams, if you think that would be useful. **Email on 6 September 2023** Thanks for making contact – good to hear from you. I know of your name from different work I've done with some of the groups along the Kimberly coast. The week of the 18th is good to meet, bearing in mind that school holidays start on the Saturday of that week and Friday might be a good day to avoid. I'm copying in the National Indigenous Engagement Manager. He is based in Brisbane but will try to join by Teams I expect. Are you available 19th Tues or 20th Wed at 9am? We can probably meet at the Shell offices, or if that isn't possible you are welcome to come to the Advisian offices, or I can come to you. Thanks again and look forward to meeting, We're just trying to line it up from this side. Will confirm soon. **Email on 7 September 2023** The National Indigenous Engagement Manager is not available, but the External Affairs Manager is – he is similarly across the project. Shell will book a room for 9am on the 19th and send to Ric? I'll attend in person too. From our side, I'd propose we spend up to an hour, discussing, 1. Shell and the Crux project 2. Overview of the environmental management plans 3. Key issues for Dambimangari 4. Further consultation from here Is there anything else you'd like to put on the agenda? – we'll keep it pretty informal with just the three of us, and I think also important to		

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				note this is just the first meeting together and we can work out what further meetings should be held. Thanks all – see you then. **Email 19 September 2023** Thanks for the meeting this morning. Good to meet and as mentioned, we are very keen to continue discussions with Dambimangari, at times and places appropriate for them. If there is a way we can fit into upcoming Board meetings before the end of the year, that would be great, but otherwise, as noted, consultations will continue next year, and the consultation is a continuous and ongoing process. We mentioned the panel of subject matter experts that has been established, who Traditional Owners can go to with questions, concerns, and complaints. TO groups, Aboriginal corporations and their staff have access to the panel, with the costs incurred by Shell. It is anonymous. The panel is independent of Shell (although some have previously worked for Shell). Shell will not see any of the information shared - any conversation is between the person and the panel member. Names of panel members redacted. Please get back in touch with any further questions and we look forward to further meetings with Dambi people. **Face to face meeting on 19 September 2023** Dambimangari gave an overview of current DAC operations and land and sea area as per the Dambimangari Native Title Determination. Shell provided an overview of the Crux Project via PowerPoint. DAC has already recevied Factsheets by email on 31 August 2023 along with the NOPSEMA Consultation Information for the Community Brochure. Dambi adviser clarified that there are multiple native title groups under the Wanjina Wunggurr (Native Title) Aboriginal Corporation RNTBC. Dambi adviser reiterated that any impact to DAC country from a spill would be unacceptable. Shell agreed that spills are unacceptable, while noting that the risk of a spill event cannot be completely excluded, but this awareness is what drives the robust and extensive prevention and management process. It was noted that the attention given to spill prevention can be reinforced throughout the consultation process also. Representative of DAC agreed to liaise with DAC CEO to summarise the meeting and a further consult should occur in Derby with the DAC Board. A new board was being elected in October so late October/November were suggested or alternatively early 2024. Shell discussed project activities schedule and EP submission timing. DAC spoke to priority to maximize economic and employment opportunities, he also queried Shell's interest in an unrelated supply base project by Kimberley Technology Solutions on Cockatoo Island. Shell will provide information on this to clarify. **Email on 20 September 2023** I've had a request from Shell to clarify a few points from their side – I guess that happens when minutes are taken by 3 people!		

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				Please find attached a v3 of the minutes. The changes are highlighted here, just for your attention, and a revised version attached. For Shell, it is important that the record of the meeting show 1] that there were earlier efforts to contact Dambimangari, and 2] that there is agreement on spills being unacceptable, but that it be clear that in marine activity involving such a complexity of activities over a sustained period of time, a spill event cannot be completely excluded. Certainly, Shell is willing to provide full information to concerned persons regarding the actions to hand, both by Shell but also by State and Federal authorities, in the event of a spill. We look forward to further meetings with the Dambimangari board. **Email on 17 October 2023** It was good meeting in September and hope you are doing well. In the meeting we had in Perth, we talked about the four different Environmental Plans relevant to the Crux project and how you, as Relevant Persons (under the NOPSEMA guidelines), need to be consulted, and have an opportunity to provide input into the Plans. Specifically, this input helps inform. • our understanding of the existing environment which may be affected by Shell's proposed activities, including the cultural features of that environment. • how our activities might impact the existing environment (including its cultural features); and • how controls and mitigation measures may be adopted to protect what is important to you. The four Environmental Plans cover off on the four key stages to the Crux Project development (see the map and links to plans below): 1. The Drilling Template – installing the drilling 'jig' or structure on the seabed 2. The Seabed Survey – checking the route on the seabed floor between Crux and Prelude to make sure it is safe and clear 3. Development Drilling – drilling the wells. 4. Installation and Cold Commissioning – installing the rest of the Platform, the pipelines and testing it all. We haven't heard further from you as yet so are just checking in to see how these are going, as well as update you on Shell timeframes. At this point, Shell is planning to commence submitting the Environmental Plans to NOPSEMA in the next weeks, in order to meet internal deadlines. So, if there is other information you can provide, or comment you want to make, please let us know as soon as possible, and definitely before Friday 27th October. After this time, consultation for the purposes of preparing the Environmental Plans will be considered closed. Relationships beyond Environmental Plans are very important to us. We are open to meeting for other areas outside of these Environmental Plans as previously discussed with you, including keeping you updated as the project progresses, future Environmental Plans required for this project, learning more about your country and culture, and to keep the relationship strong.		

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				I will give you a call to follow up later in the week, but my mobile is below if you needed to reach me in the interim. **Email on 17 October 2023** Having made a few enquiries, I can confirm there are no plans to engage services out of Cockatoo or Koolan Islands. Transport activities to support the Crux project during operation are planned to be run from existing Shell facilities that currently support the activities in the area. During the construction phase offshore for Crux, the Truscott airbase will be the primary heliport for activities infield for Crux. Hope this gives some clarity. **Phone call on 20 October 2023 - summary** • Dambi would like to meet predominantly around broadening Shell's focus and efforts from Broome more broadly across the Kimberley with a specific focus for them in Derby. They are very aware and accept our current tight timeframe of 27/10 and recognise they will not be able to meet in this timeframe however they would still welcome a meeting in future to discuss project however understand that their circumstances prevent them from being able to meet the 27/10 timeframe. • Advisor to Dambi indicated that internal induction and governance training now commences for Board from early Nov and there is a 50% chance of a Board meeting which would be open to 3rd parties in 2023. If this doesn't occur the next Board meeting would be late Feb/early March and he was happy to communicate if going ahead to us. • -Would like to be kept in loop with project progress • -They have a long list of 3rd parties to get through inclusive of ILUA's they have in place and preference given to projects like ours rather than ideas/concepts Apologised that they couldn't meet this timeline and recognised that they wouldn't have input in EP but would like to discuss in future. No specific cultural values were identified/discussed. **Email on 23 October 2023** Hope you had a great weekend and thanks again for the phone call on Friday, as discussed Shell are more than happy to meet with Dambimangari AC to discuss opportunities for broadening our impact across the Kimberley by potentially building on current partnerships and community engagement that we have established in Broome. For Dambi we recognise that Derby would be an area of focus and we look forward to hearing further about community needs. We look forward to meeting with Dambi to discuss this at the earliest appropriate timeframe and will be led by you around this timing. For the purpose of our current Environment Plan (EP) activities consultation closes this Friday as discussed. I noted from our discussion that you are satisfied that consultation with Dambi in preparation of the EP is complete, which is important for us to clearly document for the purposes of preparing the EP for the Crux project. In the interim we will keep you updated as the project progresses as requested (we will reflect this within the EP as an ongoing consultation		

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				commitment to Dambi), please reach out if you need anything further from our end. Good luck with the upcoming induction and governance training! **Email on 24 October 2023** We've not met but I know a bit about Dambi and was with (name redacted) and a bunch of rangers in Nepal a few years back. I'm making contact on behalf of Shell – it would be easier if I can talk to you, but I don't have a number and the Dambi office number is not answering. Would you please call me or indicate when I can call you and on what number? Thanks, and look forward to talking. **Email on 26 October 2023** I'm writing with regard to Shell Australia's consultation with Dambimangari Aboriginal Corporation (DAC) in relation to the [Seabed Survey, Drilling Template, Development Drilling and Cold Commissioning Environment Plans] for the Crux Project (Crux EPs). We (Phil Sparrow) have been trying to reach you by phone and have left messages for you – our apologies for not being able to speak to you directly. We've met with Ric Davies, an advisor to DAC, and I understand he has passed on information to you. To recap, Shell is required to consult with all relevant persons about its activities under the Crux EPs, and to provide them with sufficient information and a reasonable time to consult with Shell on matters that are relevant to the Crux EPs. Specifically, this consultation helps inform: • our understanding of the existing environment which may be affected by Shell's proposed activities, including the cultural features of that environment. • how our activities might impact the existing environment (including its cultural features); and • the development of appropriate controls and mitigation measures to reduce impacts to as low as reasonably practicable and an acceptable level. Shell considers DAC is a relevant person for the Crux EPs. We provided DAC with information about Shell's planned activities in March 2023, to allow DAC and the people it represents to assess how they may be affected by Shell's activities under the Crux EPs. Since then, we have followed up through multiple avenues (via reception, the Healthy Country Manager, and Ric Davies). As we advised Ric Davies on 17 October 2023, the consultation period for the Crux EPs is closing on Friday, 27 October 2023 to allow final preparation and submission to NOPSEMA. If you choose to provide input on the Crux EPs, we request that you provide it by this Friday, 27 October 2023. We want to stress that this consultation requirement is separate to Shell's interest in, and commitment to engagement with, TO groups on wider matters such as partnerships, employment, and social and economic investments. So, while the consultation period for the Crux EPs is closing to allow final preparation and submission to NOPSEMA), this has no bearing on Shell's wish for a stronger and ongoing relationship with DAC. We understand that a new Board has		

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				just formed, and we would be pleased to meet on an ongoing basis with the (new) Board and discuss issues of common interest (including matters relating to Shell's activities), social investment opportunities, and so forth, at a time and place that works for the Board. We also want to assure you that Shell has processes and procedures in place to address any new matters DAC raises in connection with Shell's activities as and when new information comes to light. Please let us know your response to this letter by Friday, 27 October 2023, either by email or phone on (number redacted). **Call on 2 November 2023** • Apologized for phone tag over the last week and reiterated no intent to misrepresent previous conversations • Confirmed Shell will include CEO in future communications. Discussed consultation definition with reference to sufficient information provided and reasonable timeframe provided • Shell was transparent that consultation in preparation of the EP has closed in preparation for Shell submitting the EP • Quickly recapped consultation for the EP that has taken place to date with DAC • Will make December 2023 a priority if it is feasible, to also discuss any Shell EP's which are in preparation or under assessment DAC advisor • DAC advisor was understanding of our intent for relationship and timeframes for projects we need to work to • Reiteration that DAC would like to meet at the earliest opportunity, currently a Board meeting for w/c 11/12 likely that no third parties to present at this meeting however DAC advisor has suggested they would ask the CEO for Shell to present at this meeting • If not December, for Shell to present, Board meeting likely to be early Feb 2024 • Understanding of our submission and acknowledged the NOPSEMA definition of consultation • Discussion around potential consultation fatigue for groups, reference to seeing Proponents setting up stalls at Derby Woolworths etc. **Email on 6 November 2023** Thanks for your email on 24th October and apologies for the long phone tag we had until speaking Thursday! In our phone conversation we discussed a Dambimangari Board meeting to be held the week of 11th December as the earliest opportunity for Shell to meet the new Board. We would be grateful if this was possible and if so, will make this a priority. I do apologise for not including the CEO in my email back to you, confirming we will include the CEO and you going forward having confirmed their email address. I absolutely did not intend to misrepresent our previous conversation so wanted to clarify further below.		

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				Further to discussions on Thursday and our email on 17th October on the four different environment plans covering the activities specified in that email (the Crux EPs), Shell is required to consult with all relevant persons about its activities under the Crux EPs, and to provide them with sufficient information and a reasonable time to consult with Shell on matters that are relevant to the Crux EPs. Shell considers that Dambimangari is a relevant person for the Crux EPs and has engaged with Dambimangari in relation to the activities proposed to be conducted outlined in the Crux EPs since March 2023. The consultation period for the Crux EPs has now closed for the purposes of the submission of these EP's to NOPSEMA. However, we want to assure you that Shell has processes and procedures in place to address relevant new information that the Dambimangari people may raise in the future concerning risks and impacts of activities to be carried out under Crux EPs once they are accepted. Shell welcomes the opportunity to meet the Board at the earliest opportunity and wish to foster a sustainable and genuine relationship with Dambimangari people outside of our EP's including discussing further opportunities to extend community engagement beyond Broome, providing further updates on the Crux project and hearing from Dambimangari people about their hopes and aspirations for country. Happy to chat further on the phone as needed.		
32.	**Djarindjin Aboriginal Corporation (DAC)** *(Tier 1)*	31 March 2023 *(Initial email) refer to Table* **Email to Shell** 04 April 2023 11 April 2023 26 April 2023 18 May 2023 26 May 2023 20 July 2023 **Email from Shell** 12 April 2023 14 April 2023 26 April 2023 18 May 2023 26 May 2023 20 July 2023 24 July 2023 **In Person** 19 April 2023 10 May 2023	[redacted]	**In person on 19 April 2023** DAC attended the Indigenous Forum in Perth. **In person on 10 May 2023** Advised that Shell invests in community benefits activities as part of its national Social Investment program and committed to ongoing engagement about the opportunities offered under these programs for community funding, including related to renewables and energy solutions projects. Advised Shell has commenced an underwater archaeological assessment of our project area and the larger planning areas that includes the assessment and likelihood of underwater Indigenous tangible heritage, including drowned cultural landscapes and the use of predictive modelling on land usage based on known anthropological data. This assessment is still underway and is in addition to the standard searches of existing databases of Indigenous and non-Indigenous heritage. This information will be used to inform an impact assessment on any values (if any) identified through this assessment, as well as the need for subsequent development of controls where potential impacts require mitigation. The above is in addition to engaging with Indigenous people on their values and interests (including heritage) as part of the consultation approach. Shell has engaged specialist consultants experienced in Indigenous consultation to support Shell carrying out consultation in preparation of the Crux EP's with Indigenous People. Shell will consider the feedback further though regarding consultation approaches moving forward with Indigenous People. While impacts to underwater heritage sites or shipwrecks are possible in the event of an unplanned hydrocarbon spill, Shell considers it adopts appropriate controls to prevent a hydrocarbon spill and controls to respond in the highly unlikely event of a hydrocarbon spill.	**<u>Assessment</u>** Raised objection/claim about potential for major spills to impact an ancient ceremonial site underwater on the Dampier Peninsula coast that's 40,000 years old and the huts on the small island reef, about 1-3km off the Dampier Peninsula that are part of their songlines. Shell considers the objection to have merit because it provides information about cultural values and features which could be affected in the event of a major spill. The EP has been updated accordingly, refer to measures adopted for further details. **Relevant/Non-Relevant Matters** The feedback received around suggestions to improve consultation were mostly adopted,	Shell has updated the EP description of the environment (eg Section 7.4.1.3) with identified features and values provided by DAC and these have been specifically assessed within the impact and risk assessment in Section 9.14.6.3. Shell updated the approach to consultation as a result of the feedback from TO Forum 2 on the 10th May which is reflected in updates made in Section 5.6.5. Shell has provided sufficient information and a reasonable period to assess information provided. Consultation has been carried out in preparation of this EP in accordance with the OPGGS(E) Regulations. Refer Table 5-10 for further

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				Email on 18 May 2023 Close out email sent which covered the following: • Thanked relevant person for their feedback. • Your advice has been noted, Shell has already, or will, comply will all requirements below. • Recapped on what Shell is consulting on and the obligation to consult under the regulations. • Notified of the management of feedback if any details should be considered sensitive information. • Reconfirmed contact details. **Email on 26 May 2023** Close out email wrapping up the consultation: • sharing the videos from Forum 1 • reminder of the environment panel available • recap on what we're consulting on and the obligation to consult under the regulations. • reconfirmed contact details. **Email on 20 July 2023** We want to update you on where Shell is with the submission of the four Crux Environmental Plans. The first two EPs – the Seabed survey and the Drilling template (both of which have very limited potential impact areas, well offshore) will be submitted to NOPSEMA by the end of this week. The Drilling Development EP will be submitted next week, and the Cold Commissioning EP will be submitted later in the year, in November. We are grateful for the meetings we have had with you both during the consultation period. One of the repeated comments we heard loud and clear over the course of these meetings, is the importance of ongoing relationships – that Aboriginal groups are looking for long term relationships with industry operators, where they can partner to share knowledge, resources, and skills, provide consultancy on critical cultural heritage matters, and collaborate in providing opportunities. Shell is keen to build on the relationships is already has with Djarindjin, to strengthen and expand these. We'd like to return to Broome in the next few months and meet again to provide an update on the Crux project, hear any concerns and respond to issues that may have arisen, and discuss future partnership opportunities. Shell invests and works with communities close to its operations and looks forward to conversations about opportunities and priorities for your people. At this stage, we are looking at being in Broome in September/ October of this year. If this is an opportunity you'd like to take up, please let us know so we can work on schedules and timing. Please stay in touch also with any other issues relating to the Crux project. **Email on 24 July 2023**	in the form of having face to face meetings where possible and making phone calls where information is available. The suggestion to put an indigenous advisor committee in place to support Shell carrying out consultation on our behalf was considered and deemed not appropriate considering Shell already have experienced support to assist with Indigenous People and Organisation consultation.	information supporting this.

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				It would be good if you can provide dates, thanks. I assume Shell could delay these proposed trips till November too, if that is better. December is probably getting a bit hot and late.		
33.	**Gogolanyngor Aboriginal Corporation** *(Tier 2)*	Also consulted via RP38 - KLC Phone call 04 October 2023 -no answer -message left	No response		No feedback, objections or claims received.	Shell has provided sufficient information, made reasonable efforts to elicit feedback and provided a reasonable period to assess information, seek input from the communal group and provide feedback. Therefore, consultation in preparation of this EP has been carried out in accordance with the Shell methodology. Refer to Table 5-11 for further information.
34.	**Jaru PBC**	31 March 2023 *(initial email)* **Email to Shell** 07 April 2023 **Email from Shell** 12 April 2023 14 April 2023 27 June 2023	[redacted]	**Email on 27 June 2023** Close out email wrapping up the consultation: • Sharing the videos from Forum 1. • Reminder of the environment panel available. • Recap on what Shel is consulting on and the obligation to consult under the regulations. • Reconfirming contact details.	No feedback, objections or claims received.	
35.	**Joombarn-Buru Aboriginal Corporation**	**In person** 27 April 2023 **Email to Shell** 28 April 2023 (Refer to RP 58) **Email from Shell** 27 April 2023 02 May 2023 27 June 2023	[redacted]	**In person on 27 April 2023** Shell advised we had provided Joombarn-Buru Aboriginal Corporation with information on the seabed survey EP and requested assistance in distributing invite to Broome Indigenous Forum 2. This was not a scheduled meeting but a quick catch-up between friends. Refer to relevant person 58, for the response to the email received on the 28 April 2023. **Email on 02 May 2023** Seeking to get contacts for organisations and groups, to invite to them to the meetings Shell is holding about the Crux project. Shell has also been seeking other arrangements that would suit groups who they haven't been able to reach. Shell wants to hear from as many TOs as possible, to understand concerns and respond to questions. In terms of consultation, there was a meeting in Perth a few weeks back. There is a second meeting in Broome on May 10. Other meetings can be arranged with specific TO groups, individuals, organisations and PBCs – Shell is very open to that. So, if you and others would like to meet separately	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant/Non-Relevant Matters** Provided information identifying other relevant First Nation contacts which Shell added to its consultation program – see Measures adopted for detail.	Additional persons/organisations identified were incorporated into the consultation undertaken for this EP (Section 5.6.5).

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ID	Name					
				with Shell about Crux, just let me know or email to SDA-cruxproject@shell.com and someone will respond to sort out details. I'd encourage you and others to come to the meeting next week, as a starting point. People from Shell will be there, to hear questions and provide responses, and organise follow up**.**		
36.	**Karajarri Traditional Lands Association (KTLA)** (Including Nyangumarta Karajarri Aboriginal Corporation) *(Tier 2)*	See also KLC 38 **Email from Shell** 17 October 2023 **Phone call** 4 October 2023 -no answer 17 October 2023 24 October 2023 -no answer	[redacted]	**Email on 17 October 2023** I hope this finds you and the Karajarri mob well. I've been out to the Ranger office at Bidyadanga a few times, but I don't think we have met. I'm writing to follow up on the Shell Crux project consultations. I understand the Karajarri TLA received our correspondence regarding Crux. Just to reiterate at its closest point, Crux is about 175km off the coast of the Kimberley. When built, it will supply gas to Shell's existing gas operations, at Prelude, which is also offshore. There are no onshore construction activities at all. Over the last months, Shell has been progressing the four different Environmental Plans for the Crux Project. Under the NOPSEMA guidelines, Karajarri TLA is considered as Relevant Person and as such, need to be consulted, and have an opportunity to provide input into the Environmental Plans. The input we've received from different groups helps inform. • our understanding of the existing environment which may be affected by Shell's proposed activities, including the cultural features of that environment. • how our activities might impact the existing environment (including its cultural features); and • how controls and mitigation measures may be adopted to protect what is important to you. The four Environmental plans cover off on the four key stages to the Crux Project development (see the map below): 1. The Drilling template – installing the drilling 'jig' or structure on the seabed 2. The Seabed survey – checking the route on the seabed floor between Crux and Prelude to make sure it is safe and clear 3. Development Drilling – drilling the wells 4. Installation and Cold Commissioning – installing the rest of the Platform, the pipelines and testing it all. Information we receive from Traditional Owners and Aboriginal Corporations will be documented in each of the activity specific Environment Plans, which are submitted to Australia's offshore energy regulator, NOPSEMA, for assessment and following acceptance, published online. The purpose of this consultation is further detailed in the attached NOPSEMA Consultation on Offshore Petroleum Environment Plans Brochure. General information is available about the project on our website www.shell.com.au/crux. Factsheets describing each of the activities that we are consulting on are available below and outline the associated environmental risks and impacts: Draft Seabed EP	No feedback, objections or claims received.	Shell has provided sufficient information, made reasonable efforts to elicit feedback and provided a reasonable period to assess information, seek input from the communal group and provide feedback. Therefore, consultation in preparation of this EP has been carried out in accordance with the Shell methodology. Refer to Table 5-11 for further information.

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ID	Name					
				Draft Drilling template EP Draft Development Drilling EP The full text of the draft Environment Plans are also available online. We want to hear from you. Over the last 6 months, we've tried to talk to as many Traditional Owners, RNTBC's and PBC's as well as businesses and Aboriginal Corporations as we can. We have emailed and called in an attempt to provide an opportunity to discuss the cultural features and values that are important to you and how we could protect them. After attempting consultation with you over the last 6 months, we are approaching our hard deadlines, and will be submitting the above Environment Plans by Friday 27th October. If we have not heard from you about the above date, Shell plans to close consultation in preparation for the EP. If you can't provide the information requested by this date Shell will address any other feedback through ongoing consultation. We look forward to hearing from you, Hope to hear from you – I'll follow this up with a phone call later in the week. **Phone call 17 October 2023** Confirmed they had received Shell's email on 8 May.		
38.	**Kimberley Land Council (KLC)** *(Tier 1)*	31 March 2023 *(initial email) refer to Table* **Email to Shell** 12 April 2023 27 April 2023 03 May 2023 31 August 2023 17 October 2023 **Email from Shell** 12 April 2023 26 April 2023 27 April 2023 12 May 2023 19 May 2023 26 May 2023 10 July 2023 20 July 2023 31 August 2023 17 October 2023 **Online Form in**	[redacted]	**Email on 12 April 2023** Responded with group details. **Email on 26 April 2023** Responded to online form interest with information pack and contact details. **Email on 27 April 2023** Acknowledged message and thanked for response. Reiterated Shell's committed to consultation and set out communication undertaken to date with First Nations relevant persons. Reiterated invitation to Traditional Owner Forums. Requested support in encouraging community members to attend either the forum or provide feedback through the alternative channels. Asked for feedback on consultation methodology. **Email on 12 May 2023** Acknowledged message and thanked for response. Reiterated Shell's committed to consultation and set out communication undertaken to date with First Nations relevant persons. Reiterated invitation to Traditional Owner Forums. Requested support in encouraging community members to attend either the forum or provide feedback through the alternative channels. Asked for feedback on consultation methodology.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant/Non-Relevant Matters** Provided information regarding additional groups that Shell could/should contact.	Shell contacted/ attempted to contact all the groups identified (Section 5.7). Shell has provided sufficient information and a reasonable period to assess information provided. Consultation has been carried out in preparation of this EP in accordance with the OPGGS(E) Regulations. Refer to Table 5-10 for further information supporting this.

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ID	Name					
		26 April 2023 **Phone calls** 11 May 2023 x2 12 May 2023 15 May 2023 16 May 2023 18 May 2023 31 August 2023 04 October 2023 -no answer -left message	[redacted]	**Email on 19 May 2023** Sharing details of Indigenous Forum in Darwin. **Email on 26 May 2023** Requesting assistance from KLC to distribute information to the groups previously contacted. **Email on 10 July 2023** Close out email sent which covered the following: • Thanked relevant person for the feedback. • Recapped on what Shell is consulting on and the obligation to consult under the regulations. • Notified of the management of feedback if any details should be considered sensitive information. • Reconfirmed contact details. **Email on 20 July 2023** We want to update you on where Shell is with the submission of the four Crux Environmental Plans, and what happens next. The first two EPs – the Seabed survey and the Drilling template (both of which have very limited potential impact areas, well offshore) will be submitted to NOPSEMA by the end of this week. The Drilling Development EP will be submitted next week, and the Cold Commissioning EP will be submitted later in the year, in November. We are grateful for the meetings we have had with different PBCs and TO groups during the consultation period, and for the assistance provided by KLC in reaching people. One of the repeated comments we heard loud and clear over the course of these meetings, is the importance of building ongoing relationships – that Aboriginal groups are looking for long term relationships with industry operators, where they can partner to share knowledge, resources and skills, provide consultancy on critical cultural heritage matters, and collaborate in providing opportunities. Shell is keen to build the relationship with the KLC and is aware we have not yet found the time that works for us to meet with you. Shell plans to return to Broome in the next few months, to provide an update on the Crux project, hear any concerns and respond to issues that may have arisen - and to discuss future partnership opportunities. Shell invests and works with communities close to its operations and looks forward to conversations about opportunities and priorities for groups the KLC works with. At this stage, we are looking at being in Broome in September/ October of this year. If this is an opportunity you think would be of interest to the KLC or groups for whom it is the NTRB, let us know so we can work on schedules and timing, and please forward this email to them. Please stay in touch also with any other issues relating to the Crux project. **Email on 31 August 2023** As per our conversation just now, I am keen to talk to key people (CEO, General manager, key liaison person etc) at Wilinggin and		

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				Wunambul re the Shell Crux project. We've emailed them and I know you forwarded information to them also, but we'd really like to have a direct conversation with them to ensure they've had a full opportunity to ask about Crux, request more info, have a meeting with Shell, or whatever it might be. Just for your info: I've emailed Wilinggin CEO, I got his details – no response from him. I've emailed Wunambul – don't know him and not sure if he got anything as no response. I've left phone messages at both places too. Dambi is fine – I've spoken with the right people there. If you can help provide phone numbers or specific contacts, it would be great and much appreciated. **Email on 31 August 2023** I appreciate your assistance. Unfortunately, as you may know, ORIC details are often out of date. Re Wanjina – Thanks for emailing. The phone number for Wanjina on ORIC is the KLC number. Re Wilinggin - I've emailed the gm@wilinggin.com.au address a few times – no response, and the number for Wilinggin goes through to a message bank. Similar with Wunambul. I'll keep trying but appreciate your help. **Email on 17 October 2023** Hope you're well, apologies for the e-introduction I am the Indigenous Participation Advisor with Shell. I know you have been previously liaising as the conduit to a number of TO Groups identified as Relevant Persons for Environmental Plans relating to the Crux project. I would be grateful if you could pass on the below email to the appropriate representative from Nimanburr Aboriginal Corporation? I had Regina Manado listed as the appropriate contact however if you could confirm that would be much appreciated. Please let me know if you need any further info from my end, my mobile is (redacted) if you need to reach me. **Email on 17 October 2023** Thanks for your prompt response and for passing on the email, appreciate the clarification around correct email addresses and will wait to potentially hear back from Nimanburr AC by the 27th. When I am next in Broome, I will let you know and come by to meet in person if you're available. Earlier today there were a couple of emails sent through to this address for • Nyul Nyul PBC • Gogolanyngor Aboriginal Corporation. Would you please be able to send through to the groups as the only email address we had was through KLC.		

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39.	**Kimberley Ranger Network**	See 38 KLC	No response	Not applicable	No feedback, objections or claims received.	
40.	**KRED**	27 April 2023 *(Initial email)* 26 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
41.	**Kullari Regional Communities Incorporated (KRCI)**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters

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						assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
42.	**Lombadina Aboriginal Corporation** Including Lombadina Accommodation & Tours.	31 March 2023 *(initial email) refer to Table* **Email from Shell** 04 April 2023 26 April 2023 08 May 2023 19 May 2023 25 May 2023 26 May 2023 20 June 2023 **Phone call** 20 June 2023	No response	**Email on 26 May 2023** Close out email wrapping up the consultation: • Sharing the videos from Forum 1. • Reminder of the environment panel available. • Recap on what Shell is consulting on and the obligation to consult under the regulations. • Reconfirming contact details. **Phone call on 20 June 2023** Spoke to Director of LAC who requested further information, which was emailed through. **Email on 20 June 2023** Thanks for the call just now, As discussed, I'm assisting Shell Australia with the consultations with Traditional Owner groups for the Crux Project. The Shell Crux project is an extension to Shell's Prelude gas facility, about 190km offshore north-west Australia and 620km off the coast of Broome, WA. As part of the environmental approvals process, Shell is consulting with persons and organisations who may be affected by its activities on how it plans to manage environmental impacts. Shell is also consulting in order to improve its understanding of the sensitivities and values of the regions, and in particular, welcomes receiving of additional key information, or feedback on these. So far, Shell has held a number of consultations, in Perth, Broome and Darwin, and send out information via email to all the relevant identified groups, including those around Broome. However, we know that emails can get lost or overlooked, and so are following up with certain organisations – in particular those with sea country, or active on coastal areas, where the Crux project may have an impact in the unlikely event of a accident or uncontrolled hydrocarbon spill. I've attached some factsheets on the project, and links to the environmental plans for your information. There are four Environmental Plans (at this point), but only two of these have potential impacts on coastal areas (EPs 3 and 4) – the other two are offshore. I've also attached a map showing the modelled full possible extent of environmental impacts associated with these two Environmental Plans, and you can see that one of these (the green line in the map) does intersect with the coastline of the Kimberley. The project details can be accessed at: www.shell.com.au/crux And the full draft Environmental Plans for the project can be accessed at: Draft Seabed EP Draft Drilling template EP Draft Development Drilling EP Please call me on 0415 4242 48 if you or others in Lombadina have questiones, concerns or comments, and I can answer high level questions, or connect you with people in the Shell Crux project for further information. We can	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.

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				also organise additional information sessions via Teams or in person, if you think that would be useful. **Email on 27 June 2023** Close out email wrapping up the consultation: • Sharing the videos from Forum 1. • Reminder of the environment panel available. • Recap on what Shell is consulting on and the obligation to consult under the regulations. • Reconfirming contact details.		
44.	**Mayala Inninalang Aboriginal Corporation (MIAC) (incl Mayala 2)** *(Tier 1)*	Also consulted via 38 – KLC **Email from Shell** 23 August 2023 17 October 2023 **In person** 15 August 2023	No response. Meeting arrangements took place via Walalakoo.	**Meeting Notes from 15 August 2023** Walalakoo mentioned at the start that Oil and gas has been bypassing the Traditional Owners in the Kimberley and the Traditional Owners are very concerned about the impacts on their Country. Feeling of anxiousness at the start to meet as there has been no engagement with Traditional Owners in the Kimberley with Oil and Gas Companies • Walalakoo discussed the important cultural connections with Country in particularly to the Reef and King Sound and are directly affected by the oil and gas industry. There is a strong cultural block up in the Dampier Peninsula and the 3 groups of Bardi Jawi, Walalakoo and Mayala are deeply interconnected. • Bardi Jawi - Discussed the historic relationship of Shell and Bardi Jawi and that there has been economic loss to the community and fractured relationships internally due to airport decisions at Djarindjin • Discussion around RAP came up and since we are working towards a RAP. Bardi Jawi mentioned they want to work with us and assist us with working on KPI targets. • Walalakoo discussed job opportunities and asked how many Indigenous people work on Prelude. Discussion around the job opportunities we do offer as well as our Contractors. NETTS program was also mentioned. • Walalakoo also discussed history (dating back some 10 years+) with applying as a vendor with Shell and hasn't had a positive experience previously. Discussion was had around Indigenous Suppliers and supply chain in general. Mentioned processes around local content plans and procedures in place to ensure we consider local content as part of the tendering process currently. • Discussion around Oil Spill Impacts were had and the different scenarios. Questions were asked around first responders and where do they come from. Mentioned responders are in Singapore and Fremantle. 4-8 hours it takes to organize the response. Some concern with how long this would take for them to get to the scene. Interest in developing capacity of local oil spill preventive groups and Shell discussed that we are acting on this as well as a whole Industry approach. • Bardi Jawi mentioned they may be interested in conducting their own oil spill modelling independently of Shell • Bardi Jawi brought up the need for cultural awareness/ cultural competency training that Bardi Jawi can offer. • NOPSEMA have committed to cultural competency training and have been out on the Dampier Peninsula with the Traditional Owners.	**Assessment** No feedback, objections or claims received about activity impacts or risks. **Relevant Matters and Not Relevant Matters** The following relevant matters were raised regarding the activity or their functions, interests, or activities: • presence of songlines up the [west Kimberley] coastline and associated cultural heritage sites that are not all registered. • important cultural connections with Country particularly to the Reef and King Sound. • preferred engagement process to ensure culturally appropriate consultation. Shell incorporated this information into its assessment of potential impacts and processes for engagement, as reflected in the EP - see Measures adopted for detail.	Description of heritage values in the EP (eg Section 7.4.2.2.2) updated to incorporate information received and updated information considered in risk assessment (eg Section 9.14.6.3). Section 7.4.2.2.3 notes that a number of the heritage sites in the Planning Area have not been recorded. Consultation included collective engagement with the 3 neighbouring cultural groups and facilitating on-country meetings wherever requested/practicable (Section 5.6.5). Shell has provided sufficient information and a reasonable period to assess information provided. Consultation has been carried out in preparation of this EP in accordance with the OPGGS(E) Regulations. Refer Table 5-10 for further information supporting this.

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				Part of building genuine relationships. Subtext was that Shell should engage Bardi Jawi to provide similar training. • The Traditional Owner groups have access to independent Environmental panel and can access this at any point if they would like assistance. This is something the groups will do independently. • Bardi Jawi made comment to effect that they did not consider this meeting consultation, but pre-consultation. • Bardi Jawi comments on this process being one-sided, ie; Shell talking about what it is wanting to do; no allowance for what Bardi Jawi wants to do/ offer (in the form of cultural competency training, assistance in helping industry become more sensitized to Indigenous values. • Walalakoo made strong case for engagement with TO groups and RNTBCs being seen as a direct cost, and as essential precursor activity to any proponent development. That involving TO groups later as an afterthought, or simply to meet regulatory requirements was inappropriate. • Shell talked around Shell's commitment to looking at the Social and Cultural Heritage Values and the process Shell took around this. Walalakoo flagged concerns around our assessment of Cultural Heritage sites and only the ones that currently come up as registered as there are some significant song lines up the coastline that go up to Kalamburu. The Walanadi. 3 groups have strong connection to sea country and important to view sea country as all interconnected not just piece by piece as within Shell boundaries. • Concern from Walalakoo around Well integrity and stability • Drilling fluid spills and what is Shell's management plans around that. Majority is non-toxic fluids and cause minimal impacts. • Bardi Jawi strong on Resourcing protocol needing to be addressed with Bardi Jawi before progressing any further with the relationship. Bardi Jawi highly likely to object if protocol not addressed. Concerns with Shells response to the Resourcing protocol, in particular the following: references to Native title removed, reference to engaging in good faith has been removed, removed FPIC, removed clause around cultural sensitivities. • Walalakoo and Mayala stated they are likely to develop Protocols based on Bardi Jawi Protocol. Frank discussion around Shell won't be able to accept all the requirements in the protocol and will address this and need to give a response back to Bardi Jawi • Importance of having a Social Impact Assessment as they have had with Woodside as part of NW Shelf agreement and Walalakoo will send this through • The Importance of investing in the younger generations was emphasised by Walalakoo • The groups stated that this is a preliminary discussion, and that further consultation is to be had with other members in the group. Further meetings will likely be in Derby and One Arm Point • The groups emphasized their limited capacity as PBCs and lack of ability to attend all the meetings with all of Industry. Shell noted this concern.	Other feedback included interest in investigating a local spill response capacity, for quicker initial response, and a resourcing protocol., Table 9-69Table 9 72 of the EP demonstrates that response timeframes for spills are adequate to ensure the risks to areas of heritage significance are ALARP. Shell has assessed the resourcing protocol as not a relevant matter on the basis that it does not relate to MIACs functions, interests or activities that may be affected by the activities. Although one aspect of it relates to funding for consultation, Shell considers that this aspect has been covered separately by covering reasonable costs for the engagements to date. Nevertheless, Shell has committed to work towards getting an updated resource protocol in place with Mayala to support ongoing consultation (Section 5.8) and to participate in industry collaboration on training of indigenous peoples in spill preparedness (Table 5 13). All other issues raised were considered to not be relevant matters. Shell's response to the feedback received is set out here.	

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				• Meeting concluded with expressed good will and some confidence from TOs that Shell was genuinely committed to doing things differently. • Commitment from Shell to ongoing relationship and responding in particular to resourcing protocol, further meetings on country (i.e., not in Broome) as advised/ directed by the PBCs, and to working together for progress on Indigenous procurement, employment and community programming. **Email on 23 August 2023** Thank you for the meeting last week while we were in Broome. We really appreciated the opportunity to hear directly from you and begin a closer relationship. We look forward to meeting you face to face soon. We are keen to follow through on the issues discussed and would appreciate your guidance on this. Meet on country. We heard that meetings would work better for you if they were closer to country. This also makes it possible for a wider group of elders and senior people to be present at the next meeting to hear about Shell's work and the Crux project, which is important. We are very happy to arrange for Shell staff to come to the best location that works for you. We can spend a day or more in meetings, with men and women separately or in whatever combination is appropriate. We need your guidance on this. If you can let us know when and where we should plan for the next meeting and give a rough indication of what groups you think are the right ones to be there, we can start planning. Resourcing protocol From Shell's side, we understood that you are looking to get a resourcing protocol in place, one that works for both Shell and Mayala, so that Traditional Owners are not financially disadvantaged. Shell has a standard resourcing protocol that it uses with Traditional Owner groups, that ensures compensation for time, travel, expert advice, and other costs. We'd be happy to discuss this, and reach an agreement, so that future meetings can take place without having to worry about the financial side. Let us know and we'll get this in motion. Should any consultation be required prior to establishing the resourcing protocol we are open to covering meeting costs as per the recent meeting. We look forward to further discussions with you and consultation on: 1. Seeking to understanding cultural values and features which could be impacted by our activities; and 2. Ensuring adequate controls are in place to minimise impacts and risks to these identified cultural features and values. 3. Other relevant topics of interest to you. Please get back to me when it is convenient, when and where next meetings should take place. **Email on 23 August 2023** Thanks for the meeting last week. We've now following up on the issues raised. We've written to each group about the logistics of next		

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				meetings - where to meet, who should be there, sorting out costs and so on. We look forward to seeing you again, **Email on 17 October 2023** It was good meeting back in August (albeit by phone!) and hope you and the mob are doing well. In the meeting we had in Broome, we talked about the four different Environmental Plans and how you, as Relevant Persons (under the NOPSEMA guidelines), need to be consulted, and have an opportunity to provide input into the Plans. Specifically, this input helps inform. • our understanding of the existing environment which may be affected by Shell's proposed activities, including the cultural features of that environment. • how our activities might impact the existing environment (including its cultural features); and • how controls and mitigation measures may be adopted to protect what is important to you. The four Environmental plans cover off on the four key stages to the Crux Project development (see the map below): 5. The Drilling template – installing the drilling 'jig' or structure on the seabed. 6. The Seabed survey – checking the route on the seabed floor between Crux and Prelude to make sure it is safe and clear. 7. Development Drilling – drilling the wells. 8. Installation and Cold Commissioning – installing the rest of the Platform, the pipelines and testing it all. We haven't heard back from you as yet so are just checking in to see how these are going, as well as update you on Shell timeframes. At this point, Shell is planning to commence submitting the Environmental Plans to NOPSEMA in the next weeks, in order to meet internal deadlines. So, if there is other information you can provide, or comment you want to make, please let us know as soon as possible, and definitely before Friday 27th October. After this time, consultation for the purposes of preparing the Environmental plans will be considered closed. Relationships beyond Environmental Plans are important to us. We are open to meeting for other areas outside of these Environmental Plans, including keeping you updated as the project progresses, future Environmental Plans required for this project, learning more about your country and culture, and to keep the relationship strong. Hope to hear from you – I'll follow this up with a phone call later in the week.		
45.	**Mowanjum Aboriginal Art & Culture Centre**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have

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						been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
46.	**Nagula Jarndu Women's Arts and Resource Centre**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.

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47.	**Ngarrawanji Aboriginal Corporation** *(Tier 2)*	31 March 2023 *(initial email) refer to Table* **Email to Shell** 07 April 2023 17 April 2023 **Email from Shell** 14 April 2023 17 April 2023 18 May 2023 31 May 2023 **In person at Indigenous Forum** 19 April 2023	[redacted]	**Email on 14 April 2023** Confirmation on attendance and providing details for InTravel for travel and accommodation. **Email on 14 April 2023** Confirming point of travel to Perth. **Email on 17 April 2023** Confirming event to be held at RAC Arena. **Email on 18 May 2023** Close out email sent which covered the following: • Thanked relevant person for their attendance at the event. • Recapped on what Shell is consulting on and the obligation to consult under the regulations. • Notified of the management of feedback if any details should be considered sensitive information. • Reconfirmed contact details. **Email on 31 May 2023** Sharing links and details from Forum 1 (including film links).	**Assessment** No objections or claims have been received about activity impacts or risks.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted. Consultation in preparation of this EP has been carried out in accordance with the Shell methodology. Refer to Table 5-11 for further information.
48.	**Northern Australian Indigenous Land and Sea Management Alliance**	03 April 2023 *(initial email)* **Email from Shell** 26 April 2023 19 May 2023 25 May 2023 26 May 2023	No response	**Email on 26 May 2023** Close out email wrapping up the consultation: • Sharing the videos from Forum 1. • Reminder of the environment panel available. • Recap on what Shell is consulting on and the obligation to consult under the regulations. • Reconfirming contact details	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the

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						OPPGS (E) Regulations.
49.	**Nyamba Buru Yawuru Aboriginal Corporation (include Rubibi Community)** *(Tier 2)*	31 March 2023 *(Initial email) refer to Table* **Email to Shell** 01 May 2023 05 May 2023 10 May 2023 15 May 2023 16 May 2023 25 August 2023 **Email from Shell** 26 April 2023 01 May 2023-via KLC 03 May 202 08 May 2023 10 May 2023 15 May 2023 26 May 2023 10 July 2023 20 July 2023 **Phone call** 05 May 2023 **In person** 18 May 2023	[redacted]	**Email on 08 May 2023** We would prioritise a chance to meet with the PBC board on 18 May 2023. I understand that Scott will likely attend the Forum and will be able to provide you feedback – I'm happy to wait until you've had a chance to discuss with Scott his attendance and understanding of the project. We can also organise to pull a package together of the relevant materials (such as facts sheets, maps etc) that may assist the Board in understanding the project. I also draw you attention to the offer in our recent invitation that Shell has made available an Independent Environmental Panel to provide advice to Indigenous groups. If you would like to access this, please let us know. As a PBC Shell understands that you have legislated requirements of the duties you need to perform, and so in consideration of this Shell would be happy to discuss and explore opportunities to support the Yawuru PBC in assisting and advising on the consultation for the Crux project. We also understand the importance of PBCs working through the implications of the Santos case, and as you noted, this has created additional work for PBCs and the communities they represent. **In person on 18 May** Gave an overview of technology and activity for the EP. The wells will be approximately 3 kms. Provided overview on how Planning Area maps are generated, area a function of various factors i.e., different fuels etc, that they represent the total potential area that could be impacted instead of the area that would be impacted. Explained that Crux is essentially about extended current operations on Prelude, but there would be some activity during the construction phase that would be based in Broome. Undertook to keep them informed regarding business / local content opportunities, but also see if we could identify any materials that provide a broader industry view of the forward-looking economic opportunity. Acknowledged the feedback and undertook to follow-up to discuss future social investment opportunities, particularly in training and employment. **Email on 26 May 2023** Close out email wrapping up the consultation: • Sharing the videos from Forum 1. • Reminder of the environment panel available. • Recap on what Shell is consulting on and the obligation to consult under the regulations. • Reconfirming contact details. **Email on 10 July 2023** Close out email sent which covered the following: • Thanked relevant person for the feedback. • Recapped on what Shell are consulting on and the obligation to consult under the regulations.	**Assessment** No material objections or claims have been received about activity impacts or risks. **Relevant /Non-Relevant Matters** Raised a relevant matter regarding preferred engagement process to ensure culturally appropriate consultation. NBY declined the initial on country meeting offer. Also requested additional information. Shell provided further information as requested on the proposed activity. Shell also provided information on Shell's Social Investment programs and committed to ongoing engagement about partnership opportunities. All other matters raised are considered to not be relevant matters. Shell has provided a reasonable period in which to receive feedback which is consistent with the intended outcome of consultation.	Shell adjusted its engagement process, accordingly, including facilitating on-country meetings wherever requested/practicable (Section 5.6.5). Consultation in preparation of this EP has been carried out in accordance with the Shell methodology. Refer to Table 5-11 for further information.

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				• Notified of the management of feedback if any details should be considered sensitive information. • Reconfirmed contact details. **Email on 20 July 2023** It was good to meet you and the Yawuru board back in May. We want to give you a brief update on where Shell is with the submission of the four Crux Environmental Plans, and what happens next. The first two EPs – the Seabed survey and the Drilling template (both of which have very limited potential impact areas, well offshore) will be submitted to NOPSEMA by the end of this week. The Drilling Development EP will be submitted next week, and the Cold Commissioning EP later in the year, in November. We are grateful for the meetings we have had with Yawuru and other PBCs and TO groups, during the consultation period. One of the repeated comments we heard loud and clear over the course of these meetings, is the importance of ongoing relationships -that Aboriginal groups are looking for long term relationships with industry operators, where they can partner to share knowledge, resources, and skills, provide consultancy on critical cultural heritage matters, and collaborate in providing opportunities. I think this was something you particularly noted – for Yawuru, it is less about this particular project and more about building a long-term relationship. So- Shell is keen to build the relationship. We'd like to return to Broome in the next few months and meet again to provide an update on the Crux project, hear any concerns from Yawuru and respond to issues that may have arisen. And to discuss future partnership opportunities. Shell invests and works with communities close to its operations and we look forward to conversations with you about opportunities and priorities for your people. At this stage, we are looking at being in Broome in September/ October of this year. If this is an opportunity you'd like to take up, please let us know so we can work on schedules and timing. Please stay in touch also with any other issues relating to the Crux project.		
50.	**Nyikina Mangala Rangers**	31 March 2023 *(Initial email) refer to Table* **Email from Shell** 12 April 2023 26 April 2023 19 May 2023 25 May 2023 26 May 2023	No response	**Email on 26 May 2023** Close out email wrapping up the consultation: • Sharing the videos from Forum 1. • Reminder of the environment panel available. • Recap on what Shell is consulting on and the obligation to consult under the regulations. • Reconfirming contact details.	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the

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						implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation during preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
51.	**Nyul Nyul PBC Aboriginal Corporation** *(Tier 2)*	Also consulted via KLC 38. **Email to Shell** 26 October 2023 **Email from Shell** 17 October 2023 27 October 2023 07 November 2023	[redacted]	**Email on 17 October 2023 (via KLC 38)** Further to our earlier correspondence, Shell has previously identified you as a relevant person for purposes of one or more of the Environment Plans (EPs) listed below. Shell is planning to extend its offshore gas production operations at the Prelude Floating Liquefied Natural Gas Facility. This extension requires new infrastructure to be installed offshore. This project is called Crux. At its closest point, Crux is about 175km off the coast of the Kimberley. When built, it will supply gas to Shell's existing gas operations, at Prelude, which is also offshore. There are no onshore activities. Over the past six months, Shell has tried to talk to as many Traditional Owners, RNTBC's and PBC's as well as businesses and Aboriginal Corporations, which are relevant persons for our Crux activities. We have emailed and called you to allow for an opportunity to discuss and provide information on matters that are important to you and how we could protect them. The purpose of this consultation is to give you an opportunity to provide input into: • our understanding of the existing environment which may be affected by Shell's proposed activities, including the cultural features of that environment. • how our activities might impact the existing environment (including its cultural features); and • how controls and mitigation measures may be adopted to protect what is important to you. This information will be documented in activity specific EPs, which will be submitted to Australia's offshore energy regulator, NOPSEMA, for assessment and following acceptance, published online. However, you may request that information you provide not be published. The purpose of this consultation is further detailed in the NOPSEMA Consultation on Offshore Petroleum Environment Plans Brochure. Information about the project has been provided previously and is available on our website: www.shell.com.au/crux. Factsheets describing each of the activities that we have been consulting on are available below and outline the associated environmental risks and impacts: • the Crux Seabed Survey Factsheet • the Crux Drilling Template Installation Factsheet • the Crux Development Drilling Factsheet and • the Crux Installation and Cold Commissioning Factsheet.	**Assessment** No objection or claims were raised during the consultation. **Relevant Matters/Not Relevant Matters** The request for a sitting fee to attend a workshop organised by Shell is deemed to be a relevant matter. However, given the PBC has indicated they do not have availability this calendar year and therefore would not be able to provide input prior to EP resubmission, Shell does not believe it is practicable to implement for this EP.	Shell has provided sufficient information, made reasonable efforts to elicit feedback and provided a reasonable period to assess information, seek input from the communal group and provide feedback. Therefore, consultation in preparation of this EP has been carried out in accordance with the Shell methodology. Refer to Table 5-11 for further information.

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				Full, draft Environment Plans, are also available on the Shell website.. We want to offer you a final opportunity to consult on the relevant EPs before we resubmit them to NOPSEMA. If you wish to provide feedback on the Crux EPs, Shell requests that you please do so by no later than Thursday 26 October. After that date, Shell will close consultation in preparation for the resubmission of the EPs. Please call our Community Hotline on 1800 059 152 if you wish to discuss further. **Email on 27 October 2023** Thank you for your email of 26 October regarding the Crux project. We understand that the board is unable to meet until sometime in 2024 and we would welcome the opportunity to meet at a time that suits the board to discuss matters such as partnerships, employment, and social and economic investments. In terms of the environmental plans, Shell is required to consult with all relevant persons about its activities under the Crux EPs, and to provide them with sufficient information and a reasonable time to consult with Shell on matters that are relevant to the Crux EPs. Specifically, this consultation helps inform: • our understanding of the existing environment which may be affected by Shell's proposed activities, including the cultural features of that environment. • how our activities might impact the existing environment (including its cultural features); and • the development of appropriate controls and mitigation measures to reduce impacts to as low as reasonably practicable and an acceptable level. Shell considers Nyul Nyul RNTBC is a relevant person for the Crux EPs. We provided Nyul Nyul RNTBC with information about Shell's planned activities in April 2023, to allow Nyul Nyul RNTBC and the people it represents to assess how they may be affected by Shell's activities under the Crux EPs. Since then, we have followed up through multiple avenues (including phone calls in May and emails). We note your email yesterday that advised us that the Nyul Nyul PBC board will not be in a position to engage with Shell until 2024. As we advised KLC on 17 October 2023, the consultation period for the Crux EPs is closing today, Friday, 27 October 2023 to allow final preparation and submission to NOPSEMA. We want to stress that this consultation requirement, specifically for supporting preparation of the Crux EP noted above, is separate to Shell's interest in, and commitment to engagement with, TO groups on wider matters such as partnerships, employment, and social and economic investments. So, while the consultation period for the Crux EPs is closing to allow final preparation and submission to NOPSEMA), this has no bearing on Shell's wish for a stronger and ongoing relationship with Nyul Nyul RNTBC. We would be pleased to meet on an ongoing basis with the Board and discuss issues of common interest (including matters relating to Shell's activities), social investment opportunities, future environment plan Shell has in preparation or is soon to start preparation of and so forth, at a time and place that works for the Board. We also want to assure you that Shell has processes and procedures in place to address any new matters Nyul Nyul RNTBC		

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				raises in connection with Shell's activities as and when new information comes to light. **Email on 7 November 2023** Thank you for your email of 26 October regarding the Crux project. We understand that the board is unable to meet until sometime in 2024 and we would welcome the opportunity to meet at a time that suits the board to discuss matters such as partnerships, employment, and social and economic investments. In terms of the environmental plans, Shell is required to consult with all relevant persons about its activities under the Crux EPs, and to provide them with sufficient information and a reasonable time to consult with Shell on matters that are relevant to the Crux EPs. Specifically, this consultation helps inform: • our understanding of the existing environment which may be affected by Shell's proposed activities, including the cultural features of that environment. • how our activities might impact the existing environment (including its cultural features); and • the development of appropriate controls and mitigation measures to reduce impacts to as low as reasonably practicable and an acceptable level. Shell considers Nyul Nyul RNTBC is a relevant person for the Crux EPs. We provided Nyul Nyul RNTBC with information about Shell's planned activities in April 2023, to allow Nyul Nyul RNTBC and the people it represents to assess how they may be affected by Shell's activities under the Crux EPs. Since then, we have followed up through multiple avenues (including phone calls in May and emails). We note your email yesterday that advised us that the Nyul Nyul PBC board will not be in a position to engage with Shell until 2024. As we advised KLC on 17 October 2023, the consultation period for the Crux EPs is closing today, Friday, 27 October 2023 to allow final preparation and submission to NOPSEMA. We want to stress that this consultation requirement, specifically for supporting preparation of the Crux EP noted above, is separate to Shell's interest in, and commitment to engagement with, TO groups on wider matters such as partnerships, employment, and social and economic investments. So, while the consultation period for the Crux EPs is closing to allow final preparation and submission to NOPSEMA), this has no bearing on Shell's wish for a stronger and ongoing relationship with Nyul Nyul RNTBC. We would be pleased to meet on an ongoing basis with the Board and discuss issues of common interest (including matters relating to Shell's activities), social investment opportunities, future environment plan Shell has in preparation or is soon to start preparation of and so forth, at a time and place that works for the Board. We also want to assure you that Shell has processes and procedures in place to address any new matters Nyul Nyul RNTBC raises in connection with Shell's activities as and when new information comes to light.		
52.	**Pudakul Aboriginal Cultural Tours**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no

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						response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
53.	**Specialised Indigenous Services**	31 March 2023 *(Initial email)* **Email from Shell** 12 April 2023 26 April 2023 26 May 2023	No response	**Email on 26 May 2023** Close out email wrapping up the consultation: • Sharing the videos from Forum 1. • Reminder of the environment panel available. • Recap on what Shell is consulting on and the obligation to consult under the regulations. • Reconfirming contact details.	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the

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						OPPGS (E) Regulations.
54.	**Walalakoo Aboriginal Corporation (WAC)** *(Tier 2)*	Also consulted via 38 KLC **Email to Shell** 27 June 2023 28 June 2023 10 July 2023 17 July 2023 20 July 2023 25 July 2023 02 August 2023 03 August 2023 04 August 2023 08 August 2023 09 August 2023 17 October 2023 **Email from Shell** 31 March 2023 12 April 2023 26 April 2023 08 May 2023 19 May 2023 25 May 2023 26 May 2023 28 June 2023 30 June 2023 10 July 2023 17 July 2023 20 July 2023 24 July 2023 25 July 2023 01 August 2023 02 August 2023 03 August 2023 04 August 2023 08 August 2023 09 August 2023 10 August 2023 23 August 2023 **Phone call** 27 June 2023 20 October 2023	[redacted] information throughout the consultation process to ensure free, prior and informed decision making.	**Phone call on 27 June 2023** Left a message with the CEO and spoke with the EA on a different number - would pass a message on to the CEO and the board. **Email on 28 June 2023** Thanks for getting back to us. I have phoned a few times and left a message – if there is a better way to get hold of you, please let me know. We would like to work out with you when is a good time to come and speak with the board, and other PBCs or language groups. Can you please let us know when works, and we will get back to you. I think it is the case that Shell can assist with costs of getting people to a consultation, within reason, but we should wait for Shell staff to confirm this – I am a consultant assisting Shell and can't make financial commitments on their behalf. **Email on 30 June 2023** I hope the board meetings have gone well. I am writing to outline a few options with regard to meeting with Shell representatives about the Crux project. There are four Environmental Plans (EPs) that will be submitted to NOPSEMA as part of the Crux approvals process. The first two deal with relatively small-scale activities (surveying the seabed and installation of a drilling 'guide' template, which sits on the sea floor). These both have small potential impact areas – see attached Fact Sheets, which do not extend to the coast of Australia. The third and fourth EPs deal with the drilling of the gas wells, and the installation of the equipment and testing, and have larger potential impact areas. The Seabed Survey (EP1) and the Drilling Template (EP2) will be submitted to NOPSEMA by late next week. Shell can make personnel available to consult prior to this date – ie, early next week - or alternatively can arrange to meet with Walalakoo and other interested parties, as part of the ongoing consultation process. Either way your feedback, claims or objections will be considered and included in the EPs – if the meeting occurs after next week, this would occur under the 'ongoing consultation process'. **EP** | **Date of submission to NOPSEMA** | **If meeting with relevant persons occurs prior to EP submission date** | **If meeting with relevant persons occurs after submission date** 1 – Seabed survey | 7 July 2023 | Feedback, comments and objections will be included in the EP | Feedback, comments and objections be included as part of ongoing consultation 2 – Drilling template | 7 July 2023 3 – Development drilling | 23 July 2023	**Assessment** No objections or claims received about activity impacts or risks. **Relevant Matters and Not Relevant Matters** The following relevant matters were raised regarding the activity or their functions, interests, or activities: • presence of songlines up the [west Kimberley] coastline and associated cultural heritage sites that are not all registered. • important cultural connections with Country particularly to the Reef and King Sound. • preferred engagement process to ensure culturally appropriate consultation. Shell incorporated this information into its assessment of potential impacts and processes for engagement, as reflected in the EP - see Measures adopted for detail. Other feedback included interest in investigating a local spill response capacity, for quicker initial response, and a resourcing protocol.	Description of heritage values in the EP (eg Section 7.4.2.2.2) updated to incorporate information received and updated information considered in risk assessment (eg Section 9.14.6.3). Section 7.4.2.2.3 notes that a number of the heritage sites in the Planning Area have not been recorded. Consultation included collective engagement with the 3 neighbouring cultural groups and facilitating on-country meetings wherever requested/practicable (Section 5.6.5). Consultation in preparation of this EP has been carried out in accordance with the Shell methodology. Refer to Table 5-11 for further information.

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		In Person 15 August 2023	[redacted]	4 – Installation and commissioning | 27 November 2023 With regard to financial assistance to bring people together, Shell can pay TO's costs associated with consultation. The consultation can take place on-country – eg, Derby, or Broome, or through one-on-one conversations with Shell representatives via email or phone. There would need to be a pre-agreed cap on expenses, and expenses would be paid against itemized tax invoices. **Email on 10 July 2023** Thank you for getting back to us. Would you like Shell to come to you in Derby? And if so, what timing for the meeting works best for you? **Email on 17 July 2023** We will look forward to hearing from you. From Shell's side, there may be 2 or 3 people who are relevant to attend a meeting with Walalakoo (and other neighbouring groups – if they are interested), so, if possible, if you can allow a time to ensure it can be organised from Shell's side. **Email on 20 July 2023** We are looking forward to the opportunity of meeting with you and others from Walalakoo. In the meantime, we want to give you a brief update on where Shell is with the submission of the four Crux Environmental Plans, and what happens next. The first two EPs – the Seabed survey and the Drilling template (both of which have very limited potential impact areas, well offshore) will be submitted to NOPSEMA by the end of this week. The Drilling Development EP will be submitted next week, and the Cold Commissioning EP later in the year, in November. As noted, Shell is open to receiving questions and providing information on all of these, on an ongoing basis. One of the repeated comments we heard loud and clear in meetings with PBCs and Traditional Owner groups, is the importance of ongoing relationships – that Aboriginal groups are looking for long term relationships with industry operators, where they can partner to share knowledge, resources, and skills, provide consultancy on critical cultural heritage matters, and collaborate in providing opportunities. So- Shell is keen to build these relationships. We will return to Broome in the next few months and meet again to provide an update on the Crux project, hear any new concerns and respond to issues that may have arisen. And, to discuss future partnership opportunities. Shell invests and works with communities close to its operations and we look forward to conversations with you about opportunities and priorities for your people. At this stage, we are looking at being in Broome in September/ October of this year (this is separate to any meetings that we have with Walalakoo directly). If this is an opportunity you'd like to take up, please let us know so we can work on schedules and timing.	Table 9-72 of the EP demonstrates that response timeframes for spills are adequate to ensure the risks to areas of heritage significance are ALARP. Shell has assessed the resourcing protocol as not a relevant matter on the basis that it does not relate to WACs functions, interests or activities that may be affected by the activities. Although one aspect of it relates to funding for consultation, Shell considers that this aspect has been covered separately by covering reasonable costs for the engagements to date. Nevertheless, Shell has committed to work towards getting an updated resource protocol in place with WAC to support ongoing consultation (Section 5.8) and to participate in industry collaboration on training of indigenous peoples in spill preparedness (Table). All other issues raised were considered to not be relevant matters. Shell's response to the feedback received is set out here.	

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				Email on 20 July 2023 Thank you and please pass on our thanks also. Shell senior personnel will respond to this I am sure as a matter of priority – I am a consultant working with Shell, so the proper response will come from them. **Email on 24 July 2023** On behalf of Shell, thank you for the email. With regards the consultations requested by yourself, and on behalf of Bardi Jawi Niimidiman and Mayala Inninalang PBCs, Shell staff would be very happy to meet. At this first stage, Shell would like to propose to hold a high-level meeting with yourself and the Chairs of the other PBCs, PBC CEOs, and interested board members. This meeting would help put names to faces, allow different people to start to get to know each other, and Shell can also better outline what Crux is. There are a few reasons for this is. Unlike mining, Crux is an entirely offshore project, and operates under a different set of rules and regulatory bodies, with different requirements as to consent, the place of ILUAs and so on. As you have noted, for example, under NOPSEMA regulations, consultations with relevant persons (groups) is an obligation. And while Shell is obliged to do this consultation, one of messages from different Traditional Owner groups that Shell has heard loud and clear, is that approaching relevant Aboriginal groups simply to 'consult and inform' is not enough; its disrespectful and ignores the Capacity, history, and cultural strength of Indigenous people. Shell is keen to do better by Aboriginal people, and seeks to develop long term, mutually beneficial and supportive relationships with PBCs and Aboriginal Corporations in areas close to its operations. This is already how Shell works with TO groups in Queensland, and Shell wants to start building these relationships here in the West. Following from this first meeting, next steps including future meeting approaches and formats can be agreed, where they are considered necessary (by both yourselves, and from Shell's side). We'd be happy to try to make this meeting happen soon. Meeting costs – venue hire, and travel by Aboriginal representatives, catering and so on, can be covered by Shell (within reason and against receipts as per usual). **Email on 25 July 2023** Thanks very much, we look forward to knowing what dates will work for you and can plan a meeting from there. **Email on 1 August 2023** Just checking in re possible meeting dates – please do let us know when suits. **Email on 02 August 2023** That week looks like it will work, and Broome is a good location. Would the different groups be happy to meet at Nyamba Buru Yawuru? They have good meeting rooms there and it is a place that is really well set up. Would it work to meet on the Tues 15th or Wed 16th? That way people can travel in on the Monday.		

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				I think if we look at meeting from 10-2pm on one of those days, and then allow the afternoon and the following morning for any follow up meetings or conversations. Does that sound ok? Can you please give me an indication of how many people from Bardi Jawi, Walalakoo and Mayala would be attending? In principle Shell is happy to cover costs of travel – we would just need to get some details around number of people etc. I look forward to hearing back from you. **Email on 03 August 2023** I'm just following through on the emails re meeting in a few weeks. Another group are asking for a meeting on 16 August in Port Hedland, so, if possible, if we can confirm the meeting for 15th August in Broome that would be good. If the 15th works, we will try to hold the meetings at Yawuru's conference rooms at Nyamba Buru Yawuru. We'll start at 10, and finish after lunch. Shell will be able to cover travel and other reasonable costs on presentation of an invoice. **Email on 03 August 2023** Thanks very much we are having a discussion this morning and will get back to you as soon as possible. We can confirm 15th August to meet with Walalakoo, Mayala and Bardi and Jawi representatives – thankyou, and we look forward to that. I've made a booking at Nyamba Buru Yawuru, at 55 Reid Rd, Broome, and think we could plan to start about 10am, and go for as long as we need. Shell will put on morning tea and lunch, and as mentioned, will cover travel costs to Broome and back, as well as overnight accommodation for those who need it. Costs will be reimbursed against invoices. It would be helpful if you could prepare a budget for this, and this will help Shell to quickly reimburse costs. I'll confirm with you from Shell's side who is attending early next week. I think from our side, Shell people are really keen to get to know the different groups, to hear some of their story and to start to form ongoing relationships – and of course to fully respond to questions about Crux. Thanks again for your work in getting this organised. **Email on 04 August 2023** I'll see what I can do but it is Race week in Broome so may be quite busy. **Email on 04 August** We are chasing a booking at either Lotteries House or the Mangrove Hotel – I expect one of these will work out. We will let you know asap. Thanks for the heads up. Also, will be in touch mid next week with an agenda for you all to review and add things to if you'd like. Please do send through indicative costs if you can – will help ensure prompt reimbursements. **Email on 08 August 2023** We can confirm that we have booked the Dampier room at the Mangrove Hotel for the meetings next week. I'll send through an agenda today. Meetings time and venue:		

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				9.30am – 2.30pm Tuesday August 15 the Dampier Room, Mangrove Hotel, 47 Carnarvon St, Broome (Ph: 9192 1303) We look forward to seeing you. **Email on 08 August 2023** Please find attached an agenda for Tuesday's meeting next week. We look forward to seeing you at 9.30 at the Dampier Room, at the Mangrove Hotel. Details are on the agenda – it's at 47 Carnarvon Rd, Broome. The agenda is fairly relaxed and the focus from our side is getting to know you all and responding fully to your questions and discussions. I'm linking it all together so please call me with any issues. Morning tea and lunch provided, and we'll see you there. **Email on 09 August 2023** Thank you, these are accepted by Shell and will be reimbursed on invoice, assuming final costs are similar. **Email on 10 August 2023** Please find the updated agenda with the revisions mentioned and also added in morning tea and lunch. I will have printed copies on the day. **Meeting Notes from 15 August 2023** • Walalakoo mentioned at the start that Oil and gas has been bypassing the Traditional Owners in the Kimberley and the Traditional Owners are very concerned about the impacts on their Country. Feeling of anxiousness at the start to meet as there has been no engagement with Traditional Owners in the Kimberley with Oil and Gas Companies • Walalakoo discussed the important cultural connections with Country in particularly to the Reef and King Sound and are directly affected by the oil and gas industry. There is a strong cultural block up in the Dampier Peninsula and the 3 groups of Bardi Jawi, Walalakoo and Mayala are deeply interconnected. • Bardi Jawi - Discussed the historic relationship of Shell and Bardi Jawi and that there has been economic loss to the community and fractured relationships internally due to airport decisions at Djarindjin • Discussion around RAP came up and since we are working towards a RAP. Bardi Jawi mentioned they want to work with us and assist us with working on KPI targets. • Walalakoo discussed job opportunities and asked how many Indigenous people work on Prelude. Discussion around the job opportunities we do offer as well as our Contractors. NETTS program was also mentioned. • Walalakoo also discussed history (dating back some 10 years+) with applying as a vendor with Shell and hasn't had a positive experience previously. Discussion was had around Indigenous Suppliers and supply chain in general. Mentioned processes around local content plans and procedures in place to ensure we consider local content as part of the tendering process currently. Discussion around Oil Spill Impacts were had and the different scenarios. Questions were asked around first responders and where		

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				do they come from. Mentioned responders are in Singapore and Fremantle. 4-8 hours it takes to organize the response. Some concern with how long this would take for them to get to the scene. Interest in developing capacity of local oil spill preventive groups and Shell discussed that we are acting on this as well as a whole Industry approach. • Bardi Jawi mentioned they may be interested in conducting their own oil spill modelling independently of Shell • Bardi Jawi brought up the need for cultural awareness/ cultural competency training that Bardi Jawi can offer. • NOPSEMA have committed to cultural competency training and have been out on the Dampier Peninsula with the Traditional Owners. Part of building genuine relationships. Subtext was that Shell should engage Bardi Jawi to provide similar training. • The Traditional Owner groups have access to independent Environmental panel and can access this at any point if they would like assistance. This is something the groups will do independently. • Bardi Jawi made comment to effect that they did not consider this meeting consultation, but pre-consultation. • Bardi Jawi comments on this process being one-sided, ie; Shell talking about what it is wanting to do; no allowance for what Bardi Jawi wants to do/ offer (in the form of cultural competency training, assistance in helping industry become more sensitized to Indigenous values. • Walalakoo made strong case for engagement with TO groups and RNTBCs being seen as a direct cost, and as essential precursor activity to any proponent development. That involving TO groups later as an afterthought, or simply to meet regulatory requirements was inappropriate. • Shell talked around Shell's commitment to looking at the Social and Cultural Heritage Values and the process Shell took around this. Walalakoo flagged concerns around our assessment of Cultural Heritage sites and only the ones that currently come up as registered as there are some significant song lines up the coastline that go up to Kalamburu. The Walanadi. 3 groups have strong connection to sea country and important to view sea country as all interconnected not just piece by piece as within Shell boundaries. • Concern from Walalakoo around Well integrity and stability • Drilling fluid spills and what is Shell's management plans around that. Majority is non-toxic fluids and cause minimal impacts. • Bardi Jawi strong on Resourcing protocol needing to be addressed with Bardi Jawi before progressing any further with the relationship. Bardi Jawi highly likely to object if protocol not addressed. Concerns with Shells response to the Resourcing protocol, in particular the following: references to Native title removed, reference to engaging in good faith has been removed, removed FPIC, removed clause around cultural sensitivities. • Walalakoo and Mayala stated they are likely to develop Protocols based on Bardi Jawi Protocol. Frank discussion around Shell won't be able to accept all the requirements in the protocol and will address this and need to give a response back to Bard Jawi.		

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				Importance of having a Social Impact Assessment as they have had with Woodside as part of NW Shelf agreement and Walalakoo will send this through. • The Importance of investing in the younger generations was emphasised by Walalakoo • The groups stated that this is a preliminary discussion, and that further consultation is to be had with other members in the group. Further meetings will likely be in Derby and One Arm Point • The groups emphasized their limited capacity as PBCs and lack of ability to attend all the meetings with all of Industry. Shell noted this concern. • Meeting concluded with expressed good will and some confidence from TOs that Shell was genuinely committed to doing things differently. • Commitment from Shell to ongoing relationship and responding in particular to resourcing protocol, further meetings on country (i.e., not in Broome) as advised/ directed by the PBCs, and to working together for progress on Indigenous procurement, employment and community programming. **Email on 23 August 2023** Thank you for the meeting last week in Broome. We really appreciated the opportunity to hear directly from you and begin a closer relationship. We are keen to follow through on the issues discussed and would appreciate your guidance on this. Meet on country. We heard that meetings would work better for you if they were closer to country – so, in Derby, not Broome. This also makes it possible for a wider group of elders and senior people to be present at the next meeting to hear about Shell's work and the Crux project, which is important. We are very happy to arrange for Shell staff to come to Derby or the best location that works for you. We can spend a day or more in meetings, with men and women separately or in whatever combination is appropriate. We need your guidance on this. If you can let us know when and where we should plan for the next meeting and give a rough indication of what groups you think are the right ones to be there, we can start planning. Resourcing protocol From Shell's side, we understood that you are looking to get a resourcing protocol in place, one that works for both Shell and Walalakoo, so that Traditional Owners are not financially disadvantaged. Shell has a standard resourcing protocol that it uses with Traditional Owner groups, that ensures compensation for time, travel, expert advice, and other costs. We'd be happy to discuss this, and reach an agreement, so that future meetings can take place without having to worry about the financial side. Let us know and we'll get this in motion. Should any consultation be required prior to establishing the resourcing protocol we are open to covering meeting costs as per the		

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				recent meeting. We look forward to further discussions with you and consultation on: 4. Seeking to understanding cultural values and features which could be impacted by our activities; and 5. Ensuring adequate controls are in place to minimise impacts and risks to these identified cultural features and values. 6. Other relevant topics of interest to you. Please get back to me when it is convenient, when and where next meetings should take place. **Email on 23 August 2023** Thanks for the meeting last week. We've now following up on the issues raised. We've written to each group about the logistics of next meetings - where to meet, who should be there, sorting out costs and so on. We look forward to seeing you again, **Email on 17 October 2023** It was good meeting back in August and hope you are doing well. In the meeting we had in Broome, we talked about the four different Environmental Plans and how you, as Relevant Persons (under the NOPSEMA guidelines), need to be consulted, and have an opportunity to provide input into the Plans. Specifically, this input helps inform. • our understanding of the existing environment which may be affected by Shell's proposed activities, including the cultural features of that environment. • how our activities might impact the existing environment (including its cultural features); and • how controls and mitigation measures may be adopted to protect what is important to you. The four Environmental plans cover off on the four key stages to the Crux Project development (see the map below): 9. The Drilling template – installing the drilling 'jig' or structure on the seabed. 10. The Seabed survey – checking the route on the seabed floor between Crux and Prelude to make sure it is safe and clear. 11. Development Drilling – drilling the wells. 12. Installation and Cold Commissioning – installing the rest of the Platform, the pipelines and testing it all. We haven't heard back from you as yet so are just checking in to see how these are going, as well as update you on Shell timeframes. At this point, Shell is planning to commence submitting the Environmental Plans to NOPSEMA in the next weeks, in order to meet internal deadlines. So, if there is other information you can provide, or comment you want to make, please let us know as soon as possible, and definitely before Friday 27th October. After this time, consultation for the purposes of preparing the Environmental plans will be considered closed. Relationships beyond Environmental Plans are important to us. We are open to meeting for other areas outside of these Environmental Plans, including keeping you updated as the project progresses,		

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				future Environmental Plans required for this project, learning more about your country and culture, and to keep the relationship strong. Hope to hear from you – I'll follow this up with a phone call later in the week.		
55.	**Wanjina-Wunggurr Aboriginal Corporation (WWAC)** *(Tier 1)*	Consulted via 38 KLC Wanjina-Wunggurr Aboriginal Corporation is the formal RNTBC for the Dambimangari, Uunguu Part A, Uunguu - Area B, Wanjina - Wunggurr Wilinggin Native Title claim, determined between 2004 and 2012. Day to day management of the Determined area is in the hands of three separate Aboriginal Corporations: 31. Dambimangari Aboriginal Corporation (DAC) 57. Wunambul Gaambera Aboriginal Corporation (WGAC) 125. Wilinggin Aboriginal Corporation (WAC)	No response	Not applicable	No feedback, objections or claims received.	Refer to Table 5-10 for further details demonstrating sufficient information, reasonable efforts and a reasonable period have been provided to carry out consultation in preparation of this EP.
56.	**Warrwa Mawadjala Gadjidgar** *(Tier 2)*	Consulted via 38 KLC	No response	**Phone call on 07 September 2023** No Response. **Phone call on 04 October 2023**	No feedback, objections or claims received.	Shell has provided sufficient information, made reasonable efforts to elicit feedback and provided a reasonable period to

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				No Response **Phone call on 10 October 2023** Discussed EP with Managing Director and committed to follow up with email. **Email on 10 October 2023** Crux is a gas project off the Kimberley coast (see map). It has potential environmental impacts for Traditional Owner groups who have sea country. You can read full details here: www.shell.com.au/crux and I've summarised the project below. Background The Shell Crux project is an extension to Shell's Prelude gas facility. Crux is about 190km offshore north-west Australia and 620km from Broome, WA. As part of the environmental approvals process, Shell is required to consult with persons and organisations who may be affected by its activities. Shell needs to understand the sensitivities and values of the people in the region, so it can plan to manage environmental impacts. I've attached some factsheets on the project, and links to the environmental plans for your information. There are 4 Environmental Plans, and more to come. The first two of these are Environmental Plans 1 and 2, but these only have potential impacts out to sea. On the map, the yellow circle is the extent of any impacts for the EP 1, and the red circle is the extent for EP 2. Environmental Plans 3 and 4 do have potential impacts on the coast line – that is the blue line on the map. The full draft Environmental Plans for the project can be accessed at the following links • Draft Seabed EP • Draft Drilling template EP • Draft Development Drilling EP Please call me if you have questions, comments or concerns, and I can respond or can connect you with people in the Shell Crux project for further information. I'll also give you a call back in a week when you have had a chance to look at the material. We can organise additional information sessions for the Board or Elders, in Derby or elsewhere, if that is helpful. **Phone Call on 13 October 2023** Phoned to follow up – no response.		assess information, seek input from the communal group and provide feedback. Therefore, consultation in preparation of this EP has been carried out in accordance with the Shell methodology. Refer to Table 5-11 for further information.
57.	**Wilinggin Aboriginal Corporation (WAC)** *(Tier 1)*	31 March 2023 *(Initial email) refer to Table* **Email from Shell** 12 April 2023 26 April 2023 19 May 2023 25 May 2023	No response	**Phone call on 19 June 2023** Spoke with the Fire Officer – described in brief the Crux project and why it is potentially significant to the Wilinggin mob. Mentioned that Shell had not had any response from WAC so far and that we considered engagement with them a priority and asked how to get information through to the right people. The fire officer provided contact details and names for the CEO and admin. **Email on 30 August 2023**	No feedback, objections or claims received.	Shell has provided sufficient information and a reasonable period to assess information provided. Consultation has been carried out in preparation of this EP in accordance with the OPGGS(E) Regulations. Refer to

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		19 June 2023 30 August 2023 17 October 2023 **Phone call** 19 June 2023 31 August 2023 -no answer		I am a consultant with Advisian, and I am assisting Shell Australia with the Crux Project, a gas project off the Kimberley coast. This project has potential environmental impacts for Traditional Owner groups who have sea country, and we think you need to know about it. I have emailed before too, but we really want to ensure you are in the loop. Details: Crux project is an extension to Shell's Prelude gas facility, about 190km offshore north-west Australia and 620km off the coast of Broome, WA. As part of environmental approvals, Shell is consulting with persons and organisations who may be affected by its activities on how it plans to manage the environmental impacts. Shell is also consulting in order to better understand the sensitivities and values of people in the regions. In particular, Shell welcomes receiving of additional key information, or feedback on the plans. So far, Shell has held a number of consultations, in Perth, Broome and Darwin, and send out information several times, via email to all the relevant identified groups. However, we know that emails can get lost or overlooked, and so are following up with certain organisations, like Wilinggin. The priority is to make sure all the relevant groups have had the opportunity to hear about Crux and be consulted. I've attached some factsheets on the project, and links to the environmental plans for your information. There are 4 Environmental Plans (at this point), but only two of these have potential impacts coastline impact (Environmental Plans 3 and 4). I've also attached a map showing the modelled full possible extent of environmental impacts associated with these 2 Environmental Plans. The project details can be accessed at: www.shell.com.au/crux And the full draft Environmental Plans for the project can be accessed at: Draft Seabed EP Draft Drilling template EP Draft Development Drilling EP Please call if you have questions, comments, or concerns, and I can respond or can connect you with people in the Shell Crux project for further information. We can also organise additional information sessions on country, or via Teams, if you think that would be useful. **Email on 17 October 2023** Further to our earlier correspondence, Shell has previously identified you as a relevant person for purposes of one or more of the Environment Plans (EPs) listed below. Shell is planning to extend its offshore gas production operations at the Prelude Floating Liquefied Natural Gas Facility. This extension requires new infrastructure to be installed offshore. This project is called Crux. At its closest point, Crux is about 175km off the coast of the Kimberley. When built, it will supply gas to Shell's existing gas operations, at Prelude, which is also offshore. There are no onshore activities.		Table 5-10 for further information supporting this.

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				Over the past six months, Shell has tried to talk to as many Traditional Owners, RNTBC's and PBC's as well as businesses and Aboriginal Corporations, which are relevant persons for our Crux activities. We have emailed and called you to allow for an opportunity to discuss and provide information on matters that are important to you and how we could protect them. The purpose of this consultation is to give you an opportunity to provide input into: • our understanding of the existing environment which may be affected by Shell's proposed activities, including the cultural features of that environment. • how our activities might impact the existing environment (including its cultural features); and • how controls and mitigation measures may be adopted to protect what is important to you. This information will be documented in activity specific EPs, which will be submitted to Australia's offshore energy regulator, NOPSEMA, for assessment and following acceptance, published online. However, you may request that information you provide not be published. The purpose of this consultation is further detailed in the NOPSEMA Consultation on Offshore Petroleum Environment Plans Brochure. Information about the project has been provided previously and is available on our website: www.shell.com.au/crux. Factsheets describing each of the activities that we have been consulting on are available below and outline the associated environmental risks and impacts: • the Crux Seabed Survey Factsheet • the Crux Drilling Template Installation Factsheet • the Crux Development Drilling Factsheet and • the Crux Installation and Cold Commissioning Factsheet. Full, draft Environment Plans, are also available on the Shell website.. We want to offer you a final opportunity to consult on the relevant EPs before we resubmit them to NOPSEMA. If you wish to provide feedback on the Crux EPs, Shell requests that you please do so by no later than Thursday 26 October. After that date, Shell will close consultation in preparation for the resubmission of the EPs. Please call our Community Hotline on 1800 059 152 if you wish to discuss further.		
58.	**Individual Indigenous person-self identified.**	27 April 2023 *(Initial email via Joombarn-Buru Aboriginal Corporation RP 35)* **Email to Shell** 28 April 2023 09 May 2023 14 May 2023 17 May 2023 22 June 2023	[redacted]	**Email on 28 April 2023** Acknowledged message and affirmed Shell's commitment to understanding impacts of proposed activities so they can be managed to ALARP. Requested opportunity to consult further through phone call or in-person meeting at whatever time or place would be convenient. Encouraged representatives to attend Traditional Owner Forum in Broome on 10 May. Provided further details on format and agenda for the forum and invited feedback on how they would prefer to be consulted. **Email on 02 May 2023** Provided information on Shell's consultation and communications with First Nations relevant persons.	Raised objection/claim that the activities could affect indigenous people's law, culture and ceremonies/men's ceremonies which come from the ocean and reefs north of King Sound and Blue [Brue] Reef, an area that was traditionally fished and hunted. Blue Reef has strong cultural significance.	Consultation included RTNBCs from north of King Sound and facilitating on-country meetings wherever requested/practicable (Section 5.6.5). The description of cultural heritage values in the EP (eg section 7.4.2.3.1) has been updated with the information provided regarding Blue [Brue]

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		08 August 2023 **Email from Shell** 28 April 2023 02 May 2023 12 May 2023 17 May 2023 22 June 2023 26 June 2023 10 July 2023	[redacted]	Reiterated Shell's commitment to consultation. Provided details and information of the efforts Shell has been making to identify relevant persons and alternative means to contact as many individuals as possible, such as direct telephone numbers, Provided information on Traditional Owner Forums Shell hosted in Perth and information about upcoming forum in Broome. Encouraged representation to attend forum. Reiterated offer of meeting at whatever time and place would be convenient. Provided information on alternative communications channels and tools available to provide feedback or ask questions. Requested support in sharing information about the consultation process with their community members. **Email on 12 May 2023** Provided information on Shell's consultation and communications with First Nations relevant persons. Reiterated Shell's commitment to consultation. Provided details and information of the efforts Shell has been making to identify relevant persons and alternative means to contact as many individuals as possible, such as direct telephone numbers, Provided information on Traditional Owner Forums Shell hosted in Perth and information about upcoming forum in Broome. Encouraged representation to attend forum. Reiterated offer of meeting at whatever time and place would be convenient. Provided information on alternative communications channels and tools available to provide feedback or ask questions. Requested support in sharing information about the consultation process with their community members. **Email on 17 May 2023** Acknowledged individuals do not represent other PBCs. Provided information on Shell's consultation and communications with First Nations relevant persons. Reiterated Shell's commitment to consultation. Provided details and information of the efforts Shell has been making to identify relevant persons and alternative means to contact as many individuals as possible, such as direct telephone numbers, Provided information on Traditional Owner Forums Shell hosted in Perth and information about upcoming forum in Broome. Encouraged representation to attend forum. Reiterated offer of meeting at whatever time and place would be convenient. Provided information on alternative communications channels and tools available to provide feedback or ask questions. Requested support in sharing information about the consultation process with their community members. **Email on 17 May 2023** Follow up on request for feedback, and reiterated offer of meeting at whatever time and place would be convenient. **Email on 22 June 2023** Follow up on request for feedback, and reiterated offer of meeting at whatever time and place would be convenient. **Email on 26 June 2023**	Objection/claim is deemed to have merit as it relates to potential impacts on indigenous cultural features/values. The EP has been updated accordingly - see Measures adopted for detail. **Relevant Matters and Not Relevant Matters** Raised a relevant matter regarding preferred engagement process to ensure culturally appropriate consultation. Shell adjusted its engagement process accordingly.	Reef and this information considered in the assessment of risks (eg Section 9.14.6.3).

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				Thanks also for passing on the email. I'm just checking in to see if the Walalakoo Board had made a decision to have Shell Crux team address the Board or attend or otherwise provide information? Shell can send through to the Walalakoo Board copies of the factsheets, and Environmental Plans for Crux, and other material, and can do this immediately. As the consultation period for the Drilling template, Seabed survey and development drilling Environmental Plans is now closing, can let us know by the end of this week, so we can respond in time? **Email on 10 July 2023** Close out email sent which covered the following: • Thanked relevant person for the feedback. • Recapped on what Shell is consulting on and the obligation to consult under the regulations. • Notified of the management of feedback if any details should be considered sensitive information. • Reconfirmed contact details.		
59.	**Yamatji Marlpa Aboriginal Corporation (YMAC)** *(Tier 2)*	31 March 2023 *(initial email)* **Email to Shell** 18 May 2023 22 July 2023 **Email from Shell** 12 April 2023 26 April 2023 08 May 2023 18 May 2023 26 May 2023 10 July 2023 24 July 2023 27 July 2023 01 August 2023 **Phone call** 18 May 2023	[redacted]	**Email on 18 May 2023** Thanks for the call and the conversation. So, to follow up – I'm working with Advisian, and we are assisting Shell with the Crux consultations. Crux is a gas project, located 190km off the Kimberley coast which will provide future supply for Shell's existing Prelude Floating Liquid Natural Gas (FLNG) facility. Shell has been consulting with relevant persons, as per NOPSEMA guidance, to provide information about eh project and to solicit feedback and concerns, and to respond to these. So far there has been a forum in Perth (April 19), one in Broome (May 10), and there will be another in Darwin (probably June 1). There is also a number of meetings directly with PBCs, Land Councils and NTRBs. Detailed information about the project is available on the Shell website - http://www.shell.com.au/crux Attached also are factsheets for each of the four Environment Plans that Shell will submit in due course to NOPSEMA. Links to the Draft Environmental Plans are here: Draft EPs for Shell Crux Project (these are quite large files). Shell is continuing to consult with regard to the Crux Project and would be pleased to either meet directly with YMAC, to discuss the project and how it may concern PBCs or RNTBCs whom YMAC represents. If that option doesn't work, we are happy to coordinate an alternative to meet and discuss the project and the Environmental plans. Please let us know if you would like any additional information on any of the content once you've had a chance to review, and if you can pass this email and the content on to the relevant persons in YMAC, that would be appreciated. **Email on 26 May 2023** Close out email wrapping up the consultation: • Sharing the videos from Forum 1.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant Matters and Not Relevant Matters** Raised a relevant matter regarding preferred engagement process for future consultation. Shell agreed to adjust any future engagement process accordingly. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted. Consultation in preparation of this EP has been carried out in accordance with the Shell methodology. Refer to Table 5-11 for further information.

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
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				• Reminder of the environment panel available. • Recap on what Shell is consulting on and the obligation to consult under the regulations. • Reconfirming contact details. **Email on 10 July 2023** Close out email sent which covered the following: • Thanked relevant person for the feedback. • Recapped on what Shell is consulting on and the obligation to consult under the regulations. • Notified of the management of feedback, if any details should be considered sensitive information. • Reconfirmed contact details. **Email on 24 July 2023** Thank you for your email regarding the Shell Crux consultations, and the YMAC Draft Consultation Framework. I have passed your email through to my colleagues at Shell - I am a consultant working for Advisian, and consulting on the Shell Crux project. I've had a read of the Draft Framework and appreciate the emphasis it places on relationship building first – this is a great step. I expect to have a conversation with Shell senior staff soon, where we will discuss your email and get back to you as soon as possible. **Email on 27 July 2023** Again, thank you for your email of 22/7/23. Shell would be pleased to meet with the NTGAC Board of Directors, as per the first step in the Draft Consultation Framework you provided. This meeting would help put names to faces, allow people to start to get to know each other, and Shell can also provide high level information about what Crux is, and is not. As your consultation notes state, relationship building is critical for PBCs and First Nations People, and this is a message Shell has likewise heard loud and clear, over the Crux Consultations to date. Shell understands that approaching relevant Aboriginal groups simply to 'consult and inform' is not enough; its disrespectful and ignores the capacity, history and cultural strength of Indigenous people. Shell is keen to do better by Aboriginal people, and seeks to develop long term, mutually beneficial and supportive relationships with PBCs and Aboriginal Corporations in areas close to its operations. This is already how Shell works with TO groups in Queensland, and Shell wants to continue in the right way, strengthening these relationships here in the West. Following from this first meeting, next steps including future meetings and provision Of additional information can be agreed, where they are considered necessary (by both yourselves, and from Shell's side)		

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				Can you please indicate where this meeting is proposed to take place – i.e., at YMACs offices in Perth, or elsewhere, and also the timeframe in which the meeting should happen. I'm very happy to talk in person to clarify any details. Cc'd in are my two colleagues at Shell who may be part of any consultation going forward, **Email on 01 August 2023** Thank you for the email and notification about potential dates. An initial meeting with YMAC representatives sounds like a good idea – please do send through some dates. With regard to meeting with the NTGAC board - November is quite some time off. If there is any potential to meet earlier, I think that would be beneficial. The Crux Project consultation process is now well advanced, and several of the Environmental Plans have already been submitted. If there is likely to be comments or concerns from NTGAC, it would be useful to have those earlier, prior to submission of the remaining Environment Plans I attach again the factsheets pertaining to the four current Crux Environmental Plans, for your information. I look forward to hearing from you.		
60.	**Cheeditha Art Group**	22 April 2023 *(initial email)* 08 May 2023 *(follow up)*	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.

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ID	Name					
61.	**Kimberley Country Indigenous Guided Walks**	22 April 2023 *(initial email)* 08 May 2023 *(follow up)*	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
62.	**Kimberley Cultural Adventures**	22 April 2023 *(initial email)* 08 May 2023 *(follow up)*	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8).

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
						Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
63.	**Mabu Buru Tours**	22 April 2023 *(initial email)* 08 May 2023 *(follow up)*	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
64.	**Narlijia Experiences Broome**	22 April 2023 *(initial email)* 08 May 2023 *(follow up)*	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
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						Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
65.	**Ngurrangga Tours**	22 April 2023 *(initial email)* 08 May 2023 *(follow up)*	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
66.	**WAITOC Aboriginal Tours & Experiences**	22 April 2023 *(initial email)* 08 May 2023 *(follow up)*	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have

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						been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
67.	**Djarindjin Campgrounds**	04 April 2023 *(initial email)* 08 May 2023 *(follow up)*	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.

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ID	Name					
69.	**Kooljaman at Cape Leveque**	04 April 2023 *(initial email)* 08 May 2023 *(follow up)*	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
70.	**Mercedes Cove Exclusive Coastal Retreat**	04 April 2023 *(initial email)* 08 May 2023 *(follow up)*	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8).

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
						Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
71.	**Wangaba Roebourne**	04 April 2023 *(initial email)* 08 May 2023 *(follow up)*	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
72.	**Anindilyakwa Land Council**	31 March 2023 *(initial email)* **Email from Shell** 12 April 2023 26 April 2023 19 May 2023 26 May 2023 16 June 2023 *(online form submission)* **Phone call** 16 June 2023 (*left messages)*	No response	**Email on 26 May 2023** Close out email wrapping up the consultation: • Sharing the videos from Forum 1. • Reminder of the environment panel available. • Recap on what Shell is consulting on and the obligation to consult under the regulations. • Reconfirming contact details. **Email on 16 June 2023** *(online form submission)* I am consulting with Shell on their gas project, Crux. This is a gas drilling project, located 190km off the Kimberley coast, and the aim is to provide gas supply for the future. They have 4 environmental management plans, which show how they are going to manage the environmental issues and risks, but we wanted to make sure you	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to

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ID	Name					
				could hear about it directly, and for you to ask any questions. Detailed information about the project is available on the website - http://www.shell.com.au/crux I can also help with questions and send through some fact sheets.		Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
73.	**Ardi'ol Art & Culture**	31 March 2023 *(initial email) refer to Table* **Email from Shell** 03 April 2023 12 April 2023 26 April 2023 08 May 2023 26 May 2023	No response	**Email on 26 May 2023** Close out email wrapping up the consultation: • Sharing the videos from Forum 1. • Reminder of the environment panel available. • Recap on what Shell is consulting on and the obligation to consult under the regulations. • Reconfirming contact details.	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
74.	**Arnhem Land Aboriginal Land Trust**	Consulted via 114 NLC	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have

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						been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
75.	**Ashburton Aboriginal Corporation**	31 March 2023 *(Initial email)* **Email from Shell** 12 April 2023 26 April 2023 26 May 2023	No response	**Email on 26 May 2023** Close out email wrapping up the consultation: • Sharing the videos from Forum 1. • Reminder of the environment panel available. • Recap on what Shell is consulting on and the obligation to consult under the regulations. • Reconfirming contact details.	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.

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76.	**Bawaka Experience**	31 March 2023 *(initial email)* **Email from Shell** 12 April 2023 26 April 2023 19 May 2023 26 May 2023	No response	**Email on 26 May 2023** Close out email wrapping up the consultation: • Sharing the videos from Forum 1. • Reminder of the environment panel available. • Recap on what Shell is consulting on and the obligation to consult under the regulations. • Reconfirming contact details.	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
77.	**Bidyadanga Aboriginal Community La Grange Inc.**	31 March 2023 *(initial email)* **Email from Shell** 12 April 2023 26 April 2023 26 May 2023 17 October 2023	No response	**Email on 26 May 2023** Close out email wrapping up the consultation: • Sharing the videos from Forum 1. • Reminder of the environment panel available. • Recap on what Shell is consulting on and the obligation to consult under the regulations. • Reconfirming contact details. **Email on 17 October 2023** Further to our earlier correspondence, Shell has previously identified you as a relevant person for purposes of one or more of the Environment Plans (EPs) listed below. Shell is planning to extend its offshore gas production operations at the Prelude Floating Liquefied Natural Gas Facility. This extension requires new infrastructure to be installed offshore. This project is called Crux. At its closest point, Crux is about 175km off the coast of the Kimberley. When built, it will supply gas to Shell's existing gas operations, at Prelude, which is also offshore. There are no onshore activities.	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8).

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ID	Name					
				[redacted] Over the past six months, Shell has tried to talk to as many Traditional Owners, RNTBC's and PBC's as well as businesses and Aboriginal Corporations, which are relevant persons for our Crux activities. We have emailed and called you to allow for an opportunity to discuss and provide information on matters that are important to you and how we could protect them. The purpose of this consultation is to give you an opportunity to provide input into: • our understanding of the existing environment which may be affected by Shell's proposed activities, including the cultural features of that environment. • how our activities might impact the existing environment (including its cultural features); and • how controls and mitigation measures may be adopted to protect what is important to you. This information will be documented in activity specific EPs, which will be submitted to Australia's offshore energy regulator, NOPSEMA, for assessment and following acceptance, published online. However, you may request that information you provide not be published. The purpose of this consultation is further detailed in the NOPSEMA Consultation on Offshore Petroleum Environment Plans Brochure. Information about the project has been provided previously and is available on our website: www.shell.com.au/crux. Factsheets describing each of the activities that we have been consulting on are available below and outline the associated environmental risks and impacts: • the Crux Seabed Survey Factsheet • the Crux Drilling Template Installation Factsheet • the Crux Development Drilling Factsheet and • the Crux Installation and Cold Commissioning Factsheet. Full, draft Environment Plans, are also available on the Shell website.. We want to offer you a final opportunity to consult on the relevant EPs before we resubmit them to NOPSEMA. If you wish to provide feedback on the Crux EPs, Shell requests that you please do so by no later than Thursday 26 October. After that date, Shell will close consultation in preparation for the resubmission of the EPs. Please call our Community Hotline on 1800 059 152 if you wish to discuss further.		Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.

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ID	Name					
78.	**Bulgul Land and Sea (Management) Rangers**	Consulted via 114 NLC	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
79.	**Crocodile Islands Rangers / Maringa Ocean Patrol**	31 March 2023 *(initial email) refer to Table* **Email from Shell** 05 April 2023 12 April 2023 26 April 2023 08 May 2023 19 May 2023 26 May 2023 17 October 2023	No response	**Email on 26 May 2023** Close out email wrapping up the consultation: • Sharing the videos from Forum 1. • Reminder of the environment panel available. • Recap on what Shell is consulting on and the obligation to consult under the regulations. • Reconfirming contact details. **Email on 17 October 2023** Further to our earlier correspondence, Shell has previously identified you as a relevant person for purposes of one or more of the Environment Plans (EPs) listed below. Shell is planning to extend its offshore gas production operations at the Prelude Floating Liquefied Natural Gas Facility. This extension requires new infrastructure to be installed offshore. This project is called Crux. At its closest point, Crux is about 175km off the coast of the Kimberley. When built, it will supply gas to Shell's existing gas operations, at Prelude, which is also offshore. There are no onshore activities.	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8).

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
				[redacted] Over the past six months, Shell has tried to talk to as many Traditional Owners, RNTBC's and PBC's as well as businesses and Aboriginal Corporations, which are relevant persons for our Crux activities. We have emailed and called you to allow for an opportunity to discuss and provide information on matters that are important to you and how we could protect them. The purpose of this consultation is to give you an opportunity to provide input into: • our understanding of the existing environment which may be affected by Shell's proposed activities, including the cultural features of that environment. • how our activities might impact the existing environment (including its cultural features); and • how controls and mitigation measures may be adopted to protect what is important to you. This information will be documented in activity specific EPs, which will be submitted to Australia's offshore energy regulator, NOPSEMA, for assessment and following acceptance, published online. However, you may request that information you provide not be published. The purpose of this consultation is further detailed in the NOPSEMA Consultation on Offshore Petroleum Environment Plans Brochure. Information about the project has been provided previously and is available on our website: www.shell.com.au/crux. Factsheets describing each of the activities that we have been consulting on are available below and outline the associated environmental risks and impacts: • the Crux Seabed Survey Factsheet • the Crux Drilling Template Installation Factsheet • the Crux Development Drilling Factsheet and • the Crux Installation and Cold Commissioning Factsheet. Full, draft Environment Plans, are also available on the Shell website.. We want to offer you a final opportunity to consult on the relevant EPs before we resubmit them to NOPSEMA. If you wish to provide feedback on the Crux EPs, Shell requests that you please do so by no later than Thursday 26 October. After that date, Shell will close consultation in preparation for the resubmission of the EPs. Please call our Community Hotline on 1800 059 152 if you wish to discuss further.		Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
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80.	**Croker Island**	Initially provided information via 114 NLC **Email from Shell** 19 June 2023 17 October 2023 **Phone call** 19 June 2023 (*left message)*	No response	**Email on 19 June 2023** *(via webform)* I am consulting with Shell on their gas project, Crux. This is a gas drilling project, located 190km off the Kimberley coast, and the aim is to provide gas supply for the future. They have 4 environmental management plans, which show how they are going to manage the environmental issues and risks, but we wanted to make sure you could hear about it directly, and for you to ask any questions. Detailed information about the project is available on the website - http://www.shell.com.au/crux I can also help with questions and send through some fact sheets. **Email on 17 October 2023** Further to our earlier correspondence, Shell has previously identified you as a relevant person for purposes of one or more of the Environment Plans (EPs) listed below. Shell is planning to extend its offshore gas production operations at the Prelude Floating Liquefied Natural Gas Facility. This extension requires new infrastructure to be installed offshore. This project is called Crux. At its closest point, Crux is about 175km off the coast of the Kimberley. When built, it will supply gas to Shell's existing gas operations, at Prelude, which is also offshore. There are no onshore activities. Over the past six months, Shell has tried to talk to as many Traditional Owners, RNTBC's and PBC's as well as businesses and Aboriginal Corporations, which are relevant persons for our Crux activities. We have emailed and called you to allow for an opportunity to discuss and provide information on matters that are important to you and how we could protect them. The purpose of this consultation is to give you an opportunity to provide input into: • our understanding of the existing environment which may be affected by Shell's proposed activities, including the cultural features of that environment. • how our activities might impact the existing environment (including its cultural features); and • how controls and mitigation measures may be adopted to protect what is important to you. This information will be documented in activity specific EPs, which will be submitted to Australia's offshore energy regulator, NOPSEMA, for assessment and following acceptance, published online. However, you may request that information you provide not be published. The purpose of this consultation is further detailed in the NOPSEMA Consultation on Offshore Petroleum Environment Plans Brochure. Information about the project has been provided previously and is available on our website: www.shell.com.au/crux. Factsheets describing each of the activities that we have been consulting on are available below and outline the associated environmental risks and impacts: • the Crux Seabed Survey Factsheet • the Crux Drilling Template Installation Factsheet • the Crux Development Drilling Factsheet and • the Crux Installation and Cold Commissioning Factsheet. Full, draft Environment Plans, are also available on the Shell website.	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
				We want to offer you a final opportunity to consult on the relevant EPs before we resubmit them to NOPSEMA. If you wish to provide feedback on the Crux EPs, Shell requests that you please do so by no later than Thursday 26 October. After that date, Shell will close consultation in preparation for the resubmission of the EPs. Please call our Community Hotline on 1800 059 152 if you wish to discuss further.		
81.	**Dak Djerat Guwe People** *(Tier 2)* (Represented by NLC)	Information initially provided via NLC – see 114. **Email to Shell** 07 Sept 2023 **Email from Shell** 06 Sept 2023 07 Sept 2023 17 October 2023 **Phone call** 06 Sept 2023	[redacted]	**Phone call on 6 September 2023** Phone call to legal representative for Dak Djerat claim. **Email on 6 September 2023** Thanks for the phone call just now. As discussed, if you can pass on the following information to the Dak Djerat representatives, we would be grateful. If they are interested to discuss further, please liaise with me and we can set up an appropriate meeting that works for both parties. Dear Dak Djerat mob, I am a consultant, and I am helping Shell Australia with the Crux Project. This is a gas project off the Kimberley coast. It has potential environmental impacts for Traditional Owner groups who have sea country. The Dak Djerat Guwe claim is in the area that could be affected by the Crux project, if there was a gas or condensate spill, so it potentially affects you. The background The Shell Crux project is an extension to Shell's Prelude gas facility, about 190km offshore north-west Australia and 620km off the coast of Broome, WA. It's around 700km from the Crux project to your country. As part of the environmental approvals process, Shell is consulting with people and groups who may be affected by its activities. Shell also wants to improve its understanding of what matters Aboriginal people in the region – areas that are special or protected. I've attached some factsheets on the project, and below are links to the environmental plans for your information. There are 4 Environmental Plans (at this point), but only two of these have potential impacts coastline impact (Environmental Plans 3 and 4) that comes close to your country. I've also attached a few maps showing the potential extent of that could be affected by the Shell Crux project activities, in the event of hydrocarbon (gas, oil or condensate spills). You can see areas that could be affected, and where the Dak Djerat claim is. The project details can be accessed at: www.shell.com.au/crux And the full draft Environmental Plans for the project can be accessed at: Draft Seabed EP Draft Drilling template EP Draft Development Drilling EP Please call if you have questions, comments, or concerns, and I can respond or can connect you with people in the Shell Crux project for	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant Matters and Not Relevant Matters** No relevant matters raised.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted. Shell has provided sufficient information, made reasonable efforts to elicit feedback and provided a reasonable period to assess information, seek input from the communal group and provide feedback. Therefore, consultation in preparation of this EP has been carried out in accordance with the Shell methodology. Refer to Table 5-11 for further information.

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ID	Name					
				further information. We can also organise additional information or meetings. **Email on 7 September 2023** As noted, if the representatives for Dak Djerat Guwe people want to discuss further, please get in touch. **Email on 17 October 2023** Further to our earlier correspondence, Shell has previously identified you as a relevant person for purposes of one or more of the Environment Plans (EPs) listed below. Shell is planning to extend its offshore gas production operations at the Prelude Floating Liquefied Natural Gas Facility. This extension requires new infrastructure to be installed offshore. This project is called Crux. At its closest point, Crux is about 175km off the coast of the Kimberley. When built, it will supply gas to Shell's existing gas operations, at Prelude, which is also offshore. There are no onshore activities. Over the past six months, Shell has tried to talk to as many Traditional Owners, RNTBC's and PBC's as well as businesses and Aboriginal Corporations, which are relevant persons for our Crux activities. We have emailed and called you to allow for an opportunity to discuss and provide information on matters that are important to you and how we could protect them. The purpose of this consultation is to give you an opportunity to provide input into: • our understanding of the existing environment which may be affected by Shell's proposed activities, including the cultural features of that environment. • how our activities might impact the existing environment (including its cultural features); and • how controls and mitigation measures may be adopted to protect what is important to you. This information will be documented in activity specific EPs, which will be submitted to Australia's offshore energy regulator, NOPSEMA, for assessment and following acceptance, published online. However, you may request that information you provide not be published. The purpose of this consultation is further detailed in the NOPSEMA Consultation on Offshore Petroleum Environment Plans Brochure. Information about the project has been provided previously and is available on our website: www.shell.com.au/crux. Factsheets describing each of the activities that we have been consulting on are available below and outline the associated environmental risks and impacts: • the Crux Seabed Survey Factsheet • the Crux Drilling Template Installation Factsheet • the Crux Development Drilling Factsheet and • the Crux Installation and Cold Commissioning Factsheet. Full, draft Environment Plans, are also available on the Shell website.. We want to offer you a final opportunity to consult on the relevant EPs before we resubmit them to NOPSEMA.		

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				If you wish to provide feedback on the Crux EPs, Shell requests that you please do so by no later than Thursday 26 October. After that date, Shell will close consultation in preparation for the resubmission of the EPs. Please call our Community Hotline on 1800 059 152 if you wish to discuss further.		
82.	**Delissaville/Wagait/Larrakia Aboriginal Land Trust**	Consulted via 114 NLC	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
83.	**Dhimurru Aboriginal Corporation (Yolgnu people representation)**	31 March 2023 *(Initial email)* **Email from Shell** 12 April 2023 26 April 2023 19 May 2023 26 May 2023 16 June 2023 **Phone call** 16 June 2023 22 June 2023	No response	**Phone call on 16 June 2023** Spoke with reception and then sent follow up email. **Email on 16 June 2023** Your admin staff passed on your email – I hope this finds you well. I am a consultant with Advisian, and I am presently assisting Shell Australia with the Crux Project. The Shell Crux project is an extension to Shell's Prelude gas facility, about 190km offshore north-west Australia and 620km off the coast of Broome, WA. As part of the environmental approvals process, Shell is consulting with persons and organisations who may be affected by its activities on how it plans to manage environmental impacts. Shell is also consulting in order to improve its understanding of the sensitivities and values of the regions, and in particular, welcomes receiving of additional key information, or feedback on these. So far, Shell has held a number of consultations, in Perth, Broome and Darwin, and send out information via email to all the relevant identified groups, including Dhimurru. However, we recognise that emails can get lost or overlooked, and so are following up with certain organisations – in	No feedback, objections or claims received.	Shell has provided sufficient information, made reasonable efforts to elicit feedback and provided a reasonable period to assess information, seek input from the communal group and provide feedback. Therefore, consultation in preparation of this EP has been carried out in accordance with the Shell methodology. Refer to Table 5-11 for further information.

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
				particular those with sea country, or active on coastal areas, where the Crux project may have an impact in the unlikely event of a accident or uncontrolled hydrocarbon spill. I've attached some factsheets on the project, and links to the environmental plans for your information. There are in fact 4 Environmental Plans (at this point), but only two of these have potential impacts in the Dhimurru sea country area. I've also attached a map showing the modelled full possible extent of environment al impacts associated with these 2 Environmental Plans, one of which you can see does intersect with Arnhem Land coastline. The project details can be accessed at: www.shell.com.au/crux And the full draft Environmental Plans for the project can be accessed at: Draft Seabed EP Draft Drilling template EP Draft Development Drilling EP It would be great to have a conversation about this – please call me and I can answer high level questions, and connect you with people in the Shell Crux project for further information. We can also organise additional information sessions via Teams or other options, if you think that would be useful. **Phone call on 22 June 2023** Just had a phone call from the Dhimurru Aboriginal Corporation (Yolgnu people representation) at the Gove peninsula, Arnhem Land. They had a number of questions about the maps, the extent of impacts under the different EPs, and the role of consent in the process. I advised her as per previous consultations - EPs 3 and 4 do have potential to impact coastlines, though Dhimurru is right on the very edge of the planning areas, and the Drilling area EP doesn't actually reach the Gove peninsula. Consent is not actually part of the consult process – this applies to all groups, not just TO groups, and that this is not a Shell creation, but rather how offshore operations work. I advised that she talk to the Board, rather than make a unilateral decision herself and let the Board determine if further consultation was required (which she also thought was the right course of action) They asked about if consultation was closing and if there was timeframe – my response was that if the Board wanted direct, immediate follow from Shell, is should be sooner, within a week or so – after that, consultation would continue, but not as part of the Environmental Plan development process. She indicated they would respond quickly. - Conversation was convivial and she indicated she would talk to the Board and revert.		
84.	**Djelk IPA/ Bawinanga (Djelk) Rangers**	31 March 2023 *(initial email)* **Email from Shell** 12 April 2023 26 April 2023 19 May 2023 25 May 2023 26 May 2023 19 June 2023	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP

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						webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
85.	**Garngi Land and Sea Management / Garngi Community Rangers**	Consulted via 114 NLC	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
86.	Gnulli, Gnulli #2 and Gnulli #3 - Yinggarda, Baiyungu and Thalanyji People are represented by the RNTBC Nganhurra Thanardi Garrbu Aboriginal Corporation, Yinggarda Aboriginal Corporation (NTGAC) (RP 111) (See Table 7-19)	See Nganhurra Thanardi Garrbu Aboriginal Corporation, Yinggarda Aboriginal Corporation (NTGAC) (RP 111)	See Nganhurra Thanardi Garrbu Aboriginal Corporation, Yinggarda Aboriginal Corporation (NTGAC) (RP 111)	See Nganhurra Thanardi Garrbu Aboriginal Corporation, Yinggarda Aboriginal Corporation (NTGAC) (RP 111)	See Nganhurra Thanardi Garrbu Aboriginal Corporation, Yinggarda Aboriginal Corporation (NTGAC) (RP 111)	See Nganhurra Thanardi Garrbu Aboriginal Corporation, Yinggarda Aboriginal Corporation (NTGAC) (RP 111)

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ID	Name					
87.	**Goolarabooloo Millibinyarri Indigenous Corporation** *(Tier 2)*	31 March 2023 *(initial email)* **Email from Shell** 12 April 2023 26 April 2023 26 May 2023 20 June 2023 17 October 2023 **Phone call from Shell** 4 October 2023 – no answer	No response	**Phone call on 4 October 2023** No response. **Email on 17 October 2023** Further to our earlier correspondence, Shell has previously identified you as a relevant person for purposes of one or more of the Environment Plans (EPs) listed below. Shell is planning to extend its offshore gas production operations at the Prelude Floating Liquefied Natural Gas Facility. This extension requires new infrastructure to be installed offshore. This project is called Crux. At its closest point, Crux is about 175km off the coast of the Kimberley. When built, it will supply gas to Shell's existing gas operations, at Prelude, which is also offshore. There are no onshore activities. Over the past six months, Shell has tried to talk to as many Traditional Owners, RNTBC's and PBC's as well as businesses and Aboriginal Corporations, which are relevant persons for our Crux activities. We have emailed and called you to allow for an opportunity to discuss and provide information on matters that are important to you and how we could protect them. The purpose of this consultation is to give you an opportunity to provide input into: • our understanding of the existing environment which may be affected by Shell's proposed activities, including the cultural features of that environment. • how our activities might impact the existing environment (including its cultural features); and • how controls and mitigation measures may be adopted to protect what is important to you. This information will be documented in activity specific EPs, which will be submitted to Australia's offshore energy regulator, NOPSEMA, for assessment and following acceptance, published online. However, you may request that information you provide not be published. The purpose of this consultation is further detailed in the NOPSEMA Consultation on Offshore Petroleum Environment Plans Brochure. Information about the project has been provided previously and is available on our website: www.shell.com.au/crux. Factsheets describing each of the activities that we have been consulting on are available below and outline the associated environmental risks and impacts: • the Crux Seabed Survey Factsheet • the Crux Drilling Template Installation Factsheet • the Crux Development Drilling Factsheet and • the Crux Installation and Cold Commissioning Factsheet. Full, draft Environment Plans, are also available on the Shell website.. We want to offer you a final opportunity to consult on the relevant EPs before we resubmit them to NOPSEMA. If you wish to provide feedback on the Crux EPs, Shell requests that you please do so by no later than Thursday 26 October. After that date, Shell will close consultation in preparation for the resubmission	No feedback, objections or claims received.	Shell has provided sufficient information, made reasonable efforts to elicit feedback and provided a reasonable period to assess information, seek input from the communal group and provide feedback. Therefore, consultation in preparation of this EP has been carried out in accordance with the Shell methodology. Refer to Table 5-11 for further information.

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ID	Name					
				of the EPs. Please call our Community Hotline on 1800 059 152 if you wish to discuss further.		
88.	**Gooniyandi**	31 March 2023 *(initial email)* **Email from Shell** 12 April 2023 26 April 2023 19 May 2023 26 May 2023	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
89.	**Gumurr Marthakal Rangers**	31 March 2023 *(initial email)* **Email from Shell** 12 April 2023 26 April 2023 19 May 2023 25 May 2023 26 May 2023 16 June 2023 **Phone call** 16 June 2023 *(no contact made)*	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new

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						relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
90.	Jabirr Jabirr/Ngumbarl as a people are represented by the RNTBC Gogolanyngor Aboriginal Corporation (RP 33) as outlined in Table 7-19 and as advised by KLC on their email dated 3 May 2023.	See Gogolanyngor Aboriginal Corporation (RP 33)	See Gogolanyngor Aboriginal Corporation (RP 33)	See Gogolanyngor Aboriginal Corporation (RP 33)	See Gogolanyngor Aboriginal Corporation (RP 33)	See Gogolanyngor Aboriginal Corporation (RP 33)
91.	**Jikilaruwu (Bathurst Island)**	Consulted via 119 TLC	No response	Not applicable	No feedback, objections or claims received.	To determine consultation approach, Shell met with the TLC as representative of Tiwi people. TLC has a statutory function as a Land Council and represents Tiwi people in the protection of land, sea and environment. The TLC is responsible to ensure that activities on the Tiwi islands are undertaken only after consultation with the relevant Tiwi Clan group. The TLC is made up of four members from each of the Clan groups of the Tiwi Islands. At the request of the TLC, Shell met with the Council, including additional TLC employed subject matter experts (i.e. anthropologist and environmental advisor) on 26 May 2023. At the meeting, Shell explained the activities of this EP and the impacts and risks which may affect the TLC's functions, interests or activities.

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						Shell also asked for input on particular values or features which may be affected by Shell's activities which we were not aware of (Refer to Appendix A). Multiple information requests were made by the TLC which were subsequently responded to by Shell. Shell also specifically requested for further meetings with clan groups of the Tiwi Islands, to which the TLC said it was important to first consult with the TLC and that the TLC would make a decision about the need for further consultation with clan groups of the Tiwi Islands based on an assessment of whether their functions, interests or activities may be affected. Shell followed up with a further request to confirm the TLC's position on consultation with clan groups on 19 June 2023 and TLC responded on 11 July 2023 stating there were no further relevant matters to raise for the preparation of this EP. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters

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						assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations. In addition, from the end of March 2023, Shell undertook a targeted media campaign in the region in which the relevant persons are located, using newspaper ads, geotargeted social media and radio. The campaign urged potential RPs to contact Shell and provided a link to the Shell website with details about the Crux project and the Environment Plan. These materials enabled RPs to make an informed decision about how their functions, interest or activities may be affected, and a mechanism to consult with Shell on the EP-Appendix A. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation

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ID	Name					
						of the EP has been completed in accordance with the OPPGS (E) Regulations.
92.	**Julyardi Aboriginal Corporation**	31 March 2023 *(Initial email)* **Email from Shell** 12 April 2023 26 April 2023 26 May 2023	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
93.	**Kalumburu Aboriginal Corporation**	31 March 2023 *(Initial email)* **Email from Shell** 12 April 2023 26 April 2023 26 May 2023 20 June 2023 17 October 2023 **Phone call** 12 October 2023 -no answer	No response	**Email on 17 October 2023** Further to our earlier correspondence, Shell has previously identified you as a relevant person for purposes of one or more of the Environment Plans (EPs) listed below. Shell is planning to extend its offshore gas production operations at the Prelude Floating Liquefied Natural Gas Facility. This extension requires new infrastructure to be installed offshore. This project is called Crux. At its closest point, Crux is about 175km off the coast of the Kimberley. When built, it will supply gas to Shell's existing gas operations, at Prelude, which is also offshore. There are no onshore activities. Over the past six months, Shell has tried to talk to as many Traditional Owners, RNTBC's and PBC's as well as businesses and Aboriginal Corporations, which are relevant persons for our Crux activities. We have emailed and called you to allow for an opportunity to discuss	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
				and provide information on matters that are important to you and how we could protect them. The purpose of this consultation is to give you an opportunity to provide input into: • our understanding of the existing environment which may be affected by Shell's proposed activities, including the cultural features of that environment. • how our activities might impact the existing environment (including its cultural features); and • how controls and mitigation measures may be adopted to protect what is important to you. This information will be documented in activity specific EPs, which will be submitted to Australia's offshore energy regulator, NOPSEMA, for assessment and following acceptance, published online. However, you may request that information you provide not be published. The purpose of this consultation is further detailed in the NOPSEMA Consultation on Offshore Petroleum Environment Plans Brochure. Information about the project has been provided previously and is available on our website: www.shell.com.au/crux. Factsheets describing each of the activities that we have been consulting on are available below and outline the associated environmental risks and impacts: • the Crux Seabed Survey Factsheet • the Crux Drilling Template Installation Factsheet • the Crux Development Drilling Factsheet and • the Crux Installation and Cold Commissioning Factsheet. Full, draft Environment Plans, are also available on the Shell website.. We want to offer you a final opportunity to consult on the relevant EPs before we resubmit them to NOPSEMA. If you wish to provide feedback on the Crux EPs, Shell requests that you please do so by no later than Thursday 26 October. After that date, Shell will close consultation in preparation for the resubmission of the EPs. Please call our Community Hotline on 1800 059 152 if you wish to discuss further.		EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
94.	**Kariyarra Aboriginal Corporation**	31 March 2023 *(Initial email)* **Email from Shell** 12 April 2023 26 April 2023 26 May 2023 19 June 2023 17 October 2023			No objections or claims have been received about activity impacts or risks. **Relevant Matters and Not Relevant Matters** No issues raised that are considered relevant matters.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
95.	**Kimberley Aboriginal and Language Cultural Centre (KALACC)**	31 March 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
		Email from Shell 12 April 2023 26 April 2023 26 May 2023				been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
96.	**Kimberley Jiyigas**	31 March 2023 *(Initial email)* **Email to Shell** 26 April 2023 03 May 2023 **Email from Shell** 12 April 2023 26 April 2023 03 May 2023 18 May 2023 26 May 2023 **In person** 10 May 2023	[redacted]	**Email on 03 May 2023** Shell acknowledged registration and provided booking for travel and accommodation. **Email on 18 May 2023** Close out email sent which covered the following: • Thanked relevant person for their feedback. • We understand the requirements you have set out below and will ensure we meet those with regards to the Installation of the Crux project. • recapped on what we're consulting on and the obligation to consult under the regulations. • notified of the management of feedback if any details should be considered sensitive information. • reconfirmed contact details.	**Assessment** No material objections or claims received in relation to impacts or risks. **Relevant Matters and Not Relevant Matters** Raised a relevant matter involving suggestions for consultation with indigenous groups.	Adopted measures to take on some suggestions for consultation with Indigenous groups moving forward. Changes outlined in Section 5.6.5 of the EP.
99.	**Legune Pastoral Lease**	Consulted via 114 NLC	No response.	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's

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ID	Name					
						requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
100.	**Malak Malak Land and Water Management Rangers**	Consulted via 114 NLC	No response.	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
101.	**Malawu (Bathurst Island)**	Consulted via 119 TLC	No response.	Not applicable	No feedback, objections or claims received.	To determine consultation approach, Shell met with the TLC

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
						as representative of Tiwi people. TLC has a statutory function as a Land Council and represents Tiwi people in the protection of land, sea and environment. The TLC is responsible to ensure that activities on the Tiwi islands are undertaken only after consultation with the relevant Tiwi Clan group. The TLC is made up of four members from each of the Clan groups of the Tiwi Islands. At the request of the TLC, Shell met with the Council, including additional TLC employed subject matter experts (i.e. anthropologist and environmental advisor) on 26 May 2023. At the meeting, Shell explained the activities of this EP and the impacts and risks which may affect the TLC's functions, interests or activities. Shell also asked for input on particular values or features which may be affected by Shell's activities which we were not aware of (Refer to Appendix A). Multiple information requests were made by the TLC which were subsequently responded to by Shell. Shell also specifically requested for further meetings with clan groups of the Tiwi Islands, to which the TLC said it was important to first consult with the TLC and that the TLC would make a decision about

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
						the need for further consultation with clan groups of the Tiwi Islands based on an assessment of whether their functions, interests or activities may be affected. Shell followed up with a further request to confirm the TLC's position on consultation with clan groups on 19 June 2023 and TLC responded on 11 July 2023 stating there were no further relevant matters to raise for the preparation of this EP. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations. In addition, from the end of March 2023, Shell undertook a targeted media campaign in the region in which the relevant persons are located, using newspaper ads, geotargeted social media and radio. The campaign urged potential RPs to

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
						contact Shell and provided a link to the Shell website with details about the Crux project and the Environment Plan. These materials enabled RPs to make an informed decision about how their functions, interest or activities may be affected, and a mechanism to consult with Shell on the EP-Appendix A. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
102.	**Mantiyupwi (Bathurst and Melville Island)**	Consulted via 119 TLC	No response.	Not applicable	No feedback, objections or claims received.	To determine consultation approach, Shell met with the TLC as representative of Tiwi people. TLC has a statutory function as a Land Council and represents Tiwi people in the protection of land, sea and environment. The TLC is responsible to ensure that activities on the Tiwi islands are undertaken only after consultation with the

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ID	Name					
						relevant Tiwi Clan group. The TLC is made up of four members from each of the Clan groups of the Tiwi Islands. At the request of the TLC, Shell met with the Council, including additional TLC employed subject matter experts (i.e. anthropologist and environmental advisor) on 26 May 2023. At the meeting, Shell explained the activities of this EP and the impacts and risks which may affect the TLC's functions, interests or activities. Shell also asked for input on particular values or features which may be affected by Shell's activities which we were not aware of (Refer to Appendix A). Multiple information requests were made by the TLC which were subsequently responded to by Shell. Shell also specifically requested for further meetings with clan groups of the Tiwi Islands, to which the TLC said it was important to first consult with the TLC and that the TLC would make a decision about the need for further consultation with clan groups of the Tiwi Islands based on an assessment of whether their functions, interests or activities may be affected. Shell followed up with a further request to confirm the TLC's position on consultation with clan groups on 19 June

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
						2023 and TLC responded on 11 July 2023 stating there were no further relevant matters to raise for the preparation of this EP. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations. In addition, from the end of March 2023, Shell undertook a targeted media campaign in the region in which the relevant persons are located, using newspaper ads, geotargeted social media and radio. The campaign urged potential RPs to contact Shell and provided a link to the Shell website with details about the Crux project and the Environment Plan. These materials enabled RPs to make an informed decision about how their functions, interest or activities may be affected, and a mechanism to consult

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
						with Shell on the EP-Appendix A. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
103.	**Mardbalk Land and Sea Management / Warruwi Community Mardbalk Marine Rangers**	Consulted via 114 NLC	No response.	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
						OPPGS (E) Regulations.
104.	**Marrikawuyanga (Melville Island)**	Consulted via 119 TLC	No response.	Not applicable	No feedback, objections or claims received.	To determine consultation approach, Shell met with the TLC as representative of Tiwi people. TLC has a statutory function as a Land Council and represents Tiwi people in the protection of land, sea and environment. The TLC is responsible to ensure that activities on the Tiwi islands are undertaken only after consultation with the relevant Tiwi Clan group. The TLC is made up of four members from each of the Clan groups of the Tiwi Islands. At the request of the TLC, Shell met with the Council, including additional TLC employed subject matter experts (i.e. anthropologist and environmental advisor) on 26 May 2023. At the meeting, Shell explained the activities of this EP and the impacts and risks which may affect the TLC's functions, interests or activities. Shell also asked for input on particular values or features which may be affected by Shell's activities which we were not aware of (Refer to Appendix A). Multiple information requests were made by the TLC which were subsequently responded to by Shell. Shell also specifically requested for further meetings with clan groups of the Tiwi

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
						Islands, to which the TLC said it was important to first consult with the TLC and that the TLC would make a decision about the need for further consultation with clan groups of the Tiwi Islands based on an assessment of whether their functions, interests or activities may be affected. Shell followed up with a further request to confirm the TLC's position on consultation with clan groups on 19 June 2023 and TLC responded on 11 July 2023 stating there were no further relevant matters to raise for the preparation of this EP. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations. In addition, from the end of March 2023, Shell undertook a targeted media campaign in the region in which the relevant

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
						persons are located, using newspaper ads, geotargeted social media and radio. The campaign urged potential RPs to contact Shell and provided a link to the Shell website with details about the Crux project and the Environment Plan. These materials enabled RPs to make an informed decision about how their functions, interest or activities may be affected, and a mechanism to consult with Shell on the EP-Appendix A. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
105.	**Miriuwung-Gajerrong (Western Australia)** *(Tier 2)*	Consulted via 38 KLC	No response.	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
						requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
106.	**Mungullah Community Aboriginal Corporation**	31 March 2023 *(Initial emai)* **Email from Shell** 12 April 2023 26 April 2023 26 May 2023	No response.	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
107.	**Munupi (Melville Island)**	Consulted via 119 TLC	No response.	Not applicable	No feedback, objections or claims received.	To determine consultation approach, Shell met with the TLC

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
						as representative of Tiwi people. TLC has a statutory function as a Land Council and represents Tiwi people in the protection of land, sea and environment. The TLC is responsible to ensure that activities on the Tiwi islands are undertaken only after consultation with the relevant Tiwi Clan group. The TLC is made up of four members from each of the Clan groups of the Tiwi Islands. At the request of the TLC, Shell met with the Council, including additional TLC employed subject matter experts (i.e. anthropologist and environmental advisor) on 26 May 2023. At the meeting, Shell explained the activities of this EP and the impacts and risks which may affect the TLC's functions, interests or activities. Shell also asked for input on particular values or features which may be affected by Shell's activities which we were not aware of (Refer to Appendix A). Multiple information requests were made by the TLC which were subsequently responded to by Shell. Shell also specifically requested for further meetings with clan groups of the Tiwi Islands, to which the TLC said it was important to first consult with the TLC and that the TLC would make a decision about

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
						the need for further consultation with clan groups of the Tiwi Islands based on an assessment of whether their functions, interests or activities may be affected. Shell followed up with a further request to confirm the TLC's position on consultation with clan groups on 19 June 2023 and TLC responded on 11 July 2023 stating there were no further relevant matters to raise for the preparation of this EP. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations. In addition, from the end of March 2023, Shell undertook a targeted media campaign in the region in which the relevant persons are located, using newspaper ads, geotargeted social media and radio. The campaign urged potential RPs to

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
						contact Shell and provided a link to the Shell website with details about the Crux project and the Environment Plan. These materials enabled RPs to make an informed decision about how their functions, interest or activities may be affected, and a mechanism to consult with Shell on the EP-Appendix A. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
108.	**Munupi Aboriginal Corporation**	31 March 2023 *(initial email)* **Email from Shell** 12 April 2023 26 April 2023 19 May 2023 26 May 2023 19 June 2023 **Phone call** 19 June 2023 *(phone number disconnected)*	No response.	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to

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ID	Name					
						Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
109.	**Murujuga Aboriginal Corporation** (Including Murujuga Land and Sea Unit) *(Tier 2)*	31 March 2023 *(initial email)* **Email to Shell** 17 October 2023 26 October 2023 **Email from Shell** 04 April 2023 12 April 2023 26 April 2023 08 May 2023 26 May 2023 17 October 2023 26 October 2023 **Phone call** 12 October 2023 24 October 2023 -no answer 25 October 2023	[redacted]	**Phone call on 12 October 2023** Spoke with admin at Murujuga AC and obtained email contact for Heritage Manager and requested to contact them. **Email on 17 October 2023** I called the Murujuga office last week and was directed to you. I am a consultant helping Shell Australia with the Crux Project. I'm writing to follow up on the Shell Crux project consultations. Crux is an extension to Shell's gas project, Prelude. At its closest point, Crux is about 175km off the coast of the Kimberley and about 1155 from the Burrup. When built, it will supply gas to Shell's existing gas operations, at Prelude, which is also offshore. There are no onshore construction activities at all. Over the last months, Shell has been progressing the four different Environmental Plans for the Crux Project. Under the NOPSEMA guidelines, Murujuga Aboriginal Corporation is considered as Relevant Person and as such, need to be consulted, and have an opportunity to provide input into the Environmental Plans. The input we've received from different groups helps inform. • our understanding of the existing environment which may be affected by Shell's proposed activities, including the cultural features of that environment. • how our activities might impact the existing environment (including its cultural features); and • how controls and mitigation measures may be adopted to protect what is important to you. The four Environmental plans cover off on the four key stages to the Crux Project development (see the map below): 13. The Drilling template – installing the drilling 'jig' or structure on the seabed. 14. The Seabed survey – checking the route on the seabed floor between Crux and Prelude to make sure it is safe and clear. 15. Development Drilling – drilling the wells. 16. Installation and Cold Commissioning – installing the rest of the Platform, the pipelines and testing it all.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant Matters and Not Relevant Matters** No issues raised that are considered relevant matters. MAC has indicated it has no relevant specific knowledge to contribute and does not require to be consulted.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted. Shell has provided sufficient information, made reasonable efforts to elicit feedback and provided a reasonable period to assess information, seek input from the communal group and provide feedback. Therefore, consultation in preparation of this EP has been carried out in accordance with the Shell methodology. Refer to Table for further information.

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				Information we receive from Traditional Owners and Aboriginal Corporations will be documented in each of the activity specific Environment Plans, which are submitted to Australia's offshore energy regulator, NOPSEMA, for assessment and following acceptance, published online. The purpose of this consultation is further detailed in the attached NOPSEMA Consultation on Offshore Petroleum Environment Plans Brochure. General information is available about the project on our website www.shell.com.au/crux. Factsheets describing each of the activities that we are consulting on are available below and outline the associated environmental risks and impacts: Draft Seabed EP Draft Drilling template EP Draft Development Drilling EP • The full text of the draft Environment Plans is also available online. We want to hear from you. Over the last 6 months, we've tried to talk to as many Traditional Owners, RNTBC's and PBC's as well as businesses and Aboriginal Corporations as we can. We have emailed and called in an attempt to provide an opportunity to discuss the cultural features and values that are important to you and how we could protect them. After attempting consultation with you over the last 6 months, we are approaching our hard deadlines, and will be submitting the above Environment Plans by Friday 27th October. If we have not heard from you about the above date, Shell plans to close consultation in preparation for the EP. If you can't provide the information requested by this date Shell will address any other feedback through ongoing consultation. We look forward to hearing from you, Hope to hear from you – I'll follow this up with a phone call later in the week. **Email on 17 October 2023** Thanks for getting back to us so promptly, and thanks for forwarding the information to the CEO. Our email records indicate we did send through several emails when consultation started in April and May, to the admin@murujuga.org.au address. According to our records, emails were sent to Murujuga AC with general information and fact sheets, invitations to forums and follow up on the following dates: 31 March 4 April 12 April 26 April		

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				8 May 26 May It may be worth checking that these have not got held up somewhere. We look forward to hearing back from you. **Phone call on 24 October 2023** NO answer – message left asking to return call. **Phone call on 25 October 2023** Phone call with Heritage officer at Murujuga AC 24/10/23. Is the contact person for Crux consultations and is responsible to pass the relevant information on to the board. Confirmed receipt of all Crux information, and noted that the Board is meeting today, where she will present the information. The Circle of Elders are meeting tomorrow, and similarly, will present to them also. **Email on 26 October 2023** Thank you for the prompt response. As noted, where there are future Environmental Plans that are closer to Murujuga, or where Murujuga is considered a Relevant Person, consultation will certainly be a priority. Thanks again, and our regards to the Board.		
111.	**Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC)** *(Tier 2)*	Initially provided information via 59 YMAC **Email to Shell** 22 July 2023 31 July 2023 01 August 2023 02 August 2023 26 Sept 2023 04 October 2023 13 October 2023 23 October 2023 **Email from Shell** 27 July 2023 01 August 2023 02 August 2023 03 August 2023 27 Sept 2023 04 October 2023 13 October 2023 23 October 2023 24 October 2023	[redacted]	**Email on 27 July 2023** Again, thank you for your email of 22/7/23. Shell would be pleased to meet with the NTGAC Board of Directors, as per the first step in the Draft Consultation Framework you provided. This meeting would help put names to faces, allow people to start to get to know each other, and Shell can also provide high level information about what Crux is, and is not. As your consultation notes state, relationship building is critical for PBCs and First Nations People, and this is a message Shell has likewise heard loud and clear, over the Crux Consultations to date. Shell understands that approaching relevant Aboriginal groups simply to 'consult and inform' is not enough; its disrespectful and ignores the capacity, history, and cultural strength of Indigenous people. Shell is keen to do better by Aboriginal people, and seeks to develop long term, mutually beneficial and supportive relationships with PBCs and Aboriginal Corporations in areas close to its operations. This is already how Shell works with TO groups in Queensland, and Shell wants to continue in the right way, strengthening these relationships here in the West. Following from this first meeting, next steps including future meetings and provision of additional information can be agreed, where they are considered necessary (by both yourselves, and from Shell's side) Can you please indicate where this meeting is proposed to take place – i.e., at YMACs offices in Perth, or elsewhere, and also the timeframe in which the meeting should happen. I'm very happy to talk in person to clarify any details. Cc'd in are my two colleagues at Shell who may be part of any consultation going forward,	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant Matters and Not Relevant Matters** Raised a relevant matter regarding preferred engagement process for future consultation. Shell agreed to adjust any future engagement process accordingly. Shell's response to the feedback received is set out here.	Consultation in preparation of this EP has been carried out in accordance with the Shell methodology. Refer to Table 5-11 for further information. Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.

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		Phone call 13 October 2023 **In Person** 24 October 2023	[redacted]	**Email on 01 August 2023** Thank you for the email and notification about potential dates. An initial meeting with YMAC representatives sounds like a good idea – please do send through some dates. With regard to meeting with the NTGAC board - November is quite some time off. If there is any potential to meet earlier, I think that would be beneficial. The Crux Project consultation process is now well advanced, and several of the Environmental Plans have already been submitted. If there is likely to be comments or concerns from NTGAC, it would be useful to have those earlier, prior to submission of the remaining Environment Plans I attach again the factsheets pertaining to the four current Crux Environmental Plans, for your information. I look forward to hearing from you. **Email on 2 August 2023** I did email yesterday, noting that if there is any potential to meet earlier than November, I think that would be beneficial. The Crux Project consultation process is now well advanced, and several of the Environmental Plans have already been submitted. If there is likely to be comments or concerns from NTGAC, it would be useful to have those earlier, prior to submission of the remaining Environment Plans. I do understand however that Board agendas fill up quickly. If there is no opportunity before November, we will look forward to meeting then and will be in touch closer to that date. If you would like me to send through any pre reading or materials, please let me know. I understand that a general meeting is being organized with YMAC representative in the new few weeks and hope to see you there. What is the date of the meeting? **Email on 3 August 2023** I thought I'd responded to this but think I may have missed it. Thank you: Shell would be very happy to take up the 24 or 25 Oct date. If you can let me know when you have finalised this. The costs you describe are fine, and Shell accepts to cover these on receipt of a tax invoice. Can you please let me know if you anticipate any other costs? We will be in touch closer to the date, to confirm attendance personnel and I will also prepare a short PowerPoint to show, if that is ok. Certainly, for Shell, a key priority is on building a positive relationship with NTGAC first, and of course, following through with full information about projects, and responding to any questions that arise. We look forward to meeting you, **Email on 27 September 2023** We'll book that date in and advise who will be attending from Shell. Can you let me know how much time has been allocated to Shell? We have a PowerPoint we will work from, which I'll finalise next week. Would it be helpful to send that through beforehand? I would anticipate just a few talking points to guide the conversation – Brief introductions Shell and the Crux project Overview of the environmental management plans Key issues for NTGAC		

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				Further consultation from here, the Independent Panel, If there are other issues NTGAC would like to bring up, please let me know. **Email on 4 October 2023** Thanks for the email. We'll be in touch later by mid next week latest, if there is content, we would like the Board to have prior to the meeting. **Email on 13 October 2023** Thanks for the call just now and great that the team can have an hour – I think it will take a bit of pressure out and allow for more questions and interactions. As mentioned also, I won't be coming up but am introducing Shell's Indigenous Participation Advisor (copied here) who will take over this from now on. There will also be an Environmental Advisor from Shell attending, we will confirm that next week. I'll hand this over to Shell now and I think they also may send up a few slides for the Board to give context to the [PowerPoint that will accompany the Shell presentation. Thanks again and regards to the YMAC and the NTGAC mob. **Email on 23 October 2023** Hope you're well, just confirming tomorrow it will be myself attending in person as the Environmental Advisors unfortunately unable to travel however he will be dialing in given his knowledge of the project is really critical. Are you able to advise best method for this? E.g., Is there a meeting room I should be sending an invite to? Could you also advise your preference for us to run through a PowerPoint presentation? I will have my laptop with me for plug-in or if preferred can send through to yourself? Thanks so much that would be great, email is (redacted). Will bring my laptop and plug in then, see you tomorrow. **Email on 24 October 2023** No troubles have attached a pdf version of the presentation as unfortunately the PowerPoint is too large to send, this does however mean the videos will not be included. Let me know if you need these. Again, thank you to yourself for coordinating and to the NTGAC Board for allowing us to present at the Board meeting today it is much appreciated, as Nathan touched on for our submission to NOPSEMA we do need to confirm our discussions today in writing. As such please see below our summary of the meeting, please let us know if you are happy with this account of discussions: YTGAC Meeting, Ningaloo Discovery Centre, Exmouth 24/10/2023. Shell attendance (approx.) 14:40-15:10 Attendees: NTGAC Board, (YMAC), Environmental Advisor (Shell) and Indigenous Affairs Advisor (Shell) Welcome and introductions to the Shell team. Shell gave an overview of Shell in Australia inclusive of renewables space. Shell presented the following information: Overview of the purpose of Prelude What the Crux project is, as a backfill to Prelude		

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				Walked through the Crux project video, key highlights of Crux project phase activities. Mentioned the NOPSEMA spill modelling video. NTGAC confirmed they've already seen and understood it. Mentioned that NTGAC is only identified as a relevant person for the drilling EP – no others. Exmouth and NTGAC country are a long way from the activity location and the only potential impact to NTGAC country could potentially be from a major spill. Even then, impacts that far away are expected to be immaterial or negligible. Question asked by NTGAC about how the spill model was done (information inputs) Shell answered that a worst credible spill event scenario was developed by SME's (subsurface engineers etc.). This information goes into the model which uses years of historical weather conditions to run 300 simulations across all seasons of the year. The model run was very conservative also. The purpose of consultation is for Shell to share information about how NTGAC functions, interests or activities may be affected. It is the only way we can find out about information we would otherwise not be aware of such as cultural values. This helps inform management measures to make sure environmental impacts are reduced as much as reasonably practicable. Shell asked if there was any information which NTGAC wanted to share such as cultural values. No input provided. Shell clarified that anything NTGAC deems sensitive will not be published in the EP to be made public but only in the sensitive matters report which NOPSEMA receives. Referred to NOPSEMA guideline on consultation: Consultation on offshore petroleum environment plans brochure.pdf (nopsema.gov.au) Comment made by NTGAC to Shell that any future EPs in which they were considered Relevant Persons that Shell adopt the YMAC Consultation Framework and Resourcing Protocol. Shell confirmed we would follow this if we had consultation obligations that reach Exmouth in future. NTGAC confirmed they understood the information presented. NTGAC confirmed they have no comment on the Development Drilling EP to which the EP consultation relates. NTGAC confirmed they were happy to receive this as a record of the meeting confirming the above and receive future info relating to Shell's Crux Social Investment Strategy where relevant. We also didn't run through the second last slide however this is an independent Environmental Panel that is available and anonymous if NTGAC would like to access with costs covered by Shell. Please reach out if you need anything further from our end.		
112.	**Ngarla and Ngarla #2 (Determination Area A)**	31 March 2023 *(initial email)* **Email from Shell** 12 April 2023	No response.	Not applicable	No feedback, objections or claims received.	

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		26 April 2023 26 May 2023				
113.	**Nimanburr Aboriginal Corporation** *(Tier 2)*	Consulted via 38 KLC **Email from Shell** 17 October 2023	No response.	**Email on 17 October 2023** Further to our earlier correspondence, Shell has previously identified you as a relevant person for purposes of one or more of the Environment Plans (EPs) listed below. Shell is planning to extend its offshore gas production operations at the Prelude Floating Liquefied Natural Gas Facility. This extension requires new infrastructure to be installed offshore. This project is called Crux. At its closest point, Crux is about 175km off the coast of the Kimberley. When built, it will supply gas to Shell's existing gas operations, at Prelude, which is also offshore. There are no onshore activities. Over the past six months, Shell has tried to talk to as many Traditional Owners, RNTBC's and PBC's as well as businesses and Aboriginal Corporations, which are relevant persons for our Crux activities. We have emailed and called you in an attempt to provide you an opportunity to discuss and provide information on matters that are important to you and how we could protect them. The purpose of this consultation is to give you an opportunity to provide input into: • our understanding of the existing environment which may be affected by Shell's proposed activities, including the cultural features of that environment. • how our activities might impact the existing environment (including its cultural features); and • how controls and mitigation measures may be adopted to protect what is important to you. This information will be documented in activity specific EPs, which will be submitted to Australia's offshore energy regulator, NOPSEMA, for assessment and following acceptance, published online. However, you may request that information you provide not be published. The purpose of this consultation is further detailed in the NOPSEMA Consultation on Offshore Petroleum Environment Plans Brochure. Information about the project has been provided previously and is available on our website: www.shell.com.au/crux. Factsheets describing each of the activities that we have been consulting on are available below and outline the associated environmental risks and impacts: 1. the Crux Seabed Survey Factsheet 2. the Crux Drilling Template Installation Factsheet 3. the Crux Development Drilling Factsheet and 4. the Crux Installation and Cold Commissioning Factsheet Full, draft Environment Plans, are also available on the Shell website. We want to offer you a final opportunity to consult on the relevant EPs before we resubmit them to NOPSEMA. If you wish to provide feedback on the Crux EPs, Shell requests that you please do so by no later than Friday 27 October. After that date, Shell will close consultation in preparation for the resubmission of the EPs.	No feedback, objections or claims received.	Shell has provided sufficient information, made reasonable efforts to elicit feedback and provided a reasonable period to assess information, seek input from the communal group and provide feedback. Therefore, consultation in preparation of this EP has been carried out in accordance with the Shell methodology. Refer to Table 5-11 for further information.

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				Please call Shell's Community Hotline on 1800 059 152 if you wish to discuss further.		
114.	**Northern Land Council** *(Tier 1)*	31 March 2023 *(initial email)* **Email to Shell** 02 May 2023 21 May 2023 23 May 2023 26 May 2023 12July 2023 **Email from Shell** 12 April 2023 26 April 2023 27 April 2023 08 May 2023 17 May 2023 18 May 2023 23 May 2023 26 May 2023 29 May 2023 19 June 2023 03 July 2023 10 July 2023 17 July 2023 20 July 2023 27 July 2023 **In person** 26 May 2023	[redacted]	**Email on 17 May 2023** Shell is continuing to consult with regard to the Crux Project and would be pleased to either meet directly with yourself and others from NLC, or to invite you to attend the third Forum Shell is holding as part of the Crux consultations. Shell senior staff will be in Darwin on 25 May and have time in the afternoon – please us know if a meeting time is available. A third forum will be held in Darwin on the morning of 1 June (10am – 1.30pm), (at a venue to be advised), and you are welcome to attend this also, or to invite others along. You will find a more formal invite to this in your inbox shortly. Additionally, if none of these options work, we are happy to coordinate an alternative to meet and discuss the project and the Environmental plans. Shell is particularly keen to have contact with as many Traditional Owners, Aboriginal organisations and PBC/ RNTBC representatives as possible, both to talk about the Crux project specifically, but also to understand Aboriginal priorities and perspectives on land and sea country, the environment and community priorities. I am attaching the fact sheets for each of the four Environmental Plans for the Crux project, as well as links to the Draft Environmental Plans, and a link to the website. Detailed information about Crux is available on our website - http://www.shell.com.au/crux. The Environmental plans for the project are available this link: Draft EPs for Shell Crux Project Please let us know if you would like any particular information on any of the content once you've had a chance to review. **Email on 18 May 2023** We will be in Darwin on **25 May**, and very happy to meet with NLC then. We will also be in Darwin the following week on **31 May** NOT 1 June, for the Forum 3. If NLC are not able to attend the forum in the morning, there will be time in the afternoon that a meeting could be arranged. It is also possible that we could travel to Darwin on 30 May, if that was a preferred date to meeting. We hope one of these options works. **Email on 23 May 2023** Continuing to make arrangements for a face-to-face meeting. **NLC engagement 26 May 2023** Meeting held to discuss Crux Project and EPs. Project and the broader planning area was discussed and noted, with a request from NLC that Shell should provide NLC with a detailed early-warning procedure explaining how NLC would be notified of a worst-case-scenario spill that could affect communities and environments along the coastline of the Top End. This should include: • Emergency response timeframes. • Disaster and spill containment support. • Expected environmental impacts from such an event.	**Assessment** No objections or claims received in relation to impacts or risks. **Relevant Matters and Not Relevant Matters** Requested NLC be notified in event of a spill. Requested additional information regarding spill impacts and response. Shell has responded accordingly to this feedback, providing information to NLC that they confirmed was adequate for their needs and including amending spill notification requirements – see Measures adopted for detail.	EP Table 10-4 includes requirement for NLC to be notified in the event of an emergency spill event which has the potential to impact communities and environments in the Top End. Consultation in preparation of this EP has been carried out in accordance with the Shell methodology. Refer to Table 5-10 for further information.

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				Shell responded accordingly with information on emergency response and confirming NLC has been added to the list of those who would be notified. **Email on 26 May 2023** Thanks so much for the meeting today. It was good to have some time, hear your questions and make the connection. I've passed the specific issues on to the Crux team to respond to – as noted, I'm the fixer in this process and specific responses I leave to the SMEs. Please do contact again though with any further concerns or issues and I'll ensure they are responded to. Here's the info about the final Crux forum. It is on next Wed – 9.30am -1.30, at the Hilton opposite NLC. If TOs need help getting there, Shell can help with travel. Great meeting you both. **Email on 29 May 2023** Request to forward on email with details of the Darwin drop-in session. **Email on 19 June 2023** We're in the process of closing off the Environmental Plan consultation phase, but we want to check on a few of the ranger groups who NLC represents. Is it possible you could forward this email to the following ranger teams? • Wudicupildiyerr Rangers • Garngi Land and Sea Management • Garngi Community Rangers • Kenbi Rangers • Malak Malak Land and Water Management Rangers I think that is all – but if there are others for whom NLC is the NTRB, we'd appreciate you forwarding to them also, and letting us know. **Email on 03 July 2023** My apologies it has taken so long to respond to your request. At the meeting of Friday 26, you asked that Shell provide a detailed early-warning procedure explaining how NLC would be notified of a worst-case-scenario spill that could affect communities and environments along the coastline of the Top End. You noted that this should include: • Emergency response timeframes. • Disaster and spill containment support. • Expected environmental impacts from such an event. Please see following links to Shell's Oil Pollution Emergency Plan (https://docs.nopsema.gov.au/A867083) and Operational and Scientific Monitoring Plan (https://docs.nopsema.gov.au/A865358) which cover our activities in the Browse Basin, including the Crux project activities. These plans cover off on the requested information regarding Shells spill response capability, arrangements and notification requirements which are summarised below. • Notifications to various authorities and entities in the event of a spill are covered within both the Oil Pollution Emergency Plan and the associated external reporting and notification table of each Crux Environment Plan. Shell		

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<tr><th colspan="2">Relevant Person</th><th rowspan="2">Dates of correspondence and follow up</th><th rowspan="2">Summary of relevant person response</th><th rowspan="2">Summary of Shell's response</th><th rowspan="2">Assessment of merits of objection or claim.
Relevant matters / non-relevant matters</th><th rowspan="2">Measures adopted and Consultation Carried Out</th></tr>
<tr><th>ID</th><th>Name</th></tr>
<tr><td></td><td></td><td></td><td></td><td>intends to add a notification requirement to Section 10 of its environment plans which covers the process to notify the NLC of a hydrocarbon spill which has the potential to impact communities and environments in the Top End. The proposal is to add the following to the Crux Development Drilling Environment Plan and the Crux Installation and Cold Commissioning Environment Plan. It would be great if you could please confirm the appropriate contact mechanism phone number and email which we should use to complete this notification.

Routine External Reporting and Notification Requirements

<table>
<tr><th>Reporting Requirement</th><th>Description</th><th>Recipient</th><th>Submission/ Notification Timing</th></tr>
<tr><td colspan="4">During activity</td></tr>
<tr><td>Notification submitted to the NLC detailing any Tier 2 or 3 hydrocarbon spill which has the potential to impact communities and environments in the Top End.</td><td>The Notification will contain all material facts and circumstances concerning the incident, actions taken to avoid or mitigate any adverse impacts and corrective action taken.</td><td>NLC</td><td>Within 1 week of an event.</td></tr>
</table>

• Emergency response timeframes – The Oil Pollution Emergency Plan covers both first strike and secondary response tasks in the event of a spill. The first strike plan details the activities/tasks that are carried out immediately following a spill event. Please see Section I. of the attached Oil Pollution Emergency Plan with includes details of the timeframes that these tasks are required to be completed as part of the first strike response. The secondary response measures are detailed in Section 4.5 of the attached Oil Pollution Emergency Plan. This covers all the secondary measure Shell can use to respond to a spill event, each subsection includes a detailed breakdown of the response timeframes associated with the equipment and resources specific to each activity.

• Disaster and spill containment support – Shell maintains capability across all the resources required to implement a response to a worst-case credible spill. This includes internal personnel trained and ready to participate in a spill response as part of Shells Incident Management Team (IMT); external specialist personnel from agencies that specialise in spill response tasks; and maintenance of</td><td></td><td></td></tr>
</table>

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				and access to spill response equipment. These capability arrangements are described in detail within Attachments 1 and 2 of the OPEP which are summarised as follows: • Attachment 1 (PAGE 117 of OPEP at https://docs.nopsema.gov.au/A867083) : Browse Region Oil Pollution Emergency Plan (BROPEP) - Basis of Design and Field Capability Assessment (HSE_GEN_016764). • This document presents an overview of all Titleholder's offshore (Browse/Bonaparte basin) petroleum activities and associated oil spill risks. This document evaluates modelling outcomes from a series of selected WCSSs and presents an oil spill response field capability analysis. This document also presents the EPOs and EPSs associated with the preparedness and environmental risk assessment of field response capability and arrangements. • Attachment 2 (PAGE 369 of OPEP at https://docs.nopsema.gov.au/A867083): BROPEP – Incident Management Team Capability Assessment Report • This document utilises the field capability assessments as inputs to evaluate the size and structure of the IMT necessary to mobilise and maintain the field capability. The document also presents the EPOs and EPSs associated with the IMT capability and arrangements. • • Expected environmental risks and impacts from a worst-case credible spill are assessed within each Crux Environment Plan. The Development Drilling EP is currently available on the Crux Website where this information is contained in Section 9.12 and 9.13. You can also view the draft Environmental plans at the following links: • Seabed Survey EP • Template EP • Development Drilling I hope this is of assistance, and please make contact with any further questions. **Email on 10 July 2023** Close out email sent which covered the following: • Thanked relevant person for the feedback. • Recapped on what Shell is consulting on and the obligation to consult under the regulations.		

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				• Notified of the management of feedback if any details should be considered sensitive information. • Reconfirmed contact details. **Email on 20 July 2023** It was good to meet you both back in May. We want to give you a brief update on where Shell is with the submission of the four Crux Environmental Plans, and what happens next. The first two EPs – the Seabed survey and the Drilling template (both of which have very limited potential impact areas, well offshore) will be submitted to NOPSEMA by the end of this week. The Drilling Development EP will be submitted next week, and the Cold Commissioning EP later in the year, in November. We are grateful for the meetings we have had with NLC, other PBCs and TO groups, during the consultation period. One of the repeated comments we heard loud and clear over the course of these meetings, is the importance of ongoing relationships – that Aboriginal groups are looking for long term relationships with industry operators, where they can partner to share knowledge, resources, and skills, provide consultancy on critical cultural heritage matters, and collaborate in providing opportunities. Shell is keen to build the relationship. We would like to return to Darwin in the next few months and meet again to provide an update on the Crux project, hear any concerns from you and other groups, and respond to issues that may have arisen. And, to discuss future partnership opportunities. Shell invests and works with communities close to its operations and we look forward to conversations about opportunities and priorities for the groups the NLC supports. At this stage, we are looking at being in Darwin in September/ October of this year. If this is an opportunity you'd like to take up, or if there are PBCs, RNTBCs, or Indigenous Ranger groups that NLC supports, who would be interested, please let us know so we can work on schedules and timing. Please also forward this email to them. We'd be happy to respond to any other issues relating to the Crux project, too. **Email on 27 July 2023** Your comments are noted, and Shell will document accordingly. Again, thanks for your time and it was a pleasure meeting.		
115.	**Nyangumarta Warrarn Aboriginal Corporation including Nyangumarta People (Part A)** *(Tier 2)*	Consulted via 59 YMAC	[redacted]	Not applicable **Text Message from Shell 12 October 2023** Shell have been consulting TO groups and just wanted to check that information on their Crux project is getting through to NWAC. Shell corresponded with YMAC asking them to pass information about Crux project on. Do you know if this was received?	No feedback, objections or claims received.	Shell has provided sufficient information, made reasonable efforts to elicit feedback and provided a reasonable period to assess information, seek input from the communal group and provide feedback. Therefore, consultation in preparation of this EP has been carried out in accordance with the Shell methodology.

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ID	Name					
						Refer to Table 5-11 for further information.
116.	**Saltwater Cultural Tours**	31 March 2023 *(initial email)* **Email from Shell** 12 April 2023 26 April 2023 26 May 2023	No response.	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
117.	**Tarntipi Bushcamp**	31 March 2023 *(initial email)* **Email from Shell** 26 April 2023 08 May 2023 19 May 2023 26 May 2023	No response.	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in

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						accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
118.	**Thamurrur Rangers**	31 March 2023 *(initial email)* **Email from Shell** 12 April 2023 26 April 2023 19 May 2023 15 May 2023 26 May 2023 19 June 2023	No response.	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
119.	**Tiwi Land Council (TLC)** *(Tier 2)*	05 April 2023 (*Initial email)* **Email to Shell** 14 April 2023 27 April 2023 11 May 2023 12 May 2023 17 May 2023 25 May 2023 11 July 2023	[redacted]	**Email on 27 April 2023** I'm responding on behalf of Shell with regard to the consultation planned for May 10. Thanks for getting back to us. I'm a consultant assisting Shell with the upcoming consultations. We've been discussing how to meet with as many TO groups as possible, given the short time frames and the pressure TO groups are under. At this point, we are planning for an additional meeting in Darwin, probably later in May. We recognise in particular how the Tiwi people are under pressure to assist various companies and would like to try to make it easy to attend If you can please let others on the TLC know that Shell will seek a meeting in Darwin, and we will be in touch with you regarding dates and locations. **Email on 09 May 2023**	**Assessment** No objections or claims received in relation to risks or impacts. **Relevant Matters and Not Relevant Matters** Raised a relevant matter regarding preferred engagement process and materials which was reflected in Shell's approach to	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted. Consultation in preparation of this EP has been carried out in accordance with the Shell methodology.

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		Email from Shell 12 April 2023 13 April 2023 14 April 2023 26 April 2023 27 April 2023 08 May 2023 09 May 2023 11 May 2023 12 May 2023 16 May 2023 17 May 2023 24 May 2023 26 May 2023 19 June 2023 10 July 2023 20 July 2023 **In person** 26 May 2023	[redacted]	You may have seen the invitation to attend the meeting in Broome that will be held on Wednesday this week. (attached) When I spoke with [redacted], we concluded that it would work better to have a separate meeting in Darwin, which would be easier for TILC and Tiwi Islander people to attend. I'm writing now to advise that Shell are hoping to have a meeting in Darwin, where they are very keen to speak with Tiwi Island representatives, including members of the Land Council. There are a few possible dates for this – Thursday 25th May Friday 26th May Wed 31st May The meeting could go for up to a day, depending on how many people attend and the discussions. Would you please be able to let me know as soon as possible which date might work for you, so we can organise? If none of these dates work, please let me know of preferred dates, as there are some options for ongoing consultation in Shell to help with this process. **Email on 11 May 2023** Thanks for the follow up yesterday – just confirming from Shell that they would welcome the opportunity to present to the TILC board or executive, ideally before end May. If there is anything further, we can do to assist in the organisation of this, please let me know. **Email on 12 May 2023** Follow-up request in relation to arranging on-country in-person consultation. Provided information on Shell's obligations to consult, and roles and responsibilities of relevant persons. Provided further information on the proposed activity. **Email on 16 May 2023** I am finalising a pack of information for you as per your earlier email. I am also seeking to organise travel. Can you please let me know how we might go about traveling to Wurrumiyanga? Should we plan on arriving in Darwin the day before (20 May) to leave time for flights to the Island for the meeting on 31 May? Would we be able to fly back the same day, or will we need to overnight on Bathurst Is? Do we need permits for the travel? Is there anything else we need to know? I expect the representatives from Shell will be a senior manage, an environmental scientist, possibly a Shell Community relations officer, and myself from Advisian. **Email on 17 May 2023** I can confirm that two Shell staff and I are booked on the 8.00 flight Darwin to Bathurst Island, for the 26th. I believe Shell are organising a third Shell representative also. We are booked to return to Darwin on the 12.50 flight, so we are hoping to have as long as possible with the TILC, so to start as early as is appropriate for you all. Thank you for your guidance in organising this. I'll be sending through the documentation you requested within the next day or two. **Email on 24 May 2023** Please find attached the PowerPoint the Shell team will speak from tomorrow. The order may change slightly; but this gives you an idea of how it will run. Can I please check on behalf of the team - do we need negative RAT tests before boarding Fly Tiwi - this is mentioned	consultation (Section 5.6.5). Also requested additional information. Shell provided further information as requested on the proposed activity.	Refer to Table 5-11 for further information.

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				on their website - will someone from TILC pick us up from the airport on arrival at Bathurst Is? **In person on 26 May 2023** TLC advised important to consult with TLC first before community consultation and they welcomed Shell's approach. TLC advised would decide on whether our project was of interest/importance to Tiwi and if we should consult with clans. Noted they have had eight companies consulting with them recently. TLC trying to focus on only activities that are most important/highest impact on Tiwi. Received feedback from TLC on the following: • Oil spill impacts and how long they would take to reach Tiwi islands. • Large volume of vessel movements creating increased risk of collision. • Why we are consulting when Crux is so far away. • Training for marine rangers to manage oil spills. • Expressed interest in training opportunities for Tiwi people to manage spill responses. • That we consult with them and are guided by them in consulting with broader Tiwi community. • Expressed interest in ongoing collaboration and partnerships. Shell responded accordingly to feedback: • Obligation to consult. Had been consulting with a significant number of TO's related to the EP planning areas. • On whether any further exploration for Crux was still to happen, advised there was not as production well locations already identified. • Outlined Shell's approach to preventing and preparing to respond to major spills. • Advised a spill would take approximately one month to reach the Tiwi Islands • Concerned about level of vessel movements along coast and increased risk of collision. Request information on how we are managing this. Shell responded with further information in response to this feedback. • On training for spill response, Shell advised will consider and support. **Email on 26 May 2023** Great to meet you and the team this morning – thank you. As discussed, please find attached links to the three draft EPs. The files are pretty big so I can't send them direct. The fourth EP (Cold Commissioning and Installation) is still being drafting. The Draft will be published on the website around August 2023. The project: www.shell.com.au/crux The EPs for the project can be accessed at: Draft Seabed EP Draft Drilling template EP Draft Development Drilling EP. Happy to talk more – my number is below. **Email on 19 June 2023**		

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				I hope this finds you well. Thank you again for meeting with the Shell team recently, and please pass on our thanks to the Council. I am writing to you as CEO, but would appreciate you passing this on, for their response and consideration. If you think it is better, I am happy to write to them directly. Firstly, there were a number of questions raised at the meeting between the TLC and Shell on which we said we would provide further information. Please find that information in the attached document. Let me know if there is any further information required. (I did already send through the links to the draft Environmental Plans, which are on the Shell website, as per her request). Also, I am assisting Shell bring its consultation process around the Crux development proposal to a close for the current environmental plans we are preparing to submit. The TLC was clear at the Council meeting Shell attended that we were to go through the TLC and not directly to clan members, advice we obviously want to respect. Before the Consultation process is brought to a close, we wanted to check in: Firstly, to check that as a Council, you are happy with the depth of consultation that has taken place, and secondly, to gain confidence that the Tiwi clans' groups have all the information they need. Shell is keen to have ensured that all relevant people have been consulted or had access to the Crux development proposal information. We want to ensure that all relevant persons have the opportunity to participate in the Environment plan consultation at the front end – obviously, ongoing concerns and issues can still be raised with Shell at any point. If you think that additional consultation, community meetings or information sessions would be useful, required or requested, please let us know. Please pass on my regards to the Council. **Email on 10 July 2023** Close out email sent which covered the following: • Thanked relevant person for the feedback. • Recapped on what Shell is consulting on and the obligation to consult under the regulations. • Notified of the management of feedback if any details should be considered sensitive information. • Reconfirmed contact details. **Email on 20 July 2023** We want to give TLC a brief update on where Shell is with the submission of the four Crux Environmental Plans, and what happens next. The first two EPs – the Seabed survey and the Drilling template (both of which have very limited potential impact areas, well offshore) will be submitted to NOPSEMA by the end of this week. The Drilling Development EP will be submitted next week, and the Cold Commissioning EP later in the year, in November. We are grateful for the meetings we had with the Tiwi Land Council and others in NT and WA, during the consultation period. One of the repeated comments we heard loud and clear over the course of these meetings, is the importance of ongoing relationships – that Aboriginal groups are looking for long term relationships with industry operators, where they can partner to share knowledge, resources, and skills,		

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				provide consultancy on critical cultural heritage matters, and collaborate in providing opportunities. So - Shell is keen to build the relationship. We'd like to return to Darwin in the next few months, and if possible, meet with you again, to provide an update on the Crux project, hear any concerns, and respond to issues that may have arisen. And, to discuss future partnership opportunities. Shell invests and works with communities close to its operations and we look forward to conversations about opportunities and priorities that the Tiwi Land Council may have. At this stage, we are looking at being in the NT in September/ October of this year. If this is an opportunity you'd like to take up, please let us know so we can work on schedules and timing, and please let us know also where you'd prefer to meet. We'd be happy to respond to any other issues relating to the Crux project, too.		
121.	**Tiwi Resources Pty Ltd**	31 March 2023 *(Initial email)* **Email from Shell** 12 April 2023 26 April 2023 19 May 2023 25 May 2023 26 May 2023	No response.	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
122.	**Balanggarra Aboriginal Corporation** *(Tier 1)*	Consulted via 38 KLC **Email from Shell**	No response.	**Email on 7 September 2023** I am a consultant assisting Shell Australia with the Crux Project. This is a gas project off the Kimberley coast. I think KLC forwarded some	No feedback, objections or claims received.	Shell has provided sufficient information, made reasonable efforts to elicit feedback and provided

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		07 Sept 2023 17 October 2023 **Phone Call** 20 October 2023		info to you, I've tried emailing via the webform, and am still keen to get in touch. If there was an oil, gas, or condensate spill from Crux, during the build or operations, it could affect Traditional Owner groups who have sea country. Balanggarra has coastal and sea country in the area that could be affected (see the map, attached). So, it is important you know about the project, and the issues involved. What is Crux? The Shell Crux project is an extension to Shell's Prelude gas facility, about 190km offshore north-west Australia and 620km off the coast of Broome, WA. It's around 250km from the Crux project to your country. It will be several years before it is operational, but the surveys and preliminary work will start towards the end of this year. As part of the environmental approvals process, Shell must consult with people and groups who may be affected by its activities. Shell also wants to improve its understanding of what matters Aboriginal people in the region – areas that are special, sacred, or protected. I've attached some factsheets on the project, and below are links to the environmental plans for your information. There are 4 Environmental Plans (at this point), but only two of these have potential impacts coastline impact (Environmental Plans 3 and 4) that comes close to your country – these are the blue and green lines on the map. If there was a hydrocarbon spill (gas, oil, or condensate) spill, it wouldn't affect the whole area, but rather a small section of it. The map shows the different areas that could be affected at different times during the project build, including where Balanggarra country is. The project details can be accessed at: www.shell.com.au/crux And the full draft Environmental Plans for the project can be accessed at: Draft Seabed EP Draft Drilling template EP Draft Development Drilling EP Please call if you have questions, comments, or concerns, and I can respond or can connect you with people in the Shell Crux project for further information. We can also organise additional information or meetings. **Email on 17 October 2023** Further to our earlier correspondence, Shell has previously identified you as a relevant person for purposes of one or more of the Environment Plans (EPs) listed below. Shell is planning to extend its offshore gas production operations at the Prelude Floating Liquefied Natural Gas Facility. This extension requires new infrastructure to be installed offshore. This project is called Crux. At its closest point, Crux is about 175km off the coast of the Kimberley. When built, it will supply gas to Shell's existing gas operations, at Prelude, which is also offshore. There are no onshore activities. **Phone call on 20 October 2023**		a reasonable period to assess information, seek input from the communal group and provide feedback. Therefore, consultation in preparation of this EP has been carried out in accordance with the Shell methodology. Refer to Table 5-10 for further information.

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				Spoke to administration assistant who confirmed that the CEO had received correspondence from Shell including factsheets dated 7 September 2023. Also confirmed that earlier correspondence regarding Crux project was received via Kimberley Land Council. Over the past six months, Shell has tried to talk to as many Traditional Owners, RNTBC's and PBC's as well as businesses and Aboriginal Corporations, which are relevant persons for our Crux activities. We have emailed and called you to allow for an opportunity to discuss and provide information on matters that are important to you and how we could protect them. The purpose of this consultation is to give you an opportunity to provide input into: • our understanding of the existing environment which may be affected by Shell's proposed activities, including the cultural features of that environment. • how our activities might impact the existing environment (including its cultural features); and • how controls and mitigation measures may be adopted to protect what is important to you. This information will be documented in activity specific EPs, which will be submitted to Australia's offshore energy regulator, NOPSEMA, for assessment and following acceptance, published online. However, you may request that information you provide not be published. The purpose of this consultation is further detailed in the NOPSEMA Consultation on Offshore Petroleum Environment Plans Brochure. Information about the project has been provided previously and is available on our website: www.shell.com.au/crux. Factsheets describing each of the activities that we have been consulting on are available below and outline the associated environmental risks and impacts: • the Crux Seabed Survey Factsheet • the Crux Drilling Template Installation Factsheet • the Crux Development Drilling Factsheet and • the Crux Installation and Cold Commissioning Factsheet. Full, draft Environment Plans, are also available on the Shell website. We want to offer you a final opportunity to consult on the relevant EPs before we resubmit them to NOPSEMA. If you wish to provide feedback on the Crux EPs, Shell requests that you please do so by no later than Thursday 26 October. After that date, Shell will close consultation in preparation for the resubmission of the EPs. Please call our Community Hotline on 1800 059 152 if you wish to discuss further.		
123.	**Wanparta Aboriginal Corporation (WAC)** *(Tier 2)*	31 March 2023 *(Initial email)* **Email to Shell**	[redacted]	**Phone call 19 June 2023** Spoke to their legal representative and sent through follow up email. **Email on 19 June 2023**	**Assessment** No objections or claims received in	Description of cultural heritage values in the EP describes how Sea country is valued for Indigenous cultural

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		02 August 202303 August 2023 04 August 2023 13 August 2023 14 August 2023 21 August 2023 23 August 2023 26 August 2023 **Email from Shell** 26 April 2023 26 May 2023 19 June 2023 02 August 2023 03 August 2023 09 August 2023 14 August 2023 16 August 2023 17 August 2023 23 August 2023 **Phone call** 19 June 2023 **In Person** 16 August 2023	[redacted]	I am a consultant with Advisian, and I am presently assisting Shell Australia with the Crux Project, a gas project off the Kimberley coast with potential environmental impacts for Traditional Owner groups who have sea country. I've just spoken with the office administrator at Maclean, and she suggested I emailed you also. The Shell Crux project is an extension to Shell's Prelude gas facility, about 190km offshore north-west Australia and 620km off the coast of Broome, WA. As part of the environmental approvals process, Shell is consulting with persons and organisations who may be affected by its activities on how it plans to manage environmental impacts. Shell is also consulting in order to improve its understanding of the sensitivities and values of the regions, and in particular, welcomes receiving of additional key information, or feedback on these. So far, Shell has held a number of consultations, in Perth, Broome and Darwin, and send out information in April and again in May, via email to all the relevant identified groups. However, we recognise that emails can get lost or overlooked, and so are following up with certain organisations, like Wanparta – in particular those with sea country, or active on coastal areas, where the Crux project may have an impact in the unlikely event of an accident or uncontrolled hydrocarbon spill. The priority is to make sure all the relevant groups have had the opportunity to hear about Crux and be consulted. I've attached some factsheets on the project, and links to the environmental plans for your information. There are 4 Environmental Plans (at this point), but only two of these have potential impacts coastline impact (Environmental Plans 3 and 4). I've also attached a map showing the modelled full possible extent of environmental impacts associated with these 2 Environmental Plans. The project details can be accessed at: www.shell.com.au/crux And the full draft Environmental Plans for the project can be accessed at: Draft Seabed EP Draft Drilling template EP Draft Development Drilling EP Please call if you have questions, comments, or concerns, and I can respond or can connect you with people in the Shell Crux project for further information. We can also organise additional information sessions via Teams or other options, if you think that would be useful for your people. **Email on 02 August** Hi and thank you for making contact. I'm a consultant advising Shell on these matters and have forwarded your email for urgent attention, and I will follow up tomorrow and revert to you. In the meantime, can you please let me know where the meeting should take place? **Email on 03 August 2023** Thanks again for making contact. I've conferred with Shell colleagues, and we would be delighted to present at the Wanparta meetings on 16 August.	relation to risks or impacts. **Relevant Matters and Not Relevant Matters** Provided information regarding the cultural importance of sea country, marine life, including totem species, and a healthy marine environment, which Shell considers to be relevant matters and are appropriately addressed in the EP – see Measures adopted for detail. The request for further consultation if project parameters change is not considered a relevant matters as it is already addressed within the MOC process described within section 10.	identity, health and wellbeing, including specific connections of the Ngarla People to certain locations within the Planning Area (e.g. Section 7.4.2) Consultation in preparation of this EP has been carried out in accordance with the Shell methodology. Refer to Table 5-11 for further information.

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			[redacted]	We will be in Broome the day before and can fly down on the morning of the 16th, arriving Port Hedland approx. 10am, so if you can schedule Shell for a slot later in the day, that would be great. I will confirm with you Shell attendees when I hear back from you. I also expect it would be helpful for us to prepare a presentation for the time slot – if you could let us know, I will put together some slides. **Email on 09 August 2023** Can you please confirm the location for the meeting on 16 August? At this point we anticipate 4 participants from Shell: Vice President, Prelude/Crux Shell Australia Environmental Advisor, Shell Australia Social Performance Advisor, Shell Australia Consultant assisting Shell, Advisian. The main focus for us is to present some information on Shell in Australia, the Crux project in particular and spend time understanding the priorities and concerns of Ngarla people. To this end the agenda as we have sketched out is 1. Brief introductions a. Wanparta b. Shell 2. Shell in WA and the Crux Project - what it is. 3. Impacts discussion. a. Environmental b. Indigenous social and economic 4. Priorities issues for Ngarla a. Where to from here – relationships into the future, opportunities I'll send through the presentation notes in the next few days. **Email on 14 August 2023** Please find attached a shorter version of the presentation we will work from. The Shell detail you sent through yesterday, while accurate, is very lengthy and not easy to immediately digest. The content I'm sending now is probably more useful in a short meeting like we have, and the additional information useful for anyone who wants to read further. We will bring copies of the above for all attendees. • Discussion around how oil spill modelling is based on different scenarios. • Discussion around sea country and explaining Shells processes around heritage values and Shells work on this. As part of this discussion led to protection of sea country and around ranger groups protecting sea country. Ngarla mentioned they did have a ranger program and currently don't have one anymore. • Community funding question asked and explained community funding and programs are around areas of Shell impact for Prelude, including areas of people movement in, Broome and Dampier Peninsula **Email on 16 August 2023**		

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				Thanks again to Wanparta for making time today to meet with Shell. It was lovely meeting with you, and the board. Please find the link to the Crux Video animation. Crux Animation - YouTube. Also, can you please send through the names of the board members that attended today? **Email on 17 August 2023** Thanks again to Wanparta for making time to meet with Shell. It was lovely meeting with yourselves and the board. Please find the link to the Crux Video animation. Crux Animation - YouTube. Also, can you please send through the names of the board members that attended yesterday? Thanks for the meeting yesterday, and please pass my thanks on to the Ngarla elders and directors. It was a pleasure meeting, albeit briefly. **Email on 23 August 2023** It was very good to meet you all too. (Named redacted) is an Environmental Advisor on Crux. Thanks		
124.	**Wirrawandi Aboriginal Corporation** *(Tier 2)*	31 March 2023 *(Initial email)* **Email from Shell** 5 April 2023 12 April 2023 26 April 2023 27 April 2023 26 May 2023 **Call from Shell** 09 November 2023	**Call from Shell 09 November 2023** See Shell response column for summary.	**Call from Shell 9 November 2023** Spoke with Wirrawandi Members services manager. They confirmed the correct email address to contact Wirrawandi. Shell outlined the dates of the 6 emails that had been sent to Wirrawandi and asked that if they could confirm they received them. Wirrawandi apologised for not responding sooner, and said they would check if they had received the emails and confirm and let the CEO know. Shell indicated that consultation is closed for the EPs related to the emails in preparation for submission of the EPs to NOPSEMA. Shell said that they would be in touch to consult on future EPs.	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.

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125.	**Wunambal Gaambera Aboriginal Corporation (WGAC)** *(Tier 1)*	Also consulted via 38 KLC 31 March 2023 *(Initial email)* **Email to Shell** 01 Sept 2023 14 Sept 2023 **Email from Shell** 26 April 2023 19 May 2023 25 May 2023 26 May 2023 19 June 2023 28 August 2023 31 August 2023 01 Sept 2023 05 Sept 2023 13 Sept 2023 14 Sept 2023 19 Sept 2023 02 October 2023 17 October 2023 **Phone call** 31 August 2023 -no answer 12 Sept 2023 20 October 2023 x 2 -no answer 25 October 2023 -no answer 26 October 2023 x 2 -no answer -message left **In Person** 15 Sept 2023	[redacted]	**Email on 28 August 2023** I am a consultant with Advisian, and I am presently assisting Shell Australia with the Crux Project, a gas project off the Kimberley coast with potential environmental impacts for Traditional Owner groups who have sea country. I've left a message on the Office phone but wanted to email also. The Shell Crux project is an extension to Shell's Prelude gas facility, about 190km offshore north-west Australia and 620km off the coast of Broome, WA. As part of the environmental approvals process, Shell is consulting with persons and organisations who may be affected by its activities on how it plans to manage environmental impacts. Shell is also consulting in order to improve its understanding of the sensitivities and values of the regions, and in particular, welcomes receiving of additional key information, or feedback on these. So far, Shell has held a number of consultations, in Perth, Broome and Darwin, and send out information in April and again in May, via email to all the relevant identified groups. However, we recognise that emails can get lost or overlooked, and so are following up with certain organisations, like Wunambal Gaambera – in particular those with sea country, or those active on coastal areas, where the Crux project may have an impact in the unlikely event of an accident or uncontrolled hydrocarbon spill. The priority is to make sure all the relevant groups have had the opportunity to hear about Crux and be consulted. I've attached some factsheets on the project, and links to the environmental plans for your information. There are 4 Environmental Plans (at this point), but only two of these have potential impacts coastline impact (Environmental Plans 3 and 4). I've also attached a map showing the modelled full possible extent of environmental impacts associated with these 2 Environmental Plans. The project details can be accessed at: www.shell.com.au/cruxAnd the full draft Environmental Plans for the project can be accessed at: Draft Seabed EP Draft Drilling template EP Draft Development Drilling EP Please call if you have questions, comments, or concerns, and I can respond or can connect you with people in the Shell Crux project for further information. We can also organise additional information sessions on country, via Teams or other options, if you think that would be useful for Wunambal Gaambera people. **Email on 31 August 2023** I am a consultant with Advisian, and I am assisting Shell Australia with the Crux Project, a gas project off the Kimberley coast. I've tried emailing and phoning and am trying one more time to reach you. Crux project is gas facility, about 190km offshore north-west Australia and 620km off the coast of Broome, WA. At its closest point, it is around 230 km from the Wanjina coastline. Crux will tie in with Shell's existing gas facility, Prelude. It is all offshore, but nonetheless, TO groups, Aboriginal Corporations and PBCs along the Kimberley coast need to have the opportunity to hear about Crux, ask questions and meet with Shell if they want.	**Assessment** No objections or claims received in relation to risks or impacts. **Relevant Matters and Not Relevant Matters** Provided advice regarding a source of heritage information and the community's general concern regarding oil spills, which Shell considers to be relevant matters and are appropriately addressed in the EP – see Measures adopted for detail.	Shell updated its environment description of cultural values based on information sources provided by the WGAC representative (see Section 7.4.2.1). EP Section 9.14 describes the assessment and management of potential spill risks and demonstrates that they have been reduced to ALARP, with Section 9.14.9 outlining Shell's position that a large-scale hydrocarbon release would be unacceptable. Shell has provided sufficient information and a reasonable period to assess information provided. Consultation has been carried out in preparation of this EP in accordance with the OPGGS(E) Regulations. Refer to Table 5-10 for further information supporting this.

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				Details: Shell is consulting with persons and organisations who may be affected by its activities on how it plans to manage the environmental impacts. It is required to do this. Shell is also consulting in order to better understand what's valuable and important to people in the regions. In particular, Shell welcomes receiving of additional key information, or feedback on the plans. So far, Shell has held a number of consultations, in Perth, Broome and Darwin, and sent out information several times, to all the relevant identified groups. I'm attaching some factsheets on the project, and links to the environmental plans for your information are below. There are 4 Environmental Plans (at this point), but only two of these have potential impacts coastline impact (Environmental Plans 3 and 4). I've also attached a map showing the modelled full possible extent of environmental impacts associated with these 2 Environmental Plans. The project details can be accessed at: www.shell.com.au/crux And the full draft Environmental Plans for the project can be accessed at: Draft Seabed EP Draft Drilling template EP Draft Development Drilling EP Please call if you have questions, comments or concerns. We can organise additional information sessions on country, in Kalumburu, or via Teams, if you think that would be useful. **Email 01 September 2023** Thanks very much, we'll follow up with them. **Email 01 September 2023** Good to hear from you and we will look forward to meeting up. As mentioned, we're happy to come out to Wunambul country or wherever works best for you and the people. **Email on 13 September 2023** Just following up on yesterday's call and your message last week. We're happy to try to meet this week here in Perth or can come to you in Wyndham. Let us know what works. **Email on 13 September 2023** Hope you're well, I've been passed on your details around a potential meeting at Shell House this Friday at 10am. We were hoping to move ahead with an initial meeting if this day and time still suits you. Really looking forward to meeting you and happy to chat to coordinate if easier. I have cc'd others into this email who will also be in attendance. **Email on 14 September 2023** Look forward to meeting you then also. If you could arrive 10 mins early so you can complete a quick site induction that would be great, I will come down and meet you in the Foyer.		

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				15 September 2023 meeting notes contained in sensitive matters report – summary of key outcomes: • WGAC did not have any specific objections to the Crux project. • It was noted that the impact from an oil spill is the biggest concern to community, not just from Crux. • No specific cultural values or sensitivities were identified. • WGAC made Shell aware of a book published on their heritage with stories passed down by the people. **Email on 19 September 2023** Thank you for your time last week meeting with Shell. We found the discussions to be very open, positive, and informative as to Wunambal Gaambera's current operations and priorities going forward. We will be continuing our planned submission timeframes for Environmental Plans (EP 1&2 this week, EP 3 mid-October and EP End October) and are committed to ongoing genuine and transparent discussions with yourselves in alignment with your specific wishes. I have attached our notes from the meeting and trust these are an accurate representation of discussions held, if you would like anything amended, please let us know. As discussed, we will be in touch to work through logistics to arrange the suggested on-country meeting with Directors at Truscott Airport from mid to late October. If you need anything in the interim, please don't hesitate to reach out. **Email on 2 October 2023** Hope you're well, just wanted to follow-up on the below email to see if you had any amendments to be made to the notes or were needing any further info from our end? **Email on 17 October 2023** It was good meeting in September and hope you are doing well. In the meeting we had in Perth, we talked about the four different Environmental Plans relevant to the Crux project and how you, as Relevant Persons (under the NOPSEMA guidelines), need to be consulted, and have an opportunity to provide input into the Plans. Specifically, this input helps inform. • our understanding of the existing environment which may be affected by Shell's proposed activities, including the cultural features of that environment. • how our activities might impact the existing environment (including its cultural features); and • how controls and mitigation measures may be adopted to protect what is important to you. The four Environmental plans cover off on the four key stages to the Crux Project development (see the map below): 17. The Drilling Template – installing the drilling 'jig' or structure on the seabed 18. The Seabed Survey – checking the route on the seabed floor between Crux and Prelude to make sure it is safe and clear 19. Development Drilling – drilling the wells. 20. Installation and Cold Commissioning – installing the rest of the Platform, the pipelines and testing it all.		

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				We haven't heard back from you as yet so are just checking in to see how these are going, as well as update you on Shell timeframes. At this point, Shell is planning to commence submitting the Environmental Plans to NOPSEMA in the next weeks, in order to meet internal deadlines. So, if there is other information you can provide, or comment you want to make, please let us know as soon as possible, and definitely before Friday 27th October. After this time, consultation for the purposes of preparing the Environmental Plans will be considered closed. Relationships beyond Environmental Plans are really important to us. We are open to meeting for other areas outside of these Environmental Plans, including keeping you updated as the project progresses, future Environmental Plans required for this project, learning more about your country and culture, and to keep the relationship strong. I will give you a call to follow up later in the week, but my mobile is below if you needed to reach me in the interim. **Phone call on 26 October 2023** Voicemail left asking General Manager of Wunambal Gaambera return call or email in response to email from 17 October 2023.		
126.	**Yagbani Aboriginal Corporation**	31 March 2023 *(Initial email)* **Email from Shell** 12 April 2023 26 April 2023 19 May 2023 25 May 2023 26 May 2023 19 June 2023	No response.	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.

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127.	**Yimpinari (Melville Island)**	Consulted via 119 TLC	No response	Not applicable	No feedback, objections or claims received.	TLC has legal responsibilities under the Aboriginal Land Rights Act, the council is responsible to ensure that activities on the Tiwi islands are undertaken only after consultation with the relevant Tiwi Clan group. At the request of the TLC, Shell met with the board, including additional TLC employed subject matter experts (i.e. anthropologist and environmental advisor) on 26 May 2023. At the meeting Shell explained the activities of this EP and the impacts and risks which may affect their functions, interests or activities. Shell also asked for input on particular values or features which may be affected by Shell's activities which we currently are not aware of (Refer to Appendix A). Multiple information requests were made by TLC which were subsequently provided by Shell. Shell also specifically requested for further meetings with clan groups of the Tiwi Islands, to which they said it was important to first consult with TLC and that TLC would make a decision the need for further consultation with clan groups of the Tiwi Islands based on an assessment of if their functions, interests or activities may be affected. Shell followed up this with a further request to confirm their wishes related to consultation with clan groups on 19 June 2023 and TLC

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						responded on 11 July 2023 stating there were no further relevant matters to raise for the preparation of this EP. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
128.	**Yugul Mangi Rangers**	Consulted via 114 NLC	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the

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ID	Name					
						course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
129.	**Larrakia Nation Aboriginal Corporation** (Includes the Larrakia Rangers) *(Tier 2)*	31 March 2023 *(initial email)* **Email to Shell** 17 April 2023 25 May 2023 27 July 2023 02 August 2023 08 August 2023 21 August 2023 19 Sept 2023 **Email from Shell** 12 April 2023 22 April 2023 26 April 2023 27 April 2023 03 May 2023 08 May 2023 19 May 2023 25 May 2023 26 May 2023 30 May 2023 20 July 2023 27 July 2023 02 August 2023 08 August 2023 10 August 2023 21 August 2023 31 August 2023 06 Sept 2023 08 Sept 2023 11 Sept 2023 **Phone call** 30 May 2023 **In Person** 05 Sept 2023	[redacted]	**Email on 03 May 2023** Apologies for the delayed response we were still finalising details for the forum in Broome next week 10th May. Please see invite above and details of how to book below. We hope that a member from Larrakia is able to attend. Email included details about booking trave with InTravel Group. **Email on 25 May 2023** Our apologies for the delays in responding - I am not sure if someone from Shell has got back to you with information about the Crux project. This is just a quick note as I think others from the Shell team may also be following this up, but I wanted to let you know that senior Shell staff, and myself as facilitator, will be in Darwin today and do have some time this afternoon, and would be keen to meet representatives from Larrakia if that works. I realize this is very short notice and may not be possible. The Shell team and I will be back in Darwin next Wednesday 31 May for the final forum. This will run from 9.30 till 1.30 and is a drop in format. If Larrakia people would like to come to this, it would be a good opportunity to hear about Crux and ask questions directly of Shell before the environmental plans are submitted. I'll be happy to help organize either of these. There will be ongoing opportunities for consulting with Shell about the project also. **Email on 26 May 2023** Just a quick reminder that the Crux team will be in Darwin tomorrow, for drop-in meetings. If Larrakia are keen to chat to senior Shell staff about the project, we will be at the Hilton, opposite NLC from 9.30am – 2pm. The meetings will be held in the Boardroom. **Phone call on 30 May 2023** Reminder of event in Darwin. **Email on 20 July 2023** Although we didn't have an opportunity to meet with you yet, we want to give Larrakia a brief update on where Shell is with the submission of the four Crux Environmental Plans, and what happens next. The first two EPs – the Seabed survey and the Drilling template (both of which have very limited potential impact areas, well offshore) will be submitted to NOPSEMA by the end of this week. The Drilling Development EP will be submitted next week, and the Cold Commissioning EP later in the year, in November. We are grateful for the meetings we have had in the NT, with NLC, the Tiwi Island Land Council and others in WA, during the consultation period. One of the repeated comments we heard loud and clear over the course of these meetings, is the importance of ongoing relationships – that Aboriginal groups are looking for long term relationships with industry operators, where they can partner to share	**Assessment** No objections or claims received in relation to impacts or risks. **Relevant Matters and Not Relevant Matters** Provided information that there is an underwater heritage site off Croker Island which was considered to be a relevant matter and the description of environment updated accordingly – see Measures adopted for detail. Also requested Larrakia be notified in event of a major spill, which has been incorporated into Shell's spill notification requirements for the activity - see Measures adopted for detail. All other issues raised are considered not to be relevant matters. Shell's responses to feedback are set out here.	EP Section 7.4.2 updated to include reference to the 'Lightning Man' underwater cultural site near Croker Island. Assessment of risks to cultural heritage (Section 9.14.6.3) amended to specifically identify areas around Croker Island. EP Table 10-4 includes requirement for Larrakia to be notified in the event of an emergency spill event which has the potential to impact Larrakia country. Consultation in preparation of this EP has been carried out in accordance with the Shell methodology. Refer to Table 5-11 for further information.

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				knowledge, resources, and skills, provide consultancy on critical cultural heritage matters, and collaborate in providing opportunities. So - Shell is keen to build the relationship. We'd like to return to Darwin in the next few months, and if possible, meet with Larrakia to provide an update on the Crux project, hear any concerns, and respond to issues that may have arisen. And, to discuss future partnership opportunities. Shell invests and works with communities close to its operations and we look forward to conversations about opportunities and priorities that Larrakia Nation may have. At this stage, we are looking at being in Darwin in September/ October of this year. If this is an opportunity Larrakia people would like to take up, please let us know so we can work on schedules and timing. We'd be happy to respond to any other issues relating to the Crux project, too. **Email on 27 July 2023** Thanks for the phone call and response. I've sent those details through to Shell and will get back to you ASAP on one of those dates/ times. Thanks again, and we look forward to meeting. **Email on 02 August 2023** I have now heard back from Shell staff and the preference is for the meeting take place on Tues 5th September, 12.30-1.00pm Darwin time, as per your earlier email. I hope this time still works – if you can please confirm with us. We look forward to meeting with Larrakia and will be in touch closer to the date. If you can please also let us know who will be attending from Larrakia side. I will confirm prior to the meeting, but at this stage we anticipate: Shell Australia - Crux Project Development Manager Shell Australia - Environmental Officer Shell Australia - External Affairs Advisian – Consultant **Email on 8 August 2023** Thanks again, I have forwarded this to the Shell team, and we are looking forward to meeting. **Email on 21 August 2023** I was just speaking with the National Indigenous Engagement Manager for Shell. We noted that the meeting with Larrakia is for 30 mins. Crux is a substantial project, and at this point there are four Environmental Plans, two of which are relevant for Larrakia. May I suggest allowing up to an hour for the meeting, if that is possible? I think allowing for a full discussion would be helpful for Larrakia people. **Email on 21 August 2023** Thanks – we look forward to the meeting. **Email on 31 August 2023** In preparing for Tuesdays meeting, I would like to confirm the attendees and proposed outline. Attending		

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				Shell - Crux Project Development Manager Shell - Environmental Officer Shell - External Affairs Advisian - Principal Consultant Proposed outline 1. Introductions – Larrakia, Shell 2. Some background on Shell in Australia and Shell in WA 3. Crux - what it is, where it is at now. 4. Environmental Management and Impacts 5. Priorities for Larrakia 6. Where to from here. If there is other items Larrakia would like to discuss, can you please advise? We anticipate the meeting being quite informal and can respond to issues as they come up. Thank you and we are looking forward to it. **Email on 6 September 2023** Just a quick note to thank you for the meeting yesterday. We really enjoyed the time together. It's good to be able to talk face to face. There were a few points we agreed to get back to you on, and I know we took notes of the meeting also. From memory – - We'll get back to you with the contact details for (Social performance) and (Shell supply base Darwin), and if you want Shell to help set up a meeting, let them know. - We'll also ensure your details are listed for contact in the event of any incident – Shell will follow that through. We're keen that this be the start of a relationship rather than just a one off, and so please let us know if you are in Perth, and vice versa, if we are back on Larrakia country we'll drop by (if it is convenient). **Email on 8 September 2023** Thank you again for meeting with us on Tuesday 5th. We greatly appreciated you making time available. I have since spoken to the Darwin Supply Base Manager and she would welcome the opportunity to meet with you. I have copied her into this email. She has some of the Social Performance team visiting from Perth in November so that might be a good timing for the meeting. They will be in touch to set up a meeting. **Email on 11 September 2023** Just finalizing the notes from the meeting last week. As mentioned, Shell has obligations to consult relevant persons in line with NOPSEMA regulations/brochure. Relevant persons have rights to be consulted and to raise issues/objections/claims. With that in mind, again, our thanks for the time, and we look forward to future meetings. Present Larrakia CEO		

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				Larrakia Liaison Office Shell Crux Project Business Manager Shell External Affairs Shell Environmental Officer Advisian Consultant Meeting notes 1. (Shell Environmental Advisor) asked about understanding cultural values and features of the environment to better inform impact and risk assessments for spills related to their country. Larrakia CEO is from West Arnhem land, Croker Island. He mentioned an underwater cultural site just off Croker Island called Lightning Man. Shell suggested that to help protect that site in the event of a spill the relevant persons would be contacted. Larrakia provided the contact as NLC Arnhem office (Jabiru 3 Government Building Flinders Street Jabiru, NT 0886 Tel: (08) 8938 3000). Shell has this noted for action in such an event. 2. Larrakia requested to be contacted, directly to the CEO's mobile and email in the event of a major spill which might impact them. Shell agreed to this measure. 3. Shell asked about other relevant persons they know which we should consult with. No suggestions were made. 4. As discussed, the contact details for t Darwin Supply Base Manager are provided with a view to discussing potential what commercial arrangements may be possible in the future. Please contact me with any clarifications or further notes.		
130.	**Wooramulla Eco Cultural Journeys**	04 April 2023 *(Initial email)* 08 May 2023 *(follow up)*	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8).

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						Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
131.	**Ardyaloon Trochus Hatchery and Aquaculture Centre**	22 April 2023 *(initial email)* 08 May 2023 *(follow up)*	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
132.	**NT Indigenous Business Network**	04 April 2023 *(initial email)* 08 May 2023 *(follow up)*	No response	Not applicable	No feedback, objections or claims received.	In accordance with Shell approach, multiple attempts have been made to contact this Relevant Person during a reasonable period with no response received to date. In addition, other mechanisms have been used to comply with Shell's requirement to consult with Relevant Persons on the proposed activity. Further, Relevant Persons can provide feedback to

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						Shell via the EP webpage during the implementation of the EP with any new relevant matters assessed in accordance with the EP (Section 5.8). Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.
519.	**Wulirankuwu (Melville Island)**	Consulted via TLC (RP119.)	No response	No response	No feedback, objections or claims received.	TLC has legal responsibilities under the Aboriginal Land Rights Act, the council is responsible to ensure that activities on the Tiwi islands are undertaken only after consultation with the relevant Tiwi Clan group. At the request of the TLC, Shell met with the board, including additional TLC employed subject matter experts (i.e. anthropologist and environmental advisor) on 26 May 2023. At the meeting Shell explained the activities of this EP and the impacts and risks which may affect their functions, interests or activities. Shell also asked for input on particular values or features which may be affected by Shell's activities which we currently are not aware of (Refer to Appendix A). Multiple information requests were made by TLC which were subsequently provided by Shell. Shell also specifically requested for further meetings with clan groups of the Tiwi Islands, to which they said it was important to first

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						consult with TLC and that TLC would make a decision the need for further consultation with clan groups of the Tiwi Islands based on an assessment of if their functions, interests or activities may be affected. Shell followed up this with a further request to confirm their wishes related to consultation with clan groups on 19 June 2023 and TLC responded on 11 July 2023 stating there were no further relevant matters to raise for the preparation of this EP.
520.	**Wurankuwu (Bathurst Island)**	Consulted via TLC (RP119.)	No response	No response	No feedback, objections or claims received.	TLC has legal responsibilities under the Aboriginal Land Rights Act, the council is responsible to ensure that activities on the Tiwi islands are undertaken only after consultation with the relevant Tiwi Clan group. At the request of the TLC, Shell met with the board, including additional TLC employed subject matter experts (i.e. anthropologist and environmental advisor) on 26 May 2023. At the meeting Shell explained the activities of this EP and the impacts and risks which may affect their functions, interests or activities. Shell also asked for input on particular values or features which may be affected by Shell's activities which we currently are not aware of (Refer to Appendix A). Multiple information requests were made by TLC which were subsequently provided by Shell. Shell also

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						specifically requested for further meetings with clan groups of the Tiwi Islands, to which they said it was important to first consult with TLC and that TLC would make a decision the need for further consultation with clan groups of the Tiwi Islands based on an assessment of if their functions, interests or activities may be affected. Shell followed up this with a further request to confirm their wishes related to consultation with clan groups on 19 June 2023 and TLC responded on 11 July 2023 stating there were no further relevant matters to raise for the preparation of this EP.
Commercial Fisheries						
133.	**A12 Aquarium (9 license holders)**	27 April 2023 *(letter)*	No response	Not applicable	No feedback, objections or claims received.	
134.	**A5 Offshore Net Line** (8 license holders)	27 April 2023 *(letter)*	No response	Not applicable	No feedback, objections or claims received.	
135.	**A4 Spanish Mackerel** (9 license holders)	27 April 2023 *(letter)*	No response	Not applicable	No feedback, objections or claims received.	
136.	**A6 Demersal** (12 license holders)	27 April 2023 *(letter)*	No response	Not applicable	No feedback, objections or claims received.	
137.	**A13 Trepang** (1 license holders)	27 April 2023 *(letter)*	No response	Not applicable	No feedback, objections or claims received.	
138.	**A18 Timor Reef** (10 license holders)	27 April 2023 *(letter)*	No response	Not applicable	No feedback, objections or claims received.	
139.	**Abalone Managed Fishery Licence** (25 license holders)	26 April 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
140.	**Aquatic Life Group**	28 April 2023	[redacted].	Not applicable	No feedback, objections or claims received.	

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
		(Initial email-through WAFIC) 01 May 2023 *(Email to Shell via WAFIC)*				
141.	**Broome Prawn** (1 license holder)	26 April 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
142.	**Commonwealth Fisheries Association**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
143.	**Individual fishery license holder**	26 April 2023 *(On-line form submission)* **Email from Shell** 2 May 2023	[redacted]	**Email on 02 May 2023** Provided the relevant coordinates for Seabed Survey EP. Provided a map for the Crux Seabed Survey Operating Area. Noted that WAFIC will also be consulting on our behalf with all WA managed fisheries in the activity / operations area.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant Matters and Not Relevant Matters** Requested further information regarding the activity. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
144.	**Kimberley Crab Managed Fishery Licence** (1 license holder)	26 April 2023 *(Letter)*	No response	Not applicable	No feedback, objections or claims received.	
145.	**Kimberley Prawn Managed Fishery Licence** (65 license holders)	27 April 2023 *(Letter)*	No response	Not applicable	No feedback, objections or claims received.	
146.	**Mackerel Managed Fishery Licence** (24 license holders)	26 April 2023 *(Letter)*	No response	Not applicable	No feedback, objections or claims received.	
147.	**Marine Aquarium Fish Managed Fishery Licence** (11 license holders)	26 April 2023 *(Letter)*	No response	Not applicable	No feedback, objections or claims received.	
148.	**Northern Demersal Scalefish Managed Fishery Licence** (6 license holders)	26 April 2023 *(Letter)*	No response	Not applicable	No feedback, objections or claims received.	
149.	**North-West Slope Trawl Fishery** (3 license holders)	30 March 2023 (*Initial email)*	No response	Not applicable	No feedback, objections or claims received.	

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
150.	**Pearl Oyster Fishery**	28 April 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
151.	**Seafood Industry Association**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
152.	**South-West Coast Salmon** (7 license holders)	28 April 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
153.	**Specimen Shell Managed Fishery Licence** (30 license holders)	26 April 2023 *(Letter)*	No response	Not applicable	No feedback, objections or claims received.	
154.	**West Coast Deep Sea Crustacean Managed Fishery Licence** (4 license holders)	26 April 2023 *(Letter)*	No response	Not applicable	No feedback, objections or claims received.	
155.	**Western Australian Fishing Industry Council (WAFIC)**	27 Mar 2023 *(Initial email)* **Email to Shell** 04 April 2023 19 April 2023 28 April 2023 16 May 2023 17 May 2023 22 May 2023 26 May 2023 29 May 2023 01 June 2023 **Email from Shell** 04 April 2023 06 April 2023 17 April 2023 18 April 2023 19 April 2023 26 April 2023 09 May 2023 16 May 2023 17 May 2023 19 May 2023 02 June 2023 **Teams meeting**	[redacted]	**Email on 27 March** Request for meeting to discuss appropriate consultation with WA State managed fisheries. **Email on 17 April 2023 and call on 18 April.** Shell confirmed they would contract WAFIC to contact its relevant members as per information sent by WAFIC on 4 April. (In addition to contacting concession holders directly) **Email and phone call on 26 April 2023** Provided a list of WA managed fisheries in the Crux operational area to WAFIC. **Email on 28 April 2023** WAFIC sent out consultation pack (produced in collaboration with Shell) to license holders in the operational area: To Commercial Licence Holders, As part of the Environment Plan approvals process, Shell is undertaking consultation with relevant persons who may be impacted by the activities we are proposing in relation to the development of the Crux project. There are four relevant Environmental Plans that cover activities for the Crux project. Shell is working with the Western Australian Fishing Industry Council (WAFIC) to consult on these four Environmental Plans with WA managed fisheries who have activities and/or interests that overlap with the Crux project activity / operations area. The Crux project is an offshore gas development that is expected to be important in providing future supply for Shell's existing Prelude Floating Liquid Natural Gas (FLNG) facility. The proposed project consists of a not normally manned platform with five production wells. The platform will be connected to the Prelude FLNG facility via a 160km pipeline and will be operated remotely from the Prelude FLNG facility. The project is located in Commonwealth waters in the northern Browse Basin, 190 km offshore north-west Australia and 620 km north-east of Broome. Detailed information about these activities is available on our website (http://www.shell.com.au/crux), together with maps of	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant Matters and Not Relevant Matters** WAFIC's recommendations/best practice suggestions regarding the Crux Project have been appropriately addressed through the OPP and development of EPs – e.g. the description of environment (Section 7) was informed by baseline studies, timing/sensitivities and cumulative impacts considered in the assessment of impacts/risks (e.g. Section 9.2.2) and spill response measures described in detail (Section 9.15) With regard to the adjustment protocols developed for the NERA Collaboration EP, Shell commits to adopt these protocols	WAFIC's recommendations/best practice suggestions regarding the Crux Project have been appropriately addressed through the OPP and development of EPs – e.g. the description of environment (Section 7) was informed by baseline studies, timing/sensitivities and cumulative impacts considered in the assessment of impacts/risks (e.g. Section 9.2.2) and spill response measures described in detail (Section 9.15). With regard to the adjustment protocols developed for the NERA Collaboration EP, Shell commits to adopt these protocols when applicable to the unplanned activities described within this EP. This has been address in the implementation statement, Section 10.7.6.

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
		06 April 2023 21 April 2023 27 April 2023 **Phone Calls** 18 April 2023 26 April 2023	[redacted]	impacted areas. We have also attached relevant information to this email including four factsheets outlining the main areas of activity, relevant figures and pipeline coordinates in 1km intervals of the approximate 165km export pipeline (note exact pipeline coordinates are subject to change as the project progresses). Note the 500 m Petroleum Safety Zone will be in place and marked on all relevant marine navigation charts. The Safety Zone will remain in place for the life of the Crux project. A notice to mariners will be issued via the Australian Hydrographic Office in advance of any activities commencing. Attachments on this email included: • Shell's Crux Project • Seabed Survey Environment Plan Factsheet • Drilling Template Environment Plan Factsheet • Development Drilling Environment Plan Factsheet • Installation and Cold Commissioning Environment Plan Factsheet • Proposed Export pipeline coordinates (subject to change) Also provided were relevant coordinates, a map of the operations area and a map of the project location and the four overlapping WA Managed Fisheries in the activity / operational area for the Crux project. Further Consultation Opportunity and Information WAFIC will be in further contact via email to invite you to a consultation to seek any further clarification. Alternatively further information can be sort by: • visit http://www.shell.com.au/crux for a more detailed breakdown of the Crux project • email: SDA-CRUX-PROJECT@shell.com • call: 1800 059 152. Can you please provide any concerns or feedback about the Environment Plans to this email by 26 May 2023. **Email on 22 May 2023** WAFIC Email invitation to a briefing session was sent to licence holders in the operational area on the 22 May 2023: To Commercial Licence Holders, Shell is inviting licence holders within the Crux Project Operations Area to participate in a briefing session to further inform the four Environment Plans (attached) previously delivered to you on the 28/04/23. The Crux Project which is in Commonwealth waters in the northern Browse Basin, 190 km offshore north-west Australia and 620 km north-east of Broome, is important in providing future supply for Shell's existing Prelude Floating Liquid Natural Gas facility. The briefing session will address any industry concerns and risks to the commercial fishing industry in the context of the marine environment. This session will be available online via zoom or in person at the WAFIC office in Fremantle. BRIEFING DATE: Monday 29th May, 1:00–2:00pm AWST	when applicable to the unplanned activities described within this EP.	Based on consultation undertaken for preparation of this EP, no other additional measures have been adopted. Accordingly, consultation in the course of preparation of the EP has been completed in accordance with the OPPGS (E) Regulations.

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ID	Name					
				Please RSVP your attendance to (name redacted) @wafic.org.au and preferred method (online or in person at the WAFIC office) ahead of the briefing session to receive a zoom meeting invite/link. Please also direct any specific questions you have prior so these can be addressed in the briefing. **Email on 2 June 2023** Shell appreciates your guidance and support in consultation with your members and look forward to continuing meaningful consultation for future works. WAFIC's assessment of the works will be considered to inform production of our EPs.		
156.	**Western Tuna and Billfish Fishery** (59 license holders)	30 March 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
157.	**Seafarms Group Ltd**	04 April 2023 *(initial email)* 08 May 2023 *(follow up)*	No response	Not applicable	No feedback, objections or claims received.	
158.	**Clipper Pearls Pearl Farm**	04 April 2023 *(initial email)* 08 May 2023 *(follow up)*	No response	Not applicable	No feedback, objections or claims received.	
159.	**Gascoyne Demersal Scalefish Managed Fishery Licence** (21 license holders)	26 April 2023 (letter)	No response	Not applicable	No feedback, objections or claims received.	
160.	**Cygnet Bay Pearl Farm**	04 April 2023 *(initial email)* 08 May 2023 *(follow up)*	No response	Not applicable	No feedback, objections or claims received.	
161.	**Maxima Opportuntity Group**	04 April 2023 *(initial email)* 08 May 2023 *(follow up)*	No response	Not applicable	No feedback, objections or claims received.	
162.	**WA Seafood Exporters**	04 April 2023 *(initial email)* 08 May 2023 *(follow up)*	No response	Not applicable	No feedback, objections or claims received.	
163.	**Northern Prawn Fishery Industry Pty Ltd**	04 April 2023 *(initial email)* 08 May 2023 *(follow up)*	No response	Not applicable	No feedback, objections or claims received.	
164.	**Western Rock Lobster Council**	04 April 2023 *(initial email)* 09 May 2023 *(follow up)*	No response	Not applicable	No feedback, objections or claims received.	
165.	**Aquaculture Sites**	26 April 2023 *(letter)*	No response	Not applicable	No feedback, objections or claims received.	

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
166.	**Australian Northern Prawn Fishery**	30 March 2023 *(letter)*	No response	Not applicable	No feedback, objections or claims received.	
167.	**Exmouth Gulf Prawn Managed Fishery Licence**	26 April 2023 *(letter)*	No response	Not applicable	No feedback, objections or claims received.	
168.	**Kimberley Gillnet and Barramundi Managed Fishery Licence**	26 April 2023 *(letter)*	No response	Not applicable	No feedback, objections or claims received.	
169.	**Nickol Bay Prawn Managed Fishery Licence**	26 April 2023 *(letter)*	No response	Not applicable	No feedback, objections or claims received.	
170.	**North Coast Shark**	01 May 2023 *(letter)*	No response	Not applicable	No feedback, objections or claims received.	
171.	**Onslow Prawn Managed Fishery Licence**	26 April 2023 *(letter)*	No response	Not applicable	No feedback, objections or claims received.	
172.	**Pilbara Crab Managed Fishery Licence**	26 April 2023 *(letter)*	No response	Not applicable	No feedback, objections or claims received.	
173.	**Pilbara Fish Trawl Interim Managed Fishery Permit**	26 April 2023 *(letter)*	No response	Not applicable	No feedback, objections or claims received.	
174.	**Pilbara Trap Managed Fishery Licence**	26 April 2023 *(letter)*	No response	Not applicable	No feedback, objections or claims received.	
175.	**Trochus IOE**	01 May 2023 *(letter)*	No response	Not applicable	No feedback, objections or claims received.	
176.	**West Coast Rock Lobster Managed Fishery Licence**	01 May 2023 *(letter)*	No response	Not applicable	No feedback, objections or claims received.	
177.	**Western Deepwater Fishery**	30 March 2023 *(letter)*	No response	Not applicable	No feedback, objections or claims received.	
178.	**Pearl Producers Association**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
179.	**Australian Southern Bluefin Tuna Industry Association**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
180.	**Southern Bluefin Tuna Management Advisory Committee (SBTMAC)**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
181.	**Tropical Tuna Management Advisory Committee**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
182.	**TUNA Australia**	30 March 2023 *(Initial email)* **Email to Shell** 30 March 2023 31 March 2023 05 April 2023 18 May 2023 **Email from Shell** 04 April 2023 09 May 2023 30 May 2023	[redacted]	**Email on 30 May 2023** Many thanks for providing Tuna Australia's industry position statement on '*Engagement with companies seeking to conduct marine activities within Australian tuna longline fishery areas*. On this occasion to ensure compliance with the revised NOPSEMA consultation guidelines, Shell has consulted directly with concession holders. We look forward to discussing your position statement further with NOPSEMA so it can be considered as the consultation mechanism for your members for future Environment Plans.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant Matters and Not Relevant Matters** Provided information regarding preferred engagement processes. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
183.	**Australia Bay Seafoods**	30 March 2023 *initial email)* **Email to Shell** 31 March 2023 **Email from Shell** 09 May 2023 18 May 2023	[redacted]	**Email on 18 May 2023** Close out email sent which covered the following: • thanked relevant person for their feedback. • recapped on what we're consulting on and the obligation to consult under the regulations. • notified of the management of feedback if any details should be considered sensitive information. • reconfirmed contact details.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** Requested to be kept informed of progress and any issues that may affect their industry/livelihood. Shell responded to feedback accordingly and advised Australia Bay Seafoods will be kept updated on project as part of ongoing consultation.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
Industry						
184.	**Carnarvon Energy Ltd**	08 May 2023 *(Initial email)* **Email to Shell** 17 May 2023 **Email from Shell** 23 May 2023	[redacted]	**Email on 23 May 2023** Close out email sent which covered the following: • Thanked relevant person for their feedback. • recapped on what we're consulting on and the obligation to consult under the regulations. • notified of the management of feedback if any details should be considered sensitive information. • reconfirmed contact details.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** No relevant matters raised. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
185.	**Finder No 1**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
186.	**Jadestone Energy**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
187.	**Melbana Energy AC/P70**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
188.	**PTTEP Australasia (Ashmore Cartier)**	08 May 2023 *(phone call – no email available. Number rings off).*	No contact made.	Not applicable	No feedback, objections or claims received.	
189.	**Santos Ltd**	08 May 2023 *(Initial email)* **Email to Shell** 11 May 2023 **Email from Shell** 11 May 2023	[redacted]	**Email on 11 May 2023** Redirected email as per request.	No feedback, objections or claims received.	
190.	**Vulcan Exploration P/L**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
191.	**INPEX**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
192.	**3D Oil Ltd**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
193.	**Arafura Oil**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
195.	**BP Developments Australia**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
197.	**Buru Energy Ltd**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
198.	**Chevron Australia**	22 June 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
199.	**Coastal Oil & Gas**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	

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ID	Name					
200.	**Energy Resources Ltd**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
201.	**Eni Australia Ltd**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
202.	**ENOG Rsources Australia Block WA-4-488 P/L**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
203.	**Esperanca Timor Oan Lda**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
204.	**Good H2 Darwin**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
207.	**Imperial Oil & Gas**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
208.	**IPB WA 424P**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
209.	**KATO Energy (WA)**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
210.	**KUFPEC (Perth)**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
212.	**MEO International**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
213.	**Mobile Australia Resources Company**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
214.	**Neptune Energy Bonaparte**	08 May 2023 *(Initial email)* 25 May 2023	No response	Not applicable	No feedback, objections or claims received.	
215.	**NT Gas Aust**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
216.	**Pathfinder Energy**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
217.	**SapuraOMV Upstream (WA)**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
218.	**Skye Petroleum**	09 May 2023 *(submitted via online form, as no email address)*	No response	Not applicable	No feedback, objections or claims received.	

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
219.	**SundaGas Banda Uniperssoal Lda**	09 May 2023 *(submitted via online form, as no email address)*	No response	Not applicable	No feedback, objections or claims received.	
220.	**Timor Gap EP**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
221.	**Timor Resources**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
222.	**Vermilion Oil & Gas Australia**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
223.	**Western Gas**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
224.	**Woodside Energy Ltd**	08 May 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
Tourism Operators						
227.	**Mudz Enterprise**	22 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
228.	**Oolin Sunday Island Cultural Tours**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
229.	**The Great Escape Charter Company**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
230.	**True North Kimberley Cruises**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
231.	**Derby Lodge**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
232.	**Goombaragin Eco Retreat**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	

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ID	Name					
233.	**In WA Adventures**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
234.	**AAT Kings Darwin Day Tours**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
235.	**Absolute Ocean Charters**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
236.	**Adventure Wild Kimberley Tours**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
237.	**Alure Fishing Charters NT**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
238.	**Apartments at Blue Seas Resort**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
239.	**Aurora Expeditions**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
240.	**Auriga Marine**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
241.	**Australian Pinnacle Tours**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
242.	**Australia's Coral Coast**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
243.	**Baiyungu Dreaming**	04 April 2023 *(Initial email)* 08 May 2023	No response	Not applicable	No feedback, objections or claims received.	

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ID	Name					
		(Follow-up email)				
244.	**Banana Well Getaway**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
245.	**Barn Hill Beach Side Station Bay**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
246.	**Bayside Holiday Apartments**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
247.	**Berkley River Lodge**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
248.	**Birds Eye View Ningaloo**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
249.	**Blue Seas Resort**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
250.	**Bluesun Kimberley**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
251.	**Borrgoron Cultural Tours**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
252.	**Breezes Apartments**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
253.	**Broome Adventure Company - Turtle Kayak**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
255.	**Broome Cruises / Rottnest Cruises**	04 April 2023 *(initial email)*	[redacted]	**Email on 27 April 2023**	**Assessment**	Based on consultation undertaken for

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<table>
<tr><th colspan="2">Relevant Person</th><th rowspan="2">Dates of correspondence and follow up</th><th rowspan="2">Summary of relevant person response</th><th rowspan="2">Summary of Shell's response</th><th rowspan="2">Assessment of merits of objection or claim.
Relevant matters / non-relevant matters</th><th rowspan="2">Measures adopted and Consultation Carried Out</th></tr>
<tr><th>ID</th><th>Name</th></tr>
<tr><td></td><td></td><td>Email to Shell
04 April 2023
Email from Shell
27 April 2023
18 April 2023</td><td>[redacted]</td><td>Apologies that we have taken a while to get back to you – we wanted to ensure we got you the right information.

Thank you for reaching out and raising your interest in humpback whale migration which as you highlight below is an important species which supports whale watching tours from Broome during the winter months. On this basis, we'll continue to identify Rottnest Cruises as a relevant person for EP's which may impact on humpback whale migration.

Below is a summary of the predicted impacts from the activities which Shell is planning as a result of the Crux project.

<table>
<tr><th>Environment Plan</th><th>Predicted Impacts</th></tr>
<tr><td>Seabed Survey</td><td>This activity is not predicted to impact the whale biologically important area which is 120 km from the activity area.</td></tr>
<tr><td>Drilling Template Installation</td><td>This activity is not predicted to impact the whale biologically important area which is 120 km from the activity area.</td></tr>
<tr><td>Development Drilling</td><td>This activity is not predicted to impact the nearest whale biologically important area which is 120 km from the activity area.</td></tr>
<tr><td>Installation and cold commissioning</td><td>The pile driving activity within this broader scope is source of high sound levels which has the potential to impact humpback whales and other cetaceans within the impact area of the activity for sound which based on noise modelling carried out recently by Jasco is predicted to be about 90km at most. Noise impacts from the piling will not impact the nearest blue whale or humpback whale BIA which are at least 120km km from the nearest lowest.

Shell are implementing controls like dedicated marine mammal observers to mitigate potential impacts to whales from this activity.</td></tr>
</table>

We are happy to elaborate on this or you can get further information from the draft EP which we intend to publish on the Shell website (the first two EPs will be published within the next couple of days). We have taken your request to be focused on planned impacts (from 'drilling and seismic') to humpback whales and associated biologically important areas for humpbacks. We therefore have not included information about the potential impacts from rare major spill events. Please do let us know if you would like more information on this too.

Email on 18 May 2023
Close out email sent which covered the following:
• thanked relevant person for their feedback.
• recapped on what we're consulting on and the obligation to consult under the regulations.</td><td>No objections or claims have been received about activity impacts or risks.

Relevant matters/ Non relevant matters

Shell responded to query in relation to whale migration movements.</td><td>preparation of this EP, no additional measures have been adopted.</td></tr>
</table>

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ID	Name					
				• notified of the management of feedback if any details should be considered sensitive information. • reconfirmed contact details.		
256.	**Broome Dinosaur Adventures**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
257.	**Broome International Airport**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
258.	**Broome Surf School**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
259.	**Broome Time Resort**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
260.	**Broome Tours**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
261.	**Broome Trike Tours**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
262.	**Broome Vacation Village Caravan Park**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
263.	**Broome Whale Watching**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
264.	**Broome's Gateway Pet Friendly Caravan Park & Lodge**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
265.	**Bruce Wiggan - Artist in Residence**	04 April 2023 *(Initial email)* 08 May 2023	No response	Not applicable	No feedback, objections or claims received.	

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ID	Name					
		(Follow-up email)				
266.	**Cable Beach Club Resort and Spa**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
267.	**Cape Immersion Tours**	04 April 2023 *(Initial email)* **Email from Shell** 03 May 2023 08 May 2023	No response	Not applicable	No feedback, objections or claims received.	
268.	**Clearwater Island Lodge**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
269.	**Coconutz BnB**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
270.	**Coral Expeditions**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
271.	**Cygnet Bay Sea Safaris**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
272.	**Diversity Charter Company**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
273.	**Dumbara Burru Caravan Park**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
274.	**Echidna Walkabout Nature Tours**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
275.	**Eco Beach Resort**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	

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ID	Name					
276.	**Eighty Mile Beach Caravan Park**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
277.	**Exmouth Adventure Co**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
278.	**Exmouth Boat & Kayak Hire**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
279.	**Exmouth Escape Resort**	04 April 2023 *(initial email)* **Email from Shell** 03 May 2023 08 May 2023	No response	Not applicable	No feedback, objections or claims received.	
280.	**Exmouth Holidays**	04 April 2023 *(initial email)* **Email from Shell** 03 May 2023 08 May 2023	No response	Not applicable	No feedback, objections or claims received.	
281.	**Exmouth Surf Centre**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
282.	**Exmouth Villas**	04 April 2023 *(initial email)* **Email from Shell** 03 May 2023 08 May 2023	No response	Not applicable	No feedback, objections or claims received.	
283.	**Experience Oz**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
284.	**Experience Murujuga**	04 April 2023 *(initial email)* **Email from Shell** 08 May 2023 26 May 2023	No response	Not applicable	No feedback, objections or claims received.	
285.	**Faraway Bay**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	

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ID	Name					
286.	**Fishabout Fishing Tours - Bathurst Island**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
287.	**Fishing Melville Island Lodge**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
288.	**Fly Broome**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
289.	**Gnylmarung Campground**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
290.	**Go Horizontal Falls Tours**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
291.	**Gambanan Wilderness Retreat**	08 May 2023	No response	Not applicable	No feedback, objections or claims received.	
292.	**Gwoonwardu Mia**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
293.	**Jilinya Adventures**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
294.	**Karma IV Charters**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
295.	**KAS Helicopters**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
296.	**Kimberley Air Tours**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	

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ID	Name					
297.	**Kimberley Boat Cruises**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
298.	**Kimberley Coastal Camp**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
299.	**Kimberley Cruise Centre**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	[redacted]	Not applicable	No feedback, objections or claims received.	
300.	**Kimberley Entrance Caravan Park**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
301.	**Kimberley Pearl Charters**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
302.	**Kimberley Ports Authority**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
303.	**Kimberley Quest - Beyond Adventure**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
304.	**Kimberley River Lodge**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
305.	**Kimberley Travellers Lodge**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
306.	**Kimberley Wild Expeditions**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
307.	**Kings Ningaloo Reef Tours**	04 April 2023 *(Initial email)* 08 May 2023	No response	Not applicable	No feedback, objections or claims received.	

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ID	Name					
		(Follow-up email)				
308.	**Kuri Bay Sport Fishing Tours**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
309.	**Lady M Cruising**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
310.	**Live Ningaloo**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
311.	**Mackerel Islands Resort (Thevenard & Direction Islands)**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
312.	**Mantarays Ningaloo Beach Resort**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
313.	**Mantiyupwi Motel**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
314.	**Mantra Frangipani Broome**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
315.	**Matt Wright Wild Territory**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
316.	**Middle Lagoon**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
317.	**Moonlight Bay Suites**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	

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ID	Name					
318.	**Mud Crab Motel**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
319.	**Munupi Wilderness Lodge (also known as Clearwater Island Lodge)**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
320.	**Ningaloo Caravan and Holiday Resort**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
321.	**Ningaloo Glass Bottom Boat**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
322.	**Ningaloo Lighthouse Holiday Park**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
323.	**Ningaloo Lodge Exmouth**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
324.	**Ningaloo Whaleshark-N-Dive**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
325.	**Oaks Broome Hotel**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
326.	**Ocean Eco Adventures**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
327.	**Ochre Moon B&B**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
328.	**Odyssey Australia (Odyssey Traveller)**	04 April 2023 *(Initial email)* 08 May 2023	No response	Not applicable	No feedback, objections or claims received.	

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ID	Name					
		(Follow-up email)				
329.	**Odyssey Expeditions**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
330.	**One Tide Charters**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
331.	**Pearl Luggers Broome**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
332.	**Phat Time Fishing**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
333.	**Pilbara Tours**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
334.	**Pinctada McAlpine House**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
335.	**Pindan Bar & Restaurant Broome Sanctuary Resort**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
336.	**Port of Darwin**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
337.	**Potshot**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
338.	**RAC Exmouth Cape Holiday Park**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	

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ID	Name					
339.	**Red Dirt 4WD Rentals**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
340.	**Reel Teaser Fishing Adventures**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
342.	**Roebuck Bay Hotel**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
344.	**Sealink Northern Territory**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
345.	**Seashells Resort**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
346.	**Seaswift**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
347.	**Seven Spirit Bay (Resort)**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
348.	**Short St Gallery**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
349.	**Slick Fishing Charters Broome**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
350.	**Southern Cross Cultural Walk - Lullumb**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
351.	**Spinifex Hotel**	04 April 2023 *(Initial email)* 08 May 2023	No response	Not applicable	No feedback, objections or claims received.	

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ID	Name					
		(Follow-up email)				
352.	**Spirit Safaris**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
353.	**Sundowner Camel Tours**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
354.	**The Flying Sandgroper**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
355.	**Go Beyond Broome**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
356.	**The Mangrove Hotel**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
357.	**The Pearle of Cable Beach**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
358.	**The Travelling Naturalist**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
359.	**Three Islands Whale Shark Dive**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
360.	**Tiwi Island Adventures**	04 April 2023	No response	Not applicable	No feedback, objections or claims received.	
361.	**Tiwi Island Retreat**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
362.	**Tropicana Inn Broome**	04 April 2023 *(Initial email)* 08 May 2023	No response	Not applicable	No feedback, objections or claims received.	

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ID	Name					
		(Follow-up email)				
363.	**Ultimate Watersports**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
364.	**Venture North**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
365.	**View Ningaloo**	04 April 2023 *(initial email)* **Email from Shell** 03 May 2023 08 May 2023	No response	Not applicable	No feedback, objections or claims received.	
366.	**Walk Darwin Pty Ltd**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
367.	**West Coast Flyboarding**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
368.	**West Kimberley Fishing Tours**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
369.	**Willie Pearl Lugger Cruises**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
370.	**Wula Gura Nyinda Eco Adventures**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
371.	**YKNOT Fishing Charters**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
372.	**Eco Abrolhos**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
373.	**Broome Recreation and Aquatic Centre**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
374.	**Unreel Adventure Safaris**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
Interest Groups						
375.	**Australian Wildlife Conservancy**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
376.	**10,000 Birds**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
377.	**Australasian Seabird Group**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
378.	**BirdLife WA**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
379.	**Maritime Archaeological Association of Western Australia**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
380.	**North Kimberley Land Conservation Committee**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
381.	**Australasian Wader Studies Group (AWSG)**	04 April 2023 *(initial email)*	No response	Not applicable	No feedback, objections or claims received.	
382.	**Birding in Kimberley**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
383.	**Birdlife Top End**	04 April 2023 *(Initial email)* 09 May 2023	No response	Not applicable	No feedback, objections or claims received.	

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
		(Follow-up email)				
384.	**Broome Bird Observatory**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
385.	**Broome Fishing Club**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
386.	**Broome Surf Life Saving Club**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
387.	**Carnarvon Yacht Club**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
388.	**Diving WA Shipwrecks**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
389.	**Finnis-Reynolds Catchment Groups**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
390.	**Kimberley Birdwatching**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
391.	**King Bay Game Fishing Club**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
392.	**Port Hedland Game Fishing Club**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
393.	**Roebuck Bay Working Group Inc**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
394.	**Recfishwest**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
Non-Government Organisations						
395.	**Ben and Jerry's**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
396.	**Exmouth Sea Shepherd**	04 April 2023 *(Initial email)* **Email from Shell** 03 May 2023 08 May 2023	No response	Not applicable	No feedback, objections or claims received.	
397.	**Surfrider Foundation Australia**	04 April 2023 *(Initial email)*	No response	Not applicable	No feedback, objections or claims received.	
398.	**Astron Environmental**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
399.	**Australian Conservation Foundation**	01 May 2023 *(Letter)*	No response	Not applicable	No feedback, objections or claims received.	
400.	**Australian Marine Conservation Society**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
401.	**Australian Marine Oil Spill Centre (AMOSC)**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
402.	**Conservation Council of WA**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
403.	**Environmental Defenders Office WA**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
404.	**Environs Kimberley**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
405.	**Greenpeace**	04 April 2023 *(Initial email)* **Email to Shell** 05 June 2023 **Email from Shell** 09 May 2023 23 June 2023	[redacted]	**Email on 23 June 2023** We refer to Greenpeace Australia Pacific Limited's (Greenpeace) letter to Shell Australia Pty Ltd (Shell) dated 5 June 2023 in relation to the four Crux Environment Plans (EPs) that Shell Australia is preparing for the Crux project (Letter). Thank you for taking the time to respond as part of our consultation process. Since Shell wrote to Greenpeace in April and May 2023, we have published full draft versions of the EPs for the Seabed Survey, Drilling Template and Development Drilling activities on our website. The Installation and Cold Commissioning EP will be published on our website in draft at a later date. **Relevant Persons** Shell's process has identified Greenpeace as a "relevant person" under regulation 11A 1(d) of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) (Environment Regulations). We confirm that Shell will consult with all relevant persons, including Greenpeace, consistent with the requirements of relevant legislation and the National Offshore Petroleum Safety and Environmental Management Authority's (NOPSEMA) Consultation on offshore petroleum environment plans guidance, attached for your reference as Annexure A. **Information Requests** Given that Shell has identified Greenpeace as a Relevant Person, it is not necessary to answer questions 1 – 3 in the Letter. **Greenhouse Gas Emissions** The following is Shell's response to the information requested related to greenhouse gas (GHG) emissions for the four EPs listed in the Letter. Shell has considered the potential for 'indirect consequences' to arise in relation to the development and specifically the petroleum activity that is the subject of the EPs. The EPs do not permit the operation of other facilities required to produce and transport the reservoir hydrocarbons (i.e., natural gas). Notably in relation to s.527E(1)(b) and (2) of the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act): • No natural gas is recovered as a result of the drilling activities. There are a number of subsequent, interposed petroleum activities that must be authorised under the Environment Regulations and then undertaken before any gas is capable of being recovered. • Gas consumption/combustion cannot reasonably be said to have been facilitated by a petroleum activity which has no resource extraction component. Even if some kind of facilitation could be observed, drilling activities cannot reasonably be characterised as an important or majority facilitator of that action. These activities are multiple steps removed from such a characterisation. Drilling activities are therefore not a primary action to a secondary action involving gas consumption/combustion.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** Greenpeace requested information, which Shell considered the specifics of the request were not relevant matters, however meeting the intent of what they were requesting, Shell revised the GHG section of the EP and supplied this information to Greenpeace as set out here. All other matters raised were considered not to be relevant matters.	Based on consultation undertaken for preparation of this EP, the GHG section (section 9.12) of the EP was updated.

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ID	Name					
				• There is a chain of events prior to resource (i.e., natural gas) recovery, and then a chain of events afterwards and ahead of any resource being consumed by a third party. • In this context, Shell has concluded that these activities do not facilitate to a major extent natural gas consumption/combustion and this petroleum activity is not a substantial cause of any associated scope 3 GHG emissions. Accordingly, Shell does not intend to include scope 3 GHG emissions information within the Seabed Survey EP or Drilling Template EP due to the minor nature and scale of these activities. However, the above content is planned to be included within the Development Drilling and Installation and Cold Commissioning EPs. At a later stage, Shell will also be submitting environment plans to extract, produce, and transport the natural gas. Shell will consider indirect consequences, such as associated scope 3 GHG emissions, in its future Production Operations Environment Plan (named the "Completions, Hot Commissioning, Start-Up and Operations Environment Plan"). Shell notes Greenpeace's requests and will respond later in the year with further information on this topic once the Production Operations Environment Plan is prepared. The Safeguard Mechanism Reforms proposed by the Department of Climate Change, Energy, the Environment and Water and administered by the Clean Energy Regulator will commence on 1 July 2023 and will apply from the Crux Project start-up phase. Shell and its contractors comply with all applicable laws when carrying out work, which includes the legislative changes that will be implemented as a result of the Safeguard Mechanism Reforms. Further, Australia is a signatory to the Paris Agreement, which intends to limit global temperature rise to 1.5 degree C. Australia's Climate Change Target is a 43% reduction in emissions by 2030 and NZE by 2050. The current Australian Labor government is increasing decarbonisation commitments, as evidenced by the Safeguard Mechanism Reforms. New gas fields that backfill existing LNG facilities will be subject to international best practice baselines for reservoir CO2 emissions, which is defined as zero given the existence of low-CO2 fields. The Crux Project will be required to offset 100% of its reservoir CO2. **Spill Modelling** As part of the Crux EP consultation process, Shell publishes draft copies of EPs online to allow access by Relevant Persons, with the intent to facilitate feedback on the information presented. Each of these EPs have a detailed section which covers the establishment of the worst-case credible spill scenarios and associated modelling completed to inform spill risk. Please refer to the following sections of these EPs to understand how Shell establishes worst case credible spills, timeframes, and modelling inputs for each EP: • Crux Seabed Survey Environment Plan – Section 9.12: Emergency Events; and • Crux Drilling template Environment Plan - Section 9.12: Emergency Events; and • Crux Development Drilling Environment Plan Section 9.14: Emergency Events; and • Crux Installation and Cold Commissioning Environment Plan (not yet published, but please see Annexure B: Emergency Events, which is attached to this letter for your information).		

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ID	Name					
				Should Greenpeace have any queries on or require any further information on the Crux EP process (not covered above or in the full publications of the EPs), please contact us via SDA-CRUX-PROJECT@shell.com or 1800 059 152. Shell would be happy to meet with Greenpeace to discuss further. Shell intends to submit the EPs to NOPSEMA by 10 July 2023. We will be available to meet with Greenpeace at any time prior to this date.		
406.	**High Seas Alliance**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
407.	**Martuwarra Fitzroy River Council**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
408.	**Protect Ningaloo**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
409.	**Protecting the Kimberley**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
410.	**Save the Kimberley**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
411.	**Sea Turtle.org**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
412.	**The Wilderness Society**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
413.	**United Nations**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
414.	**WA Marine Science Institute**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
415.	**WA Parks Foundation**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
416.	**Wilderness Society**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
418.	**AIATSIS (Australian Institute of Aboriginal and Torres Strait Islander Studies)**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
419.	**Broome Historical Society & Museum**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
420.	**Broome Visitors Centre**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
421.	**Conservation Volunteers Australia**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
422.	**Derby Visitor Centre**	28 March 2023 *(initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
423.	**Regional Development Australia Kimberley**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
424.	**Top End Regional Economic Growth Committee (REGC)**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
425.	**Northern Territory Land Corporation**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
426.	**Land Development Corporation (LDC) NT**	04 April 2023 *(calendar invite)* 20 April 2023	No response	Not applicable	No feedback, objections or claims received.	

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
		09 May 2023				
427.	**WWF**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
Academic and Research						
428.	**Deep History of Sea Country Research Project**	04 April 2023 *(Initial email)* **Email to Shell** 08 May 2023 **Email from Shell** 08 May 2023 11 May 2023 18 May 2023	[redacted]	**Email on 10 May 2023** Submerged landscapes and sites, especially Indigenous is an emerging field. When Shell originally carried out baseline surveys in the development process of the overall project impact assessment from about 2016-2019 (outlined within Crux OPP - https://www.nopsema.gov.au/sites/default/files/documents/2021-03/A742335.pdf - the baseline surveys did not include a submerged archaeological assessment or report. However, since the growing understanding of underwater archaeology in more recent times, Shell have commenced an underwater archaeological assessment of our project area and the larger planning areas that includes the assessment and likelihood of underwater Indigenous tangible heritage, including drowned cultural landscapes and the use of predictive modelling on land usage based on known anthropological data. This assessment is still underway and is in addition to the standard searches of existing databases of Indigenous and non-Indigenous heritage. This information will be used to inform an impact assessment on any values (if any) identified through this assessment, as well as the need for subsequent development of controls where potential impacts require mitigation. The above is in addition to engaging with Indigenous people on their values and interests (including heritage).	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** Queried Shell's approach to managing potential impacts on submerged archaeology. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
429.	**Kimberley Marine Research Station**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
430.	**Minderoo Foundation Exmouth Research Centre**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
431.	**Nulungu Research Institute**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
432.	**Australian National University**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
433.	**The Ecology Centre (UQ)**	04 April 2023 *(Initial email)* 08 May 2023	No response	Not applicable	No feedback, objections or claims received.	

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
		(Follow-up email)				
434.	**CSIRO**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
528.	**Fisheries Research and Development Corporation (FRDC)**	04 April 2023 *(Initial email)* 09 May 2023 (Follow-up email)	No response	Not applicable	No feedback, objections or claims received.	
Industry Representative Bodies						
436.	**Australian Energy Producers**	04 April 2023 *(calendar invite)* **Email from Shell** 20 April 2023 04 May 2023 **In person** 27 April 2023	[redacted]	**In person on 27 April** Shell provided the following responses to the feedback: • EPs must consider waste management with fairly standard controls - waste is either discharged or bought back to land, in line with MARPOL requirements. • Emissions are fairly limited in terms of CO_2. The Crux Operations EP and Prelude EPs will need more specific information around CO_2 emissions. • Shell has global ambitions to achieve net zero emissions by 2050. • The Crux Offshore Project Proposal (OPP), which was accepted by NOPSEMA in 2020 and is a publicly available document, also references this. • NOPSEMA guidance and community expectations are clear that this is something that we need to include. • The current number of relevant persons involved in our consultations is ~500, last year it was ~70.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** Queried some aspects of the project. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
437.	**Amateur Fishermen's Association NT**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
438.	**Australia's North-West Tourism**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
439.	**Broome Chamber of Commerce and Industry**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
440.	**Kimberley Marine Tourism Association**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
441.	**North Territory Guided Fishing Industry Association (NTGFIA)**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
442.	**Western Australian Game Fishing Association (WAGFA)**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
Service Providers						
443.	**Broome Sea Rescue**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
444.	**Broome Volunteer Fire and Rescue Service**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
445.	**Dampier Surf Life Saving Club**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
446.	**Exmouth State Emergency Service**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
447.	**Exmouth Volunteer Marine Rescue**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
448.	**Kimberley Information & Travel Centre**	04 April 2023 *(initial email)* **Email from Shell** 03 May 2023 08 May 2023	[redacted]	Not applicable	No feedback, objections or claims received.	
449.	**Marine Rescue Onslow**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
450.	**Marine Rescue Port Hedland**	04 April 2023 *(initial email)* **Email from Shell** 26 April 2023 09 May 2023	No response	Not applicable	No feedback, objections or claims received.	

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ID	Name					
451.	**Ningaloo Aquarium and Discovery Centre**	04 April 2023 *(initial email)* **Email from Shell** 03 May 2023 09 May 2023	No response	Not applicable	No feedback, objections or claims received.	
452.	**Ningaloo Centre**	04 April 2023 *(initial email)* **Email from Shell** 03 May 2023 09 May 2023	No response	Not applicable	No feedback, objections or claims received.	
453.	**North Regional TAFE**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
454.	**NT Emergency Service Darwin Volunteer Unit**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
455.	**Onslow Health Service**	04 April 2023 *(Initial email)* 09 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
456.	**St John - Sub Centre Exmouth**	04 April 2023 *(initial email)* **Email from Shell** 03 May 2023 09 May 2023	No response	Not applicable	No feedback, objections or claims received.	
457.	**St John - Sub Centre Onslow**	04 April 2023 *(initial email)* **Email from Shell** 03 May 2023 09 May 2023	No response	Not applicable	No feedback, objections or claims received.	
Local Councils						
458.	**Broome Shire Council**	04 April 2023 (*initial email)* **Email to Shell** 21 April 2023 **Email from Shell** 22 April 2023 08 May 2023	[redacted]	**Email on 22 April 2023** Provided details for Broome drop-in session on 27 April 2023.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** No relevant matters raised.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.

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ID	Name					
459.	**City of Palmerston Municipal Council**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
460.	**Darwin City Council**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
461.	**Darwin Municipal Council**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
462.	**Darwin Waterfront Precinct Municipality**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
463.	**East Arnhem Regional Council**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
464.	**Kimberley Development Commission**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
465.	**Litchfield Council**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
466.	**Shire of Derby/West Kimberley**	04 April 2023 *(initial email)* **Email to Shell** 21 May 2023 **Email from Shell** 23 May 2023 08 May 2023	[redacted]	**Email on 23 May 2023** Thanks for your email. The impacts related to each of the Environment Plans we are currently consulting on are outlined in the factsheets available on our website here: http://www.shell.com.au/crux. If you would like any additional information, please let us know and we'd be happy to provide it.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** Queried some aspects of the project. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
467.	**Tiwi Islands Regional Council**	04 April 2023 *(Initial email)* 08 May 2023	No response	Not applicable	No feedback, objections or claims received.	

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
		(Follow-up email)				
468.	**Victoria Daly Regional Council**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
469.	**Wagait Shire Council**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
470.	**West Arnhem Region Council**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
471.	**West Daly Regional Council**	04 April 2023 *(Initial email)* 08 May 2023 *(Follow-up email)*	No response	Not applicable	No feedback, objections or claims received.	
Self-identified						
473	**Person 77**	10 May 2023	Attended the Exmouth drop-in session, with an interest in the EP process and the potential environmental risks around spills to Exmouth.	Explained the spill modelling scenario and provided an explanation of the environmental impacts and mitigations as per the Development Drilling EP factsheets and an overview. w of the EP process.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** Queried some aspects of the project. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
474	**Person 8**	04 April 2023	Attended the Derby drop-in session, with an interest in the Crux project site in relation to distance to Cockatoo Island.	Provided an overview of the Crux project and distributed project factsheets.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** Queried some aspects of the project. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
475	**Person 81**	04 April 2023	Attended the Derby drop-in session, with concerns around climate change and wanted information on why does Shell not just invest in renewables? Also advised that they are strongly against the project.	Explained the part gas plays in the transition to new energies by leveraging gas and establishing a renewable energy portfolio.	**Assessment** No objections or claims have been received about activity impacts or risks.	Based on consultation undertaken for preparation of this EP, no additional

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ID	Name					
					Relevant matters/ Non relevant matters Queried some aspects of the project. Shell's response to the feedback received is set out here.	measures have been adopted.
476	**Person 83**	10 May 2023	Attended the Exmouth drop-in session, with an interest in potential environmental risks around spills and likely impacts to Exmouth. Uses the ocean around Exmouth for recreation activities.	Explained the spill modelling scenario and provided an explanation of the environmental impacts and mitigations as per the Development Drilling EP and Hydrocarbon Release factsheets and an overview of the EP process.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** Queried some aspects of the project. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
477	**Person 84**	10 May 2023	Attended the Exmouth drop-in session, along with 9 students (names withheld) with an interest in the Crux project, the general EP process and questions about why do Shell consult with the public.	Explained the EP process and the importance of consultation as per the Environmental Plan factsheet and watched the Crux video.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** Queried some aspects of the project. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
478	**Person 85**	04 April 2023	Attended the Derby drop-in session, with an interest in the Crux project and wanting a general overview.	Provided an overview of the Crux project, distributed project factsheets and watched the Crux project video.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** Queried some aspects of the project. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
479	**Person 86**	10 May 2023	Attended the Exmouth drop-in session, with an interest in the Crux project, specifically how environmental impacts are managed and why do Shell consult with people when the project is 1400km away. Uses the ocean for recreational fishing.	Explained the EP approval process and outlined the mitigations as per the Development Drilling EP factsheet.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** Queried some aspects of the project. Shell's	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
					response to the feedback received is set out here.	
480	**Person 89**	17 May 2023	Attended the Darwin drop-in session, with an interest in the Crux project and wanting a general overview.	Provided an overview of the Crux project, distributed project factsheets and watched the Crux project video.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** Queried some aspects of the project. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
481	**Main Roads WA – Pilbara Region**	03 May 2023	Contacted in Port Hedland, given an overview of the Crux project and provided with factsheets.	Provided an overview of the project, copies of all factsheets and offered the opportunity to consult with Shell.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** Queried some aspects of the project. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
482	**Person 91**	04 April 2023	Attended the Derby drop-in session, with an interest in the Crux project and wanted a general overview of the project.	Provided an overview of the Crux project, distributed project factsheets and watched the Crux project video.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** Queried some aspects of the project. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
483	**Pilbara Development Commission**	03 May 2023	Contacted in Port Hedland, given on overview of the Crux project and provided with fact sheets.	Provided an overview of the project, copies of all factsheets and offered the opportunity to consult with Shell.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** Queried some aspects of the project. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
484	**Pilbara Ports Authority**	03 May 2023	Contacted in Port Hedland, given an overview of the Crux project and provided with factsheets.	Provided an overview of the project, copies of all factsheets and offered the opportunity to consult with Shell.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** Queried some aspects of the project. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
485	**Port Hedland Chamber of Commerce & Industry**	03 May 2023	Contacted in Port Hedland, given an overview of the Crux project and provided with factsheets.	Provided an overview of the project, copies of all factsheets and offered the opportunity to consult with Shell.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** Queried some aspects of the project. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
486	**Person 96**	17 May 2023	Attended the Darwin drop-in session, with an interest in the Crux project and wanting a general overview.	Provided an overview of the Crux project, distributed project factsheets and watched the Crux project video.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** Queried some aspects of the project. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
487	**Shire of Port Hedland**	03 May 2023	Contacted in Port Hedland, given an overview of the Crux project and provided with factsheets.	Provided an overview of the project, copies of all factsheets and offered the opportunity to consult with Shell.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** Queried some aspects of the project. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
488	**Town of Port Hedland**	03 May 2023	Contacted in Port Hedland, given an overview of the Crux project and provided with factsheets.	Provided an overview of the project, copies of all factsheets and offered the opportunity to consult with Shell.	**Assessment** No objections or claims have been	Based on consultation undertaken for preparation of this EP,

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
					received about activity impacts or risks. **Relevant matters/ Non relevant matters** Queried some aspects of the project. Shell's response to the feedback received is set out here.	no additional measures have been adopted.
489	**Person 98**	04 April 2023	Attended the Derby drop-in session, with an interest in engagement opportunities for Traditional Owners around the Crux project.	Provided information around the current Social Investment programs and other opportunities in Broome.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** Queried some aspects of the project. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
502	**Person 104**	27 April 2023	Attended information session in Broome. Asked about opportunity for mammal observers for the Project	Advised that opportunities are possible, and Shell would be happy to consider accordingly.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** Queried some aspects of the project. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
504	**Person 108**	27 April 2023	Attended information session in Broome. Asked about Pearling leases nearby activities.	Advised none within operational area. Followed up with a map that demonstrated this.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** Queried some aspects of the project. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
510	**Person 112**	17 May 2023	Attended information session in Darwin. Asked if there would there be a control room on Crux	Advised Crux will be controlled from the control room on Prelude as a not-normally-manned platform	**Assessment** No objections or claims have been received about activity impacts or risks.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.

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Relevant Person		Dates of correspondence and follow up	Summary of relevant person response	Summary of Shell's response	Assessment of merits of objection or claim. Relevant matters / non-relevant matters	Measures adopted and Consultation Carried Out
ID	Name					
					Relevant matters/ Non relevant matters Queried some aspects of the project. Shell's response to the feedback received is set out here.	
515	**Person 117**	17 May 2023	Will you be taking fluids to Darwin? Attended information session in Darwin. Questions about supply base use in Darwin	Advised drilling will be managed from supply base in Broome. Will also have supply vessels from Darwin. Will update with shipping movements as the project progresses. Local supply base advisor in Darwin will continue to keep them updated.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** Queried some aspects of the project. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
517	**Person 119**	17 May 2023	Attended information session in Darwin. Why didn't Prelude move closer to Crux	Advised Prelude is permanently moored to seabed including for safety reasons in event of cyclone. More practical for Prelude to remain and to make most of the resource that remains, and to bring on Crux to supplement that supply.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** Queried some aspects of the project. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.
518	**Person 120**	17 May 2023	Attended information session in Darwin. Question around invasive marine species and on seabed survey.	Provided explanation of Shell's invasive marine species risk management process. Advised seabed survey.	**Assessment** No objections or claims have been received about activity impacts or risks. **Relevant matters/ Non relevant matters** Queried some aspects of the project. Shell's response to the feedback received is set out here.	Based on consultation undertaken for preparation of this EP, no additional measures have been adopted.

5.8 Ongoing Consultation as part of EP Implementation Strategy

Consistent with Regulation 14(9) of the OPGGS(E) Regulations, Shell will undertake consultation as part of the EP Implementation Strategy (refer Section 10), with the intent to acquire and preserve an up-to-date understanding of relevant persons' functions, interests, and activities during the execution of Shell's proposed activities. Specific ongoing consultation activities Shell has undertaken to carry out are set out in Table 5-13 below. It should be noted that this is not an exhaustive list of all ongoing consultation activities Shell may undertake in the future.

The ongoing consultation under the Implementation Strategy will enable Shell to maintain relationships with relevant persons and foster a continued improvement in Shell's understanding of the features and values of the existing environment, and where new risks or impacts are identified, the establishment of appropriate controls to reduce risks and/or impacts to ALARP.

Matters raised post-acceptance of the EP will be assessed as detailed in Section 5, to confirm if the matter raised is a relevant matter or if objections and claims have merit. Any new risks or impacts that are discovered through ongoing consultation will be subject to Shell's Environment MOC process, which considers the requirements of Regulation 17 of the OPGGS(E)R and establishes the mechanisms to assess change to the EP. Section 10.1.3 describes this MOC process in detail. Further ongoing consultation requirements, in the form of notifications of various kinds, are outlined within Sections 10.5.2.3 and 10.5.4 also.

Table 5-13: Ongoing Consultation Programme for the Crux Project

Ongoing Consultation Topic	Relevant persons	Timing	Nature of Ongoing Consultation
Underwater cultural heritage survey will be progressively completed. Once completed, Shell will utilise the initial outputs as part of Shell's ongoing consultations in a culturally appropriate manner, with indigenous people and organisation who want to help Shell better understand the tangible and intangible cultural heritage values and features within the Operational Area and Planning Area.	Consultation with relevant persons (including indigenous relevant persons and other organisation such as DCCEEW) on this topic will occur where they chose to voluntarily participate.	The cultural heritage survey will be progressively completed between July 2023 and Q1 2024. As agreed with relevant persons and at their request ongoing throughout 2023 and 2024 as a minimum starting point.	This ongoing consultation will occur through co-design, at the expressed preference of the relevant persons concerned. Where relevant persons are Indigenous People, it is anticipated this would on country of the relevant Indigenous persons.
Industry collaboration on indigenous people involvement in oil spill preparedness. Given the program is a novel approach, the activity is planned to be a pilot project initially. Shell believes an industry collaboration with involvement from AMOSC (or similar organisation) is the best vehicle to progress this request in a mutually beneficial manner. Shell will seek to work with AMOSC in establishing an industry collaboration and if successful, progress ongoing consultation with traditional owners in the codesign of a suitable training program, with input from WA DoT, as the control agency for oil spill response within WA state waters.	It is not reasonably practical to implement a pilot such as this with many Indigenous people. However, Shell acknowledges that importance of ongoing consultation in relation to this matter with Indigenous people. Subject to confirmation, as of October 2023, it is planned to primarily be with Bardi-Jawi people.	This is a long-term commitment, which is subject to the success of a pilot program planned to commence in 2023. Due to a number of influencing factors which are outside of Shells control such as appetite for industry collaboration, DoT's acceptance of the program (given they are the control agency) a more specific timeframe cannot be committed to. Shell has commenced planning, with initial industry engagement completed, and DoT engagement (outside of EP 11A consultation requirements) have started.	This ongoing consultation will occur through co-design, at the expressed preference of the specific indigenous people.

Ongoing Consultation Topic	Relevant persons	Timing	Nature of Ongoing Consultation
Social Investment and Community Contributions: Where Shell has operational footprints it provides a range of social investment and community contributions to create a positive legacy. Through consultation Shell heard from numerous relevant persons that social investment was important. Shell considered this and will raise greater awareness and invite participation in its existing social investment and community contribution programs for suitable relevant persons. Shell is also evaluating its social programs (programs, budgets, and geographical reach) to achieve a greater reach. The programs are designed on the pillars of regional economic development, supporting stronger first nations and jobs for the future. Current programs being delivered or planned for 2023 include: - Kimberly Business Network - Supporting stronger first n leadership and governance program - Disaster Resilience fund - Deadly Sister Girlz - Bardi Jawi Womens Rangers - Rise up to work program: Nyambu Buru Yawuru - Preludes Communities Fund - Prelude to the Future Group Training NT - Indigenous Business Support Program NT These programs have been communicated to the relevant persons as part of the consultation to date and will play an ongoing role	Kimberley Land Council Bardi Jawi Aboriginal Corporation Broome Shire (including Djarindjin community) Nyamba Buru Yawuru Darwin Community	Shell is currently implementing these social investment and community contribution programs and are continuing to build awareness and encourage participation in these on an ongoing basis	Ongoing consultation will be achieved through delivery of Shells social investment programs and invitation to applicable relevant persons to participate / apply for community contributions

Ongoing Consultation Topic	Relevant persons	Timing	Nature of Ongoing Consultation
Local Content and supply opportunities were a topic of interest for numerous relevant persons during the community and Traditional Owner consultations. Shell is committed to giving Australian suppliers, local regional and indigenous businesses genuine opportunities to participate in our supply chain. It uses a supplier portal to publish work packages.	Bardi Jawi Aboriginal Corporation Broome Shire (including Djarindjin community) Nyamba Buru Yawuru	A full time Shell resource is responsible for this remit and will communicate relevant dates of events to the relevant persons as they arise and continue to raise awareness of opportunities via emails and phone calls.	Shell will continue to raise awareness of its supplier portal. Supplier Information sessions will also be held in the project support bases of Broome and Darwin to encourage local content via discussion of procurement categories and upcoming work tenders
Shell will carry out ongoing consultations with Indigenous people in the Kimberly, adjacent to the planning area for the Crux Project, outside of this activity scope, to better understand cultural features and values of the environment to better inform current and future impact and risk assessments on the Crux Project.	Bardi Jawi Aboriginal Corporation Walalakoo Mayala Djarindjin Wunambal Gaambera	Subject to agreement with each specific group, Shell is aiming to set-up bi-annual meetings with these Indigenous groups.	This consultation will be driven by the preferences of the Indigenous people e.g., on country meetings.
Where Indigenous people have identified cultural features and values which may be affected by major spills, Shell has committed to further ongoing consultation with them in the event of a major spill which threatens the identified cultural features or values to better inform an effective response to mitigate the effects of a major spill.	Bardi Jawi Aboriginal Corporation Walanadi	Further consultation will occur in the event of a major spill which threatens the area were identified significant songlines and ceremonial sites occur.	This consultation will be driven by the preferences of the Indigenous people e.g., on country meetings.
In preparation of the EP, DCCEEW requested that ongoing consultation with the Departments Underwater Cultural Heritage Team occur in relation to activities that have the potential to impact UCH.	DCCEEW Underwater Cultural Heritage Team	During the execution of the activity, where potential impacts to underwater cultural heritage are established.	This consultation will be driven by the discovery of potential impacts to underwater cultural heritage. To date, through RP consultation and the execution of a First Nations Underwater Cultural Heritage Impact Assessment (Cosmos Archaeology, 2023), no planned impacts to UCH have been established. Shell has committed to a chance find process as detailed in Table

Ongoing Consultation Topic	Relevant persons	Timing	Nature of Ongoing Consultation
			9-29, which may trigger this ongoing consultation requirement, should a discovery be made. Additionally, through ongoing consultation to Indigenous persons, if an impact to UCH is established, Shell will consult the DCCEEW Underwater Cultural Heritage Team.

6 Description of the Activity

6.1 Scope of the EP

This EP covers the following activities within the Operational Area (Figure 6-1) located within the petroleum title AC/L10:

- Drilling Template
- Docking Pile Installation
- Drilling using a semi-submersible MODU
- Operation of in-field support vessels and helicopters to support drilling activities
- Operation of Remote Operated Vehicles (ROVs)
- Well suspension and contingent sidetrack and/or plugging and abandonment activities.

Non-petroleum activities such as environmental field monitoring or metocean studies are outside of the scope of this EP.

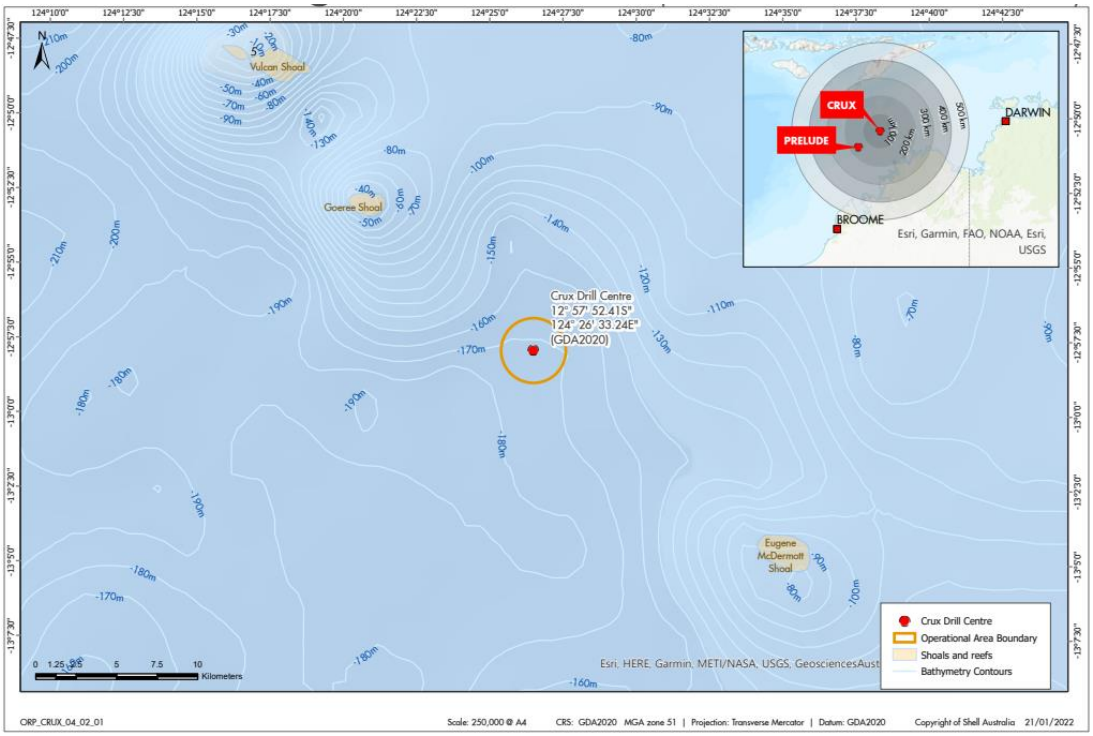


Figure 6-1: Crux Development Drilling Environment Plan Operational Area

Well completion activities are scheduled to occur at a later date from the Crux platform using either a Modular Platform Rig (MPR) or Hydraulic Workover Unit (HWU). The well completion activities are not within the scope of this EP and will be described within the Crux Commissioning, Start-up and Operations Environment Plan (to be developed prior to these activities occurring).

This EP does not cover the general transit of vessels to or from the Operational Area. These activities will be undertaken in accordance with relevant maritime legislation, such as the Commonwealth Navigation Act 2012, and are within the jurisdiction of AMSA. In addition, helicopter activities outside of a Petroleum Safety Zone (PSZ) are not defined as petroleum activities. Any impacts and risks associated with vessel and helicopter transits are managed in-line with Shells HSSE and SP Control Framework.

6.2 Location

The Crux development drilling activity will be undertaken within petroleum title area AC/L10, located in Commonwealth marine waters, 160 km offshore northwest Australia and 620 km north-north east of Broome (Figure 6-2) in approximately 170 m water depth from Mean Sea Level (MSL). This activity is located within the Crux in-field development area, as defined in the Crux Offshore Project Proposal.

The Operational Area of Crux development drilling activity is defined as a 3 km radius from the seabed centre point of the Crux drill centre, Latitude 12° 57′ 52.414″ S, Longitude 124° 26′ 33.238″ E (GDA2020). The 3 km radius has been used to set boundaries for the impact assessment as shown in Figure 6-1. A 500 m petroleum safety zone will also be established around the drilling location.

The Crux Operational Area does not contain any emergent reefs/islands. The nearest island to the Crux drilling location is Cartier Island, which is approximately 105 km to the north-west. The nearest shoal/bank is Goeree Shoal, which is approximately 13 km to the north-west of the Crux drilling location (Figure 6-1). The Crux drilling location will be located within an approximate 1 km radius of the preferred drilling location shown in Figure 6-1.

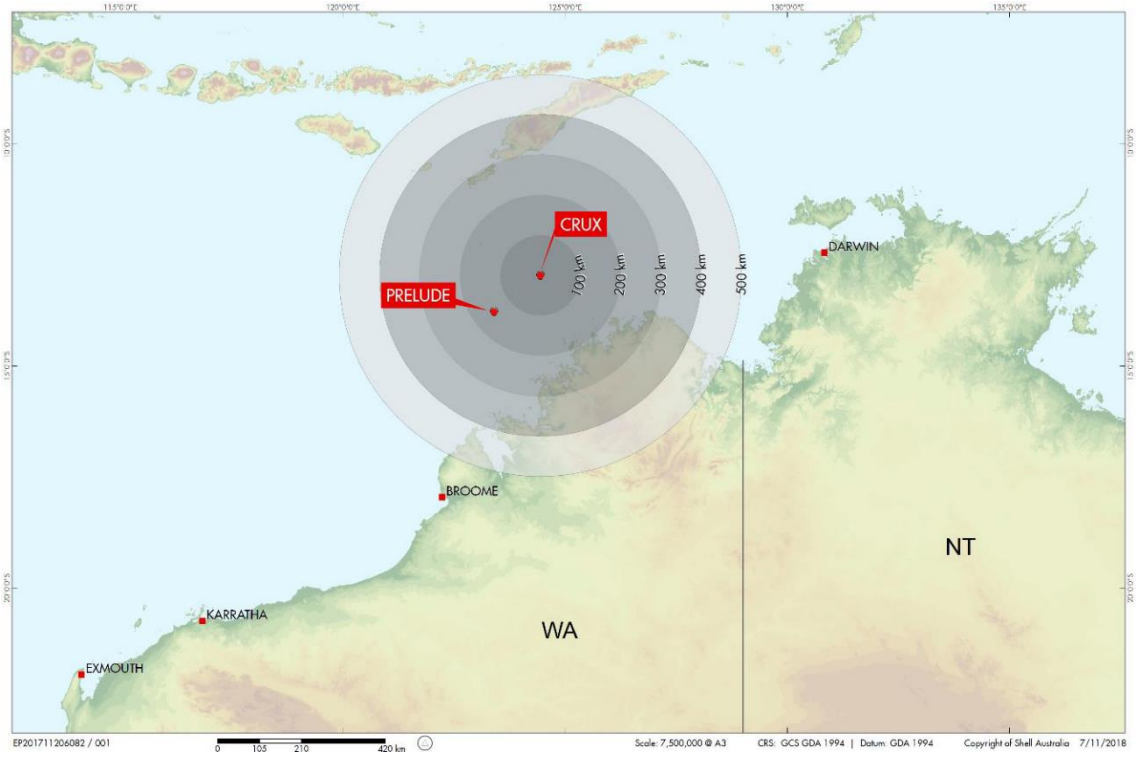


Figure 6-2: EP Operational Area in context of North West Australia

6.3 Timing

The drilling template installation is the first activity that will be undertaken in relation to this EP. This activity is proposed to start between the fourth quarter of 2023 and the first quarter of 2024. The drilling template installation campaign is nominally scheduled to occur over a one month period subject to acceptable weather and subsurface conditions. Once drilling template installation activities commence, complete installation of the drilling template should take less than 24 hours to complete.

Following the MODU arrival in the first half of 2024, drilling activities will commence for a planned duration of approximately 10 months, with an additional 10-month contingency drilling period. To allow for MODU availability options, this campaign may use two separate MODU's to drill different sections of the wells. At the completion of the drilling campaign the wells will be temporarily

suspended, and subsequent well completion activities will be undertaken following the topside installation as noted in Section 6.1 (well completion activities will be covered by a separate EP).

The docking pile guides and docking piles will be installed following the suspension of the wells and sail away of the MODU. This installation is planned to be completed during a one week campaign however, weather constraints and subsurface conditions may see this extending over a one month period.

This EP will remain active following the drilling campaign for the duration that the wells are temporarily suspended, which is planned to be approximately 21 months.

To account for potential shifts in schedule, the environmental assessment is not seasonally specific and assumes the activities described in this EP may occur at any time during the life of the EP. To account for extensions of the suspension period and contingency in the timing and duration of the template installation and drilling campaigns, this EP will remain active from the date of acceptance for up to 5 years, or to the point in time where the well completion activities are finalised (whichever comes first). In the latter case, the EP will cease following NOPSEMA acceptance of an end-of- activity notification applied for under Regulation 25A.

It is also acknowledged that the drilling template installation activity is also described in an activity specific EP (the Drilling Template Installation EP). To ensure that this EP does not overlap with the Crux Development Drilling EP, a regulation 25A notification for the Crux Drilling Template Installation EP will be submitted upon acceptance of the Crux Development Drilling EP.

6.4 Infrastructure Description

6.4.1 Drilling Template

The primary purpose of the drilling template is to act as a guide to the drill bit during drilling operations. Once installed the drilling template will remain in place for the life of the Crux activity.

The steel prefabricated drilling template will be installed on the seabed to enable correct positioning of the wells and alignment for tie-back to (future) platform infrastructure for well completion. The drilling template is the first equipment installed as part of the Crux project. Following installation, the equipment will be registered in an asset inventory register that will be used to manage future inspection / maintenance activities. The management of potential activities during the operate phase will be described as part of the Crux operations phase environment plan.

The drilling template includes eight drill slots to support an initial five well development drilling campaign, with the spare slots potentially used for well re-spudding (i.e., contingency).

The drilling template includes provision for the installation of two docking piles, which aid the accurate positioning of the Crux substructure and topsides over the drilling template during subsequent installation campaigns.

The approximate dimensions of the drilling template are provided in Table 6-1.

Table 6-1: Environmentally relevant specifications of the drilling template

Infrastructure	Specification	Approximate Dimensions
Drilling Template	Length	19 m
	Width	14 m
	Height	4 m
	Seabed Footprint	266 m^2
	Weight	200 t

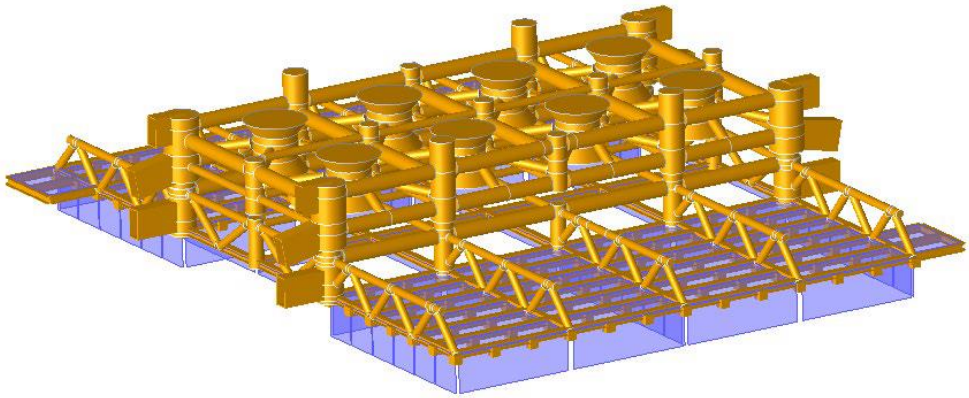


Figure 6-3: Typical Drilling Template Structure including mudmats

The drilling template structural assembly consists of 2 structures; the Top Structure and the Foundation Structure. These 2 structures are not welded to each other. The top structure will be engaged with mudmat structure with post and sleeve arrangement. This arrangement will not only integrate both the structures but also allow to make slope correction with sufficient clearance. The two structures will be connected to each other and lowered to the seabed in a single lift. This is an ROV operable connection that will be used to aid the Template levelling.

The drilling template has undergone a range of structural design reviews, load analysis and verification checks. Its design and respective components have demonstrated sufficient strength to resist expected loading (i.e., transportation, installation, operational and environmental). The omni-directional environmental loads consist of wave and current, including cyclonic influences, and are assumed to act simultaneously and in the same direction to generate the total global loads experienced by the template. Modelling demonstrate that these environmental loading effects are negligible for this structure.

The drilling template will be supported on two rectangular skirted mudmats at each side of the structure as shown on Figure 6-3. Each mudmat has plan dimensions of 14 m x 6 m, separated by a central void running parallel to the long dimension of the drilling template; this void area has a width of 7 m.

In addition to the main drilling template module above the mudline, the two mudmats are also connected at mudline level by a central structural frame with overall plan dimensions of 14 m x 7 m comprising five (5) small ‘skirts’ parallel to the 7 m dimension and one (1) middle ‘skirt’ parallel to the 14 m dimension. These skirts will penetrate the soil to a depth of 200 mm and are assumed to be 10 mm thick. The number of skirts has been defined to confine a plug of soil beneath the mudmats that can satisfactorily transfer sliding and bearing loads deeper into the soil, even when the effective bearing area at base plate level is reduced due to overturning moments.

It is a requirement that full penetration of the skirts must be achieved at set-down. Note that clump weight can be applied post-landing in addition to the structure submerged weight, to assist the installation of the mudmats should the skirts partially penetrate prior to full set-down.

The base plate of the mudmat foundations will include perforations (vent holes) for launching and landing purposes, so that water can egress during lowering. In addition to vent holes, a geotextile drainage blanket will also likely be installed to the underside of the drilling template mudmats. Use of a drainage blanket would facilitate an increase in the dissipation rate of excess pore water pressure that is generated in the soil when subjected to loading and enhance the degree of consolidation achieved prior to application of the design loads.

6.4.2 Drill Bushings

Drill bushings may be used on some, or all of the Crux wells to provide centralization for the drill string within the drilling template to ensure the wellhead is installed centrally within the guide slot

in support of future tieback operations. The drill bushings will be installed onto the drill string and engage with the drilling template.

One drill bushing may be required for use at each of the five development drilling sites with an additional three drill bushings to allow for potential re-spud requirements. Once each drill bushing is installed, the drill bushing will be broken up by a stabilizer and left on the seabed within the drilling template footprint. The proposed, disposable drill bushings structural assembly consist of marine plywood and cement assembled without any use of metals fixings or fasteners (Figure 6-4).

Figure 6-4: Drill Bushings

6.4.3 Mobile Offshore Drilling Unit

The five development wells will be drilled with a moored semi-submersible MODU. The generic details of a MODU that are relevant to the nature, scale, impacts and risks associated with the activity are described in Table 6-2 and a representative image of a semi-submersible MODU is provided Figure 6-5.

Table 6-2: Representative MODU Facility Description (the Transocean Equinox)

MODU Component	Description
Approximate size of MODU	116 m long by 97 m wide by 20 m deep
Mooring system	12-point anchor system. Anchor spread up to 3000 m from MODU
Accommodation	Maximum capacity 130 persons
Power generation	Diesel Generators
Bulk barite, bentonite and cement capacity	340 m^3 (12,007 ft^3)
Stack Storage (cement)	177 m3 (18,258 ft3)
Liquid mud capacity	1,445 m^3 (9,089 bbl)
Base Oil	629 m^3 (3,956 bbl)
Brine Storage	680 m^3 (3,956 bbl)
Fuel capacity	2,600 m^3 (16,354 bbl)
Drill water capacity	1,508 m^3 (9,485 bbl)
Potable water capacity	681 m^3 (4,283 bbl)

Figure 6-5: Representative Image of a Mobile Offshore Drilling Unit (the Transocean Equinox)

6.4.4 Docking Piles

Two docking pile guides will be mounted to each end of the drilling template (Figure 6-6) and, along with the docking piles, will be installed following the suspension of the wells and sail away of the MODU. The docking guides and piles will ensure that the Crux substructure and topsides are accurately positioned over the drilling template when installed during the subsequent installation campaigns. The approximate dimensions of the docking piles are provided in Table 6-3.

Table 6-3: Specifications of the docking piles

Infrastructure	Specification	Approximate Dimensions
Docking Piles	Height	11 m (above seabed)
	Length	39 m (28 m below seabed)
	Width	5.5 m

Analysis of the docking pile design and installation, including impact loading, on the drilling template and substrate has been undertaken. Docking pile guide design and fabrication make allowances for impact and the variance in the angle of the piles during docking pile installation. The zone of influence from the docking piles on the drilling template are within acceptable tolerances (Figure 6-7).

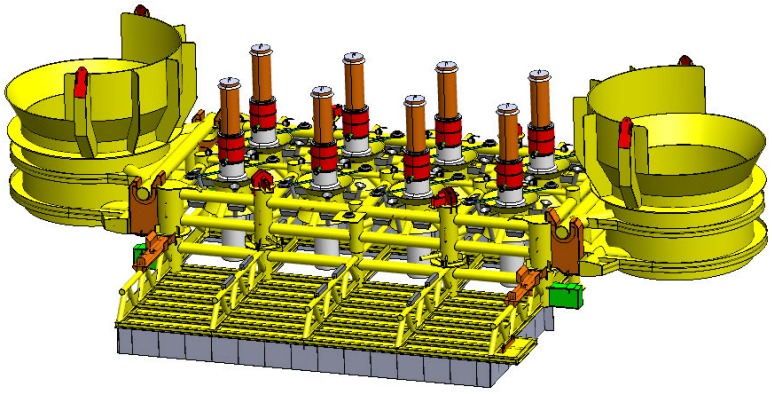


Figure 6-6: Illustration of Drilling Template with Docking Pile Guides installed

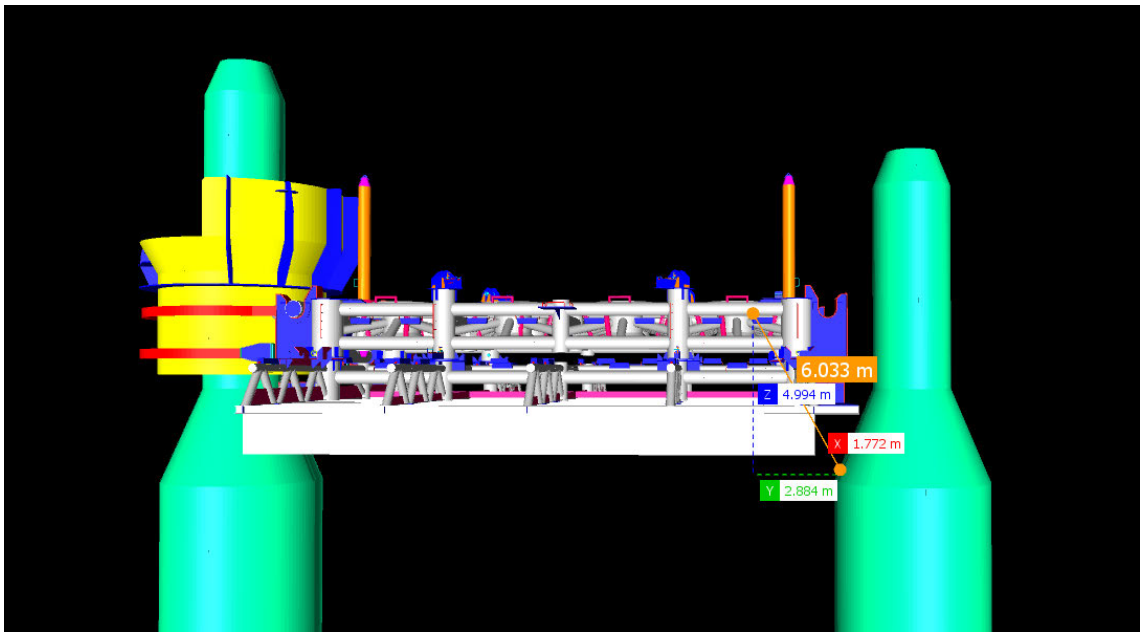


Figure 6-7: Docking pile configuration show clearance distance to well slots.

6.4.5 Vessels

The drilling template and docking piles will be installed by a Light Construction Vessel (LCV) of suitable class to undertake the activity. The LCV will include suitably sized lifting and piling equipment to enable installation of the drilling template and docking piles. The general specifications of an LCV are included within Table 6-4.

Drilling support vessels, including Anchor Handling Tug Supply (AHTS) and support vessels will be used during the activity. These vessels will be select based on class and operational requirements.

Table 6-4 provides indicative specifications of the class of vessels which may be used to support the activities described in Section 5.8.

Table 6-4: Typical Support Vessel Details

Vessel Type	Detail	Example General Specifications
AHTS	Main Engine Capacity	2 x 8,000 kW

Vessel Type	Detail	Example General Specifications
	Engine Configuration	Diesel Electric
	POB	60
	Weight	4,100 ton
	Draft	8 m
	Dynamic Positioning	DP2
	Tank Capacities	
	Base Oil	200 m^3 (1,260 bbl)
	Brine	900 m^3 (5,670 bbl)
	Ballast	2,900 m^3 (18,270 bbl)
	Mud	650 m^3 (4,095 bbl)
	Total Fuel Oil	1,300 m^3 (8,190 bbl)
	Fresh Water	1,100 m^3 (6,930 bbl)
General Offshore Support Vessel	Main Engine Capacity	2 x 5,500 kW
	Engine Configuration	Diesel Electric
	POB	30
	Weight	4,000 ton
	Draft	7 m
	Dynamic Positioning	DP2
	Tank Capacities	
	Base Oil	300 m^3 (1,890 bbl)
	Brine	1,300 m^3 (8,190 bbl)
	Ballast	1,900 m^3 (11,970 bbl)
	Mud	1,300 m^3 (8,190 bbl)
	Total Fuel Oil	900 m^3 (5,670 bbl)
	Fresh Water	700 m^3 (4,410 bbl)
LCV	Main Engine Capacity	2 x 8,000 kW
	Engine Configuration	Diesel Electric
	POB	60
	Weight	4,100 ton
	Draft	8 m
	Dynamic Positioning	DP2
	Tank Capacities	
	Base Oil	200 m^3 (1,260 bbl)
	Brine	900 m^3 (5,670 bbl)
	Ballast	2,900 m^3 (18,270 bbl)
	Total Fuel Oil	1,877 m^3 (8,190 bbl)
	Single Largest Fuel Tank	390m^3
	Fresh Water	1,100 m^3 (6,930 bbl)

Figure 6-8: Typical Light Construction Vessel (example) (source: Lay Vessel 108 - MDR (mcdermott.com)

6.5 Project Operations

6.5.1 Drilling template and docking pile installation

Prior to MODU arrival the drilling template will be installed on the seabed. The template installation includes lifting and lowering of the drilling template onto the seabed by the LCV. To aid in the template positioning and installation, remotely operated vehicles (ROVs) would be deployed from the Light Construction Vessel (LCV).

The docking pile guides and associated docking piles are likely to be installed following the completion of the drilling campaign. The docking pile scope involves two detachable guides being mounted to the drilling template, the docking piles lowered into position and driven into the seabed using a hammer pile to a target depth of approximately 28 m. A study to determine the optimal size of the piling hammer is ongoing, however, it is not expected to exceed an MHU-750. Continuous and easy pile driving is predicted with approximate blow-counts of <200 blows/m through upper soil units and <500 blows/m through deeper soil units. The zone of influence from the docking piles installation on the drilling template and wells are within acceptable tolerances (Figure 6-7).

Following piling, the detachable docking pile guides will be removed from the drilling template and recovered to the LCV, leaving the docking piles independent from the drilling template to support positioning of the Crux platform substructure during a subsequent installation campaign (covered by a separate EP).

The LCV/s used to support the installation of the template and docking piles and pile guides will be of suitable size and class to enable safe lifting and positioning operations. The vessel will have a versatile, and technically advanced, dynamically positioning system that will enable it to be positioned and then to lower the drilling template with a high degree of control and accuracy (i.e., within a few meters of the drilling template target location). The vessel will likely be equipped with a 250 t active heave compensated knuckle boom crane or similar. The drilling template will be lifted using dedicated lifting points on the drilling template, before being slewed overboard and lowered to the seabed using the crane.

A seabed Global Positioning System (GPS) positioning array may be deployed to support the accurate positioning of the drilling template and docking piles. This will be installed on a temporary basis only and will indicatively consist of approximately 5–10 subsea beacons attached to clump weights, nominally 100 kg each, positioned over a 50–100 m^2 area. The subsea beacons and clump weights will be recovered to surface at the completion of installation campaign.

6.5.2 MODU Mooring

The MODU will be towed / self-propelled to the drilling location and moored up by up to three anchor handling tugs (AHTS). Pre-laying of mooring lines may be carried out by AHTS prior to arrival of the MODU. After arriving on location, the MODU will be secured in place with 12 mooring lines and anchors.

If the MODU anchors are found to be slipping and the required cross tension cannot be achieved, “piggy back” anchors may be run as a contingency.

To allow for MODU availability options, this campaign may use two separate MODU's to drill different sections of the wells. For example, an initial MODU may be mobilised to drill the top-hole sections, followed by a second MODU to drill the intermediate and production hole sections.

6.5.3 Drilling Methodology

Once the MODU is on location and moored, drill operations will commence. The Crux development drilling activity comprises of five subsea development wells drilled from the previously installed subsea template. The MODU will drill (but not complete) the wells prior to the installation of the Crux platform. The subsea wells will be cleaned up to completion fluid and suspended until the Crux platform is installed. The suspension of the well will include the installation of a "middle completion", which consists of the following key elements (i.e., a Polished Bore Receptacle (PBR), packer, tailpipe with suspension plug and locator seal assembly. Additionally, an environmental plug and temporary abandonment cap (section 6.5.6) will be installed as part of the well suspension. The suspension plug will be located within the tailpipe of the middle completion. Other activities associated with well completions, (such as but not limited to tieback operations, tubing installation, perforation and well unloading), will be covered in the Crux Commissioning, Start-up and Operations Environment Plan (to be developed prior to these activities occurring) and are therefore not described here.

The top holes, defined as the hole sections drilled prior to the installation of the subsea blow out preventers (BOP's), are planned to be batch drilled. Batch drilling reduces the need to change out drilling mud systems for each well section, similar sections are drilled in batches before proceeding to the following section.

The well section diameters are planned to be drilled in the following sequence:

- Top-hole sections, drilled with water-based mud (42″, 30″x32″, 24″ and 17½″)
- Intermediate and Production hole sections, drilled sequentially with synthetic based mud (12¼″ and 8½″).

The top-hole sections will be drilled riserless using water-based mud. When using water-based muds, drilling fluids and cuttings will either be discharged at seabed or returned to the MODU using a Riserless Mud Recovery (RMR) system prior to discharge overboard (section 9.10.1.1)

A 42″ hole section will be drilled riserless from the template down to a maximum of 70 m below seabed with water-based mud. The base plan is to drill to an equivalent depth of 5 conductor joints or circa 62 m below mudline. A low pressure wellhead housing and 36″ outer conductor are then planned to be run and cemented to seabed.

After drilling out the 36″ conductor, a 30″ to 32″ section will be drilled riserless up to a maximum of approximately 355 m below seabed with water-based mud. Subsequently a 26″ inner conductor will be run and cemented. The intent is to cement both outer and inner conductors to seabed. The 36″ and 26″ conductors combined form the structural foundation to support the loads from subsequent well operations.

Based on experience from drilling within the Browse Basin, any of the top-hole formations below the 36″ shoe will be drilled using a water-based mud system. If the formations cannot sustain a full circulating mud system and significant downhole losses are observed or in the event of RMR failure, then the contingent option exists to drill ahead with seawater and high viscosity gel and/or polymer water-based mud sweeps.

After drilling out the 26″ conductor, a 24″ hole will be drilled down to below the Grebe formation. An 18-5/8″ drilling liner will be run and cemented to isolate off the Grebe formation before continuing to drill down to the 13-3/8″ casing point in 17½″ hole. The setting depth of the 13⅜″ casing is aimed within the top Fenelon formation at approximately 200m below the Puffin Shale (or approximately 2,100 m Along Hole Depth (AHD)). A 13 ⅜" intermediate casing (crossed over to a 22″ extension joint) and high pressure wellhead housing will be run to enable drilling the 12¼″ section with subsea blowout preventer (BOP) and marine riser installed.

The 18-5/8″ and 13-3/8″ cement jobs are planned to be approximately 150 m and 300 m along hole length respectively, so cement returns are not expected from either of these cement jobs.

After running the BOP and marine riser, the intermediate and production hole sections are planned to be drilled with a closed mud system, using synthetic-based mud.

The 12¼″ hole section is planned to be directionally drilled. A 10¾″ x 9⅝″ casing string will be run back to the subsea wellhead and cemented in place. Cuttings from the 12¼″ hole sections shall be processed through the MODU's solids control system before being discharged overboard. The 9-5/8″ cement job is planned to be less than 500 m along hole length. A longer cement sheet may be required, for example if a hydrocarbon bearing Aptian Sand formation is found that requires isolation. The 12¼″ hole section Total Depth (TD) will vary from well to well, but is expected to be in the range of 3400–4800 m AHD.

The 8½″ section is planned to be directionally drilled through the reservoir until well total depth is reached. A 7″ production liner will be run and cemented to the liner hanger. Well total depths will vary by well, and are expected to be in the range of 3700–5200 m AHD. Upon completion of the 7″ liner cement job the liner will be inflow tested to confirm barrier integrity.

A combination of wireline open and cased hole logs may be run on each well. Wireline logging is the measurement of downhole properties by running instruments down the wellbore. Different tools may be used to record or log information about the formation and well including hydrocarbon and pressure sampling, collection of formation samples (side wall cores) to allow surface measure of the physical formation properties and cased hole measurement for cement quality and casing wear. The wireline logging programme will vary by well.

Prior to MODU departure, the wells will be cleaned up and suspended for future completion and perforation after the Crux platform is installed. The base plan is for wells to be cleaned up by displacing out the drilling mud and leaving clean base oil in the well as the completion fluid. The wells will be inflow tested prior to displacing to base oil to verify barrier integrity. However, a contingent scenario with the well suspended in brine is still considered a possibility. A "middle completion" will be installed as part of the well suspension and pressure tested to verify barrier integrity.

A shallow set "environmental barrier" will be installed, which is planned just below the 10¾″ x 9-5/8″ crossover allowing the completion fluid to be contained inside the well during suspension. Prior to pulling the blowout preventer and riser, the completion fluid above the tested "environmental barrier" will be displaced to an inhibited aqueous fluid. Following removal of the blowout preventer and riser, a suspension cap will be installed onto the wellhead.

6.5.4 Drilling Fluids, Cuttings and Chemicals

When the riser is connected, the primary function of the drilling fluid is to provide well control. In the process of drilling (riser or no riser), other key functions of the drilling fluid are lubrication and cooling of the drill bit, maintaining well bore stability, and removing drill cuttings (i.e., rock fragments) from the well sections as they are drilled. The two types of drilling fluids that will be used to drill and complete the wells are water-based and synthetic based. The largest well diameters are provided in the table below with information about the types of fluids (and their typical components). In the event of severe losses and potential rapid depletion of whole fluid inventory when drilling with Synthetic Based Mud (SBM) in the drilling campaign, an alternative to synthetic based mud may be used to prevent further losses (i.e., Linear Alpha Olefin (LAO) base oil).

Water based mud and drill cuttings will be discharged and will accumulate for a short period of time on the 42″ section. The drilling fluid and cuttings on all remaining sections down to the 17½″ section TD will be returned to the MODU using a riserless mud recovery system. Solids control equipment will be used to process the cuttings when returned at surface. Quantities of drilling fluids and cuttings discharged will be minimised through the use of solids control equipment and recirculation of the mud where possible. Processed cuttings (Water Based Muds (WBM) & SBM) will be discharged just below the water surface and will be dispersed over an extended area, governed by the ocean currents at the time.

Water-based cuttings (excluding 42″ section) will be directed across shale shakers to recover any water-based mud for re-use prior to cuttings being discharged to seabed. During synthetic based drilling, drill cuttings will be processed via shale shakers and cuttings drying equipment to reduce discharge of synthetic based mud on cuttings. Well section volumes and material summaries are further detailed by the awarded fluids provider.

During water based and synthetic based drilling, pit storage tanks will be allocated, where feasible and dependent on the MODU contracted, to reduce contamination of synthetic based mud cuttings and water-based mud cuttings. At the end of the SBM drilling phase, the pits, surface equipment and lines will be cleaned using detergent to prepare for the Wellbore Clean Up (WBCU). The pits will be cleaned and circulated with aqueous fluids, noting that the synthetic based mud present in the allocated pits is considered residual, not bulk synthetic based mud. Pit and topside cleaning events will occur throughout the drilling campaign.

As part of the WBCU activity, the base plan is to displace the synthetic based mud initially to an aqueous fluid prior to displacing to base oil. The aqueous fluid used to clean the well, and being displaced out of the well by the base oil, will be captured into a pit and discharged after ensuring the oil content meets specification.

All non-aqueous fluids will be managed strictly, in accordance to drilling contractor and Shell environmental procedures and approved documentation to prevent accidental discharge. All equipment that is involved with the moving and processing of these fluids will be run correctly, efficiently with any operations moving these fluids being performed via rig approved procedures and pre-job risk assessments. There will be no planned discharge of whole SBM. Any cleaning fluids / wash water that have become contaminated will only be discharged if they meet the accepted specification for discharge of <1% v/v.

6.5.5 Cementing

Cement is used to create a physical and hydraulic bond between a conductor or casing string and the formation. This is essential for providing structural support and well integrity, to ensure no connection between different geological strata. Cementing fluids consist of cement and additives such as anti-foam, extenders, accelerators, dispersants, silica, retarders, fluid loss agents and gas block agents.

Cementing operations for the Crux development drilling campaign will require at least four types of cement mixes to meet the requirements for the six hole sections of each well (Section 6.5.3). Each variant will be tailored to ensure compatibility with the cementing unit and relevant chemicals. It is essential to ensure that the cement mix is compatible with the cement unit's Liquid Additive System (LAS). A cement slurry test mix will therefore be required prior to initial deployment of each variant through the cementing unit to ensure the cement mix will pass through, and be metered by, the cementing unit. Each slurry test mix may be of a volume of approximately 3.3 m^3 each and will be discharged overboard at sea.

While cementing fluids are not routinely discharged to the environment (unless cleaning residue from dead volume in tanks), cement will be released when the cementing mixture is circulated to seabed during cementing of the 36″ and 26″ conductors. The two conductor strings form a structural base for supporting the weight of subsequent casing strings and the blowout preventer and are planned to be cemented to seabed. Cement may remain liquid for several hours, during which time there may be some release of chemicals into ambient waters. After the cement has hardened, chemical components of the cement are locked in the inert cement matrix. Cement may be discharged at seabed at a short distance from the template (<150 m) to reduce the risk of cement discharge impacting future flowline installation and platform piling operations.

Depending on the choice of rig, pit storage tanks may be utilised during cementing operations and preparation of water-based spacers (containing solvent/surfactants when cementing in SBM). Cleaning of the pits will occur throughout the drilling campaign and all overboard discharges will be checked and logged by a contracted compliance engineer.

It is anticipated that a high temperature cement blend (or similar) will be used throughout the Crux Development Drilling Campaign.

6.5.6 Well Suspension

After installing the 7″ production liner, the plan is to clean up the well(s) with an aqueous fluid and then displace with a base oil suspension/completion fluid. The well(s) will be temporarily suspended to allow for well completion activities to be undertaken following the installation of the Crux topside (Figure 6-9). Well suspension are addressed in detail in the WOMP.

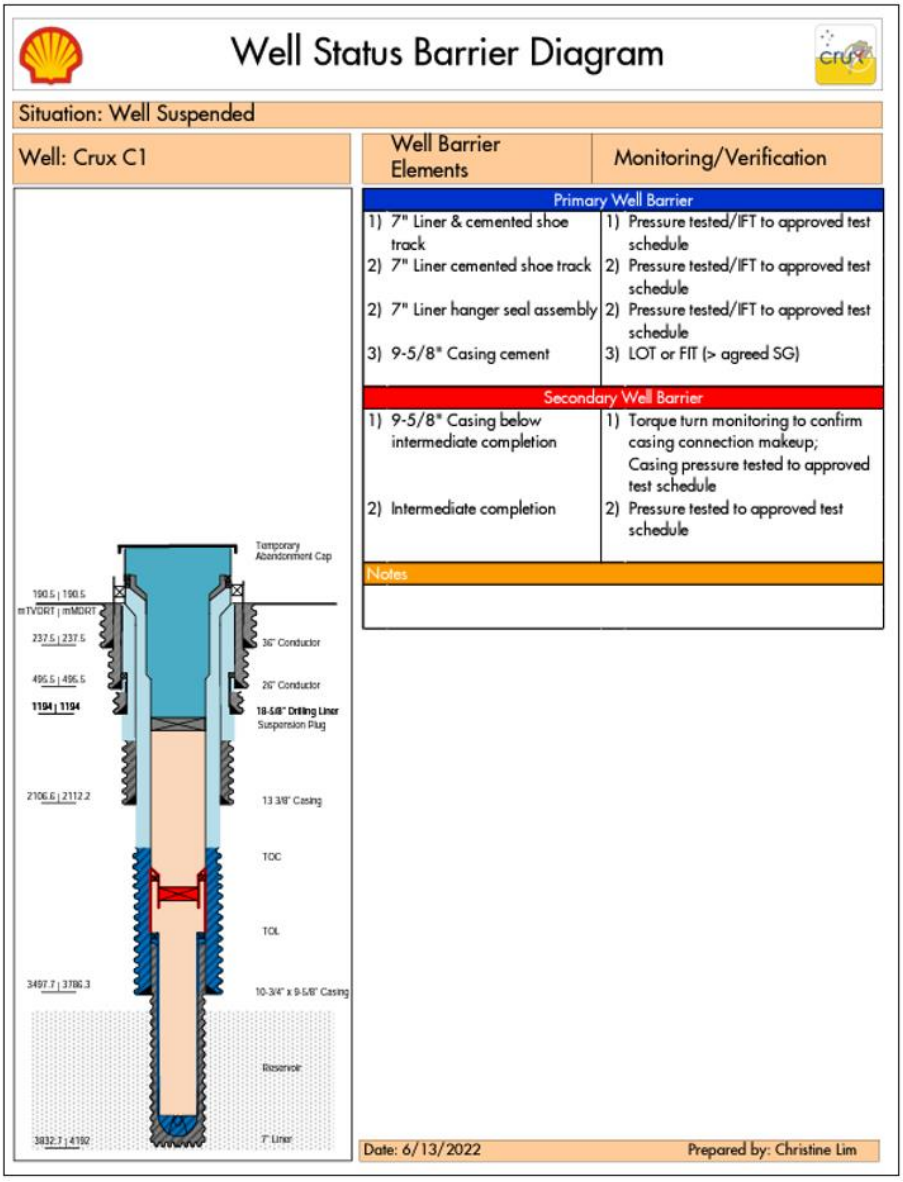


Figure 6-9: Indicative Well Suspension Diagram

Wells will be suspended in a non-perforated state for approximately 21 months. The void above the upper suspension plug will contain inhibited brine. The wellhead system is a TechnipFMC product with the second position casing hanger in place, there will be a Temporary Abandonment (TA) Cap fitted to the wellhead. The TA cap is designed to permit installation by ROV onto the wellhead, and is a light-weight non-pressure containing device, designed to protect the wellhead H4 profile and gasket seal profile from damage (Figure 6-10). It will provide the facility to inject corrosion inhibitor in order to protect the wellhead internals from corrosion.

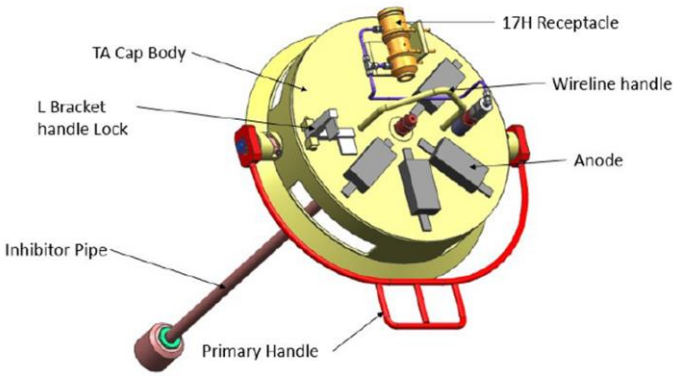


Figure 6-10: Illustration of a Typical Temporary Abandonment (TA) Cap

In addition to well suspension barriers, a shallow set “environmental plug” will be installed, which is planned just below the 10¾″ x 9-5/8″ crossover, to contain the base oil inside the wellbore. Following this, the well will be displaced with an inhibited aqueous fluid prior to the BOP and riser being disconnected.

During the well suspension period, in accordance with the WOMP requirements, IMR activities are planned to be undertaken, with visual observations undertaken on a minimum annual basis. Additional visual observations may occur to coincide with support activities in the Operational Area associated with future Crux activities. This activity will typically use an ROV of appropriate size and class to visually inspect the condition of the wells/TA caps. Vessel operations and associated ROV use are further described in Section 6.5.8 and Section 6.5.9.1.

6.5.7 Contingent Drilling Activities

6.5.7.1 Geological Sidetrack

Wellhead, and OCTG materials will be purchased to allow for one Crux well to be geological sidetracked. The geological sidetrack contingency is to cover the (unlikely) event where the reservoir interval is found either to be inadequate or absent in one of the five Crux production wells.

If a geological sidetrack is required, the 8½″ production hole (and 7” production liner if installed) would be abandoned with cement plugs and the 9-5/8″ x 10¾″ production casing cut and recovered to below the planned sidetrack depth. A “kick-off” cement plug would then be set in the 12¼″ hole. The purpose of the “kick-off” plug is to isolate the original wellbore from the new wellbore and is typically a higher density cement plug to encourage deviation from the original wellbore for side tracking. The sidetrack will then be drilled to intersect an alternate geological target. With the exception of the change in target, well activities subsequent to sidetracking will be the same as was planned for the original wellbore.

6.5.7.2 Well Plugging and Abandonment

A significant unplanned downhole event during construction may result in a wellbeing plugged and abandoned if the well condition is such that it is deemed unrecoverable. This may occur at any stage during well construction but is more likely to occur during top hole drilling, before the high-pressure wellhead has been installed.

Any plugging and abandonment activities will be undertaken as per the Shell Well Abandonment Manual and Guide (WS 38.80.31.35-Gen) and associated WOMP. Well abandonment includes installation of cement plugs to form permanent barriers to the hydrocarbon bearing and/or geologically pressured formations and cutting the wellhead/casing strings below the level of the sea floor and recovering the wellhead to surface.

6.5.7.3 Respudding

Respudding may be required if well problems result in it being impractical to continue to drill in the current well, or if well acceptance criteria cannot be met. This may be due to down hole failure or the well being constructed in a manner which is outside of tolerance, e.g. excessive 36″ conductor inclination.

In this situation the MODU would be moved to a spare well slot in the template and well construction operations repeated. Well problems requiring a respud typically occur during riserless operations, where remediation options are more limited. Respudding will result in an increased volume of cuttings and cement discharge from the 36″ and 26″ conductor cementation.

36” and 26” conductor strings will be available to allow 3 re-spuds across the well foundation section.

6.5.8 Vessel Operations

A combination of AHTS, support vessels and LCVs will be used throughout the life of this EP.

The operations of the MODU will be supported by both AHTS and suitable classed support vessels, primarily fulfilling the role of offshore resupply, towing and anchor handling. Up to three vessels will tow the MODU into position and assist with the anchor laying activities. Typically, three vessels will continue to support ongoing MODU activities during top hole operations, reducing down to two vessels for subsequent hole sections.

The AHTS and support vessels may also perform the following roles and functions:

- Infield emergency response support e.g. oil spill response, helicopter operations standby support
- Firefighting with capability commensurate with notation Fi-Fi 1, with remote operated main water monitors and foam drenching system
- 24/7 security surveillance for other vessels that might pose a threat to the MODU using existing systems (e.g. radar, floodlighting and other means of surveillance)
- Monitoring and maintaining traffic activities within the petroleum safety zone
- General supply and bunkering (fuel, other liquids and goods) activities.
- IMR activities.

Supply and bunkering activities include the transfer of goods from vessels to the MODU via MODU cranes and bunkering lines (for bulk transfer). Typically, goods transferred to the MODU include crew consumables (i.e. food, water, medical supplies and sanitation materials) and drilling support materials (i.e. equipment, machinery, chemicals and fuel). Bulk transfers via bulk transfer lines to support MODU operation include both liquids such as drilling fluids, fuel (diesel) and brine and also fluidised solids such as bentonite, barite and cement.

Backloading of materials will also occur to allow materials (including waste) to be returned to shore for disposal, recycling or reuse.

6.5.9 Other Supporting Operations

6.5.9.1 Remotely Operated Vehicle(s)

Remotely operated vehicles (ROVs) may be deployed from the MODU and/or support vessels to undertake support tasks during both the template and docking pile installation, during drilling operations and to support IMR activities. Support tasks may include visual surveys of the seabed before drilling, installing the blowout preventer, monitoring drilling, retrieving the blowout preventer and visual surveys of the seabed and installed equipment after drilling. Remotely operated vehicles may also be used to assist if an incident occurs. Hydraulic control fluids are

used to operate ROVs and negligible amounts may be released to sea during some operating functions such as opening and closing valves.

6.5.9.2 Aviation Support Location

Helicopters are part of the activity when they enter the 500 m petroleum exclusion zone that will be associated with the MODU. Aviation support and crew changes to Prelude are conducted through Broome International airport (via Djarindjin), and then to location. For the Crux drilling phase, Shell will continue to fly through Broome and then onto North Kimberley Airport. Airfields at Derby and Curtin could also be used for alternate landing sites under certain weather conditions, however these activities are outside of the scope of this EP. Once Crux is operational, Shell will return to the current route, flying Broome via Djarindjin.

Due to the long distances between the Operational Area and the aviation support base(s), helicopter refuelling on the MODU will also be required.

7 Description of the Receiving Environment

As required by regulations 13(2) and 13(3) of the OPGGS(E) Regulations, a description of the receiving environment that may be affected by the activities (both planned and unplanned) covered by this EP is provided in this section. The information contained in this section has been used to inform the assessment of environmental impacts and risks presented in Section 9.

In accordance with Regulation 31(1) of the Environment Regulations, reference to the Master Existing Environment (Section 6), of the accepted Crux Offshore Project Proposal (OPP) (hereafter referred to as the Master Existing Environment) has been made throughout this EP. The accepted OPP (NOPSEMA ID: A742335 is available on the NOPSEMA website.

The spatial extent of the receiving environment encompasses the physical, biological and socio-economic receptors that may be affected by planned and unplanned activities. The majority of the impacts and risks from the activities covered by this EP occur in close proximity to the Crux Operational Area, however some impacts and risks may extend further. The credible worst-case hydrocarbon release scenarios determined by modelling studies are predicted to present the greatest spatial extent of all the impacts and risks identified. The outer boundary of the area that may be influenced by the petroleum activities, identified by the modelling and referred to as the Planning Area, has been used as the outer boundary for the description of the receiving environment. The worst-case hydrocarbon releases during the drilling activities have a remote likelihood of occurring, and Shell implements a range of controls to ensure such incidents are prevented, and risks mitigated to ALARP and Acceptable Levels. The Planning Area for the combined worst-case credible hydrocarbon spills from the Crux development drilling activity is shown in Figure 7-1 and represents the low exposure thresholds described further in Section 9.14**.** Refer to Section 9.14 or additional information on hydrocarbon spill modelling and risk management and associated impact thresholds applied for the assessment.

The description of the receiving environment considers environmental receptors that are protected under the EPBC Act, including:

- World heritage and national heritage values;
- Ramsar wetlands;
- Biologically Important Area and Habitat Critical to the survival of species;
- listed threatened species, migratory species and threatened ecological communities; and
- values and sensitivities within the Commonwealth marine environment.

The EPBC Act Protected Matters Search Tool (PMST) was used to identify environmental receptors protected under the Act. Two EPBC Act PMST reports were generated; one based on the Operational Area and one based on the combined entrained, dissolved and surface Planning Area. PMST Reports for both the Operational Area and Planning Area are provided in Appendix C.

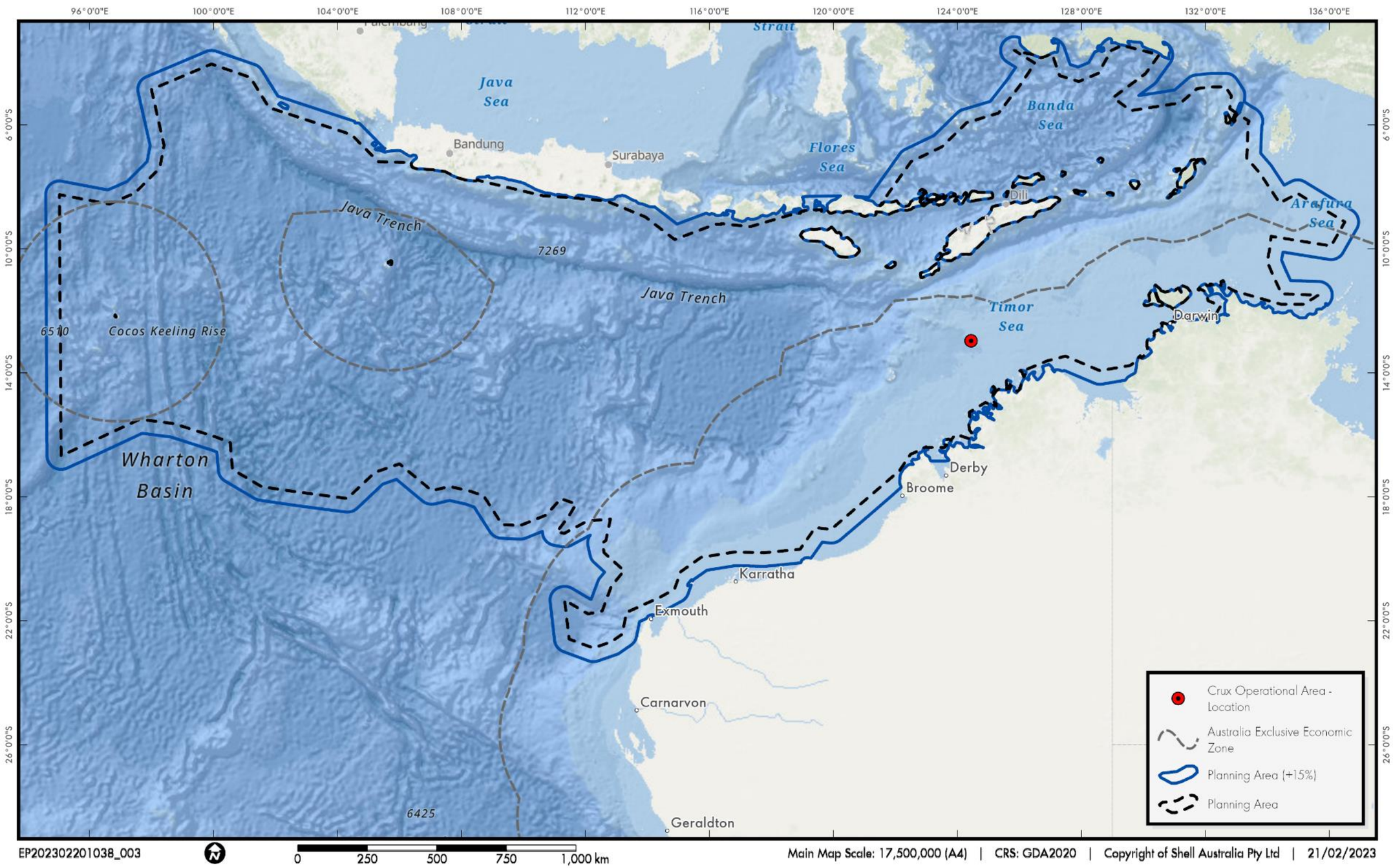


Figure 7-1: Planning Area for the Crux development drilling activity

Shell commissioned a number of baseline studies to describe the existing environment relevant to the Crux project. The full list of studies are described in full detail in Table 6.1 of the Master Existing Environment, however those relevant to this EP are listed in Table 7-1.

Table 7-1: Summary of Crux Baseline Studies relevant to the Crux Drilling EP.

Study Type	Study Description/Objective
Metocean study	Collection of metocean data (e.g. current, conductivity, wave and wind data) on the surface and through the water column for a full 12 month period from late April 2016 to early May 2017.
Water quality study	Two surveys for the collection of baseline data on physical and chemical components of water quality. The surveys were completed over two survey events in April/May 2016 and October/November 2016.
Sediment, water quality and infauna study	Collection of baseline data on sediment quality, water quality and infauna communities. The study was completed in October/November 2016.
Benthic habitat study	Collection of baseline data to characterise topographic features, benthic habitats and macrofaunal communities, through the use of underwater transects (towed, video camera) and geophysical methods (multibeam, side-scan sonar, seismic reflection and sub-bottom profiling). This study was completed in April/May 2017.
Geotechnical study	An assessment of the geotechnical conditions of the seabed in the Crux field and along the proposed pipeline. This study was completed in 2016, with a further study completed in April 2018.

7.1 Regional Context

The Crux Operational Area is situated in the North-West Marine Region (NWMR), a marine bioregion encompassing Commonwealth Waters extending from the Western Australian – Northern Territory border to Kalbarri, Western Australia (Department of the Environment, Water, Heritage and the Arts (DEWHA), 2008a). The region is characterised by shallow-water tropical marine ecosystems and home to globally significant populations of internationally threatened species (DEWHA, 2008a). The NWMR is further divided into provincial bioregions, of which, the Operational Area is situated within the Timor Province (Integrated Marine and Coastal Regionalisation of Australia (IMCRA) v4.0). The Planning Area overlaps additional provincial bioregions of the NWMR and the North Marine Region, including the Central Western Transition, Northwest Province, Northwest Shelf Province, Northwest Transition, Northwest Shelf Transition, Timor Transition, Northern Shelf Province, Christmas Island Province, and Cocos (Keeling) Island Province. Further description of the marine regions and bioregions is found in Section 6.4 of the Master Existing Environment.

7.2 Physical Environment

Key features of the physical environment are summarised in Table 7-2 and described in further detail in Section 6.3 of the Master Existing Environment.

Table 7-2: Summary of the characteristics of the physical environment relevant to the Operational Area and Planning Area.

Physical characteristic	Relevance to the Operational Area and Planning Area
Bathymetry and geomorphology	The Operational Area is located in depths of approximately 170m. The Seabed is generally flat with a gentle gradient falling from north east to south-west. Seabed morphology is typically smooth and bare of hard substrates. In the wider Planning Area there are a number of banks and shoals that support high biodiversity relative to the surrounding environment.
Climate	Monsoonal climatic patterns with a distinct cyclone season between December and March. Climatic conditions between December and

Physical characteristic	Relevance to the Operational Area and Planning Area
	March are typical of Western Australia's north, associated with the inflow of moist west to north-westerly winds, producing convection cloud and heavy rainfall. During the cooler months (June–September), brings stable and persistent easterly winds over the region. Long-term maximum and minimum temperatures and mean rainfall in the Operational Area is shown in Figure 7-2.
Oceanography	The NWMR experiences semi-diurnal tides. Tidal ranges are large – 0.8 m neaps and 5 m springs and strongly influence currents in the region. Tidal amplitudes seem to be retained at large distances offshore and travel initially in a north-east direction in the deeper waters of the region. The tidal current component is imposed over the synoptic-scale flow. In addition to synoptic-scale and tidal currents, locally generated wind-driven currents also influence water movement within the Operational Area and Planning Area. These are more variable and are superimposed over large-scale flows.
Water quality	Temperature, salinity, pH and dissolved oxygen were investigated across the Operational Area and determined to be relatively consistent and comparable to previous studies in the region. Minor seasonal variation exists.
Sediment quality	Baseline sediment surveys were conducted across the Operational Area. Concentrations of metals, hydrocarbons and radio nucleotides were generally consistent across sites, indicating no obvious existing anthropogenic impacts on sediment quality in the area.
Air quality	No specific information concerning air quality in the project area is available. However, the Operational Area is approximately 190 km from the Kimberley coastline, which itself is a remote and unindustrialised area. Therefore, the air quality is unlikely to be subject to significant anthropogenic effects. Commercial shipping is likely to represent the main source of localised and temporary reductions in air quality.
Noise	Previous underwater monitoring programs in the northern Browse Basin and in the Ichthys field (164 km south-west of Operational area), recorded fish chorus, whale calls (pygmy blue, humpback, minke), persistent vessel and some seismic survey signals as part of the underwater soundscape. Underwater noise in the Operational Area is likely to reflect the previous studies.

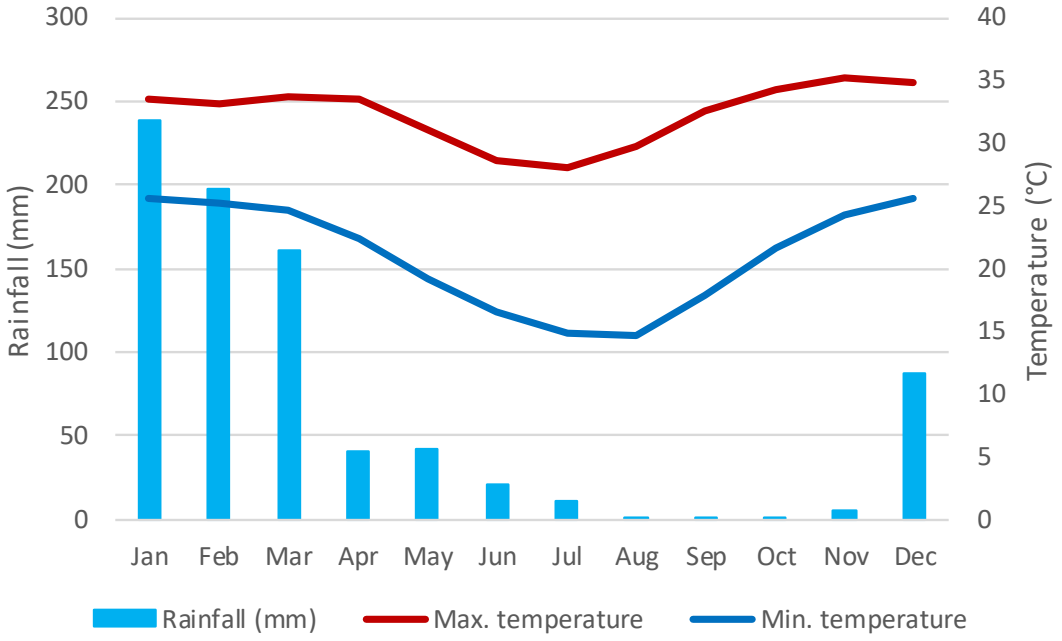


Figure 7-2: Long-term maximum and minimum temperatures and mean rainfall from Cygnet Bay (closest Bureau of Meteorology climate station to the Operational Area).

Data sourced from Bureau of Meteorology (n.d.)

7.3 Biological Environment

7.3.1 Habitats and Communities

Surveys undertaken in 2017 by Fugro (2017a) and AECOM (2017) indicated the benthic habitat of the Operational Area to have a very low abundance of macrobenthic fauna. Habitat types observed generally consisted of unconsolidated substrates (sand, gravel, mud etc.) interspersed with patches of hard substrate which provide attachment points for sponges and molluscs. The demersal and pelagic fish communities of the Operational Area and Planning Area are expected to include small pelagic fishes, such as sardines and anchovies, which form an important trophic link between microscopic planktonic communities (e.g. zooplankton feeding on phytoplankton) and larger consumers (e.g. tunas). Also present may be migratory larger pelagic fishes such as tunas, bonito, blue sharks etc. Pelagic fishes are expected to be broadly distributed throughout the tropical pelagic environment given the relatively homogeneous nature of the open sea, with food availability and predation also influencing the distribution and abundance of these species. The demersal fish communities of the Operational Area are likely to be reflective of the wide Timor Province, of which a high level of endemnicity exists (DEWHA, 2008a).

The environment of the Operational Area is reflective of the wider region and do not support highly diverse benthic communities, such as those found on banks and shoals in the region. Key habitats and communities are summarised in Table 7-3, and described in further detail in Section 6.4.2.2 of the Master Existing Environment.

Table 7-3: Significant Habitats and Communities found in the Operational Area and wider Planning Area.

Habitat/Community	Key locations within the Operational Area and Planning Area
Benthic communities	
Bare/unconsolidated sediments	Most common habitat type of the Operational Area and Planning Area. Inhabitants consist largely of polychaete worms, molluscs and sponges and consistent with the wider region.

Habitat/Community	Key locations within the Operational Area and Planning Area
Epifauna and Infauna	Macrobenthic infauna of the Operational Area consist of polychaete worms, nermerteans, molluscs and arthropods. Epifauna consist of sponges, branching soft coral, sea whips, hydroids, sea anemones, echinoderms, Crinoids. In the wider Planning Area, deep water communities feature soft corals, sea whips, hydroids, etc. Shallower communities include molluscs, hard corals, branching soft corals, echinoderms and crustaceans. The Planning Area is dominated by widespread soft sediment habitat that is unlikely to support significant epifauna. Low density epifauna communities are associated with sparser hard substrate in deeper waters.
Corals	Soft branching coral (Alcyonacea) is associated with consolidated rock and unconsolidated gravel within the Operational Area (Fugro, 2017a). Widespread throughout the Planning Area, associated with banks and shoals, characteristic of the region as well as regionally significant Ashmore Reef and Cartier Island.
Macroalgae & seagrass	Important feature of seabed communities at several offshore banks and shoals in the Planning Area, particularly calcareous green algae in the genus *Halimeda.* Seagrass is less common, displaying temporal and spatial variability.
Banks & Shoals	Significant habitat within the Planning Area. Nearest shoals include • Goeree Shoal ~14 km north-west of Operational Area • Eugene McDermott Shoal ~ 20 km south-east of Operational Area • Vulcan Shoal ~ 24 km north-west of Operational Area Other shoals in the region include Barracouta Shoals, Heywood Shoals and Echuca Shoals.
Offshore reefs and islands	No known offshore reefs and islands within close proximity to Operational Area. Within the Planning Area are key reefs and islands: • Ashmore Reef ~ 160 km north-west of Operational Area • Cartier Island ~ 106 km north-west of Operational Area • Hibernia Reef ~ 155 km north-west of Operational Area • Browse Island ~ 157 km south-west of Operational Area • Serigapatam Reef ~ 262 km south-west of Operational Area • Scott Reef ~ 320 km south-west of Operational Area • Adele Island ~ 312 km south-west of Operational Area • Tiwi Islands ~ 621 km east of the Operational Area • Christmas Island ~ 3,567 km west-north-west of the Operational Area • Cocos (Keeling) Islands ~ 4,754 km west of the Operational Area.
WA and NT mainland coastline communities	The WA and NT mainland coastlines occurs within the wider Planning Area. The nearshore and costal environments of the Kimberley on the WA coastline are approximately 190 km from the Operational Area. Communities include coral reefs, seagrass and macro algae beds, mangroves, sandy beaches, rocky shores, estuaries, wetlands, creeks and rivers. The NT coastline is approximately 539 km from the Operational Area. Communities include coral reefs, seagrass meadows, mangroves and sand or mudflats.
Other habitats and communities	
Plankton	Surface waters within the Operational Area are typical of clear open water environments with little seasonal variation. In the wider Planning Area,

Habitat/Community	Key locations within the Operational Area and Planning Area
	phytoplankton is diverse but low in abundance, typical of low nutrient open ocean environments. Distribution of plankton are linked to localised and seasonal productivity i.e. areas of upwelling and fluctuations in abundance and distribution of plankton occurs in response to tidal cycles, seasonal variation and cyclonic events.
Pelagic and demersal fish communities	Free swimming pelagic fish within the Operational Area and Planning Area are expected to include small pelagic fishes, such as sardines and anchovies, broadly distributed throughout the tropical pelagic environment. Larger pelagic fish include migratory species (e.g. tunas, bonito, blue sharks etc.) as well as commercially important species, such as marlin, swordfish and mackerel. High level of endemicity associated with separate demersal fish communities of the upper and mid continental slope, particularly in areas of complex geomorphology. Species include trout, snapper and sharks.

7.3.2 Key Ecological Features

Key Ecological Features (KEFs) are elements of the Commonwealth marine environment that are considered to be of regional importance for either a region's biodiversity or its ecosystem function and integrity. There are no KEFs present within the Operational Area; 14 KEFs have been identified within the Planning Area in Table 7-4 and described in Section 6.4.7 of the Master Existing Environment. Figure 7-3 shows the spatial overlap of KEFs within the Planning Area.

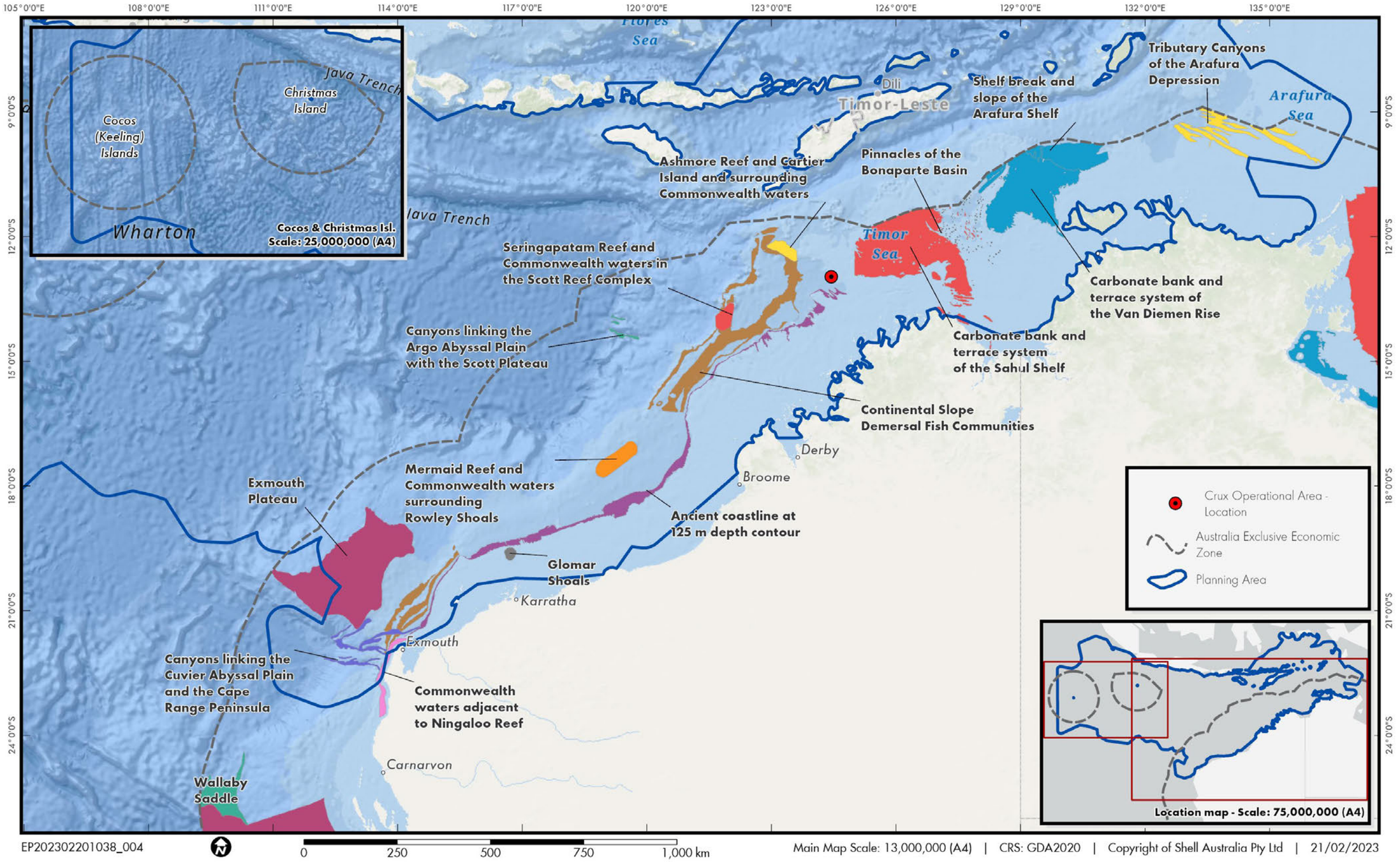


Figure 7-3: Locations of KEFs within the Planning Area

Table 7-4: KEFs within the Planning Area, including distance from Operational Area

KEF	Distance from Operational Area
Continental Slope Demersal Fish Communities	72 km west
Ancient coastline at 125 m depth contour	28 km south
Seringapatam Reef and Commonwealth waters in the Scott Reef Complex	264 km south-west
Ashmore Reef and Cartier Island and surrounding Commonwealth waters	98 km north-west
Carbonate bank and terrace system of the Sahul Shelf	60 km east
Canyons linking the Argo Abyssal Plain with the Scott Plateau	526 km south-west
Pinnacles of the Bonaparte Basin	306 km north-east
Mermaid Reef and Commonwealth waters surrounding Rowley Shoals	672 km south-west
Glomar Shoals	1,090 km south-west
Exmouth Plateau	1,275 km south-west
Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula	1,402 km south-west
Carbonate bank and terrace system of the Van Diemen Rise	428 km north-east
Shelf break and slope of the Arafura Shelf	605 km north-east
Tributary Canyons of the Arafura Shelf	984 km north-east

7.3.3 Threatened Ecological Communities

Threatened Ecological Communities (TECs) are protected under Part 3 of the EPBC Act and are Matters of National Environmental Significance (MNES). The PMST report for the Planning Area indicated that the monsoon vine thickets on the coastal sand dunes of the Dampier Peninsula TEC lies within the Planning Area, approximately 402 km from the Operational Area at the closest point.

The identification of this TEC by the PMST report is an artefact of the method used to derive the search area for the PMST. This TEC lies entirely above the high water mark and will not credibly be impacted by a worst-case hydrocarbon spill. Hence, this TEC is not considered further in this EP.

No other TECs were identified that may credibly be affected by the petroleum activities considered in this EP.

7.3.4 Ramsar Wetlands

Sites recognised under the Convention on Wetlands of International Importance (the Ramsar Convention), referred to as Ramsar wetlands, are protected under Part 3 of the EPBC Act and are MNES. Several Ramsar wetlands were identified within the Planning Area in Table 7-5; the environmental values for these Ramsar wetlands are summarised in Section 6.6.7 of the Master Existing Environment and shown in Figure 7-4.

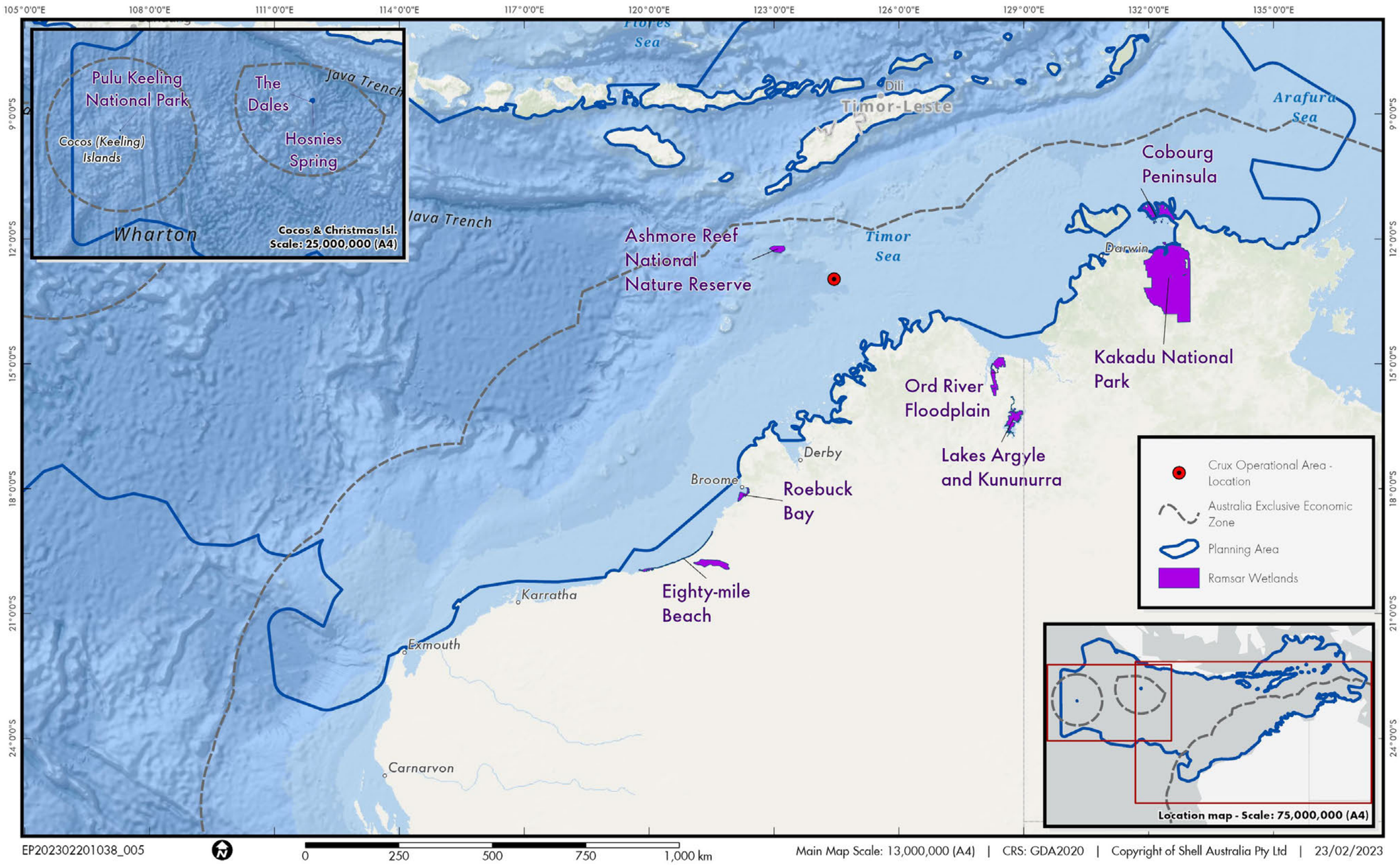


Figure 7-4: Ramsar Wetlands within the Planning Area

Table 7-5: Ramsar Wetlands within the Planning Area, including distance from Operational Area

Ramsar Wetland	Distance from Operational Area
Ashmore Reef National Nature Reserve (now part of Ashmore Reef Marine Park)	160 km north-west
Roebuck bay	597 km south-west
“The Dales” Christmas Island	2,074 km west
Cobourg Peninsula	837 km east-north-east
Kakadu National Park	864 km east-north-east
Hosnies Spring Christmas Island	2,060 km west
Pulu Keeling National Park	3,002 km west

7.3.5 Threatened and Migratory Species

A total of 115 EPBC Act listed threatened species and 95 listed migratory species were identified as potentially occurring within the Planning Area, of which a subset of 22 threatened and 35 migratory species were identified as potentially occurring within the Operational Area. Within the Operational Area two Conservation Dependent species were identified, the scalloped hammerhead and southern Bluefin tuna. The full list of marine species identified from the protected matters search is provided in Appendix C. A number of Biologically Important Areas (BIAs) and Habitat Critical to the Survival of Species were identified as well. Figure 7-5 to Figure 7-21 show the EPBC Act listed species, BIAs and Habitat Critical relevant to the Operational Area and Planning Area. Further descriptions of identified species can be found in Section 6.5 of the Master Existing Environment.

Note that a number of MNES that will not credibly be impacted by the petroleum activities were identified by the PMST Report for the Planning Area (e.g. terrestrial species). These PMST report results are an artefact of the method used to generate the area upon which the report is based; this method occasionally overlaps small areas of the terrestrial environment that will not credibly be impacted by the petroleum activity. These have been excluded from further consideration and are not listed in Table 7-6 to Table 7-14.

7.3.5.1 Marine Mammals

Table 7-6 provides a list of EPBC Act listed threatened and migratory marine mammals that may occur within the Operational Area and/or Planning Area.

Table 7-6: EPBC Act listed threatened and migratory marine mammals that may occur within the Operational Area and/or Planning Area

Species Name	Common Name	Threatened Status	Migratory Status	Operational Area	Planning Area
Balaenoptera borealis	Sei whale	Vulnerable	Migratory	Species or species habitat likely occur within area	✓
Balaenoptera musculus	Blue whale	Endangered	Migratory	Species or species habitat likely occur within area	✓
Balaenoptera physalus	Fin whale	Vulnerable	Migratory	Species or species habitat likely occur within area	✓
Megaptera novaeangliae	Humpback whale	N/A	Migratory	Species or species habitat likely occur within area	✓
Balaenoptera edeni	Bryde's whale	N/A	Migratory	Species or species habitat likely occur within area	✓
Orcinus orca	Killer whale, orca	N/A	Migratory	Species or species habitat may occur within area	✓
Physeter macrocephalus	Sperm whale	N/A	Migratory	Species or species habitat may occur within area	✓
Tursiops aduncus (Arafura/Timor Sea populations)	Spotted bottlenose dolphin (Arafura/Timor Sea populations)	N/A	Migratory	Species or species habitat may occur within area	✓
Eubalaena australis	Southern Right Whale	Endangered	Migratory	x	✓
Dugong dugong	Dugong	N/A	Migratory	x	✓
Orcaella heinsohni	Australian snubfin dolphin	N/A	Migratory	x	✓
Sousa chinensis (sahulensis)	Indo-Pacific (Australian) humpback dolphin	N/A	Migratory	x	✓

Species Name	Common Name	Threatened Status	Migratory Status	Operational Area	Planning Area
Balaenoptera bonaerensis	Antarctic Minke Whale, Dark-shoulder Minke Whale	N/A	Migratory	x	✓

Table 7-7 provides a list of marine mammal BIAs that may occur within the Operational Area and/or Planning Area.

Table 7-7: BIAs of marine mammals that overlap the Operational Area or Planning Area

Common Name	BIA Behaviour	Distance from Operational Area
Blue and pygmy blue whales	Migration (Indonesia – Banda sea)	156 km north
	Migration (Augusta to Derby)	120 km west
	Foraging (Scott Reef)	266 km south-west
	Foraging (Ningaloo)	1,488 km south-west
Humpback whale	Migration (Kimberley/Coastal North Lacepede Island)	183 km south
	Calving (Kimberley/Coastal North Lacepede Island)	183 km south
	Resting (Kimberley/Coastal North Lacepede Island)	183 km south
	Nursing (Kimberley/Coastal North Lacepede Island)	183 km south
	Migration (north and south) (Kimberley to Shark Bay)	469 km south-west
	Resting (Exmouth Gulf)	1,448 km south-west
Dugong	Foraging (high density seagrass beds) (Ashmore Reef – South)	159 km north-west
	Foraging (Ashmore Reef – Far West)	179 km north-west
	Calving (Ashmore Reef – Far West)	179 km north-west
	Breeding (Ashmore Reef – Far West)	179 km north-west

Common Name	BIA Behaviour	Distance from Operational Area
	Nursing (Ashmore Reef – Far West)	179 km north-west
	Foraging (Kimberley coast, Dampier Peninsula)	393 km south-south-west
	Foraging (Pilbara and Kimberley coast near Dampier Peninsula)	465 km south-south-west
	Foraging (Middle Island, Kimberley coast)	495 km south-west
	Calving (Exmouth Gulf)	1,428 km south-west
	Nursing (Exmouth Gulf)	1,428 km south-west
	Breeding (Exmouth Gulf)	1,428 km south-west
	Foraging (high density seagrass beds)	1,428 km south-west
	Foraging (Pilbara and Kimberley coast near James Price Point	522 km south-south-west
Australian snubfin dolphin	Foraging (Maret & Biggee Island)	163 km south-east
	Resting (Admiralty Gulf & Parry Harbour)	163 km south-east
	Calving (Admiralty Gulf & Parry Harbour)	163 km south-east
	Breeding (Admiralty Gulf & Parry Harbour)	163 km south-east
	Foraging (high density prey) (Admiralty Gulf & Parry Harbour)	163 km south-east
	Resting (Bougainville Peninsula)	193 km south-east
	Breeding (Bougainville Peninsula)	193 km south-east
	Calving (Bougainville Peninsula)	193 km south-east
	Foraging (high density prey) (Bougainville Peninsula)	193 km south-east
	Resting (Vansittart Bay)	217 km south-east
	Breeding (Vansittart Bay)	217 km south-east
	Calving (Vansittart Bay)	217 km south-east

Common Name	BIA Behaviour	Distance from Operational Area
	Foraging (high density prey) (Vansittart Bay)	217 km south-east
	Resting (Port Nelson)	205 km south-south-east
	Breeding (Port Nelson)	205 km south-south-east
	Calving (Port Nelson)	205 km south-south-east
	Foraging (high density prey) (Port Nelson)	205 km south-south-east
	Resting (Camden Sound Area)	239 km south
	Breeding (Camden Sound Area)	239 km south
	Calving (Camden Sound Area)	239 km south
	Foraging (high density prey) (Camden Sound Area)	239 km south
	Foraging (high density prey) (King Sound North and Yampi Sound and Talbot Bay Fjord area near horizontal falls)	345 km south-south-west
	Breeding (King Sound North and Yampi Sound and Talbot Bay Fjord area near horizontal falls)	345 km south-south-west
	Calving (King Sound North and Yampi Sound and Talbot Bay Fjord area near horizontal falls)	345 km south-south-west
	Foraging (high density prey) (King Sound Southern Sector)	392 km south-south-west
	Breeding (King Sound Southern Sector)	392 km south-south-west
	Calving (King Sound Southern Sector)	392 km south-south-west
	Breeding (Darwin Harbour)	656 km east
	Breeding (Van Diemen Gulf, south Alligator River)	852 km east
	Breeding (Port Essington, Cobourg Peninsula)	824 km east-north-east
	Foraging likely (Carnot & Beagle Bay)	470 km south-south-west
	Foraging likely (Pender Bay)	441 km south-south-west

Common Name	BIA Behaviour	Distance from Operational Area
	Foraging (high density prey) (Prince Regent River)	247 km south
	Breeding (Prince Regent River)	247 km south
	Calving (Prince Regent River)	247 km south
	Resting (Napier Broome Bay/Deep Bay)	261 km south-east
	Breeding (Napier Broome Bay/Deep Bay)	261 km south-east
	Calving (Napier Broome Bay/Deep Bay)	261 km south-east
	Foraging (high density prey) (Napier Broome Bay/Deep Bay)	261 km south-east
	Resting (Cape Londonderry & King George River)	259 km south-east
	Breeding (Van Diemen Gulf – East Alligator River)	883 km east
Indo-Pacific humpback dolphin	Foraging (Admiralty Gulf & Parry Harbour)	163 km south-east
	Significant habitat – unknown behaviour (Admiralty Gulf & Parry Harbour)	163 km south-east
	Calving (Maret & Biggee Island)	163 km south-east
	Foraging (Maret & Biggee Island)	163 km south-east
	Significant habitat – unknown behaviour (Bougainville Peninsula)	193 km south-east
	Foraging (Bougainville Peninsula)	193 km south-east
	Significant habitat (Vansittart Bay)	217 km south-east
	Foraging (Vansittart Bay)	217 km south-east
	Foraging (high density prey) (Vansittart Bay)	217 km south-east
	Breeding (Port Nelson)	205 km south-south-east
	Calving (Port Nelson)	205 km south-south-east
	Foraging (high density prey) (Port Nelson)	205 km south-south-east

Common Name	BIA Behaviour	Distance from Operational Area
	Breeding (Camden Sound Area)	239 km south
	Calving (Camden Sound Area)	239 km south
	Foraging (high density prey) (Camden Sound Area)	239 km south
	Breeding (King Sound North and Yampi Sound and Talbot Bay Fjord area near horizontal falls)	345 km south-south-west
	Calving (King Sound North and Yampi Sound and Talbot Bay Fjord area near horizontal falls)	345 km south-south-west
	Foraging (high density prey) (King Sound North and Yampi Sound and Talbot Bay Fjord area near horizontal falls)	345 km south-south-west
	Foraging (high density prey) (King Sound Southern Sector)	392 km south-south-west
	Breeding (Darwin Harbour)	656 km east
	Breeding (Port Essington, Cobourg Peninsula)	824 km east-north-east
	Breeding (Van Diemen Gulf, south Alligator River)	852 km east
	Foraging (Carnot & Beagle Bay)	470 km south-south-west
	Foraging (Pender Bay)	441 km south-south-west
	Breeding (Prince Regent River)	247 km south
	Calving (Prince Regent River)	247 km south
	Foraging (high density prey) (Prince Regent River)	247 km south
	Significant habitat (unknown behaviour) (Napier Broome Bay/Deep Bay)	261 km south-east
	Breeding likely (Van Diemen Gulf – East Alligator River)	883 km east
Indo-Pacific/spotted bottlenose dolphin	Calving (Camden Sound Area)	239 km south
	Foraging (Camden Sound Area)	239 km south
	Breeding (King Sound North and Yampi Sound and Talbot Bay Fjord area near horizontal falls)	345 km south-south-west

Common Name	BIA Behaviour	Distance from Operational Area
	Calving (King Sound North and Yampi Sound and Talbot Bay Fjord area near horizontal falls)	345 km south-south-west
	Foraging (King Sound North and Yampi Sound and Talbot Bay Fjord area near horizontal falls)	345 km south-south-west
	Calving (King Sound Southern Section)	392 km south-south-west
	Breeding (King Sound Southern Section)	392 km south-south-west
	Foraging (King Sound Southern Section)	392 km south-south-west
	Breeding (Darwin Harbour)	656 km east
	Breeding (Port Essington, Cobourg Peninsula)	824 km east-north-east
	Migration likely (Pender bay)	436 km south-south-west
	Foraging likely (Pender bay)	436 km south-south-west

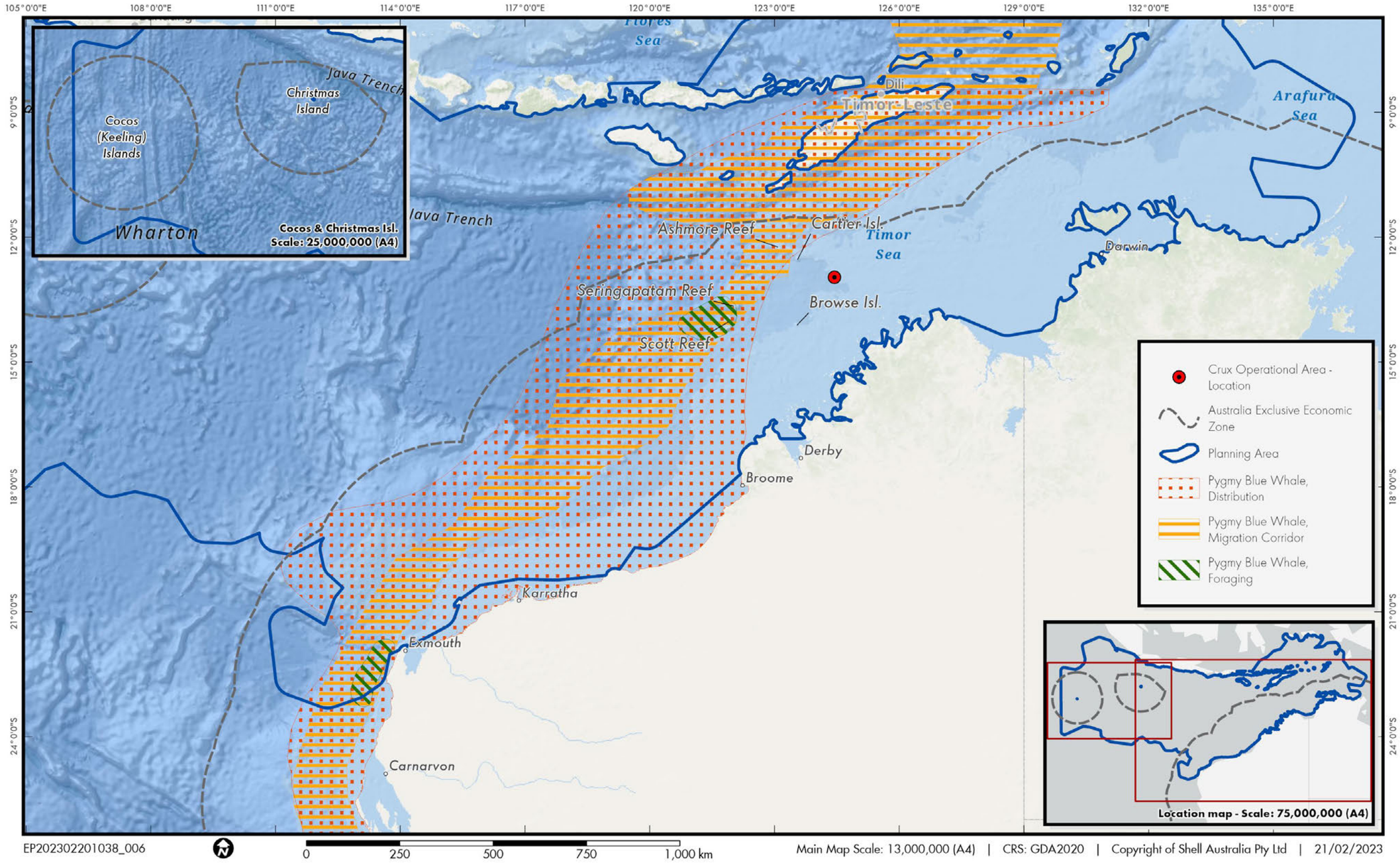


Figure 7-5: BIAs for blue and pygmy blue whales within the Planning Area

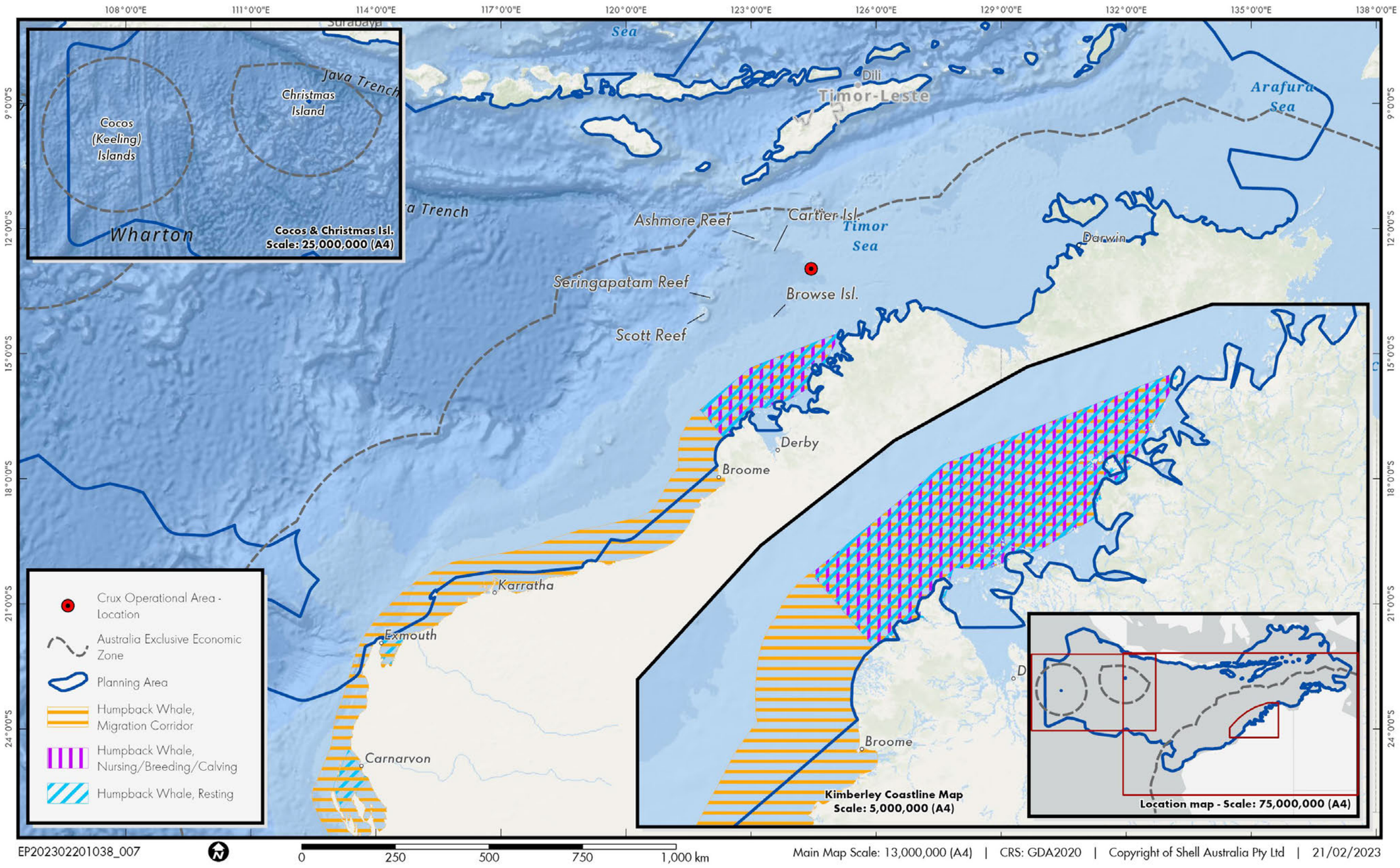


Figure 7-6: BIAs for humpback whales within the Planning Area

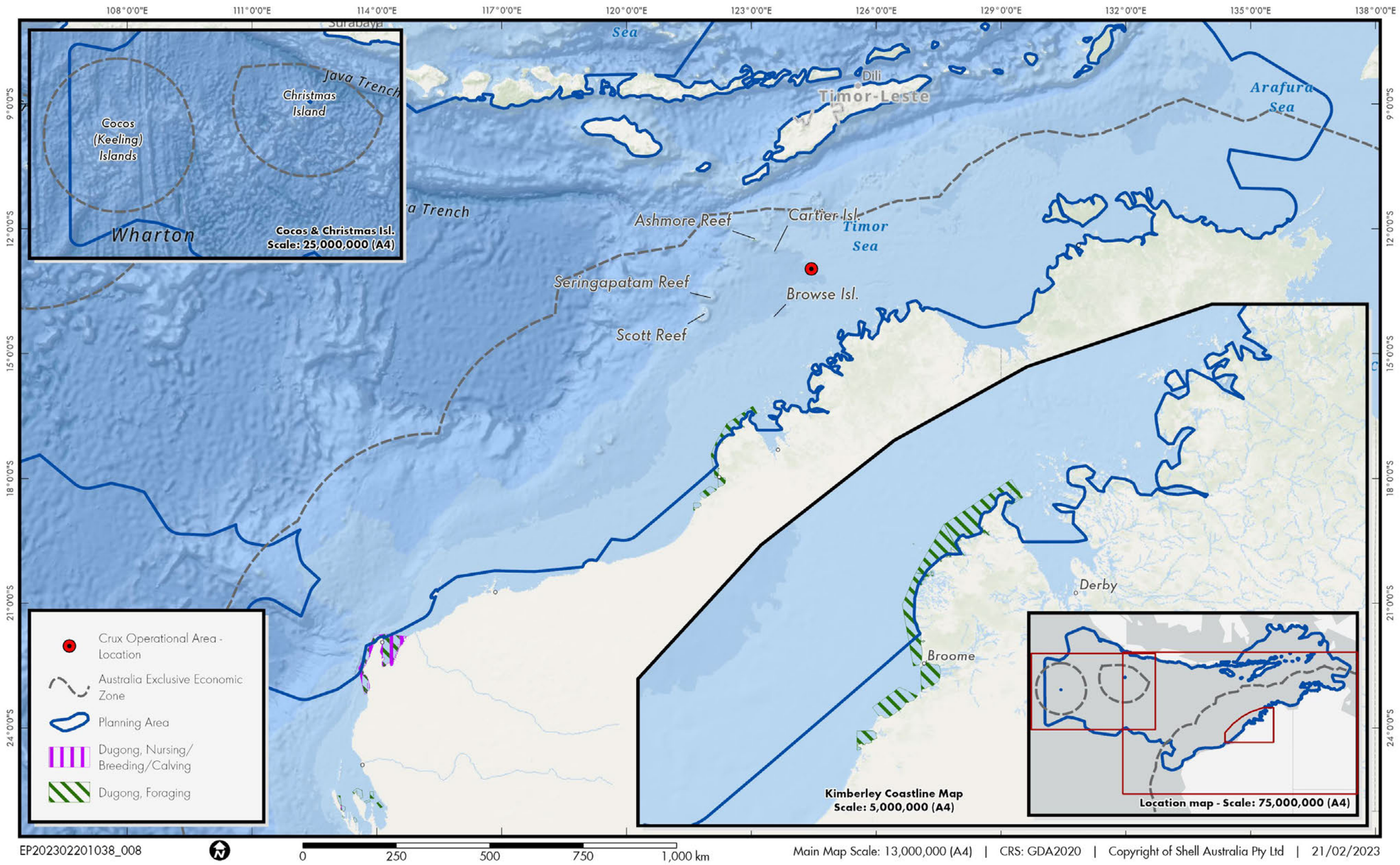


Figure 7-7: BIAs for dugongs within the Planning Area

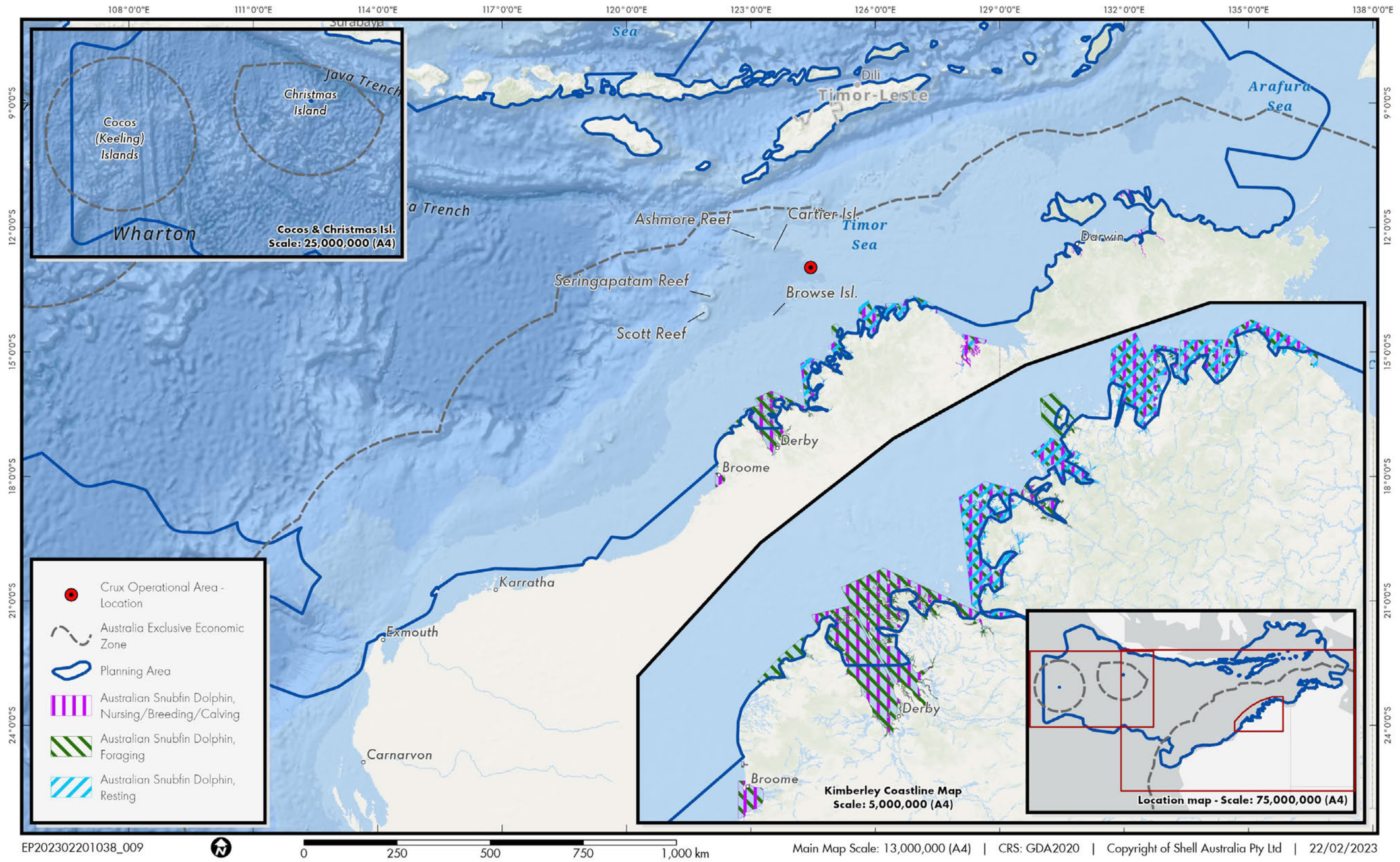


Figure 7-8: BIAs for snubfin dolphins within the Planning Area

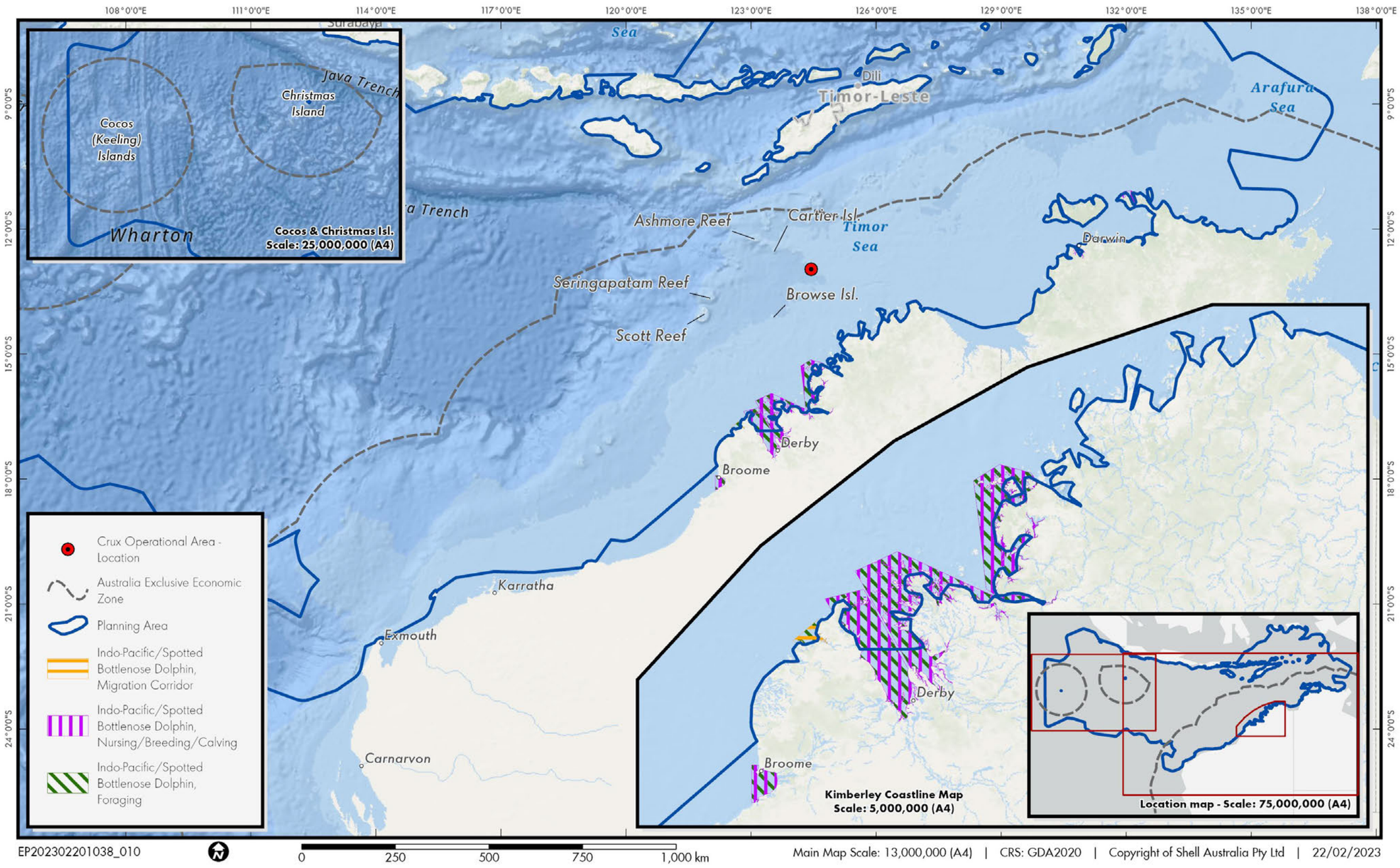


Figure 7-9: BIAs for Indo-Pacific spotted bottlenose dolphins within the Planning Area

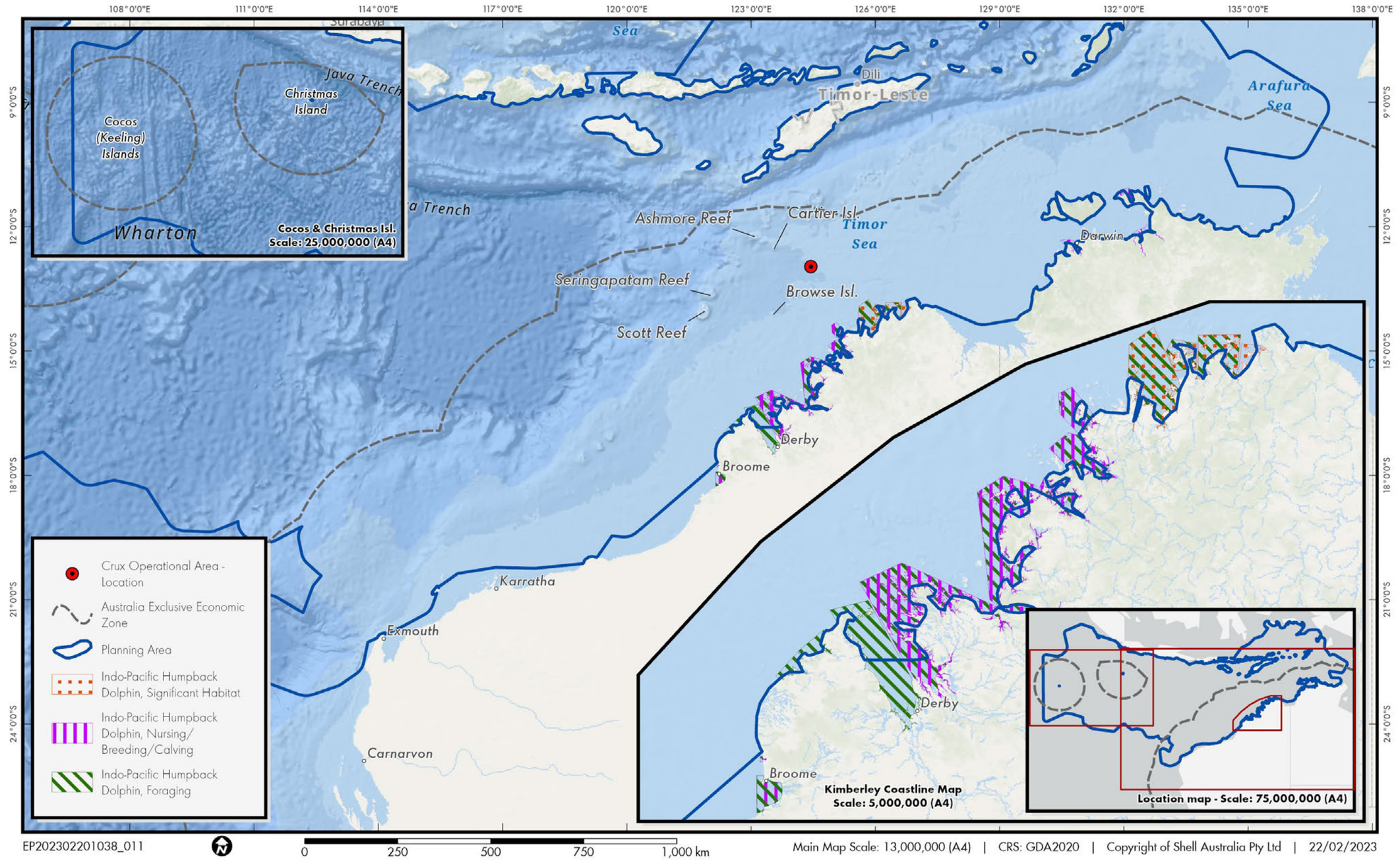


Figure 7-10: BIAs for Indo-Pacific humpback dolphins within the Planning Area

7.3.5.2 Reptiles

Table 7-8 provides a list of EPBC Act listed threatened and migratory reptiles that may occur within the Operational Area and/or Planning Area.

Table 7-8: EPBC Act listed threatened and migratory marine reptiles that may occur within the Operational Area and/or Planning Area

Species Name	Common Name	Threatened Status	Migratory Status	Operational Area	Planning Area
Caretta caretta	Loggerhead turtle	Endangered	Migratory	Foraging, feeding or related behaviour likely to occur within area	✓
Chelonia mydas	Green turtle	Vulnerable	Migratory	Foraging, feeding or related behaviour known to occur within area	✓
Dermochelys coriacea	Leatherback turtle	Endangered	Migratory	Foraging, feeding or related behaviour likely to occur within area	✓
Eretmochelys imbricata	Hawksbill turtle	Vulnerable	Migratory	Foraging, feeding or related behaviour likely to occur within area	✓
Lepidochelys olivacea	Olive ridley turtle	Endangered	Migratory	Foraging, feeding or related behaviour likely to occur within area	✓
Natator depressus	Flatback turtle	Vulnerable	Migratory	Species or species habitat known to occur within area	✓
Aipysurus foliosquama	Leaf-scaled seasnake	Critically endangered	N/A	Species or species habitat may occur within area	✓
Aipysurus apraefrontalis	Short-nosed seasnake	Critically endangered	N/A	x	✓
Crocodylus porosus	Salt-water crocodile	N/A	Migratory	x	✓

Table 7-9 provides a list of reptile BIAs that may occur within the Operational Area and/or Planning Area.

Table 7-9: BIAs of marine turtles that overlap the Operational Area or Planning Area

Common Name	BIA Behaviour	Distance from Operational Area
Reptiles		
Flatback turtle	Foraging (Western Joseph Bonaparte Depressions)	196 km north east
	Foraging (Holothuria Zone)	227 km north east
	Internesting buffer (Lacepede Island)	402 km south-west
	Internesting (Lacepede Island)	490 km south-west
	Nesting (Lacepede Island)	490 km south-west
	Foraging (James Price Point)	562 km south-west
	Internesting buffer (North Turtle Island)	891 km south-west
	Foraging (De Grey River area to Bedout Island)	942 km south-west
	Internesting buffer (Port Headland, Paradise Beach)	948 km south-west
	Internesting buffer (Port Headland, Cemetery Beach)	950 km south-west
	Internesting buffer (Port Headland, Pretty Pool)	952 km south-west
	Internesting buffer (Cape Thouin)	984 km south-west
	Internesting buffer (Legendre Island, Hauy Island)	1,081 km south-west
	Internesting buffer (Dampier Archipelago (islands to the west of the Burrup Peninsula)	1,087 km south-west
	Internesting buffer (Delambre Island)	1,071 km south-west
	Internesting buffer (Montebello Island, Hermite Island, Trimouille Island)	1, 189 km south-west
	Internesting buffer (Thevenard Island – South coast)	1,279 km south-west
	Internesting (Melville Island, Cobourg Peninsula)	559 km east
	Internesting (Wessel Islands, Gove Peninsula, Groote Eylandt, Sir Edward Peller Island Group)	1,143 km east
	Internesting buffer (Cape Domett)	381 km south-east
	Internesting buffer (80 mile beach)	640 km south-south-west
	Nesting (North Turtle Island)	958 km south-west
	Internesting buffer (West of Cape Lambert)	1,071 km south-west
	Internesting buffer (Dixon Island)	1,077 km south-west
	Internesting buffer (Intercourse Island)	1,116 km south-west
	Nesting (Montebello Island – Hermite Island, NW Island, Trimouille Island)	1,249 km south-west
	Mating (Montebello Island – Hermite Island, NW Island, Trimouille Island)	1,249 km south-west

Common Name	BIA Behaviour	Distance from Operational Area
	Foraging (Montebello Island – Hermite Island, NW Island, Trimouille Island)	1,249 km south-west
	Aggregation (Coral reef habitat west of the Montebello group)	1,264 km south-west
	Mating (Coral reef habitat west of the Montebello group)	1,264 km south-west
	Internesting (Coral reef habitat west of the Montebello group)	1,264 km south-west
	Foraging (Coral reef habitat west of the Montebello group)	1,264 km south-west
	Mating (Barrow Island)	1, 279 km south-west
	Foraging (Barrow Island)	1, 279 km south-west
	Nesting (Barrow Island)	1, 279 km south-west
	Nesting (Thevenard Island – South coast)	1,345 km south-west
Green turtle	Internesting buffer (Cartier Island)	85 km north-west
	Nesting (Cartier Island)	104 km north-west
	Internesting buffer (Ashmore Reef)	144 km north-west
	Foraging (Ashmore Reef)	159 km north-west
	Nesting (Ashmore Reef)	163 km north-west
	Mating (Ashmore Reef)	173 km north-west
	Foraging (Seringapatam Reef)	275 km south-west
	Internesting buffer (Scott Reef)	293 km south-west
	Nesting (Scott Reef)	310 km south-west
	Foraging (Browse Island)	158 km south-west
	Internesting buffer (Browse Island)	158 km south-west
	Internesting buffer (Cassini Island)	143 km south-east
	Nesting (Cassini Island)	162 km south-east
	Foraging (Joseph Bonaparte Gulf)	327 km east-south-east
	Internesting (North-west of Melville Island)	656 km north east
	Foraging (Montgomery Reef)	319 km south
	Internesting buffer (Lacepede Island)	470 km south-west
	Internesting (Lacepede Island)	489 km south-west
	Nesting (Lacepede Island)	489 km south-west
	Foraging (James Price Point)	564 km south-west
	Foraging (De Grey River area to Bedout Island)	942 km south-west
	Internesting buffer (Montebello Islands)	1, 226 km south-west

Common Name	BIA Behaviour	Distance from Operational Area
	Foraging (Kakadu)	858 km east
	Internesting (Islands north-east of Cobourg Peninsula)	913 km north east
	Internesting buffer (North West Cape)	1,443 km south-west
	Internesting buffer (North and South Muiron Island)	1,413 km south-west
	Nesting (North West Cape)	1,460 km south-west
	Nesting (North and South Muiron Island)	1,434 km south-west
	Internesting buffer (Middle Island West Coast, Barrow Island West Coast and North Coast)	1,261 km south-west
	Internesting (Barrow Island)	1,278 km south-west
	Foraging (inshore tidal and shallow subtidal areas around Barrow Island)	1,278 km south-west
	Basking (Middle Island West Coast, Barrow Island West Coast and North Coast)	1,278 km south-west
	Mating (Middle Island West Coast, Barrow Island West Coast and North Coast)	1,278 km south-west
	Nesting (Middle Island West Coast, Barrow Island West Coast and North Coast)	1,278 km south-west
	Internesting buffer (Montebello Islands)	1,225 km south-west
	Internesting buffer (Montebello Islands– Hermite Island, NW Island, Trimouille Island)	1,233 km south-west
	Internesting (Montebello Islands)	1,243 km south-west
	Nesting (Montebello Islands)	1,243 km south-west
	Mating (Montebello Islands)	1,243 km south-west
	Foraging (Montebello Islands)	1,243 km south-west
	Aggregation (Coral reef habitat west of the Montebello group)	1,264 km south-west
	Mating (Coral reef habitat west of the Montebello group)	1,264 km south-west
	Internesting (Coral reef habitat west of the Montebello group)	1,264 km south-west
	Foraging (Coral reef habitat west of the Montebello group)	1,264 km south-west
	Nesting (Montebello Island – Hermite Island, NW Island, Trimouille Island)	1,249 km south-west
	Mating (Montebello Island – Hermite Island, NW Island, Trimouille Island)	1,249 km south-west
	Foraging (Montebello Island – Hermite Island, NW Island, Trimouille Island)	1,249 km south-west

Common Name	BIA Behaviour	Distance from Operational Area
	Internesting (Dampier Archipelago (islands to the west of the Burrup Peninsula)	1,140 km south-west
	Internesting buffer (Legendre Island, Hauy Island)	1,131 km south-west
	Foraging (North Turtle Island)	958 km south-west
	Internesting (Drysdale Island, Cunningham Islands, Buckingham Bay, Pera Channel)	1,250 km east
Hawksbill turtle	Foraging (Cartier Island)	104 km north-west
	Inter-nesting buffer (Ashmore Reef)	144 km north-west
	Nesting (Ashmore Reef)	163 km north-west
	Foraging (Ashmore Reef)	170 km north-west
	Internesting buffer (Scott Reef)	292 km south-west
	Nesting (Scott Reef)	312 km south-west
	Foraging (De Grey River to Bedout Island)	942 km south-west
	Internesting (Greenhill Island)	828 km east
	Internesting (Islands north-east of Cobourg Peninsula)	918 km north east
	Internesting Buffer (Ningaloo coast and Jurabi coast)	1,447 km south-west
	Nesting (Ningaloo coast and Jurabi coast)	1,462 km south-west
	Internesting buffer (Thevenard Island)	1,352 km south-west
	Nesting (Thevenard Island)	1,372 km south-west
	Internesting buffer (Barrow Island)	1,257 km south-west
	Nesting (Barrow Island)	1,276 km south-west
	Foraging (shallow water coral reef and artificial reef (pipeline) habitat, Barrow Island)	1,276 km south-west
	Mating (Barrow Island)	1,276 km south-west
	Internesting buffer (Lowendal Island Group)	1,247 km south-west
	Internesting buffer (Varanus Island)	1,250 km south-west
	Internesting buffer (Montebello Island, Trimouille and NW Islands)	1,242 km south-west
	Internesting buffer (Montebello Island – Hermite Island, NW Island, Trimouille Island	1,235 km south-west
	Mating (Lowendal Island Group)	1,267 km south-west
	Internesting (Lowendal Island Group)	1,267 km south-west
	Nesting (Lowendal Island Group)	1,267 km south-west
	Foraging (Lowendal Island Group)	1,267 km south-west
	Internesting buffer (Ah Chong and South-east Island)	1,233 km south-west
	Nesting (Montebello Island – Hermite Island, NW Island, Trimouille Island)	1,248 km south-west

Common Name	BIA Behaviour	Distance from Operational Area
	Mating (Montebello Island – Hermite Island, NW Island, Trimouille Island)	1,248 km south-west
	Foraging (Montebello Island – Hermite Island, NW Island, Trimouille Island)	1,248 km south-west
	Nesting (Ah Chong and South-east Island)	1,250 km south-west
	Nesting (Montebello Island, Trimouille and NW Islands)	1,260 km south-west
	Internesting buffer (Delambre Island (and other Dampier Archipelago Islands)	1,136 km south-west
	Internesting buffer (Dampier Archipelago (islands to the west of the Burrup Peninsula	1,136 km south-west
	Internesting (Elcho Island, Drysdale Island, Cunningham Islands, Wessel Islands (South))	1,249 km east
Loggerhead turtle	Foraging (Western Joseph Bonaparte Depression)	196 km north east
	Foraging (James Price Point)	565 km south-west
	Foraging (De Grey River area to Bedout Island)	943 km south-west
	Internesting buffer (Ningaloo coast and Jurabi coast)	1,449 km south-west
	Nesting (Ningaloo coast and Jurabi coast)	1,462 km south-west
	Internesting buffer (Muiron Island)	1,414 km south-west
	Nesting (Muiron Island)	1,431 km south-west
	Internesting buffer (Lowenthal Island)	1,250 km south-west
	Internesting buffer (Montebello Islands)	1,238 km south-west
	Nesting (Lowenthal Island)	1,267 km south-west
	Nesting (Montebello Islands)	1,256 km south-west
	Internesting buffer (Cohen Island)	1,133 km south-west
Olive ridley turtle	Foraging (Western Joseph Bonaparte Depression)	196 km north east
	Foraging (Joseph Bonaparte Gulf)	325 km east
	Foraging (Joseph Bonaparte Gulf-banks_	338 km east
	Foraging (Northern Joseph Bonaparte Gulf)	402 km north east
	Internesting (Fog Bay to Cox Peninsula)	620 km east
	Foraging (Fog Bay)	627 km east
	Internesting (Bathurst Island/Melville Island – North-west	633 km north east
	Internesting (Melville Island – North)	715 km north east
	Internesting (Greenhill Island)	829 km north east
	Internesting (Islands north-east of Cobourg Peninsula)	916 km north east

Common Name	BIA Behaviour	Distance from Operational Area
	Internesting (Elcho Island, Drysdale Island, Cunningham Islands, Wessel Islands (South))	1,202 km east
Leatherback turtle	Internesting (Danger Point, Cobourg Peninsula)	864 km north east

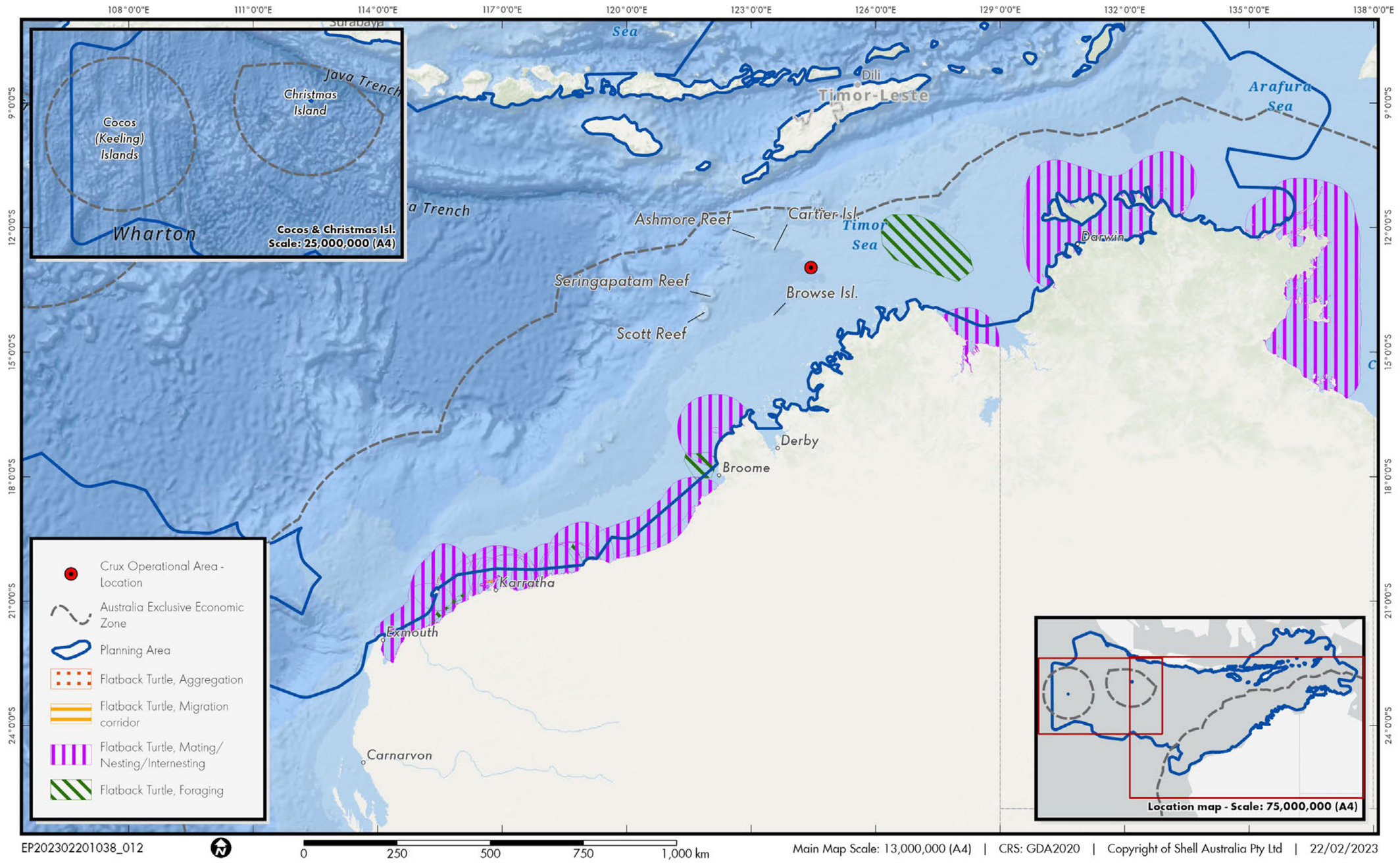


Figure 7-11: BIAs for flatback turtles within the Planning Area

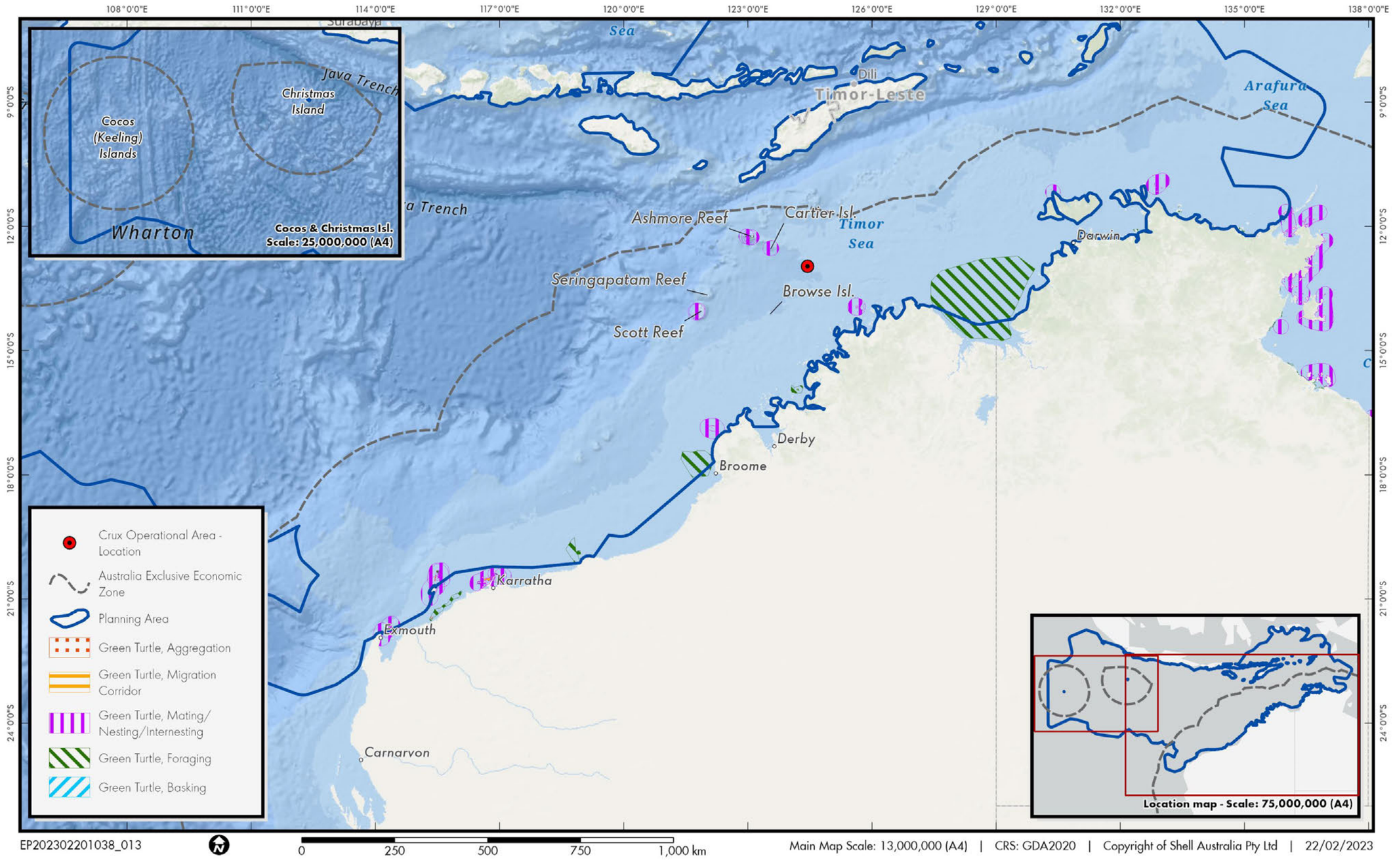


Figure 7-12: BIAs for green turtles within the Planning Area

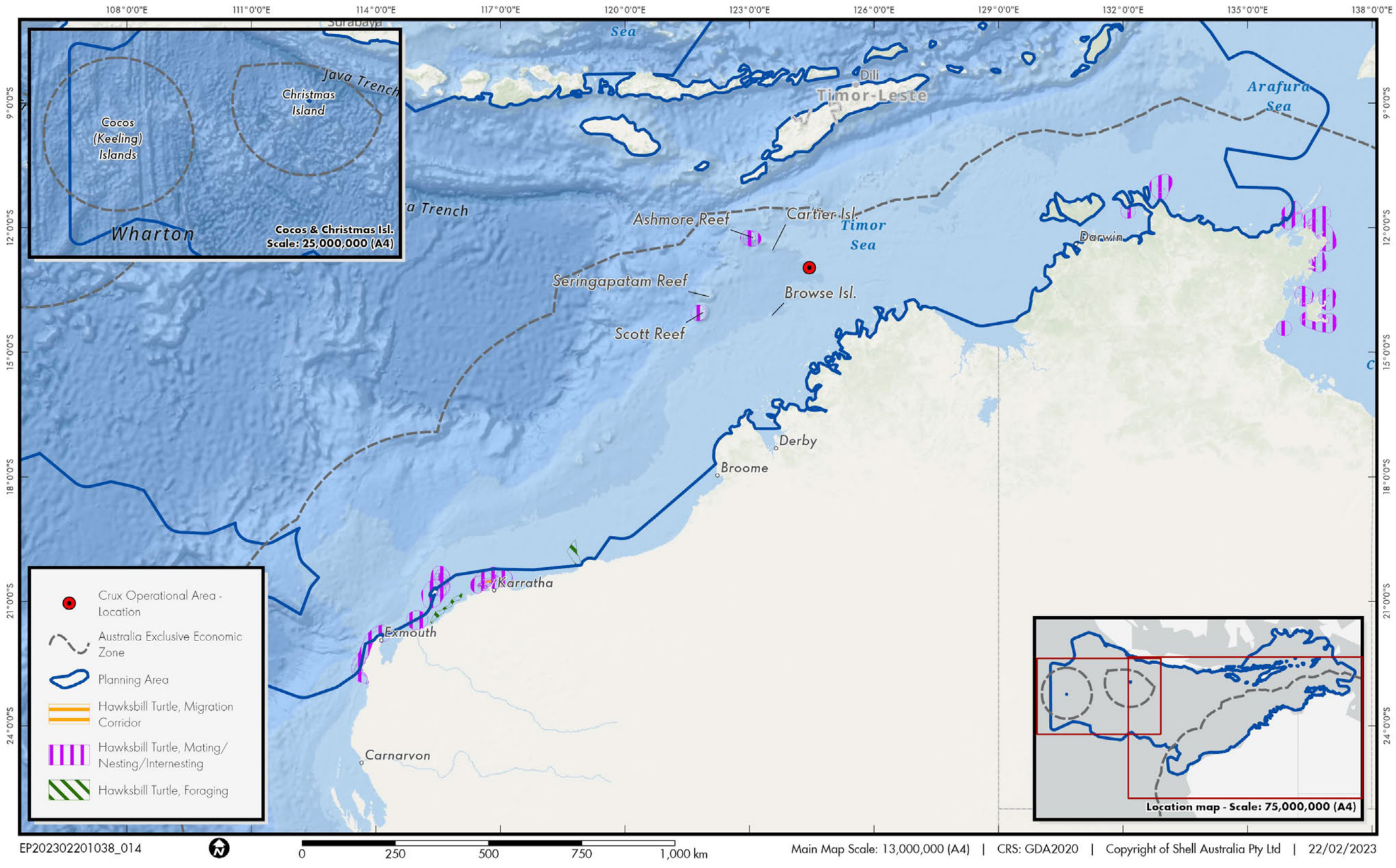


Figure 7-13: BIAs for hawksbill turtles within the Planning Area

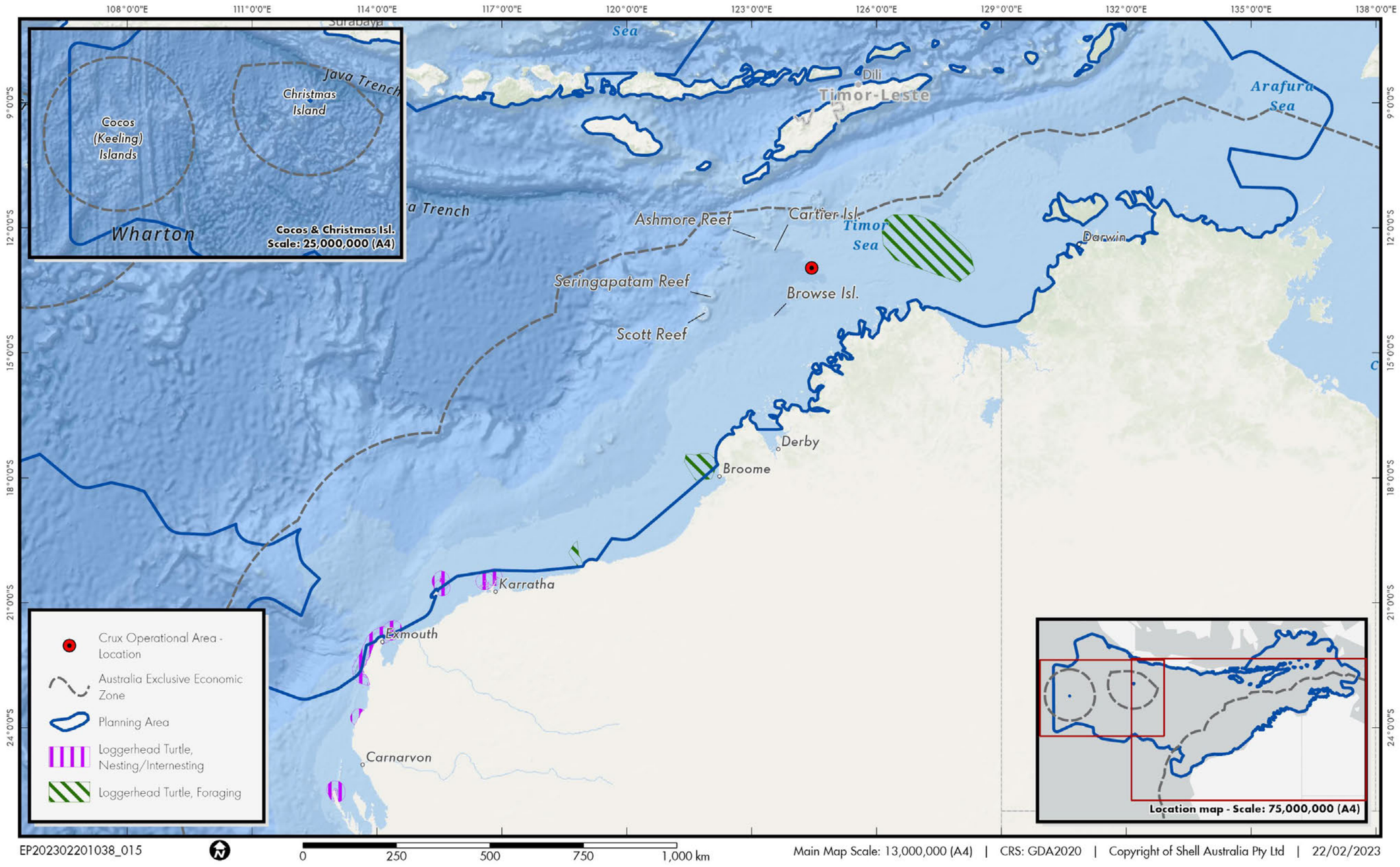


Figure 7-14: BIAs for loggerhead turtles within the Planning Area

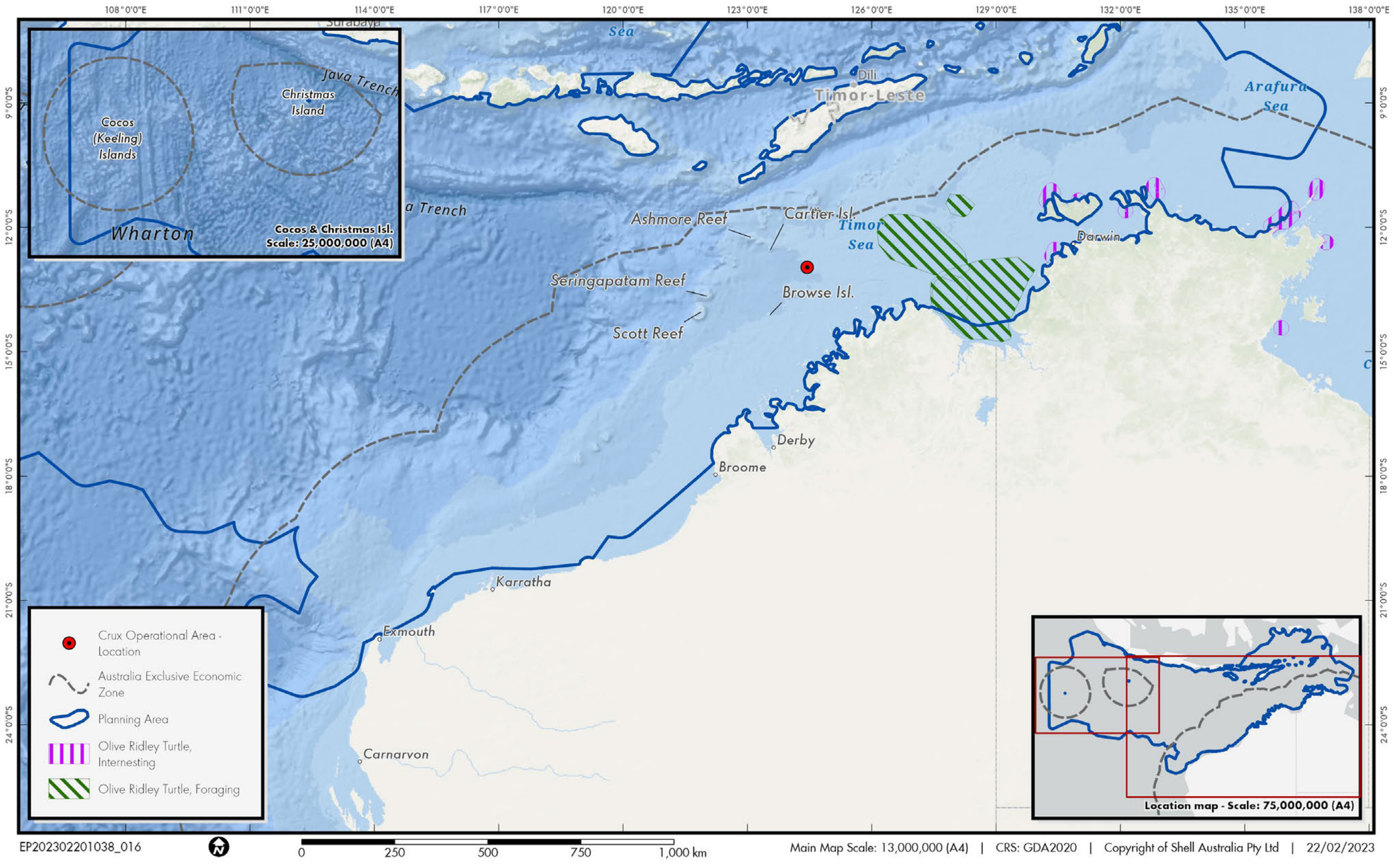


Figure 7-15: BIAs for olive ridley turtles within the Planning Area

Table 7-10: Habitat Critical to the Survival of marine turtle species within the Operational Area and Planning Area

Species	Genetic Stock	Nesting locations	Approximate distance of area from Operational Area	Internesting buffer	Nesting period	Hatching period
Green turtle	Ashmore Reef	Ashmore Reef and Cartier Reef	83 km north-west	20 km	Year round (peak: Dec–Jan)	Sep–May
	Scott Reef – Browse Island	Scott Reef, Browse Island	138 km south-west	20 km	Nov–Mar (peak Jan–Feb)	Mar–Apr
	North West Shelf	Mainland east of Mary Island to mainland adjacent to Murrara Island including all offshore islands, Adele Island.	145 km south-east	20 km	Nov–Mar (peak Dec–Feb)	Jan–May (peak: Feb–Mar)
		Browse Island	139 km south-west			
		Adele Island, Lacepede Islands	294 km south-west			
		Exmouth Gulf and Ningaloo coast	1,444 km south-west			
		Dampier Archipelago	1,119 km south-west			
		Barrow Island, Montebello Islands, Serrier Island and Thevenard Island	1,231 km south-west			
	Cobourg Peninsula	Croker Island and McCluer Island groups plus Black Point to Smith Point.	843 km east	20 km	Oct–Apr (peak: Dec–Jan)	Dec–May (peak: Feb–Mar)
	Gulf of Carpentaria	Cape Shield to Banyan Island	1,205 km east	20 km	Year round (peak: Jun–Jul)	Aug–Sep

Species	Genetic Stock	Nesting locations	Approximate distance of area from Operational Area	Internesting buffer	Nesting period	Hatching period
	Cocos Keeling	Cocos Keeling Islands within the Pulu Keeling National Park	2,985 km west	N/A	Oct–Apr (peak: Dec–Jan	Dec–May (peak: Feb–May)
Flatback turtle	South-west Kimberly	Lacepede Islands	439 km south	60 km	All year (peak: Dec– Jan)	All year
	Pilbara	Barrow Island, Montebello Islands, coastal islands from Cape Preston to Locker Island.	1,222 km south-west	60 km	Oct–Mar (peak: Nov–Jan)	Feb–Mar
		Cemetery Beach, Port Hedland	966 km south-west			
		Mundabullangana Beach	999 km south-west			
		Dampier Archipelago, including Delambre Island and Huay Island	1,081 km south-west			
	Arafura Sea	Waigait Beach to south of Point Blaze, including all offshore islands.	557 km east	60 km	All year (peak: Jun–Sep)	Jul–Sep
		Brace Point to One Tree Point including all offshore islands	566 km east			
		Soldier Point to Pirlangimpi including Seagull Island,	593 km east			
		Waters between Melville Island and Vernon Islands,	672 km east			
		Field Island (Cobourg Peninsula),	809 km east			
		Crocodile Island Group,	1,079 km east			
		Cape Shield to Banyan Island (Wessel Islands and Gove Peninsula)	1,138 km east			

Species	Genetic Stock	Nesting locations	Approximate distance of area from Operational Area	Internesting buffer	Nesting period	Hatching period
	South-west Kimberley	Eco Beach – coastal beach near Broome	591 km south-west	60 km	All year (peak: Dec–Jan)	All year
		Eighty mile beach – coastal beach	690 km south-west			
	Cape Domett	Cape Domett and Lacrosse Island in the Cambridge Gulf	428 km south-east	60 km	All yeas (peak: Aug–Sep)	All year
Hawksbill turtle	North-east Arnhem Land	New Year Island	942 km east	20 km	May–Nov (peak Aug)	Year round (peak: Aug–Nov)
		English Company Islands inc. Truant and Bromby Islands, and Wessel Island group	1,205 km east			
	Western Australia	Dampier Archipelago, including Delambre Island ad Rosemary Island	1,119 km south-west	20 km	All year (peak: Oct–Jan)	All year (peak: Dec–Feb)
		Cape Preston to mouth of Exmouth Gulf including Montebello islands and Lowendal islands	1,231 km south-west			
Olive ridley turtle	Unknown genetic stock Kimberley, Western Australia	Vulcan Island	230 km south	20 km	May–Jul	Year round (peak: Jun–Aug)
		Darcy Island	244 km south			
		Cape Leveque	393 km south-south-east			
		Prior Point and Llanggi	280 km south			
	Northern Territory	Brace Point to One Tree Point, including all offshore islands	600 km east	20 km	Year round (peak: Apr–Jun)	Year round (peak: Jun–Aug)
		Soldier point to Pirlangimpi including Seagull Island	626 km east			
		Croker Island, Cobourg Peninsula, west of Murganella to the West Alligator River,	798 km east			
		Crocodile Island Group.	1,121 km east			

Species	Genetic Stock	Nesting locations	Approximate distance of area from Operational Area	Internesting buffer	Nesting period	Hatching period
		English Company Islands inc. Truant and Bromby Islands, and Wessel Islands group	1,205 km east			
Leatherback turtle	Australia	All sandy beaches from Coburg Peninsula to Cape Arnhem including Danger Point Wessel Islands and Elcho Island	795 km east	20 km	Dec–Jan	Jan–Feb
Loggerhead turtle	Western Australia	Exmouth Gulf and Ningaloo coast	1,444 km south-west	20 km	Nov-Mar (peak Jan)	Jan–May

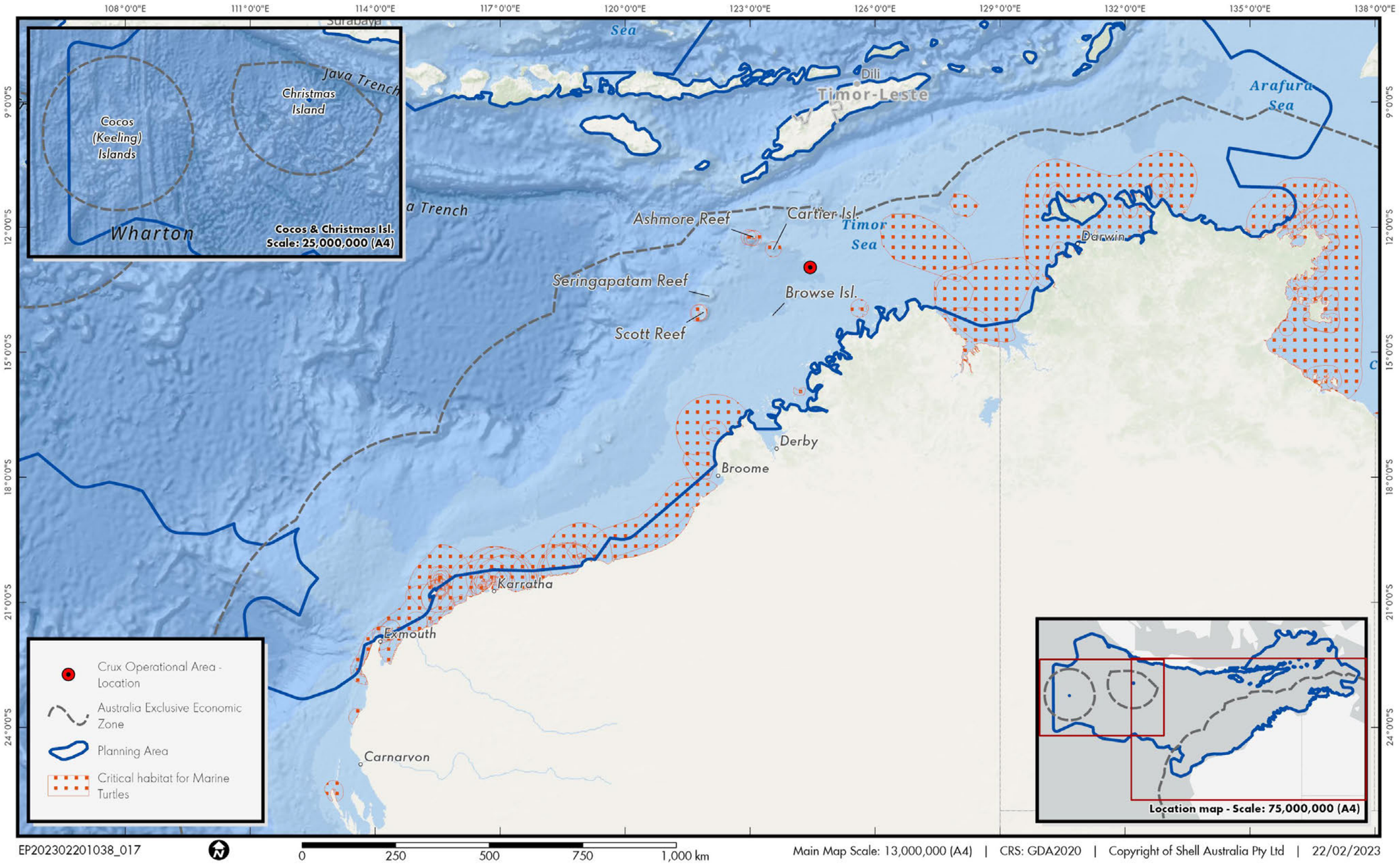


Figure 7-16: Habitat critical for the survival of marine turtles within the Planning Area

7.3.5.3 Fish, Sharks and Rays

Table 7-11 provides a list of EPBC Act listed threatened and migratory fish, sharks and rays that may occur within the Operational Area and/or Planning Area.

Table 7-11: EPBC Act listed threatened and migratory Fish, Sharks and Rays that may occur within the Operational Area and/or Planning Area

Species Name	Common Name	Threatened Status	Migratory Status	Operational Area	Planning Area
Anoxypristis cuspidata	Narrow sawfish	N/A	Migratory	Species or species habitat may occur within area	✓
Carcharodon carcharias	White shark	Vulnerable	Migratory	Species or species habitat may occur within area	✓
Glyphis garricki	Northern river shark	Endangered	N/A	Species or species habitat may occur within area	✓
Isurus oxyrinchus	Shortfin mako	N/A	Migratory	Species or species habitat likely to occur within area	✓
Isurus paucus	Longfin mako	N/A	Migratory	Species or species habitat likely to occur within area	✓
Pristis pristis	Freshwater sawfish	Vulnerable	Migratory	Species or species habitat known to occur within area	✓
Pristis zijsron	Green sawfish	Vulnerable	Migratory	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	✓
Carcharhinus longimanus	Oceanic whitetip shark	N/A	Migratory	Species or species habitat may occur within area	✓
Manta alfredi	Reef manta ray	N/A	Migratory	Species or species habitat likely to occur within area	✓
Manta birostris	Giant manta ray	N/A	Migratory	Species or species habitat likely to occur within area	✓
Sphyrna lewini	Scalloped hammerhead	Conservation dependent	N/A	Species or species habitat likely to occur within area	✓
Thunnus maccoyii	Southern bluefin tuna	Conservation Dependent	Migratory	Breeding known to occur within area	✓

Species Name	Common Name	Threatened Status	Migratory Status	Operational Area	Planning Area
Carcharias taurus (west coast population)	Grey nurse shark (west coast population)	Vulnerable	N/A	x	✓
Lamna nasus	Porbeagle	N/A	Migratory	x	✓
Pristis clavata	Dwarf sawfish	Vulnerable	Migratory	x	✓
Gylphis glyphis	Speartooth shark	Critically Endangered	Migratory	x	✓

Table 7-12 provides a list of reptile BIAs that may occur within the Operational Area and/or Planning Area.

Table 7-12: BIAs of Fish, Sharks and Rays that overlap the Operational Area or Planning Area

Common Name	BIA Behaviour	Distance from Operational Area
Sharks and Rays		
Whale shark	Foraging (Northward from Ningaloo along 200 m isobath)	Overlap
	Foraging (high density prey (Ningaloo Marin park and adjacent Commonwealth waters)	1,476 km south-west
Freshwater sawfish	Foraging (King Sound – tidal tributaries)	410 km south
	Nursing (King Sound – tidal tributaries)	410 km south
	Nursing (King Sound – tidal tributaries)	419 km south
	Foraging (King Sound – tidal tributaries)	419 km south
Dwarf sawfish	Foraging (Camden Sound – eastern shore)	258 km south
	Pupping (Fitzroy River Mouth, May & Robinson River – tidal tributaries)	419 km south
	Juvenile (Fitzroy River Mouth, May & Robinson River – tidal tributaries)	419 km south
	Nursing (Fitzroy River Mouth, May & Robinson River – tidal tributaries)	419 km south
Green sawfish	Foraging (Camden Sound)	258 km south
	Foraging (Cape Leveque)	410 km south-south-west
	Pupping (Cape Leveque)	410 km south-south-west

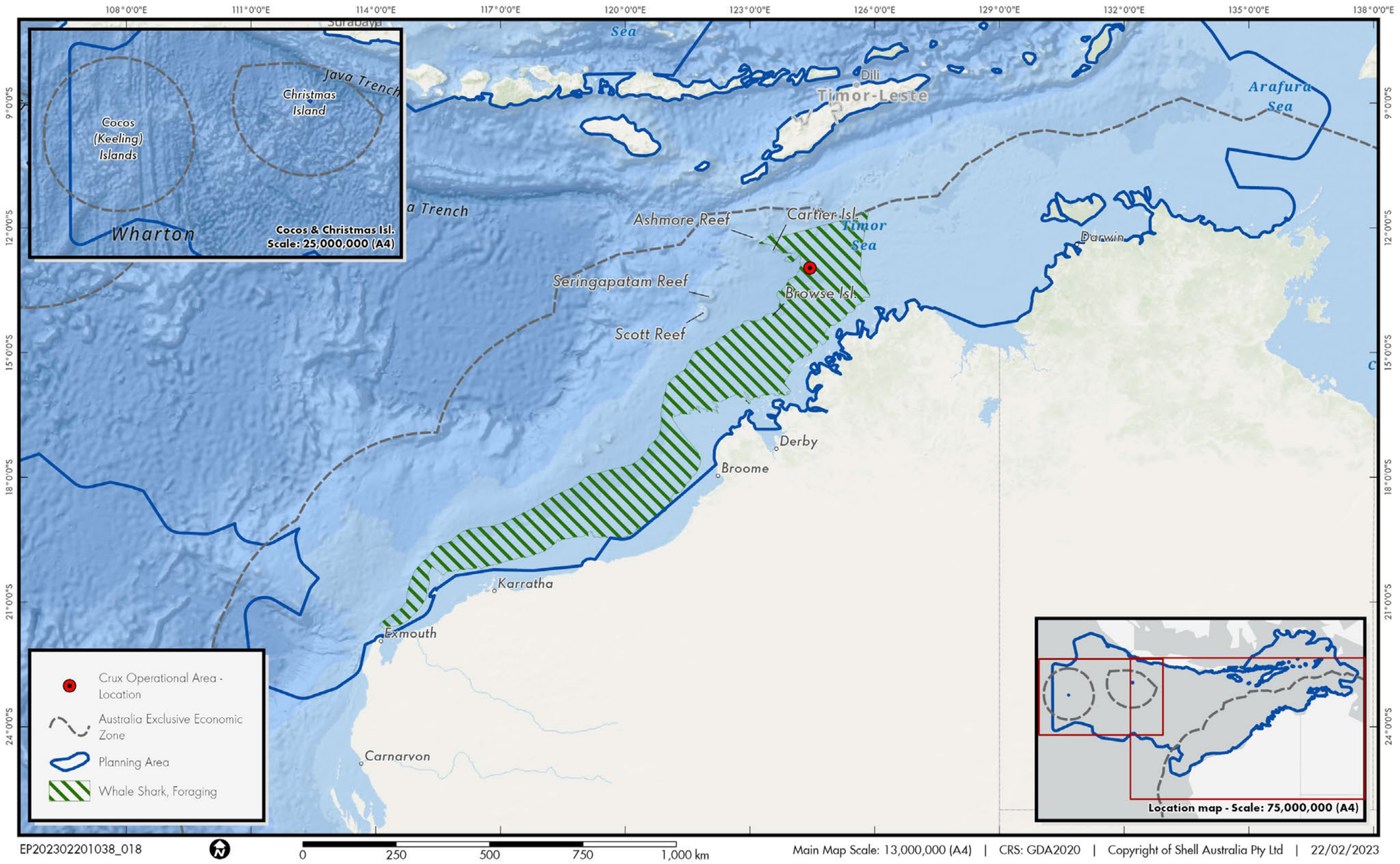


Figure 7-17: BIAs for whale sharks within the Planning Area

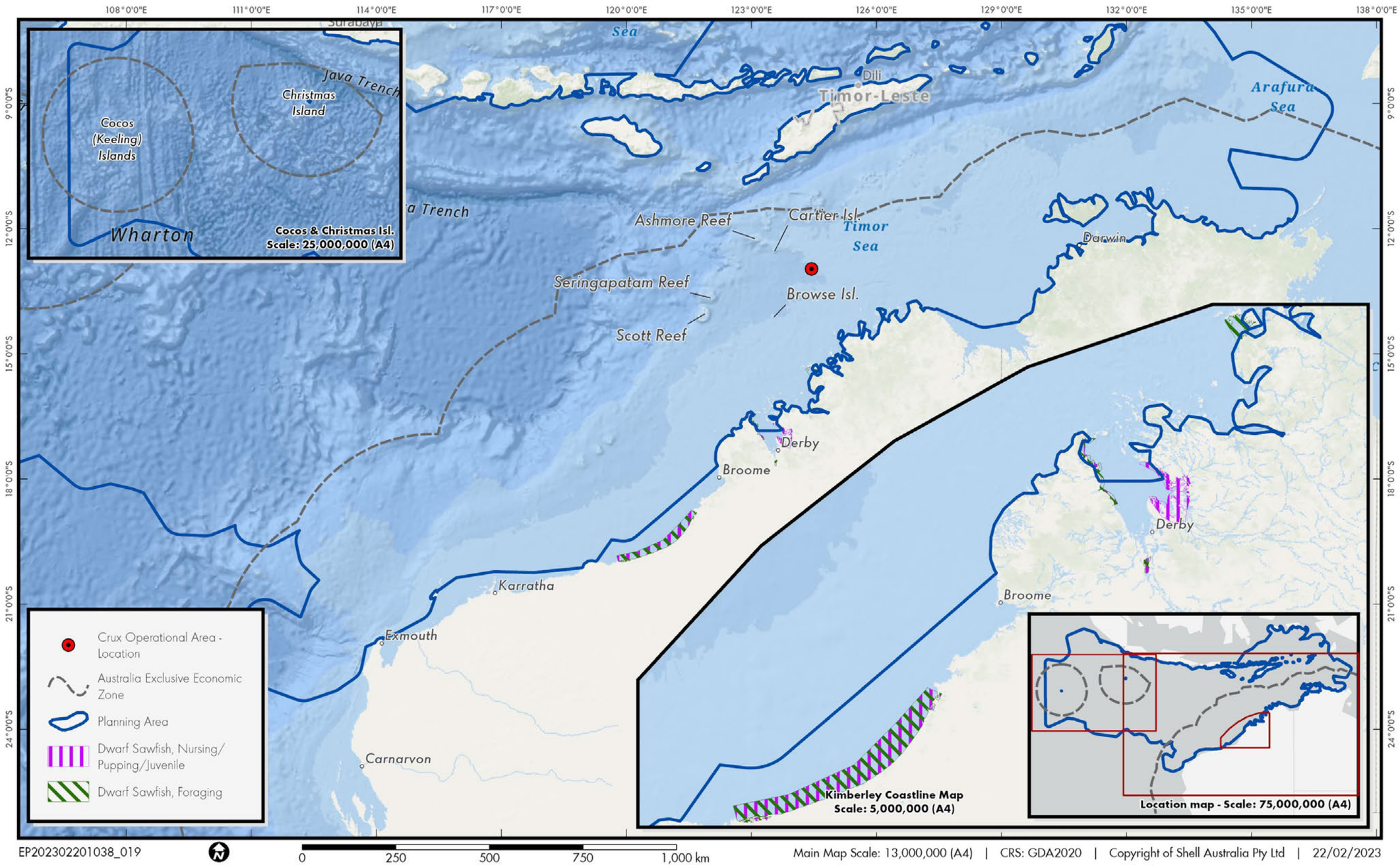


Figure 7-18: BIAs for dwarf sawfish within the Planning Area

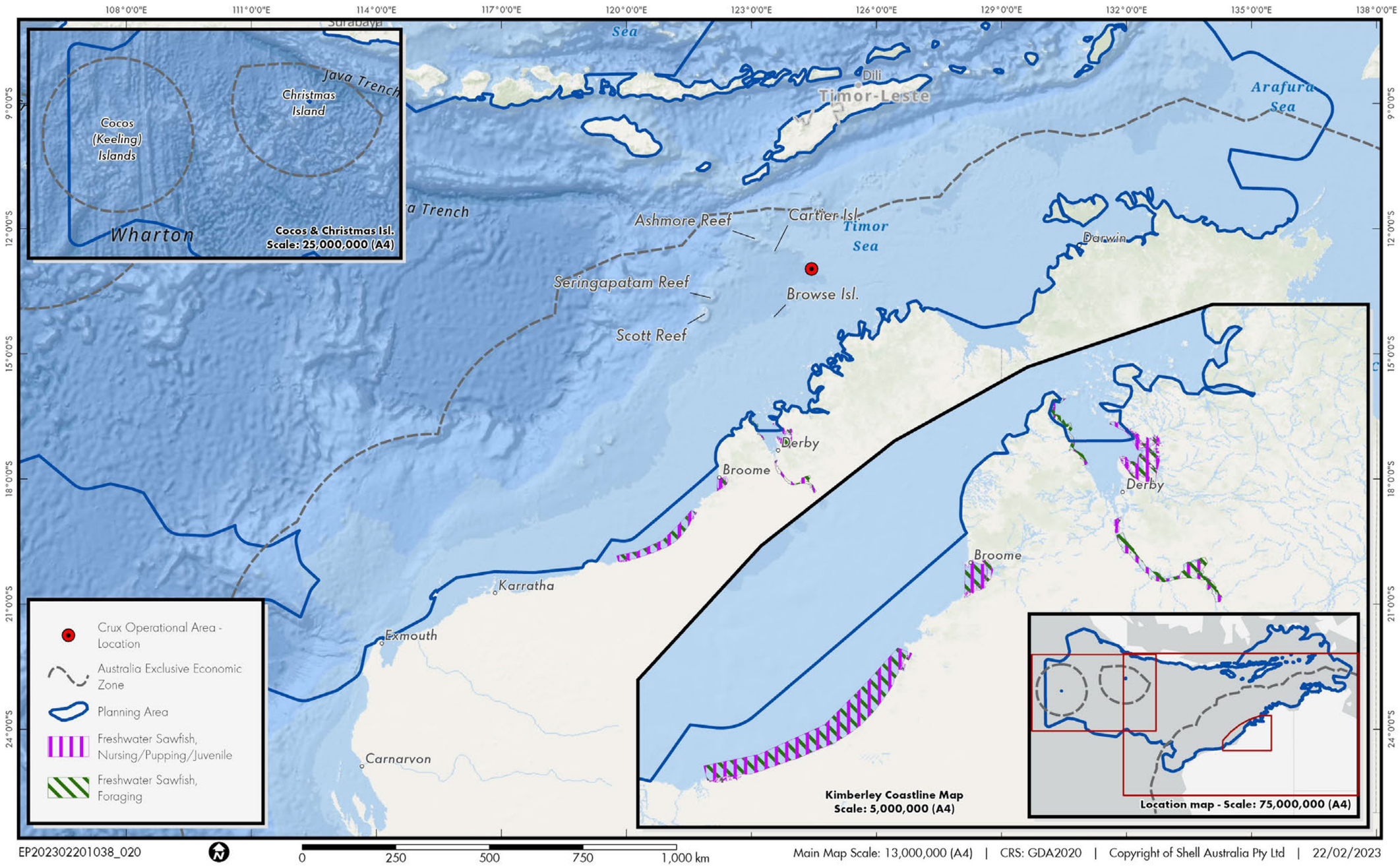


Figure 7-19: BIAs for freshwater sawfish within the Planning Area

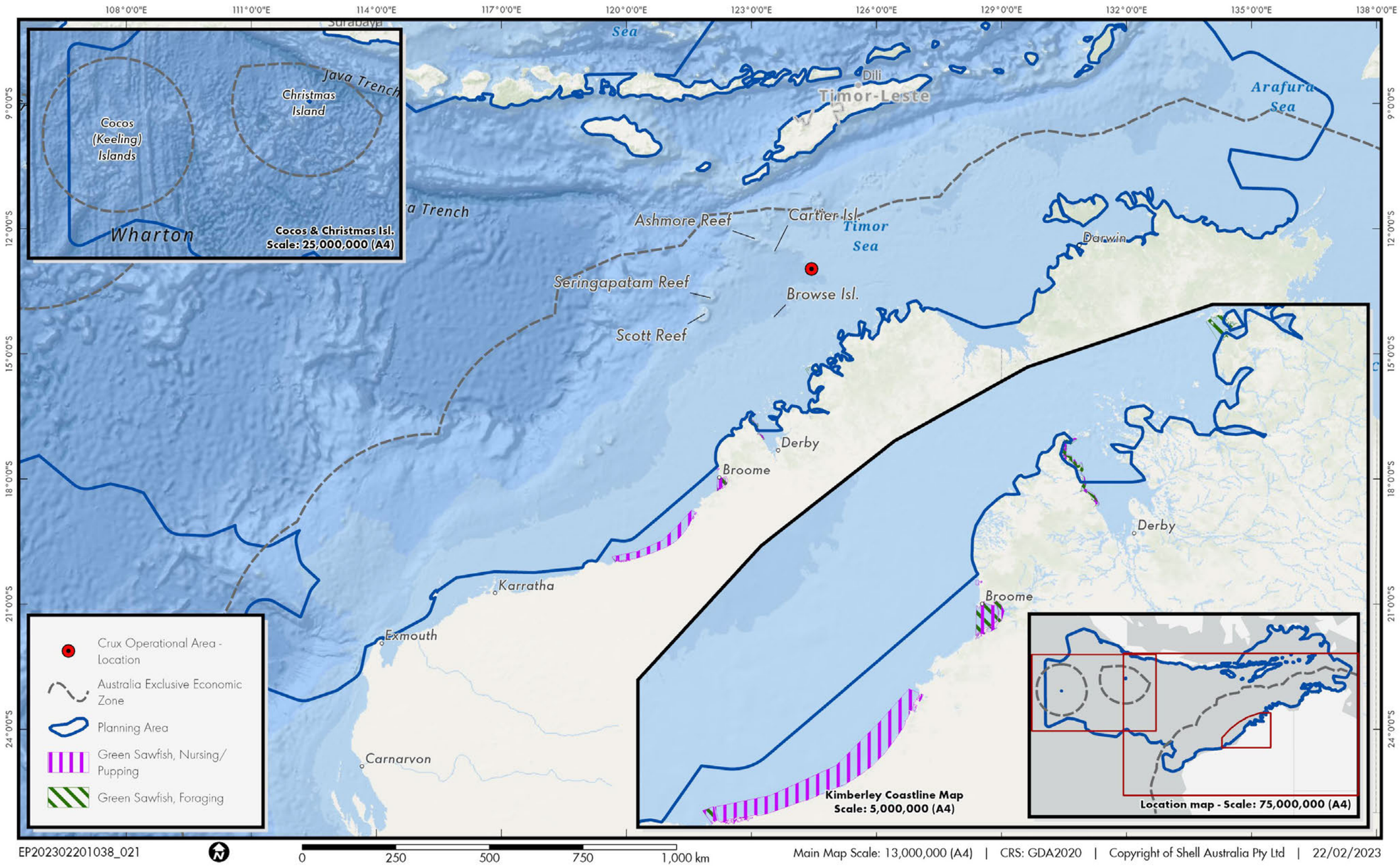


Figure 7-20: BIAs for green sawfish within the Planning Area

7.3.5.4 Birds

Table 7-13 provides a list of EPBC Act listed threatened and migratory birds that may occur within the Operational Area and/or Planning Area.

Table 7-13 EPBC Act listed threatened and migratory birds that may occur within the Operational Area and/or Planning Area

Species Name	Common Name	Threatened Status	Migratory Status	Operational Area	Planning Area
Actitis hypoleucos	Common sandpiper	N/A	Migratory	Species or species habitat may occur within area	✓
Anous stolidus	Common noddy	N/A	Migratory	Foraging, feeding or related behaviour likely to occur	✓
Anous tenuirostris melanops	Australian lesser noddy	Vulnerable	N/A	Foraging, feeding or related behaviour likely to occur	✓
Calidris acuminata	Sharp-tailed sandpiper	N/A	Migratory	Species or species habitat may occur within area	✓
Calidris canutus	Red knot	Endangered	Migratory	Species or species habitat may occur within area	✓
Calidris ferruginea	Curlew sandpiper	Critically endangered	Migratory	Species or species habitat may occur within area	✓
Calidris melanotos	Pectoral sandpiper	N/A	Migratory	Species or species habitat may occur within area	✓
Calonectris leucomelas	Streaked shearwater	N/A	Migratory	Species or species habitat may occur within area	✓
Fregata ariel	Lesser frigatebird	N/A	Migratory	Species or species habitat may occur within area	✓
Fregata minor	Great frigatebird	N/A	Migratory	Species or species habitat may occur within area	✓
Numenius madagascariensis	Eastern curlew	Critically endangered	Migratory	Species or species habitat may occur within area	✓
Papasula abbotti	Abbott's booby	Endangered	N/A	Species or species habitat may occur within area	✓
Ardenna carneipes	Flesh-footed shearwater	N/A	Migratory	x	✓

Species Name	Common Name	Threatened Status	Migratory Status	Operational Area	Planning Area
Ardenna pacifica	Wedge-tailed shearwater	N/A	Migratory	x	✓
Arenaria interpres	Ruddy turnstone	N/A	Migratory	x	✓
Calidris alba	Sanderling	N/A	Migratory	x	✓
Calidris ruficollis	Red-necked stint	N/A	Migratory	x	✓
Calidris tenuirostris	Great knot	Critically endangered	Migratory	x	✓
Charadrius leschenaultii	Greater sand plover	Vulnerable	Migratory	x	✓
Charadrius mongolus	Lesser sand plover	Endangered	Migratory	x	✓
Charadrius veredus	Oriental plover	N/A	Migratory	x	✓
Fregata andrewsi	Christmas Island frigatebird	Endangered	Migratory	x	✓
Glareola maldivarum	Oriental pratincole	N/A	Migratory	x	✓
Hydroprogne caspia	Caspian tern	N/A	Migratory	x	✓
Limicola falcinellus	Broad-billed sandpiper	N/A	Migratory	x	✓
Limnodromus semipalmatus	Asian dowitcher	N/A	Migratory	x	✓
Limosa lapponica	Bar-tailed godwit	N/A	Migratory	x	✓
Limosa lapponica baueri	Bar-tailed godwit (baueri)	Vulnerable	N/A	x	✓
Limosa lapponica menzbieri	Northern Siberian bar-tailed godwit	Critically endangered	N/A	x	✓
Limosa limosa	Black-tailed godwit	N/A	Migratory	x	✓
Macronectes giganteus	Southern giant-petrel	Endangered	Migratory	x	✓
Numenius phaeopus	Whimbrel	N/A	Migratory	x	✓
Onychoprion anaethetus	Bridled tern	N/A	Migratory	x	✓
Pandion haliaetus	Osprey	N/A	Migratory	x	✓
Phaethon lepturus	White-tailed tropicbird	N/A	Migratory	x	✓

Species Name	Common Name	Threatened Status	Migratory Status	Operational Area	Planning Area
Phaethon lepturus fulvus	Christmas Island white-tailed tropicbird	Endangered	N/A	x	✓
Phaethon rubricauda	Red-tailed tropicbird	N/A	Migratory	x	✓
Pluvialis fulva	Pacific golden plover	N/A	Migratory	x	✓
Pluvialis squatarola	Grey plover	N/A	Migratory	x	✓
Pterodroma mollis	Soft-plumaged petrel	Vulnerable	N/A	x	✓
Pterodroma arminjoniana	Round island petrel	Critically Endangered	N/A	x	✓
Rostratula australis	Australian painted-snipe	Endangered	Migratory	x	✓
Sterna dougallii	Roseate tern	N/A	Migratory	x	✓
Sternula albifrons	Little tern	N/A	Migratory	x	✓
Sternula nereis nereis	Australian fairy tern	Vulnerable	N/A	x	✓
Sula dactylatra	Masked booby	N/A	Migratory	x	✓
Sula leucogaster	Brown booby	N/A	Migratory	x	✓
Sula sula	Red-footed booby	N/A	Migratory	x	✓
Thalassarche carteri	Indian yellow-nosed albatross	Vulnerable	Migratory	x	✓
Thalassarche impavida	Campbell albatross	Vulnerable	Migratory	x	✓
Acrocephalus orientalis	Oriental reed-warbler	N/A	Migratory	x	✓
Calidris ruficollis	Red-necked stint	N/A	Migratory	x	✓
Calidris subminuta	Long-toed stint	N/A	Migratory	x	✓
Charadrius dubius	Little ringed plover	N/A	Migratory	x	✓
Gallinago megala	Swinhoe's snipe	N/A	Migratory	x	✓
Gallinago stenura	Pin-tailed snipe	N/A	Migratory	x	✓
Thalasseus bergii	Pluvialis squatarola	N/A	Migratory	x	✓
Tringa brevipes	Grey-tailed tattler	N/A	Migratory	x	✓
Tringa glaereola	Wood sandpiper	N/A	Migratory	x	✓

Species Name	Common Name	Threatened Status	Migratory Status	Operational Area	Planning Area
Tringa incana	Wandering tattler	N/A	Migratory	x	✓
Tringa nebularia	Common greenshank	N/A	Migratory	x	✓
Tringa stagnatilis	Marsh sandpiper	N/A	Migratory	x	✓
Tringa totanus	Common redshank	N/A	Migratory	x	✓
Xenus cinereus	Terek sandpiper	N/A	Migratory	x	✓
Apus pacificus	Fork-tailed swift	N/A	Migratory	x	✓

Table 7-14 provides a list of bird BIAs that may occur within the Operational Area and/or Planning Area.

Table 7-14: Bird BIAs within the Operational Area or Planning Area

Common Name	BIA Behaviour	Distance from Operational Area
Red-footed booby	Breeding (north-west Kimberley and Ashmore Reef, including Ashmore Reef and Adele Island)	56 km north-west
Greater frigatebird	Breeding (Kimberley and Ashmore Reef including Adele Island)	56 km north-west
Lesser frigatebird	Breeding (Kimberley, Pilbara and Gascoyne coasts and islands including Ashmore Reef, Adele Island, Lacepede Islands, Bedout Island and Sand Island)	60 km north-west
Wedge-tailed shearwater	Breeding (Kimberley, Pilbara and Gascoyne coasts and islands including Ashmore Reef, Barrow Island, Dampier Archipelago)	60 km north-west
White-tailed tropicbird	Breeding (Kimberley, Pilbara and Gascoyne coasts and islands including Ashmore Reef, and Cunningham Island)	65 km north-west
Brown booby	Breeding (Kimberley and northern Pilbara coasts and islands including Ashmore Reef, Vulcan Islands, Adele Island, Lacepede Islands and Bedout Island)	117 km north-west
Lesser crested tern	Breeding (Kimberley, Pilbara and Gascoyne coasts and islands including Ashmore Reef, Bedout Island, Lacepede Islands, Adele Island, Bigge Island, Montalivet Islands, Descartes Island, Thevenard Island, and Lowendal Islands)	139 km north-west
Little tern	Resting (Kimberley, Pilbara and Gascoyne coasts and islands including Ashmore Reef, Scott Reef, Adele Island, and Bedwell Island.	153 km north-west
	Breeding (Kimberley, Pilbara and Gascoyne coasts and islands including, Kingfisher Islands, Sunday Island, Dampier Peninsula, Corneille Islands, and coastal near Broome)	172 km south-east

Common Name	BIA Behaviour	Distance from Operational Area
Roseate tern	Breeding (Kimberley, Pilbara and Gascoyne coasts and islands including, Ashmore Reef, Montalivet Islands, Corneille Island, Sir Graham Moore Island, Sunday Island, Lacepede Islands, Bedout Island, Ningaloo Coast, Airlie Island, Lowendal Islands, Montebello Islands, Dampier Archipelago and Legendre Island)	140 km north-west
	Breeding (Low Rocks and Stern Island in Admiralty Gulf)	164 km south-east
	Breeding (North-east and North-west Twin Islet near the mouth of King sound)	366 km south-west
	Breeding (high numbers) (Grant Island)	919 km east
	Breeding (Haul Round Island (Boucat Bay))	1,049 km east
	Breeding (high numbers) (Small sand, rock and mangrove island between Stevens and Burgungurra Islands)	1,259 km east
Crested Tern	Breeding (high numbers) (Seagull Island, off NW of Cape Van Diemen, Melville Island.	653 km north east
	Breeding (No. 2 Sandy Island (Cobourg))	859 km north east
	Breeding (Haul Round Island (Boucat Bay)	1,050 km east
	Breeding (NW Crocodile, NE of Milingimbi (Large Island))	1,152 km east
Bridled tern	Breeding (No. 2 Sandy Island (Cobourg))	859 km north east
	Breeding (Cowlard Island)	911 km north east
	Breeding (NE Crocodile, NE of Milingimbi)	1,176 km east
	Breeding (Haul Round Island (Boucat Bay))	1,057 km east
	Breeding (Island west of Abbott Island / Elcho Island airstrip)	1,196 km east
	Breeding (Small Island South of Alger Island)	1,243 km east
Australian Fairy Tern	Breeding (Pilbara and Gascoyne coasts and islands, including Ningaloo coast, Thevenard Island, Barrow Island, Hermite Island, Dampier Archipelago)	1,141 km south-west

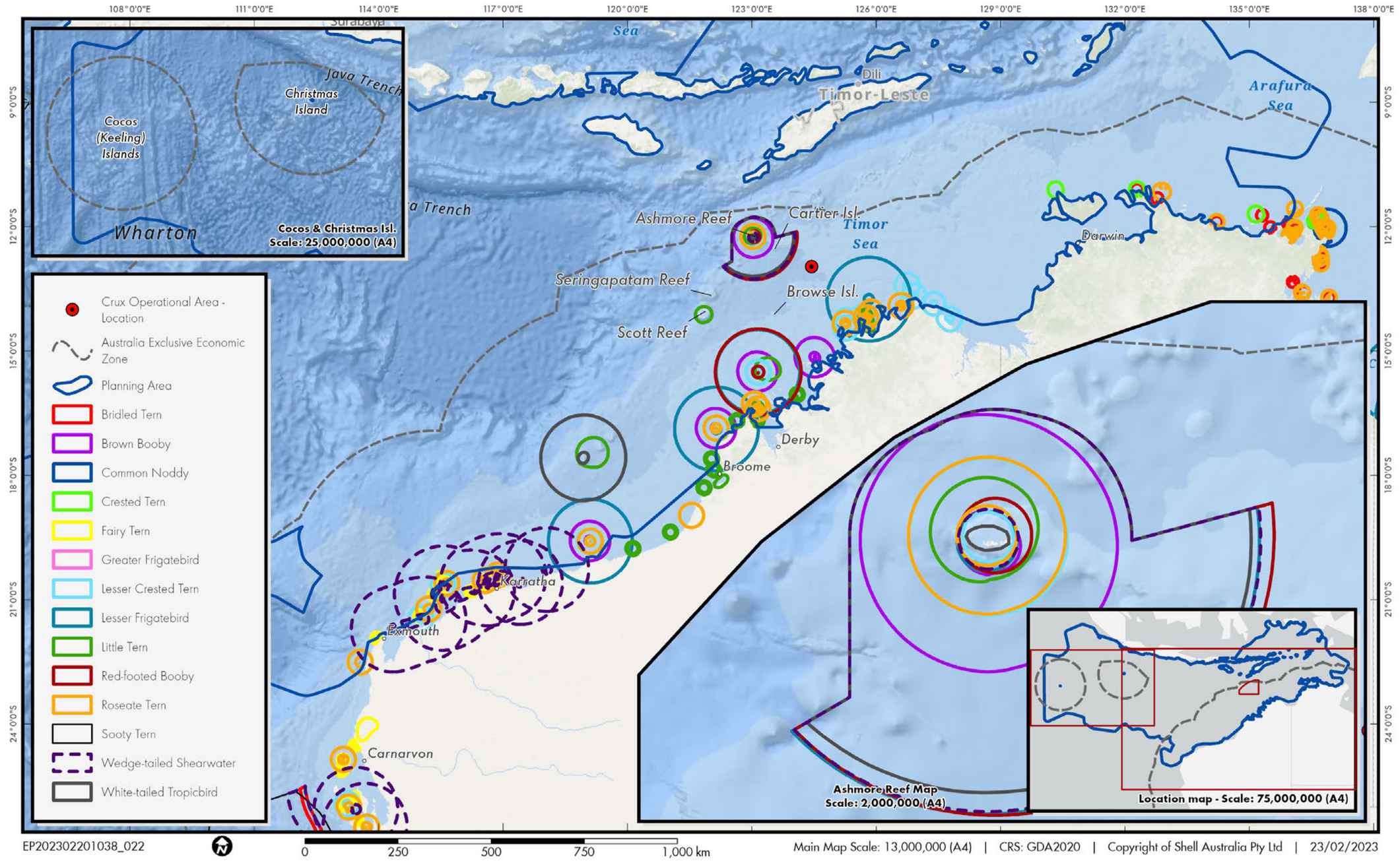


Figure 7-21: BIAs of birds within the Planning Area

7.3.5.5 Seasonal Sensitivities of Threatened Species

Periods of the year coinciding with key environmental sensitivities for the Operational Area and Planning Area, including EPBC Act listed threatened and/or migratory species potentially occurring within the Operational Area, are presented in Table 7-15. These relate to breeding, foraging or migration of the indicated fauna.

Table 7-15: Key environmental sensitivities and indicative timings for migratory fauna within the Operational Area and Planning Area (North-west and North Marine Region)

Species	January	February	March	April	May	June	July	August	September	October	November	December
Mammals												
Blue whale – northern migration (Exmouth, Montebello, Scott Reef)[1]												
Blue whale – southern migration (Exmouth, Montebello, Scott Reef)[2]												
Humpback whale – northern migration (Jurien Bay to Montebello)[3]												
Humpback whale – southern migration (Jurien Bay to Montebello)[4]												
Fish, Sharks and Rays												
Whale shark* – foraging/ aggregation near Ningaloo[5]												
Manta rays – presence/ aggregation/breeding (Ningaloo)[6]												
Reptiles												
Green turtle[7]	N,H	N,H	H	H	H	N	N	H	H	H	H	N,H
Hawksbill turtle[7]	N,H	H						N,H	H	N,H	N,H	N,H
Olive ridley turtle[7]				N	N	N,H	N,H	H				
Flatback turtle[7]	N,H	H	H	H	H	N,H	N,H	N,H	N,H	N,H	N,H	N,H
Leatherback turtle[7]	N,H	H										N
Loggerhead turtle[7]	N,H	H	H	H	H							
Birds												
Migratory shorebirds[6]												

Species	January	February	March	April	May	June	July	August	September	October	November	December

	Species likely to be present
	Peak period. Presence of animals reliable and predictable each year
N	Peak Turtle Nesting
H	Peak Turtle Hatching

1 – DSEWPAC, 2012a; McCauley and Jenner, 2010; Thumbs et al 2022

2 – DSEWPaC, 2012a; McCauley and Jenner, 2010

3 – CALM, 2005; Jenner et al, 2001; McCauley and Jenner, 2001, Double et al., 2012

4 – McCauley and Jenner, 2001

5 – TSSC, 2015a; Wilson et al., 2006

6 – CALM, 2005, DSEWPaC, 2012a, Environment Australia, 2002, Sleeman et al., 2010

7 – Commonwealth of Australia, 2017a

8 – Rogers et al., 2011

7.3.5.6 Listed Threatened Species Conservation Advice & Species Recovery Plans

The Commonwealth publishes recovery plans and conservation advice for a number of species listed as threatened under the EPBC Act. These documents are intended to assist in preventing the decline, and enhance the recovery, of threatened species. The requirements of the species recovery plans and conservation advice (Table 7-16) for threatened species identified within the Planning Area were considered to identify any aspects that may be applicable to the risk assessment (Section 9.14).

Table 7-16: Conservation advice for EPBC Act listed threatened species identified within the Planning Area considered during environmental risk assessment

Species / Sensitivity	Recovery plan / conservation advice (date issued)	Key threats identified in the recovery plan/conservation advice	Relevant Conservation Actions
All Vertebrate Fauna			
All vertebrate fauna	Threat abatement plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans (Commonwealth of Australia 2018)	Marine debris	No explicit management actions for non-fisheries related industries (note that management actions in the plan relate largely to management of fishing waste (e.g. “ghost” gear), and state and Commonwealth management through regulation.
Mammals			
Sei whale	Approved conservation advice *Balaenoptera borealis* (sei whale) (TSSC 2015b)	Noise interference	Assess and manage acoustic disturbance
		Vessel disturbance	Assess and manage physical disturbance and development activities
Blue whale	Conservation management plan for the blue whale: A recovery plan under the Environment Protection and Biodiversity Conservation Act 1999 2015-2025 (Commonwealth of Australia 2015a)	Noise interference	Assessing and addressing anthropogenic noise.
		Vessel disturbance	Minimising vessel collisions
Fin whale	Approved conservation advice for *Balaenoptera physalus* (fin whale) (TSSC 2015c)	Noise interference	Assessing and addressing anthropogenic noise
		Vessel disturbance	Minimising vessel collisions
Southern right whale	Conservation management plan for the southern right whale: a recovery plan under the *Environment Protection and Biodiversity Conservation Act 1999* 2011-2021 (DSEWPaC 2012b)	Vessel disturbance	Addressing vessel collisions
		Noise interference	Assessing and addressing anthropogenic noise

Species / Sensitivity	Recovery plan / conservation advice (date issued)	Key threats identified in the recovery plan/conservation advice	Relevant Conservation Actions
Reptiles			
Loggerhead turtle, green turtle, leatherback turtle, hawksbill turtle, flatback turtle, olive ridley turtle	Recovery plan for marine turtles in Australia (Commonwealth of Australia, 2017a)	Light pollution	Minimise light pollution
		Chemical and terrestrial discharge (oil pollution)	Ensure that spill risk strategies and response programs include management for turtles and their habitats
		Vessel disturbance	Vessel interactions identified as a threat; no specific management actions in relation to vessels prescribed in the plan
		Noise interference	No explicit relevant management actions; noise interference identified as a threat
Leatherback turtle	Approved conservation advice for *Dermochelys coriacea* (Leatherback Turtle) (DEWHA 2008b)	Vessel disturbance	No explicit relevant management actions; vessel strikes identified as a threat
Short-nosed sea snake	Approved conservation advice for *Aipysurus apraefrontalis* (short-nosed sea snake) (DSEWPaC 2011a)	No additional threats identified (ex. marine debris)	None applicable
Leaf-scaled sea snake	Approved conservation advice for *Aipysurus foliosquama* (leaf-scaled sea snake) (DSEWPaC 2011b)	No additional threats identified (ex. marine debris)	None applicable
Sharks and Rays			
White shark	Recovery plan for the white shark (*Carcharodon carcharias*) (DSEWPaC 2013)	No additional threats identified (ex. marine debris)	None applicable
Northern river shark	Approved conservation advice for *Glyphis garricki* (northern river shark) (TSSC 2014a)	Habitat degradation / modification	Implement measures to reduce adverse impacts of habitat degradation and/or modification
	Sawfish and river shark multispecies recovery plan (Commonwealth of Australia 2015b)		Identify risks to important sawfish and river shark habitat and measures need to reduce those risks
Green sawfish	Approved conservation advice for green sawfish (DEWHA 2008c)	Habitat degradation / modification	No explicit relevant management actions; habitat loss, disturbance and modification identified as a threat
	Sawfish and river shark multispecies recovery		Identify risks to important sawfish and river shark habitat and

Species / Sensitivity	Recovery plan / conservation advice (date issued)	Key threats identified in the recovery plan/conservation advice	Relevant Conservation Actions
	plan (Commonwealth of Australia 2015b)		measures need to reduce those risks
Whale shark	Approved conservation advice *Rhincodon typus* whale shark (TSSC 2015a)	Vessel disturbance	Minimise offshore developments and transit time of large vessels in areas close to marine features likely to correlate with whale shark aggregations and along the northward migration route that follows the northern Western Australian coastline along the 200 m isobath
Grey nurse shark (west coast population)	Recovery plan for the grey nurse shark (*Carcharias taurus*) (Commonwealth of Australia 2014)	No additional threats identified (ex. marine debris)	None applicable
Dwarf sawfish	Approved conservation advice for *Pristis clavata* (dwarf sawfish) (DEWHA 2009a)	Habitat degradation / modification	No explicit relevant management actions; habitat loss, disturbance and modification identified as a threat
	Sawfish and river shark multispecies recovery plan (Commonwealth of Australia 2015b)		Identify risks to important sawfish and river shark habitat and measures need to reduce those risks
Freshwater sawfish	Approved conservation advice for *Pristis pristis* (largetooth sawfish) (TSSC 2014b)	Habitat degradation / modification	No explicit relevant management actions; habitat loss, disturbance and modification identified as a threat
	Sawfish and river shark multispecies recovery plan (Commonwealth of Australia 2015b)		Identify risks to important sawfish and river shark habitat and measures need to reduce those risks
Speartooth Shark	Approved conservation advice for Glyphis glyphis (speartooth shark) (TSSC 2014c)	Habitat degradation / modification	Implement measures to reduce adverse impacts of habitat degradation and/or modification
	Sawfish and river shark multispecies recovery plan (Commonwealth of Australia 2015b)		Identify risks to important sawfish and river shark habitat and measures need to reduce those risks
Birds			
Marine and Migratory Seabirds	Wildlife conservation plan for seabirds (Commonwealth of Australia 2022)	Habitat degradation / modification, pollution, transport	Ensure all aspects important to marine and migratory seabirds in Australia continue to be considered in development assessment processes

Species / Sensitivity	Recovery plan / conservation advice (date issued)	Key threats identified in the recovery plan/conservation advice	Relevant Conservation Actions
Migratory shorebird species[7]	Wildlife conservation plan for migratory shorebirds (Commonwealth of Australia 2015c)	Habitat degradation / modification	Ensure all areas important to migratory shorebirds in Australia continue to be considered in development assessment processes
Albatrosses and giant petrels[8]	Draft national recovery plan for threatened albatrosses and giant petrels (DSEWPaC 2021)	Marine pollution	No explicit relevant management actions; pollution identified as a threat
Australian lesser noddy	Approved conservation advice for *Anous tenuirostris melanops* (Australian lesser noddy) (TSSC 2015d)	Habitat degradation / modification	No explicit relevant management actions; habitat degradation/ modification identified as a threat
Red knot, knot	Approved conservation advice for *Calidris canutus* (Red knot) (TSSC 2016a)	Pollution / contamination	No explicit relevant management actions; pollution identified as a threat
Australian fairy tern	Approved conservation advice for Sternula nereis nereis (fairy tern) (DSEWPaC 2011c)	Oil spills	Ensure appropriate oil-spill contingency plans are in place for breeding sites which are vulnerable to oil spills.
Curlew sandpiper	Conservation advice *Calidris ferruginea* curlew sandpiper (TSSC 2015e)	Pollution / contamination	No explicit relevant management actions; pollution identified as a threat
Eastern curlew	Conservation advice *Numenius madagascariensis* eastern curlew (TSSC 2015f)	Pollution / contamination	No explicit relevant management actions; pollution identified as a threat
Abbott's booby	Approved Conservation Advice for *Papasula abbotti* (Abbott's booby) (TSSC 2015g)	No threats identified	None applicable
Great knot	Conservation advice *Calidris tenuirostris* great knot (TSSC 2016b)	Habitat degradation / modification	No explicit relevant management actions; habitat degradation/ modification identified as a threat
Greater sand plover	Approved Conservation Advice for *Charadrius leschenaultii* (Greater sand plover) (TSSC 2016c)	Habitat degradation / modification	No explicit relevant management actions; habitat degradation/ modification identified as a threat

[7] Red knot, great knot, greater sand plover, lesser sand plover and bar-tailed godwit.

[8] Several albatrosses and giant petrels were identified as potentially occurring: southern giant-petrel, soft-plumaged petrel, Indian yellow-nosed albatross, Campbell albatross,

Species / Sensitivity	Recovery plan / conservation advice (date issued)	Key threats identified in the recovery plan/conservation advice	Relevant Conservation Actions
Lesser sand plover	Approved Conservation Advice for *Charadrius mongolus* (Lesser sand plover) (TSSC 2016d)	Habitat degradation / modification	No explicit relevant management actions; habitat degradation/ modification identified as a threat
Soft-plumaged petrel	Conservation advice *Pterodroma mollis* soft-plumage petrel (TSSC 2015g)	Habitat degradation / modification	No explicit relevant management actions; habitat degradation/ modification identified as a threat
Bar-tailed godwit (baueri)	Approved Conservation Advice for *Limosa lapponica baueri* (Bar-tailed godwit (western Alaskan) (TSSC 2016e)	Habitat degradation / modification	No explicit relevant management actions; habitat degradation/ modification identified as a threat
Northern Siberian bar-tailed godwit	Conservation advice Limosa lapponica menzbieri, Bar-tailed godwit (northern Siberian) (TSSC 2016f)	Habitat degredation Pollution Direct mortality (e.g. collisions, oil spills)	No explicit relevant management actions
Australian painted snipe	Approved Conservation Advice on *Rostratula australis* (Australian Painted Snipe) (TSSC 2013)	Habitat degradation / modification	No explicit relevant management actions; habitat degradation/ modification identified as a threat

7.3.6 Protected Areas

The Operational Area does not overlap any Marine Protected Areas (MPAs), such as Commonwealth Australian Marine Parks (AMPs) or State Marine Parks. There are a number of Commonwealth AMPs and Western Australian MPAs in the Planning Area. Each of these MPAs is identified in Table 7-17, Figure 7-22, and Figure 7-23.

All AMPs and many State and Territory MPAs have management plans in place, which outline the objectives for the management of the protected area. These are described in the Master Existing Environment including the values of the AMPs described within the Australian Marine Parks Network Management Plan. Additional MPAs that have been approved since the acceptance of the Crux OPP are described Table 7-17, the cultural values of these parks are further described within Table 7-25. These objectives have been considered where applicable in the environmental risk assessment in Section 9.14.

Table 7-17: State Marine Parks Approved since 2020

Marine Park	Description
Lalang-gaddam Marine Park	The Lalang-gaddam Marine Park was formed in 2022 from the amalgamation of four marine parks in Dambeemangarddee Sea Country (see also Section 5.9.4.1.4.4); the Lalang-garram / Camden Sound Marine Park, the Lalang-garram / Horizontal Falls Marine Park, the North Lalang-garram Marine Park and the Maiyalam Marine Park (DBCA 2022a). The Marine Park encompasses approximately 13,080 km2 and includes coastal gorges, estuaries, bays, numerous islands and

Marine Park	Description
	reefs, and extensive intertidal areas. It contains important foraging and nursery areas for dugongs, turtles, crocodiles, humpback whales, dolphins, sawfish, manta rays, sea snakes and migratory seabirds and shorebirds (DBCA 2022a). The Marine Park includes Camden Sound, the principal calving habitat for humpback whale group D (Jenner et al. 2001).
Bardi Jawi Gaarra Marine Park	Bardi Jawi Gaarra Marine Park The Bardi Jawi Gaarra Marine Park covers approximately 2,040 km2 within the Bardi Jawi determination area (see also Section 5.8.3.2), including waters surrounding the northern part of the Dampier Peninsula and the western islands of the Buccaneer Archipelago. The Marine Park contains fringing reefs, mangrove-lined creeks, extensive seagrass meadows and wide intertidal areas. It supports foraging and/or breeding of fish, turtles, dugongs, estuarine crocodiles, humpback whales and dolphins. The subtidal habitat also supports a diverse filter feeding community. (DBCA 2022b).
Mayala Marine Park	The Mayala Marine Park encompasses approximately 3,150 km2 of Mayala Sea Country (see also Section 5.8.3.2), including subtidal and intertidal areas around many of the islands of the Buccaneer Archipelago and within Inland Sea, Cone and Strickland Bays (DBCA 2022c). It extends between the Bardi Jawi Gaarra Marine Park and the Lalang-gaddam Marine Park and contains a similar diversity of habitats and species.

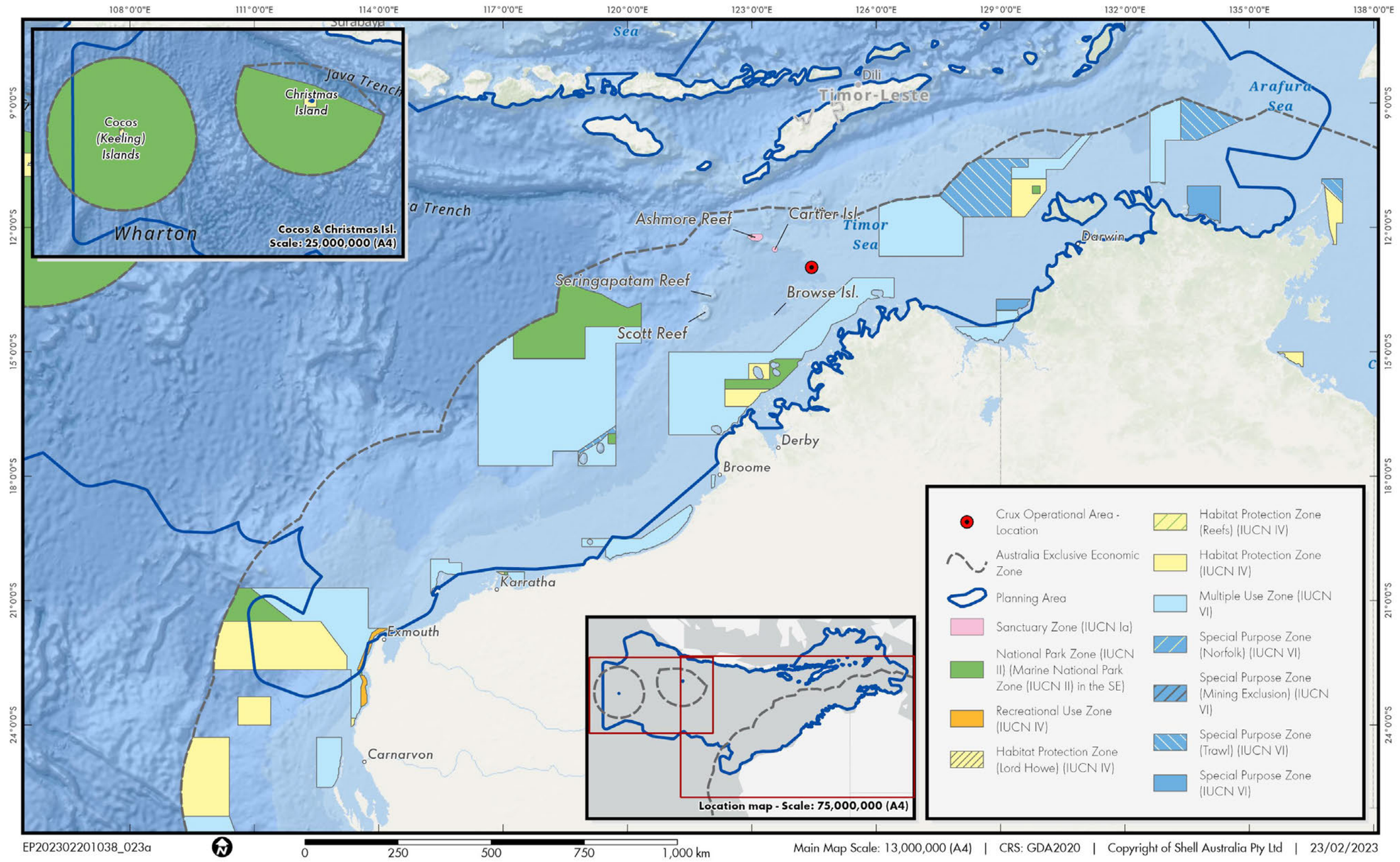


Figure 7-22: Commonwealth and State/Territory Marine Protected Areas within the Planning Area

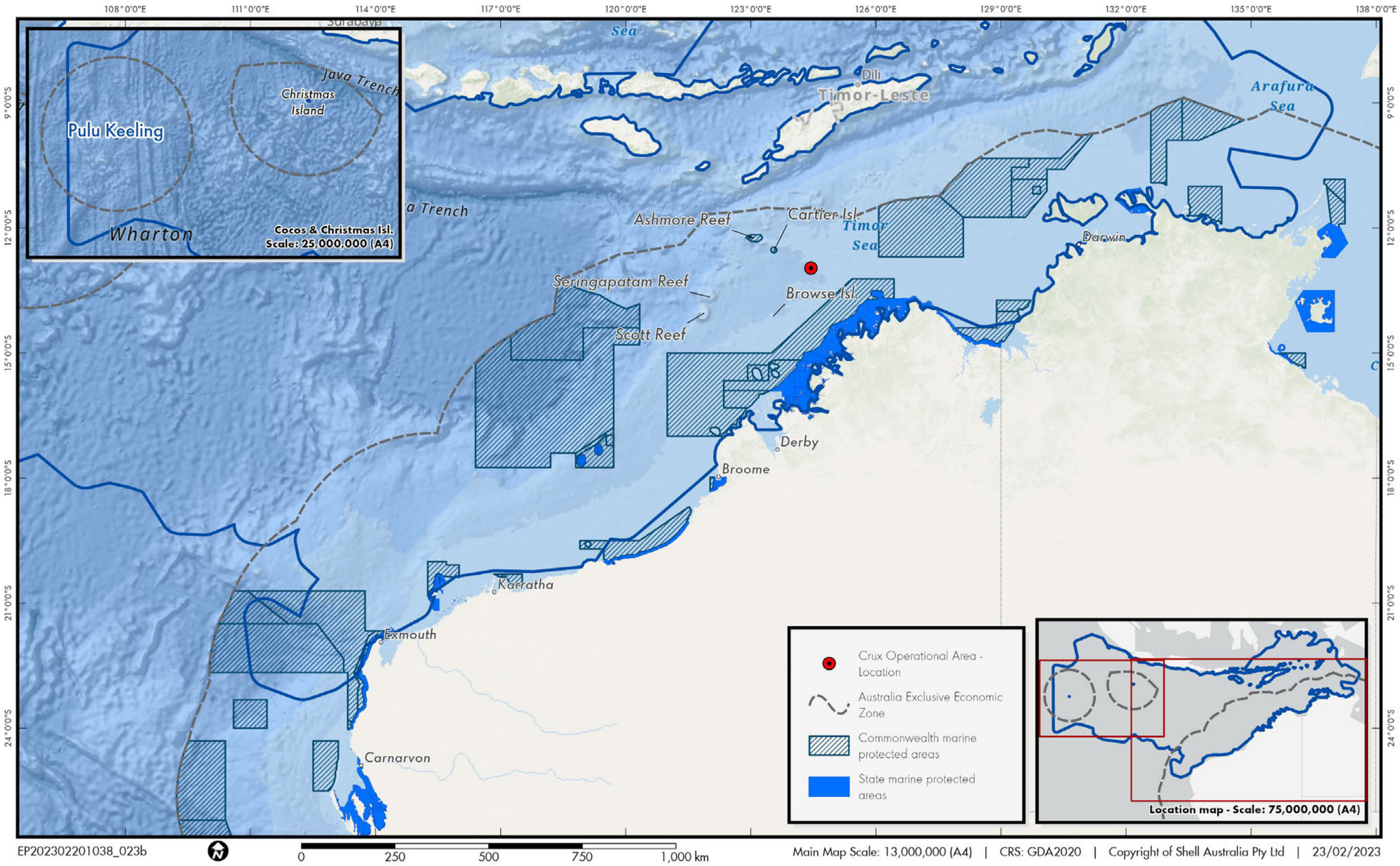


Figure 7-23: Commonwealth and State/Territory protected areas (Collaborative Australia Protected Areas Database [CAPAD])

Table 7-18: Protected Areas within the Planning Area

Marine Park	Distance from Operational Area (km)	IUCN Category* or relevant park zone overlapping the Operational Area and/or Planning Area
Commonwealth AMPs		
Kimberley	93	Multiple Use Zone (IUCN VI)
	246	National Park Zone (IUCN II)
	279	Habitat Protection Zone (IUCN IV)
Cartier Island	99	Sanctuary Zone (IUCN Ia)
Ashmore Reef	148	Sanctuary Zone (IUCN Ia)
	172	Recreation Use Zone (IUCN IV)
Oceanic Shoals	177	Multiple Use Zone (IUCN VI)
	385	Special Purpose Zone (Trawl) (IUCN VI)
	540	Habitat Protection Zone (IUCN IV)
	610	National Park Zone (IUCN II)
Argo-Rowley Terrace	455	National Park Zone (IUCN II)
	473	Multiple Use Zoe (IUCN VI)
	660	Special Purpose Zone (Trawl) (IUCN VI)
Mermaid Reef	672	National Park Zone (IUCN II)
Joseph Bonaparte Gulf	494	Multiple Use Zone (IUCN VI)
	489	Special Purpose Zone (IUCN VI)
Eighty Mile Beach	705	Multiple Use Zone (IUCN VI)
Montebello	1,213	Multiple Use Zone (IUCN VI)
Gascoyne	1,423	Multiple Use Zone (IUCN VI)
	1,671	National Park Zone (IUCN II)
	1,577	Habitat Protection Zone (IUCN IV)
Cocos (Keeling) Islands	2,975	National Park Zone (IUCN II)
	2,625	Habitat Protection Zone (IUCN IV)
Christmas Island	1,700	National Park Zone (IUCN II)
	2,029	Habitat Protection Zone (IUCN IV)
Arafura	934	Multiple Use Zone (IUCN VI)
	940	Special Purpose Zone (IUCN VI)
	1,032	Special Purpose Zone (Trawl) (IUCN VI)
Arnhem	1,001	Special Purpose Zone (IUCN VI)
Carnarvon Canyon	1791	Habitat Protection Zone (IUCN IV)
Ningaloo	1574	National Park Zone (IUCN II)
	1450	Recreational Use Zone (IUCN VI)

Marine Park	Distance from Operational Area (km)	IUCN Category* or relevant park zone overlapping the Operational Area and/or Planning Area
Western Australian Marine Parks		
Lalang-garram / Camden Sound	221	N/A
North Kimberley	158	N/A
Lalang-garram / Horizontal Falls	351	N/A
Lalang-gaddam	220	N/A
Bardi Jawi Gaarra	380	N/A
Mayala	350	N/A
North Lalang-garram	225	N/A
Barrow Island Marine Park and Barrow Island Marine Management Area	1263	N/A
Rowley Shoals	716	N/A
Montebello Islands	1246	N/A
Muiron Islands Marine Management Area	1430	N/A
Ningaloo	1450	N/A
Western Australian Nature Reserve		
Adele Island	313	N/A
Airlie Island	1,351	N/A
Barrow Island	1,281	N/A
Bedout Island	929	N/A
Bessieres Island	1,397	N/A
Boodie, Double Middle Islands	1,283	N/A
Browse Island	157	N/A
Coulomb Point	532	N/A
Lacepede Islands	496	N/A
Lesueur Island	318	N/A
Lowendal Islands	1,723	N/A
Low Rocks	195	N/A
Muiron Islands	1,434	N/A
North Turtle Island	968	N/A
Round Island	1,415	N/A
Scott Reef	310	N/A
Serrurier Island	1,410	N/A

Marine Park	Distance from Operational Area (km)	IUCN Category* or relevant park zone overlapping the Operational Area and/or Planning Area
Swan Islands	402	N/A
Tanner Island	359	N/A
Thevenard Island	1,372	N/A
Western Australian Conservation Parks		
Montebello Islands	1,252	N/A
Western Australian 5(1)(h) Reserves		
Bundegi Coastal Park	1,468	N/A
Jurabi Coastal Park	1,307	N/A
Unnamed WA2896	362	N/A
Unnamed WA37168	497	N/A
Unnamed WA40322	1,351	N/A
Unnamed WA40828	1,253	N/A
Unnamed WA41080	1,254	N/A
Unnamed WA41775	158	N/A
Unnamed WA44665	1,398	N/A
Unnamed WA44669	360	N/A
Unnamed WA44672	929	N/A
Unnamed WA44673	313	N/A
Unnamed WA44677	317	N/A
Western Australian National Park		
Cape Range	1,486	N/A
Lawley River	233	N/A
Mitchell River	218	N/A
Niiwalarra Islands	242	N/A
Prince Regent	245	N/A
Western Australian Indigenous Protected Area		
Balanggarra	319	N/A
Bardi Jawi	394	N/A
Dambimangari	237	N/A
Uunguu	164	N/A
Wilinggin	262	N/A
Other Conservation Area or Nature Park		
Territory Wildlife Park / Berry Springs	707	N/A
Northern Territory Marine Parks		
Garig Gunack Barlu	865	N/A

Marine Park	Distance from Operational Area (km)	IUCN Category* or relevant park zone overlapping the Operational Area and/or Planning Area
Northern Territory Conservation Reserves		
Blackmore River	702	N/A
Northern Territory Indigenous Protected Area		
Djelk	1,026	N/A
Marri-Jabin (Thamurrurr – Stage 1)	576	N/A
Marthakal	1,213	N/A
Northern Territory National Parks		
Charles Darwin	696	N/A
Djukbinj	749	N/A
Garig Gunak Barlu	829	N/A
Mary River	774	N/A
Melacca Swamp	739	N/A
Northern Territory Coastal Reserve		
Casuarina	697	N/A

7.4 Socio-Economic Environment

7.4.1 Indigenous Cultural Features

The Planning Area overlaps with the traditional Country of the Indigenous People of Australia[9]. This section describes the features of the Planning Area relevant to the consideration of the cultural and social values of Indigenous People. The relevant cultural and social values are described in Section 7.4.2.

7.4.1.1 Indigenous People and Communities

Indigenous People have the oldest living cultural history in the world (NARVIS 2021). The presence of Indigenous People in northern Australia dates back more than 60,000 years and is evidenced in the rich Indigenous cultural records that include some of the oldest cultural sites in Australia (NLC 2023a). Indigenous People reside in regional and remote settlements along the coastline of the mainland, on offshore islands (e.g. Bathurst Island and Melville Islands in the Tiwi Islands), as well as inland areas on the mainland. The closest Indigenous communities to the Planning Area are those communities located along the northern coastline of Western Australia (WA).

Country is an important concept to Indigenous People. The term Country is often used by Indigenous People to describe family origins and associations with particular parts of Australia, both land and sea. The expressions Country and sea Country are used by Indigenous People to refer to the land and waters *which constitute Aboriginal traditional areas as ancestrally distinct and linguistically bounded geographic areas (*Kearney et al, 2023 p106*).* Country is inclusive of many environments that *are ecologically, geographically, ancestrally and socially configured* (Kearney et al 2023). For Indigenous People Country is a combination of the land, sea, rivers and islands and all that they contain and sustain.

[9] The term Indigenous People includes all people of Aboriginal and Torres Strait Islander descent.

Country is described further in Section 7.4.2.2.1.

Although many Indigenous People do not live permanently on traditional Country, families and individuals retain close personal connections with their Country and visit regularly for extended trips, to care for Country, find traditional foods and connect with important sites. Regular connection to Country is of significant importance for Indigenous People.

Numerous different Indigenous groups have connections to different parts of Country within the Planning Area. These family groups are representative of many different Indigenous language groups, the languages of which have been spoken for millennia.

7.4.1.2 Land and Sea Tenure and Ownership

Both traditional and contemporary systems of land and sea ownership are present within the Planning Area. Each tenure is described in the following sections.

7.4.1.2.1 Traditional Land and Sea Ownership

The marine areas located within the Planning Area have been lived in, cared for and managed by many Indigenous People for thousands of years. There are complex systems of rules, rights, customs and traditional knowledge that govern Indigenous People's interactions with each other and their land and sea estates within the Planning Area.

For Indigenous People, Country is not bound by state and territorial borders or maritime boundaries distinguished by international conventions or economic jurisdiction. An example of this is evident in the answer provided by Mary Yarmirr, under cross-examination to the question of the extent of her traditional sea Country in the 1998 Federal Court hearing of the Croker Island Native Title claim[10]:

'*As far as my eyes can carry me'* (Mary Yarmirr 1998, cited in AHRC 2001).

Culture and ancestral features provide the necessary political distinction of traditional Country. Customary law, passed from generation to generation informs traditional land and sea ownership (NLC 2023).

7.4.1.2.2 Contemporary Land and Sea Ownership

The Planning Area includes extensive marine and coastal areas to which Indigenous People have statutory ownership and rights, protected through a number of instruments including the NTA and the *Aboriginal Land Rights (Northern Territory) Act 1975* (Cth) (ALRA). In addition, cultural and social connections are recognised through Indigenous Land Use Agreements (ILUAs), Indigenous Protected Areas (IPAs), and other mechanisms.

Native Title

Native Title determinations provide formal recognition under Australian law of the complex cultural system of Indigenous People's ongoing relationships, interests, rights, and responsibilities in relation to land and sea. Native Title can be non-exclusive or exclusive, and can co-exist with other property rights (e.g., pastoral stations). Native Title can exist over both land and sea estates. Traditional Owners[11] and their relationship and custodianship of their Country is protected by the NTA and any determinations made by the National Native Title Tribunal (NNTT).

As shown in Figure 7-24, the Planning Area includes land and marine water subject to Native Title. Table 7-19 describes the Native Title determinations that exist within the Planning Area. This information is sourced from the NNTT (2023) database *Native Title Determination Outcomes*.

[10] In 1998 the Federal Court of Australia found that native title existed in relation to the sea and sea-bed around Croker Island (refer Mary Yarmirr & Ors v Northern Territory of Australia & Ors [1998] FCA 1185 (4 September 1998)).

[11] The term Traditional Owner in this report recognises the Indigenous persons who assert traditional ownership and native title rights and interests in relation to land and water within the Planning Area. It acknowledges the connections to Country and culture held by the Indigenous People.

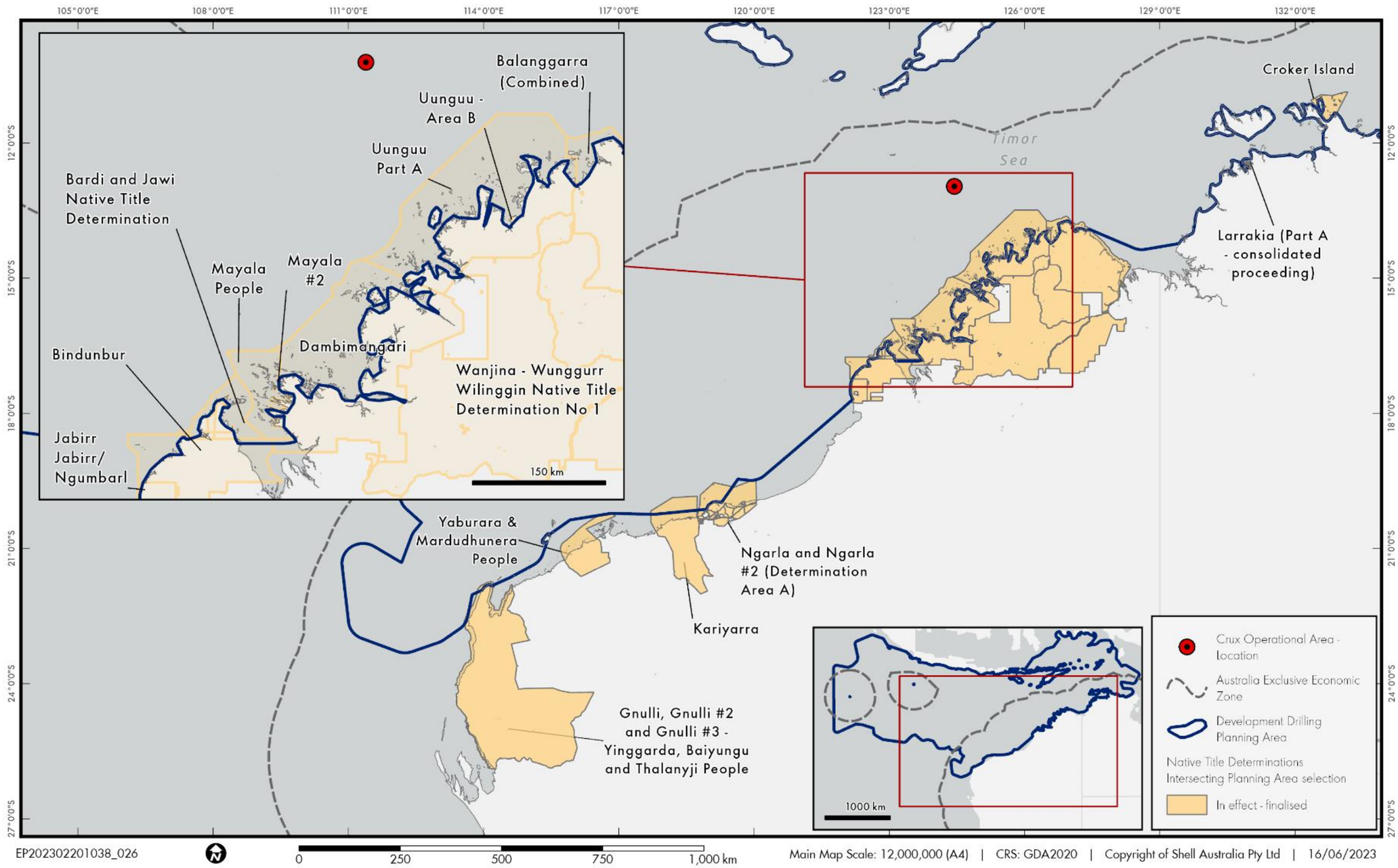


Figure 7-24: Native Title Determinations intersecting the Planning Area

Table 7-19: Native Title Determination Outcomes (Native Title Exists) within the Planning Area

Short Name	NNTT Tribunal Number	Sea Determination[1] (Y/N)	Registered Native Title Body Corporate (RNTBC)	State or Territory
Balanggarra (Combined)	WCD2013/005	No	Balanggarra Aboriginal Corporation RNTBC	WA
Bardi and Jawi Native Title Determination	WCD2005/003	Yes	Bardi and Jawi Niimidiman Aboriginal Corporation RNTBC	WA
Bindunbur	WCD2018/005	Yes	Gogolanyngor Aboriginal Corporation, Nimanburr Aboriginal Corporation, Nyul Nyul PBC Aboriginal Corporation	WA
Boorroola Moorrool Moorrool Part A	WCD2020/008	Yes	Walalakoo Aboriginal Corporation RNTBC	WA
Croker Island	DCD1998/001	Yes	Top End (Default Prescribed Body Corporate) Aboriginal Corporation RNTBC	NT
Dambimangari	WCD2011/002	Yes	Wanjina-Wunggurr (Native Title) Aboriginal Corporation RNTBC	WA
Gnulli, Gnulli #2 and Gnulli #3 - Yinggarda, Baiyungu and Thalanyji People	WCD2019/016	Yes	Nganhurra Thanardi Garrbu Aboriginal Corporation, Yinggarda Aboriginal Corporation	WA
Jabirr Jabirr/Ngumbarl	WCD2018/004	Yes	Gogolanyngor Aboriginal Corporation (RP 87.)	WA
Karajarri People (Area A)	WCD2002/001	No	Karajarri Traditional Lands Association (Aboriginal Corporation) RNTBC	WA
Kariyarra	WCD2018/015	Yes	Kariyarra Aboriginal Corporation	WA
Mayala People	WCD2018/009	Yes	Mayala Inninalang Aboriginal Corporation	WA
Mayala #2	WCD2019/007	No	Mayala Inninalang Aboriginal Corporation	WA
Ngarla and Ngarla #2 (Determination Area A)	WCD2007/003	No	Wanparta Aboriginal Corporation RNTBC	WA
Uunguu Part A	WCD2011/001	Yes	Wanjina-Wunggurr Aboriginal Corporation RNTBC	WA
Yaburara & Mardudhunera People	WCD2018/006	No	Wirrawandi Aboriginal Corporation RNTBC	WA

Notes: [1] The application includes an area of sea that is bounded by the high-water mark and the exclusive economic zone limit.

Source: NNTT 2023 with data extracted 28 February 2023.

Whilst traditional ownership of sea Country in some areas has been enshrined in law through Native Title and Aboriginal freehold land tenure, many other Indigenous People claim use of and connection to sea Country.

Indigenous Land Use Agreements

The NNTT (2022 p16) defines an ILUA as a voluntary, legally binding agreement about the use and management of land or waters, made between one or more native title groups and non-native title interest holders in the ILUA area (such as grantee parties, pastoralists or governments).

Figure 7-25 and Table 7-20 lists the ILUAs that have been publicly notified and/or registered and which include marine areas located below the mean high water (MHW) mark and within the Planning Area. The majority of listed ILUAs cover consent for doing a particular future act or class of acts. A number of the ILUAs are for co-management of protected areas that are located within the Planning Area (e.g. the Bardi Jawi Conservation Estate ILUA and Mayala Country Marine Park ILUA).

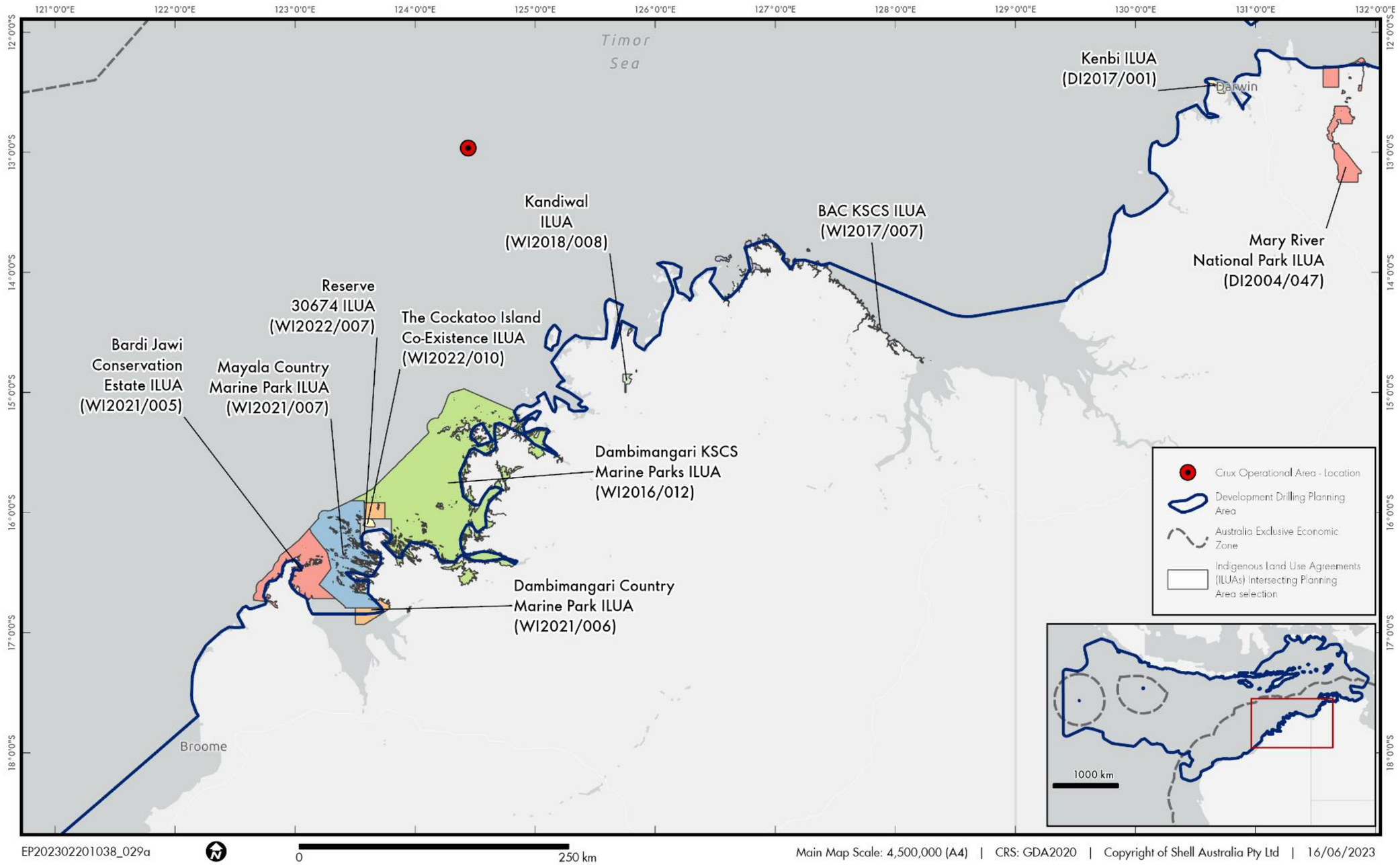


Figure 7-25: ILUAs that have been publicly notified and/or registered and which include marine areas located below the mean high water (MHW) mark within the Planning Area

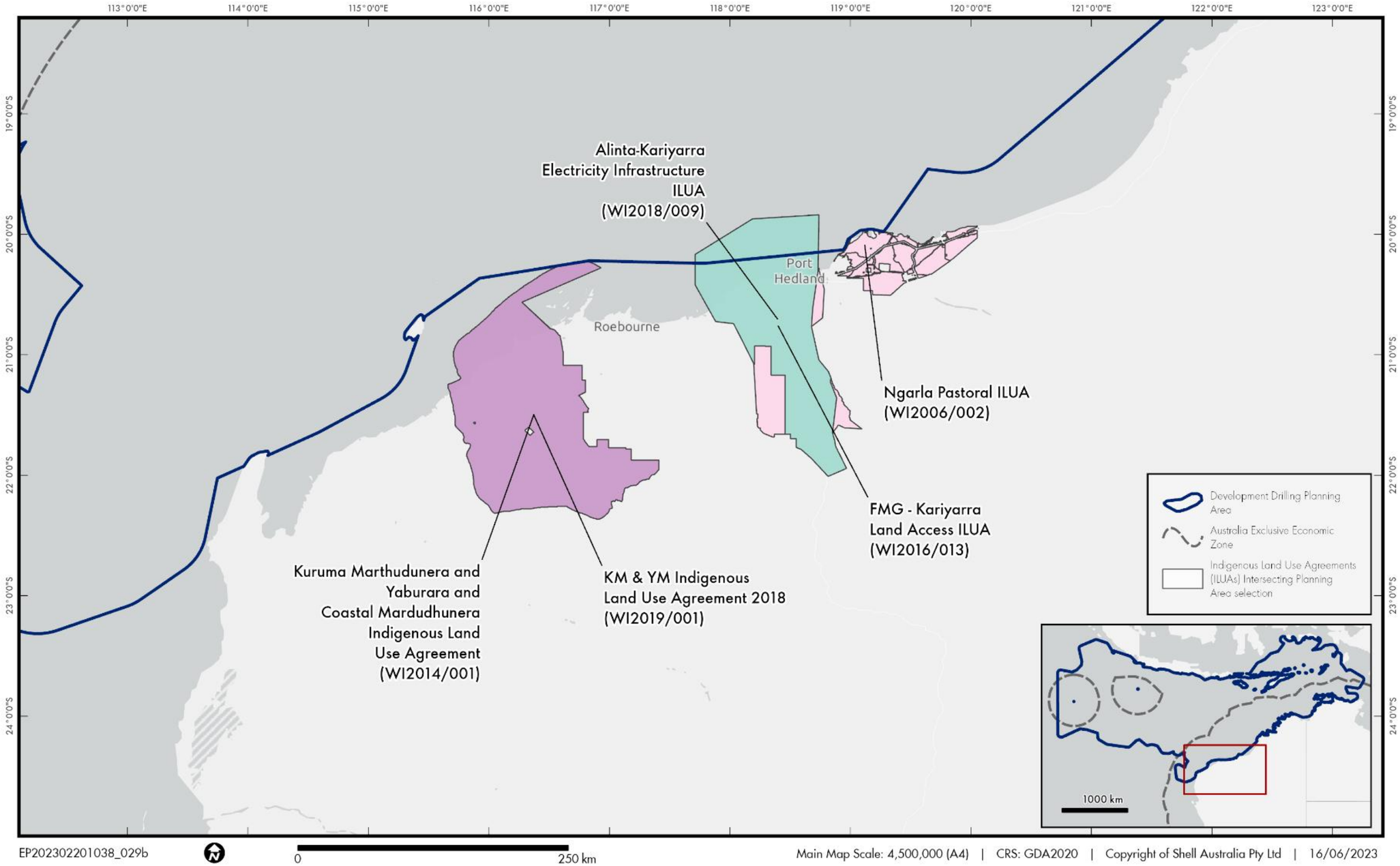


Figure 7-26: Indigenous Land Use Agreements intersecting the Planning area

Table 7-20: Registered Indigenous Land Use Agreements

ILUA Name	Tribunal Number	Agreement Type
Mary River National Park ILUA	DI2004/047	Area Agreement
Kenbi ILUA	DI2017/001	Area Agreement
Ngarla Pastoral ILUA	WI2006/002	Body Corporate
Kuruma Marthudunera and Yaburara and Coastal Mardudhunera ILUA	WI2014/001	Area Agreement
Dambimangari KSCS Marine Parks ILUA	WI2016/012	Body Corporate
FMG - Kariyarra Land Access ILUA	WI2016/013	Area Agreement
BAC KSCS ILUA	WI2017/007	Body Corporate
Kandiwal ILUA	WI2018/008	Body Corporate
Alinta-Kariyarra Electricity Infrastructure ILUA	WI2018/009	Area Agreement
KM & YM ILUA 2018	WI2019/001	Area Agreement
Bardi Jawi Conservation Estate ILUA	WI2021/005	Body Corporate
Dambimangari Country Marine Park ILUA	WI2021/006	Body Corporate
Mayala Country Marine Park ILUA	WI2021/007	Body Corporate
Reserve 30674 ILUA	WI2022/007	Body Corporate
The Cockatoo Island Co-Existence ILUA	WI2022/010	Body Corporate

Source: NNTT (2023) database of registered ILUAs extracted 28 February 2023.

Aboriginal Freehold Land

Indigenous land rights in the NT are supported by the ALRA and reflected in Aboriginal freehold land tenure. Aboriginal freehold land is unique to the NT. Aboriginal freehold land is held by a Land Trust for the benefit of the Traditional Owners and land is inalienable (i.e., it cannot be bought or sold). Aboriginal Land Councils provide support to Aboriginal Land Trusts.

Within the NT, the boundaries of Aboriginal freehold land extend to the low water mark (LWM) and include both subsurface area and water. Coastal Aboriginal freehold land may encompass intertidal area. This was affirmed in 2008 through the Blue Mud Bay decision (HCA 29) of the High Court of Australia

In northern Australia, the intertidal zone can stretch over long distances.

The Planning Area includes Territorial waters that overlap with the boundary of Aboriginal freehold land under ALRA (Figure 7-27). With respect to the majority of Aboriginal freehold land that intersects with the Planning Area, the Northern Land Council (NLC) provides support to the respective Traditional Owners in carrying out consultation and negotiations related to future activities on the land. The Tiwi Land Council (TLC) directs and administers the Tiwi Aboriginal Land Trust (which holds the Tiwi Islands Aboriginal Freehold Land) and represents all Tiwi people in the protection of land, sea and environment.

There is no provision for Aboriginal freehold title of Indigenous land in WA (apart from land in the south-west of WA, granted as freehold in the Noongar Boodja Settlement of 2021). The Aboriginal Lands Trust (ALT) in WA manages the ALT estate which includes reserves, freehold land and pastoral leases as well as permanent settlements.

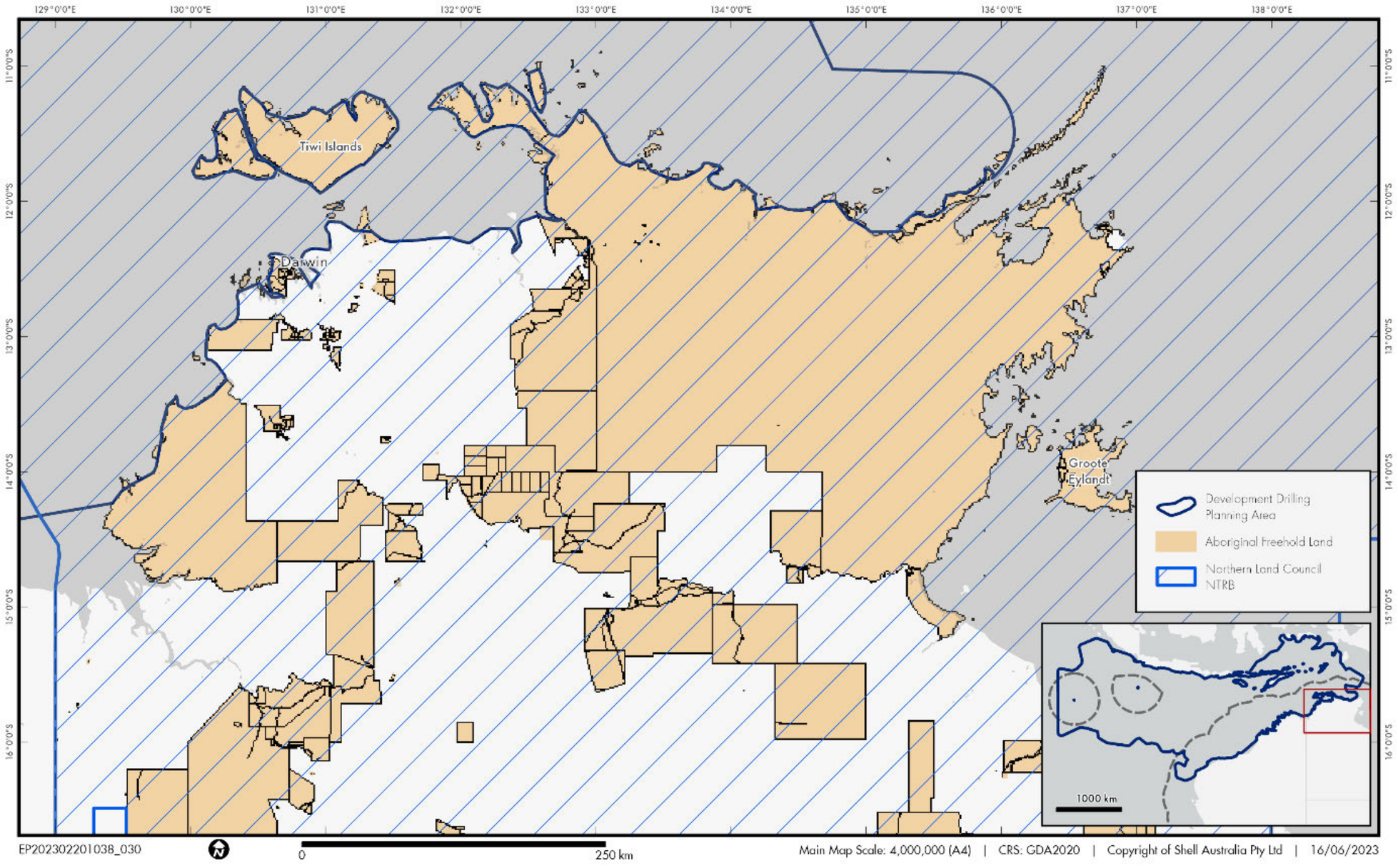


Figure 7-27: Aboriginal Freehold Land and Northern Land Council relevant to the Planning Area

7.4.1.3 Ancient Landscapes

Past coastal environments and climate played a central role in the development of early human communities (Erlandson and Fitzpatrick 2006; Rick and Fitzpatrick 2012 in Lebrec et al 2022). There is evidence indicating that land areas that were once inhabited by humans are now submerged (O'Leary et al 2020). Post glacial sea level rise resulted in the inundation and submergence of cultural sites covering the period from first arrival to Australia an estimated 65,000 years before present (BP), to the present sea level elevations at around 7500 years BP (O'Learly et al 2020). The Ancient Coastline Key Ecological Feature (KEF) at 125 m depth contour in the North West region (Section 7.3.2; Figure 7-3) represents the lowest sea level during Indigenous occupation (O'Leary et al 2020; Williams et al 2018). In 2020 researchers associated with the Deep History of Sea Country Project (Benjamin et al, 2020) reported the first confirmed ancient underwater archaeological site from the continental shelf, located off the Murujuga coastline in north-western Australia. Table 7-22 to Table 7-25 discusses known cultural heritage associated with listed Heritage Places in West Kimberley and offshore reef features within the Planning Area.

Shell commissioned an independent specialist consultant to undertake a desktop assessment of the potential presence of First Nations underwater cultural heritage values within the Crux project area (Cosmos Archaeology, 2023). First Nations underwater cultural heritage was defined as all tangible and intangible cultural expressions that are associated with and claimed by Indigenous groups within Australia (past and present) and which occurs in and is attributable to contexts that are now submerged by waters.

Tangible cultural heritage refers to the physical manifestation of human cultural behaviour. It is most commonly described as archaeological evidence but is inclusive of all other physical forms and material traces that are significant to a cultural group, community, a nation, and/or humanity. As the location of the study area is some distance from the current shoreline the archaeological remains would be that associated with submerged terrestrial sites – that is First Nations sites that were inundated during last interglacial sea level rise.

Intangible heritage referred to cultural associations and imprints on the landscape that involve practices, oral traditions, ancestral narratives, performing arts, local knowledges and practices concerning nature, the environment and the universe, laws and other socio-political skills. Intangible cultural heritage exists through enactments by members of a cultural group and introduces a clear cultural right to safeguarding, instruction on which is provided for by the UNESCO Convention for the Safeguarding of Intangible Cultural Heritage. Its safeguarding is oriented towards recognition of the wealth of knowledge and skills that are transmitted through it from one generation to the next.

The study area comprised two distinct zones:

- a circle with a 30 km radius centred on the proposed Crux platform location (infield zone).
- the pipeline corridor from the Crux platform to the Prelude FLNG facility, with a 1 km buffer on either side of the route, along with a 2 km radius around the location of the Prelude FLNG.

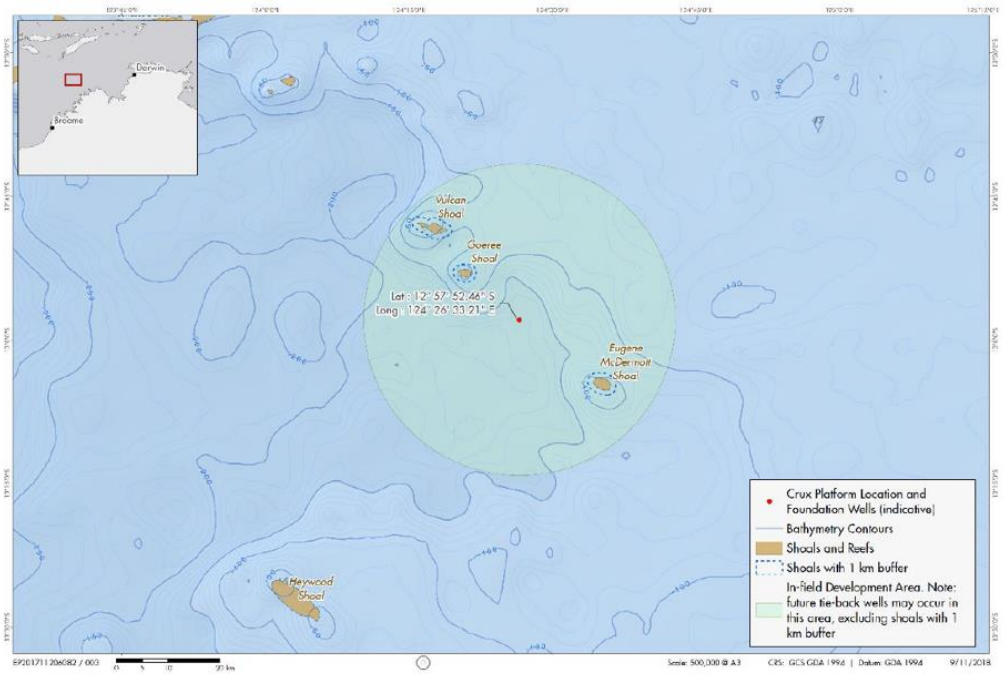


Figure 7-28: Location of Crux infield zone

Figure 7-29: Crux pipeline corridor

The study came to the following conclusions:

- The eastern half of the infield zone was at one time above sea level since the continent of Australia was occupied by humans. In the north eastern quadrant (approximately) where the marine geophysical data was of sufficient quality three distinct landforms were identified - a savannah type landscape, a block field type area and a limestone mesa like plateau.

- All three landforms would be host to a variety of archaeological sites in varying condition with potential cave sites in the escarpments of the limestone mesa formation being more likely to contain relatively intact archaeological deposits. These landforms could have held strong cultural connections with the ancestors of the Gambere, Wunambul, Worora, Umida, Unggarangi, Jawi and Bardi. Consultation with the cultural groups was recommended to confirm whether these connections still exist.
- The southeastern quadrant could not be assessed due to the poor quality of the publicly available marine geophysical data. The western half of the infield zone is below 130 m LAT which is the maximum extent of exposed land since humans have occupied the continent.
- The proposed well sites are located in an area which has always been underwater since human occupation. As such, there will not be any impacts to the tangible First Nations underwater cultural heritage. This extends to the pipeline corridor which will run across the seabed below 130 m LAT. The impact with intangible underwater cultural heritage will need to be assessed through consultation with the Gambere, Wunambul, Worora, Umida, Unggarangi, Jawi and Bardi.

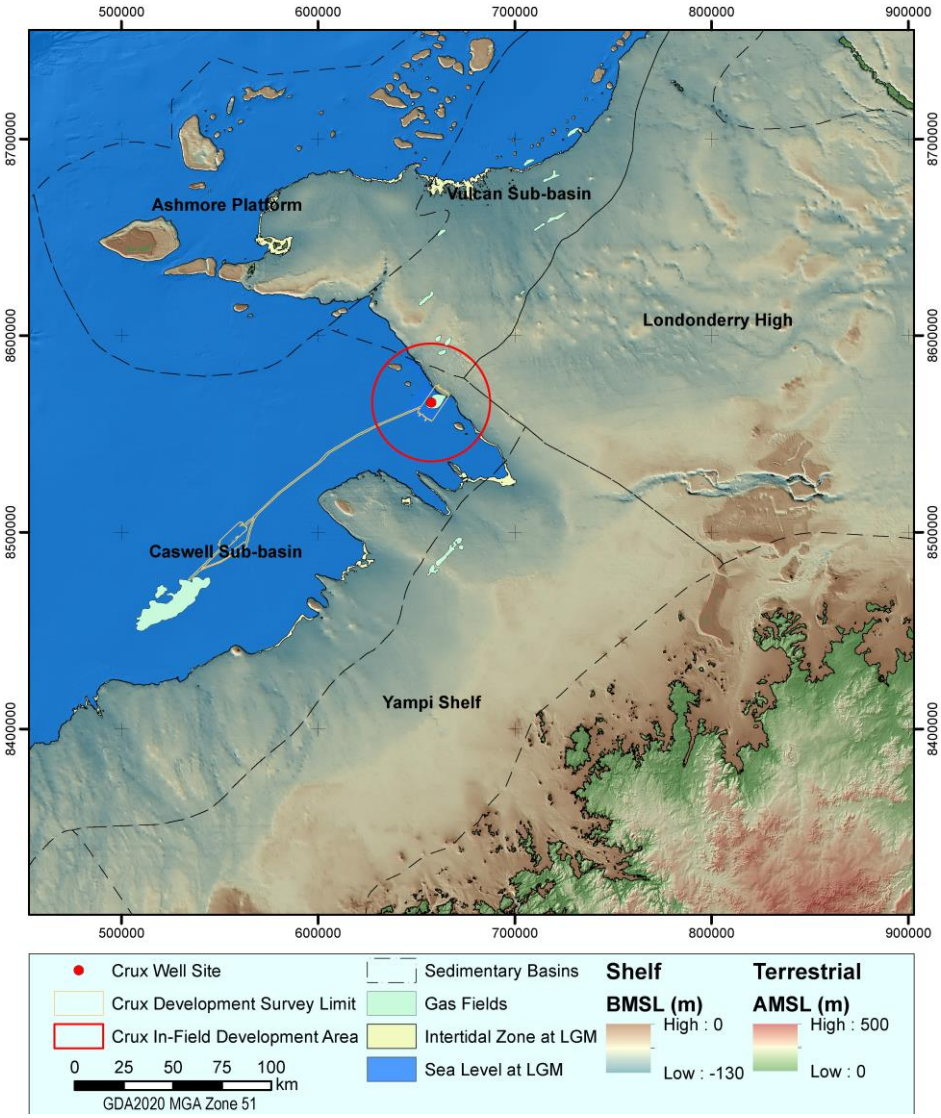


Figure 7-30: Map of study area in relation to submerged landforms off the Kimberley Coast

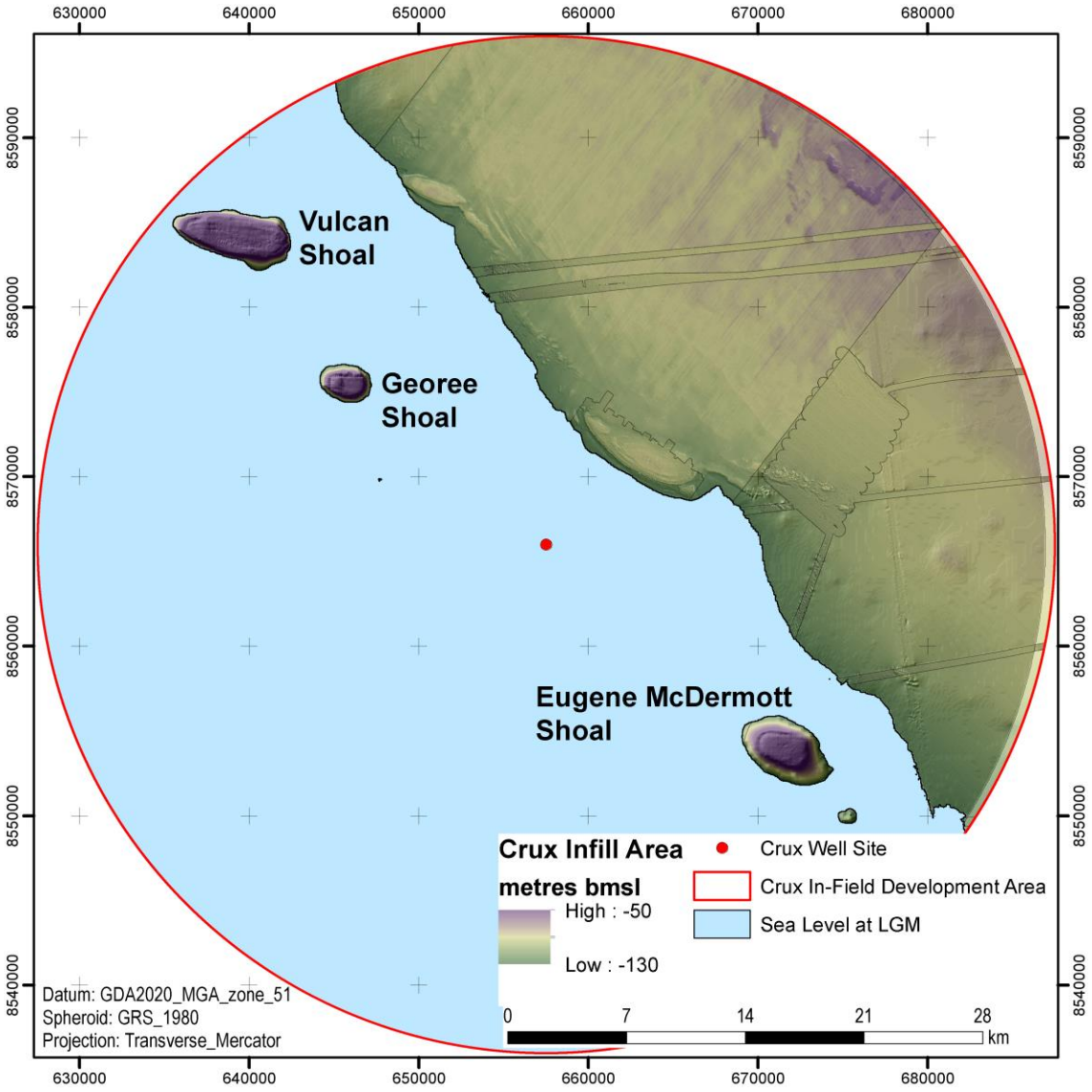


Figure 7-31: Elevations of submerged landforms in the Crux in-field study area, showing coastline during the Lowest Glacial Maximum (LGM). The red dot indicates the centre of the Crux Well site, not an actual well site.

During targeted consultation, Indigenous groups did not confirm that cultural connections still exist with landforms to the Northeast of Crux. However, Bardi Jawi identified cultural sites closer to shore, including: an ancient ceremonial site underwater on the Dampier Peninsula coast that's 40,000 years old, and huts 1-3km offshore on a small island reef that are part of songlines of the Djarindjin community and are sacred underwater ceremonial sites.

The Cosmos Archaeology impact assessment work is ongoing through the broader planning area as of November 2023.

7.4.1.4 Indigenous Protected Areas

Indigenous Protected Areas (IPAs) are areas of land and/or sea managed by Indigenous groups as protected areas for biodiversity conservation through voluntary agreements with the Australian Government. IPAs form a component of Australian's National Reserve System. For Indigenous People, IPAs support the realization of custodianship and stewardship obligations for Country. The boundaries of IPAs can be aligned Native Title boundaries, or wholly contained within. In 2022 the Australian Government announced a program (the Sea Country IPA Program) to expand

the IPA network to include coastal and marine areas. A description of the Indigenous cultural and social values associated with the identified IPAs is presented in the 'Protected Areas' subsection below.

There are nine dedicated IPAs that overlap with the Planning Area (Table 7-21; Figure 7-32). In addition, there are two IPA consultation projects currently underway and which overlap the Planning Area, these projects are the Tiwi Islands sea Country IPA Consultation Project in the NT, and the Mayala Country IPA consultation project in WA.

Most IPAs are dedicated under IUCN Categories V and VI, which promote a balance between conservation and other sustainable uses to deliver social, cultural and economic benefits for local Indigenous communities (Australian Government, 2023). Indigenous People are active participants in the management of IPAs through land and sea ranger programs and other custodian and management activities. The majority of IPAs that overlap the Planning Area also overlap determined Native Title.

In 2022 the Australian Government announced a program (the Sea Country IPA Program) to expand the IPA network to include coastal and marine areas. Through the Sea County IPA Program, the Australian Government is seeking to strengthen the conservation and protection of the marine and coastal environments, while creating employment and economic opportunities for Indigenous People (Australian Government, 2023). Many of the IPAs coexist with statutory marine parks and reserves (e.g. Kimberley Commonwealth Marine Reserve, the recently dedicated WA Lalang-gaddam Marine Park).

Table 7-21 describes the nine dedicated IPAs and two IPAs in consultation, that are located within the Planning Area. The information presented in Table 7-21 is primarily drawn from the Department of Climate Change, Energy and Environment and Water (DCCEEW) and augmented with publicly available information drawn for the relevant IPA management plans and healthy country plans of Indigenous groups with interests in the IPAs.

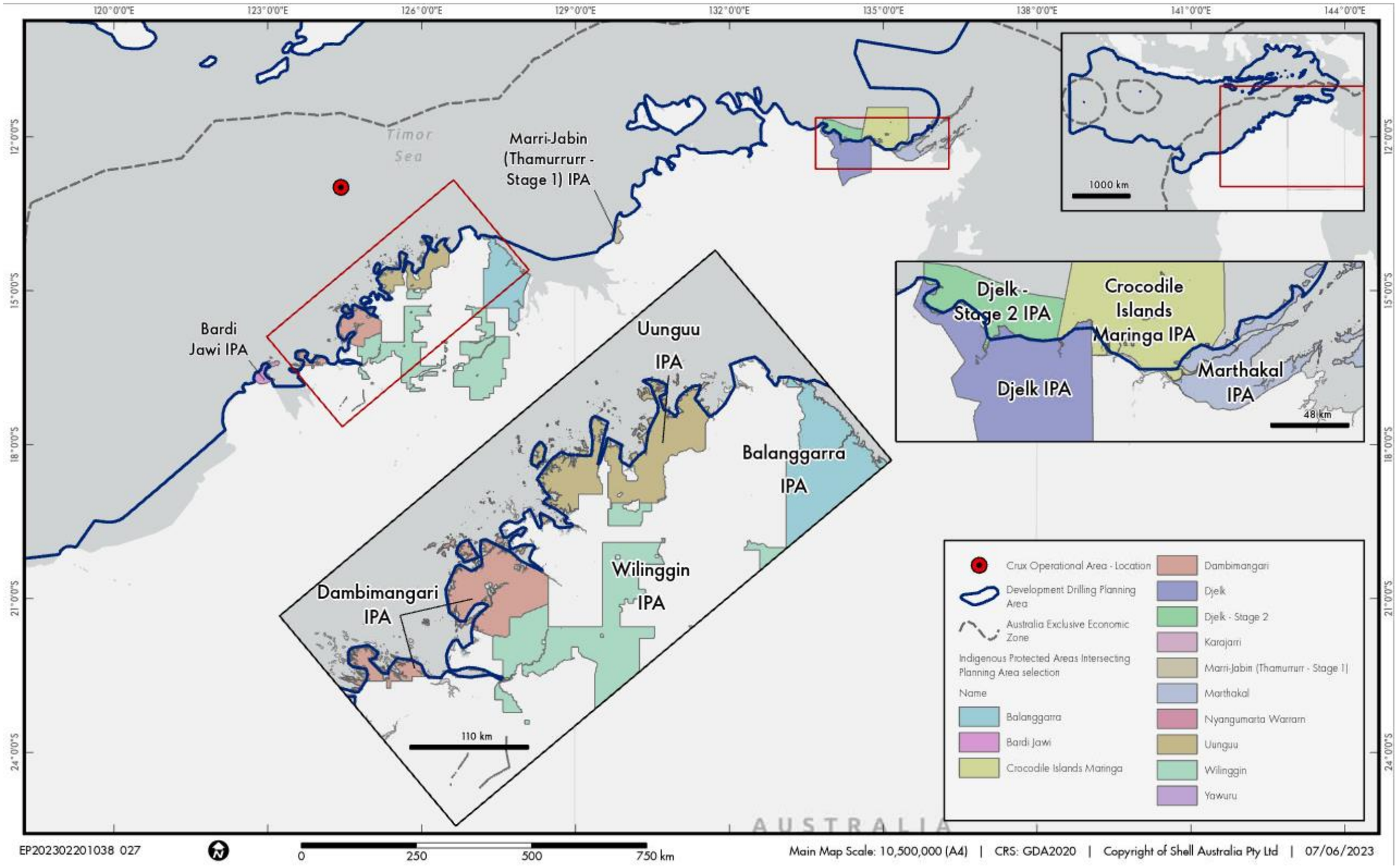


Figure 7-32: Indigenous Protected Areas within the Planning Area

Table 7-21: Indigenous Protected Areas within the Planning Area

IPA Name	Status	Sea Country[1]	Description
Balanggarra	Declared	Yes	The Balanggarra IPA, declared in 2013 has a gazetted area of 1,083,000 ha and supports the long-term management of Balanggarra traditional Country (DCCEEW, 2020a). The IPA is dedicated under IUCN Category VI. The IPA is situated in the northern-Kimberley region and intersects with five major river systems, namely the King, Forest, Pentecost, Durack, and Ord Rivers, as well as the Cambridge Gulf and the Timor Sea. The IPA is managed by the Balanggarra Rangers.
Bardi Jawi	Declared	Yes	Declared in 2013, the Bardi Jawi IPA is located 160 kilometers north of Broome and includes over 126,990 ha of land and sea territory (DCCEEW 2020a). The IPA is dedicated under IUCN Categories IV (for the coastal section) and VI (for the inland and island areas). The coastal areas are of high conservation value because of their biodiversity and high cultural values. Management of the IPA is undertaken by the Bardi Jawi Rangers.
Crocodile Islands Maringa	Declared	Yes	Located on the Arnhem coast and surrounding waters, Crocodile Islands Maringa IPA covers more than 800,000 ha of land and sea Country, of which more than 700,000 ha is sea Country. The IPA is dedicated under IUCN Category V. The IPA overlaps the Djelk IPA to the west and Marthakal IPA to the east, contributing to a contiguous network of protected areas in the region. The IPA makes a significant contribution to protecting exceptional marine and terrestrial habitats in northern Australia including extensive mangrove communities, intertidal mudflats, coastal floodplains, monsoon forests, eucalypt open forests, shallow seas and reefs, and a network of near and offshore islands. The IPA protects 44 nationally listed species and 16 species listed under Northern Territory legislation, including the largest aggregation of migratory shorebirds in northern Australia. On ground management is undertaken by IPA staff and supported by the Crocodile Islands Rangers according to the Crocodile Islands Rangers Maringa IPA Strategic plan 2021-2031 (DCCEEW 2023).
Dambimangari [12]	Declared	Yes	The Dambimangari IPA, declared in 2013 has an area of 810,200 ha of land and sea Country and is managed by the Dambimangari Aboriginal Corporation (DCCEEW 2020a). The IPA is dedicated under IUCN category VI and was established to protect and conserve the natural and cultural values of the region, which is home to a diverse range of flora and fauna, including endangered species like the northern quoll, golden-backed tree-rat, and freshwater sawfish (Dambimangari Aboriginal Corporation, 2012).
Djelk and Djelk Stage 2	Declared	Yes	Declared in 2009, the Djelk IPA covers more than 670,000 ha of land and sea Country that stretches from the central Arnhem Land plateau to the Arafura Sea

[12] It is increasingly common to find two different spellings for the word Dambimangari: Dambimangari the contemporary spelling and Dambeemangarddee which reflects how the word is correctly pronounced in traditional language. The word Dambimangari has been adopted throughout this document.

IPA Name	Status	Sea Country[1]	Description
			(DCCEEW, 2020b). The IPA was dedicated under IUCN category VI. The IPA includes biologically diverse landscapes and encompasses the land of 102 clans, representing at least 12 language groups. Marine turtles breed on Djelk's coastline and islands, seasonal floodplains provide a home to file snakes and saltwater crocodiles and the mangroves support species including the water mouse and mangrove monitor. Djelk's sandstone plateaus are thought to contain the richest variety of reptiles in the world, with 90 species recorded (NIAA, 2023). On the ground management is undertaken by the Bawinanga Rangers with the support of the Bawinanga Aboriginal Corporation and in accordance with the Djelk Health Country Plan.
Marri-Jabin (Thamurrurr - Stage 1)	Declared	Yes	Gazetted in 2009, the Marri-Jabin covers an area of approximately 71,200 ha hectares and was dedicated under IUCN category IV (NIAA, 2023; DCCEEW 2020b). The Thamarrurr Land and Sea Rangers oversee the management of the IPA and carry out a range of critical activities, such as surveying and managing invasive weeds, feral animals, marine invertebrates, and diseases. The rangers also monitor the habitats of threatened species, including sea turtles, while managing fire and documenting and preserving significant cultural sites. Additionally, they are committed to passing on traditional knowledge to the next generation, ensuring the continuation of cultural practices and values for years to come (NIAA, 2023).
Marthakal	Declared	Yes	The Marthakal IPA is a vast region of coastal land, intertidal waters, and island chains that spans over 323,000 ha. Dedicated in 2016, this region is managed by the Gumurr Marthakal Rangers (NIAA, 2023). The IPA was dedicated under IUCN category VI. The Gumurr Marthakal Rangers are responsible for a wide range of activities within the IPA. These include monitoring and removing ghost nets from their patrol area, managing coffee bush, and monitoring billabongs for the potential arrival of mimosa. Moreover, they engage in an annual monitoring program of the threatened northern quoll, which were relocated from the mainland to protect them from poisonous cane toads. The rangers demonstrate commitment to protecting and conserving the natural and cultural values of the Marthakal IPA (NIAA, 2023).
Uunguu	Declared	Yes	The Uunguu IPA, dedicated in 2010 is located in north Kimberley and covers an area of over 760,000 ha on the land of the Wunambal Gaambera people (DCCEEW 2020a). The IPA was dedicated under IUCN category VI. The Uunguu Rangers are responsible for the management of land and sea Country. Their tasks include pest control, cultural heritage conservation, monitoring the health of plants and animals, and implementing Right-way Fire, a method of fire management that involves a mosaic of fires being burnt in the cool season to prevent wildfires in the hot, dry season. The Uunguu Rangers are also responsible for visitor management through the Uunguu Visitor Pass and have

IPA Name	Status	Sea Country[1]	Description
			established a seasonal base at Garmbemirri on Anjo Peninsula, as well as working out of Kandiwal Community at Ngauwudu (Mitchell Plateau). The Uunguu IPA is a vital area for the Wunambal Gaambera people and requires continued conservation and management efforts (NIAA, 2023).
Wilinggin	Declared	No	The Wilinggin IPA, dedicated in 2013, spans over 2.4 million ha of remote and rugged terrain in the central north Kimberley (DCCEEW, 2020a). The IPA was dedicated under IUCN category V and VI. The area encompasses diverse landscapes ranging from basalt ranges and sandstone cliffs that reach heights of up to 250 metres, to wooded grasslands and patches of rainforests, all intersected by rivers, creeks and billabongs. The area is managed by the Wunggurr Rangers. Whilst predominantly a land based IPA, Willigan sea Country includes a small area of Roe River in Prince Frederick Harbour.
Mayala	In consultation	Yes	The proposed Mayala IPA spans over 13,200 ha of land and 366,800 ha of sea Country, connecting hundreds of islands, interconnecting sea, reefs, and tides in the Buccaneer Archipelago and King Sound off the West Kimberley coast. The islands within this region contain highly diverse ecosystems that remain largely unspoiled, free from introduced animals, few destructive fires, and very few weeds. This pristine environment provides a haven for several species threatened on the mainland, including the EPBC listed Northern Quoll. In addition, it serves as a vital barrier against advancing mainland threats such as cane toads (DCCEEW, 2023). The sea area within the IPA is equally rich in biodiversity and serves as a vital habitat for marine species such as dugongs and five species of marine turtle. The region's ecological integrity underscores the critical role played by Indigenous land and sea management in protecting and preserving Australia's unique biodiversity (DCCEEW, 2023).
Tiwi Islands	In consultation	Yes	The proposed Tiwi Islands IPA, spans 750,000 ha and comprises a region that is home to at least 20 EPBC Act listed threatened species, including the Brush-tailed Rabbit-rat, Northern Brush-tailed Phascogale, Butler's Dunnart, and Eastern Curlew. The proposed IPA includes extensive tall tropical savanna forests, numerous rainforest patches, and coasts that serve as nesting sites for marine turtles, seabird rookeries, and migratory shorebirds (DCCEEW, 2023). This IPA is being managed by the Tiwi people, who have a deep understanding of the land, its ecology, and cultural significance. They are supported by Tiwi Indigenous rangers, who work to conserve the region's diverse ecosystems and protect its unique species (DCCEEW, 2023).

Notes: 1. Denotes whether the IPA includes marine components.

7.4.2 Indigenous Cultural and Social Values

7.4.2.1 Overview

This section describes the values and sensitivities associated with the Indigenous cultural and social features of the Planning Area and focusses on the following aspects:

- Caring for Country, including:
  - Country
  - Law and spirituality
  - Traditional knowledge
  - Conservation and healthy Country
- Land and sea resource use practices
- Indigenous People's rights and interests.

Information in this section has been sourced from joint-management plans (JMPs) prepared for a number of protected areas (e.g. IPAs and marine reserves), Commonwealth government and Aboriginal Land Council websites, Healthy Country Plans prepared by various Indigenous organisations and books published by Dambimangara and Wunambal Aboriginal Corporations:

- Nyara Pari Kala Niragu (Gaambera): Gadawara Ngyaran-gada (Wunambal): Inganinja Gubadjoongana (Woddordda): We are coming to see you. 2021.
- Karadada, J. et al (2011). Uunguu Plants and Animals: Aboriginal Biological Knowledge from Wunambal Gaambera Country in the North-west Kimberly.

The purpose of this section is to highlight the many and varied cultural and social values of Indigenous People and the associated interests and activities the overlap the Planning Area, in particular, sea Country. The following sections avoid detailed descriptions of specific areas of cultural significance including cultural heritage sites and sites associated with songlines and Dreaming stories, and also avoid reproduction of Dreaming stories. This information is retained in ownership by the associated Indigenous group.

7.4.2.2 Caring for Country

7.4.2.2.1 Country

The coastal areas, islands and surrounding waters of northern Australia have been used and occupied by Indigenous People for thousands of years. The water and lands are components of Indigenous cultural landscape that are of enormous significance to Traditional Owners.

For Indigenous People, Country is homeland, where culture, history, traditions and social structures are embedded, connected and find full meaning. Custodianship means caring for Country (i.e., land and water, plants and animals) as if land and seas are kin (Janke et al 2021).

> *Country is filled with relations speaking language and following Law, no matter whether the shape of that relation is human, rock, crow, wattle…….. Country is family, culture, identity. Country is self.* (Kwaymullina 2005)

In the context of the Planning Area, many elements within sea Country form significant components of Indigenous People's culture, including their history, dreaming and creation stories (discussed in Section 7.4.2.2.2). Marine life, cultural sites, and places of significance are directly connected to the wellbeing and everyday life of Indigenous People. The health and wellbeing of sea Country is one and the same as the health and wellbeing of Indigenous People. Hence any potential changes in the condition of sea Country (such as that which could result from activities associated with the Crux Project) has implications for the health and wellbeing of Indigenous People with connection to the affected sea Country area.

Many Indigenous People with traditional land and sea Country within the Planning Area (e.g. the Mayala people, Bardi and Jawi people and Dambimangari people) refer to themselves as Saltwater People - people who have a vibrant and traditional society based on a deep relationship with sea Country.

7.4.2.2.2 Law and Spirituality

Indigenous law and spirituality are intertwined with the land, the people and creation. Indigenous law and spirituality reinforce culture and sovereignty. Indigenous People have a complex system of law (also referred to as lore), that preceded European arrival. The term law refers to the stories, customs, beliefs and spirituality of Indigenous People. Law is passed on through generations-through songs, stories, and dance and it guides how Indigenous People live their everyday lives. For Indigenous People customary law provides the rules and responsibilities for looking after culture, plants, animals, people and Country. Customary law and protocols provide rules on how to interact with the land, kinships and community. Different Indigenous groups have different law systems and many are strongly related to creation stories such as the *La Lai* of the Dambimangari people, or the Wanjing and Wunggurr of the Wunambal Gaambera people (both native title holders within the Planning Area).

Songlines and Totemic Systems

Songlines are the Indigenous travel routes that crossed the Country (land and sea), linking important sites, locations and clans. Songlines are maps of the land and sea. Songlines include dreaming pathways or tracks –forged by Creator Spirits during the Dreaming. Many of these Songlines have specific ancestral stories attached to them. Literature reviews indicate that Songlines exist along the coast of northern WA and the Northern Territory within the Planning Area. There are sacred sites entwined with the Songlines. For saltwater peoples, stories and Songlines locate, interpret and inscribe knowledges of the Dreaming tracks, bodies and movements of ancestral beings that crisscross sea Country. A number of the natural features across the Planning Area (e.g., islands, reefs and coastline features) form core components of Dreaming stories for Indigenous People.

For the Balanggarra people the saltwater and islands of Balanggarra sea Country are Dreaming creations (Balanggarra Aboriginal Corporation, 2011). The saltwater was created by Wolara as he ‘poled his canoe’ in the coastal regions. The pole of Wolara also created some of the islands in Balanggarra sea Country (Balanggarra Ventures Ltd 2021; Balanggarra Aboriginal Corporation, 2022). The King George River and Berkley Rivers are of high cultural significance to the Balanggarra people. King George Falls are the male and female *Wungkurr* (Department of Parks and Wildlife, 2016).

The Dreaming creation events of the Dambimangari people illustrate a deep spiritual connection to Country and speak to the importance of saltwater resources. There are Dambimangari creation stories associated with the *Jimbirridy* (Rock-cod) and the baler shell – two *Wandjina* beings from which the Prince Regent River, Saint George Basin and St Andrew Island were created. This creation story forms the basis for the logo of the newly created Lalaam-gaddam marine park (Section 7.3.6) (DCBA, 2022b). There are also stories about the whales and creation of the coastline of Dambimangari sea Country.

There are several ancestral Dreaming beings associated with Bardi and Jawi culture. One of them is *Looloolоо,* which is associated with saltwater and manifests as a shark in sea Country (DBCA, 2022c).

Consultation with some Indigenous People identified there are some significant songlines up the west Kimberly coastline that go up to Kalumburu. The Walanadi, have strong connection to sea country and they view sea country as all interconnected which is important to them.

The creation stories of the Tiwi People describe creation events for Bathurst and Melville Islands, the whirlpool on the east coast of Melville Island, and the four skin groups (*yiminga*) in Tiwi culture (Tiwi Land Council, undated).

In consultation the Larrakia People identified an underwater cultural site, called Lightning Man, located off Croker Island, Northeast of Darwin.

Totems connect Indigenous People on a spiritual level, providing a deeper connectivity and understanding to their family groups, their Country, Dreaming and creation events. Many of the marine species found within the Planning Area are of totemic value to different Indigenous People. Marine animals and plants found in sea Country hold special cultural significance to different Indigenous People and may be important for subsistence and medicinal purposes.

For example, the Dugong and Flatback turtle are both of high cultural value to the Wunambal Gaambera people, Dambimangari People, Mayala People and many other Indigenous groups. Marine turtles are a key food source for Saltwater people.

As described in Section 7.3.5, within the Planning Area there are BIAs for:

- Foraging, internesting, nesting and mating for the Flatback turtle, Green turtle and Hawksbill turtle;
- Foraging, inter-nesting and nesting for the Loggerhead turtle;
- Foraging and interesting for the Olive ridley turtle
- Inter-nesting for the Leatherback turtle.

Biologically Important Areas (BIAs) for dugong overlap the Planning Area, the nearest of which is the foraging (high density seagrass beds BIA) around Ashmore Reef -south) with calving, breeding, nursing and foraging BIAs at Ashmore Reef – Far West. Considering the habitat preference of the species, dugongs are expected to occur in coastal waters and around islands in the Planning Area.

The pearl shell is important culturally for the Mayala people with significance in law (i.e. Arligyoon story site) (DCBA, 2022a). Whale Sharks are also an important animal to the Mayala people. Animals such as the owl, emu, kangaroo, barramundi and rock cod have particular significance to Dambimangari people as sacred animals (DCBA, 2022b). The mullet is the totem of the Takaringuwi skin group in the Tiwi culture.

The whale is an important totem for many Indigenous groups around Australia. BIAs for the Whale Shark (foraging), Pygmy Blue Whale (migratory, and foraging around Scott Reef and Ningaloo) and Humpback Whale (migration, calving and resting) are located within the Planning Area. Pygmy Blue Whales are expected to be seasonally present within the Planning Area as are Humpback Whales (Section 7.3.5). Whale sharks are expected to transit through the Planning Area as part of their broader migratory movement.

The sawfish is a totem of the Anindilyakwa People from Groote Eylandt in the Northern Territory. BIAs for the Freshwater sawfish, Dwarf sawfish and Green sawfish are located within the Planning Area.

Traditional Knowledge and language

Indigenous People have strong and extensive traditional knowledge (both cultural and ecological) of their Country and natural processes. This knowledge has been used for thousands of years to maintain a sustainable balance between the use and care of their natural environment. This knowledge is alive today and evident in law, culture and practices. Traditional knowledge requires the building up of understanding over time and can be defined as a '..cumulative body of knowledge, practice and belief' (Berkes 2008 p 7 in Kearney et al 2023). Traditional Owners are increasingly concerned about the difficulties in being able to pass on their traditional knowledge. Active and ongoing participation in land and sea management is a means by which Traditional Owners are seeking to improve the intergenerational transfer of knowledge, critical to future health of land and sea Country.

Intergenerational Knowledge Transfer

Older Indigenous People, in particular those who are cultural leaders or law-people are responsible for passing on traditional cultural and ecological knowledge to young people. Knowledge transfer is traditionally undertaken on-Country through the sharing of stories, song and dance, participation in ceremony and rituals, making tools, engaging in land and resource use activities (e.g. hunting, fishing), learning about bush tucker and traditional medicine. Maintaining easy access to traditional Country and traditional resources (e.g. sea Country resources), and ensuring protection of important cultural heritage sites is imperative for the ongoing transfer of traditional knowledge.

Indigenous children learn about customary laws and protocols through many avenues including observing and participating in customs and ceremonies such as songs and dances on Country. Such laws, traditions and customs do not exist in the past as historical practices, but are considered living, contemporary and vital.

7.4.2.2.3 Conservation and Healthy Country

Biological and ecological values

For Indigenous People, sea Country within the Planning Area is rich not only in cultural values, but in biological and ecological values. For Traditional Owners of sea Country, fish, marine mammals and sea birds, coral and fringing reef communities, segrass, mangroves, creeks, and saltmarsh communities are all important components of biodiversity values. Many of these values have already described in Section 7.3. Managing and conserving the ecological values of sea Country is important to Traditional Owners with custodial responsibilities for sea Country, and to the broader Indigenous community.

Contemporary Land and Sea Management

Management Plans and Joint Management

Indigenous land and sea management across the Planning Area is undertaken in accordance with the objectives of key plans including: Healthy Country Plans (introduced as part of the IPA planning and management process), dedicated IPA management plans, and in the case of marine reserves - joint management plans (JMPs) (e.g. Lalang-gaddam Marine Park JMP). These plans are contemporary representations of Indigenous land and sea management and represent the way Indigenous People can manage and implement their traditional knowledge, whilst still looking after Country in ways prescribed by the old people.

The majority of IPAs have corresponding Healthy Country Plans or tailored management plans (e.g. *Uunguu Indigenous Protected Area: Wundaagu (Saltwater) Country, Plan of Management 2016-2020* [WGAC 2017]), prepared by each relevant Traditional Owner group. Healthy Country Plans, IPA management plans and JMPs for marine areas articulate Indigenous people's aspirations for Country and seek to fulfill their cultural responsibility to look after Country.

Land and Sea Ranger Programs

There is a network of established Indigenous land and sea ranger programs across WA and NT, and more than 15 land and sea ranger programs, with activities and interests, operating across the Planning Area. Land and sea rangers work on land and sea Country across tenure, including Native Title lands and protected areas. Many of the land and sea ranger programs across WA and NT are supported by the Commonwealth and State funding. Land and sea rangers care for Country, combining traditional knowledge of Country with contemporary training and experience. Rangers are engaged in protecting and monitoring the health of sea Country, particularly marine species such as turtle and dugong. Many of the land and sea ranger programs are delivered as part of broader Aboriginal Land Council or Aboriginal Corporation operations.

For example, the Kimberley Land Council (KLC) operates a Kimberley Ranger Network comprised of eight ranger groups. Of these groups, the following conduct programs and activities within the Planning Area:

- Balangarra Rangers – Engaged in the management of the Balangarra IPA
- Bardi Jawi Oorany Rangers (provides opportunities for women to participate in on Country management) and Bardi Jawi Rangers – Engaged in the management of the Bardi Jawi IPA
- Dambimangari Rangers – Engaged in the management of the Dambimangari IPA

The Tiwi Marine Ranger program based on the Tiwi Islands was initiated in response to Traditional Owners seeking a greater role in sea Country management. Program activities include coastal surveillance patrols, marine debris surveys, monitoring of sea turtle nesting and Crested Tern rookeries, visitor site management and raising community awareness about marine debris. The Tiwi Marine Rangers hold positions on Territory and national committees and advisory groups. They have been trained by NT Fisheries to undertake regulatory activities under the NT Fisheries Act, and currently hold Certificates in Fisheries Compliance (Tiwi Land Council undated).

Ranger programs also engage in research activities in partnership with research institutions and state and federal government. For example, Dambimangari Rangers worked with the scientists of the (former) WA Department of Environment and Conservation and the KLC to manage the health of plants and animals on islands in Dambimangari sea Country. The Tiwi Marine Rangers are part of a collaborative project with the NT Government investigating the viability of growing Black Lip Oysters (*Intada margerafida*) to commercial size on the Melville Island coast.

Recent studies have also found that IPAs and associated ranger programs contribute considerable social, cultural and environmental benefits for local Indigenous People and for the Australian public as a whole (SVA 2016; Austin et al (2017)). Native Title, IPAs and JMPs for Country give strength and security to Indigenous People to look after Country.

Indigenous cultural heritage sites and protection

For Indigenous People, the protection of sacred and significant cultural sites forms a central focus of looking after Country. Cultural sites can tell different narratives about creation, Indigenous lore (law) and history. All Country is considered a cultural place, and there are rules and requirements for how Indigenous People look after it. Health Country Plans and IPAs help Indigenous People look after cultural heritage sites. Aboriginal Land Councils and Aboriginal Corporations, together with Land and Sea Rangers work together to control access to cultural heritage sites and sacred areas including sea Country sacred sites.

Cultural sites are specific sites identified and protected through Australian law and which include particular places of significance to Indigenous People, in a broader landscape of cultural significance.

The Planning Area overlaps sites of Indigenous cultural heritage as described in the following sections. Not all cultural sites are recorded or registered and captured through database searches. This can be attributed to a number of reasons including but not limited to distrust of government and desire to keep important sites private.

Western Australia

A search of the WA Department of Planning Lands and Heritage (DPLH) Aboriginal heritage places dataset identified 440 Indigenous heritage places within the Planning Area. A list of the registered places is included in Appendix E. Identified heritage places include stone arrangements, fish traps, ceremonial areas, camps and mythological sites (e.g., Pulany (mythical Serpent) sites of the Karajarri people). Some coastal locations are also important camping sites for different Indigenous People. Many of the identified heritage places are located in coastal areas that are regularly used by Indigenous People. A review of related Aboriginal heritage surveys was also completed and informed an understanding of the potential cultural values associated with the identified heritage places, as well as Knowledge Holders.

The WA Department of Planning, Lands and Heritage (DPLH) advised during consultation that an important Aboriginal heritage place is located proximate to Troughton Island.

In the WA all Indigenous heritage sites, registered and unregistered, are protected under the *Aboriginal Cultural Heritage Act 2021,* and formerly under the *Aboriginal Heritage Act (1972).*

Northern Territory

A search of the NT Aboriginal Areas Protection Authority (AAPA) Sacred Sites Register was undertaken to identify potential sacred sites (registered and recorded) that overlap with the Planning Area. The term sacred site is defined in Section 3 of the *Northern Territory Aboriginal Sacred Sites Act 1989* (NT) by reference to its meaning in the ALRA which provides a sacred site is

> *"a site that is sacred to Aboriginals or is otherwise of significance according to Aboriginal tradition, and includes any land that, under a law of the Northern Territory, is declared to be sacred to Aboriginals or of significance according to Aboriginal tradition".*

Based on information provided by AAPA there are recorded[13] sacred sites, registered[14] sacred sites, burial sites, and other sites[15] located within the Planning Area. The majority of registered and recorded sites are located along the mainland coastline or island coastlines within the intertidal zone. However, there are some registered and recorded sacred sites located in marine areas off the coastline of the Tiwi Islands and the mainland.

Protected areas

Section 7.3.6 describes the protected areas within the Planning Area including State and Commonwealth marine conservation areas, IPAs and places of national heritage. There are tangible and intangible elements of Indigenous cultural and social values associated with these protected areas, particularly IPAs. This section describes the cultural values and sensitivities of these protected areas with reference to Indigenous People's connection to Country, custodianship and care for Country.

Cultural and Social Values of Indigenous Protected Areas

There are nine IPAs located wholly or partially within the Planning Area. A summary of cultural and social values associated with the nine IPAs that intersect with the Planning Area are presented below. These values were identified through a literature review of the Healthy Country Plans associated with each IPA, and in particular the Healthy Country Plans of the Dambimangari, Bardi Jawi, Mayala and Djelk peoples. The description of values focusses principally on sea Country elements as these overlap the Planning Area.

- **Protection of reefs, beaches and islands**. Particular reefs, beaches and islands can be special places for different Traditional Owners. Some islands have burial sites, rock art, stone arrangements, artifact scatters and shell middens dating back thousands of years. Visiting and looking after islands is critically important to Traditional Owners. Some beaches hold important stories (e.g. Dambimangari people). For some Traditional owners (e.g. Bardi Jawi, Dambimangari and Mayala peoples) reefs, particularly fringing reefs can be important traditional food sources and gathering places for Traditional Owners and visitors. For example, Montgomery reef is an important hunting ground for the Dambimangari people. For the Mayala people, the reefs provide a rich food source and a place to collect materials such as baler shell. Some reefs are also of cultural

[13] A recorded sacred site is a site that is known to the AAPA but has not been registered and includes recorded sacred burial sites. AAPA may hold the information required to register the site should this become the wishes of the custodians. Alternatively, a recorded sacred site may still require further research in order to obtain all necessary information. The recorded coordinate point for a sacred site is a reference point only and does not necessarily indicate the location or extent of any specific site feature.

[14] A registered sacred site is a site that has been added to the Register of Sacred Sites maintained by the AAPA following the process set out in Part III Division 2 of the *Northern Territory Aboriginal Sacred Sites Act 1989 (NT).*

[15] Other sites include archaeological places or sacred objects. These places and objects are protected under the *Heritage Act 2011* (NT).

significant. An example of this is Jarlarn, a fringing inshore reef off the coast from Ardyaloon. This reef is also important for the Bardi Jawi people.

- **Protection of saltwater fish**. Resources from the sea, particularly fish resources are particularly important to Indigenous People. Fish resources are the most available food on sea Country. Finding fish and seasonal fishing arrangements are passed on as traditional knowledge. Hunting is undertaken seasonally and in accordance with traditional knowledge. Traditional Owners of sea Country hold the view that all animals from the sea are healthy when the seawater they are living in is healthy.
- **Protection of important marine species** (e.g. fish, turtle and dugong). Fish and turtle (particularly green turtle) are important traditional foods for many Indigenous People. Traditional hunting of marine species such as turtle and dugong is a significant component of culture, ongoing connection to Country and traditional knowledge transfer. Dugong are hunted for ceremonial purposes by many coastal Indigenous groups.
- **Protection of sites of cultural significance**. The protection and maintenance of significant sites of culture heritage for Traditional Owner enjoyment is a common value across all dedicated IPAs. Some cultural sites are associated with Indigenous law and Songlines and are important for the intergenerational transfer of traditional knowledge. Traditional Owners have a cultural obligation to visit important sites of cultural significance to check on their health, and to preserve their health.

The values and priorities described above is likely to underpin Traditional Owner concerns about potential damage to coastal areas, or pollution of seawater in the Planning Area.

Places of World, Commonwealth and National Heritage

There are two World Heritage Areas (WHAs), six Commonwealth Heritage listed places. three listed national heritage places (NHPs) within the Planning Area. These are described in Section 7.3.6 and illustrated in Figure 7-22. There are defined Indigenous cultural and social values associated with some of these protected areas. A summary of these values is presented below. The national and international protection given to a number of these specific areas is significant for Indigenous People in that it supports custodial obligations to care for Country.

Table 7-22: Cultural values and sensitivities of World, Commonwealth and National Heritage

Heritage Places	Cultural and Social Values
World Heritage Listed Places	
Kakadu National Park WHA and NHP	Kakadu National Park, recognised as both a World Heritage Area (WHA) and a National Heritage Place (NHP), is significant for its outstanding cultural and natural values. As a WHA, it represents exceptional examples of natural ecosystems and demonstrates significant ongoing ecological and biological processes. As an NHP, it is identified for its deep and continuous association with Indigenous culture and heritage, including ancient rock art sites and the preservation of cultural traditions and practices by the Bininj/Mungguy people. The park's diverse landscapes, including wetlands, rivers, escarpments, and rock formations, further contribute to its significance as a site of exceptional beauty and ecological importance (UNESCO, n.d.)
Ningaloo Coast WHA and NHP (including the Ningaloo Marine Area Commonwealth HP)	The Ningaloo Coast WHA and NHP includes the archaeological deposits in the rock shelters on Cape Range. The Ningaloo Coast is significant in that it has great potential to reveal more hidden Indigenous cultural heritage information (DCCEEW, 2023a).

Heritage Places	Cultural and Social Values
Commonwealth Heritage Listed Places	
Scott Reef and Surrounds	Scott Reef in Western Australia is significant due to its rich biodiversity and ecological importance as a diverse and thriving marine ecosystem, providing habitat for a wide range of species, including endangered and vulnerable ones, and serving as an important breeding and feeding ground for marine life in the region (AIMS, 2013). Many of the marine species that use the marine waters of Scott Reef are of cultural including totemic significance to many Indigenous People.
Ashmore Reef National Nature Reserve	Ashmore Reef is significant for its history of human occupation and use (DCCEEW 2023b). Ashmore Reef National Nature Reserve, a marine protected area in the Timor Sea, is significant for its unique and pristine coral reef ecosystem, which is home to over 240 coral species and more than 500 fish species. The reserve serves as a vital nesting site for green turtles and supports globally significant populations of seabirds, including the threatened roseate tern. Additionally, Ashmore Reef is recognised for its critical role in the migration of humpback whales and for its importance as a feeding ground for numerous marine species, making it a site of great ecological value and scientific interest (Parks Australia, n.d.) Many of the marine species that use the marine waters of Scott Reef are of cultural including totemic significance to many Indigenous People.
Mermaid Reef – Rowley Shoals	Mermaid Reef, one of the three coral atolls comprising the Rowley Shoals in Western Australia, is significant for its exceptional biodiversity, including over 200 coral species and over 650 fish species, making it a hotspot for marine research and a popular destination for diving enthusiasts who can witness stunning coral formations, giant clams, reef sharks, and other remarkable marine species in its crystal-clear waters. Its remote location and protected status further contribute to its significance as a well-preserved and relatively undisturbed marine ecosystem (Parks Australia, n.d.)
North Keeling Island	North Keeling Island, part of the Australian territory of Cocos (Keeling) Islands, is significant as it houses the largest population of nesting green sea turtles in the Indian Ocean, with an estimated 2,000 to 3,000 nests laid each year. This isolated island is a critical breeding ground for these endangered turtles, providing a protected and undisturbed environment for their nesting and hatching activities. The island's unique ecosystem also supports a diverse range of seabirds, coral reefs, and marine species, making it a valuable site for scientific research and conservation efforts (DCCEEW, 2021).
Christmas Island Natural Areas	Christmas Island, an Australian territory in the Indian Ocean, boasts remarkable natural areas of great significance. The Christmas Island National Park, covering two-thirds of the island, is notable for its primary rainforests, including the extraordinary Dales Gorge and Hugh's Dale waterfalls, providing habitat for the endemic and critically endangered Christmas Island flying fox and a plethora of unique flora and fauna. The island's coastal regions, such as Flying Fish Cove and Ethel Beach, host magnificent coral reefs teeming with colourful fish, while the expansive Christmas Island Marine Park safeguards diverse marine life, including whale sharks, turtles, and vibrant coral formations. Additionally, the island is renowned for the annual migration of millions of red land crabs, a spectacular natural event that captivates visitors and researchers alike (DCCEEW, 2021c).
Ningaloo Marine Area – Commonwealth Waters	Refer previous entry
National Heritage Places	
West Kimberley NHP	The West Kimberley NHP is significant for its Indigenous and historic values including the history of the *gaalwa* (double log raft) and the use of *gooward* (pearl shell) for ceremonial purposes and trading far afield by the Bardi and Jawi people.

Heritage Places	Cultural and Social Values
The Ningaloo Coast	Refer previous entry
Kakadu National Park	Refer previous entry

Australian Marine Parks

There are 15 Australian Marine Parks (AMPs) located within the Planning Area, as described in Section 7.3.6. Thirteen of the fifteen AMPs have dedicated network management plans which describe the associated Indigenous cultural values. Management plans are not currently in place for Christmas Island Marine Park and Cocos (Keeling) Islands Marine Park, both of which were dedicated in 2022. A number of the AMPs overlap with Commonwealth and National Heritage Places.

The primary Indigenous values associated with the identified AMPs (excluding Christmas Island Marine Park and Cocos (Keeling) Islands Marine Park) relate to the use of sea Country. Sea Country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea Country for tens of thousands of years. Table 7-23 and Table 7-24 summarise the Indigenous cultural and social values associated with the identified AMPs.

Table 7-23: Cultural values and sensitivities of the AMPs within the North-west Marine Parks Network

Marine Park Name	Cultural Values
Argo-Rowley Terrace	Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous People have been sustainably using and managing their sea country for tens of thousands of years.
Ashmore Reef	Indigenous People Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous People have been sustainably using and managing their sea country for tens of thousands of years (Director of National Parks [DNP] 2018a p121). Tourism, recreation and scientific research are important activities in the Marine Park. These activities contribute to the wellbeing of regional communities and the prosperity of the nation (DNP 2018a p121). Indonesian The Marine Park contains Indonesian artefacts and grave sites and Ashmore lagoon is still accessed as a rest or staging area for traditional Indonesian fishers travelling to and from fishing grounds within the MoU Box (DNP 2018a p121).
Gascoyne	Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous People have been sustainably using and managing their sea country for tens of thousands of years. The Gnulli people have responsibilities for sea country in the Marine Park. The YMAC is the NTRB for the Yamatji region.
Kimberley	The Wunambal Gaambera people, Dambimangari, Mayala, Bardi Jawi and the Nyul Nyul people's sea Country extends into the Kimberley Marine Park. The Wunambal Gaambera people's country includes daagu (deep waters), with about 3400 km^2 of their sea Country located in the Marine Park. Sea Country is culturally significant and important to the identity of these Indigenous groups. The Wunambal Gaambera, Dambimangari, Mayala, Bardi Jawi and the Nyul

Marine Park Name	Cultural Values
	Nyul people have an unbroken connection to their sea Country, having deep spiritual connection through Wunggurr (creator snakes) that still live in the sea. Staple foods of living cultural value include saltwater fish, turtles, dugong, crabs and oysters. Access to sea Country by families is important for cultural traditions, livelihoods and future socio-economic development opportunities. The national heritage listing for the West Kimberley recognises the following key cultural heritage values: • Wanjina Wunggurr Cultural Tradition which incorporates many sea Country cultural sites; • Log-raft maritime tradition, which involved using tides and currents to access warrurru (reefs) far offshore to fish; • Interactions with Makassan traders around sea foods over hundreds of years; and • Important pearl resources that were used in traditional trade through the wunan and in contemporary commercial agreements. The Wunambal Gaambera, Dambimangari and Bardi Jawi people consider that these values extend into the Kimberley Marine Park. The Wanjina Wunggurr is law of the Wunambal Gaambera and Dambimangari people and it is recognised that all of the sea country, land, plants and animals were put there by Wanjina Wunggurr. Under Wanjina Wunggurr law, the Wunambal Gaambera and Dambimangari people have a responsibility to manage country, to maintain the health of the country and all living things. The Wunambal Gaambera, Bardi Jawi, Mayala and the Nyul Nyul people have had native title determined over parts of their sea Country included in this Park (DNP 2018a p118).
Mermaid Reef	Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous People have been sustainably using and managing their sea country for tens of thousands of years.
Montebello	Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous People have been sustainably using and managing their sea country for tens of thousands of years.
Ningaloo	Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous People have been sustainably using and managing their sea country for tens of thousands of years. The Gnulli people have responsibilities for sea country in the Marine Park. The YMAC is the NTRB for the Yamatji region.
Cartier Island	Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous People have been sustainably using and managing their sea country for tens of thousands of years.
Eighty Mile Beach	Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous People have been sustainably using and managing their sea country for tens of thousands of years. The sea country of the Nyangumarta, Karajarri and Ngarla people extends into Eighty Mile Beach Marine Park. Sea country is culturally significant and important to their identity. They have an unbroken, deep spiritual connection to their sea country, with traditional practices continuing today. Staple foods of living cultural value for the Nyangumarta, Karajarri and Ngarla people include saltwater fish, turtles, dugong, crabs and oysters. Access to sea country by families is important for cultural traditions, livelihoods and future socio-economic development opportunities.

Source: Director of National Parks (DNPs) (2018a)

Table 7-24: Cultural values and sensitivities of the AMPs within the North and South-west Marine Parks Network

Marine Park Name	Cultural Values
Arafura	Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous People have been sustainably using and managing their sea country for tens of thousands of years. The Yuwurrumu members of the Mandilarri-Ildugij, the Mangalara, the Murran, the Gadura-Minaga and the Ngaynjaharr clans have responsibilities for sea country in the Marine Park. These clans have native title determined over part of their sea country, which is included in this Park. The NLC is the NTRB for the Northern Territory's northern region and is assisting these native title holders in the absence of a native title PBC. It is the point of contact for the Marine Park.
Joseph Bonaparte Gulf	Sea country is valued for Indigenous cultural identity, health, and wellbeing. Across Australia, Indigenous People have been sustainably using and managing their sea country for tens of thousands of years. The Miriuwung, Gajerrong, Doolboong, Wardenybeng and Gija and Balangarra people have responsibilities for sea country in the Marine Park. They are represented by the following PBCs: Miriuwung and Gajerrong Aboriginal Corporation, and Balanggarra Aboriginal Corporation. These corporations are the points of contact for their respective areas of sea country in the Marine Park. The NLC and the KLC are the NTRBs for the Northern Territory's northern region, and the Kimberley region.
Oceanic Shoals	Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous People have been sustainably using and managing their sea country for tens of thousands of years. The Miriuwung, Gajerrong, Doolboong, Wardenybeng and Gija and Balangarra people have responsibilities for sea country in the Marine Park. They are represented by the following PBCs: Miriuwung and Gajerrong Aboriginal Corporation, and Balanggarra Aboriginal Corporation. These corporations are the points of contact for their respective areas of sea country in the Marine Park. The NLC and the KLC are the NTRB for the Northern Territory's northern region, and the Kimberley region.
Arnhem	Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous People have been sustainably using and managing their sea country for tens of thousands of years. The coastal Indigenous People of West Arnhem Land have responsibilities for sea country in the Marine Park. The Marine Park contains sites which are registered under Northern Territory Aboriginal Sacred Sites Act 1989 (Section 2.4.2.3). The NLC is the NTRB for the Northern Territory's northern region. The Djelk IPA is adjacent to the Arnhem Marine Park.

Source: DNP 2018b,c

State and Territory Marine Parks

This section focusses on the Indigenous cultural and social values associated with state and territory marine parks located within the Planning Area. There are eight dedicated marine parks located in state waters within the Planning Area, and one marine park located in territorial water within the Planning Area.

The primary Indigenous values associated with state and territory marine parks are similar to the AMPS and relate to the use of sea Country.

Table 7-25 summarises the cultural values and sensitivities associated with the nine state/territory marine parks located within the Planning Area. The information on cultural values is drawn primarily from the relevant marine park management plan.

Table 7-25: Cultural values and sensitivities of the State/Territory Marine Parks

Marine Park Name	Cultural Values and Sensitivities
Lalang-gaddam Marine Park	The following information has been sourced from *the Lalang-gaddam Marine Park Joint Management Plan* (BDCA, 2022a). The Lalang-gaddam Marine was created in 2022 and covers approximately 1,308,500 ha within the Dambimangari determination area (DBCA, 2022). The marine park is located on Dambeemangarddee (formerly spelt Dambimangari) sea Country. The Dambimangari IPA (Table 7-21) covers much of the terrestrial area adjacent to the marine park. The marine park is jointly managed by the BDCA and the Dambimangari Traditional Owners through the Lalang-gaddam Marine Park Joint Management Plan (BDCA, 2022a). Dambimangari Traditional Owners are saltwater people, who continue to use both bush and sea resources within their Country. Determined native title rights within the marine park include the right to: • enter, travel and remain on the waters • hunt, fish, gather and use resources for personal, domestic and communal needs • undertake cultural activities • take and use water Within the marine park, customary activities such as fishing and hunting are provided for under the management plan. Exclusive possession native title occurs above the high-water mark around much of the coast and islands adjacent to the marine park. The Dambimangari Aboriginal Ranger Program undertakes marine operations on their sea Country and are a regular presence in the Lalang-gaddam Marine Park, undertaking a range of land and sea management projects, such as surveying for exotic marine pests and weeding and cleaning up land areas. The marine park contains sites of cultural significance to Dambimangari people. The marine park experiences one of the larges tidal ranges in Australia. The joint management plan for the marine park (BDCA, 2022a) identifies the intertidal area as an important part of Dambimangari people's identification as saltwater people. As described in Section 7.3.6, the marine park provides foraging and nursery areas for a range of species. Many of these species are culturally important species to Dambimangari. Through Indigenous participation in decision-making, and by maintaining the Dambimangari people's cultural and spiritual relationship with Country, the establishment of the jointly managed marine park also addresses the Dambimangari people's rights as stipulated in the United Nations Declaration on the Rights of Aboriginal Peoples (UNDRIP) (DBCA, 2022a).
Mayala Country Marine Park	The following information was sourced from the *Mayala Marine Park Joint Management Plan* (DBCA 2022b). The Mayala Marine Park covers approximately 315,000 ha within the Mayala determination area, adjacent to the Shire of Derby-West Kimberley. It includes the majority of Mayala sea Country including subtidal and intertidal areas around many of the islands of the Buccaneer Archipelago and within Oobayal (Inland Sea), Yaloon (Cone Bay) and Barrali (Strickland Bay) The Mayala people jointly manage the marine park with the DBCA. The marine park is one of several tools for the Mayala People to look after and protect Country and culture. Key outcomes of the Mayala Marine Park JMP for the Mayla people include: • Promotion and support for the continued exercise of Mayala peoples' native title rights recognizing their ongoing connection to, and responsibility for Mayala sea Country • Preservation and promotion of Mayala culture and heritage values of the marine park • A conservation framework built on both western science and traditional knowledge and practice

Marine Park Name	Cultural Values and Sensitivities
	• The continuation and enhancement of cultural, recreational and commercial uses for the benefit and enjoyment of Mayala Traditional Owners, the community and visitors. Through Traditional Owner participation in decision-making, and by maintaining Mayala's cultural and spiritual relationship with Country, the establishment of the jointly managed marine park also addresses Mayala's rights as stipulated in the UNDRIP. Determined native title rights within the marine park include the right to: • Enter, travel and remain on the waters • Hunt, fish, gather and use resources for personal, domestic and communal needs • Undertake cultural activities • Take and use water. Within the marine park, customary activities such as fishing and hunting are also provided for under the management plan.
Bardi Jawi Gaarra Marine Park	The following information is drawn from the *Bardi Jawi Gaarra Marine Park Management Plan* (DBCA 2022c). The Bardi Jawi Gaarra Marine Park was created in 2022, codesigned with the Bardi and Jawi Traditional Owners and jointly managed by DBCA and the Bardi and Jawi Traditional Owners in accordance with a joint management plan. The marine park covers an area of approximately 204,000 ha. The marine park is located within the boundaries of the Bardi and Jawi native title determination (WCD2005/003; Table 7-19) and covers all of the Bardi and Jawi sea Country surrounding the northern part of the Dampier Peninsula and the western islands of the Buccaneer Archipelago, including *Iwany* (Sunday Island), up to the mean high tide mark. The Bardi Jawi IPA covers much of the terrestrial area adjacent to the marine park. Determined native title rights within the marine park include the right to: • enter, travel and remain on the waters; • hunt, fish, gather and use resources for personal, domestic and communal needs; • undertake cultural activities; and • take and use water. Within the marine park, customary activities such as fishing rights and hunting are also provided for under the management plan. Bardi and Jawi sea Country is used consistently by Bardi and Jawi people for hunting and fishing for food, cultural activities, and businesses. Bardi and Jawi sea Country supports a diverse range of marine life and marine features including fringing reefs and an extensive tidal range exceeding 11m (DBCA 2022c). The marine park includes sea grass meadows that provide nursery areas for fish and foraging grounds for turtles. Humpback whales migrate through the marine park, and dugong visit the marine park (BDCA 2022c). The marine park management plan acknowledges the values, aspirations and management objectives articulated in the Bardi Jawi IPA Management Plan 2013-2023. Joint management of the marine park seeks to promote and support the continued exercise of Bardi and Jawi peoples' native title rights, preserve and promote Bardi and Jawi culture and heritage values of the marine park.
North Kimberley Marine Park	The North Kimberley Marine Park covers an area of almost 2 million hectares. The long-standing connections, rights and interests of Traditional Owners have been recognised through native title determinations for the lands and waters in and adjacent to the North Kimberley Marine Park for the Wunambal Gaambera, Balanggarra, Ngarinyin and Miriuwung Gajerrong people. The Traditional Owners have cultural, spiritual and social connections to the north Kimberley sea Country (DBCA 2023). The marine park is of intrinsic biological, ecological and cultural value

Marine Park Name	Cultural Values and Sensitivities
	for Traditional Owners, but also provides Traditional Owners with cultural, recreational and commercial benefits. The marine park contains many places of cultural and spiritual importance to Traditional Owners. Whilst most locations occur on land, many are sea-related. Registered sites include those with artefacts, ceremonial and mythological paintings, fish traps, burial grounds, quarrying, many-made structures and middens (Department of Parks and Wildlife, 2016). The marine park is jointly managed with Traditional Owners in accordance with the *North Kimberley Marine Park Joint Management Plan 2016* (Department of Parks and Wildlife, 2016). Joint management of the marine park provides opportunities for Traditional Owners to fulfill cultural obligations to care for Country, record and share cultural and language, and the intergenerational transfer of traditional knowledge.
Rowley Shoals Marine Park	The Rowley Shoals Marine Park comprise Clerke and Imperieuse reefs. The marine reef fauna of the Rowley Shoals is considered to be exceptionally rich and diverse, including species typical of the oceanic coral reef communities of the Indo-West Pacific (Department of Environment and Conservation, 2017). There is little information available on the Indigenous cultural values of the marine park, however it is likely the marine area is sea Country and valued by Indigenous People for its contribution to cultural identity, health and wellbeing.
Barrow Island Marine Park	Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous People have been sustainably using and managing their sea country for tens of thousands of years. The marine park is a breeding area for green turtles, a species that is of cultural significance to a number of different Indigenous groups.
Montebello Islands Conservation and Marine Park	Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous People have been sustainably using and managing their sea country for tens of thousands of years. The marine waters are important for threatened sea turtles and frequented by dugong both of which are culturally important for many different Indigenous groups.
Ningaloo Marine Park	The Baiyungu, Thalanyji and Yinigurdira people are the recognized Traditional Owners of Cape Range National Park and adjoining Ningaloo Marine Park. Ningaloo Reef and the adjacent foreshore have a long history of occupancy by Indigenous People. The foreshore and hinterland of North West Cape contain numerous Indigenous sites such as burial grounds, middens and fish traps that provide a historical account of the early habitation of the area and a tangible part of the culture of local Indigenous People. The earliest Indigenous groups to inhabit the peninsula were the Jinigudira and the Baiyungu people. The Jinigudira inhabited most of the land adjacent to the reef and northern cape, while the Baiyungu inhabited the southern areas of foreshore adjacent to the reef. The Traditional Owners engage in both customary and contemporary use of the sea Country within the marine park. Activities include camping and fishing, and hunting of turtle and dugong. Refer to Table 7-23 and Table 7-24 and for additional information.
Garig Gunak Barlu National Park Incorporating marine park) (NT)	The following information has been sourced from the DCCEEW (2021). Garig Gunak Barlu National Park includes the entire Cobourg Peninsula, the surrounding waters of the Arafura Sea and Van Diemen Gulf, and some of the neighbouring islands. It covers about 4,500 km2 and is one of only two parks in the NT that contains adjoining land and marine parks. The park includes the former Gurig National Park (or Cobourg Sanctuary) and the Cobourg Marine Park. It protects rare species, including Dugongs and six marine turtle species (Green, Loggerhead, Hawksbill, Olive Ridley, Leatherback and Flatback Turtles). The Traditional Owners of Cobourg Peninsula (the Arrarrkbi) have lived on and used the Peninsula for between 40 000 and 60 000 years. In many Dreamtime stories across the Northern Territory, it is considered that the Creation Ancestors first entered Australia via Malay Bay near the Peninsula before travelling across the rest of the country creating people and places The Garig Gunak Barlu National Park is managed under a joint management arrangement between the Arrarrkbi people and the Parks and Wildlife Commission of

Marine Park Name	Cultural Values and Sensitivities
	the Northern Territory. This was the first formal joint management arrangement in Australia. (DCCEEW 2021).

Threats to Country

Through the IPA process and associated Healthy Country Plan framework, Traditional Owners have identified specific threats to the health of land and sea Country. Frequently identified threats include:

- Loss of traditional knowledge and connection to Country. Literature review of Health Country Plans suggests that this is one of the biggest threats. Traditional knowledge links the Country to its people and conversely the people to their Country
- Illegal commercial fishing by Australian and foreign fishing vessels as well as overfishing by recreational and commercial fishers who access areas without permission
- Lack of culturally appropriate consultation with Traditional Owners, particularly in relation to cultural sites, sea resources such as turtle and dugong
- Climate change and potential changes in sea levels, climatic conditions including rainfall and resulting impacts on Country including land and sea resources, and the integrity of cultural heritage sites
- Coastal pollution such as general rubbish, oil and fuel spills at sea and marine debris. Coastal pollution is a threat to marine life particularly turtles and marine mammals
- Lack of land and sea management capacity. Traditional sea Country is often extensive in size and difficult to reach, hindering stewardship practices
- Lack of infrastructure to access Country. Without access to Country, it is difficult for elders to effectively pass on traditional knowledge to younger generations
- Difficulty in gaining permission to access Country, and frequently changing regulations and conditions to access Country
- Resource extraction activities (e.g., sea mining, oil and gas drilling). Traditional Owners are concerned about the potential risks these activities present to marine fauna resources (e.g., fish, turtle and dugong), and risks associated with accidents during operations as well as potential disturbance of the marine floor during pipeline construction and increased shipping activity.

7.4.2.3 Land and Sea Resource Use Practices

7.4.2.3.1 Customary Use of Land and Sea

Indigenous People engage in the customary use of sea Country within the Planning Area. Access to and customary use of sea Country is an important part of Indigenous culture, integral to maintaining connection to Country and the health and wellbeing of Indigenous People.

Customary activities undertaken in sea Country within the Planning Area include hunting for food and ceremonial purposes, visiting and maintaining cultural sites, making medicine, engaging in ceremonial activities, sharing traditional knowledge including passing on important Dreaming stories, and general on-Country recreation shared with family. Many customary rights to land and sea resource use are protected through Native Title and/or are provided for through management plans, such as the right to fish and hunt for Dambimangari people which is provided for under the

Lalang-gaddam JMP. Customary activities are also managed in accordance with the cultural protocols of different Indigenous groups.

Examples of customary use within the Planning Area include the harvesting of green turtles by the Tiwi people, Dambimangari people (and many other Indigenous People) for food, and the collection of sea turtle eggs. Dugongs are an important food source for many coastal Indigenous People including the Dambimangari people, Bardi Jawi people and Mayala people. Mayala people also collect Trochus from the inter-tidal reefs in King Sound. Consultation with some Indigenous Relevant Persons identified that the area of Brue Reef was traditionally fished and hunted and has strong cultural significance, with lore, culture and men's ceremonies linked to the ocean and reefs north of King Sound.

Commercial activities have been identified as impacting Traditional Owners' ability to carry out cultural activities in private or fish/hunt/gather resources (DBCA, 2022a).

7.4.2.3.2 Contemporary Land and Sea Resource Use

Indigenous People engage in a range of different resource use activities in the sea Country located within the Planning Area. These activities include land management, commercial fishery and aquacultural activities, and cultural based tourism activities.

Commercial Fisheries and Aquaculture Activities

A number of Traditional Owners are engaged in commercial fishing activities in Territorial waters within the Planning Area. In the NT, the Blue Mud Bay decision was the catalyst for changes to coastal fishing licences which facilitated greater opportunity for the participation of Indigenous People in commercial fishing activities. Previously, just one licence was available in each Indigenous coastal community and the catch could only be sold within that community. Now there can be more than one licence holder and the catch can be sold commercially to markets further afield (FRDC 2018). The total allowable catch for each licence is five tonnes a year. Licence holders can target mullet, Blue Threadfin, queenfish, Milkfish, trevally and reef fish such as cod, parrotfish, Coral Trout and snapper (FRDC 2018).

A number of different Aboriginal Corporations hold aquaculture licences under the *Fish Resources Management Act 1994* (WA) that overlap with the Planning Area in WA waters. The Dampier Peninsula is the site of the Ardyaloon Trochus Hatchery and Aquaculture Centre. Ardyaloon Incorporated represented by the Bardi Jawi and Mayala Native Title holders of One Arm Point and hold the only exemption to commercially harvest Trochus in WA. The Bardi Jawi and Mayala Native Tile holders have commercially harvest trochus shell from around the Dampier peninsula and Buccaneer Archipelago since at least the 1960s (WAFIC 2023),

Indigenous People are engaged in aquaculture development within the Kimberley Aquaculture Development Zone in Cone Bay at the Northern end of King Sound. The Aarli Mayi Aquaculture Project is an economic and social opportunity being advanced through a cooperative relationship between the Dambimangari, Mayala and Bardi Jawi Traditional Owners (aarli mayai aquaculture project 2023).

Cultural based tourism

As described in Section 7.4.5, the Kimberley, Pilbara and Gascoyne regions, and areas around Darwin the Northern Territory are important visitor destinations for Australian and international tourists. Areas of sea Country within the Planning Area feature spectacular scenery, diverse wildlife and cultural heritage, all of which provide opportunities for nature-based and cultural recreational activities and tourism experiences.

Traditional Owners are using or have aspirations to use their IPAs, JMPs for marine parks and land tenure arrangements (Native Title and Freehold land tenure) to develop commercial opportunities based around cultural connections and conservation tourism. Existing commercial cultural based tourism activities operating within the Planning Area include expedition cruise boat operations, nature-based on Country guided tours, luxury wilderness retreats, on Country marine based experiences, learning about Country, and art and cultural immersion experiences.

Commercial land and sea management

The IPAs are also being used by native title groups to undertake environmental management contracts and fire management projects. JMPs for marine areas such as the Mayala Country Marine Park, also support the identification and realization of commercial opportunities and investments that can deliver income to Traditional Owners living on Country. Both IPAs and JMPs present opportunities for the direct employment of Traditional Owners but also the delivery of fee for service management work. For example, the Bardi Jawi Rangers undertake beach surveillance for marine debris through funding from the Commonwealth Department of Agriculture. The Crocodile Islands Rangers and the Garngi Ranger group from Croker Islands are funded to undertake marine debris clean-ups, sea Country patrols and surveillance operations. Nyangumarta and Karajarri Rangers are both contracted to do turtle monitoring along Eighty Mile Beach by DBCA.

7.4.2.4 Indigenous People's Rights and Interests

This section describes the recognized rights and interests of Indigenous People derived from Native Title determinations and ALRA.

Native Title determinations that overlap the Planning Area are presented in Table 7-19. Holders of Native Title are afforded certain rights and title to land and sea. These rights may include the right to camp, hunt and gather on land and sea, rights of access, use and occupation, perform ceremony and protect cultural sites. The various rights granted are different for each native title determination. Importantly Native Title holders have the right to be consulted about decision or activities that could affect the enjoyment of native title rights and interests.

Native Title holders may be granted exclusive Native Title rights in some areas of a determination, and non-exclusive rights in other areas. Within the WA, Native Title rights held over waters seaward of the high-water mark are generally non-exclusive. Appendix D provides an example of the types of rights and interests afforded some Native Title holders with determinations that overlap the Planning Area.

Aboriginal freehold rights are in addition to Native Title rights, exclusive access to closed seas, protection of sacred sites and management of IPAs. Aboriginal Land Councils recognized under ALRA hold the rights to Aboriginal Freehold Land and support Traditional Owners in decisions about their land. Indigenous People who hold Aboriginal freehold land have the primary spiritual responsibility for sacred sites on the land and are entitled by culture and tradition to hunt and gather on that land. As Aboriginal freehold land includes the intertidal zone, there are Traditional Owners with rights and interest in Territorial waters that overlap the Planning Area. Traditional Owners have control over who enters their land and intertidal zone and what they do there. The NLC and the TILC issue permits in consultation with Traditional Owners to non-Indigenous People seeking to access Indigenous land and waters.

7.4.2.4.1 Self Determination

Self-determination refers to the movement, both political and social, of Indigenous People and communities to have full agency in determining how the lives of Indigenous People are governed, to have full autonomy in decisions that affect Indigenous communities and to have control over the economic, social, and cultural development which may impact Indigenous communities (AHRC, n.d.). The theme of self-determination is intrinsically important when considering Indigenous rights and interests that overlap the Planning Area (i.e. Native Title, jointly managed marine parks, IPAs). In terms of economic self-determination, Indigenous-owned tourism operations with interests within the Planning Area have similar significance.

Within the Planning Area, Native Title, Aboriginal Freehold land tenure, IPAs and jointly managed marine parks empower collective self-determination through recognising the Indigenous ownership of the land. This 'ownership' of land grants Indigenous People the right to carry out cultural practices, and to use the land for social and economic benefit. These cultural practices include hunting and gathering of animal and food species, the preservation of significant cultural sites and Country, law and ceremonial practices. With regards to economic self-determination,

the significance of Indigenous-owned tourism operations within the Planning Area cannot be overstated. The recognition of Indigenous rights and interests is integral to understanding their collective value for overall Indigenous health and well-being.

7.4.3 Other Heritage

7.4.3.1 World, Commonwealth and National Heritage Listed Places

There are no World, Commonwealth or National Heritage Places within the Operational Area. World, Commonwealth, and National Heritage Places within the Planning Area are identified in Table 7-26. Sections 6.5.4, 6.5.5 and 6.5.6 of the Master Existing Environment outlines the values and sensitivities of these places respectively.

Table 7-26: World, National and Commonwealth Heritage Listed Places within the Planning Area

Listed Place	Approximate Distance from Operational Area (km)
World Heritage Places	
Kakadu National Park	807
The Ningaloo Coast	1,432
Commonwealth Heritage Listed Places	
Scott Reef and surrounds	298
Ashmore Reef National Nature Reserve	148
Mermaid Reef – Rowley Shoals	685
North Keeling Island	2,996
Christmas Island Natural Areas	2,055
Ningaloo Marine Area – Commonwealth Waters	1,451
National Heritage Places	
The West Kimberley	158
The Ningaloo Coast	1,447
Kakadu National Park	810

7.4.3.2 Underwater Cultural Heritage

Information on underwater cultural heritage, including historic shipwrecks, is maintained in the Australasian Underwater Cultural Heritage Database, a searchable database of records provided by DCCEEW. A search of the database revealed no known shipwrecks or other underwater cultural heritage sites within the Operational Area (DAWE 2022). The closest shipwreck to the project is the Anne Millicent, which is approximately 108 km from the Operational Area.

A number of other shipwrecks occur within the Planning Area; however, these are highly unlikely to be affected given they are located on the seabed and they are distant from the Operational Area. They include a number of unnamed Indonesian Fishing Vessels and the Sinar Bonerate in the vicinity of Ashmore Reef and Cartier Island, and the Browse Island Unident and Selina in the vicinity of Browse Island (DAWE 2022).

7.4.4 Fishing Industry

7.4.4.1 Traditional Fishing

In 1974, Australia recognised access rights for traditional Indonesian fishers in shared waters to the north of Australia, granting long-term fishing rights in recognition of the long history of

traditional Indonesian fishing in the area. A Memorandum of Understanding (MOU) between the Governments of Australia and Indonesia enables Indonesian traditional fishers to continue their customary practices. This area is known as the 'MOU Box' and the Operational Area lies 70 km to the east at its closest point.

This MOU box covers Scott Reef and surrounds, Seringapatam Reef, Browse Island, Ashmore Reef and Cartier Island, representing an area of approximately 50,000 km2. The MOU Box allows Indonesian fishers to fish in designated areas using traditional methods only. These methods include reef gleaning, free-diving, hand lining and other non-mechanised methods.

Trochus, sea cucumbers (holothurians), abalone, green snail, sponges, giant clams and finfish, including sharks, are targeted by the traditional fishers. Given the shallow water target species, traditional Indonesian fishers are only likely to be found in deep water areas during transit to and from the reef locations. Scott Reef is currently the principal reef in the MOU Box and is utilised seasonally by Indonesian fishers to harvest trepang, trochus shells and other reef species. The peak season is July to October due to more favourable wind conditions, and to allow fishers to sun dry their catch on their boat decks.

Restrictions were introduced around Ashmore Reef and Cartier Island following their designation as Nature Reserves under the *National Parks and Wildlife Conservation Act 1975* (Cth) in 1983 and 2000, respectively. Restrictions permit the use of access to parts of Ashmore Reef for shelter, freshwater and to visit grave sites only.

Dugong, fish and marine turtles are important components of Aboriginal culture and diet. Aboriginal people continue to actively manage their sea country in coastal waters of the NT in order to protect and manage the marine environment, its resources and cultural values. Traditional Indigenous fishers generally utilise waters within 3 nm of the coastline (Northern Territory Government, 2015) and are not considered to be active within the offshore waters of the Operational Area.

7.4.4.2 Recreational Fishing

Currently, there are no known recreational fishing activities in the Operational Area as the site is too far from shore to be accessed by recreational fishermen in small boats. Even at relatively high speed (30 km/hour), it would take at least fifteen hours for a recreational boat to reach the Operational Area from the nearest port of Broome.

Recreational fishing, particularly boat-based angling, occurs throughout the Planning Area. Recreational angling is expected to be centred around access nodes, such as marinas and boat launching facilities, found at towns across the Kimberley region. Recreational anglers typically target demersal and pelagic fish species for consumption and sport. Annual expenditure by recreational fishers and the guided fishing industry in the NT is estimated at over $100 million (Northern Territory Government, 2019).

7.4.4.3 Commercial Fisheries

A number of Commonwealth and State/Territory fishery management areas are located with the Operational Area and Planning Area. Table 7-27 provides an assessment of the potential for interaction with the Operational Area, and Section 6.5.9 of the Master Existing Environment provides further detail on the fisheries that have been identified through desktop-based assessment and consultation.

Table 7-27: Commercial fisheries within the Planning Area

Fishery Name	Overlap with Planning Area	Overlap with Operational Area	Potential for interaction within Operational Area	
Commonwealth Managed Fisheries				
North West Slope Trawl Fishery	✓	✓	✓	The total catch in the North West Slope Trawl Fishery for the 2019-20 season was 111.5 t, over 306 days with Scampi making up approximately 65% of the total catch from vessels. There were 6 active vessels and 7 fishing permits in the 2019-20 season (Patterson et al., 2021). The total area waters fished during the 2019-20 fishing season did not overlap the Operational Area (Patterson et al., 2021). However, the total area fished during the 2018-19 fishing season overlapped the Operational Area, therefore there is potential for interaction with the fishery within the Operational Area.
Southern Bluefin Tuna Fishery	✓	✓	X	The total catch for the Southern Bluefin Tuna Fishery 2019-20 fishing season was 5,429 t over 1,248 seine hours and 146 shots. There were 7 active purse seine vessels and 23 active longline vessels during the 2019-20 season (Patterson et al., 2021). All though the management area for the Southern Bluefin Tuna Fishery overlaps the Operational Area and Planning Area, the fishery has not been active within Operational Area or the Planning Area over the last five years (Patterson et al., 2021); all activity in this fishery occurs well south of the Planning Area, primarily off South Australia. As such, there is no potential for interaction within the Operational Area.
Western Tuna and Billfish Fishery	✓	✓	X	In recent years, fishing effort in the Western Tuna and Billfish Fishery has concentrated of south-west Western Australia (Patterson et al., 2021). Since 2005, fewer than 5 vessels have been active in the fishery each year (Patterson et al., 2021). During 2020 there was 161 t of catch from 231,085 Pelagic longline hooks. Although the fishery management area operates the Operational Area, the maximum area fished has not overlapped the Operational Area over the last five years (Patterson et al., 2021) Therefore there is no potential for interaction with this fishery within the Operational Area.
Western Skipjack Fishery	✓	✓	X	There were 14 active permits and no active vessels in the Western Skipjack Tuna Fishery during the 2019-20 fishing season. The Western Skipjack Tuna Fishery is not currently active and no fishing has occurred since 2009 (Patterson et al., 2021). Therefore, no fishing effort occurs within the Operational Area and there is no potential for interaction with this fishery within the Operational Area.
Northern Prawn Fishery	✓	X	X	The fishery management area does not overlap with the Operational Area, therefore there is considered no potential for interaction with this fishery within the Operational Area.

Fishery Name	Overlap with Planning Area	Overlap with Operational Area	Potential for interaction within Operational Area	
Western Deepwater Trawl Fishery	✓	X	X	The Western Deepwater Trawl Fishery is permitted to operate only in deep waters from the 200 m isobath, as far north as the North West Cape. The fishery management area does not overlap the Operational Area, therefore there is considered no potential for interaction with this fishery within the Operational Area.
Western Australian Managed Fisheries				
Mackerel Fishery	✓	✓	✓	The Operational Area overlaps with the Mackerel Managed Fishery management area. Catch effort in the 2020 season was 288 t (Spanish mackerel) and 11t (Grey mackerel) (Lewis & Watt, 2021). The Operational area occurs in the 125242 10NM CAES block and there has been no fishing effort from the Mackerel Managed Fishery in the 10NM CAES block (ref. 125242) between 2016-2020 inclusive (DPIRD, 2021). There has been less than 3 vessels active in the Mackerel Fishery in the 60NM CAES block (ref.12240) that overlaps with the Operational Area over the last five years therefore, there is considered to be potential for interaction with this fishery within the Operational Area.
Northern Demersal Scalefish	✓	✓	✓	The Northern Demersal Scalefish Managed Fishery management area overlaps the Operational Area. Catch effort in the 2020 season was 1,419 t. (Newman, et al. 2021). There have been five vessels active within the 10 NM CAES block (ref. 12240) that overlaps the Operational Area from 2011-2020, inclusive (DPIRD, 2021). Therefore there is potential for interaction with this fishery within the Operational Area.
West Coast Deep Sea Crustacean	✓	✓	X	The West Coast Deep Sea Crustacean Managed Fishery can fish in water deeper than the 150 m isobath and therefore overlaps the Operational Area. Total catch in the 2020 season was 153 t (How and Baudains, 2021). However, there is considered to be no potential for interaction with this fishery within the Operational Area given effort is concentrated between Carnarvon and Fremantle.
Pearl Oyster Fishery	✓	✓	X	The Operational Area overlaps within management zone 3, however the Operational Area is much deeper than safe diving depths in which pearl oyster fishing occurs. Most pearl fishing occurs in inner continental shelf waters (< 30 m) along the Kimberley and Pilbara coastlines. Total catch for the 2020 season was 455,980 shells (Hart et al. 2021). There have been no active vessels within the 60 NM CAES block (ref. 12240) overlapping the Operational Are between 2011 and 2020, inclusive. Given the fishery is diver-based (i.e. restricted to safe diving depths) there is no potential for interaction with the fishery within the Operational Area.

Fishery Name	Overlap with Planning Area	Overlap with Operational Area	Potential for interaction within Operational Area	
Marine Aquarium and Specimen Shell	✓	X	X	Given the nature of the Marine Aquarium and Specimen Shell fisheries, effort is expected to be largely restricted to coastal waters < 30 m water depth. Therefore, no fishing effort occurs within of nearby the Operational Area, and there is no potential for interaction with this fishery within the Operational Area.
Abalone Fishery	✓	X	X	No commercial fishing for abalone north of Moore River (zone 8 of the managed fishery) has taken place since 2011/2012 (Strain et al. 2020). The Operational Area does not overlap with the Abalone Fishery management area therefore, there is no potential for interaction with the fishery within the Operational Area.
North Coast Prawn Fishery	✓	X	X	The Operational Area does not overlap with the North Coast Prawn Fishery management area; therefore there is no potential for interaction with this fishery and the Operational Area.
Kimberley Gillnet and Barramundi	✓	X	X	The extent of the fishery is located approximately 213 km to the east (near to the shoreline) of the Operational Area. Therefore there is no potential for interaction with the fishery within the Operational Area.
Pilbara Trap	✓	X	X	The extent of the Pilbara Trap Managed Fishery is located approximately 477 km south-west of the Operational Area. Therefore there is no potential for interaction with the fishery within the Operational Area.
Pilbara Trawl	✓	X	X	The extent of the Pilbara Fish Trawl (Interim) Managed Fishery is located approximately 560 km south-west of the Operational Area. Therefore there is no potential for interaction with the fishery and the Operational Area.
Pilbara Line	✓	X	X	The Operational Area does not overlap with the Pilbara Line Fishery management area; therefore there is no potential for interaction with this fishery within the Operational Area.
West Coast Rock Lobster	✓	X	X	The Operational Area does not overlap with the West Coast Rock Lobster Fishery management area; therefore there is no potential for interaction with this fishery and the Operational Area.
WA Sea Cucumber Fishery (formerly Beche-de-mer Fishery)	✓	X	X	The Operational Area does not overlap with the Sea Cucumber Fishery management area; therefore there is no potential for interaction with this fishery and the Operational Area.
Northern Shark Fishery	✓	X	X	No catch effort has been recorded since the 2008/09 season (DPIRD, 2021), therefore there is considered no potential for interaction with this fishery within the Operational Area.

Fishery Name	Overlap with Planning Area	Overlap with Operational Area		Potential for interaction within Operational Area
Northern Territory Managed Fisheries				
Aquarium Fishery	✓	X	X	The Operational Area does not overlap with the Aquarium Fishery management area; therefore there is no potential for interaction with this fishery and the Operational Area.
Offshore Net and Line Fishery	✓	X	X	The Operational Area does not overlap with the Offshore Net and Line Fishery management area; therefore there is no potential for interaction with this fishery and the Operational Area.
Spanish Mackerel Fishery	✓	X	X	The Operational Area does not overlap with the Spanish Mackerel Fishery management area; therefore there is no potential for interaction with this fishery and the Operational Area.
Demersal Fishery	✓	X	X	The Operational Area does not overlap with the Demersal Fishery management area; therefore there is no potential for interaction with this fishery and the Operational Area.
Timor Reef Fishery	✓	X	X	The Operational Area does not overlap with the Timor Reef Fishery management area; therefore there is no potential for interaction with this fishery and the Operational Area.
Pearl Oyster Fishery	✓	X	X	The Operational Area does not overlap with the Pearl Oyster Fishery management area; therefore there is no potential for interaction with this fishery and the Operational Area.
Coastal Line Fishery	✓	X	X	The Operational Area does not overlap with the Coastal Line Fishery management area; therefore there is no potential for interaction with this fishery and the Operational Area.
Jigging Fishery	✓	X	X	The Operational Area does not overlap with the Jigging Fishery management area; therefore there is no potential for interaction with this fishery and the Operational Area.
Coastal Net Fishery	✓	X	X	The Operational Area does not overlap with the Coastal Net Fishery management area; therefore there is no potential for interaction with this fishery and the Operational Area.
Barramundi Fishery	✓	X	X	The Operational Area does not overlap with the Barramundi Fishery management area; therefore there is no potential for interaction with this fishery and the Operational Area.
Trepang Fishery	✓	X	X	The Operational Area does not overlap with the Trepang Fishery management area; therefore there is no potential for interaction with this fishery and the Operational Area.

Fishery Name	Overlap with Planning Area	Overlap with Operational Area	Potential for interaction within Operational Area	
Development Fishery (Small Pelagic)	✓	X	X	The Operational Area does not overlap with the Development Fishery management area; therefore there is no potential for interaction with this fishery and the Operational Area.
Mud Crab Fishery	✓	X	X	The Operational Area does not overlap with the Mud Crab Fishery management area; therefore there is no potential for interaction with this fishery and the Operational Area.
Bait Net Fishery	✓	X	X	The Operational Area does not overlap with the Bait Net Fishery management area; therefore there is no potential for interaction with this fishery and the Operational Area.
Mollusc Fishery	✓	X	X	The Operational Area does not overlap with the Coastal Line Fishery management area; therefore there is no potential for interaction with this fishery and the Operational Area.

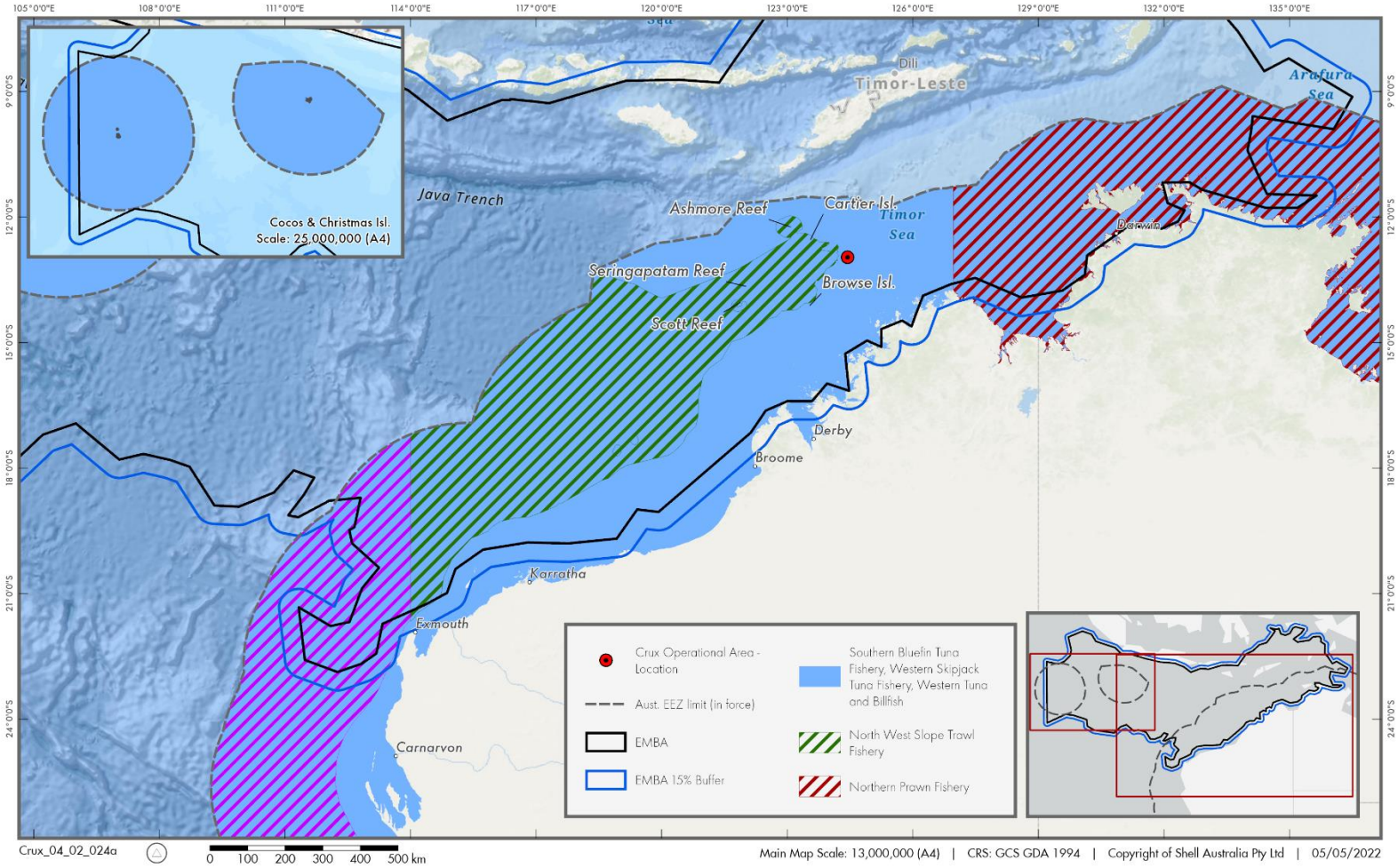


Figure 7-33: Commonwealth managed fisheries management areas within the Planning Area

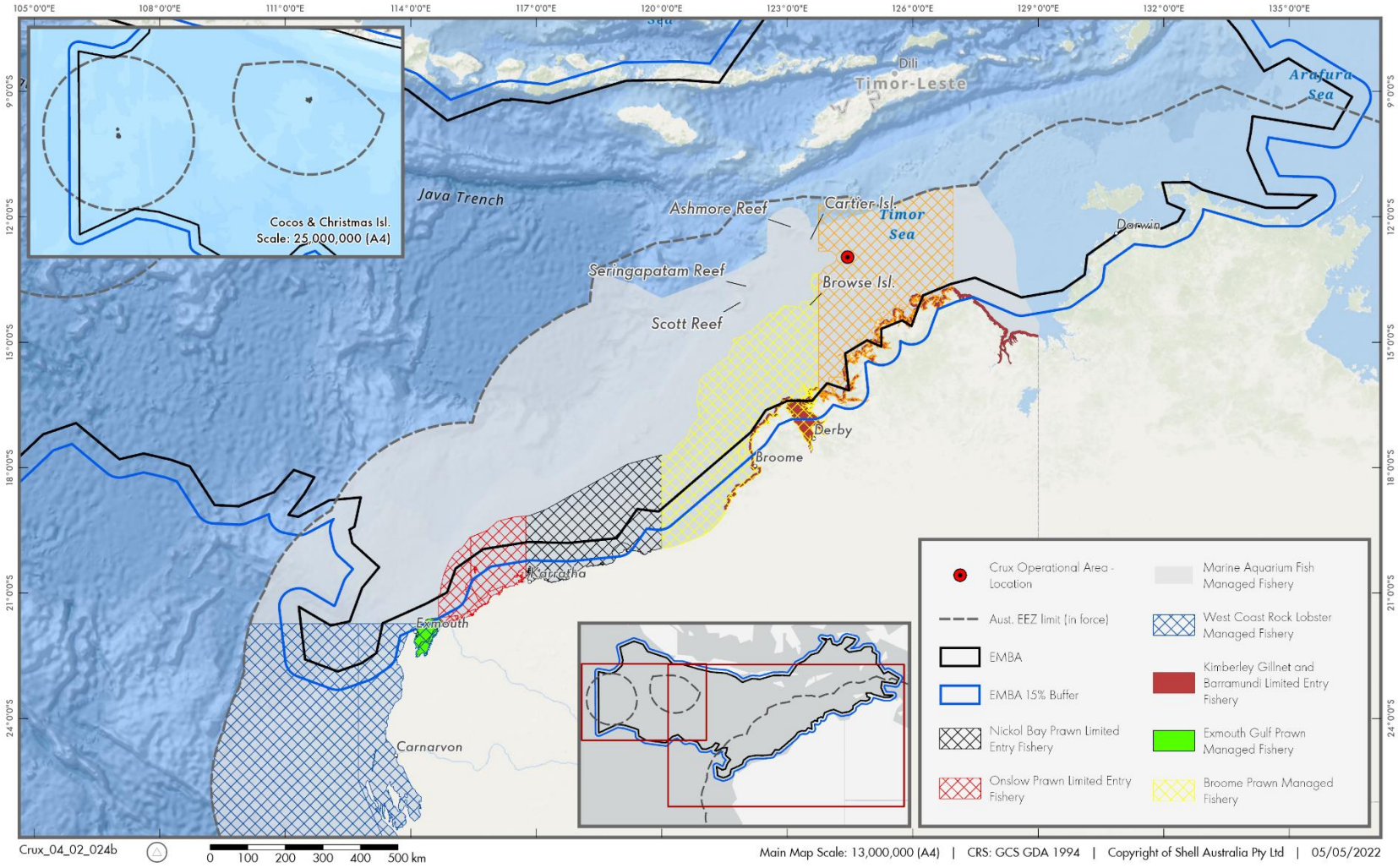


Figure 7-34: Western Australian managed fisheries management areas within the Planning Area (1)

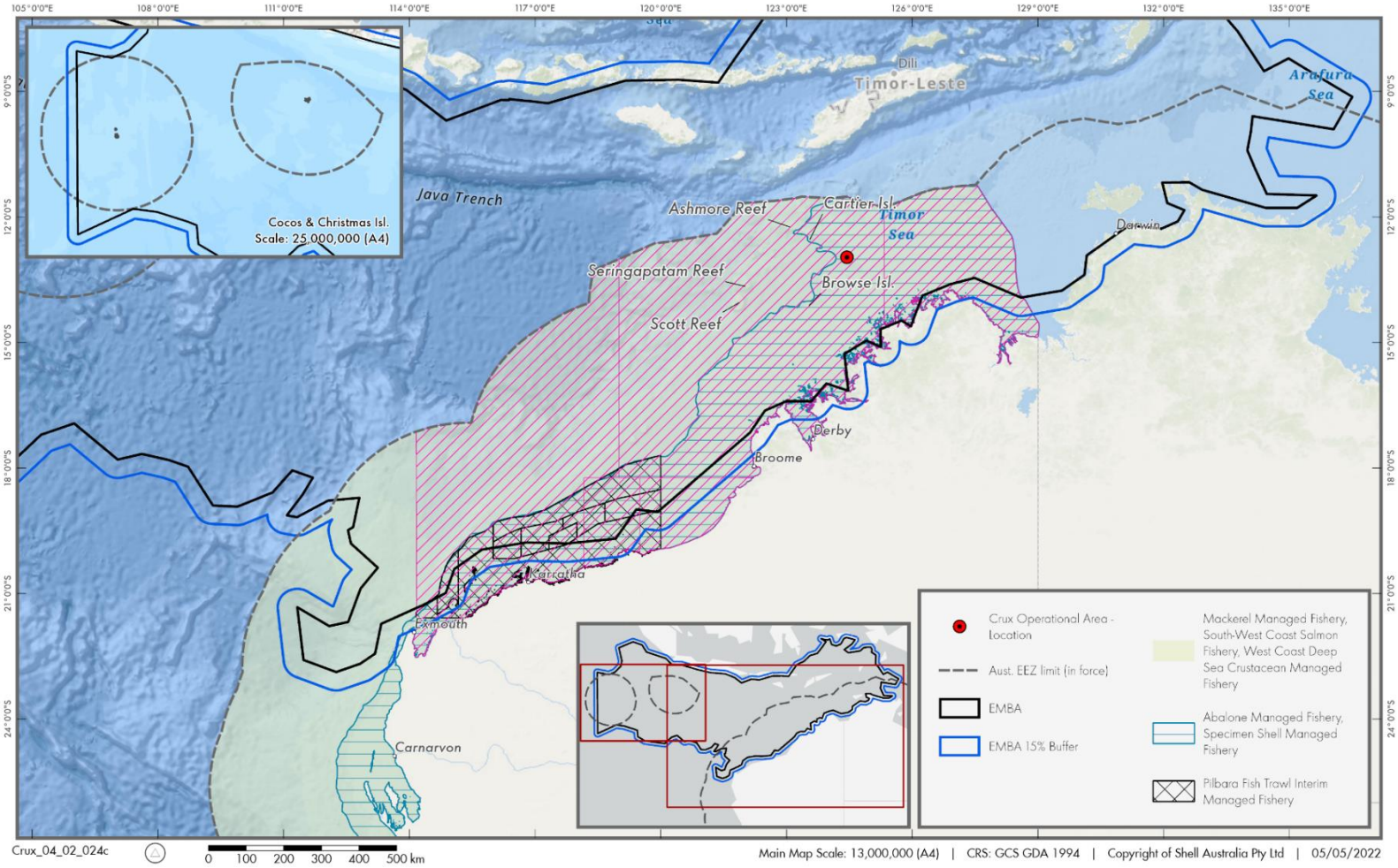


Figure 7-35: Western Australian managed fisheries management areas within the Planning Area (2)

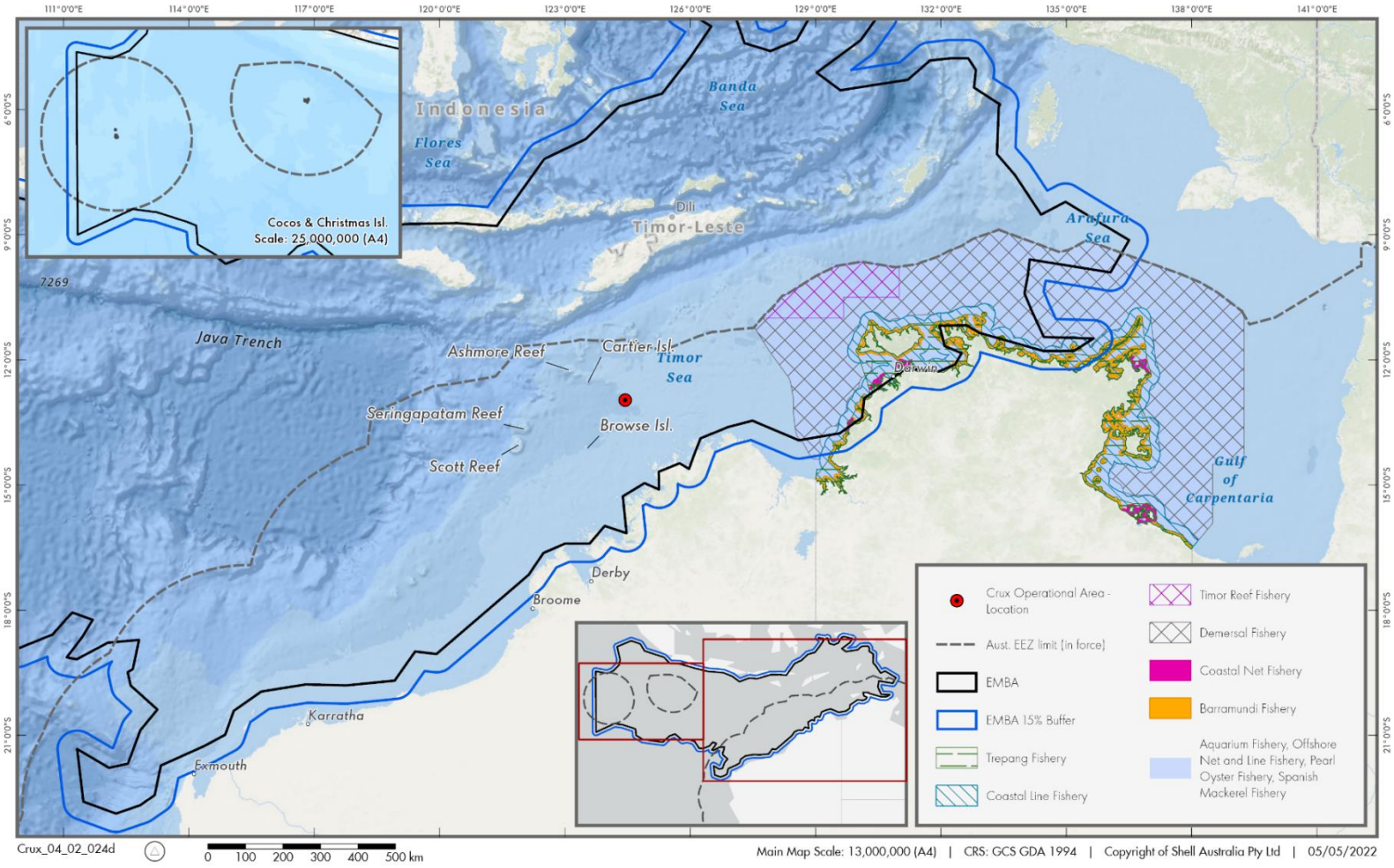


Figure 7-36: Northern Territory managed fisheries management areas within the Planning Area

7.4.4.4 Aquaculture

There are no aquaculture operations within the Operational Area; aquaculture is typically restricted to shallow coastal waters. Aquaculture in the region consists primarily of culturing hatchery reared and wild caught oysters (*Pinctada maxima*) for pearl production. The Kimberley region is of significance to the WA pearling industry, which is the world's top producer of silver-white South Sea Pearls (Hart et al. 2016). However, WA pearling activities are primarily focussed near Broome and Eighty Mile Beach, and leases typically occur in shallow coastal waters at depths of less than 20 m (Fletcher et al. 2006).

In the NT, pearl farm leases are understood to be limited to the coastal waters around Bynoe Harbour and Beagle Gulf near Darwin, as well as Cobourg Peninsula and Nhulunbuy (Northern Territory Government 2021).

Other aquaculture activities in the Kimberley region of WA and in the NT are also understood to be limited to land-based projects (e.g. the Darwin Aquaculture Centre and Project Sea Dragon prawn hatchery development near Darwin), barramundi farming and other activities in shallow coastal waters (Northern Territory Government 2021).

7.4.5 Tourism and Recreation

No tourism activities are known to occur within the Operational Area, but tourism activities occur widely in the Planning Area. Most tourism in the Planning Area is nature-based and hence is typically associated with outstanding natural features such as the Kimberley coastline and the offshore reefs and islands (e.g. Rowley Shoals). The remoteness of the region results in most offshore tourism activities being conducted from organised expeditions based on larger vessels.

Tourism has a much larger presence along the coast from Exmouth to Darwin, largely confined to coastal waters and inshore islands, with Cape Leveque, Beagle Bay, Cockatoo Island and the Buccaneer Archipelago all being popular destinations for coastal cruises. Fishing and diving charters operate out of Broome and Derby and the occasional charter vessel may visit Scott Reef, Ashmore Reef, Browse and Adele Island. A search of recreational fishing charters in the north-west region of WA did not reveal any recreational fishing to the marine waters representing the Operational Area. Birdwatching tours operate occasionally out of Broome, with annual expeditions visiting Ashmore Reef and associated offshore islands such as the Lacepede Islands, Adele Island, Browse Island, and Scott Reef. Tourism makes a significant contribution to the regional economy, with the town of Broome (beyond the Planning Area) providing a central node for many tourism-related activities in the region.

Most recreational and tourism activities in the Northern Territory are adjacent to population centres, such as Darwin. Tourism in the region typically peaks during the dry season (May to October), which includes activities such as recreational fishing, diving, snorkelling, wildlife watching and boating (DEWHA 2008d).

7.4.6 Defence

The Australian Border Force undertake civil and maritime surveillance (and enforcement) in and around the Operational Area (Department of Home Affairs (DHA) 2018a, 2018b). The primary purpose of the activity is to monitor the passage of suspect illegal entry vessels and illegal foreign fishing activity within and beyond Australia's Exclusive Economic Zone, which extends to approximately 200 nm from the mainland (DHA 2018a).

There are no designated military/defence exercise areas in the Operational Area However, regionally relevant activities include the North Australian Exercise Area (NAXA) offshore training area and the Browse Basin and Northern Carnarvon Basin offshore air-to-air weapons ranges, which are maritime military zones administered by the Department of Defence. The NAXA extends approximately 300 km north and west from just east of Darwin into the Arafura Sea and is used for offshore naval exercises and onshore weapon-firing training (Department of Defence 2015). The Browse Basin (Curtin) and Northern Carnarvon (Learmonth) situated air-to-air weapons ranges are 513 km and 1,500 km from the Operational Area, respectively. Within the

Planning Area is also a Royal Australian Air Force base at Learmonth, on North West Cape, about 1,262 km from the Operational Area.

A search of the Department of Defence's Unexploded Ordinance (UXO) map confirmed no UXOs occur within the Operational Area (Defence 2019). The nearest UXO is 256 km southeast of the Operational Area and would not be affected in the event of a spill response in the Planning Area.

7.4.7 Shipping

There are no major shipping routes traversing the Operational Area with the nearest major shipping channel approximately 560 km to the west of the Operational Area. Given the distances between the Operational Area and shipping channels, the Crux development drilling activities pose a minimal navigational risk to commercial shipping.

There may potentially be coastal ships traversing the Operational Area supporting other petroleum activities in the vicinity, as well as the major State and Territory ports of Broome, Derby, Wyndham and Darwin. Additionally, Civil and maritime surveillance in and around the Operational Area may occur by the Australian Border Force Maritime Border Command to monitor the passage of illegal entry vessels and illegal foreign fishing activity (DHA 2018b).

A summary of the regional shipping movements and port areas within the Planning Area is presented in Figure 7-37.

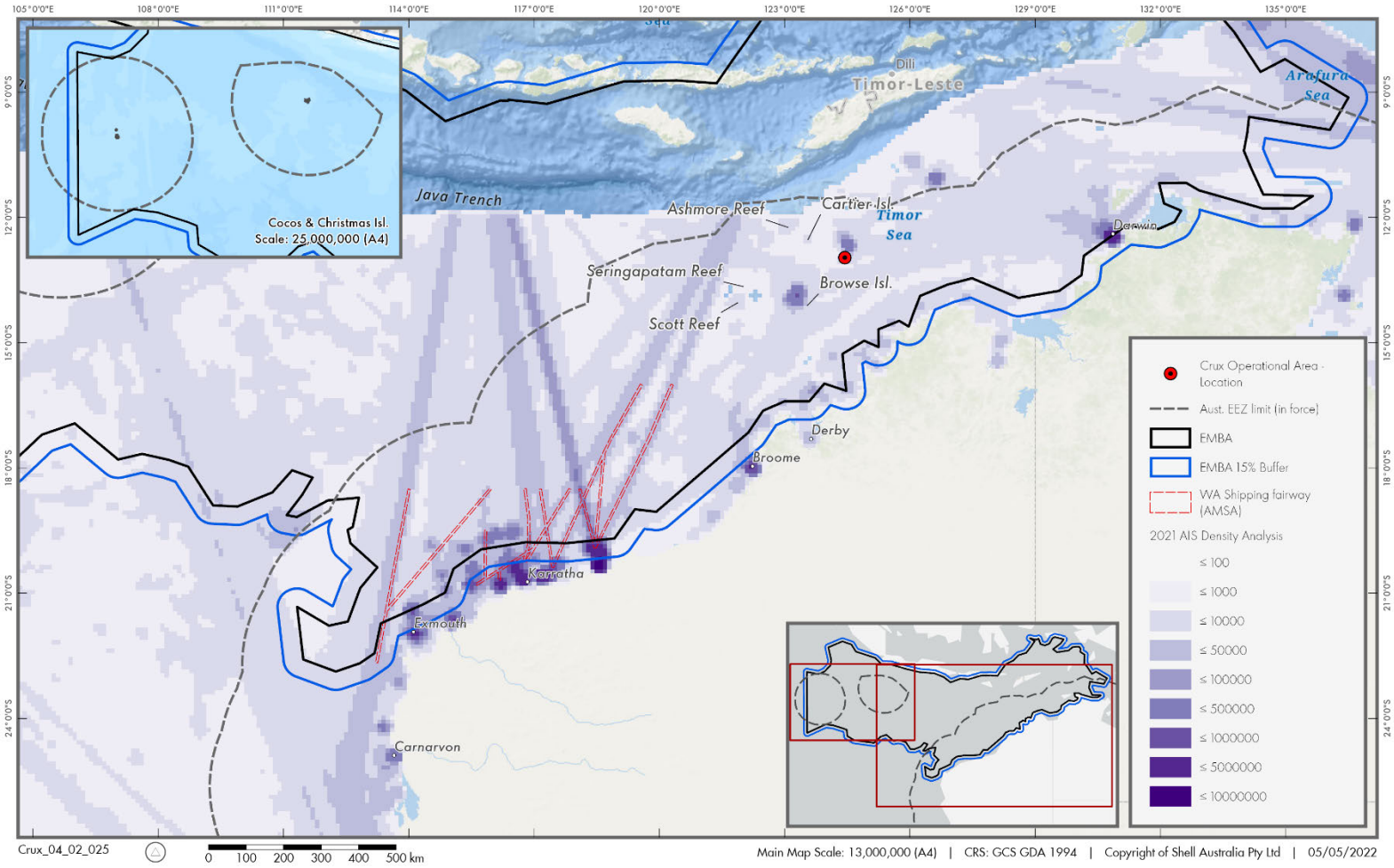


Figure 7-37: Shipping levels within the Operational Area and broader Planning Area

7.4.8 Indonesian and Timor-Leste Coastlines

The Indonesian and Timor-Leste Coastlines are located 280 km and 400 km north of the Operational Area and overlap with the Planning Area.

Indonesia is the world's largest archipelagic state and Indonesian waters play an important role in the global water mass transport system (Asian Development Bank (ADB) 2014a). Indonesia has some of the most biologically rich coral reefs in the world with over 590 coral species having been identified. Coastal reefs are a primary source of food and income for coastal communities, as well as forming an integral part of the countries tourism industry (ADB 2014a). Coastal areas also support aquaculture production of algae, finfish and crustaceans. In addition to coral reefs, coastal habitats include sandy beaches, rocky shorelines, seagrass meadows, and mangroves.

The island of Timor is shared with Timor-Leste, which has similar coastal environmental values. Timor-Leste has a coastline of more than 700 km and a marine Exclusive Economic Zone which extends 200 nm offshore (Coral Triangle Center 2018). Notably, Timor-Leste is located in a biodiversity hotspot with a number of endemic species (ADB 2014b). The island has 30 declared protected areas, including Nino Konis Santana National Park which encompasses nearly 350 km^2 of coral reef (ADB 2014b; Coral Triangle Center 2018). The environmental values of Timor-Leste's coastline are under pressure from illegal fishing, over-exploitation of natural resources and lack of waste management (ADB 2014b).

7.4.9 Oil and Gas Industry

The petroleum exploration and production industry is a significant user of offshore waters in northern WA, particularly within and adjacent to the Browse and Northern Bonaparte basins (DMP 2014). The closest facility to the Operational Area is the Montara production Floating Production Storage and Offloading (FPSO) facility, which is located approximately 36 km north. The Ichthys facilities are situated approximately 164 km south-west of the Operational Area and the Prelude FLNG facility is approximately 165 km to the south-west of the Operational Area.

8 Acceptable Levels of Impact and Risk for the Petroleum Activities

The OPGGS (E) Regulations require the titleholder to include an evaluation of all the impacts and risks that determined whether these will be of an 'acceptable' or 'unacceptable' level. To this end, Shell has determined acceptable levels of impact to the environmental receptors that may credibly be impacted by the petroleum activities considered within this EP. The process by which Shell has determined the acceptability of risks and impacts is detailed below.

8.1 Considerations in Developing Defined Acceptable Levels of Impact and Risk

Shell has established defined acceptable levels of impacts and risks for the petroleum activities considered in this EP relating to all the environmental receptors that were identified as being credibly impacted, or at risk of being impacted. The outcomes of the evaluation of environmental impacts and risks were assessed against these defined acceptable levels to determine if the impacts or risks were acceptable.

The following were considered when establishing the acceptable levels of impacts and risks:

- The principles of ecologically sustainable development (ESD)
- Other requirements applicable to the Crux project (e.g. laws, policies, standards, conventions etc.), including significant impacts16 to MNES
- Internal context
- External context.

Each of these considerations are elaborated on below.

8.1.1 Principles of Ecologically Sustainable Development

Shell has considered the principles of ESD in defining acceptable levels of impacts and risks, as defined in Section 3A of the EPBC Act 1999. The principles of ESD are summarised as:

- decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations;
- if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;
- the principles 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; and
- improved valuation, pricing and incentive mechanisms should be promoted.

8.1.2 Other Relevant Requirements

Shell considered other relevant requirements that apply to the environmental management of the petroleum activities considered in this EP, including legislation, policies, standards and guidelines in establishing acceptable levels of impacts and risks (Refer to Section 2).

[16] Significant impacts refer specifically to the levels of impacts defined in the Matters of National Environmental Significance - Significant impact guidelines 1.1. Any subsequent reference in this EP to significant impacts refers to these levels unless stated otherwise.

8.1.3 Significant Impact to MNES

Given this EP forms the basis for NOPSEMA's assessment of matters protected under Part 3 of the EPBC Act in Commonwealth waters, Shell has given specific attention to the acceptability of impacts and risks to MNES. Where a potential interaction between the relevant MNES and an aspect of the petroleum activities covered by this EP was identified, the criteria provided are listed in Table 8-1.

Potential impacts and risks to MNES from aspects of the petroleum activities were deemed inherently acceptable if:

- the significant impact criteria in relation to the MNES are not anticipated to be exceeded; and
- the management of the aspect is aligned with published guidance material from the DAWE, including threat abatement plans, recovery plans and conservation advice.

Table 8-1: MNES Significant impact criteria applied to the petroleum activities considered in this EP

Category	Significant Impact Criteria
Listed Critically Endangered and Endangered species	An action is likely to have a significant impact on critically endangered or endangered species if there is likelihood that it will: • Lead to a long-term decrease in the size of a population • Reduce the area of occupancy of the species • Fragment an existing population • Adversely affect habitat critical to the survival of a species • Disrupt the breeding cycle of a population • Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline • Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat • Introduce disease that may cause the species to decline, or • interfere with the recovery of the species.
Listed Vulnerable Species	An action is likely to have a significant impact on vulnerable species if there is a likelihood that it will: • Lead to a long-term decrease in the size of an important population • Reduce the area of occupancy of and important population • Fragment an existing important population into two or more populations • Adversely affect habitat critical to the survival of a species • Disrupt the breeding cycle of a population • Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline • Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat • Introduce disease that may cause the species to decline, or • Interfere substantially with the recovery of the species.
Listed Migratory Species	An action is likely to have a significant impact on migratory species if there is likelihood that it will: • Substantially modify, destroy or isolate an area of important habitat for a migratory species

Category	Significant Impact Criteria
	• Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species, or • Seriously disrupt the lifecycle of an ecologically significant proportion of the population of a migratory species.
Wetlands of International Importance	An action is likely to have a significant impact on a wetland of international importance if there is likelihood that it will result in: • Areas of wetland being destroyed or substantially modified • A substantial and measurable change in the hydrological regime of the wetland • The habitat or lifecycle of native species dependent upon the wetland being seriously affected • A substantial and measurable change in the water quality of the wetland which may adversely impact on the biodiversity, ecological integrity, social amenity or human health, or • An invasive species that is harmful to the ecological character of the wetland being established in the wetland.
Commonwealth Marine Area	An action is likely to have a significant impact on the environment in a Commonwealth Marine Area if there is likelihood that it will: • Result in a known or potential pest species becoming established in the Commonwealth marine area • Modify, destroy, fragment, isolate or disturb an important or substantial area of habitat such that an adverse impact on marine ecosystem functioning or integrity on a Commonwealth marine area results • Have a substantial adverse effect on a population of a marine species or cetacean including its life cycle and spatial distribution • Result in a substantial change in air quality or water quality which may adversely impact on biodiversity, ecological integrity17, social amenity or human health • Result in persistent organic chemicals, heavy metals, or other potentially harmful chemicals accumulating in the marine environment such that biodiversity, ecological integrity, social amenity or human health may be adversely affected, or • Have a substantial adverse impact on heritage values of the Commonwealth marine area, including damage or destruction of an historic shipwreck.

8.1.4 Internal Context

Shell considered its internal requirements when establishing acceptable levels of impacts and risks. This context included Shell's environment policy, environmental risk management framework, internal standards, procedures, technical guidance material and opinions of internal stakeholders.

The following outlines Shell's internal impact and risk assessment defined acceptable levels:

- Residual planned impacts that are ranked as minor or less (i.e. minor, slight, no effect or positive effect) and residual risks for unplanned events ranked light or dark blue, are inherently 'acceptable', if they meet legislative and Shell requirements and the established acceptable levels of impacts and risks

[17] In the context of the activities covered by this EP, a change to ecological integrity is considered to take into account broadscale, long term impacts to the ecosystem. With regards to the Commonwealth marine environment, the operational area is located in open offshore waters and the seabed is generally characterised by soft sediments. These characteristics are typical of the offshore Browse Basin."

- Moderate residual impacts, and yellow and red residual risks, are 'acceptable' with appropriate controls in place and if good industry practice can be demonstrated
- Major and massive residual impacts from planned activities, and massive residual risks from unplanned activities, are 'unacceptable'. The activity (or element of) should not be undertaken as the impact or risk is serious and does not meet the principles of ESD, legal requirements, Shell requirements or regulator and stakeholder expectations. The activity requires further assessment to reduce the risk to an acceptable level.

Table 8-2 provides a summary of the acceptability statements, as correlated to the rankings presented in the environmental impact and risk assessments in Section 9.

Table 8-2: Acceptability Categories

Acceptability Statement	Residual Impact (Planned)	Residual Risk (Unplanned)
Inherently acceptable – Manage for continuous improvement through effective implementation of the HSSE and SP management system	• Positive Impact Consequence • No Impact Consequence • Slight Impact Consequence • Minor Impact Consequence	• Light Blue • Dark Blue
Acceptable with controls – Apply the hierarchy of control to reduce the risks to ALARP	• Moderate Impact Consequence	• Yellow • Red
Unacceptable	• Major Impact Consequence • Massive Impact Consequence	• Red – X

8.1.5 External Content

Shell also considered the external context when establishing acceptable levels of impacts and risks. This includes information provided by Relevant Persons during the preparation of the EP and the Crux OPP. Shell routinely implements an ongoing stakeholder engagement program managed by Shell's Corporate Relations team. Reference is made to Section 5 for further information on the stakeholder engagement process and a summary of responses and objections/claims made by Relevant Persons is included in Table 5-12.

Table 8-3: Acceptability Categories for Indigenous Cultural Heritage Features and Values

Category	Significant Impact Criteria
Indigenous cultural heritage	An action is likely to have a significant impact on Indigenous cultural heritage features or values if there is likelihood that it will: • Restrict or inhibit the continuing use of a cultural or ceremonial site causing its values to notably diminish over time • Permanently diminish the cultural value of a place for an Indigenous group to which its values relate • Alter the setting of a place in a manner which is inconsistent with relevant values • Remove, destroy, damage or substantially disturb archaeological deposits or cultural artefacts • Destroy, damage or permanently obscure cultural or ceremonial, artefacts, features, or objects

Category	Significant Impact Criteria
	• Notably diminish the value of a place in demonstrating creative or technical achievement • Permanently remove, destroy, damage or substantially alter Indigenous built structures

8.1.6 Defined Acceptable Levels of Impact and Risk

The acceptable levels of impacts and risks to environmental receptors from the petroleum activities considered in this EP are summarised in Table 8-4.

In accordance with Regulation 31(1) of the Environment Regulations, reference to the project area within Table 8-3 is defined in Section 5.3.1 of the accepted Crux Offshore Project Proposal (OPP) has been made throughout this EP. The project area is defined as the in-field development area (30 km radius around the proposed Crux platform) and export pipeline corridor (1 km buffer either side of the route with a 2 km radius around the Prelude end) encompassing approximately 314,000 ha. The accepted OPP (NOPSEMA ID: A742335) is available on the NOPSEMA website.

Table 8-4: Summary of acceptable levels of impact for environmental receptors that may be affected by the petroleum activities considered in this EP

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Justification
Physical Environment	Water quality	No significant impacts to water quality during the Crux project.	The discharges associated with the Vessel and MODU operations covered by this EP are typically of short duration and will not have the potential for significant impacts over an extended period. Modelling studies indicate the impacts will be localised around the Crux Drilling location (characterised as open offshore waters, typical of the offshore Browse Basin) and will not persist following the cessation of the activity. Liquid discharges during the activity cannot be avoided. However, the area influenced from discharges is expected to be limited to within 1 km of the liquid discharge locations. The potential magnitude of impacts to marine ecosystems is very low. Given the offshore location and absence of particularly sensitive marine ecosystems at the Crux platform location and immediate surrounds, potential impacts within 1 km of the Crux platform are considered acceptable. Bakke et al. (2013) states that typically no impacts are detected beyond 2 km from offshore facilities around the world. The nearest sensitive habitat to the Crux platform is Goeree Shoal, approximately 13 km away.
	Sediment quality	No significant impacts to sediment quality during the Crux project.	The discharge of drill cuttings and fluids may result in elevated levels of potential contaminants near the Crux Drilling Centre. Sediment quality in the vicinity of the Crux in-field development area is characteristic of the sediment quality conditions of the offshore region. Bakke et al. (2013) states that typically no impacts are detected beyond 2 km from offshore facilities around the world. Impacts to sediment quality from the Crux project cannot be avoided. However, the area influenced is expected to be limited to within 1 km of sources of potential sediment contamination (e.g. drilling location). The potential magnitude of impacts to marine ecosystems is very low and localised. These impacts are considered to be acceptable when considering the seabed is smooth and bare of hard substrates, with predominantly sandy sediments observed.
	Air quality	No significant impacts to air quality during the Crux project.	Planned atmospheric emissions from the activity consist primarily of combustion engine exhaust emissions (e.g. Vessel and MODU engine and generators). These emissions will be in accordance with relevant requirements, such as Australian GHG reporting and MARPOL air pollution requirements. The Crux project is located in the open ocean, and is well-removed from nearest residential or sensitive populations of the WA coast, with limited interaction with regional airsheds.
Ecosystems, Communities and Habitats	Benthic communities	No significant impacts to benthic habitats and communities.	The benthic habitats and communities within the Operational Area are widely represented in the Timor Sea, with millions of hectares of broad soft benthic habitats occurring in the region, and they are not of high environmental value. Impacts to benthic habitats within the Crux project area are acceptable if the area impacted is < 5% of the total project area.

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Justification
		Impacts to non-sensitive benthic communities limited to a maximum of 5% of the project area.	
	Shoals and banks	No direct impacts to named banks and shoals. No loss of coral communities at named banks or shoals as a result of indirect/offsite[18] impacts associated with the Crux project.	The shoals and banks of the Timor Sea, including the three shoals within the boundary of the Crux in-field development area, are of high environmental value. Shell considers direct impacts to these features unacceptable. Indirect impacts are considered acceptable (e.g. minor pulsed turbidity events) if they do not result in any loss of coral communities, i.e. the loss of a coral colony that occurs on the shoal (noting, there is both temporal and spatial variability of corals as a result of natural environment influences, such as storms/cyclones and coral bleaching). The representativeness of coral communities is considered an indicator contributing to high biological diversity and ecological value (refer to Section 6.4.4.1 of the Master Existing Environment for further discussion). In the context of this assessment, a coral colony is considered integral to maintaining the ecological function and integrity of a coral community in a spatial and temporal context.
	Offshore reefs and islands	No impacts to offshore reefs and islands.	Offshore reefs and islands would only be impacted by a large-scale hydrocarbon spill, such as a well blowout. Shell considers any large-scale hydrocarbon spill to be unacceptable.
	WA and NT mainland coastline	No impacts to WA and NT mainland coastline.	The WA and NT mainland coastline would only be impacted by a large-scale hydrocarbon spill, such as a well blowout. Shell considers any large-scale hydrocarbon spill to be unacceptable.
	Key Ecological Features	No significant impacts to environmental values of KEFs.	KEFs in the Timor Sea are largely geomorphic features that provide important ecosystem services primarily as a result of their unique physical features (e.g. provision of hard substrates, facilitation of upwelling etc.). These are geographically diverse features that cover a large extent. Only one KEF is intersected by the Crux project, with the export pipeline intersecting a small portion of the continental slope demersal fish communities (0.04%). Given the nature and scale of the planned impacts to KEFs from the Crux development, impacts to KEFs will be below the significant impact threshold. Shell considers impacts to KEFs below this threshold to be acceptable.

[18] As defined in the Matters of National Environmental Significance - Significant impact guidelines 1.1 (Commonwealth of Australia 2013).

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Justification
Threatened Species and Ecological Communities	Marine mammals Marine reptiles Birds Fish Sharks and rays	No mortality or injury of threatened or migratory MNES fauna from the Crux project. Management of aspects of the Crux project must be aligned to conservation advice, recovery plans and threat abatement plans published by the DoEE. No significant impacts to threatened or migratory MNES fauna.	Shell considers any mortality or injury of threatened species that are MNES to be unacceptable for the Crux project. Impacts that are below the significant impact threshold are acceptable.
Socio-economic and Cultural Environment	Cultural Heritage Features	No impacts to Cultural heritage features	Consistent with the criteria defined by DCCEEW for indigenous cultural heritage of National Heritage places, Shell does not accept impacts to cultural heritage features. In August 2023, DAC commented that no impacts from a spill to their sea country are acceptable.
	Cultural Heritage Values	No significant impacts to cultural heritage values	Consistent with the criteria defined by DCCEEW for indigenous cultural heritage of National Heritage places, shell does not accept significant impacts to cultural values of a place for an Indigenous group to which its values relate. Consistent with the acceptable criteria for the physical and biological environment (described above), Shell recognises that impacts to the environment may also impact cultural heritage values (as described in Section 7.4.2), Shell considers that no significant impacts to these values are acceptable. Impacts beyond this range are unacceptable.
	Commonwealth Marine Area	No significant impacts to the Commonwealth marine area beyond 1 km from the Crux platform or drilling locations.	Discharges during the activity may result in impacts to water and sediment quality, both of which are components of the Commonwealth marine environment, within 1 km of the drilling location. As outlined above in the Water Quality and Sediment Quality sub-categories, routine impacts to water and sediment quality are expected to be limited to within 1 km and are considered acceptable as the potential impacts to the marine ecosystem (functioning and integrity) is very low when considering the discharge location, duration of the activity and the nature of the receiving environment (open offshore waters, and with seabed characterised to be smooth and bare of hard substrates, with predominantly sandy sediments observed). Impacts beyond this range are unacceptable.
	World Heritage Properties	No impacts to world heritage values.	World heritage values would only be impacted by a large-scale hydrocarbon spill, such as a well blowout. In a regional environmental context, the nearest world heritage property is 800 km away. Shell considers any large-scale hydrocarbon spill to be unacceptable.

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Justification
	National Heritage Places	No impacts to national heritage values.	National heritage values would only be impacted by a large-scale hydrocarbon spill, such as a well blowout. In a regional environmental context, the nearest national heritage place is 170 km away. Shell considers any large-scale hydrocarbon spill to be unacceptable.
	Commonwealth Heritage Places	No impacts to Commonwealth heritage values	Commonwealth heritage values would only be impacted by a large-scale hydrocarbon spill, such as a well blowout. In a regional environmental context, the nearest Commonwealth heritage place is 149 km away. Shell considers any large-scale hydrocarbon spill to be unacceptable.
	Declared Ramsar Wetlands	No impacts to ecological values of Ramsar wetlands	Ramsar wetlands would only be impacted by a large-scale hydrocarbon spill, such as a well blowout. In a regional environmental context, the nearest Ramsar wetland is 149 km away. Shell considers any large-scale hydrocarbon spill to be unacceptable.
	Marine Parks	No impacts to the values of marine parks	The environmental values within Australian marine parks would only be impacted by a large-scale hydrocarbon spill, such as a well blowout. In a regional environmental context, the nearest Marine Park is 95 km away. Shell considers any large-scale hydrocarbon spill to be unacceptable.
	Commercial fisheries	No negative impacts to exploited fisheries resource stocks which result in a demonstrated direct loss of income. Temporary displacement of commercial fishing activities within the Crux project area (excluding petroleum safety zones) is acceptable. Permanent exclusion of commercial fishing activities from gazetted petroleum exclusion zones is acceptable.	Impacts to commercially exploited fish stocks may measurably reduce the potential revenue for commercial fishers. Shell considers this to be unacceptable. In a regional context, commercial fishing is typically concentrated mostly in coastal waters and minimum fishing effort is known to occur within the vicinity of the project area, given its remoteness offshore. Shell considers the displacement of other users (e.g. commercial fishers) from relatively small areas of the open ocean environment in the Crux project area to be acceptable.
	Traditional Indigenous fishing	No negative impacts to exploited fisheries resource stocks. Temporary displacement of traditional fishing activities within the Crux project area (excluding	Impacts to traditionally exploited fish stocks may deprive traditional fishers of the benefits provided by the environment. Shell considers this to be unacceptable. In a regional context, the in-field development area is located 40 km outside of the edge of the MoU Box for traditional indigenous fishing, while the export pipeline will lie within this area. Shell considers the displacement of other users (e.g. traditional indigenous fishers) from relatively small areas of the open ocean environment in the Crux project area to be acceptable.

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Justification
		petroleum safety zones) is acceptable. Permanent exclusion of traditional fishing activities from gazetted petroleum exclusion zones is acceptable.	
	Marine archaeology	No disturbance to historical shipwrecks is acceptable.	Shell considers any disturbance of historical shipwrecks to be unacceptable. In a regional context, the nearest known historical shipwreck is 108 km away from the Crux drilling centre.
	Tourism and recreation	No negative impacts to nature-based tourism resources resulting in demonstrated loss of income. Temporary displacement of tourism activities within the Crux project area (excluding petroleum safety zones) is acceptable. Permanent exclusion of tourism activities from gazetted petroleum exclusion zones is acceptable.	Impacts to nature-based tourism resources may deprive the tourism industry of revenue. Shell considers this to be unacceptable. In a regional context, there are no known tourist attractions or destinations within the project area or surrounding marine waters, however charter vessels may transit the broader regional waters. Shell considers the displacement of other users (e.g. tourism operators) from the Crux project area, which is a relatively small area of the open ocean environment where existing tourism and recreation use is very low, to be acceptable.
	Military/defence	Temporary displacement of defence activities within the Crux project area (excluding petroleum safety zones) is acceptable. Permanent exclusion of defence activities from gazetted petroleum exclusion zones is acceptable.	Shell considers the displacement of other users (e.g. defence vessels and aircraft) from relatively small areas of the open ocean environment in the Crux project area to be acceptable. In a regional context, there are no designated military/defence exercise areas in the Crux project area and surrounds, however there are regional defence exercise areas with large geographic extents.
	Ports and commercial shipping	Temporary displacement of commercial shipping within the Crux project area (excluding petroleum safety zones) is acceptable.	Shell considers the displacement of other users (e.g. commercial shipping) from relatively small areas of the open ocean environment in the Crux project area to be acceptable. In a regional context, there are no major shipping routes traversing the in-field development area or export pipeline corridor. The nearest major shipping channel is approximately 560 km to the west of the proposed Crux platform.

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Justification
		Permanent exclusion of commercial shipping from gazetted petroleum exclusion zones is acceptable.	
	Offshore petroleum exploration and operations	Temporary displacement of petroleum exploration activities and operations within the Crux project area (excluding petroleum safety zones) is acceptable. Permanent exclusion of petroleum exploration activities and operations from gazetted petroleum exclusion zones is acceptable.	Shell considers the displacement of other users (e.g. petroleum exploration and operations) from relatively small areas of the open ocean environment in the Crux project area to be acceptable. In a regional context, the nearest operational facility to the Crux drilling centre is the Montara production FPSO facility, approximately 36 km away.
	Indonesian and Timor-Leste coastlines	No impacts to Indonesian or Timor-Leste coastlines are acceptable.	The Indonesian and Timor-Leste coastlines could only be impacted by a large-scale hydrocarbon spill, such as a well blowout. In a regional context, these coastlines are located a minimum 280 km away. Shell considers any large-scale hydrocarbon spill to be unacceptable.

9 Evaluation of Environmental Impacts and Risks

9.1 Introduction

This section documents the process for evaluating environmental impacts and risks (including socio-economic and cultural impacts) and the development of mitigation measures for the petroleum activities described within this EP. The resulting proposed management controls form the basis of the Implementation Strategy (refer Section 10) which will be implemented during the petroleum activity.

9.1.1 Shell Company Approach to Risk Management

At a corporate level, Shell has a standardised Hazards and Effects Management Process (HEMP), as the process by which Shell identifies and assesses hazards and implements measures to manage them. This process is consistent with the principles outlined in the Australian Standard AS/NZS ISO 31000:2018 Risk Management and Handbook 203:2012 Managing Environment-Related Risk. The process is summarised in Figure 9-1. The HEMP is a fundamental element of the Shell Group HSSE and SP Control Framework and is a process that is applied at every phase of projects and operations.

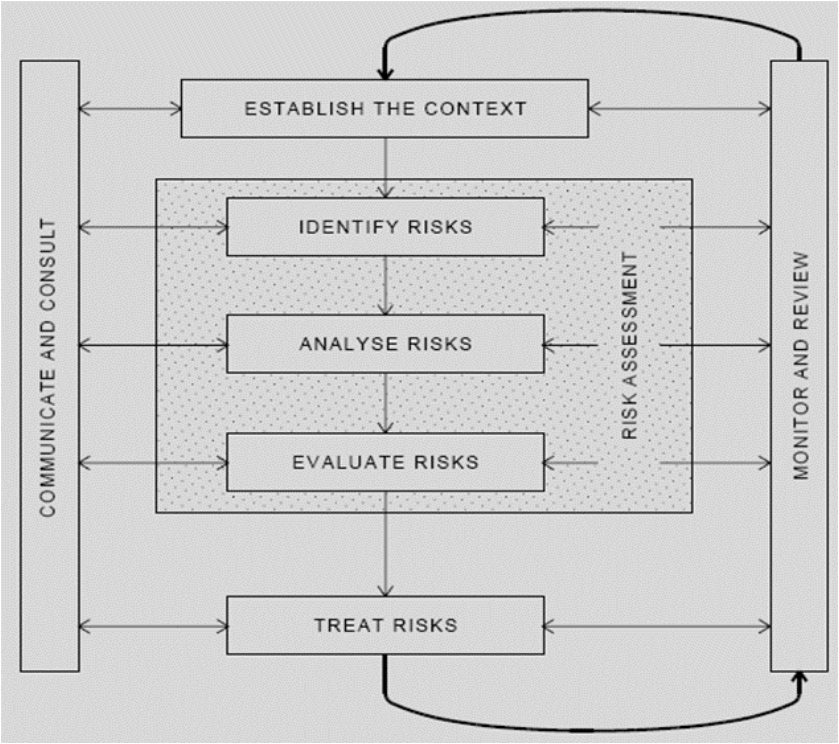


Figure 9-1: Risk Management Framework (AS/NZS 4360:2004 Risk Management)

Shell's HSSE and SP Management System is a system that is continually improving due to incorporation of legislative requirements, changing community expectations, improved available technology, ongoing stakeholder engagement, learning from incidents industry wide and within Shell, and regular management review. Assurance that the HSSE and SP Management System is working, continually improving and that each Shell company is correctly applying new Shell standards occurs via local self-assurance and the Shell Global auditing process, which is ongoing and serves to identify gaps and drive gap closure.

Company standards are at least equal to, but in many cases, more stringent than local legislation, and aligned with global good industry practice benchmarks such as those published by the IFC and World Bank. Both legislation and company standards are continually being updated and

requiring a higher level of performance over time. Concurrently, new technologies are becoming available and making improved performance possible and more affordable. This continual improvement is reflected in more challenging ALARP and acceptability benchmarks, leading to better environmental outcomes over time.

The OPGGS (E) Regulations 13(5)(b) requires that the EP includes 'an evaluation of all the impacts and risks, appropriate to the nature and scale of each impact or risk'. This is further clarified by Reg. 13(6) which states that: 'To avoid doubt, the evaluation mentioned in paragraph (5)(b) must evaluate all environmental impacts and risks arising directly or indirectly from (a) all operations of the activity; and (b) potential emergency conditions, whether resulting from accident or any other reason.' Based on this, Shell has chosen to present ALARP demonstrations for all identified impacts and risks, regardless of their ranking.

The succeeding sections detail the environmental impacts and risks of operations associated with the Crux development drilling activity on the local and wider environment, including socio-economic considerations. Activities are described in terms of magnitude/sensitivity and ranking of planned impacts and unplanned risks. A description of management actions proposed to reduce any effect on the environment to ALARP is also presented.

In preparation of this EP, a detailed desktop review of the impact and risks assessments were carried out by environment professionals. Throughout the desktop assessment additional supporting information such as current forecasts from Shell's business planning processes were also used to provide input to the impact assessment.

9.2 Impact Assessment Methodology

This section describes the approach adopted for identifying and assessing impacts on the environment as relevant to the petroleum activities. Planned activities give rise to environmental impacts, while unplanned and accidental events pose a risk of environmental impact, if they occur. The risk of environmental impacts resulting from unplanned or accidental events is evaluated by taking the likelihood of the event occurring into consideration.

The approach aligns with Shell's methodology that enables a balanced assessment of planned impacts and unplanned risks, noting that there are some difficulties in relying solely on the Shell Risk Assessment Matrix (RAM) for assessment of significance of potential environmental impacts. Therefore, an adapted methodology has been developed by Shell (United Kingdom), for use across Shell Group companies, that ties together both potential 'Magnitude' of a predicted impact and the 'Receptor Sensitivity' as shown in a summary impact ranking matrix (see Section 9.2.2). The matrix is used for the assessment of impacts consequences for both planned and unplanned events. However, in accordance with the Shell RAM, for the assessment of unplanned events, the additional likelihood of occurrence of an event taken into account (See Section 9.2.3).

For the purpose of this assessment, key terminology is defined in Table 9-1.

Table 9-1: Definition of Key Terminology for Impact Assessment

Term	Definition
Acceptable	The level of impact and risk to the environment that may be considered broadly acceptable regarding all relevant considerations.
Activity	Components or elements of work associated with the project. All activities associated with the project have been considered at a broad level (as outlined in Section 6).
ALARP	The point at which the cost (in time, money and effort) of further Risk or Impact reduction is grossly disproportionate to the Risk or Impact reduction achieved
Aspect	Elements of the proponent's activities or products or services that can interact with the environment. These include planned and unplanned (including those associated with emergency conditions) activities.

Term	Definition
Consequence	The outcome of an event, which can lead to a range of consequences. A consequence can be certain or uncertain and can have positive or negative effects. Consequences can be expressed qualitatively or quantitatively.
Control	A measure which prevents and/or mitigates risk by reducing the overall likelihood of a worst-case credible consequence occurring. Controls include existing controls (i.e. Company management controls or industry standards) or additional controls (i.e. additional measures identified during the risk assessment processes).
Event	An occurrence of a particular set of circumstances. An event can be one or more occurrences and can have several initiating causes.
Factor	Relevant physical, biological, socio-economic and cultural features of the environment. These are also referred to as values, sensitivities and/or receptors.
Hazard	A substance, situation, process or activity that has the ability to cause harm to the environment.
Impact	Any change to the environment from a planned activity, whether adverse or beneficial, wholly or partially resulting from a proponent's environmental aspects.
Inherent risk	The potential exposure defined as the plausible worst-case event in the absence of controls
Likelihood	Description of probability or frequency of a consequence occurring with controls in place.
Residual impact	The level of impact remaining after impact treatment, i.e. application of controls (inclusive of unidentified impact).
Residual risk	The level of risk remaining after risk treatment, i.e. application of controls (inclusive of unidentified risk).

9.2.1 Aspects and Impact/Risk Identification

The initial identification of aspects and potentially associated impacts/risks is carried out prior to any detailed assessment of the relative importance of each issue, the sensitivity of the existing environmental and/or socio-economic values, or the magnitude of the potential impact, and does not consider potential control measures.

The key aspects arising from the Crux development drilling activity have been identified as:

- Physical presence
- Lighting
- Underwater noise
- Disturbance to seabed
- Vessel movements (unplanned)
- Introduction of Invasive Marine Species from vessels (unplanned)
- Discharge of liquid effluent
- Discharge of drill cuttings, muds and other drilling-related discharges
- Atmospheric emissions
- Greenhouse gas emissions
- Waste management
- Emergency events

- Oil spill response strategies.

9.2.2 Evaluation of Impacts

Impact Consequence Assessment

The ranking of environmental impact consequence is assessed in terms of:

- magnitude based on the size, extent and duration/frequency of the impact; and
- the sensitivity of the receiving receptors.

These are described further below.

Magnitude

Levels of magnitude of environmental impacts are outlined in Table 9-2. The magnitude of an impact or predicted change takes into account the following (shown descriptively in Figure 9-2):

- Nature of the impact and its reversibility
- Duration and frequency of an impact
- Extent of the change
- Potential for cumulative impacts.

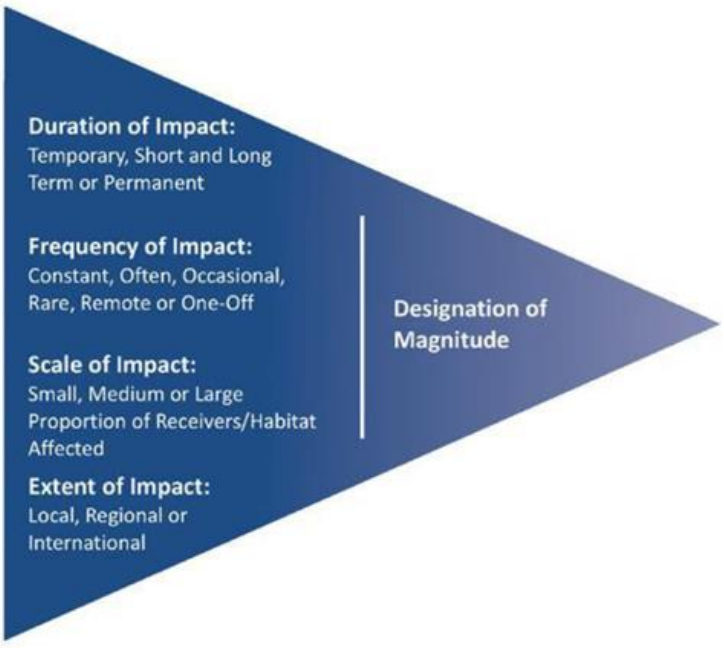


Figure 9-2: Definition of Magnitude in the Context of Impact Identification

The impact magnitude is defined differently according to the type of impact. For readily quantifiable impacts, such as noise or liquid discharge plume extent, numerical values can be used while for other topics (e.g. communities and habitats) a more qualitative definition is applicable. These criteria capture high level definitions, adapted as appropriate to the offshore context of the Crux development drilling activity.

Table 9-2: Magnitude Criteria

Definition	Environmental Impact
Positive effect **+1**	• Net positive effect arising from a proposed aspect of the Crux project

Definition	Environmental Impact
No effect **0**	• No environmental damage or effects
Slight effect **-1**	• Slight environmental damage contained within the project area • Effects unlikely to be discernible or measurable • No contribution to trans-boundary or cumulative effects • Short-term or localised decrease in the availability or quality of a resource, not effecting usage
Minor effect **-2**	• Minor environmental damage, no lasting effects or persistent effects are highly localised • Minor change in habitats or species • Unlikely to contribute to trans-boundary or cumulative effects • Short-term or localised decrease in the availability or quality of a resource, likely to be noticed by users
Moderate effect **-3**	• Moderate environmental damage that will persist or require cleaning up • Widespread change in habitats or species beyond natural variability • Observed off-site effects or damage, e.g. fish kill or damaged habitats • Decrease in the short-term (1–2 years) availability or quality of a resource affecting usage • Local or regional stakeholders' concerns leading to complaints • Minor trans-boundary and cumulative effects
Major effect **-4**	• Severe environmental damage that will require extensive measures to restore beneficial uses of the environment • Widespread degradation to the quality or availability of habitats and/or wildlife requiring significant long-term restoration effort • Major oil spill over a wide area leading to campaigns and major stakeholders' concerns • Trans-boundary effects or major contribution to cumulative effects • Mid-term (2–5 year) decrease in the availability or quality of a resource affecting usage • National stakeholders' concern leading to campaigns affecting Company's reputation
Massive effect **-5** (to be used only for unplanned events)	• Persistent severe environmental damage that will lead to loss of use or loss of natural resources over a wide area • Widespread long-term degradation to the quality or availability of habitats that cannot be readily rectified • Major impact on the conservation objectives of internationally/nationally protected sites • Major trans-boundary or cumulative effects • Long-term (> 5 year) decrease in the availability or quality of a resource affecting usage • International public concern

Receptor Sensitivity

For this EP, receptors are grouped into the following primary categories (as described further in Section 7 and further broken down into sub-categories):

- Physical environment
- Biological environment
- Socio-economic and cultural environment.

Receptor sensitivity criteria are based on the following key factors:

- Importance of the receptor at local, national or international level – for instance, a receptor will be of high importance at international level if it is categorised as a designated protected area (such as a Ramsar site). Areas that may potentially contain high value habitats are of medium importance if their presence/extent have not yet been confirmed
- Sensitivity/vulnerability of a receptor and its ability to recovery – for instance, certain species could adapt to changes easily or recover from an impact within a short period of time. As part of the receptor sensitivity criteria (Table 9-3) professional judgement considers recovery time of a receptor from identified impacts. This also considers if the receptor is under stress already
- Sensitivity of the receptor to certain impacts – for instance, vessel emissions will potentially cause air quality impacts and do not affect other receptors such as seabed.

Table 9-3: Receptor Sensitivity Criteria

Sensitivity	Environmental Impact
Low **(L)**	Receptor with low value or importance attached to them, e.g. habitat or species which is abundant and not of conservation significance, or Immediate to short-term recovery and easily adaptable to changes.
Medium **(M)**	Receptor of Medium importance, e.g. recognised as an area/species of potential conservation significance for example, KEF or listed threatened species, or Recovery within 1–2 years following cessation of activities, or localised medium-term degradation with recovery in 2–5 years.
High **(H)**	Receptor of High importance, e.g. recognised as an area/species of potential conservation significance with development restrictions for example marine parks or conservation reserves, or habitat critical to the survival of a species, or Recovery not expected for an extended period (> 5 years following cessation of activity) or that cannot be readily rectified.

Impact Consequence Ranking

The magnitude of the impact and sensitivity of receptor are then combined to determine the impact consequence ranking in accordance with Table 9-4 below. Key management controls are subsequently identified to reduce the magnitude for such an event occurring in order to determine the final residual impact ranking and inform an assessment of acceptability.

Table 9-4: Impact Consequence Matrix

Magnitude	Sensitivity L	Sensitivity M	Sensitivity H
+1			
0			
-1			
-2			
-3			
-4			
-5			

Residual Impact Consequence Ranking	Residual Impact Acceptability Categories
Positive Impact Consequence	Inherently acceptable - Manage for continuous improvement through effective implementation of the HSSE and SP management system
No Impact Consequence	
Slight Impact Consequence	
Minor Impact Consequence	
Moderate Impact Consequence	Acceptable with controls - Apply the hierarchy of control to reduce the risks to ALARP
Major Impact Consequence	Unacceptable
Massive Impact Consequence	

Unplanned Risks (Likelihood Criteria)

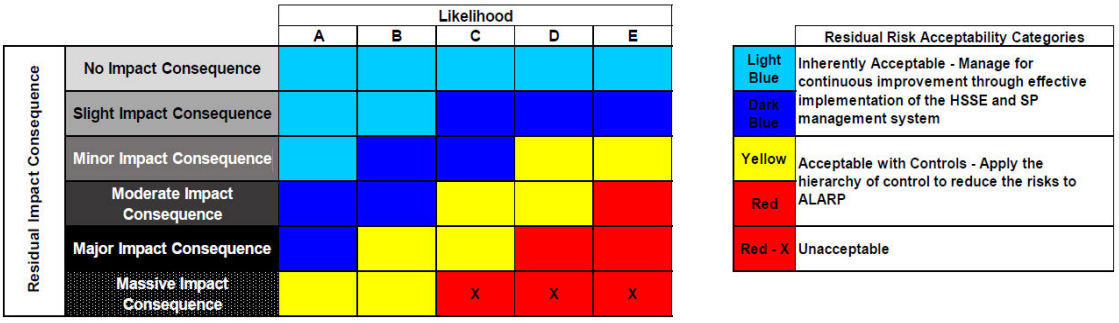
For unplanned/emergency events, the likelihood of such an event occurring also requires consideration. For example, based on magnitude and sensitivity alone, a hydrocarbon spill associated with a long-term well blowout would be classed as having a major impact; however, the likelihood of such an event occurring is very low. In addition, the mitigation measures for such impacts focusses on reducing the likelihood of the impact occurring as opposed to reducing the magnitude of the impact itself. Thus, unplanned events also require assessment in terms of environmental risk.

As with planned activities, the potential impacts of unplanned events are identified, and the impact consequence ranking is determined, which inherently takes into account the sensitivity of the relevant receptor(s). The impact consequence ranking is then combined with the likelihood of the event occurring (Table 9-5) in order to determine the overall environmental risk as summarised in Table 9-6. Controls are then identified to reduce the risk of such an event occurring in order to determine residual risk and inform assessment of acceptability.

Table 9-5: Likelihood Criteria

A	• Never heard of in the industry – **extremely remote** • < 10^{-5} per year • Has never occurred within the industry or similar industry but theoretically possible
B	• Heard of in the industry – **remote** • 10^{-5}–10^{-3} per year • Similar event has occurred somewhere in the industry or similar industry but not likely to occur with current practices and procedures
C	• Has happened in the Company or more than once per year in the industry – **unlikely** • 10^{-3}–10^{-2} per year • Event could occur within lifetime of similar facilities. Has occurred at similar facilities
D	• Has happened at the location or more than once per year in the Company – **possible** • 10^{-2}–10^{-1} per year • Could occur within the lifetime of the development
E	• Has happened more than once per year at the location – **likely** • 10^{-1}– > 1 per year • Event likely to occur more than once at the facility

Table 9-6: Environmental Risk Matrix (Unplanned Events)



For the purpose of the Crux development drilling activity risk review, the following key risks were assessed in accordance with the risk-based approach summarised in this section:

- Vessel movements, in the context of unplanned interactions with marine fauna
- IMS
- Unplanned release of wastes
- Unplanned (spill) events.

9.2.3 Assessment of Residual Impacts and Risks

The risk assessment methodology applied ensured the following key steps were completed throughout scenario development:

1. hazards identified
2. initiating causes determined
3. worst case credible scenarios agreed (without controls in place)
4. release of hazards understood (i.e. top events)
5. preventative controls listed
6. mitigative controls listed
7. likelihood determined (with confirmed controls in place)
8. risk ranking attributed.

In the evaluation of residual impacts and risks, all controls are assumed to be implemented effectively and functioning as intended.

The residual impacts and risks detailed in Sections 9.3 to 9.14 represent a summary of the various individual environmental value/sensitivity rankings defined from a detailed environmental risk workshop attended by specialist environmental scientists together with key members of the Shell project team. The residual impact rankings provided represent the highest residual impact for that receptor group (i.e. physical environment, threatened species and ecological communities, ecosystems, communities and habitats, and socio-economic and cultural environment), and therefore may be a conservative assessment for some individual environmental values/sensitivities. These residual impacts and risks are then compared to the acceptability categories outlined in Section 8, Table 8-2 and Table 8-3 to determine a final ALARP and acceptability statement.

Cumulative environmental impacts and risks are also considered and discussed where relevant through the impact and risk assessment process taking into account current and foreseeable pressures on the environment including other petroleum activities, other marine industries and users, and other ecosystem pressures.

9.2.4 ALARP Assessment

ALARP for Shell means, the point at which the cost (in time, money and effort) of further risk or impact reduction is grossly disproportionate to the risk or impact reduction achieved.

ALARP can be demonstrated through a number of mechanisms via:

- a quantitative method, such as via technical assessments (e.g. modelling studies) or where the costs of the various options can be compared with the respective impact/risk reduction;
- semi-quantitative method where impacts/risks within a certain level require a pre-defined number of barriers of a certain effectiveness in place to prevent this hazard being released; or via
- qualitative analysis, whereby ALARP is established using standards, legislative requirements and judgement based on experience.

Shell applies a hierarchy of control process to demonstrate ALARP, as shown in Figure 9-3.

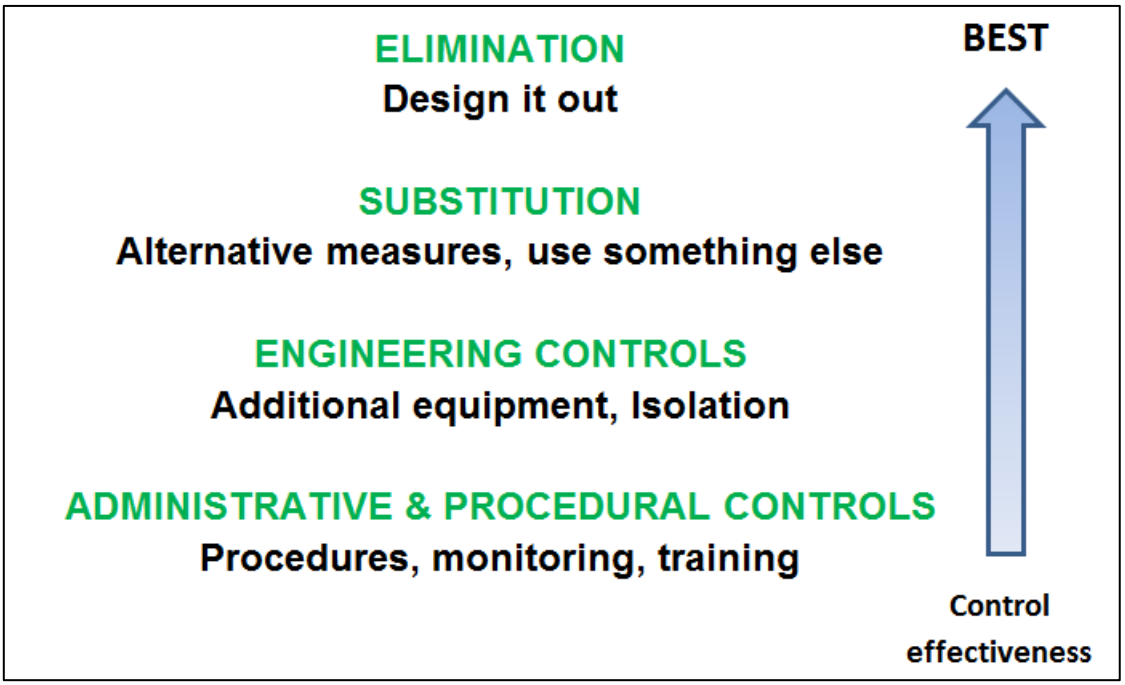


Figure 9-3: Hierarchy of Controls

9.2.5 Environmental Performance Outcomes

Environmental Performance Outcomes (EPOs) have been developed for all aspects of the Crux development drilling activity. The purpose of the EPOs is to provide specific, measurable levels of environmental performance that are:

- consistent with the principles of ESD; and
- demonstrate that the environmental impacts and risks of the Crux project are of an acceptable level.

Note that the consideration of acceptability for each aspect is provided in the relevant **Acceptability** sections in the evaluation of environmental impacts and risks. Consequently, these acceptability considerations are a component of the EPO.

EPOs associated with planned impacts will generally be demonstrated through successful implementation of controls, environmental performance standards and associated measurement

criteria. Note that controls may include environmental monitoring programs, however these are not required where there is high confidence in the effectiveness of controls and the potential for environmental impact is low. Where an unplanned event (e.g. accidental discharge) results in the potential for environmental harm, the incident reporting and investigation process will identify if there is the potential for environmental impacts. This process will provide sufficient information to determine if the EPO has been achieved.

9.3 Physical Presence

9.3.1 Aspect Context

The presence of the MODU and vessels within the Operational Area has the potential to displace other marine users. This includes affecting activities and access to areas associated with fishing, tourism, defence, commercial shipping and other oil and gas activities in the region. Refer to Section 5.8 for a description of the Crux development drilling activity and infrastructure.

A PSZ of 500 m will be established around the drilling location, as per the OPGGS Act, from which unauthorised marine users are prohibited from entering. The PSZ is a key safety measure to reduce potential interactions with the Crux development drilling activity and associated subsea infrastructure.

The drilling template installation is the first activity that will be undertaken and will be carried out by an LCV. This activity is currently proposed to occur approximately 3 months ahead of MODU arrival. Following MODU arrival, drilling activities will commence for a planned duration of approximately 10 months, with an additional 10-month contingency drilling period. During drilling, the MODU will be supported by AHTS and general project vessels (Section 6.5.8). The docking pile installation will be installed after drilling has ceased utilising a similar class vessel as the template installation campaign.

At the completion of the drilling campaign the wells will be temporarily suspended and there are limited infield activities associated with the wells and drilling template during the suspension period covered under this EP. These activities will be limited to IMR which are currently scheduled to occur at a minimum annual frequency. Although these activities may occur as independent vessel based campaigns, the intent is to utilise vessels of opportunity associated with future Crux installation activities to obtain inspection data and undertake any identified maintenance activities.

The subsea wellheads and drilling template will remain for the duration of field life. They will take up a small area on the seabed and will rise several metres above the seabed. As described in Section 6.5.7 wells may need to be abandoned if a respud is required. This is considered a contingent activity and if a well is abandoned due to respud, a reasonable attempt to remove the wellhead(s) will be made.

9.3.2 Description and Evaluation of Impacts

Fishing effort of the Commonwealth North West Slope Trawl Fishery, WA Mackerel Fishery, and the WA Northern Demersal Scalefish in 2018-20 overlapped the Operational Area (Table 7-27). Potential impacts include minor interference (navigational hazard) and localised displacement/avoidance by commercial fishing vessels within the immediate vicinity of the MODU or project vessels. Impacts are expected to be Minor due to:

- low fishing effort in the region; and
- the limited extent of the PSZ in relation to the area available for fishing.

There was no relevant direct response from commercial fisheries during the stakeholder consultation period, and as such the potential impact is considered to be minor and temporary.

Traditional and recreational fishing, and aquaculture activities do not occur in the Operational Area (Section 7.4.4, therefore, they are not expected to be affected by the Crux development drilling activity.

There are no known cultural heritage features or values that could be credibly impacted by the physical presence of vessel or the drilling template within the Operational Area.

There are no known tourism activities in the Operational Area (Section 7.4.5) due to the considerable water depths and distance offshore. Therefore, no impacts to tourism are expected.

There are no known defence exercise areas or planned activities within the Operational Area (Section 7.4.6). Therefore, no impacts to defence are expected.

The closest permanent petroleum infrastructure to the Operational Area is the Montara production FPSO facility, which is located approximately 36 km north of the Operational Area (Section 7.4.9). Impacts to other oil and gas activities in the region from the physical presence of vessels and the MODU in the Operational Area are therefore not expected.

Commercial shipping activity in the vicinity of the Operational Area is low. Vessel traffic data shows that the majority of vessel movements occurs to the south-west of the Operational Area, with the nearest major shipping channel over 500 km from the Operational Area. Given the small area of the PSZ and the Operational Area, and the low level of shipping activity within the Operational Area, the extent of any physical displacement of commercial ships will be Minor.

The residual impact ranking of physical displacement across all marine users is assessed as Minor (Magnitude – −2, Sensitivity – M).

9.3.3 Impact Assessment Summary

Table 9-7: Physical Presence Evaluation of Residual Impacts

Environmental Receptor	Magnitude	Sensitivity	Residual Impact Consequence
Evaluation – Planned Impacts			
Socio-Economic Environment	-2	M	Minor

9.3.4 ALARP Assessment and Environmental Performance Standards

Table 9-8: ALARP Assessment and Environmental Performance Standards

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
Elimination	N/A	N/A	Physical presence of the MODU and project vessels cannot be eliminated for the Crux development drilling activity.	N/A	N/A	N/A
Substitution	N/A	N/A	No additional or alternative control measures have been identified to reduce the impact from physical presence of the MODU and project vessels for the Crux development drilling activity.	N/A	N/A	N/A
Engineering	N/A	N/A	No additional or alternative control measures have been identified to reduce the impact from physical presence of the MODU and project vessels for the Crux development drilling activity.	N/A	N/A	N/A
Engineering	In the event of a respud, a reasonable attempt will be made to remove the unused wellhead.	No	The Crux wells are to be drilled in a cluster via the subsea template and are not open water individual wells. In the event of a respud, the presence of an inactive wellhead within the footprint of the template and adjacent to completed wells, does not cause any incremental increase in risk associated with the physical presence of that well. Additionally, the future Crux platform will be located directly above the drilling template and therefore there will be direct access to all wellheads to allow maintenance throughout the life of the wells (including unused well heads). Subject to additional considerations of the requirements of the OPGGS (E) Regulations, unused well heads may also be used for future well activities. Future decommissioning of the wellheads is out of the scope of this EP, however, all subsea	N/A	N/A	N/A

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
			infrastructure is designed to allow removal at the end of field life, where required.			
Administrative and Procedural Controls	For specific vessel based campaigns, the Australian Hydrographic Service (AHS) is given advance notification (minimum four weeks prior) before arrival on location to enable a 'Notice to Mariners' to be issued prior to petroleum activities outside of the PSZ but within the Operational Area.	Yes	Allows notifications to be made to other marine users in the area to minimise disruption to their activities. A 'Notice to Mariners' may be issued by the relevant authority before the activity. Activities occurring within NOPSEMA's gazetted PSZs do not require promulgation of a 'Notice to Mariners'.	1.2	AHS is given notification in advance to enable a 'Notice to Mariners' to be issued atleast four weeks prior to vessel based petroleum activities outside of the PSZ but within the Operational Area.	Records available of advance notification (minimum four weeks prior) to the AHS which enables issuing of Notice to Mariners' or the relevant Notice to Mariners.
Administrative and Procedural Controls	Ongoing Relevant Persons consultation process.	Yes	Shell will implement the ongoing consultation process in accordance with regulation 14(9) of the OPGGS(E)R and Section 5.8. This process provides a mechanism for RPs to give feedback, and raise claims or objections relevant to the activities being executed under the EP. This gives Shell the ability to maintain relationships with RPs that fosters a continued improvement in Shells understanding of the features and values of the existing environment, and where new risks or impacts are identified, the establishment of appropriate controls to reduce risks and/or impacts to ALARP and acceptable levels.	1.3	Shell will implement an ongoing consultation process with Relevant Persons in accordance with regulation 14(9) of the OPGGS(E)R and Section 5.8.	Relevant Persons consultation records. MOC records.
Administrative and Procedural Controls	Adhere to administrative safety requirements	Yes	All project vessels operating within the Operational Area will adhere to the navigation safety requirements contained within the International Regulations for Preventing Collisions at Sea 1972 (COLREGS), Chapter 5 of The International Convention for the Safety of Life at Sea 1974	1.4	Compliance with the navigation safety requirements contained within the International Regulations for Preventing Collisions at Sea 1972 (COLREGS), Chapter 5	Inspection records demonstrate compliance with navigation safety requirements.

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
			(SOLAS Convention), International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW Convention), the Navigation Act 2012 and any subsequent Marine Orders, which specify standards for crew training and competency, navigation, communication, and safety measures.		of The International Convention for the Safety of Life at Sea 1974 (SOLAS Convention), International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW Convention), the Navigation Act 2012 and any subsequent Marine Orders.	

9.3.5 Acceptability of Impacts

Table 9-9: Acceptability of Impacts – Physical Presence

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Are the Impacts of an Acceptable Level?	Acceptability Assessment
Socio-economic and Cultural Environment	Cultural Heritage Features	No impacts to Cultural heritage features	Yes	There are no known cultural heritage features or values that could be credibly impacted by the physical presence of vessels, MODU or the drilling template within the Operational Area.
	Cultural Heritage Values	No significant impacts to cultural heritage values	Yes	
	Commercial Fisheries	No negative impacts to exploited fisheries resource stocks which result in a demonstrated direct loss of income. Temporary displacement of commercial fishing activities within the Crux Operational Area (excluding petroleum safety zones) is acceptable. Permanent exclusion of commercial fishing activities from gazetted petroleum exclusion zones is acceptable.	Yes	Temporary exclusions of other marine users from the Operational Area is considered to be acceptable and necessary from a safety, security and oil spill prevention (collision) perspective. Permanent exclusion of marine users from gazetted petroleum exclusion zones is acceptable.

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Are the Impacts of an Acceptable Level?	Acceptability Assessment
	Traditional Indigenous fishing	No negative impacts to exploited fisheries resource stocks. Temporary displacement of traditional fishing activities within the Crux Operational Area (excluding petroleum safety zones) is acceptable. Permanent exclusion of traditional fishing activities from gazetted petroleum exclusion zones is acceptable.	Yes	
	Tourism and Recreation	No negative impacts to nature-based tourism resources resulting in demonstrated loss of income. Temporary displacement of tourism activities within the Crux Operational Area (excluding petroleum safety zones) is acceptable. Permanent exclusion of tourism activities from gazetted petroleum exclusion zones is acceptable.	Yes	
	Military/defence	Temporary displacement of defence activities within the Crux Operational Area (excluding petroleum safety zones) is acceptable. Permanent exclusion of defence activities from gazetted petroleum exclusion zones is acceptable.	Yes	
	Ports and commercial shipping	Temporary displacement of commercial shipping within the Crux Operational Area (excluding petroleum safety zones) is acceptable. Permanent exclusion of commercial shipping from gazetted petroleum exclusion zones is acceptable.	Yes	

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Are the Impacts of an Acceptable Level?	Acceptability Assessment
	Offshore petroleum exploration and operations	Temporary displacement of petroleum exploration activities and operations within the Crux Operational Area (excluding petroleum safety zones) is acceptable. Permanent exclusion of petroleum exploration activities and operations from gazetted petroleum exclusion zones is acceptable.	Yes	

The assessment of impacts from physical presence determined the residual impact rating of Minor (Table 9-7). As outlined above, the acceptability of the impacts from physical presence associated with the petroleum activities has been considered in the following context.

Principles of ESD

The impacts from physical presence are consistent with the principles of ESD based on the following points:

- The physical presence aspect does not degrade the biological diversity or ecological integrity of the Commonwealth marine area in the northern Browse Basin
- Significant impacts to MNES will not occur
- The health, diversity and productivity of the marine environment will be maintained for future generations
- The project does not significantly impinge upon the rights of other parties to access environmental resources (e.g. commercial and traditional fishers)
- The precautionary principle has been applied, and studies undertaken where knowledge gaps were identified. This knowledge has been applied during the evaluation of environmental impacts and risks.

Relevant Requirements

Management of the impacts from physical presence are consistent with relevant legislative requirements, including:

- Part 6.6 of the OPGGS Act
- Compliance with international maritime conventions, including:
  - STCW Convention
  - SOLAS Convention
  - COLREGS.
- Compliance with Australian legislation and requirements, including:
  - Navigation Act 2012:
    - Marine Order 21 (Safety of Navigation and Emergency Procedures)
    - Marine Order 30 (Prevention of Collisions)
    - Marine Order 71 (Masters and Deck Officers).

Matters of National Environmental Significance

Threatened and Migratory Species

Not applicable for this assessment.

Commonwealth Marine Environment

Not applicable for this assessment.

External Context

There have been no objections or claims raised by Relevant Persons to date regarding the physical presence aspect. Shell's ongoing consultation program will consider feedback and claims or objections made by Relevant Persons throughout the life of this EP. Where new impacts or risks are established these will be subject to the MOC process described in Section 10.1.3.

Internal Context

Shell has also considered the internal context, including Shell's environmental policy and Environmental, Social and Health Impact Assessment (ESHIA) requirements. The EPO and the controls that will be implemented for the Crux development drilling activity are consistent with Shell's internal requirements.

Acceptability Summary

The assessment of impacts and risks from physical presence determined the residual impact rankings were Minor or lower (Table 9-7). As outlined above, the acceptability of the impacts has been considered in the context of:

- the established acceptability criteria for the physical presence aspect;
- principles of ESD;
- relevant requirements;
- MNES;
- external context (i.e. stakeholder claims); and
- internal context (i.e. Shell requirements).

Shell considers residual impacts of Minor or lower to be inherently acceptable if they meet legislative and Shell requirements. The discussion above demonstrates that these requirements have been met in relation to the physical presence aspect.

Based on the points discussed above, Shell considers the impacts from physical presence associated with the Crux development drilling activity to be ALARP and acceptable.

9.3.6 Environment Performance Outcome

Environment Performance Outcome	Measurement Criteria
No adverse interactions between Shell's activities within the Operational Area and other marine users. Displacement of other marine users within the Operational Area is restricted to: • Temporary displacement from project activities; and • Exclusion from gazetted Petroleum Safety Zones.	No supported claims reported which demonstrate direct loss of income or other impacts to marine users as a result of undertaking the petroleum activities.

9.4 Lighting

9.4.1 Aspect Context

The MODU and project vessels will have external lighting to support safe navigation and safe operations at night, with project activities planned to be conducted 24 hours a day. All offshore facilities and vessels must meet maritime and operational safety lighting requirements, as specified by Safety Case assessments under the OPGGS Act and relevant legislation, such as the *Navigation Act 2012*. Artificial light from the Crux development drilling activity will result in light spill to the surrounding marine environment.

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.

External lighting will be located over the entire MODU, with most external lighting directed towards working areas such as the main deck, pipe rack and drill floor. These areas are typically lower than 20 m above sea level when the MODU is on station. The highest point on the MODU is the top of the derrick, which is typically about 50 m above sea level.

To characterise the sources of light emissions from the Crux development drilling activity and assess the predicted impact of light in the context of the nearest sensitive receptors, Shell commissioned a study (Imbricata 2018) as part of the OPP process. The study involved:

Line of Sight (LOS) modelling, to determine how far light from the Operational Area will travel. This enables the identification of impacted receptors

Light intensity modelling, to determine the intensity of luminance.

This modelling was used to assess the light pollution from:

- the MODU mast and deck; and
- a supply vessel.

Line of Sight Assessment

The study determined that light from the MODU deck (assumed to be 25 m above sea level) may be visible on the horizon at a distance of up to 17.9 km, which would be visible from Goeree Shoal. Light from the mast (assumed to be 75 m above sea level) of the MODU may be visible at a distance of up to 30.9 km, encompassing Goeree Shoal and Eugene McDermott Shoals (Table 9-10). The lights of a supply vessel in the Operational Area may be visible on the horizon at a distance of up to 19.6 km.

Table 9-10: Modelled limit of light visibility the MODU and a Supply Vessel in the Crux Operational Area

Equipment	Assumed height (m above sea level)	Limit of visibility (km)	Key habitats reached
MODU mast	75	30.9	• Goeree Shoal (~14 km NW of Operational Area) • Eugene McDermott Shoals (~20 km SE of Operational Area) • Vulcan Shoal (~24 km NW of Operational Area)
MODU deck	25	17.9	• Goeree Shoal (~13 km NW of Operational Area)
Supply vessel	Not applicable.	19.6	• Goeree Shoal (~13 km NW of Operational Area)

Source: Imbricata, 2018

Light Intensity Assessment

While the line of sight may extend tens of kilometres from the source, the light density (measured in Lux – which represents the intensity of light that arrives at or leaves a surface, as perceived by the human eye) rapidly decreases as distance increases from the source of the light.

The results of the light intensity modelling are summarised in Table 9-11 (Imbricata 2018). To contextualise these results, light intensity represents the intensity of light that arrives at or leaves a surface, as perceived by the human eye, and is typically measured in Lux. The total amount of light as it arrives at a surface is referred to as illuminance and is the parameter that has been modelled in this assessment. Light intensity decreases as distance increases from the source of light.

Comparison of the results can be made with typical ambient light conditions, as summarised below:

- > 1 Lux (day light)
- 0.1–1.0 Lux (full moon to twilight)

- 0.01–0.1 Lux (quarter moon to full moon)
- 0.001–0.01 Lux (moonless clear night to quarter moon).

The results of light intensity modelling show low levels of light influence. The functional lighting to ambient conditions is predicted to be 9 km from the MODU and supply vessel (Imbricata 2018). Therefore, light from a MODU reaching the nearest submergent receptors of Goeree Shoal (Exposure Value (Ev) = 0.0055 Lux) and Eugene McDermott Shoals (Ev = 0.0014 Lux) will be at ambient (equivalent to a moonless clear night to quarter moon).

Table 9-11: Extent of Horizontal and Vertical Light Propagation at Ambient Light Conditions (Luminance = 0.001 Lux) for the MODU and a Supply Vessel in the Crux Operational Area

Location of Light Source	Modelling Analogues (max. luminance at 100 m) (Lux)	Horizontal Light Propagation (km)
MODU deck and mast	8.9	9
Project vessel stern	8.9	9

Source: Imbricata, 2018

9.4.2 Description and Evaluation of Impacts

Artificial lighting can create light spill, which has the potential to affect marine fauna that use light as cues for navigation or behaviour. The impacts of artificial light on these animals may include:

- disorientation, misorientation, attraction or repulsion;
- disruption to natural behavioural patterns and cycles; and
- indirect impacts such as increased predation and reduced fitness.

Potential impacts of changes to ambient light are included in a number of recovery plans and conservation advice, including the Recovery Plan for Marine Turtles in Australia (Commonwealth of Australia, 2017a) and the Wildlife Conservation Plan for Migratory Shorebirds (Commonwealth of Australia, 2015c).

The introduction of light emissions from the Crux development drilling activity will result in a temporary change to ambient light. The Operational Area is at a significant distance from coastal sources of light emissions, and existing lighting in the region is limited to offshore facilities, associated supporting activities and shipping traffic. The contribution of light emissions from the Crux development drilling activity will be comparable with existing vessels and facilities in the region and will not result in a notable increase.

The National Light Pollution Guidelines for Wildlife (NLPG) addresses potential impacts to marine turtles, seabirds and migratory shorebirds from artificial light (DCCEEW, 2023c). The guidelines recommend a specific artificial light impact assessment process is undertaken where there is important habitat for listed species that are known to be affected by artificial light within 20 km of a project. 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 (Kamrowski, et al., 2014; Hodge et al., 2007) and fledgling seabirds grounded in response to artificial light 15 km away (Rodríguez et al., 2014). The Operational Area is located about 100 km from any emergent features and outside known BIAs for turtles and seabirds/migratory shorebirds, therefore a specific assessment of potential impacts of artificial lighting is not required under the NLPG. However, the assessment of impacts presented below is supported by the light modelling conducted for the OPP process as presented in Section 9.4.1.

9.4.2.1 Marine Turtles

Light can affect the behaviour of adults and hatchling turtles. Light pollution on nesting beaches can alter critical nocturnal behaviours in adult and hatchling turtles (DCCEEW, 2023c). In the

water, marine turtle hatchlings may use celestial lights as navigational markers during oceanic migrations and are attracted towards bright lights. Hatchlings can become disorientated and trapped within light spill around platforms and vessels, resulting in increased energy expenditure, increased predation and decreased survival rates (Witherington & Martin 1996; cited in Lorne et al. 1997; DCCEEW, 2023c). However, as hatchlings swim offshore from their natal beach, they become less influenced by light cues and rely predominantly by wave motion, currents and the earth's magnetic field (Lohmann and Lohmann 1992).

While artificial lighting from the Crux development drilling activity may be visible up to tens of kilometres away from the MODU/vessels (as outlined in the modelling above), the light intensity will be low beyond several hundred metres from the light sources.

No marine turtle BIAs or habitat critical to the survival of marine turtle species overlap with the Operational Area, the closest being the green turtle internesting buffer (Cartier Island), approximately 85 km north-west of the Operational Area (Table 7-9: BIAs of marine turtles that overlap the Operational Area or Planning AreaTable 7-9). The closest nesting BIAs to the Operational Area are at Cartier Island and Ashmore Reef, located approximately 104 km and 163 km north-west of the Operational Area, respectively (Table 7-9). The maximum distance of light visibility predicted from the modelling is approximately 30 km, therefore light pollution from the Crux Operational Area will not interfere with marine turtle BIAs. Turtles may transit through the Operational Area, but in the absence of BIAs they are unlikely to be present in significant numbers. Furthermore, given the distance of the Operational Area from the nearest nesting habitat at Cartier Island, hatchlings will be widely dispersed and are not expected to be influenced by light from the Crux development drilling activity.

Given the large separation distance of the Crux development drilling activity from marine turtle BIAs and habitat critical to the survival of marine turtle species, the consequence of impacts on turtle hatchlings or adult turtles from light emissions during activities associated with the Crux development drilling activity is expected to be Minor (Magnitude – −2, Sensitivity – M).

9.4.2.2 Birds

High levels of marine 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). As the Operational Area is offshore and away from islands or other emergent features, any presence of seabirds or shorebirds is considered likely to be of a transient nature only. The nearest BIA for birds is a breeding BIA for the red-footed booby and greater frigatebird, located approximately 56 km to the north-west of the Operational Area. Impacts to red-footed booby and greater frigatebird within the BIA from Crux drilling activity lighting are therefore not expected.

Behavioural disturbance to birds from light is expected to be localised to within the vicinity of the MODU and vessels within the Operational Area. The light source from the MODU and vessels will be temporary and only when operations are occurring. Interactions with seabirds are therefore expected to be unlikely. Any impacts are predicted to be at an individual level and not a population level. The temporary behavioural disturbance of birds will be localised around the light sources, and not result in a substantial adverse effect on a population of species or its lifecycle. Additionally, light emissions will not seriously disrupt the lifecycle of an ecologically significant proportion of any migratory birds. Based on the impact evaluation, the consequence of impacts to birds from light emissions during activities associated with the Crux development drilling activity is expected to be Minor (Magnitude – −2, Sensitivity – M).

9.4.2.3 Pelagic Communities

Pelagic fish and zooplankton may be directly attracted to lights, and this can alter the distribution and predatory interactions. Experiments using light traps found that some fish and zooplankton species are attracted to light sources (Meekan et al. 2001), with traps drawing catches from up to 90 m (Milicich et al. 1992). Lindquist et al. (2005) concluded from a study of larval fish populations around an oil and gas platform in the Gulf of Mexico that an enhanced abundance of clupeids (herring and sardines) and engraulids (anchovies), both of which are highly photopositive, was

caused by platform light fields. The intensity of light associated with the Crux development drilling activity may temporarily increase the concentration of photopositive marine fauna in the surrounding area.

The concentration of photopositive organisms around artificial light sources can encourage marine predators to aggregate. Shaw et al. (2002), in a similar light trap study, noted that predatory juvenile tunas (Scombridae) and jacks (Carangidae) may have been preying upon concentrations of zooplankton attracted to the light field of oil and gas platforms. This suggests that artificial lighting can increase predation rates compared to unlit areas.

The range of attraction of fish and invertebrates to lighting from the Crux development drilling activity is expected to be localised with no discernible residual impact consequence (Magnitude – 0, Sensitivity – L), and lighting is not expected to attract individuals away from any shoals/banks, offshore reefs/islands or KEFs.

9.4.2.4 Shoals and Banks

Some coral species use moonlight cues to trigger reproductive spawning events; significant light pollution can prevent these corals from detecting moonlight, resulting in their failure to spawn. However, light modelling (presented in Section 9.4.1) demonstrates that visible lighting from a MODU or project vessel reaching the nearest submergent receptors of Goeree Shoal and Eugene McDermott Shoals will be at ambient (equivalent to a moonless clear night to quarter moon). No discernible residual impact consequence is therefore expected (Magnitude – 0, Sensitivity – H).

9.4.3 Impact Assessment Summary

Table 9-12 lists the highest impact consequence rating in the relevant environmental receptor groups.

Table 9-12: Light Emissions Evaluation of Impacts

Environmental Receptor	Magnitude	Sensitivity	Residual Impact Consequence
Evaluation – Planned Impacts			
Biological Environment	-2	M	Minor

9.4.4 ALARP Assessment and Environmental Performance Standards

Table 9-13: ALARP Assessment and Environmental Performance Standards

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
Elimination	No lighting	N/A	No additional or alternative control measures have been identified for this impact for the Crux development drilling activity, given the legal requirements for a well-lit work area.	N/A	N/A	N/A
Substitution	Use different wavelength lights	No	Given the low densities of marine turtles and migratory birds and seabirds that may pass through the Operational Area, and that the lighting impact assessment indicates that the impacts to birds and turtles will be minor, installation of different spectrum lighting is not demonstrably ALARP.	N/A	N/A	N/A
Engineering	Vessel and MODU lighting designed to minimise light spill via: • Shielding; • Use low spill/ directional lighting; • Use of low-reflective paints; • Directing luminaires inwards on the MODU and vessels and away from the ocean.	No	The use of low-spill/directional and shielded lighting is not warranted due to the distance between the Operational Area and the nearest turtle nesting BIA (~85 km) and bird BIA (~56 km) and the absence of other light-sensitive fauna around the Operational Area.	N/A	N/A	N/A
Administrative and Procedural controls	N/A	N/A	No additional or alternative control measures have been identified for this impact for the Crux development drilling activity, given the safety driven requirement for a well-lit work area to support 24-hour operations and the inherent minor residual consequence associated with impacts.	N/A	N/A	N/A

9.4.5 Acceptability of Impacts

Table 9-14: Acceptability of Impacts – Lighting

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Are the Impacts of an Acceptable Level?	Acceptability Assessment
Threatened Species and Ecological Communities	Marine reptiles Birds Fish	No mortality or injury of threatened MNES fauna from the Crux development drilling activity. Management of aspects of the Crux development drilling activity must be aligned to conservation advice, recovery plans and threat abatement plans published by DAWE. No significant impacts to threatened or migratory fauna.	Yes	Light from the MODU and vessels may result in temporary attraction of individual turtles that may pass through the Operational Area. Although this is considered unlikely given the distance from turtle BIAs. Any attraction will be of short duration and will not result in significant impacts. Lighting on the MODU may also attract threatened and migratory birds, which may roost on the MODU. This will not result in significant impacts or mortality.
Ecosystems, Communities and Habitats	Shoals and banks	No direct impacts to named banks and shoals. No loss of coral communities at named banks or shoals as a result of indirect/ offsite[19] impacts associated with the Crux development drilling activity.	Yes	Given the distance to the nearest shoal (~14 km to Goeree Shoal), fauna at the shoals and banks are unlikely to perceive light from the MODU. Hence, they are unlikely to be impacted.

The assessment of impacts from light emissions determined a Minor residual worst-case impact (Table 9-12). As outlined above, the acceptability of the impacts from light emissions associated with Crux development drilling activity has been considered in the following context.

Principles of ESD

The impacts from light emissions are consistent with the principles of ESD based on the following points:

- The light emissions aspect does not degrade the biological diversity or ecological integrity of the Commonwealth Marine Area and significant impacts to MNES are not anticipated to occur

[19] As defined in the Matters of National Environmental Significance - Significant impact guidelines 1.1 (Commonwealth of Australia 2013).

- The precautionary principle has been applied, and studies/reviews undertaken (Imbricata 2018) where knowledge gaps were identified. This knowledge has been applied during the evaluation of environmental impacts.

Relevant Requirements

Management of impacts from light emissions are consistent with relevant legislative requirements, including:

- National Light Pollution Guidelines for Wildlife Including marine turtles, seabirds and migratory shorebirds (DCCEEW, 2023c); and
- Management of impacts are consistent with policies, strategies, guidelines, conservation advice, and recovery plans for threatened species (Table 9-15).

Matters of National Environmental Significance

Threatened and Migratory Species

The evaluation of lighting impacts indicates significant impacts to threatened and migratory species will not credibly result from the light emissions aspect of the Crux development drilling activity.

Alignment of the Crux development drilling activity with management plans, recovery plans and conservation advice for threatened and migratory fauna is provided in Table 9-15.

Commonwealth Marine Environment

The impacts from the light emissions aspect of the Crux development drilling activity on the Commonwealth marine environment will not exceed any of the significant impact criteria provided in Table 8-1.

Table 9-15: Summary of Alignment of the Impacts from Light Emissions Aspect of the Crux Development Drilling Activity with Relevant Requirements for EPBC Threatened Fauna

Matters of National Environmental Significance	MNES Acceptability Considerations (Significant Impact Criteria, EPBC Management Plans/Recovery Plans/Conservation Advices)	Demonstration of Alignment as Relevant to the Project
Threatened and Migratory species – Birds	Significant impact criteria for Critically Endangered, Endangered, Vulnerable and Migratory species (Table 8-1)	The evaluation of environmental impacts indicates that impacts from artificial light emissions on threatened or migratory species are likely to be minor and would not constitute a significant impact to populations. As such, residual impacts from artificial light associated with the Crux development drilling activity does not exceed any of the significant impact criteria for Threatened and Migratory marine species provided in Table 8-1.
	Wildlife Conservation Plan for Migratory Shorebirds (Commonwealth of Australia 2015c)	Managing the light aspect of the Crux development drilling activity has been aligned to 'Objective 4' of the Plan by ensuring that anthropogenic disturbance was considered in development assessment processes. Migratory birds have been considered as an environmental receptor in the evaluation of lighting impacts.
	National Light Pollution Guidelines for Wildlife (DCCEEW 2023c).	Seabirds and migratory birds have been identified in the National Light Pollution Guidelines to be affected by artificial light sources. The management of light emissions for the Crux development drilling activity has

Matters of National Environmental Significance	MNES Acceptability Considerations (Significant Impact Criteria, EPBC Management Plans/Recovery Plans/Conservation Advices)	Demonstration of Alignment as Relevant to the Project
		considered the light management actions described in the guidelines and the impact assessment/thresholds have been based on the precautionary limits referenced in the guidelines.
Threatened and Migratory species – Marine Reptiles	Significant impact guidelines for Critically Endangered, Endangered, Vulnerable and Migratory species (Table 8-1)	The evaluation of environmental impacts indicates that impacts from artificial light emissions on threatened or migratory marine reptiles are slight and would not constitute a significant impact. As such, residual impacts from artificial light associated with the Crux development drilling activity do not exceed any of the significant impact criteria for Threatened and Migratory marine reptile species provided in Table 8-1**.**
	Recovery Plan for Marine Turtles (Commonwealth of Australia 2017a)	Light pollution has been identified as a threat in the Recovery Plan for Marine Turtles (Commonwealth of Australia 2017a). Nesting females and hatchling turtles are at greatest risk of light impacts; however, the nearest potential nesting habitat too far to receive any light pollution from the Operational Area. Therefore, potential light-related impacts to turtles on nesting beaches is not credible. Actions in the Recovery Plan for Marine Turtles (Commonwealth of Australia 2017a) relating to the threat of artificial light include: • 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 • Develop and implement best practice light management guidelines for existing and future developments adjacent to marine turtle nesting beaches • Identify the cumulative impacts on turtles from multiple sources of onshore and offshore light pollution Given the Operational Area is beyond any BIAs or habitat critical for the survival of marine turtles (e.g. nesting, inter-nesting or foraging areas) and the light modelling and other studies indicate that impacts to marine turtles will be Minor, the actions listed above are not applicable to the Crux development drilling activity.
	National Light Pollution Guidelines for Wildlife (DCCEEW 2023c).	Marine turtles have been identified in the National Light Pollution Guidelines to be affected by artificial light sources. The management of light emissions for the Crux development drilling activity has considered the light management actions described in the guidelines and the impact assessment/thresholds have been based on the precautionary limits referenced in the guidelines.
Commonwealth marine area	Significant Impact Guidelines for the Commonwealth marine	The evaluation of environmental impacts indicates that the light emissions aspect of the Crux development drilling activity will not exceed the Commonwealth marine

Matters of National Environmental Significance	MNES Acceptability Considerations (Significant Impact Criteria, EPBC Management Plans/Recovery Plans/Conservation Advices)	Demonstration of Alignment as Relevant to the Project
	environment (Table 8-1)	environment significant impact criteria provided in Table 8-1.

External Context

There have been no objections or claims raised by Relevant Persons to date around the lighting aspect. Shell's ongoing consultation program will consider statements and claims made by stakeholders when undertaking further assessment of impacts.

Internal Context

Shell has also considered the internal context, including Shell's environmental policy and ESHIA requirements. The EPOs, and the controls which will be implemented, are consistent with Shell's internal requirements.

Acceptability Summary

The assessment of impacts and risks from light emissions determined the residual impact ratings were Minor (Table 9-12) given that any visible light (including sky glow) will not displace or disrupt any MNES listed species from important habitat, nor will it prevent these species from being able to undertake critical behaviours such as foraging, reproduction and dispersal. Shell considers residual impacts of Minor to be acceptable if they meet legislative and Shell requirements. To this effect, the acceptability of these impacts has been considered in the context of:

- the established acceptability criteria for the light emissions aspect;
- ESD;
- relevant requirements;
- MNES;
- external context (i.e. stakeholder claims); and
- internal context (i.e. Shell requirements).

Based on the discussion of these considerations presented above, Shell considers impacts from light emissions associated with the Crux development drilling activity to be acceptable.

9.4.6 Environment Performance Outcomes

Environment Performance Outcome	Measurement Criteria
No injury or mortality of listed threatened or migratory MNES species as a result of artificial light emissions from the Crux petroleum activities.	Fauna observations and incident reports demonstrate no mortality of listed threatened or migratory MNES species as a result of artificial light emissions.

9.5 Noise

9.5.1 Aspect Context

Underwater noise emissions from Crux development drilling activity are generated from the following sources:

- Semi-submersible MODU

- Vessel operations, including LCV, AHTs and general offshore support vessels
- Pile driving for docking pile installation
- Acoustic positioning equipment
- Helicopter operations within 500 m of the MODU
- Subsea Inspection, Maintenance and Repair (IMR) works.

MODU Noise

Noise associated with a moored MODU will be restricted to drilling activities, such as drill pipe operations and on-board machinery. A range of broadband values (59 to 185 dB re 1 µPa at 1 m (rms)) have been quoted for various MODUs (Simmonds et al., 2004). As the MODU will be moored there will be no additional noise from using DP equipment.

McCauley (1998) recorded received noise levels of about 117 dB re 1 µPa at 1 m SPL (rms) at 125 m from a moored MODU while actively drilling (with support vessel on anchor). Extrapolation of the measured data suggests a source level for the drill rig while actively drilling of 164 dB re 1uPa at 1m (SVT 2018). A 3 dB safety factor (i.e. a doubling of the energy) was applied to this level in modelling of the MODU for the Crux OPP (described below) to account for uncertainties and potential differences between rigs. This yielded a source level for a moored MODU during active drilling of 167 dB re 1uPa at 1m.

Following MODU arrival, drilling activities will commence for a planned duration of between approximately 10–14 months.

Marine Vessel Operations

Prior to arrival of the MODU, the drilling template will be installed by a LCV. Upon arrival of the MODU, AHTS vessels will be used for mooring of the MODU and during drilling activity, along with associated support vessels.

The underwater noise that is produced by vessels arises from two continuous sources – propeller cavitation and the propulsion machinery (engines) inside the vessel. Support vessels typically produce sound levels around 160-180 dB re 1µPa at 1 m, generally dominated by low frequencies during transit and drop with reduced speed. As the ship's speed increases, broad band noise such as propeller cavitation and hull vibration noise become dominant over machinery related tones (NRC 2003).

Noise levels are highest when vessels are holding station, with the use of thrusters to maintain position. A vessel using DP produces noise of low frequency, less than 1 kHz, with broadband values up to 177dB re 1µPa at 1 m (Simmonds et al. 2004). McCauley (1998) measured underwater broadband noise equivalent to about 182 dB re 1 µPa SPL (rms) at 1 m from a support vessel holding station in the Timor Sea. Similar noise levels are expected to be generated by the LCV and support vessels used for the Crux development drilling activity.

Note that all support vessels are required to comply with EPBC Regulation 2000 – Part 8 Interacting with Cetaceans to reduce the likelihood of collisions with cetaceans (refer to Section 9.7. Implementing this control may incidentally reduce the noise generated by vessels in proximity to cetaceans as vessels will be travelling slower; slower vessel speeds may reduce underwater noise from machinery noise (main engines) and propeller cavitation.

Subsea Inspection, Maintenance and Repair (IMR) works

Subsea IMR activities are typically undertaken from vessels that use DP (described above). Noise generated from these activities will be intermittent and of short duration and like the noise produced by other marine vessels in the field (e.g. supply vessels).

Subsea well inspections generally involve the use of an ROV to identify or undertake maintenance or repair activities that may be required to ensure the assets are being maintained. Inspection techniques with the potential to generate underwater noise may include the use of Multi Beam Echo Sounder (MBES). Typical noise levels emitted from MBES are 218-221 dB re 1 µPa RMS @ 1 m or per-pulse SEL 173-188 dB re 1 μPa^2s @ 1m (Day et al. 2016).

Generation of Underwater Noise from Pile Driving Operations

The docking piles may be installed during the template installation campaign, or at a later date through a dedicated campaign, by lowering the docking piles into position. In the unlikely event seabed conditions are harder than expected, the docking piles may need to be piled into the seabed using a hammer pile to a target depth of up to approximately 28 m.

While the piling method has yet to be finalised, it is expected that installation will require the use of a hydraulic hammer to drive the piles into the seabed. A study to determine the optimal size of the piling hammer is ongoing, however, it is not expected to exceed an MHU-750. Continuous and easy pile driving is predicted with approximate blow-counts of <200 blows/m through upper soil units and <500 blows/m through deeper soil units. Hammering of individual piles is expected to require less than 24 hours of continuous hammering. Hammering of consecutive piles will not occur continuously; there will be a break between the hammering stage for the installation of each pile.

Piling noise is not continuous, with each strike of the hammer on the pile generating a short, discrete sound impulse. This type of noise contrasts with continuous sources of noise, such as continuous use of vessel thrusters.

Piling has the potential to generate high-intensity noise when the hammer strikes the pile. Each hammer strike induces the pile to vibrate briefly, converting some of the energy applied to the pile into a pressure wave in the water column. This pressure wave is perceived as noise and is radiated from the pile into the water column. The vibration of the pile may also result in a pressure wave propagating along the density interface between the sediment and water column. An indicative sound exposure level (SEL) for piling using a relatively large (2,027 kilojoules (kJ)) hammer is approximately 220 dB re 1 $\mu Pa^2.s$. The frequency spectrum of piling is expected to be broad, with most energy concentrated between 10 hertz (Hz) and 2,000 Hz. This level was used in modelling of pile driving for the Crux OPP by SVT (2018), which is further outlined below.

Generation of Underwater Noise from Positioning Equipment

A seabed acoustic positioning array may be deployed to support the accurate positioning of the drilling template and docking piles. This will be installed on a temporary basis only and will indicatively consist of approximately 5 subsea beacons attached to clump weights or frames positioned over a 50 m^2 area.

Transponders typically emit pulses of medium frequency sound, generally within the range of 19 to 34 kHz. The estimated SPL would be 180 to 206 dB re 1 µPa at 1 m (Jiménez-Arranz et al., 2019).

Transmissions are not continuous, but consist of short ‘chirps’ with a duration that ranges from 3 to 40 milliseconds. When required to support general positioning, they will emit approximately one chirp every five seconds (estimated to be required for four hours at a time). When required to support precise positioning they will emit approximately one chirp every second (estimated to be required for two hours at a time). For the drilling activity, transponders will only be active at the commencement of the drilling when positioning is required. Transponders will not emit any sound when on standby.

Helicopter Operations

Helicopters will enter the operational area for short periods of time to undertake crew change or other personnel transfer activities. The main acoustic source associated with helicopters is the impulsive noise from the main rotor. Dominant tones in noise spectra from helicopters are generally below 500Hz (Richardson et al. 1995). The level of underwater sound from helicopters is affected by helicopter altitude, aspect and strength of noise emitted, and the receiver depth, water depth and other variables (Richardson et al. 1995).

The angle at which the line from the aircraft and receiver intersects the water surface is important. In calm conditions, at angles greater than 13° from the vertical, much of the sound is reflected and does not penetrate the water (Richardson et al, 1995). Therefore, strong underwater sounds are detectable for a period roughly corresponding to the time the helicopter is within a 26° cone above the receiver. Richardson et al. (1995) reports figures for a Bell 214 helicopter (stated to be

one of the noisiest) being audible in air for 4 minutes before it passed over underwater hydrophones, but detectable underwater for only 38 seconds at 3 m depth and 11 seconds at 18 m depth. The maximum received level was 109 dB re 1µPa^2.s. Due to their short duration and near surface impacts only, helicopter noise emissions are not considered to be a credible source of noise impact / risk and will not be discussed further.

Underwater Noise Transmission Modelling

Table 9-16 provides a summary of sound frequencies and sound levels used to model underwater noise transmission from noise sources produced by Crux development drilling for the OPP (SVT 2018). Table 9-17 and Table 9-18 provides a summary of sound frequencies and sound levels used to model impulsive noise sources.

Table 9-16: Modelled Broadband Source Levels of MODU and Support Operations (continuous sources)

Source	Source Level (dB re 1µPa at 1m)
Vessel using dynamic positioning (DP)	171
Anchored MODU (actively drilling)	167

Table 9-17: Modelled Broadband Source Levels of Pile driving (impulsive source)

Source	Source Level (dB re 1µPa^2.s at 1m)
Pile driving (2,027 kJ hammer)	220

Table 9-18: Modelled Broadband Source Levels of Multi Beam Echo Sounder (impulsive source)

Source	Source Level (dB re 1µPa^2.s at 1m)
Multi Beam Echo Sounder (MBES)	173-188[20]

Underwater Noise Impact Levels

Marine species with the greatest sensitivity to underwater noise are marine mammals (whales and dolphins), turtles and fish (including larvae). Other species that could be affected by underwater noise include sea snakes, sharks and rays and invertebrates.

Impacts to marine fauna can be grouped in the following decreasing order of effect:

- Mortality or potential mortal injury – physical injury that may result in the death of an animal
- Impairment:
  - Permanent threshold shift (PTS) – a permanent reduction in the ability of an animal to perceive sound. Recovery is not expected to occur.
  - Temporary threshold shift (TTS) – a temporary reduction in the ability of an animal to perceive sound. Recovery to pre-exposure levels is expected to occur.
  - Masking – no change in the ability for an animal to perceive sound, but biologically meaningful sounds may be “drowned out” by anthropogenic noise.

[20] Zykov. M. 2013. Underwater Sound Modeling of Low Energy Geophysical Equipment Operations. JASCO Document 00600, Version 2.0. Technical report by JASCO Applied Sciences for CSA Ocean Sciences Inc. Available from: CSA Low Energy Sources Modeling.docx (ca.gov) [Accessed July 2023]

- Behavioural impacts – typically short-term behavioural responses such as avoidance, surfacing etc. Behaviour will return to normal following cessation of the anthropogenic noise.

Impact thresholds for the fauna groups were derived from scientific literature and published guidelines, including:

- Sound exposure guidelines for fishes and sea turtles: a technical report prepared by American National Standards Institute (ANSI)-Accredited Standards Committee S3/SC1 and registered with ANSI (Popper et al. 2014)
- Technical guidance for assessing the effects of anthropogenic sound on marine mammal hearing (National Oceanic and Atmospheric Administration (NOAA) 2018) and updated noise exposure criteria (Southall et al. 2019)
- Sound Criteria and Thresholds for U.S. Navy Acoustic and Explosive Effects Analysis (Finneran et al. 2017).

Marine Mammals (Cetaceans)

The vulnerability of marine mammals to underwater noise is linked to their ability to perceive sound. Cetaceans can be grouped based on similarities in their hearing range. Underwater noise exposure thresholds can then be weighted for each cetacean group to emphasise noise frequencies to which a group may be particularly vulnerable. This approach is described in Southall et al. (2007) and has been applied to a range of underwater noise guidelines and impact assessments on cetaceans. Southall et al. (2019) updated the nomenclature to describe the three cetacean hearing groups as “Low-frequency”, “High-frequency” and “Very high-frequency” to better reflect their hearing sensitivities in marine bioacoustics terms. Only low frequency (e.g. baleen whales) and high frequency (e.g. dolphins) may be present in the Operational Area, therefore very high frequency cetaceans are not considered further. Most of the noise associated with Crux development drilling activities involves non-impulsive noise sources, such as MODU and vessel noise, however, pile driving and acoustic positioning equipment would involve impulsive noise as well for short durations. The impact thresholds for continuous (non-impulsive)[21] underwater noise are summarised in Table 9-19 and for impulsive noise in Table 9-20. These are derived primarily from technical guidelines and exposure criteria published by NOAA (2018) and Southall et al. (2019).

Table 9-19: Marine Mammal Sound Exposure Criteria (Continuous Noise)

Type of Animal	Generalised Hearing Range[1] [Hz]	PTS – Permanent Injury SEL (received levels)[2] (dB re 1 µPa^2.s $L_{E/p, 24h}$)	TTS – Impairment SEL (dB re 1 µPa^2.s $L_{E/p, 24h}$)	Behaviour SPL[3] (dB re 1 µPa)
Low-frequency cetaceans (baleen whales including humpback, blue, sei, fin, brydes, etc)	7–35,000	199 dB $L_{E/p, 24h}$	179 dB $L_{E/p}$	120 dB L_p
High-frequency cetaceans (dolphins, toothed whales,	150–160,000	198 dB $L_{E/p, 24h}$	178 dB $L_{E/p}$	120 dB L_p

[21] Underwater noise can generally be considered as two types:

- impulsive noise – typically discrete, short duration noises punctuated by periods of low/no noise, characterised by high peak sound pressure levels with relatively rapid rise and decay times, and
- non-impulsive – noises that do not have rapid rise and decay times, typically of longer duration.

Type of Animal	Generalised Hearing Range[1] [Hz]	PTS – Permanent Injury SEL (received levels)[2] (dB re 1 µPa^2.s $L_{E/p, 24h}$)	TTS – Impairment SEL (dB re 1 µPa^2.s $L_{E/p, 24h}$)	Behaviour SPL[3] (dB re 1 µPa)
beaked whales, bottlenose whales)				

Notes:

1 Represents the generalised hearing range for the entire group as a composite (i.e. all species within the group), where individual species hearing ranges are typically not as broad.

LE/p, 24h is the weighted cumulative sound exposure level ($L_{E/p}$) and has a reference value of 1µPa^2.s. The recommended accumulated period is 24 hrs. The weighted cumulative sound exposure level thresholds could be exceeded in a multitude of ways (i.e., varying exposure levels and durations, duty cycle).

Lp – Continuous (non-impulsive) noises are quantified as Sound Pressure Level (SPL, or Lp) using units of dB re 1 µPa.

Table 9-20: Marine Mammal Sound Exposure Criteria (Impulsive Noise)

Type of Animal	PTS – Permanent Injury Peak SPL (unweighted) (dB re 1 µPa)	PTS – Permanent Injury SEL (weighted)[2] (dB re 1 µPa^2.s $L_{E/p, 24h}$)	TTS – Impairment Peak SPL (unweighted) (dB re 1 µPa)	TTS – Impairment SEL (weighted) (dB re 1 µPa^2.s $L_{E/p, 24h}$)	Behaviour SPL (dB re 1 µPa)
Low-frequency cetaceans (baleen whales including humpback, blue, sei, fin, brydes, etc)	219	183	213 dB	168	160 dB L_p
High-frequency cetaceans (dolphins, toothed whales, beaked whales, bottlenose whales)	230	202 dB	224 dB	170	160 dB L_p

Sea Turtles, Fish and Other Fauna

Table 9-21 provides a summary of sound exposure guidelines for fishes and sea turtles for shipping and continuous sounds, relevant for Crux MODU and support vessel operations, based on Popper et al. (2014) and Finneran et al. 2017 respectively. Table 9-22 provides similar guidelines for pile driving operations.

Table 9-21: Fish, Larvae and Sea Turtle Noise Criteria for Shipping and Continuous Sounds

Type of animal	Mortality and Potential Mortal Injury	Impairment			Behaviour
		Recoverable Injury	TTS	Masking	
Fish	(N) Low (I) Low (F) Low	170 dB Lp for 48 h	158 dB Lp for 12 h	(N) High (I) High (F) High	(N) High (I) Moderate (F) Low

Type of animal	Mortality and Potential Mortal Injury	Impairment			Behaviour
		Recoverable Injury	TTS	Masking	
Eggs and larvae	(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) High (I) Moderate (F) Low
Turtles	(N) Low (I) Low (F) Low	220 (Weighted SEL24h – LE.p,24h; dB re 1 $\mu Pa^2.s$)	200 (Weighted SEL24h – LE.p,24h; dB re 1 $\mu Pa^2.s$)	(N) High (I) Moderate (F) Low	(N) Moderate (I) Moderate (F) Low

Source: Popper et al. 2014; Finneran et al. 2017

Note: Where insufficient data existed to recommend objective guidelines, a subjective approach is adopted in which the relative risk (High, Moderate, Low) of an effect is placed in order of rank at three distances from the source – Near (N), Intermediate (I), and Far (F) (top to bottom within each cell of the table, respectively).

"Near" might be considered to be in the tens of metres from the source, "intermediate" in the hundreds of metres, and "far" in the thousands of meters.

Table 9-22: Fish, Larvae and Sea Turtle Noise Criteria for Pile Driving

Type of animal	Mortality and Potential Mortal Injury	Impairment			Behaviour
		Recoverable Injury	TTS	Masking	
Fish (no swim bladder)	>219 dB LE,p or > 213 dB Lpk	>216 dB LE,p or > 213 dB Lpk	>186 dB LE,p	N) Moderate (I) Low (F) Low	(N) High (I) Moderate (F) Low
Fish (swim bladder involved in hearing)	207 dB LE,p or > 207 dB Lpk	203 dB LE,p or > 207 dB Lpk	186 dB LE,p	(N) High (I) High (F) Moderate	(N) High (I) High (F) Moderate
Eggs and larvae	210 dB LE,p or > 207 dB Lpk	(N) Moderate (I) Low (F) Low	(N) Moderate (I) Low (F) Low	(N) Moderate (I) Low (F) Low	(N) Moderate (I) Low (F) Low
Turtles	>210 dB LE,p or >207 dB Lpk	(N) High (I) Low (F) Low	(N) High (I) Low (F) Low	(N) High (I) Moderate (F) Low	175 dB re 1 µPa (SPL)

Source: Popper et al. 2014; Finneran et al. 2017

Note: Where insufficient data existed to recommend objective guidelines, a subjective approach is adopted in which the relative risk (High, Moderate, Low) of an effect is placed in order of rank at three distances from the source – Near (N), Intermediate (I), and Far (F) (top to bottom within each cell of the table, respectively).

"Near" might be considered to be in the tens of metres from the source, "intermediate" in the hundreds of metres, and "far" in the thousands of meters.

Sharks and rays were grouped with fish (no swim bladder) (Table 9-21 and Table 9-22) for this assessment of impacts. No suitable published guidelines were identified for sea snakes.

While there are reputable published studies indicating the potential for underwater noise to impact upon invertebrates, there is currently insufficient evidence for the setting of interim quantitative impact assessment criteria. However, qualitative criteria based on relative risk, such as those adopted by Popper et al. (2014), may be used for impulsive noise (Table 9-23) (SVT 2018). No published studies or guidelines on the potential invertebrate response to non-impulsive/continuous noise sources (e.g. drilling) have been identified. Invertebrates have been

considered in the assessment of risks and impacts from underwater noise based on these grounds.

Table 9-23: Suggested Invertebrate Sound Exposure Assessment Criteria for Impulsive Sources

Type of animal	Mortality and Potential Mortal Injury	Impairment - Recoverable Injury	Behaviour
Invertebrates	(N) Moderate (I) Low (F) Low	(N) High (I) Low (F) Low	(N) High (I) Moderate (F) Low

Source: SVT 2018

Note: Where insufficient data existed to recommend objective guidelines, a subjective approach is adopted in which the relative risk (High, Moderate, Low) of an effect is placed in order of rank at three distances from the source – Near (N), Intermediate (I), and Far (F) (top to bottom within each cell of the table, respectively).

"Near" might be considered to be in the tens of metres from the source, "intermediate" in the hundreds of metres, and "far" in the thousands of meters.

Modelling Results vs Threshold Levels

Underwater noise modelling conducted by SVT (2018) was included in Appendix I of the Crux Offshore Project Proposal (OPP) (Shell 2020) for expected noise levels from drilling and pile driving activities associated with the project.

Drilling Activities

Crux development drilling activities have the potential for localised and temporary noise impacts on marine fauna, including fish, marine turtles and cetaceans. Based on the thresholds outlined above and the hearing ranges for different fauna, no marine fauna permanent injury, recoverable injury, TTS or behavioural disturbance criteria were exceeded for any drilling scenario modelled by SVT (2018) for the project.

Vessel noise

Modelling of vessel noise, based on a tender vessel operating on DP (at high propeller rates inducing significant cavitation), for a total of 1 hour showed:

No marine fauna criteria for permanent injury, PTS or TTS were exceeded under the modelled scenario

The criterion for behavioural disturbance to low-frequency cetaceans may be exceeded by a tender on DP within a 1.6 km range

Marine fauna impact criteria for fish, larvae, sea turtles and high-frequency cetaceans were not exceeded for the vessel scenario modelled.

Pile driving activities

Crux pile driving activities also have the potential to result in noise impacts on marine fauna. Based on modelling of an MHU-600 Hammer (660 kJ energy, 95% efficiency), no marine fauna permanent injury, recoverable injury, TTS or behavioural disturbance instantaneous assessment criteria (i.e. peak SPL) were exceeded.

Behavioural disturbance criteria for a single hammer strike were also met for low-frequency and high-frequency cetaceans at a range extending to 2.7 km (SVT 2018).

Potential cumulative exposure was also modelled based on an estimated maximum of 6,530 strikes in a 24-hour period. However, it is noted that cumulative exposure assumes the receiving animal remains stationary in the area throughout the entire 24-hour period and also assumes that the pile is driven at maximum energy for the maximum number of strikes. These assumptions result in unrealistically large impact ranges and it is considered unlikely that an animal would remain within receiving ranges at which impact criteria may be exceeded for an extended period.

The following thresholds were met under the cumulative exposure scenario:

1. The criterion for permanent injury to fish (no swim bladder) for a likely daily exposure was not reached.
2. There is potential for permanent injury to fish (with swim bladder), larvae and sea turtles within a range of up to 390 m, based on the daily exposure criterion.
3. There is potential for onset of permanent threshold shift in high-frequency and low-frequency cetaceans within a range of up to 14 km and 17.3 km respectively based on the daily exposure criterion.
4. The potential for onset of TTS in low-frequency cetaceans using the daily exposure criterion extends to a range of 57.8 km.
5. The potential for onset of TTS in high-frequency cetaceans using the daily exposure criterion extends to a range of 56.9 km.
6. The range for onset of recoverable injury for fish (with swim bladder) is met at 1 km using the daily exposure criterion.
7. The range for recoverable injury for fish (no swim bladder) using the daily exposure criterion is not reached at any location.
8. There is potential for onset of TTS in fish within a range of 13.4 km using the daily exposure criterion.

MBES activities

IMR activities that require the use of an ROV with MBES have the potential to result in localised, temporary impacts to marine fauna. The threshold for behavioural disturbance has the potential to be met within a radius of less than 20 m for all cetaceans under a cumulative exposure scenario (Zykov 2013).

9.5.2 Description and Evaluation of Impacts

Physical Environment

There are no impacts on the physical environment protected under the EPBC Act such as air or water quality. Noise impacts are limited to the biological environment as discussed below.

Biological Environment

Benthic Communities

The Operational Area is located in waters approximately 90-180 m deep. Benthic habitat surveys in the Operational Area indicated a very low abundance of macrobenthic fauna (Fugro 2017a, AECOM (2017). Given the modelled noise levels for drilling, operational and pile driving activities associated with the project, impacts to benthic communities because of underwater noise are not expected.

No known offshore reefs or islands are in close proximity to the Operational Area, with the closest shoals approximately 14-24 km to the north-west. These shoals may potentially be exposed to short-term increases in underwater noise levels during pile driving operations. However, based on the noise attenuation away from noise sources within the Operational Area, as demonstrated by modelling (SVT 2018), and the short duration of piling activities there are no credible potential impacts to benthic communities at these shoals as a result of project operations.

Pelagic Communities

Pelagic communities in the Operational Area include planktonic communities and pelagic fish and invertebrates.

Planktonic communities comprise a diverse range of taxa, which will differ in their potential to be impacted by underwater noise. Many species of pelagic and demersal fish have a planktonic larval stage. Modelling studies by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) indicate that planktonic communities are highly dynamic and have the potential to recover rapidly following disturbance (Richardson et al. 2017). Experiments have shown mixed results of larval stages to underwater noise. For example, experiments on several

species of fish larvae and lobster larvae did not detect significant effects as a result of high intensity impulsive noise (Bolle et al. 2012; Day et al. 2016; Payne et al. 2009).

An assessment of the underwater noise generated by drilling operations and vessel noise planned in the Crux Operational Area showed exposure criteria for larvae were not exceeded in the modelling for these activities. Impacts from these continuous noise sources to plankton are therefore not considered credible. Modelling of pile driving noise showed permanent or temporary injury threshold criteria were not met for larvae from a single hammer strike, but permanent injury could occur if larvae remain within 390 m of the pile throughout a 24-hour period. Potential impacts would therefore be highly localised and of short duration during the installation of the two docking piles. The residual impact consequence to planktonic communities is considered to be Slight (Magnitude – 1, Sensitivity – L).

The Operational Area is not expected to host highly abundant or diverse assemblages of fish, sharks or rays (Note, potential impacts to whale sharks from underwater noise are addressed below in the assessment of impacts to threatened and migratory species). The noise modelling indicates that no exceedance of the permanent or temporary injury or behavioural disturbance thresholds for any category of fish would occur in the Operational area for drilling or operational activities, or for a single strike of the pile hammer. Modelling of cumulative exposure during piling indicates permanent injury of fish (with swim bladder) could occur if an individual were to remain within 390 m of the pile throughout a 24-hour period of continuous piling, while recoverable injury of fish (with swim bladder) could occur within 1 km. However, given the highly mobile nature of most fish, sharks and rays, exposure over a 24 hour period within these ranges is unlikely. TTS could also occur for 24-hour exposure of fish within 13.4 km.

The potential for injury or TTS effects to fish resulting from single impulse or accumulated exposures to MBES survey equipment sound is limited to within 1–2 m beneath or to the side of the sound source (Zykov 2013; McPherson and Wood 2017).

Continuous noise sources from the Crux drilling program are assessed to have a Minor residual impact consequence (Magnitude – 2, Sensitivity – L) on resident and transient fish populations. Impulsive noise from transponders and pile driving is similarly expected to have a Minor consequence given the short duration of the activity and lack of habitat supporting diverse fish assemblages in the vicinity of the Operational Area.

Threatened and Migratory Species

Marine Mammals

Most cetacean species use sound to communicate (e.g. humpback whale calls) or perceive their environment (e.g. echolocation of prey). This reliance on underwater noise, and their high conservation value, makes cetaceans of concern when assessing potential impacts from underwater noise. Low frequency cetaceans are expected to be most vulnerable to underwater noise from Crux drilling activities, including pile driving and support operations.

Several low frequency cetaceans (blue, humpback, sei, fin and Bryde's whales) were identified as potentially occurring within the Operational Area (Section 7.3.5). Noise monitoring in the Timor Sea for the Barossa development indicated pygmy blue and Bryde's whales are the most likely to occur (McPherson et al. 2016). Detection of low-frequency cetaceans calls were not constant, but occurred sporadically, often in groups or sets of calls. Humpback whales are considered unlikely to occur due to known distribution data. The closest marine mammal BIA to the Operational Area is the migration BIA for pygmy blue whales, which is 120 km to the west.

High frequency cetaceans are also vulnerable to underwater noise, although their hearing range means they are more vulnerable to noise frequencies overlapping their functional hearing range (approximately 150 Hz to 160 kHz). High frequency cetaceans include most toothed whales, dolphins and beaked whales and a number of species of high frequency cetaceans were identified as potentially occurring within the Operational Area and adjacent Planning Area (Section 7.3.5). Noise monitoring in the Timor Sea indicates high-frequency cetaceans are present year-round (McPherson et al. 2016).

The noise modelling conducted for the Crux OPP (SVT 2018) indicated that during pile driving the instantaneous peak thresholds (i.e. the peak SPL from a single hammer strike) for PTS and

TTS will not be exceeded at any range for low frequency and high frequency cetaceans. The instantaneous behavioural disturbance threshold for a single hammer strike is exceeded out to a radius of 2.7 km.

The cumulative (i.e. 24-hour) PTS and TTS thresholds for low frequency cetaceans were predicted by the modelling to be exceeded at 17.3 km and 57.8 km respectively. These thresholds are highly conservative as they are based on a worst-case hammer size and they also rely on the cetacean remaining within the threshold radius for the duration of the entire 24-hour period. This is considered very unlikely, as low frequency cetaceans in the area are typically migrating and would be expected to move away from uncomfortable stimuli (i.e. high noise levels). Behavioural responses of cetaceans exposed to acoustic disturbance shows typical behavioural response is to move away from unpleasant stimuli. Several species of cetacean, including humpback and minke whales, have been shown to avoid high intensity low frequency sound (Dunlop et al. 2013, Kvadsheim et al. 2017, Sivle et al. 2015). The oceanic low frequency cetaceans that may occur within the Operational Area are expected to be able to move away from the piling noise rapidly. For example, speeds of sei whales and blue whales have been estimated at > 6 km/hr, and individual animals can easily exceed 100 km in a 24-hour period (Double et al. 2014, Prieto et al. 2014) and hence move away from the piling before the time-based PTS and TTS are exceeded. Considering the expected low utilisation of the Operational Area by low frequency cetaceans, avoidance behavioural responses and nature of the piling activity, no low frequency cetaceans are expected to be exposed to noise levels exceeding the 24-hr PTS or TTS thresholds. The nearest known aggregation of whales is the seasonal presence of blue whales in their migratory corridor, which lies approximately 120 km to the west of the Operational Area. Given this distance is well beyond the range at which cumulative PTS or TTS may occur, blue whales will not be significantly impacted by piling noise.

The cumulative (i.e. 24-hour) PTS and TTS thresholds for high frequency cetaceans were predicted by the modelling to be exceeded at 14 km and 56.9 km respectively. As with the low frequency cumulative thresholds, these PTS and TTS thresholds are highly conservative, as they rely on the cetacean remaining within the threshold radius for the duration of the entire 24-hour period. This is considered very unlikely, as mid frequency cetaceans in the area are highly mobile and would be expected to move away from uncomfortable stimuli (i.e. high noise levels). The instantaneous behavioural disturbance threshold for a single hammer strike is exceeded out to a radius of 2.7 km.

The modelling assessment did not indicate that drilling of vessel DP noise would exceed any of the low or mid frequency cetacean impact thresholds defined for continuous noise at any range. Vessel DP noise was predicted to exceed the low frequency cetacean behavioural impact threshold at a range of 1.6 km.

The high-frequency micropulses produced by MBES survey equipment will rapidly attenuate outside the immediate beam (MacGillivray et al. 2013; Zykov 2013). The high operating frequencies of these instruments also places the majority of sound frequencies above the auditory range of most marine fauna species. Dolphins and other high-frequency cetaceans have peak hearing sensitivity up to 110 kHz, with potential for some limited hearing ability up to ~160 kHz (NOAA 2018). Therefore, they may be able to detect a small amount of the sound energy from some survey method equipment instruments in the lower operating frequency ranges (MacGillivray et al. 2013; Zykov 2013). Modelling of the propagation of high-frequency sound from survey method equipment with similar source frequency characteristics to those proposed for the Crux IMR activities has been undertaken by Zykov (2013) and MacGillivray et al. (2013). The modelling results indicate that sound emissions outside the main beams are below the threshold levels for PTS or TTS. Sound levels that may result in behavioural effects are likely limited to within tens of metres from the sound source for all cetaceans (Zykov 2013; MacGillivray et al. 2013).

Based on the results of the noise assessment, the short duration of exposure to impulsive noise sources, the cetacean species that may occur within the Operational Area and the controls Shell will implement, potential impacts are expected to consist of behavioural disturbance only. This behavioural disturbance is likely to consist of avoidance of areas of high noise intensity, which may inhibit other behaviours such as feeding. Behavioural will be restricted in time to relatively

short periods when high noise intensity activities are occurring. Following cessation of noise generation, animal behaviour is expected to return to normal. Following implementation of controls (e.g. piling "soft start-up"), potential impacts such as mortality, injury, PTS and TTS are considered very unlikely to occur.

The overall impact consequence for marine mammals is considered to be Minor (Magnitude – – 2, Sensitivity – M).

Marine Reptiles

Marine reptiles such as turtles and sea snakes are not known to be particularly sensitive to underwater noise. Research on marine turtles suggests that functional hearing is concentrated at frequencies between 100 and 600 Hz (which is a subset of the low frequency cetacean range). Several turtle species were identified as likely to occur within the Operational Area (Section 7.3.5), although no critical habitat or BIAs overlap the Operational Area. The water depth and benthic habitat within the Operational Area is typically too deep for turtle foraging for several species (e.g. Hays et al. 2001; Polovina et al. 2003), although species that eat primarily pelagic prey (e.g. leatherback and juvenile green turtles) may forage for pelagic prey. As such, turtles are expected to occur only at low densities within the Operational Area and are likely to be transiting the area rather than foraging, breeding or nesting.

The noise modelling conducted for the OPP (SVT 2018) indicated that none of the noise sources that may arise from the Crux project would not exceed the instantaneous threshold for permanent injury of fatality, nor the behavioural impact threshold, for marine turtles or sea snakes at any range. The 48-hour cumulative PTS threshold for turtles is exceed out to a range of 390 m for piling noise, however continuous piling activities will not occur for 48 consecutive hours. PTS for marine turtles is not considered credible.

Sound levels that are likely to be produced by MBES survey equipment are predicted to fall below the 166 dB re 1 µPa SPL threshold (Table 9-22) within a few metres or tens of metres (Zykov 2013; McPherson and Wood 2017). The high-frequency sounds produced by the survey equipment are expected to be above the auditory range of marine turtles and so behavioural impacts are not expected to occur. Localised and short-term behavioural disturbances may result from the survey methods, affecting individuals (potentially exposed within tens of metres of the equipment for a brief period).

Continuous noise from drilling and vessel activities may result in behavioural disturbance in a localised area around activities. However, the potential for impairment (including recoverable injury, TTS and masking) is low. Noise associated with drilling of the foundation wells is highly unlikely to impact turtles that may be foraging at any of the shoals within the Crux in-field development area, considering the nearest shoal is 14 km from the Operational Area and well beyond the predicted area of impact.

Based on the results of the noise assessment, potential impacts to marine reptiles will be restricted to short term behavioural disturbance to animals in close proximity to high intensity noise sources. Given the expected low density of turtles within the Operational Area this potential impact would only affect a relatively small portion of turtle populations in the region. Recovery from behavioural disturbance is expected to occur immediately once the noise emission is ceased. The overall impact consequence for marine reptiles is considered to be Minor (Magnitude – – 2, Sensitivity – M).

Whale Sharks

Whale sharks occur within the Operational Area (e.g. traversing the open waters within or surrounding the Operational Area during migration to/from aggregation off Ningaloo Reef) and a BIA for whale sharks overlaps with the Operational Area. However, it is expected that whale shark presence would not be in significant numbers as there is no main aggregation area within the vicinity of the Operational Area, and their presence would be transitory and of a short duration. This is consistent with tagging studies of whale shark movements which show continual movement of whale sharks in deeper, open offshore waters (Meekan and Radford 2010). Given the contrast to the feeding behaviour off aggregation areas such as Ningaloo Reef, the BIA is unlikely to be a dedicated foraging area; rather, it is likely to be a broad area within which migratory

movements can be expected. This is consistent with the Conservation Advice (TSSC 2015a) for this species which indicates this BIA up the north-west coast is a migration corridor than significant foraging habitat. There are no constraints preventing whale sharks from moving away from the Operational Area (e.g. shallow water or shorelines).

Whale sharks forage on plankton (as well as small fish), and high intensity underwater noise has been shown to result in impacts to some taxa within zooplankton communities. Recent observations by McCauley et al. (2017) provides evidence of considerable mortality of crustacean zooplankton (e.g. copepods and nauplii larval stage of crustaceans) over short timeframes. However, longer term impacts may be much less discernible due to the high turnover of planktonic communities and the movement of water masses. Modelling studies by the CSIRO indicate that planktonic communities are highly dynamic and have the potential to recover rapidly following disturbance (Richardson et al. 2017). As a result, impacts to zooplankton, which are of short duration, will not negatively affect whale sharks moving through the area. Note that small crustacean zooplankton comprise only part of whale shark diets, with larger plankton and nekton (e.g. krill and baitfish) forming a part of the species' diet (Colman 1997).

Whale sharks are not considered to be particularly vulnerable to noise related impacts and were categorised as 'fish with no swim bladder' above in determining impact thresholds. The modelling assessment conducted for the OPP (SVT 2018) predicted that no exceedance of the permanent or recoverable injury threshold for fish with no swim bladder would occur under any of the noise scenarios considered. The cumulative TTS for piling noise may occur out to a range of 13.4 km, noting that the study results are conservative (i.e. likely to over-estimate received sound levels) and assume an individual would remain within the impact range for a 24 hour period.

The potential for injury or TTS effects to whale sharks resulting from single impulse or accumulated exposures to sound from MBES survey equipment is limited to within 1–2 m beneath or to the side of the sound source (Zykov 2013; McPherson and Wood 2017). Single impulse exposures at this range are highly unlikely to occur and accumulated exposures over several hours at this range are not credible. The criteria suggested by Popper et al. (2014) in Table 9-22 are based on exploration seismic surveys and therefore are highly conservative for the low-energy survey equipment proposed. Therefore, potential impacts to whale sharks are likely to be limited to localised (within tens of metres) and temporary behavioural changes close to the survey equipment.

Based on the results of the noise assessment, the potential impacts to whale sharks are expected to be a minor, short-term behavioural disturbance. The overall impact consequence for whale sharks is considered to be Minor (Magnitude – – 2, Sensitivity –M).

9.5.3 Impact Assessment Summary

Table 9-24 lists the highest residual impact consequence ranking of the relevant environmental receptor groups.

Table 9-24: Noise Evaluation of Residual Impacts

Environmental Receptor	Magnitude	Sensitivity	Residual Impact Consequence
Evaluation – Planned Impacts			
Biological Environment	-2	M	Minor

9.5.4 ALARP Assessment and Environmental Performance Standards

Table 9-25: ALARP Assessment and Environmental Performance Standards

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
Elimination	N/A	N/A	No additional or alternative control measures have been identified for the Crux development drilling activity in relation to underwater noise.	N/A	N/A	N/A
Substitution	N/A	N/A	No additional or alternative control measures have been identified for the Crux development drilling activity in relation to underwater noise.	N/A	N/A	N/A
Engineering	N/A	N/A	No additional or alternative control measures have been identified for the Crux development drilling activity in relation to underwater noise.	N/A	N/A	N/A
Administrative and Procedural Controls	Vessel interactions with threatened and migratory species to follow the of EPBC Regulations 2000 – Part 8 Division 8.1 (Regulations 8.05 and 8.06) and the Australian National Guidelines for Whale and Dolphin Watching 2017 (Commonwealth of Australia 2017b). In particular: • Marine support vessels will not deliberately approach closer than 50 m to a dolphin, turtle or whale shark; 100 m for an adult whale; 300 m for a whale calf; and 150 m for a dolphin calf.	Yes	The EPBC Regulations 2000 – Part 8 Division 8.1 (Regulations 8.05 and 8.06) and the Australian National Guidelines for Whale and Dolphin Watching 2017 (Commonwealth of Australia 2017b) are recognised as the industry standard for minimising disturbance due to physical presence and noise to whales and dolphins and will be applied to other species as relevant, .i.e. turtles and whale sharks.	3.1	Vessels comply with EPBC Regulations 2000 Part 8, Division 8.1 Interacting with cetaceans and the Australian National Guidelines for Whale and Dolphin Watching (2017).	Incident report form used to record breaches of requirements outlined in the EBPC Regulations 2000 and Australian National Guidelines for Whale and Dolphin Watching.

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
	If the whale, dolphin, turtle or whale shark shows signs of being distressed, marine support vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots.					
Administrative and Procedural Controls	Procedures for pile driving activities conducted for installation of the docking piles have been adapted from the 'Standard Management Procedures' set out in EPBC Act Policy Statement 2.1 – Interaction between Offshore Seismic Exploration and Whales: Industry Guidelines, specifically: A suitable number of crew will be trained by an experienced Marine Fauna Observer (MFO) and be onboard the installation vessel before any piling will occur, such that at least one trained MFO will be on watch during the piling activity. Pre-Start-up-Visual Observation: • During daylight hours, visual observations (using binoculars and the naked eye from a high vantage point on the Vessel) for the presence of whales will be undertaken by a suitably trained crew member for at least 30 minutes before the	Yes	Alignment with the 'Standard Management Procedures' set out in EPBC Act Policy Statement 2.1 – Interaction between Offshore Seismic Exploration and Whales: Industry Guidelines, for pile driving activities (including adaptions based on piling equipment and operating restrictions), will minimise the risk of impairment or disturbance from underwater noise to whales. As the piling activities are intrinsically different to seismic activities the procedures outlined within the control measure have been adapted from EPBC Act Policy Statement 2.1, to operate within the limitations of the piling equipment and associated operating procedures. i.e. if a whale enters the 1000 m or 500 m zones while full strike piling is being undertaken and engineering limitations require piling to continue (until final position is achieved), it is deemed that the whale has entered the potential impact zone voluntarily and the requirement to implement mitigation actions is void. Even with these limitations in place, the control	3.2	Pile driving activities will be undertake in line with procedures, specifically: • A suitable number of crew will be trained by an experienced MFO and be onboard the installation vessel before any piling will occur, such that at least one trained MFO will be on watch during the piling activity. Pre-Start-up-Visual Observation: • During daylight hours, visual observations (using binoculars and the naked eye from a high vantage point on the Vessel) for the presence of whales will be undertaken by a suitably trained crew member for at least 30 minutes before the	MFO Logs

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
	commencement of piling activities. Soft Start Procedure (also known as ramp-up): • The hammer piling will be initiated at the lowest striking force (where equipment allows), with a gradual ramp-up over a 30-minute period until the full striking power is reached. Operations Procedure: • During daylight hours, trained crew should undertake visual observations continuously during the piling activity. • Any break in piling greater than a 30-minute period will reinitiate the soft start requirement. Stop Work Procedure: • If a whale is sighted within the 3 km observation zone an additional trained crew member should also be brought to the bridge to continuously monitor the whale whilst in sight. • If a whale is sighted within or is about to enter the protection zone (1 km), the acoustic		still provides reduction in potential noise impacts to whales.		commencement of piling activities. Soft Start Procedure (also known as ramp-up): • The hammer piling will be initiated at the lowest striking force (where equipment allows), with a gradual ramp-up over a 30-minute period until the full striking power is reached. Operations Procedure: • During daylight hours, trained crew should undertake visual observations continuously during the piling activity. • Any break in piling greater than a 30-minute period will reinitiate the soft start requirement. Stop Work Procedure: • If a whale is sighted within the 3 km observation zone an additional trained crew member should also be brought to the bridge to	

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
	source should be powered down to the lowest possible setting (where equipment/operating procedure allows). If a whale is sighted or is about to enter the Shut-down zone (500 m), the acoustic source should be shut down completely. It is noted that for engineering purposes it may not be possible to shut-down or reduce striking power until the pile is in its finial position. • Power-up of the acoustic source with soft-start procedures should only occur after the whale has been observed to move outside the protection zone, or when 30 minutes have lapsed since the last whale sighting. Night-time and Low Visibility Procedures: • Operations may proceed provided that there have not been 3 or more whale instigated power-down or shut-down situations during the preceding 24-hour period.				continuously monitor the whale whilst in sight. • If a whale is sighted within or is about to enter the protection zone (1 km), the acoustic source should be powered down to the lowest possible setting (where equipment/operating procedure allows). If a whale is sighted or is about to enter the Shut-down zone (500 m), the acoustic source should be shut down completely. It is noted that for engineering purposes it may not be possible to shut-down or reduce striking power until the pile is in its finial position. • Power-up of the acoustic source with soft-start procedures should only occur after the whale has been observed to move outside the protection zone, or when 30 minutes have lapsed	

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
					since the last whale sighting. • Night-time and Low Visibility Procedures: Operations may proceed provided that there have not been 3 or more whale instigated power-down or shut-down situations during the preceding 24-hour period.	

9.5.5 Acceptability of Impacts

Table 9-26: Acceptability of Impacts – Noise

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Are the Impacts of an Acceptable Level?	Acceptability Assessment
Ecosystems, Communities and Habitats	Benthic Communities	No significant impacts to benthic habitats and communities.	Yes	Highly localised noise-related impacts may occur during the short-duration of piling. Soft sediment benthic communities are broadly distributed in the wider region and are not considered to be unique or highly sensitive. Underwater noise will not result in significant impacts to benthic communities in the Operational Area.
Threatened Species and Ecological Communities	Marine mammals Fish Sharks and rays	No mortality or injury of threatened or migratory MNES fauna from the Crux development drilling activity. Management of aspects of the Crux project must be aligned to conservation advice, recovery plans and threat abatement plans published by DAWE. No significant impacts to threatened or migratory MNES fauna.	Yes	Potential noise-related impacts may occur during the Crux development drilling activity. The Operational Area is not important habitat for threatened or migratory MNES that may be impacted by underwater noise, such as cetaceans and marine turtles. Instantaneous PTS and TTS impact thresholds for these species will not be exceeded by any activity. Cumulative 24-hr PTS and TTS thresholds for cetaceans are predicted to be exceeded by modelling, however it is very

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Are the Impacts of an Acceptable Level?	Acceptability Assessment
				unlikely that an animal would remain in the area long enough to result in PTS or TTS. Piling is a discrete, short duration activity; other sources of noise will not result in significant impacts to threatened and migratory MNES.

The assessment of impacts from underwater noise determined the worst-case residual ranking of Minor or lower (Table 9-24). As outlined above, the acceptability of the impacts from noise associated with the Crux development drilling activity have been considered in the context of:

Principles of ESD

Impacts from underwater noise emissions are consistent with the principles of ESD based on the following points:

- The underwater noise emissions aspect does not degrade the biological diversity or ecological integrity of the Commonwealth Marine Area and significant impacts to MNES are not anticipated to occur
- The precautionary principle has been applied, and the most recent scientific literature and international guidelines on noise impacts (Popper et al. 2014, NOAA 2018, Southall et al. 2019, Finneran et al. 2017) have been reviewed and referenced to ensure latest research and knowledge are taken into account in the evaluation of environmental impacts.

Relevant Requirements

Management of impacts from underwater noise emissions is consistent with relevant legislative requirements, including:

- assessment of noise impacts is guided by the latest scientific research in defining impact thresholds and includes noise transmission modelling for the MODU, project vessels and pile driving;
- management of noise impacts is consistent with policies, strategies, guidelines and conservation advice (refer to Table 9-27);
- Marine support vessel interactions with threatened and migratory species to follow the EPBC Regulations 2000 – Part 8 Division 8.1 (Regulations 8.05 and 8.06) and the Australian National Guidelines for Whale and Dolphin Watching 2017 (Commonwealth of Australia 2017b), i.e.
    - Marine support vessels will not deliberately approach closer than 50 m to a dolphin, turtle or whale shark; 100 m for an adult whale; 300 m for a whale calf; and 150 m for a dolphin calf
    - If the whale, dolphin, turtle or whale shark shows signs of being distressed, marine support vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots.

Matters of National Environmental Significance

Threatened and Migratory Species

The evaluation of noise impacts indicates significant impacts to threatened and migratory species will not credibly result from underwater noise emissions during the Crux development drilling activity. Alignment with management plans, recovery plans and conservation advice for threatened and migratory fauna is provided in Table 9-26.

Commonwealth Marine Environment

Impacts from the noise aspect of the Crux development drilling on the Commonwealth Marine Environment will not exceed any of the significant impact criteria provided in Table 8-1.

Table 9-27: Summary of Alignment of the Impacts from the Noise Aspect of the Crux drilling activity with Relevant Requirements for EPBC Threatened Fauna

Matters of National Environmental Significance	MNES Acceptability Considerations (EPBC Management Plans/Recovery Plans/Conservation Advices)	Demonstration of Alignment as Relevant to the Project
Threatened and Migratory Species – Marine Mammals	Approved conservation advice *Balaenoptera borealis* (sei whale) (Threatened Species Scientific Committee 2015a)	Vessel interactions with threatened and migratory species to follow the EPBC Regulations 2000 – Part 8 Division 8.1 (Regulations 8.05 and 8.06) and the Australian National Guidelines for Whale and Dolphin Watching 2017 (Commonwealth of Australia 2017b). A noise assessment consistent with the recommendations of technical guidance for assessing the effects of anthropogenic sound on marine mammal hearing (NOAA 2018; Southall et al. 2019) was undertaken. Pile driving activities conducted for installation of the docking piles will comply with 'Standard Management Procedures' set out in EPBC Act Policy Statement 2.1 – Interaction between Offshore Seismic Exploration and Whales: Industry Guidelines
	Approved conservation advice for *Balaenoptera physalus* (fin whale) (Threatened Species Scientific Committee 2015b)	
	Conservation management plan for the blue whale: A recovery plan under the Environment Protection and Biodiversity Conservation Act 1999 2015-2025 (Commonwealth of Australia 2015a)	
	Conservation management plan for the southern right whale: a recovery plan under the Environment Protection and Biodiversity Conservation Act 1999 2011-2021 DeepakC 2012b)	
Threatened and Migratory Species – Marine Reptiles	Significant impact guidelines for Critically Endangered, Endangered, Vulnerable and Migratory species (Table 8-1).	The evaluation of environmental impacts indicates that impacts from underwater noise emissions on threatened or migratory marine reptiles are Minor and would not constitute a significant impact. As such, the Crux development drilling activity does not exceed any of the significant impact criteria for Threatened and Migratory marine reptile species provided in Table 8-1.
	Recovery Plan for Marine Turtles in Australia 2017–2027 (Commonwealth of Australia 2017a)	Acute and chronic noise pollution has been identified as a threat in the Recovery Plan for Marine Turtles (Commonwealth of Australia 2017a), however there are no

Matters of National Environmental Significance	MNES Acceptability Considerations (EPBC Management Plans/Recovery Plans/Conservation Advices)	Demonstration of Alignment as Relevant to the Project
		specific actions in the Plan in relation to noise pollution, except a recognised need to conduct additional research on impacts of noise on turtles. A noise assessment consistent with the recommendations of the sound exposure guidelines for fishes and sea turtles (Popper et al. 2014; Finneran et al. 2017) was undertaken.
Other Species – Sharks and Rays	Conservation advice on whale shark (*Rhincodon typus*) (TSSC 2015a)	A noise assessment consistent with the recommendations of the sound exposure guidelines for fishes and sea turtles (Popper et al. 2014) was undertaken. This considered the potential impacts of underwater noise on whale sharks.
Commonwealth Marine Environment	Significant Impact Guidelines for the Commonwealth marine environment (Table 8-1)	The evaluation of environmental impacts indicates that the underwater noise emissions aspect of the Crux development drilling activity will not exceed the Commonwealth marine environment significant impact criteria provided in Table 8-1.

External Context

There have been no objections or claims raised by Relevant Persons to date on the underwater noise aspect. Shell's ongoing consultation program will consider statements and claims made by stakeholders when undertaking further assessment of impacts and risks.

Internal Context

Shell has also considered the internal context, including Shell's environmental policy and ESHIA requirements. The EPOs, and the controls which will be implemented, are consistent with Shell's internal requirements.

Acceptability Summary

The assessment of impacts and risks from noise determined the residual impact rankings were Minor (Table 9-25). As outlined above, the acceptability of impacts from underwater noise have been considered in the context of:

- the established acceptability criteria for the noise aspect;
- ESD;
- relevant requirements;
- MNES;
- external context (i.e. stakeholder claims); and
- internal context (i.e. Shell requirements).

Shell considers residual impacts of noise of Minor or lower to be acceptable if they meet legislative and Shell requirements. The discussion above demonstrates that these requirements have been met in relation to underwater noise.

Based on the points discussed above, Shell considers the impacts from underwater noise associated with the Crux drilling activity to be acceptable.

9.5.6 Environment Performance Outcome

Environment Performance Outcome	Measurement Criteria
No mortality or injury of threatened and migratory MNES species as a result of underwater noise from the petroleum activities.	Fauna observations and incident reports demonstrate no injury or mortality of listed Threatened or Migratory species as a result of underwater noise emissions within the Operational Area.

9.6 Disturbance to Seabed

9.6.1 Aspect Context

Disturbance to the seabed will occur from a number of the Crux development drilling activities, including:

- installation of subsea infrastructure such as the drilling template and docking piles;
- GPS positioning array clump weights;
- mooring of the MODU;
- presence of mooring chains;
- placement of equipment on seabed;
- Remote Operated Vehicle (ROV) operations; and
- the drilling of five development wells.

The approximate area of direct seabed disturbance from the installation of the drilling template is 322 m^2 (23 x 14 m) and two docking piles is 24 m^2 (Table 6-3).

The proposed development wells are planned to be drilled using a moored semi-submersible MODU. The mooring system will be 12-point anchor system with an anchor spread up to 3,000 m from the MODU. Each anchor has the potential to disturb approximately 25 m^2 of seabed (up to 300 m^2 in total). Mooring chains and lines also cause temporary seabed disturbance. It has been estimated that this will cause up to 10,000 m^2 of direct seabed disturbance.

The planned anchoring activities will be within the parameters defined in the Anchoring of Vessels and Floating Facilities Environment Plan Reference Case (Department of Industry, Innovation and Science, undated), including:

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

Other equipment and operations will also result in localised seabed disturbance. The use of ROV's during activities as described may result in temporary seabed disturbance and localised 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).

Drilling activities may result in intermittent or discontinuous disturbance to the seabed up to an approximate 150 m radial distance around each new well due to the installation of the BOP, conductor and discharge of cement adjacent to wells.

Contingent Drilling Activities

Respudding may be required if well problems result in it being impractical to continue to drill in the current well. Any seabed disturbance would be the same as those described above for drilling and MODU operations. In addition, in the event of a respud the base case would be to remove the wellhead infrastructure. However, if reasonable attempts at wellhead removal are unsuccessful, a wellhead may remain in situ until the end of field life.

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 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 Operational Area.

The generation and discharge of cuttings and drilling fluids are assessed in Section 9.10.

9.6.2 Description and Evaluation of Impacts

9.6.2.1 Physical Environment

The Crux development drilling activities will have a physical impact on the seafloor within a localised disturbance footprint. The seabed of the Operational Area is characterised by widespread soft sediment habitat. Impacts to sediment quality from seabed disturbance as a result of the activities listed above are considered to be slight. Significant changes to physical properties, such as particle size distribution and geological origin, are not expected to occur.

Disturbance to the seabed will also result in a localised increase in turbidity due to the resuspension of sediment and unconsolidated material. Any impacts to water quality (turbidity) from seabed disturbance are expected to be restricted to highly localised and short-term sediment plumes. Sediment plumes may result in a slight and temporary decrease in water quality due to increase in suspended sediments. These temporary impacts to water quality are expected to have only a slight effect.

Any seabed disturbance associated with dropped objects will be within the Operational Area and limited to a very localised footprint in the immediate vicinity of the contact with the seabed.

The overall residual impact consequence level to water and sediment quality is ranked as Slight (Magnitude – −1, Sensitivity – L).

9.6.2.2 Biological Environment

Benthic communities within the Operational Area, may be impacted from the permanent placement of infrastructure (i.e. drilling template and wellheads), or placement of temporary infrastructure (e.g. MODU anchors, ROV) on the seabed. Disturbance to the seabed can alter the physical seabed habitat conditions, resulting in epifauna and infauna (living on and in the sediment) community changes (Newell et al., 1998). The drilling template and subsea well installations are permanent for the duration of field life and will result in the displacement and/or permanent loss of epifauna and infauna within the physical footprint.

Habitat modification as a result of seabed disturbance could occur within a radius of up to ~100 m from each well (5 wells in total). In proximity to this area benthic communities may be altered or reduced, resulting in a highly localised impact to any epifauna and infauna. Potential impacts

include burial or smothering effects from localised sediment deposition, particularly for sessile epifauna. Sediment coating resulting from elevated turbidity/TSS can also potentially cause clogging or damage to the physiological functioning of biota such as sea pens and polychaetes that are reliant on external respiratory and feeding structures.

Soft sedimentary communities have, however, been shown to respond rapidly to temporary disturbance and impacts are thus expected to be slight and short-lived (Shell 2009).

The deep-water environment is not oxygen saturated and oxygen levels in the water column at depth are substantially reduced as compared to the upper surface layers. Deep water benthic biota are adapted to such conditions which also include zero light and reduced temperature. Changes in oxygen levels resulting from sediment disturbance during the seabed infrastructure installation will be of short duration and temporary (excluding the footprint of permanent structures).

The benthic habitat survey conducted in 2017 (Section 7.3.1) revealed a low abundance of macrobenthic fauna in the Operational Area. This is linked to the low proportion of hard substrate, which is required habitat for many benthic species. The habitats associated with these communities are broadly distributed in the wider region and are not considered to be unique or highly sensitive.

The scale and magnitude of potential impacts will be limited to the offshore seabed infrastructure physical footprint area, representing a small proportion of the total area of deep water habitat and associated benthic communities of the Operational Area, that are known to be present in the wider region.

Given the widespread extent of similar habitat, the low diversity and sensitivity of the benthic habitat within the Operational Area, and the high likelihood that temporarily affected areas will recover in a short timeframe, the environmental effects are considered to be of minimal ecological significance. Thus, the overall residual impact consequence level is ranked as Minor (Magnitude – −1, Sensitivity – L).

9.6.2.3 Socio-Economic and Cultural Environment

Cultural Heritage Features and Values

There are currently no underwater cultural heritage artifacts known within the Operational Area for this EP. This is supported by recent study of the Crux Project area by Cosmos Archaeology, which found that there are not predicted to be any impacts on underwater cultural heritage artifacts from First Nations from the Crux Project (Cosmos Archaeology, 2023). Therefore, there are currently no predicted impacts to any known or unknown underwater cultural heritage artifacts. During the Relevant Persons consultation, no specific cultural heritage values were identified within the operational area related to seabed disturbance, therefore there are no predicted impacts to cultural heritage values.

No other environmental receptors are considered relevant to the aspect Disturbance to Seabed, due to the limited nature and scale of the activity.

9.6.3 Impact Assessment Summary

Table 9-28: Benthic Disturbance Evaluation of Residual Impacts

Environmental Receptor	Magnitude	Sensitivity	Residual Impact Consequence
Evaluation – Planned Impacts			
Physical Environment	-1	L	Slight
Biological Environment	-1	L	Slight
Cultural Heritage Features and Values	0	L	No Impact

9.6.4 ALARP Assessment and Environmental Performance Standards

Table 9-29: ALARP Assessment and Environmental Performance Standards

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
Elimination	N/A	N/A	Physical presence of the MODU and subsea infrastructure cannot be eliminated for the Crux development drilling activity.	N/A	N/A	N/A
Substitution	Only use DP MODU (no anchoring required).	No	While use of a DP MODU would reduce the impact to the seabed from anchoring, it would introduce a source of underwater noise with potential impacts to listed threatened and migratory species. Use of a DP MODU would also significantly increase the GHG emission associated within the drilling campaign. Shell has a demonstrated capacity to manage the environmental risks and impacts from mooring to a level that is ALARP and acceptable.	N/A	N/A	N/A
Substitution	Do not use an ROV close to or on the seabed.	No	The ROV is the main tool used to guide equipment during drilling. However, it is noted that due to visibility and operational issues, ROV work on or close to the seabed is avoided unless necessary.	N/A	N/A	N/A
Engineering	Infrastructure will be positioned on the seabed within design footprint to reduce seabed disturbance.	Yes	Positioning of infrastructure on the seabed within the design footprint will ensure disturbance occurs within planned areas where impacts have been assessed.	4.1	Infrastructure (drilling template and docking piles) is installed on the seabed within the Operational Area.	As-laid surveys are performed following drilling activities to confirm the infrastructure has been installed within the Operational Area.
Engineering	Adopt a MODU anchoring plan	Yes	A MODU anchoring plan will identify suitable areas for anchors to be placed within the Operational Area	4.2	Seabed disturbance from MODU mooring limited to that required to ensure adequate MODU station holding capacity.	Records demonstrate MODU anchoring plan completed and

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
						implemented during anchor deployment.
Engineering	Conduct ROV visual clearance survey	Yes	Use of a ROV visual clearance survey prior to position infrastructure on the seabed and prior to the commencement of drilling activities will ensure set-down accuracy and reduce seabed disturbance.	4.3	ROV visual clearance survey prior to drilling template installation and commencement of drilling activities.	Records demonstrate ROV visual clearance surveys are completed.
Engineering	GPS positioning array clump weight recovery	Yes	Technology and support vessels capability are available to undertake the recovery off clump weights used for the deployment of the GPS positioning array. It is considered that the capital cost to recover the clump weights outweighs the negative long term impact that the option to abandon in place has on the seabed. It is also expected that the limited impact the clump weights have would on the seabed, will naturally recover following the removal of the clump weights.	4.4	All clump weights used to deploy GPS positioning array are recovered.	Records demonstrate recovery of clump weights.
Administrative and Procedural Controls	Anchoring in the Operational Area for project vessels is prohibited except in emergency situations or under issuance of a specific permit by Shell	No	The use of a DP MODU (no anchoring required) would eliminate seabed disturbance and associated impacts to benthic communities from anchor placement and movement. Shell requires an anchored MODU to meet technical and operational constraints.	N/A	N/A	N/A
Administrative and Procedural Controls	Ongoing Relevant Persons consultation process.	Yes	Shell will implement the ongoing consultation process in accordance with regulation 14(9) of the OPGGS(E)R and Section 5.8. This process provides a mechanism for RPs to give feedback, and raise claims or objections relevant to the activities being executed under the EP. This gives Shell the ability to maintain relationships with RPs that fosters a continued improvement in Shells	4.5	Shell will implement an ongoing consultation process with Relevant Persons in accordance with regulation 14(9) of the OPGGS(E)R and Section 5.8.	Relevant Persons consultation records. MOC records.

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
			understanding of the features and values of the existing environment, and where new risks or impacts are identified, the establishment of appropriate controls to reduce risks and/or impacts to ALARP and acceptable levels.			
Administrative and Procedural Controls	Underwater heritage chance find process	Yes	A chance find process will be implemented where any seabed direct disturbance takes place on the Crux project. This will be implemented where ad hoc evidence such as ROV footage is viewed which the operator suspect may be a potential cultural heritage artifact. This will trigger seabed disturbance works to stop works until a cultural heritage expert can review the footage and confirm if the identified object is a cultural heritage artifact. In the event the object is confirmed to be a cultural heritage artifact, works will be stopped within an appropriate exclusion area until such point that relevant approvals are obtained from DCCEEW under the Underwater Cultural Heritage Act. If the object is confirmed not to be, or likely not to be, a cultural heritage artifact, works may resume. Given the preliminary results of the Crux Project First Nations Underwater Cultural Heritage Impact Assessment have shown that there are no potential impacts to tangible cultural heritage features within the Crux Project area, implementing a chance find process for First Nations Underwater Cultural Heritage tangible features is considered best practice for this activity. An ROV survey is planned before installation of the drill template and immediately afterwards. In addition, for the MODU campaign, significant ROV surveys of the immediate area of the drill location will occur before drilling operations commence and at the completion of drilling activities. This will enable	4.7	Shell will implement a chance find process for unknown tangible underwater cultural heritage artifacts.	Records verify relevant project personnel (e.g. ROV operators) are trained in the chance find process prior to the activity commencing within the operational area.. Training evidence for chance find process will include a guide developed by an underwater cultural heritage SME within Australia which trained personnel can use as a reference during relevant activities. Records demonstrate that chance find process is implemented.

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
			appropriate timing of implementation of the chance find process for this activity.			

9.6.5 Acceptability of Impacts

Table 9-30: Acceptability of Impact – Disturbance to Seabed

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Are the Impacts of an Acceptable Level?	Acceptability Assessment
Socio-economic and Cultural Environment	Cultural Heritage Features	No impacts to Cultural heritage features	Yes	There are no known cultural heritage features or values that occur within the Operational Area related to the aspect of Seabed Disturbance.
	Cultural Heritage Values	No significant impacts to cultural heritage values	Yes	
Physical Environment	Water and sediment quality	No significant impacts to water quality during the Crux development drilling activity.	Yes	Slight, temporary impacts to water quality as a result of seabed disturbance during the Crux development drilling activities will not impact biodiversity or ecological integrity within the Operational Area.
	Sediment quality	No significant impacts to sediment quality during the Crux development drilling activity.	Yes	Slight, temporary impacts to sediment quality as a result of seabed disturbance during the Crux development drilling activities will not impact biodiversity or ecological integrity within the Operational Area.
Ecosystems, Communities and Habitats	Benthic communities	No significant impacts to benthic habitats and communities. Impacts to non-sensitive benthic communities limited to a maximum of 5% of the Crux Project Area.	Yes	No significant impacts are expected, given the low benthic diversity and lack of hard substrate in the Operational Area. Habitats associated with these communities are broadly distributed in the wider region and are not considered to be unique or highly sensitive.

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Are the Impacts of an Acceptable Level?	Acceptability Assessment
				Any seabed disturbance within the Operational Area will be relatively small in scale, infrequent and represent a small fraction of similar habitat in the region. Therefore any impacts are not expected to affect ecosystem function or connectivity of communities.

The assessment of impacts from seabed disturbance determined the residual impact consequence ranking to be Slight or lower (Table 9-28). As outlined above, the acceptability of the impacts associated with the petroleum activity have been considered in the following context.

Principles of ESD

The impacts from seabed disturbance are consistent with the principles of ESD based on the following points:

- Seabed disturbance on such a small scale will not degrade the biological diversity or ecological integrity of the Commonwealth Marine Environment and therefore significant impacts to MNES will not occur
- The health, diversity and productivity of the marine environment will be maintained for future generations
- The precautionary principle has been applied, and studies undertaken where knowledge gaps were identified. This knowledge has been applied during the evaluation of environmental impacts.

Relevant Requirements

Management of the impacts from seabed disturbance are consistent with relevant legislative requirements, including:

- Management of impacts are consistent with guidelines for the protection of MNES (Table 8-1).

Matters of National Environmental Significance

Commonwealth Marine Environment

The impacts from the seabed disturbance aspect of the Crux development drilling activity on the Commonwealth Marine Environment will not exceed any of the significant impact criteria provided in Table 8-1.

Table 9-31: Summary of Alignment of the Impacts from the Seabed Disturbance Aspect of the Crux Development Drilling Activity with Relevant Requirements for MNES

Matters of National Environmental Significance	MNES Acceptability Considerations (EPBC Management Plans/Recovery Plans/Conservation Advices)	Demonstration of Alignment as Relevant to the Project
Commonwealth Marine Environment	Significant Impact Guidelines for the Commonwealth Marine Environment (Table 8-1)	The impact assessment indicates that the seabed disturbance aspect will not exceed the Commonwealth Marine Environment significant impact criteria provided in Table 8-1.

External Context

There have been no objections or claims raised by Relevant Persons to date regarding the seabed disturbance aspect. Shell's ongoing consultation program will consider feedback and claims or objections made by Relevant Persons throughout the life of this EP. Where new impacts or risks are established these will be subject to the MOC process described in Section 10.1.3.

Internal Context

Shell has also considered the internal context, including Shell's environmental policy and ESHIA requirements. The EPOs, and the controls which will be implemented, are consistent with Shell's internal requirements.

Acceptability Summary

The assessment of impacts and risks from seabed disturbance determined the residual impact rankings were Minor or lower (Table 9-28). As outlined above, the acceptability of the impacts have been considered in the context of:

- the established acceptability criteria for the seabed disturbance aspect;
- ESD;
- relevant requirements;
- MNES;
- external context (i.e. stakeholder claims); and
- internal context (i.e. Shell requirements).

Shell considers residual impacts of Minor or lower to be acceptable if they meet legislative and Shell requirements. The discussion above demonstrates that these requirements have been met in relation to the seabed disturbance aspect.

Based on the points discussed above, Shell considers the impacts from seabed disturbance associated with the Crux development drilling activity to be ALARP and acceptable.

9.6.6 Environment Performance Outcome

Environment Performance Outcome	Measurement Criteria
No planned impacts to cultural heritage features within the Operational Area as a result of the petroleum activities.	Chance find process implementation records.
No significant impacts to cultural heritage values within the Operational Area as a result of the petroleum activities.	Consultation records and/or MOC records show that any cultural heritage values identified within the Operational Area are not significantly impacted as a result of the petroleum activities.

Impacts to non-sensitive benthic communities limited to a maximum of 5% of the Crux Project Area.	No records of incidents involving seabed disturbance from development drilling activities outside the Operational Area.

9.7 Vessel Movements

9.7.1 Aspect Context

Activities associated with the Crux development drilling will require a MODU and vessels for subsea installation, support operations and supply/transport. The type and number of vessels in the Operational Area at any one time, and the duration of presence, will differ depending on the activities being undertaken (Section 6.5). The drilling template installation will be carried out by an LCV and is currently proposed to occur approximately 3 months ahead of MODU arrival. Following MODU arrival, drilling activities will commence for a planned duration of approximately 10 months, with an additional 10-month contingency drilling period. Post drilling, the docking piles may be installed using a LCV in preparation for substructure arrival and set-down (covered in a separate EP).

The physical presence of the MODU and vessels within the Operational Area may present a hazard to threatened marine fauna including mammals, turtles and whale sharks (though the abundance of such fauna in and around the Operational Area has been observed to be low). Vessel movements may result in unplanned collisions with marine fauna, potentially resulting in injury or death. Factors affecting the likelihood and severity of impacts from collisions include vessel type, vessel speed, water depth and the behaviours of animals present (Commonwealth of Australia 2017c).

9.7.2 Description and Evaluation of Risks

Vessel movements can result in collisions between the vessel (hull and propellers) and marine fauna, potentially resulting in superficial injury, serious injury that may affect life functions (e.g. movement and reproduction), or mortality. Marine fauna are also at risk of mortality through being caught in thrusters during station keeping operations (dynamic positioning).

The likelihood of vessel/fauna collision being lethal is influenced by vessel speed—the greater the speed at impact, the greater the risk of mortality (Jensen and Silber, 2004; Laist et al., 2001). Vanderlaan and Taggart (2007) found that the chance of lethal injury to a large whale as a result of a vessel strike increases from about 20% at 8.6 knots to 80% at 15 knots. Project vessels within the Operational Area are likely to be travelling <8 knots (and will often be stationary). At times, vessels will be transiting between wells where speed could be approximately 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 unlikely.

The risk of marine life getting caught in operating thrusters is unlikely, given the low presence of individuals, combined with the avoidance behaviour commonly displayed during dynamic positioning operations.

9.7.2.1 Marine Mammals

As described above, vessel speed influences the probability and severity of a vessel collision with marine mammals (Vanderlaan and Taggart, 2007). The behaviour of individuals may also influence the potential for a collision occurring. Large cetaceans may be expected to show localised avoidance in response to vessel noise, however studies have reported limited behavioural response to approaching ships (McKenna et al., 2015). Furthermore, 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).

Seven species of whales may be present (or habitat presence) within the Operational Area, however no BIAs or known key aggregation areas for marine mammals (resting, breeding or feeding) are located within or immediately adjacent to the Operational Area. Individuals may

occasionally be present in the Operational Area, including pygmy blue whales during seasonal migrations (Section 7.3.5).

One species of dolphin may occur in the Operational Area (Section 7.3.5), however, most dolphins show preference for coastal habitats over deep offshore waters. This reduces the likelihood of dolphin species being encountered in the Operational Area and interacting with project vessels.

Vanderlaan and Taggart (2007) estimate that the risk of lethal injury to a large whale as a result of a vessel strike is less than 10% at a speed of 4 knots. Vessel-whale collisions at this speed are uncommon and, based on reported data contained in the NOAA database (Jensen and Silber, 2004) there are only two known instances of collisions when the vessel was travelling at less than 6 knots; both of these were from whale-watching vessels that were deliberately positioned amongst whales. Smaller cetaceans, such as dolphins, comprise a lower proportion of reported vessel collision records (Commonwealth of Australia 2017c). Although dolphins often engage in bow riding which may make them more vulnerable to entanglement with propellers or thrusters compared to larger cetaceans.

Based on this, the likelihood of a vessel collision with marine mammals is Unlikely (C).

9.7.2.2 Turtles

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, 2017a). Considering the offshore location of the Operational Area, the presence of marine turtles is expected to comprise only occasional individuals transiting the open, offshore waters for short periods of time. Individuals are likely to 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 unlikely that vessel movements associated with the Crux development drilling activity will have a significant impact on marine turtle populations, given the low presence of transiting individuals and the low operating speed of the vessels (generally <8 knots or stationary, unless operating in an emergency).

Based on this, the likelihood of a vessel collision with marine turtles is Unlikely (C).

9.7.2.3 Whale Sharks

Whale sharks are at risk from vessel strikes when feeding at the surface (Womersley et al. 2022). The Operational Area is located within the foraging BIA for whale sharks which extends offshore along the Pilbara and Kimberley coastlines (Table 7-11). This BIA is listed as foraging habitat, however the Conservation Advice (TSSC 2015a) indicates this BIA is used by whale sharks as a migration corridor rather than as significant foraging habitat.

While whale sharks may traverse the Operational Area, their presence is not expected in large numbers given there is no main aggregation area within the vicinity, and their presence would be transitory. This is consistent with tagging studies of whale shark movements which show continual movement of whale sharks in deeper, open offshore waters (Meekan & Radford 2010, Womersley et al. 2022). There are no constraints preventing whale sharks from moving away from vessels (e.g. shallow water or shorelines).

Based on this, the likelihood of a vessel collision with whale sharks is Unlikely (C).

Summary

Given the migratory nature of whale sharks in the identified BIA, and the large distance between the Operational Area and BIAs and critical habitat for turtles and marine mammals, the abundance of threatened or migratory species in the Operational Area is expected to be low and their presence transient.

This activity is identical to vessel movements for other offshore activities along the Western Australian coastline where the incidence of vessel strike is remote. Any collisions are only likely to affect fauna at an individual scale rather than at a population scale. Therefore, the potential risk of impact from a vessel collision is considered to have a Minor consequence, with a likelihood of Unlikely (C) and an overall residual risk ranking of Minor.

9.7.3 Risk Assessment Summary

Table 9-32: Vessel Collision with Marine Life Evaluation of Residual Risks

Environmental Receptor	Consequence	Likelihood	Residual Risk
Evaluation – Unplanned Risks			
Biological Environment – threatened species	Minor	C – Unlikely	Dark Blue

9.7.4 ALARP Assessment and Environmental Performance Standards

Table 9-33: ALARP Assessment and Environmental Performance Standards

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
Elimination	Elimination	N/A	No appropriate control measures have been identified to eliminate this risk from the Crux development drilling activity.	N/A	N/A	N/A
Substitution	Substitution	No	The number of vessels proposed is already considered the minimum to meet operational needs.	N/A	N/A	N/A
Engineering	Engineering	No	No appropriate control measures have been identified to reduce collision likelihood through engineering means.	N/A	N/A	N/A
Administrative and Procedural Controls	Vessel interactions with threatened and migratory species to follow the of EPBC Regulations 2000 – Part 8 Division 8.1 (Regulations 8.05 and 8.06) and the Australian National Guidelines for Whale and Dolphin Watching 2017 (Commonwealth of Australia 2017b). In particular: • Project vessels will not deliberately approach closer than 50 m to a dolphin, turtle or whale shark; 100 m for an adult whale; 300 m for	Yes	The EPBC Regulations 2000 – Part 8 Division 8.1 (Regulations 8.05 and 8.06) and the Australian National Guidelines for Whale and Dolphin Watching 2017 (Commonwealth of Australia 2017b) are recognised as the industry standard for minimising disturbance due to physical presence and noise to whales and dolphins and will be applied to other species as relevant, .i.e. turtles and whale sharks.	3.1	Vessels comply with EPBC Regulations 2000 Part 8, Division 8.1 Interacting with cetaceans and the Australian National Guidelines for Whale and Dolphin Watching (2017).	Incident report form used to record breaches of requirements outlined in the EBPC Regulations 2000 and Australian National Guidelines for Whale and Dolphin Watching.

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
	a whale calf; and 150 m for a dolphin calf. • If the whale, dolphin, turtle or whale shark shows signs of being distressed, project vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots.					
Administrative and Procedural Controls	Dedicated Marine Fauna Observers (MFOs) on vessels	No	The cost to have dedicated trained MFOs on vessels represents a disproportionate cost given the low likelihood of the event occurring due to the absence of biologically important habitats within the Operational Area.	N/A	N/A	N/A

9.7.5 Acceptability of Risks

Table 9-34: Acceptability of Risks – Vessel Movements

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Are the Impacts of an Acceptable Level?	Acceptability Assessment
Threatened Species and Ecological Communities	Marine mammals Marine reptiles Sharks and rays	No mortality or injury of threatened or migratory MNES fauna from the Crux development drilling activity. Management of aspects of the Crux development drilling activity must be aligned to conservation advice, recovery plans and threat abatement plans published by DAWE. No significant impacts to threatened or migratory MNES fauna.	Yes	Vessel movement risks are of an acceptable level, given the Operational Area is not located in any BIAs or habitat critical to the survival of a species, with the single exception of the BIA for the whale shark, which represents a broad migratory corridor and threatened and/ or migratory species are not expected in significant numbers in the region. In addition, with the low speeds of vessels within the Operational Area, significant impacts to Threatened and Migratory Species are not anticipated. Shell's environmental management of the physical presence and vessel movements aspect of the Crux project is aligned with conservation advice, recovery plans and threat abatement plans.

The assessment of risks from vessel movements determined the residual risk to have a ranking of Dark Blue (Table 9-32). As outlined above, the acceptability of risks from vessel movements associated with the petroleum activities has been considered in the following context.

Principles of ESD

Risks from vessel movement are consistent with the principles of ESD based on the following points:

- The vessel movements aspect does not degrade the biological diversity or ecological integrity of the Commonwealth marine area. Significant impacts to MNES will not occur
- The health, diversity and productivity of the marine environment will be maintained for future generations
- The precautionary principle has been applied, and studies undertaken where knowledge gaps were identified. This knowledge has been applied during the evaluation of environmental risks.

Relevant Requirements

Management of risks from vessel movements are consistent with relevant legislative requirements, including:

- Project vessel interactions with threatened and migratory species to follow the EPBC Regulations 2000 – Part 8 Division 8.1 (Regulations 8.05 and 8.06) and the Australian National Guidelines for Whale and Dolphin Watching 2017 (Commonwealth of Australia 2017b), i.e.
  - Project vessels will not deliberately approach closer than 50 m to a dolphin, turtle or whale shark; 100 m for an adult whale; 300 m for a whale calf; and 150 m for a dolphin calf
  - If the whale, dolphin, turtle or whale shark shows signs of being distressed, project vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots.

Management of risks are consistent with policies, strategies, guidelines, conservation advice, and recovery plans for threatened species (refer to Table 9-35 below*).*

Matters of National Environmental Significance

Threatened and Migratory Species

The evaluation of risks indicates significant impacts to threatened and migratory species will not credibly result from the vessel movements aspects of the petroleum activities.

An unplanned collision between project vessels and threatened or migratory fauna is unlikely to occur but may result in injury to or death of individual animals. This unplanned event is not considered to have the potential for significant impacts to threatened or migratory species at the population level.

Alignment with management plans, recovery plans and conservation advice for threatened and migratory fauna is provided in Table 9-35.

Commonwealth Marine Environment

The impacts and risks from the vessel movements aspect of Crux development drilling activity on the Commonwealth marine environment will not credibly exceed any of the significant impact criteria provided in Table 8-1.

Table 9-35: Summary of Alignment of the Risks from the Vessel Movements Aspect of the Crux Development Drilling Activity with Relevant Requirements for EPBC Threatened Fauna

Matters of National Environmental Significance	MNES Acceptability Considerations (EPBC Management Plans/Recovery Plans/Conservation Advices)	Demonstration of Alignment as Relevant to the Project
Threatened and Migratory Species – marine mammals	Significant impact guidelines for Critically Endangered, Endangered, Vulnerable and Migratory species (Table 8-1)	The risk assessment indicates that the likelihood of vessel collisions with threatened or migratory marine mammals is Unlikely, and the consequence of any such collision would be restricted to an individual animal. As such, the petroleum activities do not exceed any of the significant impact criteria for Threatened and Migratory marine species provided in Table 8-1.
	National Strategy for Reducing Vessel Strikes on Cetaceans	Vessel movements will be aligned to 'Objective 3: Mitigation' of the Strategy by: • maintaining separation of vessels and whales;

Matters of National Environmental Significance	MNES Acceptability Considerations (EPBC Management Plans/Recovery Plans/Conservation Advices)	Demonstration of Alignment as Relevant to the Project
	and other Marine Megafauna (Commonwealth of Australia 2017c)	• maintaining slow vessel speeds; and • avoidance manoeuvres. This will be met by project vessels adhering to Part 8 (Interacting with cetaceans and whale watching) of the EPBC Regulations. Note the other objectives of the Strategy relate to actions for Government agencies.
	Conservation advice on sei whale (*Balaenoptera borealis*) (TSSC 2015b)	The risk of vessel strikes will be managed by project vessels adhering to the EPBC Regulations 2000 – Part 8 Division 8.1 (Regulations 8.05 and 8.06) and the Australian National Guidelines for Whale and Dolphin Watching 2017.
	Conservation advice on fin whale (*Balaenoptera physalus*) (TSSC 2015c)	
	Conservation management plan for the blue whale: A recovery plan under the Environment Protection and Biodiversity Conservation Act 1999 2015-2025 (Commonwealth of Australia 2015a)	
Threatened and Migratory species – marine reptiles	Significant impact guidelines for Critically Endangered, Endangered, Vulnerable and Migratory species (Table 8-1)	The risk assessment indicates that the likelihood of vessel collisions with threatened or migratory marine reptiles is Unlikely, and the consequence of any such collision would be restricted to an individual animal. As such, the petroleum activities do not exceed any of the significant impact criteria for Threatened and Migratory marine species provided in Table 8-1.
	Recovery Plan for Marine Turtles in Australia 2017-2027 (Commonwealth of Australia 2017a)	Project vessel collisions with turtles are inherently unlikely due to the offshore location (and resultant low densities of turtles), slow speeds of vessels and diving startle response of turtles. Furthermore, the risk of a vessel collision with a turtle will be further reduced via the application to turtles of the EPBC Regulations 2000 – Part 8 Division 8.1 (Regulations 8.05 and 8.06) and the Australian National Guidelines for Whale and Dolphin Watching 2017.
	Conservation advice on leatherback turtle (*Dermochelys coriacea*) (DEWHA 2008b)	
Threatened and Migratory species – whale sharks	Significant impact guidelines for Critically Endangered, Endangered, Vulnerable and	The risk assessment indicates that the likelihood of vessel collisions whale sharks is Unlikely, and the consequence of any such collision would be restricted to an individual animal. As such, the petroleum activities do not exceed any of the significant impact criteria for

Matters of National Environmental Significance	MNES Acceptability Considerations (EPBC Management Plans/Recovery Plans/Conservation Advices)	Demonstration of Alignment as Relevant to the Project
	Migratory species (Table 8-1)	Threatened and Migratory marine species provided in Table 8-1.
	Conservation advice on whale shark (*Rhincodon typus*) (TSSC 2015a)	The Operational Area is recognised as a BIA for whale sharks. The conservation advice recommends minimising offshore developments close to marine features that may aggregate whale sharks, but only transitory whale sharks are likely to pass through the Operational Area and aggregations are not expected in the vicinity.
Commonwealth Marine Environment	Significant Impact Guidelines for the Commonwealth marine environment (Table 8-1)	The impact assessment indicates that vessel movements will not exceed the Commonwealth Marine Environment significant impact criteria provided in Table 8-1as the aspect does not pose a credible risk.

External Context

There have been no objections or claims raised by Relevant Persons to date around the vessel movement aspect. Shell's ongoing consultation program will consider statements and claims made by stakeholders when undertaking further assessment of the risks.

Internal Context

Shell has also considered the internal context, including Shell's environmental policy and ESHIA requirements. The EPOs, and the controls which will be implemented, are consistent with Shell's internal requirements.

Acceptability Summary

As outlined above, the acceptability of the associated risks has been considered in the context of:

- the established acceptability criteria for the vessel movements aspect;
- ESD;
- relevant requirements;
- MNES;
- external context (i.e. stakeholder claims); and
- internal context (i.e. Shell requirements).

The residual risks have been assessed as Minor (Table 9-35). Shell considers residual risks of minor or lower to be acceptable if they meet legislative and Shell requirements. The discussion above demonstrates that these requirements have been met in relation to the vessel movements.

Based on the points discussed above, Shell considers the risks from vessel movements associated with the Crux development drilling activity to be ALARP and acceptable.

9.7.6 Environment Performance Outcome

Environment Performance Outcome	Measurement Criteria
No injury or mortality of listed Threatened or Migratory MNES species associated with vessel collisions within the Operational Area.	Records demonstrate no breaches with EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans.

9.8 Introduction of Invasive Marine Species from Vessels

9.8.1 Aspect Context

Invasive Marine Species (IMS) are non-indigenous marine fauna or flora that have been introduced into an area beyond their natural geographical range, and may have the ability to survive, reproduce and establish a population such that they threaten native species through increased competition for resources and/or increased predation.

Two primary mechanisms can introduce IMS to new areas:

- Biofouling. Biofouling occurs when marine organisms attach and grow on the submerged parts of a vessel or marine equipment.
- Ballast water discharges. The mobile life stages of IMS can be taken up in ballast water in one location, and introduced into another location when the ballast is discharged.

During the Crux development drilling activity, vessels will be transiting to and from the Operational Area, potentially including traffic mobilising from beyond Australian waters. These project vessels may include the MODU, LCV, AHTS or general project vessels (Section 6.4.5).

All vessels are subject to some level of marine fouling whereby organisms attach to the vessel hull. This can 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.). Biofouling may also be present on submerged equipment such as ROVs.

Organisms can also be drawn into ballast tanks during onboarding of ballast water as cargo is loaded or to balance vessels under load. The need for ballast water exchange for the project vessels within the Operational Area is expected to be limited. All vessels operating in the Operational Area are obliged to conduct ballast tank operations in line with International Maritime Organisation (IMO) guidelines and, where applicable, comply with the *Biosecurity Act 2015*.

The risk of introducing IMS through biofouling and ballast water exists only if the vessels or equipment have been submerged in water where an established population of IMS already exists. This includes international and Australian waters. Cross contamination between vessels can also occur (e.g. IMS translocated between project vessels) during times when vessels need to be alongside each other. These vessels may subsequently become vectors for translocation of potential IMS to new areas (NOPSEMA, 2020) or compound the impact of IMS already established in the wider region (Department of Fisheries, 2017). Shallow water, coastal marine environments are particularly susceptible to the establishment of invasive populations, with most IMS associated with artificial substrates in disturbed shallow water environments such as ports and harbours (e.g. Glasby et al. 2007; Dafforn et al. 2009a, 2009b). Once IMS establish, spread and become abundant in coastal waters some species could have major ecological, economic, and social/cultural consequences (Hewitt et al. 2011; Pimental et al. 2000).

9.8.2 Description and Evaluation of Risks

A range of environmental sensitivities within the following groups may be at risk from the introduction of potential IMS, including:

- biological environment; and
- socio-economic environment.

Potential risks associated with IMS establishment as a result of the drilling activities are discussed below.

9.8.2.1 Biological Environment

If IMS are introduced into a new area which can support their needs, the IMS can reproduce and establish a population in that area. IMS can outcompete or predate native species, and are recognised globally as a threat to marine biodiversity. In addition to affecting biodiversity in the immediate area, newly established populations of IMS can spread to nearby areas because many IMS produce larval stages that are easily transported by ocean currents.

Benthic Communities

The introduction IMS in the Operational Area has the potential to change the structure of benthic communities leading to a change in ecological function, if IMS were to become established. However, the offshore environment of the Operational Area is 90-180 m deep, and has little hard substrate available. In the unlikely event potential IMS are released into the Operational Area from biofouling or ballast water, the IMS are highly unlikely to encounter suitable habitat for settlement and establishment.

Benthic communities within the Operational Area are characterised by low density macrobenthic communities of deposit and filter feeders on bare sediments. The seabed within the Operational Area does not receive sufficient sunlight to support benthic primary producer habitat, such as macroalgae and zooxanthellate corals. Very few IMS could credibly survive in the water depths of the Operational Area.

While project vessels have the potential to introduce IMS into the Operational Area, the deep offshore open waters are not conducive to the settlement and establishment of IMS. Furthermore, the Operational Area is away from shorelines and/or critical habitat, the closest sensitive receptors are the Goeree Shoal, located approximately 14 km north-west of Operational Area.

The likelihood of IMS being introduced and establishing viable populations within the Operational Area or immediate surrounds is considered Extremely Remote given the controls that are routinely applied to vessels (e.g. anti-fouling coating, inspections, hull cleaning etc.), the remote offshore location and nature of typical vessel activities (e.g. short periods alongside the drilling operations). Further, project vessels will typically be sourced from Australian waters and will undertake the required assessments described in the Browse Basin Biosecurity Management Plan. Given the extremely remote likelihood and the moderate significance associated with the risk of IMS introduction to benthic habitats, the overall risk to benthic habitats is considered Minor.

There are no KEFs that overlap the Operational Area.

Shoals and Banks

The shoals and banks in the region are typically shallower than the Operational Area and may therefore be more vulnerable to introduction of IMS, although the shoals and banks are also below the preferred depth range of many potential IMS.

The nearest shoal to the Operational Area is Goeree Shoal, which lies approximately 14 km to the north-west. Given the extremely remote likelihood that an IMS is introduced and becomes established in the Operational Area, it is not expected that the IMS distribution would extend to include shoals and banks in the region.

Project vessels are very unlikely to spend any significant time in proximity to Goeree Shoal (or any other bank or shoal), and direct introduction of IMS to a shoal or bank is considered very unlikely. With the controls in place to minimise potential IMS risk, direct introduction of IMS to a shoal, bank or island during these short-duration activities is also considered Extremely Remote. Given the major significance associated with the risk of IMS introduction to nearby shoals, reefs and islands, the overall risk to these receptors is considered Moderate.

9.8.2.2 Socio-economic Environment

The establishment of IMS has the potential to affect the activities of other users through indirect impact such as changes to fisheries target species resulting in economic and social implications, or due to compromised reputation to the oil and gas industry.

Given the low likelihood of IMS introduction and establishment within the Operational Area, project activities are not expected to adversely affect other marine user activities in the region.

The consequence of potential impacts to other users is considered Major. However based on the extremely remote nature of IMS impacting socio-economic receptors, the residual risk is assessed as Moderate.

9.8.3 Risk Assessment Summary

Table 9-36: IMS Evaluation of Residual Risks

Environmental Receptor	Consequence	Likelihood	Residual Risk
Evaluation – Unplanned Risks			
Biological Environment	Major	A – Extremely remote	Dark Blue
Socio-Economic Environment	Major	A – Extremely remote	Dark Blue

9.8.4 ALARP Assessment and Environmental Performance Standards

Table 9-37: ALARP Assessment and Environmental Performance Standards

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
Elimination	No vessels	No	Vessels are essential for supply, standby safety support, and operations.	N/A	N/A	N/A
Elimination	No discharge of ballast water during the Crux development drilling activity	No	Ballast water discharges are a safety critical requirement for maintaining vessel stability.	N/A	N/A	
Substitution	Only use local project vessels	No	Although the use of local vessels is preferred, there are cases when this is impracticable due to availability of specialised vessels for the activities.	N/A	N/A	N/A
Engineering	Anti-foul coating/anti-foul system	Yes	Anti-foul coating/system on project vessels will help prevent biofouling accumulation on the hull. It is noted that anti-foul systems must be maintained in good condition in order to be an effective control for the management of marine pests.	6.1	Vessels (of appropriate class) will have an anti-foul coating applied in accordance with the prescriptions of the International Convention on the Control of Harmful Antifouling Systems on Ships and the Protection of the Sea (Harmful Antifouling systems) Act 2006.	Valid International anti-fouling systems certificate or a Declaration on anti-fouling systems.
Administrative and Procedural controls	Browse Basin Biosecurity Management Plan	Yes	The Browse Basin Biosecurity Management Plan (2000-010-G000-GE00-G00000-HX-5798-00003) applies to the project vessels. The plan details biofouling management, ballast water management and non-marine biosecurity risk and lists the associated preventive control measures. These control measures may include:	6.2	Vessels will comply with the Australian Biofouling Management Requirements (DAWE 2022) (of appropriate class), including: • vessels equipped with a Biofouling Management Plan • vessels maintain a Biofouling Record Book.	Records demonstrating a Biofouling Record Plan is in place. Records demonstrating a Biofouling Record Book is maintained.

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
			• biofouling management record book • biofouling risk assessments • ballast exchange logs during transit and whilst within the Activity Area • treatment of internal sea water systems. Risk results: • Low risk: vessel can be hired for normal operations • Uncertain/high risk: not to be used for normal operations Implementation of these controls will reduce the likelihood of introducing IMS. Under contingency or emergency circumstances where there is potential for escalated safety or environmental risk, uncertain/high-risk vessels may be used as part of the response, in which case IMS risk assessments must be conducted retrospectively and risk managed accordingly.	6.3	Carry out the required Marine vessel biofouling risk assessments aligned with National Biofouling Guidelines for the Petroleum Production and Exploration Industry (Marine Pest Sectoral Committee 2018) for vessels originating from overseas.	Biosecurity Status Document (issued via Maritime Arrivals Reporting System) showing an approved biofouling status (for vessels arriving from international locations) or a low-risk exemption through a domestic biofouling risk assessment (for domestic vessels).
				6.4	Ballast water discharges will comply with the Australian Ballast Water Management Requirements (DAWE 2020a), which implements the requirements of the Biosecurity Act 2015 (Cth) and the International Convention for the Control and Management of Ships' Ballast Water and Sediments (of appropriate class)	Records demonstrating a Ballast Water Management Plan is in place (of appropriate class).
						Records demonstrating a ballast water record system is maintained (of appropriate class).
						A copy of the International Ballast Water Management Certificate to demonstrate the principal ballast water management method is in accordance with D–2 standards.
						If the vessel cannot demonstrate it meets D–

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
						2 standards, records of ballast water discharge logs confirm no discharge within 12 nm of coastlines including any ports.
						Biosecurity Status Document (issued via Maritime Arrivals Reporting System) showing an approved ballast status (for vessels arriving from international locations) or a low-risk exemption through a domestic ballast water risk assessment (for domestic vessels).
Administrative and Procedural controls	Ballast water management within the Operational Area	Yes	Only low risk ballast water will be discharged within the Operational Area. Although the Operational Area location is classified as a suitable location for ballast exchange per the Australian Ballast Water Management Requirements i.e. will occur > 12 Nm from land and in water depths > 50 m deep, no ballast water (originating from outside Australian waters) exchange will occur within the Operational Area of the MODU. The product carriers and other international vessels will exchange their ballast before arriving at the Operational Area, therefore, they will discharge only low risk ballast water.	6.5	Only low risk ballast water will be discharged within the Operational Area.	Sample ballast exchange logs for internationally sourced vessels demonstrate only low risk ballast water has been discharged within the Operational Area.

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
Administrative and Procedural controls	Environmental Deoxyribonucleic acid (eDNA) water sampling within Ports visited by vessels going to and from the Operational Area.	No	eDNA analysis of water samples from the port will be inconclusive as to whether the risk has originated from the petroleum activities due to the number of users of the port. As agreed by the State marine biosecurity agencies, this is the responsibility of the State agencies.	N/A	N/A	N/A
Administrative and Procedural controls	Develop specific IMS response plans and carry out training and drills to prepare for the need to respond to an IMS incident.	No	The resources and time that would be needed for a mitigate control such as this is significant and considered grossly disproportionate to the benefit gained since the time it would take to prepare a response plan in the event of an incident is not considered to be significant in the context of breeding and reproductive cycles of most potential IMS species. Furthermore, IMS response plans are planned to be developed by government as outlined in the National Strategic Plan for Marine Pest Biosecurity 2018-2023.	N/A	N/A	N/A

9.8.5 Acceptability of Risks

Table 9-38: Acceptable Levels of Risks – IMS

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Are the Impacts of an Acceptable Level?	Acceptability Assessment
Ecosystems, Communities and Habitats	Benthic communities	No significant impacts to benthic habitats and communities. Impacts to non-sensitive benthic communities limited to a maximum of 5% of the Crux Project Area.	Yes	The introduction of an IMS as a result of the Crux development drilling activity is unlikely to survive given the water depth of the Operational Area. Shell will take industry-standard measures to reduce the likelihood of an IMS being introduced as a result of the Crux development drilling activity. If an IMS were to be become established, it would be very difficult to eliminate, however it is unlikely to result in significant impacts to benthic habitats and communities.
Socio-economic and Cultural Environment	Marine Parks	No impacts to the values of marine parks.	Yes	Based on ongoing controls such as using a risk-based approach to manage the pathways and vectors that are responsible for the establishment of an IMS, the likelihood of an IMS becoming established is extremely remote. Shell will take industry-standard measures to reduce the likelihood of an IMS being introduced at the Operational Area or to new areas as a result of the Crux development drilling activity.
	Commercial fisheries	No negative impacts to exploited fisheries resource stocks which result in a demonstrated direct loss of income.	Yes	
	Tourism and Recreation	No negative impacts to nature-based tourism resources resulting in demonstrated loss of income.	Yes	

The assessment of risks from IMS determined a residual risk ranking of Dark Blue (Table 9-36). As outlined above, the acceptability of the risks from the introduction of IMS associated with the petroleum activities has been considered in the context of:

Principles of ESD

The inherent risks from the introduction of IMS resulting from the petroleum activities are inconsistent with some of the principles of ESD based on the following:

- The introduction of an IMS poses a risk to the diversity and ecological integrity of the biological and socio-economic environments in the vicinity of the Operational Area and the wider region.

However, Shell will apply a range of controls to ensure that the risk of IMS introduction is reduced to a level that is acceptable and ALARP. Following successful application of these controls, Shell considers the residual risk to be consistent with the principles of ESD.

Relevant Requirements

Management of the risks from an introduction of IMS resulting from the Crux development drilling activity are consistent with relevant legislative requirements, including:

- compliance with international maritime conventions, including:
  - The International Convention for the Control and Management of Ships' Ballast Water and Sediments
  - The International Convention on the Control of Harmful Anti-Fouling Substances
  - IMO 2011 Guidelines for the control and management of ships' biofouling to minimise the transfer of invasive aquatic species.
- compliance with Australian legislation and requirements, including:
  - Protection of the Sea (Harmful Anti-fouling Systems) Act 2006:
    - Marine Order 98 – Marine Pollution prevention – anti-fouling systems.
  - Biosecurity Act 2015:
    - National Biofouling Management Guidelines
    - Australian Ballast Water Management Requirements.
  - DAWE's mandatory biofouling management requirements for international vessels.
  - NT Fisheries Act
  - WA Fish Resources Management Act 1994, subsequent Fish Resources Management Regulations 1995 and the Aquatic Resources Management Act 2016
  - the WA DPIRD Biofouling Biosecurity Policy*.

*The WA DPIRD Biofouling Biosecurity Policy (WA Department of Fisheries Jan 2017) specifies the objective to minimise the adverse impacts of aquatic pests and diseases in WA through "1. Preventing the establishment of aquatic pests and diseases in new locations" and "2. Minimising the impact of established aquatic pests and diseases". As such, the acceptable level of risk for IMS (stated in the EPO) is consistent with this policy.

Matters of National Environmental Significance

Threatened and Migratory Species

The policies, strategies, guidelines, conservation advice and recovery plans for MNES that may occur within the potential area affected by an IMS do not identify IMS as a threat.

Commonwealth Marine Environment

The impacts and risks from the introduction of IMS will not result in significant impacts to the Commonwealth Marine Environment.

Table 9-39: Summary of Alignment of the Risks from the IMS Aspect of the Crux Development Drilling Activity with Relevant Requirements for EPBC Threatened Fauna

Matters of National Environmental Significance	MNES Acceptability Considerations (Significant Impact Criteria, EPBC Management Plans/Recovery Plans/Conservation Advices)	Threats Relevant to the Project	Demonstration of Alignment as Relevant to the Project
Threatened and Migratory Species	N/A	N/A	N/A
Commonwealth Marine Area	Significant Impact Guidelines for the Commonwealth marine environment (Table 8-1)	Introduction of IMS	The residual risk assessment indicates that the petroleum activities will not exceed the Commonwealth marine environment significant impact criteria provided in Table 8-1.

External Context

There have been no objections or claims raised by Relevant Persons to date around the IMS aspect. Shell's ongoing consultation program will consider statements and claims made by stakeholders when undertaking further assessment of the risks.

Internal Context

Shell has also considered the internal context, including Shell's environmental policy and ESHIA requirements. The EPOs, and the controls which will be implemented, are consistent with Shell's internal requirements.

Acceptability Summary

The assessment of risks from IMS determined the residual risk rankings were Dark Blue (Table 9-36). As outlined above, the acceptability of the impacts and risks from IMS associated with the Crux development drilling activity has been considered in the context of:

- the established acceptability criteria for the IMS aspect of the Crux development drilling activity;
- ESD;
- relevant requirements;
- MNES;
- external context (i.e. stakeholder claims); and
- internal context (i.e. Shell requirements).

Given the water depth (>90 m), potential IMS species which may be present on equipment and vessels used for the Crux development drilling activity would be unlikely to settle and establish on the available natural substrate within the Operational Area and the nearest shallow water sensitive receptor, Goeree Shoal, is located approximately 14 km north-west. Considering all of the controls which are in place, the residual risk of potential species of IMS being introduced to the Operational Area, spreading, attaching to project vessel hulls and establishing in new areas such as high value areas and/or inshore coastal waters of Australia such as at ports following a long distance vessel transit is Moderate given the potential consequences following the extremely remote likelihood of establishment.

Shell considers residual risks of Moderate to be acceptable with controls if they meet legislative and Shell requirements. The discussion above demonstrates that these requirements have been met in relation to the IMS aspect of the petroleum activities.

Based on the points discussed above, Shell considers the risks from IMS associated with the petroleum activities to be acceptable.

9.8.6 Environment Performance Outcomes

Environment Performance Outcomes	Measurement Criteria
No IMS of concern[22] established in the natural environment as a result of the petroleum activity. No introduction of IMS to the marine environment from ballast water exchange operations undertaken or biofouling by vessels carrying out petroleum activities.	No confirmed and externally reported instances of IMS establishment in the natural environment as a result of the petroleum activities.

9.9 Discharge of Liquid Effluent

9.9.1 Aspect Context

A range of project activities associated with the Crux development drilling will result in the discharge of liquid waste from the MODU and project vessels to the marine environment. These include the following:

- Deck drainage and bilge water
- Putrescible waste, greywater and sewage
- Cooling Water
- Desalination brine
- Use and release of residual chemicals in ad-hoc discharges.

Note that unplanned spills (e.g., of chemicals or hydrocarbons), are considered separately in Section 9.14.

9.9.1.1 Deck Drainage and Bilge Water

Deck and surface drainage, including bilge water, from the MODU and project vessels will consist mainly of wash down water, seawater spray and rainwater and may contain small quantities of oil, grease, metals, detergents (surfactants) and other residual chemicals present on the deck, which has the potential to create surface sheens and short-term, localised reduction in water quality if it enters the marine environment.

9.9.1.2 Putrescible Waste, Sewage and Greywater

The MODU and project vessels routinely generate/discharge treated sewage, putrescible wastes and greywater to the marine environment.

The volume of treated sewage discharged is influenced by the number of personnel onboard the MODU/vessel. A MODU with a crew capacity of up to 200 persons discharges in the order of 20 m^3 of domestic wastewater per day during drilling operations. An AHTS with approximately 60 persons on board and project vessels manned by up to 30 persons, will generate only small volumes of domestic wastes.

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[22] *IMS of concern are species that are listed on the Western Australian Prevention List for Introduced Marine Pests or Commonwealth National Introduced Marine Pest Information System, and could survive in the natural environment beyond the Crux installed infrastructure.*

9.9.1.3 Cooling Water

Seawater is used as a heat exchange medium for the cooling of machinery engines and equipment. Seawater is drawn from the ocean and flows counter current through closed circuit heat exchangers, transferring heat from the machinery or production process to the seawater via an intermediate circulating freshwater system. Seawater is then discharged to the ocean at an average of approximately 5–9 °C above the ambient seawater temperature (depending on season and the depth it is drawn from). Cooling water is often treated with additives including scale inhibitors and biocide to avoid fouling of pipework.

It may be expected that small volumes of cooling water will be discharged from the MODU/vessels, with volumes expected to be in the order of approximately 5–10 m^3 per day per vessel, depending on the type of vessel.

9.9.1.4 Desalination Brine

The production of freshwater from seawater via reverse osmosis (RO), distillation or desalination plants on the MODU and project vessels results in a discharge of seawater with a slightly elevated salinity (typically 20–50% higher than seawater) to the marine environment. Chlorine scavenging, scale inhibiting and/or small volumes of other treatment chemicals may be present in the waste stream at low concentrations.

Modelling of brine discharges from vessels developed by the United States Environmental Protection Agency (US EPA) found the brine discharged from the surface diluted 40–fold at 4 m from the source assuming no ocean current (Frick et al., 2001). The modelling indicated that salinity concentration drops below environmental impact thresholds within 4 m of discharge.

9.9.1.5 Use and Discharge of Chemicals

Chemical usage is required for various routine and non-routine process and non-process applications and as such, chemicals may be present in waste water streams which are discharged to the ocean.

Chemicals are used on the MODU and project vessels for a variety of purposes and can may include:

- process chemicals e.g. biocide, scale inhibitor etc;
- maintenance/non-process chemicals e.g. paints, degreasers, greases, fire-fighting foam, lubricants and domestic cleaning products; and
- Subsea discharges e.g. hydraulic fluids from ROVs or other underwater equipment.

9.9.2 Description and Evaluation of Impacts

Planned liquid discharges to the marine environment may result in a localised decline in water and sediment quality, which may cause sensitive biological receptors in those environments to be exposed to physical characteristics and contaminants at concentrations that may cause acute or chronic effects. The magnitude and sensitivity of any impacts on sensitive receptors will vary according to multiple factors, including discharge composition, plume dilution/dispersion, bioavailability, duration of exposure and marine species physiology and behaviour.

9.9.2.1 Physical Environment

Deck Drainage and Bilge Water

Deck drainage and bilge water discharges are intermittent discharges which can result in water quality changes immediately surrounding the discharge point, with the spatial extent of changes to water quality remaining very localised. Discharges of oily water will be treated to <15 parts per million (ppm) (v) in accordance with MARPOL requirements. It is recognised that there may be various minor quantities of metal and chemical constituents that may not be captured as a part of the oil treatment systems associated with the open drains and bilge systems onboard the MODU and project vessels. This may result in the discharge of minor quantities of diluted toxicants into

the ocean, potentially causing localised and temporary reductions in water quality. Any effects on water quality are expected to be within the surface layers only and have no effect on or damage to seabed/benthic receptors. Discharges are expected to disperse and dilute rapidly, with concentrations significantly dropping with distance from the discharge point. As such, no significant impacts from the discharge of deck drainage and bilge water are anticipated, because of the minor quantities involved, the localised mixing zone and the high level of dilution within the open water environment of the Operational Area. Overall, the residual impact of the discharge of deck drainage and bilge water to water quality is considered of Minor impact consequence (Magnitude – – 2, Sensitivity – L).

Putrescible Waste, Sewage and Greywater

Discharge of putrescible waste, sewage and greywater into the marine environment may impact water quality, including eutrophication, increased turbidity, increased pathogens (bacteria, viral agents and/or parasites), and increased biological oxygen demand (BOD), with associated impacts on marine biota (discussed below). These discharges can contain a variety of substances typically at very low concentrations, including oil/grease, some organic compounds, detergents, metals, suspended solids, chemicals, personal hygiene products and pathogens. Any effects on water quality are expected to be within the surface layers only and have no effect on or damage to seabed/benthic receptors.

Discharges of putrescible waste, sewage and grey water can cause temporary localised nutrient enrichment of the surface waters around the discharge point and have the potential to attract marine fauna that feed on the particulate material. Such low volume outputs of nutrients relative to the receiving environment presents no environmental damage or effects to water quality associated with eutrophication, increased BOD and/or decreased dissolved oxygen concentrations. The BOD of putrescible waste, sewage and greywater effluent is unlikely to lead to oxygen depletion of the receiving waters as highly oxygenated receiving waters will rapidly assist with oxygenation of the discharge in such a dynamic offshore environment.

In 2008, Woodside conducted monitoring of 10 m^3 of sewage discharged at distances of 50 m, 100 m and 200 m downstream of a platform and at five different water depths over a period of 24 hours (Woodside 2008). This monitoring confirmed that discharges of macerated sewage were rapidly diluted or nutrients rapidly metabolised. No elevations in water quality monitoring parameters (e.g. total nitrogen, total phosphorous and selected metals) were recorded above background levels at any station. Similar rates of dilution are expected for the open waters of the Operational Area.

Given the volume and properties of the discharged effluent which are highly biodegradable, low toxicity and low persistence, the rapid dilution in the open ocean environment, localised impact area, and the offshore location of the Operational Area, the residual impact consequence to water quality is assessed as Slight (Magnitude – −1, Sensitivity – L).

Cooling Water and Desalination Brine

The key physicochemical stressors that are associated with reject brine and cooling water discharge include salinity, pH, temperature and chemical toxicity. Generally, desalination 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. No detectable impacts to marine sediment quality are predicted based on the water depth, open ocean currents and low concentration/toxicity of chemical additives.

The potential impacts on water quality due to cooling water discharge include chlorine toxicity and increased water temperatures. The effect of chlorine and chlorine breakdown products in cooling water discharges have been the subject of many studies, generally through toxicity testing. Chlorine is a strong oxidant and following discharge and dilution, the residual (free) chlorine quickly reacts with inorganic constituents such as sodium, iron (II), nitrite and sulphide to produce chlorides (such as NaCl). The potential impacts of chlorine on the biological environment are discussed further below. The elevated temperature of cooling water discharge is expected to

decrease rapidly as it mixes with the receiving waters. As such, any potential impacts to water quality are expected to be highly localised.

As described above, desalination brine is typically 20 to 50% higher in salinity to the surrounding water. Being of greater density than seawater, this will sink and disperse rapidly in the deep water and open oceanic currents, decreasing in salinity rapidly as distance from source increases.

The residual impact consequence for water quality as a result of cooling water and desalination brine discharges is assessed as Slight (Magnitude – −1, Sensitivity – L).

Use and Discharge of Chemicals

The infrequent release of minor quantities of process and non-process chemicals during planned activities may result in a localised and temporary reduction in water quality around the discharge. Discharge of small volumes of these fluids are predicted to disperse and dilute rapidly with the spatial extent of any impacts likely to be limited to the water column, and very localised around the discharge point. Therefore, the residual impact consequence is assessed as Slight (Magnitude – – 1, Sensitivity – L).

9.9.2.2 Biological Environment

Deck Drainage and Bilge Water

As described above, discharges of oily water will be treated to <15 ppm (v) in accordance with MARPOL requirements. Marine fauna (e.g. marine turtles, cetaceans, whale sharks) transiting the localised area may possibly come into contact with these discharges as they traverse the Operational Area. Most threatened fauna species potentially exposed to deck drainage and bilge water discharges are air-breathing vertebrates, which are unlikely to be directly affected as their skin is relatively impermeable. Given the low concentrations of oil (<15 ppm) no surface expression is expected and therefore damage to eyes and lungs from exposure to oil on the sea surface is not anticipated. Given the localised extent of impacts from deck drainage and bilge water discharges and limited exposure, within the Operational Area, significant impacts to marine fauna are not expected.

Overall, the residual impact of the discharge of treated deck drainage and bilge water to the biological environment is considered to be of Slight impact consequence (Magnitude – – 1, Sensitivity – M).

Putrescible Waste, Sewage and Greywater

Nutrients in sewage greywater and putrescible waste, such as phosphorus and nitrogen can contribute to eutrophication of receiving waters. However, this is only likely in still, calm, inland waters, where it can cause algal blooms, which in turn degrades aquatic habitats by reducing light levels and producing certain toxins, some of which are harmful to marine life and humans. Sewage and greywater can also contain hazardous pathogens (including faecal coliform bacteria), intestinal parasites and viral agents that, if released, may contaminate the food chain.

The overboard discharge of sewage and putrescible wastes will create a localised and temporary increase in particulates on or near the surface waters. This may in turn act as a food source for scavenging marine fauna and seabirds, whose numbers may temporarily increase as a result. The ingestion of small (macerated or reduced to <25 mm) particle sizes within the effluent is not anticipated to have an adverse physical or toxic impact on resident and transient marine fauna, including listed threatened and migratory species, e.g. marine turtles, cetaceans or whale sharks.

Open marine waters are typically influenced by regional wind and large scale current patterns resulting in the rapid mixing of surface and near surface waters where sewage, greywater and food waste discharges will occur. Therefore, nutrients from these discharges will not accumulate or lead to eutrophication due to the highly dispersive environment. As such, the receptors with the greatest potential to be impacted are those in the immediate vicinity of the discharge. Effects on environmental receptors along the food chain, namely, fish, reptiles, birds and cetaceans are therefore not expected beyond the immediate vicinity of the discharges.

The residual impact associated with the discharge of putrescible waste, sewage and greywater is considered to be Slight (Magnitude – – 1, Sensitivity – M).

Cooling Water and Desalination Brine

The chemicals in cooling water and desalination brine typically have low inherent toxicity, low residual discharge concentrations and/or the active ingredients are consumed through the process for which they are utilised. As described above, environmental effects associated with cooling water and desalinisation brine are expected to be highly localised, therefore impacts to marine fauna in the vicinity of the discharge are not expected.

The residual impact as a result of the discharge of cooling water desalination brine to marine fauna are considered to be of Slight impact consequence (Magnitude – – 1, Sensitivity – M).

Use and Discharge of Chemicals

As described above, the infrequent release of minor quantities of process and non-process chemicals during planned activities may result in a localised and temporary reduction in water quality around the discharge. The potential for impacts to biota depend on the nature and degree of exposure received by a particular receptor. Given the short-term durations and low frequencies of any ad-hoc discharges associated with planned activities, any potential effects are likely limited in duration to a matter of minutes after the release, and confined to a small area in the water column. Therefore, only a low number of individuals that may intersect the discharge plumes prior to sufficient dilution would be affected. No adverse environmental effects are expected at a community or habitat level for any marine fauna species.

Chemicals present within these discharge streams are predicted to have slight residual impact consequence (Magnitude – – 1, Sensitivity – M) given the typically low toxicity of chemicals selected through the Shell Chemical Management Process (Section 10.1.4), distance to sensitive habitats, lack of sensitive receptors and high inherent rates of dilution and dispersion.

9.9.2.3 Socio-Economic Environment

Impacts on social receptors (e.g. recreational users; commercial operators of fishing, aquaculture, diving and boating operations) are not predicted nor are credible due to exclusions in place via the gazetted PSZ, the localised nature of the discharges and the rapid dispersion and dilution in open offshore waters.

There are no known sensitive receptors to human pathogens in the vicinity of the Operational Area. It is expected that any discharged pathogens will be susceptible to rapid mortality following exposure to natural levels of ultraviolet (UV) radiation, oxygen, increased salinity and natural predation resulting in their reduction and ultimate destruction (Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand (ANZECC & ARMCANZ) 1997). Regardless, transference of human pathogens into marine fauna resulting in adverse impacts to the organism itself, fishermen or consumers is not anticipated to occur and/or is not considered a feasible cause and effect pathway due to the inherent biological and physiological differences in the host species; therefore it is considered to present a non-credible impact. There are no identified recreational uses within the vicinity of the Operational Area and thus any impacts associated with human primary/secondary contact and the presence of ‘nuisance’ organisms is considered non-credible.

9.9.3 Impact Assessment Summary

Table 9-40 lists the highest residual impact consequence rankings of the relevant environmental receptor groups.

Table 9-40: Liquid Discharges Evaluation of Residual Impacts

Environmental Receptor	Magnitude	Sensitivity	Residual Impact Consequence
Evaluation – Planned Impacts			
Physical Environment	-2	L	Minor
Biological Environment	-1	M	Slight

9.9.4 ALARP Assessment and Environmental Performance Standards

Table 9-41: Deck Drainage and Bilge Water Discharges ALARP Assessment and Environmental Performance Standards

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
Elimination	Eliminate discharges from MODU and project vessels by storing all open drainage and bilge effluent to be transported and treated /disposed onshore.	No	There are significant costs and HSE risks associated with storing and transporting onshore all open drainage and bilge effluent on the MODU/ project vessels. It is grossly disproportionate to the environmental impacts of onboard treatment prior to discharging overboard.	N/A	N/A	N/A
Substitution	Alternative technology to oil-water separator system.	No	The oil-water separator systems on the MODU and vessels are standard MARPOL-compliant systems for management of accidentally-oil contaminated drainage and bilge in offshore installations and vessels.	N/A	N/A	N/A
Engineering	Oily bilge water from machinery space drainage is treated to a maximum concentration of 15 ppm oil-in-water prior to discharge from the MODU and project vessels, as specified in MARPOL 73/78 (Annex I).	Yes	If the online monitor is not functional, manual samples will be taken to facilitate determination of oil in water concentration to allow batch discharges to occur where the batch concentration is confirmed below the limit. Discharges at this level are not expected to cause any significant impact to the marine environment given low flow rates and high dilutions close to the source.	7.1	Bilge effluent will not be discharged if the 15 mg/L oil in water limit is exceeded.	Records demonstrate no exceedances of the 15 mg/L oil in water discharge limit.
Engineering	MODU and project vessel compliance with Marine Order 91 (International Oil Pollution Prevention [IOPP] certificates).	Yes	The marine assurance system is administered by Shell's Marine team and, amongst other requirements, ensures compliance of contract vessels with MARPOL and Marine Order 91. This control measure is in accordance with *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* and the relevant AMSA Marine Orders.	7.2	Assurance will be undertaken for MODU and project vessels, including a check for valid and in date International Oil Pollution Prevention (IOPP) certificates as required by vessel class requirements.	Assurance records
Administrative and Procedural Controls	Spill kits onboard the MODU and project vessels.	Yes	Storage and use of spill adsorbent and clean-up kits are inexpensive and low-maintenance. Accumulations of oil, grease and other	7.3	Spill kits are available on the MODU and project vessels to clean up small accumulations of contaminants.	Records indicating spill kits are in place.

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
			contaminants will be collected and removed from the decks.			
Administrative and Procedural Controls	Shell Chemical Management Process.	Yes	Shell has adopted a chemical selection and approval process in accordance with Shell's chemical selection and approval guidelines as indicated in Shell Chemical Management Process (HSE_GEN_007879) and Shell Global Product Stewardship guidelines to assess chemicals than may pose environmental impact via planned discharges. Following the chemical management process as detailed within Section 10.1.4 will minimise the impact of those chemicals which are used and discharged to ALARP levels.	7.4	Chemicals selected for use in accordance with the Shell Chemical Management Process to minimise potential environmental risks.	Records demonstrating the chemical selection process outlined in the Chemical Management Process have been followed.
				7.5	Chemicals that are planned for discharge to sea are substitution warning free and Gold, Silver, D, or E rated through the Offshore Chemical Notification Scheme (OCNS), or are considered to Pose Little or No Risk to the Environment (PLONOR) (listed by the Oil Spill Prevention, Administration and Response (OSPAR) Commission), or have a complete ALARP assessment.	Records demonstrating the chemical selection process outlined in the Chemical Management Process have been followed.

Table 9-42: Putrescible Waste, Sewage and Grey Water Discharges ALARP Assessment and Environmental Performance Standards

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
Elimination	On board storage of sewage, greywater and food wastes for transport to and disposal at an onshore facility.	No	Offers limited environmental benefit, as any changes to water quality beyond a localised mixing zone are likely to have no environmental effect. Is likely to increase operational costs associated with additional transits to and from port and introduce additional safety and environmental risks related to increased transit time and operation of additional vessels, plant and equipment, and is grossly disproportionate.	N/A	N/A	N/A
Substitution	Use of sewage treatment system to treat all sewage prior to disposal	No	Offers limited environmental benefit, as the addition of chemicals (such as flocculants and defoaming agents) would be required to treat the effluent. Though some reduction in area impacted may occur this benefit is offset against the detrimental addition and increased cost of refined chemicals. Therefore, the available environmental impact reduction is negligible to non-existent.	N/A	N/A	N/A
Substitution	Use of alternative treatment technologies	No	• Requires additional cost due to the space requirement onboard vessels and MODU to enable installation and is grossly disproportionate. • Increases operational costs for maintenance and staffing due to performance challenges associated with these technologies (e.g. clogging of membranes/screens). Also increases potential exposure of the workforce to pathogens associated with these waste streams.	N/A	N/A	N/A
Engineering	Food waste will be macerated to <25 mm particle size prior to	Yes	The marine assurance system is administered by Shell's Marine team and, amongst other requirements, ensures compliance of contract vessels with MARPOL and Marine Order 95. This	7.6	Food macerator is maintained in accordance with the MMS to reduce food waste to < 25 mm	Maintenance Records

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
	discharge to sea in accordance with Marine Order 95.		control measure is in accordance with *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* and the relevant AMSA Marine Orders.		particle size prior to discharge to sea.	
Engineering	MODU and project vessel compliance with Marine Order 96 (International Sewage Pollution Prevention [ISPP] certificates) as relevant to vessel class, size and type.	Yes	The marine assurance system is administered by Shell's Marine team and, amongst other requirements, ensures compliance of contract vessels with MARPOL and Marine Order 96. This control measure is in accordance with *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* and the relevant AMSA Marine Orders.	7.7	Assurance will be undertaken for the MODU and project vessels to check for valid and in date International Sewage Pollution Prevention (ISPP) Certificates (or equivalent voluntary statement of compliance audits where relevant) , as required by vessel class requirements.	Assurance records
Administrative and Procedural Controls	The MODU and project vessels will maintain a Garbage Management Plan (or equivalent) as required by vessel class, size and type.	Yes	Each required vessel has its own Garbage Management Plan/Procedure (or equivalent) to manage wastes generated and stored onboard. All wastes that are not permitted for discharge are sent ashore for reuse, treatment, recycling and/or disposal as appropriate. This control measure is in accordance with *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* and AMSA Marine Order 95.	7.8	Project vessels (to which MARPOL Annex V / Marine Order 95 applies) have a current Garbage Management Plan (or equivalent).	Garbage Management Plan (or equivalent) is sighted onboard project vessels and are maintained up to date.

Table 9-43: Cooling Water and Desalination Brine Discharges ALARP Assessment and Environmental Performance Standards

Hierarchy of Controls	Control Measure	Adopted?	Related ALARP Discussion and Alternate, Additional or Improved Control Measures Considered	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
Elimination	N/A	N/A	N/A	N/A	N/A	N/A
Substitution	Source all freshwater from onshore.	No	The use of the seawater desalination system and discharge of reject brine are common and accepted practice for vessels and offshore oil and gas facilities. Offshore activities cannot operate without fresh water.	N/A	N/A	N/A
Engineering	Storing waste desalination brine onboard and transporting for onshore treatment and/or disposal.	No	Storing on-board and then transferring it to shore results in increase personnel and environmental costs associated with more vessel movements, and is not possible given that the required storage space would not be available on the MODU and project vessels.	N/A	N/A	N/A
Administrative and Procedural Controls	Shell Chemical Management Process.	Yes	Shell has adopted a chemical selection and approval process in accordance with Shell's chemical selection and approval guidelines as indicated in Shell Chemical Management Process (HSE_GEN_007879) and Shell Global Product Stewardship guidelines to assess chemicals than may pose environmental impact via planned discharges. Following the chemical management process as detailed within Section 10.1.10 will minimise the impact of those chemicals which are used and discharged to ALARP levels.	7.4	Chemicals selected for use in accordance with the Shell Chemical Management Process to minimise potential environmental risks.	Records demonstrating the chemical selection process outlined in the Chemical Management Process have been followed.
				7.5	Chemicals that are planned for discharge to sea are substitution warning free and Gold, Silver, D, or E rated through the OCNS, or are PLONOR (listed by the OSPAR Commission), or have a complete ALARP assessment.	Records demonstrating the chemical selection process outlined in the Chemical Management

Hierarchy of Controls	Control Measure	Adopted?	Related ALARP Discussion and Alternate, Additional or Improved Control Measures Considered	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
						Process have been followed.

Table 9-44: Use and Discharge of Ad-Hoc Chemicals ALARP Assessment and Environmental Performance Standards

Hierarchy of Controls	Control Measure	Adopted?	Related ALARP Discussion and Alternate, Additional or Improved Control Measures Considered	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
Elimination	N/A	N/A	The use of chemicals cannot be eliminated from the operation, preservation and maintenance of the MODU, project vessels, equipment and subsea infrastructure.	N/A	N/A	N/A
Engineering	Equipment to capture or collect subsea discharges	No	No practicable engineering controls are available that are proven to be able to capture or contain subsea discharges. Designing and installing a temporary capture system would result in significant financial costs, with technical uncertainty, grossly disproportionate to any slight increase in environmental benefit of preventing small and infrequent discharges.	N/A	N/A	N/A
Administrative and Procedural Controls	Shell Chemical Management Process.	Yes	Shell has adopted a chemical selection and approval process in accordance with Shell's chemical selection and approval guidelines as indicated in Shell Chemical Management Process (HSE_GEN_007879) and Shell Global Product Stewardship guidelines to assess chemicals than may pose environmental impact via planned discharges. Following the chemical management process as detailed within Section 10.1.10 will minimise the	7.4	Chemicals selected for use in accordance with the Shell Chemical Management Process to minimise potential environmental risks.	Records demonstrating the chemical selection process outlined in the Chemical Management Process have been followed.

Hierarchy of Controls	Control Measure	Adopted?	Related ALARP Discussion and Alternate, Additional or Improved Control Measures Considered	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
			impact of those chemicals which are used and discharged to ALARP levels.	7.5	Chemicals that are planned for discharge to sea are substitution warning free and Gold, Silver, D, or E rated through the OCNS, or are PLONOR (listed by the OSPAR Commission), or have a complete ALARP assessment.	Records demonstrating the chemical selection process outlined in the Chemical Management Process have been followed.

9.9.5 Acceptability of Impacts

Table 9-45: Acceptability of Impacts – Discharge of Liquid Effluent

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Are the Impacts of an Acceptable Level?	Acceptability Assessment
Physical Environment	Water Quality	No significant impacts to water or sediment quality during the Crux development drilling activity.	Yes	Liquid discharges have the potential to result in localised reduced water quality at the discharge location, however discharges will rapidly dilute in the open ocean environment. Shell will implement measures to reduce the potential for impacts to water quality from routine discharges. The potential magnitude of impacts to the marine environment is Slight. Given the offshore location and absence of particularly sensitive marine ecosystems at the Crux development drilling location and immediate surrounds.
Threatened Species and Ecological Communities	Marine mammals Marine reptiles Fish Sharks and rays	No mortality or injury of threatened or migratory MNES fauna from the Crux development drilling activity. Management of aspects of the Crux project must be aligned to conservation advice, recovery plans and threat abatement plans published by the DAWE.	Yes	Most threatened and/or migratory fauna species within the area predicted to be influenced by planned liquid discharges are air breathing vertebrates, which are unlikely to be directly affected as their skin is relatively impermeable and they breathe air. Hence, direct impacts are not

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Are the Impacts of an Acceptable Level?	Acceptability Assessment
		No significant impacts to threatened or migratory MNES fauna.		considered credible. Non-air breathing species are not anticipated to be present in significant numbers nor be exposed to discharge concentrations that may adversely impact on individuals and therefore there will be no significant impacts.
	Ecosystems, Communities and habitats	No significant impacts to benthic habitats and communities.	Yes	The benthic communities within the Operational Area that may be impacted by liquid discharges are broadly represented in the region and are not of high environmental value.

The assessment of impacts from liquid discharges determined the residual impact consequence to be Minor or lower (Table 9-40). As outlined above, the acceptability of the impacts from liquid discharges associated with the petroleum activity have been considered in the context of:

Principles of ESD

The impacts from liquid discharges are consistent with the principles of ESD based on the following points:

- The environmental receptors within the Operational Area are not expected to be significantly impacted
- The precautionary principle has been applied, and reviews undertaken where knowledge gaps were identified. This knowledge has been applied during the evaluation of environmental impacts.

Relevant Requirements

Management of the impacts from liquid discharges are consistent with relevant legislative requirements, including:

- Compliance with international maritime conventions, including:
  - MARPOL:
    - Annex I: regulations for the prevention of pollution by oil

  - Annex II: regulations for the control of pollution by noxious liquid substances in bulk
  - Annex III: regulations for the prevention of pollution by harmful substances carried by sea in packaged form, and
  - Annex IV: regulations for the prevention of pollution by sewage from ships
  - Annex V: (regulation for the prevention of pollution by garbage from ships).
- Compliance with Australian legislation and requirements, including:
  - Navigation Act 2012 and Protection of the Sea (Prevention of Pollution from Ships) Act 1983:
    - Marine Order 91 (Marine pollution prevention – oil)
    - Marine Order 93 (Marine pollution prevention – noxious liquid substances)
    - Marine Order 94 (Marine pollution prevention – packages harmful substances)
    - Marine Order 95 (Marine pollution prevention – garbage)
    - Marine Order 96 (Marine pollution prevention – sewage).
- Management of impacts and risks are consistent with policies, strategies, guidelines, conservation advice, and recovery plans for threatened species (Table 9-46).
- Implementation of recognised industry standard practice, such as:
  - Treatment of collected drainage bilge water to < 15 mg/L residual oil.

Matters of National Environmental Significance

Threatened and Migratory Species

The evaluation of liquid discharges impacts indicates significant impacts to threatened and migratory species will not credibly result from the liquid discharges aspect of the Crux development drilling activity.

Alignment of the Crux development drilling activity with management plans, recovery plans and conservation advice for threatened and migratory fauna is provided in Table 9-46.

Commonwealth Marine Area

The impacts and risks from the liquid discharges aspect of the Crux development drilling activity on the Commonwealth marine environment will not exceed any of the significant impact criteria provided in Table 8-1.

Table 9-46: Summary of Alignment of the impacts from the Liquid Discharges Aspect of the Crux Development Drilling Activity with Relevant Requirements for MNES

Matters of National Environmental Significance	MNES Acceptability Considerations (EPBC Management Plans/Recovery Plans/Conservation Advices)	Demonstration of Alignment as Relevant to the Project
Threatened and Migratory Species	Significant impact guidelines for Critically Endangered, Endangered, Vulnerable and Migratory species (Table 8-1)	The application of the Shell Chemical Management Process and proposed management controls for liquid discharges reduces the impact of toxic pollutants being introduced into and/or persisting in the marine environment.
	Conservation advice on *Balaenoptera borealis* (sei whale) (TSSC 2015b)	

Matters of National Environmental Significance	MNES Acceptability Considerations (EPBC Management Plans/Recovery Plans/Conservation Advices)	Demonstration of Alignment as Relevant to the Project
	Conservation advice fin whale (*Balaenoptera physalus*) (TSSC 2015c)	
	Recovery plan for marine turtles in Australia (Commonwealth of Australia 2017a)	
	Conservation advice on *Rhincodon typus* (whale shark) (TSSC 2015a)	
Commonwealth Marine Area	Significant impact guidelines for Commonwealth marine environment (Table 8-1)	Water quality impacts by planned liquid discharges are expected to be highly localised. Impacts are not considered to be significant in the context of the significant impact criteria for the Commonwealth Marine Area given the nature and scale of the impacts and the characteristics of the local receiving environment (open offshore waters with regionally well represented soft and bare sandy sediments). The impact assessment indicates the impacts associated with the discharge of liquid discharges will not result in a significant adverse impact on marine ecosystem functioning/integrity, social amenity or human health. Shell has sought to reduce potential impacts through the selection and implementation of the controls and EPSs listed in Section 9.9.4.

External Context

There have been no objections or claims raised by Relevant Persons in preparation of this EP around the liquid discharges aspect. Shell's ongoing consultation program will consider objections and claims made by stakeholders when undertaking further assessment of impacts.

Internal Context

Shell has also considered the internal context, including Shell's environmental policy and ESHIA requirements. The EPOs, and the controls which will be implemented, are consistent with Shell's internal requirements.

Acceptability Summary

The assessment of impacts and risks from liquid discharges determined the residual impacts rankings to be Minor (Table 9-40). As outlined above, the acceptability of the impacts have been considered in the context of:

- the established acceptability criteria for the liquid discharges aspect;
- ESD;
- relevant requirements;
- MNES;
- external context (i.e. stakeholder claims); and
- internal context (i.e. Shell requirements).

Shell considers residual impacts of slight or lower to be acceptable if they meet legislative and Shell requirements. The discussion above demonstrates that these requirements have been met in relation to the liquid discharges aspect.

Based on the points discussed above, Shell considers the impacts from liquid discharges associated with the Crux development drilling activity to be acceptable.

9.9.6 Environment Performance Outcomes

Environment Performance Outcomes	Measurement Criteria
No measurable impacts to sediment quality or water quality in the region from liquid discharges.	Demonstrated implementation of EPSs for discharge of liquid effluents
No mortality or injury of threatened and migratory MNES species as a result of liquid discharges.	

9.10 Discharge of Drill Cuttings, Muds and Other Drilling-Related Discharges

9.10.1 Aspect Context

Five development wells are planned to be drilled during the Crux development drilling activity. Drilling activities generate drill cuttings, require cementing of the casing, and require the use of a range of fluids. Throughout the drilling activity several different fluids are used including, but not limited to, drilling fluids (water-based muds (WBM) and synthetic-based muds (SBM)), base oil, sea water, and kill-weight brine.

Routine drilling discharges associated with the Crux development drilling activity will include:

- drill cuttings;
- drilling fluids:
  - direct to seabed (WBMs only)
  - retained on cuttings
  - bulk discharge of mud pits (WBMs only);
  - brine
- cementing fluids and cement
- pit wash and (highly diluted) oily water; and
- drilling bushings discharge.

Non-routine drilling discharges may include:

- additional drill cuttings and fluids generated due to respud or side tracking

Section 6.5.3 describes the drilling methodology in detail.

9.10.1.1 Drilling fluids, cuttings and chemicals

Drilling of the production wells will generate cuttings from each well. Drilling fluids (WBM and SBM) will be used to cool and lubricate the drill bit, maintain well bore stability, and remove cuttings from the well sections as they are drilled.

Top-hole sections (42″ down to 17½″) will be drilled riserless using WBM. When using WBM, drilling fluids and cuttings will either be discharged at seabed or returned to the MODU using a Riserless Mud Recovery (RMR) system prior to discharge overboard. WBM and drill cuttings will be discharged to the seabed and will accumulate for short period of time on the 42″ section. The drilling fluid and cuttings on sections down to the 17½″ section will be returned to the MODU using

an RMR system. These cuttings will be directed across shale shakers to recover WBM for re-use prior to cuttings being discharged to seabed.

The intermediate and production hole sections (12¼″ and 8½″) will be drilled with a closed mud system following installation of a subsea BOP and riser, using SBM. Solids control equipment will be used to process the cuttings when using SBM to recover drilling mud, with cuttings then discharged to the sea. Drill cuttings will be processed via shale shakers and cuttings drying equipment to reduce discharge of SBM; however, some residual drilling fluids will adhere to the drill cuttings. The discharge of cuttings with residual SBM will comply with the Shell Australia HSSE & SP Control Framework, and the oil-on-cuttings concentration shall not exceed 6.9% wet weight averaged over the SBM well sections.

Quantities of drilling fluids and cuttings discharged will be minimised through the use of solids control equipment and recirculation of the mud where possible. Processed cuttings (WBM and SBM) will be discharged just below the water surface and will be dispersed over an extended area, governed by the ocean currents at the time.

The largest well diameters and types of fluids are provided in Table 9-46. In the event of severe losses and potential rapid depletion of whole fluid inventory when drilling with SBM in the drilling campaign, an alternative to synthetic based mud may be used to prevent further losses i.e. LAO base oil.

Table 9-47 provides a summary of an estimate of the drill cuttings and fluid discharges per well.

Table 9-47: Wells Section Diameters and Probable Discharges

Largest Well Section Diameter (inches)	Drilling Fluid Type and Typical Main Components[1]	Expected Drilling Fluids Discharged (m^3)	Expected Drill Cuttings Discharged (m^3)	Discharge Point
Planned Activities				
42	Pre-Hydrated Bentonite water-based mud (Pump and Dump).	1,235	231	Seabed
32	Pre-Hydrated Bentonite & Polymer water-based mud.	3,201	752	Surface (Sub Waterline)
24	Water based mud – generally consists of freshwater base fluid with bentonite clay, dispersants, brine and viscosifiers	6,181	1,122	Surface (Sub Waterline)
17.5	Water based mud – generally consists of freshwater base fluid with bentonite clay, dispersants, brine and viscosifiers	9,319	778	Surface (Sub Waterline)
12.25	Synthetic based fluid – will include organophyllic clay, barite, fluid loss control agents, calcium chloride, lime, aqueous chloride, bridging agents and emulsifiers	487	846	Surface (Sub Waterline) (cuttings and residual synthetic base fluid only)
8.5		359	101	Surface (Sub Waterline) (cuttings and residual

Largest Well Section Diameter (inches)	Drilling Fluid Type and Typical Main Components[1]	Expected Drilling Fluids Discharged (m^3)	Expected Drill Cuttings Discharged (m^3)	Discharge Point
				synthetic base fluid only)
WBCU & Suspension	Water-based mud – generally containing polymers, barite, solvent/surfactants and base oil.	All WBCU Pills captured. Only seawater discharged (<1% Oil)	0	Surface (Sub Waterline)
Contingent activities				
NA	LAO base oil	Unplanned Contingency	Unplanned Contingency	Surface (Sub Waterline) (cuttings and residual base fluid only)
NA	Additional fluids due to respudding up to 3 wells – Pre-Hydrated Bentonite & Polymer water-based mud.	As per well sections detailed above.	As per well sections detailed above.	Surface (Sub Waterline)

[1] *Formulation is still to be determined and will be detailed by vendor*

9.10.1.2 Bulk Materials - Powders, Brine and Fluid Management

Effective management of bulk materials includes the objectives of minimising excess quantities of remaining materials at the end of campaign, whilst ensuring adequate stock for safe operations and well control contingency needs are met. Prior to commencing a drilling campaign, an assessment of the bulk materials to be used in well drilling activities including storage and handling, recovery and reuse, and back-loading and disposal, identifies practices and process that will aid in reducing the potential for accidental discharge, optimise recovery and reuse, and reduce discharge where possible.

9.10.1.3 Wellbore Clean Up

At the end of the SBM drilling phase, the pits, surface equipment and lines will be cleaned using detergent to prepare for the Wellbore Clean Up (WBCU). The pits will be cleaned and circulated with aqueous fluids until oil percent discharged has been diluted down to <1% v/v, noting that the synthetic based mud present in the allocated pits is considered residual, not bulk synthetic based mud. Pit and topside cleaning events will occur throughout the drilling campaign. During pit and topside cleaning events, all fluids discharged overboard will be checked and logged by a contracted compliance engineer to ensure that fluids discharged have <1% v/v oil.

As part of the WBCU activity, the synthetic based mud will be initially displaced to sea water prior to displacing to base oil. The seawater used to clean the well and being displaced out of the well by the base oil will be captured into a pit and discharged after ensuring the oil content is <1%.

9.10.1.4 Cement

Cementing fluids, including cementing mix water, may require discharge to the marine environment under various scenarios.

Prior to the commencement of the Crux Development Drilling campaign there will be a requirement to run a cement unit test for each of the six cement mixes required for the drilling activities (Section 6.5.5). The test is required to ensure the functionality of the cementing unit and the cement bulk delivery system prior to performing the cementing job. The cement test slurry is usually a mix of cement and water and may contain stabilisers and/or chemical additives. Each

slurry test mix may be of a volume of approximately 3.3 m^3 each and will be discharged overboard at sea.

Cementing fluids consist of, but are not limited to, cement and additives such as anti-foamers, extenders, accelerators, dispersants, silica, retarders, fluid loss agents and gas block agents.

While cementing fluids are not routinely discharged to the environment (unless cleaning residue from dead volume in tanks), cement will be released when the cementing mixture is circulated to seabed during cementing of the 36″ and 26″ conductors. Cement may remain liquid for several hours, during which time there may be some release of chemicals into ambient waters. After the cement has hardened, chemical components of the cement are locked in the inert cement matrix. Cement may be discharged at seabed at a short distance from the template (<150 m) to reduce the risk of cement discharge impacting future flowline installation and platform piling operations.

Excess or contaminated liquid cement cannot be used down hole and cannot be returned to shore for disposal, as it may solidify in storage tanks. Therefore, any remaining cement at the end of contract in the MODU cement tanks or on the project vessels will be pumped to the MODU to be mixed with sea water into a slurry and discharged overboard. There will be no discharge of dry cement to the environment from the vessels or the MODU. Unused cement additives will be returned for shore for reuse or disposal.

As discussed in Section 6.5.5, it is anticipated that a high temperature cement blend (or similar) will be used throughout the Crux Development Drilling Campaign, minimising the volume of residual bulk cement to be mixed and discharged (for disposal). 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 into the ocean.

9.10.1.5 Drill bushings

Detailed design identified that the well/riser alignment with the topsides has low tolerance. The use of drill bushings ensures that this tolerance range can be met and as such provide a key mitigation tool for the Crux Development Drilling project.

The drill bushings will be required when drilling the 42” conductor sections for each of the foundation wells. The drill bushing act as a guide to the drill string to ensure the hole is located centrally within the drilling template guide. Once each bushing is installed, the drill bushing will be broken up by a stabilizer and left on the seabed within the drilling template footprint. As described in Section 6.4.2, the drill bushings structural assembly will consist of marine plywood and cement and assembled without any use of metal fixings or fasteners (Figure 6-4). The bushings will be bonded with waterproof PVA adhesive. One drill bushing is required for each of the five development drilling locations, however, up to eight drill bushings may be used and subsequently disposed of on the seabed.

The discharge of drill bushings will be located within the drilling template footprint and as such do not increase the area of impacted seabed and benthic habitat. The marine plywood of the drill bushings will degrade over time and is not likely to provide any lasting impacts to the marine environment.

9.10.1.6 Respud

Respudding may be required if well problems result in it being impractical to continue to drill in the current well. In this situation the MODU would be moved to a spare well slot in the template and well construction operations repeated. Well problems requiring a respud typically occur during riserless operations, where remediation options are more limited. Respudding will result in an increased volume of cuttings and cement discharge from the 36″ and 26″ conductor cementation, and slightly increased area of impacted seabed and benthic habitat.

9.10.1.7 Geological sidetrack

The option of a sidetrack instead of a respud may be determined, if operational issues are encountered. Should a sidetrack be required, it will result in an increase in the volume of cuttings

generated and a potential increase in the use of SBM. Additional drill cuttings volumes are estimated in Table 9-47.

9.10.2 Description and Evaluation of Impacts

Planned drilling discharges to the marine environment create a potential for a localised decline in water and sediment quality and for sensitive biological receptors in those environments to be exposed to physical characteristics and contaminants at concentrations that may cause acute or chronic effects.

9.10.2.1 Physical Environment

Drilling fluids, cuttings and chemicals

Water and Sediment Quality

The discharge of drill cuttings will impact the physical properties of the receiving marine environment. As described above, drill cuttings from the 42″ section will be discharged to the seabed with cuttings from subsequent sections returned to the MODU via the RMR system or riser.

WBMs will be used in the riserless top hole sections; SBMs will be used in the 12¼″ and 8 ½″ hole sections to meet technical and well objective requirements. WBMs will constitute most of drilling fluids discharged to the marine environment. Cuttings may contain potential contaminants derived from the geological formations from which they are generated; however, the potential for cuttings to be a source of contaminants is low compared to residual WBM and SBM drilling fluids. The residual WBMs may include potential contaminants such as metals (predominantly barium, a component of the commonly used weighting agent barium sulphate), as well as residual organic matter. Microbial degradation of residual organic matter can lead to depletion of oxygen in sediments within the cuttings pile, although this is unlikely to impact upon biota.

SBMs contain a range of synthetic hydrocarbons such as paraffins and olefins, which have low potential for toxicity and bioaccumulation, but may persist in the environment. Cuttings with residual SBMs are expected to have a higher concentration of residual organic matter compared to WBMs. The seabed affected by cuttings with residual SBM have greater potential for oxygen reduction via microbial degradation and associated changes to sediment chemistry (e.g. modified reduction/oxidation (redox) potential). Upon completion of the top hole sections, excess WBM will be discharged to the ocean from the drilling rig and pose little environmental risk or impact beyond a localised, temporary sediment plume. Excess SBMs will not be discharged to the ocean and may either be reused, returned or disposed onshore.

The offshore receiving environment typically has low turbidity (AECOM 2016), and the discharge of drill cuttings from the MODU will result in a temporary increase in turbidity and TSS. The nature of the change in turbidity is dependent on the characteristics of the cuttings, primarily size and density. The particle size distribution of cuttings will vary based on the geology of the formations being drilled, the characteristics of the drilling equipment, and the design of the well. Cuttings typically range from coarse gravel (> 32 mm) to silt (< 63 µm). Coarse particles will typically settle rapidly and have little potential to impact water quality (International Association of Oil and Gas Producers (IOGP) 2016). As cuttings particle size decreases, the settling velocity will typically decrease, and the ratio of residual drilling fluids to cutting size increases. This will result in a turbid plume that will decrease as the plume is diluted and the suspended particles are deposited (Continental Shelf Associates 2006).

Dissolved components of the plume, particularly the salts and water-soluble drilling fluid organic additives, dilute rapidly by mixing in the water column. Most of the organic additives in water-based and synthetic-based muds are strongly adsorbed to inorganic cuttings particles and are deposited to the sediments rather than being available in the water column.

Impacts to water quality from the discharge of drilling fluids and cuttings typically occur within close proximity of the discharge point. This is supported by results from the modelling of drill cuttings and fluids discharges for the Crux foundation wells conducted for the OPP, which indicated dilution is expected to occur rapidly due to the currents in the open ocean environment

(RPS 2018a). As outlined above, very fine cuttings form a very small portion of the total amount of cuttings and fluids discharges as they tend to clump together to form larger particles that sink relatively quickly. The combination of low toxicity and rapid dilution of unrecoverable SBM discharged in association with drill cuttings are of little risk of direct toxicity to water-column biota (Neff et al., 2000).

The majority of drill cuttings and residual fluids will be deposited in the area around the discharge location and will form a cuttings pile. The accumulation of cuttings will physically modify the sediments by modifying the particle size distribution. Stochastic modelling results indicate the cuttings pile may reach a thickness of up to 374 mm for a single well (RPS 2018a), which will be largely comprised of coarse cuttings directly under the discharge location. Impacts to sediment will decline with increasing distance from the wells. Modelling for the cumulative deposition of drilling fluids and cuttings indicated the maximum thickness would be up to 1,888 mm, with cumulative cuttings from five wells reaching 1 mm thickness at a maximum distance of 658 m from the Crux platform location.

Cuttings from an individual tieback well are expected to become progressively finer with increasing distance from the well location, with the thickness of deposited cuttings expected to be ≤ 1 mm within 318 m of the discharge location (single well) (RPS 2018a). Deposition ≥ 10 mm thickness for a single tieback well was predicted to extend up to approximately 62 m from the release location and cover an area of approximately 7,000 m^2 (or 0.7 ha). Cuttings > 0.25 mm in diameter are predicted to typically be deposited within 250 m of the discharge location for a single tieback well (RPS 2018a).

The coarser sediments deposited directly under the discharge location are unlikely to be resuspended by currents and will gradually be buried by naturally deposited sediments over time. Finer sediments deposited further away may be reworked by currents and transported via saltation or as suspended sediments.

Based on the assessment, potential impacts to the physical environment from the discharge of drill cuttings and fluids are considered to be Minor, with no long term effects anticipated.

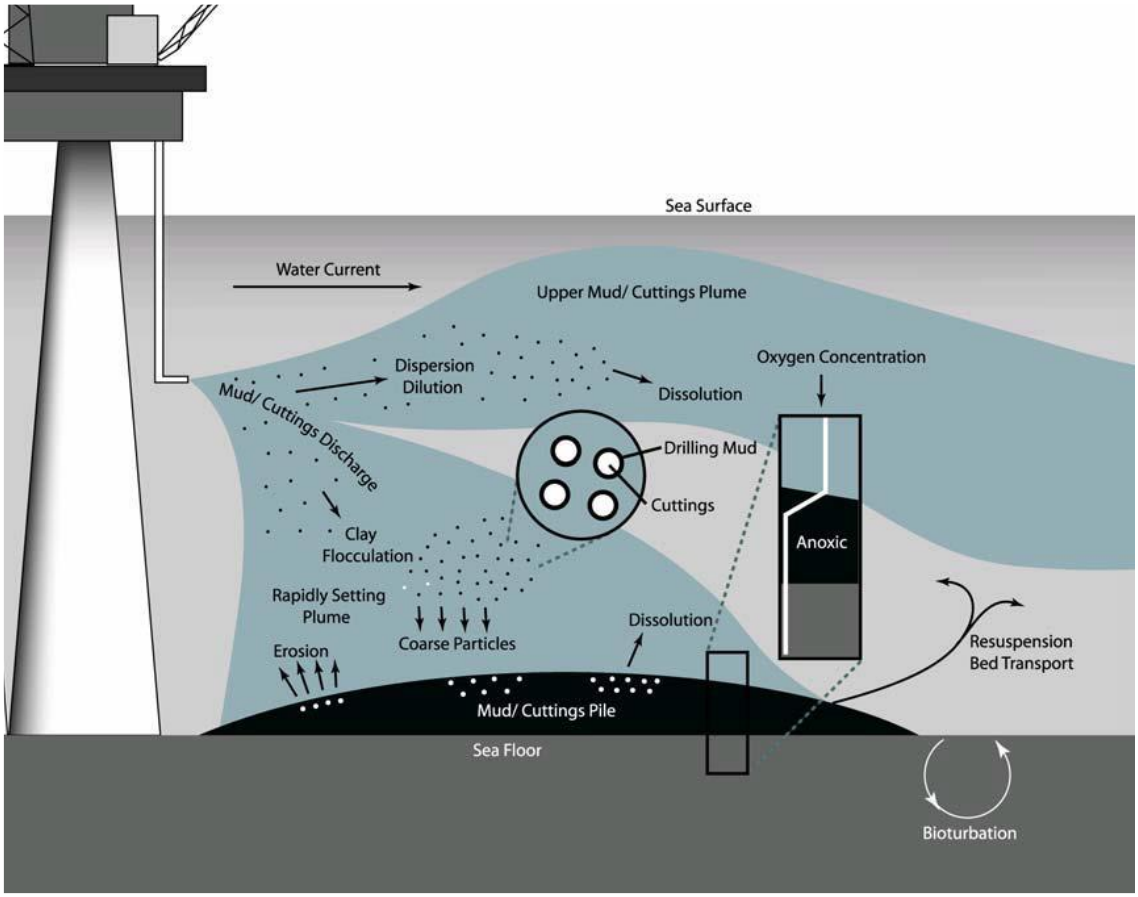


Figure 9-4: Generalised Schematic of the Fates of Drill Cuttings and Fluids Discharges

Cement

As described above, cement will be discharged during drilling when the cementing mixture is circulated to seabed, and may remain liquid for several hours, during which time there may be some release of chemicals into ambient waters. When the cement hardens it will form a hard substrate in a highly localised area around the wells, permanently altering the physical sediment properties.

Similarly, the cement rubble from the drill bushings is likely to persist in the marine environment and result in disturbance of localised sediment within the immediate discharge area.

Test batches, excess or contaminated liquid cement that could potentially require discharge into the ocean would result in increased local turbidity in the water column as the liquid cement plume dilutes and disperses though the water column. The cement will be dispersed by currents, potentially resulting in minor alteration of benthic habitat characteristics (sediment particle size, element composition). However, given the depth of water at the well locations (>90 m) and the local currents it is unlikely that detectable concentrations will accumulate on the seabed.

Given the low volumes of cement to be discharged and the open ocean waters of the Operational Area, impacts are expected to be Slight.

9.10.2.2 Biological Environment

Drilling fluids, cuttings and chemicals

Ecosystems, Communities and Habitats

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.

Studies by Smit et al. (2008) indicated that phytoplankton and filter-feeding zooplankton typically exhibit greater effects from suspended solids from drilling and suggested that these biota are less well-adapted to relatively high concentrations of suspended sediments than benthic biota. Smit et al. (2008) suggested that impacts to zooplankton were primarily the result of physical effects to filter-feeding and respiration organs, while impacts to phytoplankton were the result of reduced light levels. Concentrations at which impacts to phytoplankton are highly localised and unlikely to occur > 25 m from the discharge point (IOGP 2016; Smith et al. 2004). Studies indicated effects of drilling fluids and cuttings on zooplankton at concentrations > 100 mg/L are unlikely, based on 96-hr exposure duration experiments. Concentrations > 100 mg/L for more than 96 hours during Crux drilling activities would only occur in the immediate vicinity of the discharge location.

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).

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 operations. In addition, due to the open nature of the marine environment of the Operational Area and associated environmental conditions (i.e. windy, strong currents, etc.), 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 drilling discharges is Slight.

The discharge of drill cuttings and residual fluids will impact upon benthic communities due to the potential physical and chemical changes to sediments. The deposition of cuttings has the potential to smother sessile benthic organisms, with effects predicted to occur at deposition thicknesses of greater than 6.5 mm (IOGP 2016). Sedimentation is an ongoing natural process, and benthic organisms exhibit adaptations to respond to increased sediment deposition. Natural sedimentation rates Northwest Australia were estimated by Glenn (2004) ranged from approximately 0.17 mm and 2.23 mm per year.

Stochastic modelling results for the five well foundation development drilling activity conducted for the OPP indicated deposition of drilling cuttings and fluids was expected to be > 10 mm and ≤ 1 mm within approximately 248 m and 658 m of the discharge location, respectively (RPS 2018a). For a single well the deposition thickness of > 10 mm and ≤ 1 mm and were predicted to be within approximately 68 m and 326 m, respectively. Benthic communities subject to deposition between 1 mm and 10 mm thickness are less likely to experience mortality but may experience sub-lethal impacts (IOGP 2016), such as impaired feeding due to clogging of filter feeding organs and increased energy expenditure from removing sediment from burrows. Recognising that sediment deposition from drill cuttings and fluids is in addition to natural processes, benthic communities subject to deposition of drill cuttings and fluids of < 1 mm thickness are unlikely to experience impacts from physical deposition of cuttings, as this thickness is consistent with natural sedimentary deposition rates.

During the Greater Western Flank-2 drilling campaign. Jones et al. (2021) undertook pre- and post-drilling surveys close to the wells to determine impacts on epibenthic communities. The program involved measuring and profiling suspended solids (TSS) concentrations in discharges under the MODU by the ROV.

Effects to the sparse benthic filter feeder communities close to the wells were observed, but no effects were seen on the epibenthic or demersal fish assemblages across the nearby mesophotic reef (Jones et al. 2021). Overall, the surveys suggest a zone of high impact surrounding the drill centre up to 50–75 m in all directions caused by cuttings and fluid discharges from the MODU.

An area of medium impact up to 200 m was observed where there were clear losses of epifauna, but sponges and soft corals were observed. In this area sponges and soft corals were sometimes observed with sediment attached. Sponges normally keep their surfaces free of sediment and have a number of cleaning mechanisms to remove sediments from their surfaces including mucus production, tissue sloughing, self-cleaning surfaces.

Changes in sediment chemistry may impact upon benthic communities, particularly changes in oxygen demand from biodegradation of organic compounds in residual drilling fluids. Trannum et al. (2010) examined the effects of cuttings with residual WBMs and found a significant reduction in abundance and diversity of benthic infauna with increasing cuttings thickness compared to natural sediment and suggested that changes in sediment chemistry were a significant factor. Increased oxygen demand resulting from aerobic degradation of organic compounds in the WBM were suggested as a cause, along with fluxes in silicon and phosphorous (Trannum et al. 2010). The effects at low sediment thickness (< 10 mm) were much less apparent than relatively high rates of burial; these results are consistent with findings from other investigations of potential impacts of WBMs (Smit et al. 2006). The increased oxygen demand will diminish over time as organic material is consumed and will approach natural conditions.

The recovery of the area subject to deposition ≥ 10 mm thickness will potentially take many years, depending on natural sedimentary processes. Recovery may be linked to the deposition of relatively fine natural sediments on the coarse sediments in the cuttings pile to create suitable habitat. Studies of the recovery of benthic communities on visible cuttings piles (consistent with the area subject to drill cuttings and fluids deposition ≥ 10 mm) indicated considerable recovery within three years (particularly where deposition was thinner), however the benthic communities had not yet recovered to be similar to pre-discharge conditions or the surrounding unaffected seabed.

The benthic communities within the Operational Area comprise sparse epibenthic burrowing macrofauna on soft sediment substrates (Fugro 2017a). These are widely represented in the region and are not of high environmental value. Modelling studies (RPS 2018a) indicate these existing communities at the base of the Crux platform will be affected by the discharge of drill cuttings and fluids out to a range of approximately 326 m from the discharge point (e.g. some reduction in species diversity and abundance). High levels (> 10 mm) of burial will occur out to a radius of approximately 68 m; sessile benthic fauna within this range are expected to be completely removed.

The Operational Area is not close to any sensitive environmental receptors, sensitive benthic habitats, such as the Goeree Shoal (14 km away) or the continental slope demersal fish communities KEF (approximately 73 km from the drill centre), therefore no impacts to these receptors are expected.

The absence of benthic primary producers in this environment and the relatively short duration of the discharge limits the potential for impacts upon receptors such as plankton or benthic communities. Given this, impacts are expected to be Minor, with no long term effects anticipated.

Key Fauna Species

The discharge of drill cuttings and fluids will impact upon seabed habitat below the cuttings pile, particularly where the thickness of the deposition is ≥ 10 mm. This is not expected to result in impacts to key fauna species, as many key fauna are associated with surface waters and the water column (e.g. marine mammals, birds and marine reptiles). Given the depth of the Operational Area and the lack of benthic foraging habitat, marine turtles are not expected to be affected by the impacts to benthic habitats from the discharge of drill cuttings and fluids.

The localised, temporary decrease in water quality from the discharge of drill cuttings and fluids may temporarily displace pelagic marine fauna from the plume; this short- term, behavioural impact is considered to be negligible.

Wellbore Clean Up

Discharges such as displacement 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, Mono-ethylene Glycol (MEG) and guar gum. Given the Chemical Hazard and Risk Management (CHARM)/OCNS rating gold or E of the products used (low toxicity and high degree of biodegradability) coupled with the settling time allowed in the storage tanks and the relatively small quantity of fluids produced as a result of the cleaning process, any change to water quality is expected to be localised and temporary and is not expected to pose any long term impacts to the receiving environment.

Given the low volumes of fluids that may be discharged, impacts are predicted to be Slight with no long term effects anticipated.

Cement

The discharge of cement to the marine environment around the 36″ and 26″ conductors is not expected to have a significant impact on the benthic environment, given the localised distribution of the cement being discharged and the fact that the receiving environment is comprised of soft sediments. The cement will cover the seabed around the wells, resulting in localised burial of benthic organisms and alteration of the benthic substrate. The cement will solidify, potentially providing a hard substrate for epifaunal organisms to occupy. However, it is likely that the cement will ultimately be covered by drill cuttings circulated to seabed from the well (during riserless drilling operations). It is very difficult to isolate any impact on the environment from cement from the broader impacts associated with drill cuttings.

Test batches, excess or contaminated cement that could potentially require discharge into the ocean would result in increased local turbidity in the water column as the liquid cement plume dilutes and disperses though the water column. The cement will be dispersed by currents, potentially resulting in minor alteration of benthic habitat characteristics (sediment particle size, element composition). However, given the depth of water in the Operational Area (>90 m) and the local currents it is unlikely that detectable concentrations will accumulate on the seabed.

Given the low volumes of cement to be discharged, impacts are Slight, with no long term effects anticipated.

9.10.3 Impact Assessment Summary

Table 9-48 lists the highest residual impact consequence rankings of the relevant environmental receptor groups.

Table 9-48: Drilling Discharges Evaluation of Residual Impacts

Environmental Receptor	Magnitude	Sensitivity	Residual Impact Consequence
Evaluation – Planned Impacts			
Physical Environment	-2	L	Minor
Biological Environment	-2	L	Minor

9.10.4 ALARP Assessment and Environmental Performance Standards

Table 9-49: Drilling Discharges ALARP Assessment and Environmental Performance Standards

Hierarchy of Controls	Control Measure	Adopted?	Related ALARP Discussion and Alternate, Additional or Improved Control Measures Considered	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
Elimination	No planned discharge of whole SBM / Base Oil (bulk or used) to the marine environment will occur during development drilling.	Yes	Despite SBM / Base Oil inherently low toxicity, the impact of the release on the benthic environment and water quality is reduced by not discharging bulk SBM / Base Oil overboard. All non-aqueous fluids will be managed strictly, in accordance to drilling contractor and Shell environmental procedures and approved documentation to prevent accidental discharge. All equipment that is involved with the moving and processing of these fluids will be run correctly, efficiently with any operations moving these fluids being performed via rig approved procedures and pre-job risk assessments. There will be no planned discharge of whole SBM. All SBM will be backloaded at the end of campaign. Any cleaning fluids / wash water that have become contaminated with residual synthetic oil will only be discharged if they meet the accepted specification for discharge of <1% v/v.	8.1	No planned discharge of whole SBM during development drilling.	Records demonstrate that discharge criteria were met prior to discharge.

Hierarchy of Controls	Control Measure	Adopted?	Related ALARP Discussion and Alternate, Additional or Improved Control Measures Considered	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
Elimination	Lab testing or supplier certificates establishes the presence of mercury in cement and bentonite stocks.	Yes	The Minamata convention requires best available techniques be adopted when considering discharge of materials that contain any mercury content. Stock cement and bentonite are not expected to contain mercury, however, given uncertainty in its presence or absence, lab testing, of appropriate detection limits, or mercury free certification, will ensure that any discharges are managed appropriately to meet the requirements of the Minamata convention best available techniques. By testing or receiving certifications for stocks of cement and bentonite with regard to the presence or absence of mercury, the applicability of the Minamata convention with regards to end of campaign bulk discharges can be assessed. This information will be used to inform EPS 8.3 below.	8.2	Completed Stock tests or supplier certificates establish presence or absence of mercury in dry bulks of bentonite and cement. This information will be used to inform the decision making when implementation EPS 8.3 below.	Records of laboratory certificates or supplier certificates
Elimination	Bulk materials management for cement, brine and bentonite will focus on storage, handling, recovery, reuse, back-loading and/or disposal, with the objective to identify practices and process that will aid in reducing the potential for accidental discharge, optimise recovery and reuse, and reduce bulk discharge where possible.	Yes	By focusing on bulk materials management, including limited stocks at the end of the development drilling campaign, impacts on the benthic environment and water quality are reduced. Rig proven procedures and pre-job risk assessments are used to prevent accidental discharge prior to and while loading and mixing bulk materials. Stocks of cement, brine and bentonite will be managed towards the end of the campaign with the intent to reduce stocks to the minimum required. The Crux development drilling campaign will be conducted with a batch drilling strategy so that bulks can be transferred from each well to the next well until the final well is completed.	8.3	Decision log to support bulk discharge of cement, brine and bentonite confirms mercury free status and shows consideration of alternatives prior to discharge.	Records demonstrate that decision log documented mercury free status and consider alternatives prior to bulk discharge.

Hierarchy of Controls	Control Measure	Adopted?	Related ALARP Discussion and Alternate, Additional or Improved Control Measures Considered	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
			Notably, backload of these bulks to shore at the end of the campaign has been explored with the main fluid providers where a notable safety risk was raise[23]. Additional vessel emissions and discharges are also introduced to enable backloading of these bulks. These bulk materials are used and discharged as part of the drilling operational activities, where the impacts associated with these discharges have been established as Minor (or below), with no long term effects anticipated (Section 9.10.3). In the event that bulks cannot be transferred to the next operator, discharge may be required. If discharge is required, dry bulks will be mixed with sea water and discharged as a dilute slurry.			
Elimination	No disposal of bulk barite at the end of the development drilling campaign.	Yes	The Minamata convention requires best available techniques be adopted when considering discharge of wastes that contain any mercury content. Stock barite is known to contain low levels of naturally occurring mercury and barite stocks are tested to ensure they meet the limits prescribed by API standards: • Mercury (Hg): max 1 mg/kg (<1ppm) dry weight in stock barite	8.4	No disposal of bulk barite at the end of the development drilling campaign.	Records demonstrate that bulk barite was not discharge at the end of the activity.

[23] Backload of dry bulks to shore at the end of the campaign has been explored with the main fluid providers. Safety risks for backload of dry bulks have been identified and documented in the drilling risk register. Operator is aware of a previous incident with fatal consequence that occurred during transferring of dry bulk onshore and understands the risk is associated with the high-pressure transfer of bulks from a vessel with large volume tank into a smaller tank volume suitably only to a (relative) low-pressure environment and with limited pressure relief system capability. 3rd party service providers have historically refrained from taking back dry bulk product due to the prevailing safety concerns. Other drivers considered were the risk of cross contamination and the environmental impact of onshore disposal. An assessment of offset operator practice in the region shows that backloading of dry bulks to shore is not a standard practice

Hierarchy of Controls	Control Measure	Adopted?	Related ALARP Discussion and Alternate, Additional or Improved Control Measures Considered	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
			This limit supports the use of barite as a necessary drilling operations material and the associated operational discharges (as required by EPS 9.2). Barite is an essential product for use in both drilling operations and as contingency for well control activities, which means stock levels onboard the MODU at the end of a drilling campaign are approximately 100T. By restricting the disposal of bulk barite at the end of development drilling campaign, potential impacts associated with the trace amounts of heavy metals of concern (cadmium and mercury) within stock barite will not be discharged to the environment. This eliminates the potential impacts on the benthic environment and water quality. This restriction on discharge of barite is linked to end of activity, left over bulk materials only and does not restrict operational discharges. The operational discharge of barite is assessed in Section 9.10.3, with appropriate controls assessed below. Normal practice for the management of bulk barite at the end of a drilling campaign, is to pass on the product to the next operator. Although this is the most likely outcome, there are factors that may result in an alternate disposal/reuse option being required (i.e. where bulk barite does not meet the next operators acceptance criteria or there is no contract for the MODU at the end of the campaign). By restricting discharge of bulk barite, the most credible options are to backload the barite for onshore reuse or disposal. Given that there are credible alternatives to the discharge of bulk barite at the end of the drilling			

Hierarchy of Controls	Control Measure	Adopted?	Related ALARP Discussion and Alternate, Additional or Improved Control Measures Considered	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
			campaign, the action of discharge is not seen as a best available technique under the Minamata convention. For this reason, bulk barite will not be discharged at the end of the activity.			
Elimination	No disposal of dry cement to the marine environment from the vessels or the MODU will occur during development drilling.	Yes	By restricting the disposal of dry cement to the marine environment, impacts on the benthic environment and water quality are reduced.	8.5	No disposal of dry cement to the environment from the vessels or the MODU.	Records demonstrate that discharge criteria were met.
Elimination	No use of cement test batches prior to use of cementing unit	No	The rig selected for the Crux Development Drilling may have a Baker Hughes cementing unit onboard. The cementing materials and engineering supplier selected is SLB. Testing prior to use of the Baker Hughes cementing unit is essential to ensure that SLB supplied chemicals will pass through and be metered by the Baker Hughes cementing unit Liquid Additive System (LAS) and is compatible in terms of physical properties. Using Baker Hughes to provide cement materials and engineering is not practical as Baker currently has insufficient infrastructure in place for supporting cementing operations off the West Coast of Australia. Replacing the Baker Hughes cementing unit with a SLB unit was considered, however the cost and significant additional works required was considered disproportionate to the environmental benefit. The operating model selected for the cementing operations is 'cross pumping' whereby Baker operates the cementing unit, pumping SLB supplied cement and chemicals. The test pump is an	N/A	N/A	N/A

Hierarchy of Controls	Control Measure	Adopted?	Related ALARP Discussion and Alternate, Additional or Improved Control Measures Considered	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
			essential part of the cross pumping assurance and validation process.			
Elimination	No use of drill bushings for the drilling template installation	No	Detailed design identified that the Well/Riser alignment with the Topsides has low tolerance. The use of drill bushings provides a key mitigation tool to ensure the tolerance range can be met.	N/A	N/A	N/A
Substitution	Return cuttings for disposal at another marine location or onshore for processing and land disposal (skip and ship).	No	Return of cuttings for disposal at another marine location or onshore would achieve a reduction in cuttings/mud discharged. However, given current impact assessment and controls adopted, this would not result in a significant reduction on consequence. The cost is considered grossly disproportionate to the environmental benefit.	N/A	N/A	N/A
Substitution	Return unused cementing fluids, including test batches, for onshore disposal where possible.	No	Return of unused cementing fluids, such as test batches, for onshore disposal would achieve a reduction in cementing fluids discharges. Transport and transfers of bulk fluids introduce costly technical requirements and significant additional HSE concerns and risks. The cost and risks are considered grossly disproportionate to the environmental benefit.	N/A	N/A	N/A
Engineering	When using SBM, the solids control equipment will reduce the residual base fluid on cuttings content prior to discharge overboard. Residual SBM on cuttings will be less than 6.9% by weight (w/w), averaged over all well sections using SBM.	Yes	Achieving average oil-on-cuttings discharge limit of 6.9% or less oil on wet cuttings will have a small reduction in consequence.	8.6	Drilling fluids which meet stock limitations for C16-C18 internal olefin: the end-of-well maximum weighted mass ratio averaged over all well sections drilled using SBMs shall not exceed 6.9 grams SBM per 100 grams of wet cuttings.	Records confirm the average oil-on-cuttings concentration for SBM.
Engineering	WBM drill cuttings that are returned to the MODU will be	Yes	By limiting the discharge of WBMs through reuse, impacts on water quality are reduced.	8.7	WBM drill cuttings that are returned to the MODU are	Records demonstrate

Hierarchy of Controls	Control Measure	Adopted?	Related ALARP Discussion and Alternate, Additional or Improved Control Measures Considered	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
	processed (using solids control equipment).				processed using solids control equipment allowing reuse of mud prior to discharge.	that operational solids control equipment is in use.
Engineering	Operational discharge of WBM below water line.	Yes	Operational discharge of WBM below the water line will reduce carriage and dispersion WBM thereby reducing the consequence of WBM dispersion during the Crux development drilling activity.	8.8	Operational discharged of WBM below the water line.	Records confirm WBM discharged below the water line.
Engineering	Drill cuttings returned to the MODU will be discharged below the water line.	Yes	Discharge of drill cuttings below the water line will reduce carriage and dispersion of cuttings thereby reducing the consequence of cuttings discharges during the Crux development drilling activity.	8.9	Discharge of cuttings via a caisson at >15 m water depth. Discharge of cuttings only in water depths >30 m. Gross measure (retort) is too crude for determining compliance. Lab extraction/IR needed	Records confirm cuttings discharge chute/line below the water line.
Engineering	Discharge of SBM pit wash/oily water less than 1% oil in water	Yes	The pits will be cleaned and circulated with aqueous fluids until oil percent discharged has been diluted down to <1% oil in water, noting that the synthetic based mud present in the allocated pits is considered residual, not bulk synthetic based mud. Pit and topside cleaning events will occur throughout the drilling campaign.	9.0	Achieve less than 1% by volume oil content before discharge of pit wash/oily water.	Records after pit clean out demonstrate mud pit wash residue was less than 1% by volume oil content before discharge.

Hierarchy of Controls	Control Measure	Adopted?	Related ALARP Discussion and Alternate, Additional or Improved Control Measures Considered	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
Engineering	Recovery of drill bushings	No	There are significant costs and HSE risks associated with recovery of the drill bushings upon completion of each drilling activity by use of ROV. The drill bushings materials, specifically the plywood, will largely be broken up by the drill bit at the end of use. The plywood will degrade over time in the marine environment and not provide any lasting environmental impact. Cement components will be broken up by the stabiliser at the end of use and remain within the drilling template footprint. The cement rubble is similar in nature to that of the drill cuttings and will remain within the same footprint. Recovery and subsequent transporting onshore on the MODU/ project vessels is considered grossly disproportionate to the environmental impacts of discharge in situ, below the water line and within the drilling template disturbance footprint. Given current impact assessment and controls adopted, the recovery of the drill bushings will not result in a significant reduction on consequence	N/A	N/A	N/A
Administrative and Procedural Controls	Shell Chemical Management Process.	Yes	Shell has adopted a chemical selection and approval process in accordance with Shell's chemical selection and approval guidelines as indicated in Shell Chemical Management Process (HSE_GEN_007879) and Shell Global Product Stewardship guidelines to assess chemicals than may pose environmental impact via planned discharges. Following the chemical management process as detailed within Section 10.1.4 will minimise the impact of those chemicals which are used and discharged to ALARP levels.	7.4	Chemicals selected for use in accordance with the Shell Chemical Management Process to minimise potential environmental risks.	Records demonstrating the chemical selection process outlined in the Chemical Management Process have been followed.
				7.5	Chemicals that are planned for discharge to sea are substitution warning free and	Records demonstrating the chemical

Hierarchy of Controls	Control Measure	Adopted?	Related ALARP Discussion and Alternate, Additional or Improved Control Measures Considered	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
					Gold, Silver, D, or E rated through the OCNS, or are PLONOR (listed by the OSPAR Commission), or have a complete ALARP assessment	selection process outlined in the Chemical Management Process have been followed.
Administrative and Procedural Controls	Use of SBM will be based on a documented justification process and only used where technically required.	Yes	The documented justification process takes into account the technical need for SBM use along with factors such as the receiving environment, cost and additional controls that may be required. The process ensures potential impacts are well understood and control measures are in place to reduce the consequence of SBM use.	9.1	SBMs are only used where documented justification process has been followed.	Records show SBM justification process has been followed and SBM only used where technically required.
Administrative and Procedural Controls	Monitoring of drill cuttings discharges (heavy metals sampling)	No	Implementation of cuttings discharge monitoring during the activity would not result in an environmental benefit. 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.	N/A	N/A	N/A
Administrative and Procedural Controls	Sampling/analysis of stock barite to ensure acceptable levels of heavy metals (Cadmium and Mercury).	Yes	The Minamata convention requires best available techniques be adopted when considering discharge of materials that contain any mercury content. Stock barite is known to contain low levels of naturally occurring mercury and barite stocks are tested to ensure they meet the limits prescribed by API standards. This limit supports the use of barite as a necessary drilling operations material and the associated	9.2	Concentrations of heavy metals within stock barite used during the activity shall not exceed: • Mercury (Hg): max 1 mg/kg (<1ppm) dry weight • Cadmium (Cd): max 3 mg/kg (<3ppm) dry weight	Barite test results.

Hierarchy of Controls	Control Measure	Adopted?	Related ALARP Discussion and Alternate, Additional or Improved Control Measures Considered	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
			operational discharges. This stock barite testing, along with other controls related to limiting accidental discharge, meet the requirements of the Minamata convention best available techniques. Implementation of sampling/analysis of stock barite ensures that heavy metals of concern (cadmium and mercury) are within limits prescribed by API standards: • Mercury (Hg): max 1 mg/kg (<1ppm) dry weight in stock barite • Cadmium (Cd): max 3 mg/kg (<3ppm) dry weight in stock barite Monitoring can be used to substitute barite that has unacceptable levels of mercury and cadmium. This limit supports the use of barite as a necessary drilling operations material and the associated operational discharges. This stock barite testing, along with other controls related to limiting accidental discharge, meet the requirements of the Minamata convention best available techniques.			

9.10.5 Acceptability of Impacts

Table 9-50: Acceptability of Impacts – Drilling Discharge

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Are the Impacts of an Acceptable Level?	Acceptability Assessment
Physical Environment	Water Quality	No significant impacts to water quality during the Crux development drilling activity.	Yes	The discharge of drilling fluids and cuttings have the potential to result in reduced water quality at the discharge location, however discharges will dilute in the open ocean environment. Modelling studies indicate impacts to water quality are highly localised around the discharge location (being open offshore waters), which is consistent with industry monitoring studies. Shell will implement measures to reduce the potential for impacts to water quality from routine discharges relating to the discharge of drilling discharges.
	Sediment Quality	No significant impacts to sediment quality during the Crux development drilling activity.	Yes	The discharge of drilling fluids and cuttings may result in a decrease in sediment quality at drilling locations. Modelling studies indicate impacts to sediment quality are highly localised around the discharge location (smooth, bare sandy seabed that is of low ecological value), which is consistent with industry monitoring studies. Shell will implement measures to reduce the potential for impacts to sediment quality from routine discharges relating to the discharge of drilling discharges.
Ecosystems, Communities and Habitats	Benthic communities	No significant impacts to benthic habitats and communities. Impacts to non- sensitive benthic	Yes	The benthic communities within the Operational Area that may be impacted by drilling discharges are broadly represented in the region and are not of high environmental value.

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Are the Impacts of an Acceptable Level?	Acceptability Assessment
		communities limited to a maximum of 5% of the Crux Project Area.		
Threatened Species and Ecological Communities	Fish	No mortality or injury of threatened or migratory MNES fauna from the Crux development drilling activity. Management of aspects of the Crux project must be aligned to conservation advice, recovery plans and threat abatement plans published by the DAWE. No significant impacts to threatened or migratory MNES fauna.	Yes	Most threatened and/or migratory fauna species within the area predicted to be influenced by the planned drilling discharges are air breathing vertebrates, which are unlikely to be directly affected as their skin is relatively impermeable and they breathe air. Hence, direct impacts are not considered credible. Non-air breathing species are not anticipated to be present in significant numbers nor be exposed to levels that may adversely impact on individuals and therefore there will be no significant impacts.

The assessment of impacts from drilling discharges determined the residual impact consequence to be Minor (Table 9-48). As outlined above, the acceptability of the impacts from drilling discharges associated with the petroleum activity have been considered in the context of:

Principles of ESD

The impacts from drilling discharges are consistent with the principles of ESD based on the following points:

- The environmental receptors within the Operational Area are not expected to be significantly impacted
- The precautionary principle has been applied, and studies undertaken where knowledge gaps were identified. This knowledge has been applied during the evaluation of environmental impacts.

Relevant Requirements

Management of the impacts from drilling discharges are consistent with relevant legislative requirements, including:

- Compliance with international maritime conventions, including:

- Minamata convention: The Minamata convention requires best available techniques be adopted when considering discharge of materials that contain any mercury content.
- MARPOL:
  - Annex I: regulations for the prevention of pollution by oil
  - Annex II: regulations for the control of pollution by noxious liquid substances in bulk

- Compliance with Australian legislation and requirements, including:
  - Navigation Act 2012 and Protection of the Sea (Prevention of Pollution from Ships) Act 1983:
    - Marine Order 91 (Marine pollution prevention – oil)
    - Marine Order 93 (Marine pollution prevention – noxious liquid substances)
- Management of impacts and risks are consistent with policies, strategies, guidelines, conservation advice, and recovery plans for threatened species (Table 9-51)
- Implementation of recognised industry standard practice, such as:
  - No discharge of whole SBMs
  - Use of solids control equipment on the drilling rig
  - Treatment of residual SBM on cuttings to be less than 10% by wet weight (w/w), averaged over all well sections using SBM
  - Discharge of pit wash/oily water less than 1% oil in water.

Matters of National Environmental Significance

Threatened and Migratory Species

The evaluation of drilling discharges impacts indicates significant impacts to threatened and migratory species will not credibly result from drilling discharges aspect of the Crux development drilling activity.

Alignment of the Crux development drilling activity with management plans, recovery plans and conservation advice for threatened and migratory fauna is provided in Table 9-51.

Commonwealth Marine Area

The impacts and risks from the drilling discharges aspect of the Crux development drilling activity on the Commonwealth marine environment will not exceed any of the significant impact criteria provided in Table 8-1.

Table 9-51: Summary of Alignment of the impacts from the Drilling Discharges Aspect of the Crux Development Drilling Activity with Relevant Requirements for MNES

Matters of National Environmental Significance	MNES Acceptability Considerations (EPBC Management Plans/Recovery Plans/Conservation Advices)	Demonstration of Alignment as Relevant to the Project
Threatened and Migratory Species	Significant impact guidelines for Critically Endangered, Endangered, Vulnerable and Migratory species (Table 8-1)	The application of the Shell Chemical Management Process and proposed management controls for drilling discharges reduces the impact of toxic pollutants being

Matters of National Environmental Significance	MNES Acceptability Considerations (EPBC Management Plans/Recovery Plans/Conservation Advices)	Demonstration of Alignment as Relevant to the Project
	Conservation advice on *Balaenoptera borealis* (sei whale) (TSSC 2015b)	introduced into and/or persisting in the marine environment.
	Conservation advice fin whale (*Balaenoptera physalus*) (TSSC 2015c)	
	Recovery plan for marine turtles in Australia (Commonwealth of Australia 2017a)	
	Conservation advice on *Rhincodon typus* (whale shark) (TSSC 2015a)	
Commonwealth Marine Area	Significant impact guidelines for Commonwealth marine environment (Table 8-1)	Water quality impacts by planned drilling discharges are expected to be limited. Impacts are not considered to be significant in the context of the significant impact criteria for the Commonwealth Marine Area given the nature and scale of the impacts and the characteristics of the local receiving environment (open offshore waters with regionally well represented soft and bare sandy sediments). The impact assessment indicates the impacts associated with drilling discharges will not result in a significant adverse impact on marine ecosystem functioning/integrity, social amenity or human health. Shell has sought to reduce potential impacts through the selection and implementation of the controls and EPSs listed in Section 9.10.4.

External Context

There have been no objections or claims raised by Relevant Persons in preparation of this EP around the drilling discharges aspect. Shell's ongoing consultation program will consider objections and claims made by stakeholders when undertaking further assessment of impacts.

Internal Context

Shell has also considered the internal context, including Shell's environmental policy and ESHIA requirements. The EPOs, and the controls which will be implemented, are consistent with Shell's internal requirements.

Acceptability Summary

The assessment of impacts and risks from drilling discharges determined the residual impacts rankings were Minor (Table 9-48). As outlined above, the acceptability of the impacts has been considered in the context of:

- the established acceptability criteria for the liquid discharges aspect;
- ESD;
- relevant requirements;
- MNES;

- external context (i.e. stakeholder claims); and
- internal context (i.e. Shell requirements).

Shell considers residual impacts of Minor or lower to be acceptable if they meet legislative and Shell requirements. The discussion above demonstrates that these requirements have been met in relation to the drilling discharges aspect.

Australia has ratified the Minamata Convention. Article 9 of the Minamata Convention requires parties to the convention control and, where feasible, reduce releases of mercury, which is relevant to the discharge of drilling muds, cuttings and fluids that might potential be contaminated with mercury. Given the very minimal/negligible concentrations of potential mercury contamination in the drilling muds, cuttings and fluids, Shell considers the petroleum activity is consistent with the requirements of the Minamata Convention. A review of the Guidance on Best Available Techniques and Best Environmental Practices - Minamata Convention on Mercury (United Nations Environment Program, 2019) did not identify any recognised best available techniques that are applicable/relevant to the proposed petroleum activities described in the EP. However, consistent with the principles of ALARP, the best available techniques framework was used to inform assessment and adoption of controls to restrict the end of campaign discharges of materials which are known to contain mercury (i.e. bulk barite).

Based on the points discussed above, Shell considers the impacts from drilling discharges associated with the Crux development drilling activity to be acceptable.

9.10.6 Environment Performance Outcomes

Environment Performance Outcomes	Measurement Criteria
No measurable impacts to sediment quality or water quality in the region from drilling discharges during the Crux development drilling activity.	Demonstrated implementation of EPSs for drilling discharges Fauna observations and incident reports demonstrate no injury or mortality of threatened and migratory MNES species as a result of drilling discharges during the Crux development drilling activity. No verifiable reports or observation of modified, destroyed, fragmented or disturbance of a substantial area of sensitive environmental receptors, sensitive benthic habitats or Key Ecological Features.
Direct impacts to benthic habitats will be limited to < 0.1% of the Crux Project Area and no sensitive benthic habitats or sensitive receptors outside the Crux Project Area.	
Undertake Crux development drilling activity in a manner that does result of drilling discharges that shall modify, destroy, fragment or disturb a substantial area of sensitive environmental receptors, sensitive benthic habitats or Key Ecological Features.	
No mortality or injury of threatened and migratory MNES species as a result of drilling discharges during the Crux development drilling activity.	

9.11 Atmospheric Emissions

9.11.1 Aspect Context

Emissions of atmospheric pollutants (e.g. nitrogen oxides, sulphur oxides, carbon monoxide and particulate matter (PM, PM_{10} and $PM_{2.5}$), air toxics which includes mainly volatile organic compounds (VOCs) (e.g. benzene, toluene, ethylbenzene, xylenes (BTEX), formaldehyde, etc.) and other harmful to human health gases (e.g. hydrogen sulphide) have the potential to impact local and regional air quality.

Atmospheric emissions will be generated by the MODU and project vessels from internal combustion engines (including all equipment and generators) and incineration activities (including onboard incinerators for standard operations, excluding drilling waste).

Atmospheric emissions generated during drilling activities will include Sulphur oxides (SOx), Nitrogen oxides (NOx), particulates and VOCs. SOx and particulate matter emissions are heavily influenced by the fuel used and its relative sulphur content, MGO usually having a lower sulphite content than marine diesel oil (MDO) or heavy fuel oil (HFO).

NO_2 emissions from routine MODU power generation for an offshore project was previously modelled by BP (BP, 2013). The model demonstrated that atmospheric emissions generated by MODU operations may increase ambient NO_2 concentrations by 1 µg/m³ (0.001 ppm) within 10 km of the source and 0.1 µg/m³ (0.0001 ppm) within 40 km of the source. This represents an increase of 2% over typical background concentrations within 40 km, with air quality remaining well below the WHO air quality guideline for NO2 of 40 µg/m³ annual mean. As NO_2 is the main emission that poses a threat to receptor health, it is considered conservative to use the above studies to justify potential impacts to receptors.

Greenhouse Gas Emissions (GHG) are covered in Section 9.12.

9.11.2 Description and Evaluation of Impacts

The predicted concentrations of combustion-related pollutants at identified receptors and attendant ambient air quality impacts associated with the Crux development drilling are expected to be of low magnitude.

Air emissions associated with the Crux development drilling activities will lead to increased NO_x, Sulphur dioxide (SO_2) and $PM_{2.5}$ within the local airshed. This may also result in deposition on the water surface and potential impacts on seawater and seabed sediments and other habitats for aquatic vegetation. However, due to the low levels of the contaminants, expected water column dilution and buffer capacity of sea water, it is unlikely that deposition emissions will cause a change in acidity/basicity (pH) to the extent that marine life is affected.

Atmospheric emissions may result in a decline in local air quality, within the immediate vicinity of the emissions source. As described above, produced emissions throughout the project will include SO_2, NOx, ozone depleting substances, CO_2, particulates and VOCs. Emissions from engines, generators and deck equipment may be toxic, odoriferous or aesthetically unpleasing, and will result in a reduction in air quality.

Given the offshore remote context, and the low volumes of atmospheric emission which will be generated, environmental sensitivities that may be impacted by emissions of atmospheric pollutant include only the physical environment (air quality). No impacts on the biological, socio-economic and cultural environment are reasonably foreseeable.

Given the above assessment, no adverse environmental effects are anticipated and the associated impacts on local air quality are expected to be Slight.

Occupational health effects associated with emissions of air pollutants are excluded from the scope of the EP and will be covered in the Crux project occupational health management program and procedures. These have been extensively modelled in the design phases of the Project and mitigated through design and operating procedures.

9.11.3 Impact Assessment Summary

Table 9-52: Atmospheric Pollutant and Air Toxics Emissions Evaluation of Residual Impacts

Environmental Receptor	Magnitude	Sensitivity	Residual Impact Consequence
Evaluation – Planned Impacts			
Physical Environment	-1	L	Slight

9.11.4 ALARP Assessment and Environmental Performance Standards

Table 9-53: ALARP Assessment and Environmental Performance Standards

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
Elimination	None identified	N/A	N/A	N/A	N/A	N/A
Substitution	None identified	N/A	N/A	N/A	N/A	N/A
Administrative and Procedural Controls	Use low sulphur fuel oil/ diesel (< 0.5% m/m S) for project vessels	Yes	This MARPOL Annex VI requirement, enforced by AMSA Marine Order 97, came into force from 1 January 2020 and applies to all marine vessels operating in the field including offtake tankers. This requirement will also be adopted for Crux development drilling activities.	9.1	Use only low sulphur fuel oil/ diesel (<0.5% m/m S) for vessels.	Sulphur content of diesel, % w/w as verified in bunker receipts
Administrative and Procedural Controls	MODU and project vessels (as appropriate to vessel class) will comply with MARPOL Annex VI (Prevention of air pollution from ships), the Navigation Act 2012, the Protection of the Sea (Prevention of Pollution from Ships) Act 1983 and subsequent Marine Orders, which requires vessels to have a valid International Air Pollution Prevention Certificate (for vessels > 400 tonnage).	Yes	AMSA Marine Order 97 requires specified marine vessels to possess the applicable pollution prevention and energy efficiency certificates. These certificates include Engine International Air Pollution Prevention Certificate (EIAPP), IAPP and an International Energy Efficiency (IEE) Certificate. In addition, all vessels with a gross tonnage of 400 or more are required to carry a Ship Energy Efficiency Management Plan (SEEMP). These requirements are also recognised and enforced in the Shell Marine Assurance Process and procedures.	9.2	Specified project vessels are required to have the following valid documentation as required by vessel class, size and type: • EIAPP certificate; • IAPP certificate; • IEE certificate; and • SEEMP.	Assurance records confirming SEEMP and IAPP, EIAPP, IEE certificates are in place for project vessels.

9.11.5 Acceptability of Impacts

Table 9-54: Acceptability of Impacts – Atmospheric Emissions

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Are the Impacts of an Acceptable Level?	Acceptability Assessment
Physical Environment	Air Quality	No significant impacts to air quality during the Crux development drilling activity.	Yes	Impacts to air quality from atmospheric emissions during the Crux development drilling activity will be localised. Given the remoteness of the Operational Area, there is no potential for significant environmental impacts to occur.

The assessment of atmospheric pollutant emissions determined the impact magnitude to be Slight (Table 9-52). Given that air quality in the area is generally expected to be very high and the lack of sensitive human receptor populations, the residual impact consequence ranking is assessed as Slight (Magnitude −1, Sensitivity – L) and therefore acceptable (Table 9-54). Impacts on air quality have also been considered in the following context.

Principles of ESD

The impacts from atmospheric pollutant and air toxics emissions are acceptable and consistent with the principles of ESD based on the following points:

- The environmental values/sensitivities within the Operational Area regionally are not expected to be significantly impacted
- The precautionary principle has been applied to the impact assessment.

Relevant Requirements

Management of impacts from atmospheric emissions is consistent with relevant legislative requirements, including:

- Air quality in the Crux regional airshed complies with the current NEPM Ambient Air Quality Standards (National Environment Protection Council, 1998) as well as with the proposed draft NEPM Ambient Air Quality Standard (National Environment Protection Council, 2019).
    - Marine fuel oil used by the MODU and vessels supporting operations complies with 1 January 2020 MARPOL Annex VI (Prevention of air pollution from ships), the *Navigation Act 2012*, the Protection of the Sea (Prevention of Pollution from Ships) Act 1983 and subsequent Marine Orders which requires vessels to have a valid International Air Pollution Prevention Certificate (for vessels > 400 tonnage) and, when possible, use low sulphur fuel (0.5% m/m S content in marine fuel oil and diesel).
    - Implementation of recognised industry standard practice, such as:
        - preventative maintenance system; and
        - equipment selection in design, to achieve emissions efficiencies.

Matters of National Environmental Significance

Threatened and Migratory Species

The evaluation of atmospheric pollutant emissions from the Crux development drilling activity indicates significant impacts and risks to threatened and migratory species will not credibly result from combustion of fuels conducted as part of the activity.

Alignment of the drilling activities with management plans, recovery plans and conservation advice for threatened and migratory fauna is provided in Table 9-55.

Commonwealth Marine Environment

The impacts and risks from atmospheric pollutant emissions from the Crux development drilling activity on the Commonwealth marine environment will not exceed any of the significant impact criteria provided in Table 8-1.

Table 9-55: Summary of Alignment of the Impacts from the Atmospheric Pollutant Emissions Aspect of the Crux development drilling activity with MNES

Matters of National Environmental Significance	MNES Acceptability Considerations (Significant Impact Criteria, EPBC Management Plans/Recovery Plans/Conservation Advices)	Demonstration of Alignment as Relevant to the Project
Threatened and Migratory Species	None applicable to atmospheric pollutant emissions	N/A
Wetlands of International Importance	None applicable to atmospheric pollutant emissions	N/A
Commonwealth marine area	No significant impacts on air quality	Criteria for significant impacts and risks to air quality over the Commonwealth Marine area where the Crux development drilling activity will operate have not been triggered by atmospheric pollutant emissions from the Crux field.

Internal and External Context

There have been no objections or claims raised by Relevant Persons in preparation of this EP related to atmospheric pollutant and air toxics emissions aspect.

Shell has also considered the internal context, including Shell's environmental policy and ESHIA requirements. The EPOs, and the controls which will be implemented, are consistent with Shell's internal requirements.

Acceptability Summary

The assessment of impacts from atmospheric pollutant and air toxics emissions determined the residual impact rankings to be Slight (Table 9-52). As outlined above, the acceptability of the impacts and risks from this aspect have been considered in the context of:

- the established acceptability criteria for impacts and risks for this aspect;
- ESD;
- relevant legislative requirements;
- MNES;
- external context (i.e. stakeholder claims); and
- internal context (i.e. Shell requirements).

The residual impacts are slight, which Shell considers to be inherently acceptable if they meet legislative and Shell requirements. The discussion above demonstrates that these requirements have been met in relation to the atmospheric pollutant emissions aspect.

Based on the points discussed above, Shell considers the impacts from atmospheric pollutant emissions associated with Crux development drilling activity to be acceptable and ALARP.

9.11.6 Environment Performance Outcome

Environment Performance Outcome	Measurement Criteria
No significant decline in air quality at residential or sensitive populations as a result of atmospheric emissions from the Crux development drilling activity.	Atmospheric pollutant and air toxics emissions inventory (as part of NPI report).

9.12 Greenhouse Gas Emissions

9.12.1 Aspect Context

The Crux development drilling activity encompasses only a few discrete activities which will result in Greenhouse Gas (GHG) emissions. The combustion of marine diesel to fuel the MODU and project vessels will emit GHGs as part of a range of atmospheric emissions (discussed in Section 9.11). GHG emissions will contribute to the incremental build-up of GHGs in the atmosphere, which in turn drive global climate change.

GHG emissions associated with later stages of the Crux project are outside the scope of this Environmental Plan. Such emissions have been considered in the approved Crux OPP, and will be assessed in detail and submitted to NOPSEMA for approval in future Environmental Plans for the later, relevant stages of the Crux project.

GHG emissions are primarily classed as Scope 1 (direct emission from own facilities or businesses), Scope 2 (indirect emissions when purchasing steam or electricity for use) and Scope 3 (all other indirect emissions across the value chain). The Crux development drilling activity does not have any Scope 2 emissions.

Emissions from the drilling activities will be a minor portion (<0.5% of total scope 1 and 3 emissions) of overall Crux Project emissions and are therefore not described in detail.

In accordance with EPBC Act Section 527E, Shell considered that no material indirect GHG emissions are associated the petroleum activities limited to Crux development drilling activities. Appendix F provides a detailed justification of Shell's consideration of indirect consequences. Shell will present the GHG (Scopes 1 to 3) lifecycle analysis for production operations in the Crux Hot Commissioning, Start-up and Operations EP (2200-010-HE-5880-00006). This analysis will inform the environmental assessment of GHG emissions, including indirect consequences.

9.12.2 Description and Evaluation of Impacts

This section describes how climate change, in general, may affect the Australian environment. As will be explained in the evaluation, while there is a relationship between GHG emissions and climate change, the exact contribution of emissions from the Crux development drilling is unknown.

The State of the Climate Report released by BOM and CSIRO (2020) reported that Australia has warmed by approximately 1.4 °C since 1910 and may warm by 4 °C or more this century. This will result in the country experiencing the following climate changes:

- Increases in sea and air temperatures, with more hot days and marine heatwaves, and fewer cool extremes
- Sea level rise and ocean acidification

- Decreases in rainfall across southern Australia with more time in drought, but an increase in intense heavy rainfall throughout Australia.

The broader impacts from GHG emissions are typically considered by the international community at an ecosphere level, most frequently in terms of an increase in global temperatures.

Climate projections depend upon emission/concentration/radiative forcing scenarios, which are based on assumptions concerning, for example, future socio-economic and technological developments that may or may not be realised and are therefore subject to substantial uncertainty (UNITAR 2015).

Climate projections are distinct from climate predictions. Climate predictions are estimates of future natural conditions, while climate projections are estimates of future climates under the assumptions of future human related activities such as socio-economic and technical developments. Making a prediction of GHG emission impacts at the ecosphere level is an inherently complex exercise because of the influence of variables such as surface pressure, wind, temperature, humidity and rainfall within multiple ecosystems. The listed items are all interdependent variables that contribute to a global temperature increase. For each variable, a series of generalising assumptions would be required to be able to make a sensible calculation of the impacts. Considering the complex and dynamic natural processes within the ecosphere, there is substantial uncertainty in determining a specific increase in global temperatures due to the emissions associated with the Crux development drilling activity.

To be consistent with the precautionary principle, one of the guiding principles of ESD is that the lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation if there is also a threat of serious or irreversible environmental degradation from the action.

Scope 1 emissions from the Crux development drilling activity are a small portion of emission inventories. This suggests a similarly immeasurable contribution to global temperature increases even though there is no calculable direct relationship.

Whilst Scope 1 emissions from the Crux development drilling activity contribute a small amount to Australian and global GHG emissions, this fact alone does not make their impacts inherently acceptable. The relatively small percentage of global emissions should not be used to understate the seriousness of the threat of environmental degradation from climate change. Instead, it clarifies the source of the threat is from global emissions quantities rather than emissions from the Crux development drilling activity. The threat of serious environmental degradation from climate change comes from an increasing global population demanding more energy to maintain and improve global living standards.

Whether climate change is irreversible is even more scientifically uncertain than predicting impacts from Scope 1 GHG emissions from Crux development drilling activities for the same reasons that made these predictions speculative. The environmental influences of variables such as surface pressures, wind, temperature, humidity, and rainfall are added to the variables of human adaption measures to a lower carbon economy.

The key features of the Crux development drilling activities contributing to the improvement of GHG performance include:

- considering the fuel usage for both the MODU and project vessels is estimated to just over 60% of the emissions from the Crux drilling scope which are in large part driven by time on location. Shell has designed its wells and drilling activity to minimise time on location given the very significant daily cost of running such a program.

Increasing levels of GHG in the atmosphere is one contributing factor to the warming of the climate system. There is a lack of full scientific certainty about the effects of increased emissions, but they are understood to be non-linear. The evaluation considered that GHG emissions are among the causes of climate change, particularly if unmitigated.

Emissions from Crux drilling activities will be managed to an acceptable level because of its focus on well design optimisation and ensuring a stringent action plan is in place while assessing the tender submissions for drilling activities based on their understanding of GHG emission reduction during project execution. Shell will implement a GHG Energy Management Plan (GHGEMP), which is an internal Shell requirement to drive project teams to target lower emitting concepts and technologies. As a result, the Crux project will incorporate a range of inherent design and operational efficiencies during the detailed design engineering phase which reduce GHG intensity.

Uncertainty in the assessment of impacts will be managed through the GHGEMP and the legislative arrangements that apply to the Crux development drilling activity in particular, the Safeguard Mechanism under the NGER Act. The impacts have been assessed and will be mitigated, abated, and (where legally required) offset.

Given Scope 1 emissions from the Crux development drilling activity are a small portion of emission inventories, impacts are considered to be slight, with no long term effects anticipated.

9.12.3 Impact Assessment Summary

Table 9-56: Greenhouse Gas Emissions Evaluation of Residual Impacts

Environmental Receptor	Magnitude	Sensitivity	Residual Impact Consequence
Evaluation – Planned Impacts			
Physical Environment	-1	L	Slight

9.12.4 ALARP Assessment and Environmental Performance Standards

Table 9-57: ALARP Assessment and Environmental Performance Standards

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
Elimination	None identified	N/A	N/A	N/A	N/A	N/A
Substitute	Use of renewable energy (e.g. solar, wind and wave) in lieu of fossil fuels for power generation and marine vessel propulsion	No	Use of solar, wind or wave energy does not have the required reliability and will also require additional space and capital investment which are not currently justified.	N/A	N/A	N/A
Mechanical limitations of machinery, logistics (no appropriate supplier within the coastal hubs to support), and the cost of the product outweighing the small incremental gain in emissions reduction.	Using a 20% biofuels blend.	No	Mechanical limitations of machinery, logistics (no appropriate supplier within the coastal hubs to support), and the cost of the product outweighing the small incremental gain in emissions reduction.	N/A	N/A	N/A
Engineering	Installation of mooring arrangement for use by support vessels when on standby.	No	The installation of mooring arrangements for use by support vessels reduces the need to vessels to burn fuel for station keeping while on standby. The drilling activity is not of a significant duration and therefore the cost of installation of the mooring buoys	N/A	N/A	N/A

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
			outweighs the benefit of reduction in carbon emissions.			
Administrative and Procedural Controls	Use low sulphur fuel oil/ diesel (< 0.5% m/m S) for project vessels	Yes	This MARPOL Annex VI requirement, enforced by AMSA Marine Order 97, came into force from 1 January 2020 and applies to all marine vessels operating in the field including offtake tankers. This requirement will also be adopted for Crux development drilling activities.	10.1	Use only low sulphur fuel oil/ diesel (<0.5% m/m S) for vessels.	Sulphur content of diesel, % w/w as verified in bunker receipts
Administrative and Procedural Controls	MODU and project vessels (as appropriate to vessel class) will comply with MARPOL Annex VI (Prevention of air pollution from ships), the Navigation Act 2012, the Protection of the Sea (Prevention of Pollution from Ships) Act 1983 and subsequent Marine Orders, which requires vessels to have a valid International Air Pollution Prevention Certificate (for vessels > 400 tonnage).	Yes	AMSA Marine Order 97 requires specified marine vessels to possess the applicable pollution prevention and energy efficiency certificates. These certificates include Engine International Air Pollution Prevention Certificate (EIAPP), IAPP and an International Energy Efficiency (IEE) Certificate. In addition, all vessels with a gross tonnage of 400 or more are required to carry a Ship Energy Efficiency Management Plan (SEEMP). These requirements are also recognised and enforced in the Shell Marine Assurance Process and procedures.	10.2	Specified project vessels are required to have the following valid documentation as required by vessel class, size and type: • EIAPP certificate; • IAPP certificate; • IEE certificate; and • SEEMP.	Assurance records confirming SEEMP and IAPP, EIAPP, IEE certificates are in place for project vessels.
Administrative and Procedural Controls	Reporting of GHG emissions where required by the NGER Act 2007 to the Clean Energy Regulator.	Yes	This is a regulatory requirement under the NGER Act 2007.	10.3	GHG emissions reported annually to the Clean Energy Regulator where required by the NGER Act 2007.	GHG emissions reports submitted where required (or contemporary requirements at the time of the activities).

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
Administrative and Procedural Controls	Reporting of GHG emissions when required by the NGER Act 2007 to the Clean Energy Regulator.	Yes	This is a regulatory requirement under the NGER Act 2007. Because NGER reporting is a regulatory requirement, no EPS has been developed for this requirement.	N/A	N/A	GHG reporting records (or contemporary requirements at the time of the activities) maintained where required.
Administrative and Procedural Controls	Reporting records of GHG and National Pollutant Inventory (or contemporary requirements at the time of the activities) will be compiled during the project.	Yes	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.	10.4	GHG and National Pollutant Inventory reporting records where required (or contemporary requirements at the time of the activities) will be compiled with during the project.	GHG and National Pollutant Inventory reporting records maintained.
Engineering, Administrative and Procedural Controls	Greenhouse Gas and Energy Management (GHGEM) System including Greenhouse Gas and Energy Management Plan (GHGEMP), Abatement Workshop and Assessment Process and Operating Plan (OP) Process.	Yes	Crux has a GHGEM System which receives and incorporates key inputs from the abatement assessment and OP processes. The annual abatement workshop and assessment process will ensure that further detailed assessment of additional emission reduction opportunities is undertaken and will ensure impacts from GHG emissions are reduced to ALARP on an ongoing basis. The GHGEMP is reviewed annually to incorporate the regular review and optimisation processes that occur, namely the abatement workshop and assessment process and subsequent OP process, which sets out integrated GHG targets for the Crux development drilling activity.	10.5	Abatement opportunities in and out of plan are identified and summarised within GHGEMP from 2021 revision onwards.	Greenhouse Gas and Energy Management Plan

9.12.5 Acceptability of Impacts

Table 9-58: Acceptability of Impacts – Greenhouse Gas Emissions

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Are the Impacts of an Acceptable Level?	Acceptability Assessment
Physical Environment	Australian Environment	No significant impacts to the Australian environment attributable to the Crux development drilling activity.	Yes	Impacts to the Australian environment are concluded to be low although with a low level of certainty. GHG emissions attributable to the Crux development drilling activity are not likely to have a significant impact on MNES. In combination with Shell's own GHG abatement commitments the impacts are of an acceptable level.

The assessment of risks from GHG emissions associated with the Crux development drilling activity has been considered in the following context.

- Defined acceptable level of GHG emissions set for Crux
- Principles of ESD
- Relevant requirements
- Significant impacts to MNES
- Internal and external context.

Crux's Defined Acceptable Level of GHG Emissions

Gross scope 1 GHG emissions are an inherent feature of Crux development drilling activities. Acceptability is considered in light of:

- Shell recognises that scope 1 emissions must be reduced to ALARP on an ongoing basis in order to be acceptable. An ALARP assessment of GHG emissions is outlined in Section 0 and abatement projects that improve GHG performance will be implemented on the Crux project. Shell will demonstrate emissions will be reduced to ALARP on an ongoing basis through implementation of key GHGEMP processes.
- The level of GHG emissions for the Crux development activity is consistent with design GHG emission predictions in the OPP.

Principles of ESD

The risks and impacts from GHG emissions from the Crux development drilling activity are consistent with the principles of ESD. Of particular note is 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 Crux development drilling activity demonstrates that it meets this principle through ensuring GHG emissions do not exceed the defined acceptable level. In addition, the risks and impacts from GHG emissions from Crux are consistent with the Paris Agreement and principles of ESD based on:

- meeting existing end-user demand for energy;

- facilitating the distribution of lower carbon energy to meet the UN Sustainable Development goals, in particular;
  - affordable and clean energy;
  - climate action;
  - no poverty; and
  - decent work and economic growth.
- the precautionary principle has been applied, and mitigation measures have been adopted in the absence of full scientific certainty;
- global policies and actions related to GHG emissions have been considered and Australian legislation supports these policies and will be complied with, as noted further below;
- the Crux OPP was subject to public comment and regulatory scrutiny which ensures the broadest community of people have been involved in management of issues that affect them. In addition, relevant persons have been consulted in the preparation of this EP. No objections or claims relevant to GHG emissions were raised by relevant persons during consultation; and
- the decision making process on production technology has effectively integrated both long-term and short-term economic, environmental, social and equitable considerations.

Significant Impacts to MNES

There is no clear and convincing evidence that GHG emissions from the Scope 1 GHG emissions from Crux development drilling activity will result in significant impacts to threatened or migratory species. The impacts and risks from the GHG emissions aspect of the Crux development drilling activity on the Commonwealth marine environment do not exceed any of the significant impact criteria for any MNES. However, given the lack of full scientific certainty, GHG emissions will be managed to ALARP and acceptable levels on an ongoing basis.

Relevant Requirements

During the drilling, Shell will ensure the MODU Contractor commits to continued compliance with the mechanisms implemented in Australia to achieve the goals of the Paris Agreement.

Australia has committed to a NDC under the Paris Agreement to reduce emissions in line with commitment in the NDC registry. The Commonwealth government's plans to achieve this commitment have included recognition of emissions associated with new LNG projects in Australia, including Crux. The Commonwealth government introduced the Climate Change Act 2022 and the Climate Change (Consequential Amendments) Act 2022 to legislate Australia's emissions reduction targets under the Paris Agreement, including a 43% reduction by 2030 and net zero by 2050.

Australia's commitments under the Paris Agreement are delivered through a range of policies and initiatives, with the primary legislation for emissions management being the NGER Act. The NGER Act provides a single, national framework for the reporting and distribution of information related to GHG emissions, GHG projects, energy production and energy consumption to meet the following objectives:

- Inform government policy
- Inform the Australian public
- Help meet Australia's international reporting obligations
- Assist Commonwealth, state and territory government programmes and activities
- Avoid duplication of similar reporting requirements in the states and territories.

Under the NGER Act facility operators are required to report on direct GHG emissions, energy production and energy consumption, enabling the capture of data on energy flows and transformations occurring throughout the economy. The NGER Act is aligned with the GHG Protocol in defining Scope 1 and 2 emissions.

The Safeguard Mechanism provides a framework for Australia's largest emitters to measure, report and manage their emissions. It was established to ensure that emissions reductions delivered through the Emissions Reduction Fund are not displaced significantly by GHG emissions over and above business-as-usual- levels elsewhere in the economy[24]. It does this by requiring large facilities, whose net emissions exceed the safeguard threshold of 100,000 tonnes of $CO_{2\text{-}e}$ per annum, to keep their net emissions at or below emissions baselines set by the Clean Energy Regulator. Key elements of the mechanism include:

- safeguard facilities must meet the reporting and record keeping requirements of the NGER Act, including the Clean Energy Regulator's requirements for audits prior to baseline setting or to check compliance management;
- if a safeguard facility is likely to exceed its baseline, the responsible emitter must act, including by purchasing and surrendering Australian Carbon Credit Units (ACCUs) to offset excess emissions; and
- penalties for non-compliance.

As mentioned previously, for the Crux development drilling activities, the MODU Contractor has overall operational control, therefore the emissions are the contractor's Scope 1 (or Scope 2) emissions and Shell's Scope 3 emissions. It is Shell's responsibility to ensure the MODU Contractor complies with the contemporary requirements as defined under the NGER Act and associated Safeguard Mechanism (including any future amendments or changes in law), such as:

- Complete and submit annual NGER reports for the Kyoto Protocol listed (or applicable post-Kyoto agreement at the time of operations) GHG emissions on a CO_2 equivalency basis (as defined in Section 9 of the NGER Act and NGER Regulations 2008) by fuel type, and the relevant requirements of the NGER (Safeguard Mechanism) Rule 2015
- If the Safeguard Mechanism baseline for Crux is exceeded, follow requirements outlined under the Safeguard Mechanism. This may require Shell to purchase and surrender ACCUs.

Internal and external context

Shell Australia, as part of the wider Shell Group, is playing a role in working towards larger, group-level ambitions to be a net zero emissions energy business[25] by 2050, and sooner if that is possible, in step with society and our customers.

The context for the Shell Group ambition was the recognition that for society to achieve a 1.5 degrees Celsius future in line with the Paris Agreement, the world is likely to need to stop adding to the stock of GHG in the atmosphere – a state known as net-zero emissions – by around 2060. But those who can move faster, must move faster – advanced parts of the world are likely to need to reach that point by 2050.

Shell Group currently proposes to work towards this ambition in three ways, in step with society:

[24] *Explanatory Statement, NGER (Safeguard Mechanism) Rule 2015*

[25] *As of the date of this document Shell Group's operating plans and budgets do not reflect Shell Group's Net-Zero Emissions ambition. Shell Group's aim is that, in the future, its operating plans and budgets will change to reflect this movement towards its new Net-Zero Emissions ambition.*

- an ambition to be net zero on all the emissions from the manufacture of all its products (scope one and two) by 2050 at the latest;
- accelerating Shell Group's Net Carbon Footprint ambition to be in step with society's aim to limit the average temperature rise to 1.5 degrees Celsius in line with the goals of the Paris Agreement on Climate Change; and
- aiming to help its customers decarbonise. That means working with customers to address the emissions which are produced when they use the fuels they buy from Shell Group. That effort includes working with broad coalitions of businesses, governments and other parties, sector by sector, to identify and enable decarbonisation pathways for each sector.

Shell Group's aim is that, in the future, its operating plans will change to reflect this net zero ambition.

Examples of current Shell Group-level initiatives aimed at addressing uncertainty and contributing to society achieving the goals of the Paris Agreement targets are:

- Unconditional three-year target (to 2022) to reduce its Net Carbon Footprint[26] against the 2016 baseline by 3-4% (Shell 2023), linked to remuneration for more than 16,500 staff. It is intended that this target setting will be done annually, with each year's target covering a three-year period
- Continued growth of the New Energies business, having already invested in a range of low-carbon technologies, from biofuels, hydrogen and wind power, to electric vehicle charging and smart energy storage solutions
- Monitoring and reporting on Shell Group performance. Every five years, the Shell Group proposes to assess collective progress toward meeting the Paris Agreement's long-term goal informed by the agreement's five-yearly "global stocktake". Shell Group will review its ambition based on this assessment of progress, revised scenarios, and nationally determined contributions. Inherent in this review will be an appraisal of developments in technology and policy. The first five-year review is currently anticipated to take place after 2021
- Developing scenarios. Shell Group has been developing possible visions of the future since the 1970s. Shell Scenarios[27] ask, "what if?" questions encouraging leaders to consider events that may only be remote possibilities and stretch their thinking. These scenarios also help governments, academia and business in understanding possibilities and uncertainties ahead. For example, Shell has built a scenario looking at what the European Union (EU) might do to decarbonise energy in the next 30 years. It explores a possible, but highly demanding pathway to help achieve a climate-neutral EU by 2050 – including deployment of clean technologies and shifting choices to support a green economy.

Shell Group's business plans will change over time in step with society's progress towards meeting the Paris Agreement. Further information and examples of how the Shell Group is playing a role in the energy transition is available on the website (www.shell.com).

[26] Shell Group's "Net Carbon Footprint", includes Shell Group's carbon emissions from the production of its energy products, its suppliers' carbon emissions in supplying energy for that production and its customers' carbon emissions associated with their use of the energy products it sells. Shell Group only controls its own emissions. The use of the term "Net Carbon Footprint" is for convenience only and not intended to suggest these emissions are those of Shell Group or its subsidiaries.

[27] These scenarios are a part of an ongoing process used in Shell Group for over 40 years to challenge executives' perspectives on the future business environment. They are designed to stretch management to consider even events that may only be remotely possible. Scenarios, therefore, are not intended to be predictions of likely future events or outcomes.

Shell Australia, as Operator of Crux, is playing a role in working towards the larger group-level ambitions, for example by:

- setting performance outcomes which result in GHG reduction between 2022 and 2025 (see section 9.12.6);
- providing natural gas to customers to help them lower their own emissions by displacing other higher carbon intensity energy sources; and
- developing an energy business for commercial and retail customers to provide low carbon energy options to customers.

Shell's ongoing consultation program will consider statements and claims made by stakeholders when undertaking the assessment of impacts and risks. Shell has also considered the internal context, including Shell's environmental policy and corporate requirements (as further outlined in Section 10.1). The environmental performance outcomes, and the controls which will be implemented, are consistent with the outcomes from stakeholder consultation for the Crux development drilling activity and Shell's internal requirements.

Acceptability Summary

As outlined above, the acceptability of the impacts and risks from GHG emissions from the Crux development drilling activity have been considered and found to be acceptable in the context of:

- defined acceptable level of GHG emissions set for Crux development drilling activity
- the principles of ESD
- relevant requirements
- significant impacts to MNES; and
- internal and external context.

9.12.6 Environment Performance Outcome

Environment Performance Outcome	Measurement Criteria
Atmospheric emissions associated with the project will be consistent with national and international mechanisms for the management of GHG emissions for the life of the project.	Implementation records of the GHGEMP.

9.13 Waste Management

9.13.1 Aspect Context

The Crux development drilling activity will result in the generation of a variety of hazardous and non-hazardous wastes. Non-hazardous wastes include domestic and industrial wastes, such as aluminium cans, bottles, paper and cardboard and scrap steel. Hazardous wastes include oil-contaminated materials (e.g. sorbents, filters and rags), chemical containers, paint solvents and containers, light tubes and batteries. Sand and sludges may also be generated during well clean-up operations.

All wastes generated (other than permitted waste discharge streams addressed elsewhere within this EP) are routinely transported to shore for reuse, recycling, treatment or disposal by a licensed waste contractor. Note that any waste management and disposal within international jurisdictions is out of scope of this EP.

The waste management strategy for the Crux project is designed to optimise segregation of waste in the offshore location and to minimise contamination of recovered waste destined for recycling or disposal. All non-hazardous and hazardous solid waste will be managed in accordance with

the relevant Waste Management Procedure and the vessels' Waste Management Plan/Procedure. Waste segregation on vessels is established and maintained through the provision of labelled bins, skips or other appropriate receptacles used to comingle similar waste streams in accordance with their classification to realise efficiencies in storage, transport, treatment, recycling and/or disposal. The disposal of non-hazardous and hazardous wastes will be tracked to confirm they are disposed of at an appropriately licensed waste facility. The management and disposal of any quarantine risk material will be in accordance with relevant requirements of the *Biosecurity Act 2015*.

The management of wastes will not result in any planned impacts to the offshore marine environment given there is no planned release; however, improper storage and handling of wastes may result in accidental losses to the marine environment. These unplanned events may result in impacts to the marine environment. Shell's extensive operational experience indicates most accidental releases of solid wastes to the marine environment are typically small scale and infrequent events. Minor accidental releases of liquid wastes may also occur.

The potential environmental impacts from the accidental loss of solid wastes to the marine environment depends on the nature and amount of the waste, and the sensitivity of the environmental receptors that may be impacted. Some non-hazardous wastes such as paper and cardboard will readily degrade in the marine environment and pose little environmental risk. Other non-hazardous wastes are more persistent in the environment, particularly plastics.

9.13.2 Description and Evaluation of Risks

9.13.2.1 Physical Environment

Improper management of hazardous or non-hazardous wastes and/or accidental release may cause localised contamination of the water through a release of toxins and chemicals, depending on the nature of the discharge, however volumes of the hazardous components are generally low (such as residual paint in cans).

Chemicals may result in acute, toxic effects however, given the dynamic nature of the offshore receiving environment and the small nature and scale of most potential waste spills/releases any such effects will be temporary and highly localised. Modelling of small volumes of hydrocarbons (e.g. Shell, 2010) indicate rapid dilution in the offshore marine environment, with impacts limited to the immediate vicinity of the contamination.

Based on this assessment, the consequence of a change in water quality is a slight effect and the likelihood is unlikely, with an overall risk ranking of Minor.

9.13.2.2 Biological Environment

The unplanned discharge of solid wastes can result in injury or mortality to fauna, either through contamination or physical injury depending on the nature of the waste. Marine fauna, including fish, birds, mammals and 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 injury which may limit feeding/foraging behaviours and therefore can result in mortality.

Plastic non-hazardous waste released into the marine environment can also concentrate toxic chemicals on their surface, including Persistent Organic Pollutants (POPs). POPs occur universally in seawater at very low concentrations; because they are attracted to the hydrophobic plastic surfaces, POPs can concentrate on the surface of plastic debris at concentrations several orders of magnitude higher than that in seawater. If ingested by marine animals, contaminated plastics present a credible route by which the POPs can enter the marine food web.

The Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans (Commonwealth of Australia, 2018) identifies EPBC Act-listed species for which there are scientifically documented adverse impacts resulting from marine debris. Marine turtles and seabirds in particular may be at risk from plastics which may cause entanglement or be mistaken for food (e.g. Commonwealth of Australia, 2018; Commonwealth of

Australia, 2017a) 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). While the threat abatement plan for impacts of marine debris on vertebrate marine life does not list explicit management actions for non-related industries (DEWHA, 2009b), management controls will reduce the risk of unplanned discharge of solid waste.

The release of hazardous waste to the marine environment has the potential to cause toxic effects to biota in the water and sediment. However, given the anticipated, rapid dilution of hazardous spills, algae and marine fauna are likely to encounter hazardous spills at toxic concentrations for only short durations, and within a highly localised area. Therefore, population-level effects are unlikely to occur from small spills of hazardous waste.

Impacts to marine species including fish, birds, mammals and reptiles from the unplanned discharge of waste is unlikely given the unlikely 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.

Given the likelihood of a potential impact to marine fauna is considered unlikely and the consequence is slight, the residual risk of unplanned waste discharge is assessed to be Dark Blue.

9.13.3 Risk Assessment Summary

Table 9-59: Waste Evaluation of Residual Risks

Environmental Receptor	Consequence	Likelihood	Residual Risk
Evaluation – Unplanned Risks			
Physical Environment	Slight	C	Dark Blue
Biological Environment	Slight	C	Dark Blue

9.13.4 ALARP Assessment and Environmental Performance Standards

Table 9-60: ALARP Assessment and Environmental Performance Standards

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
Elimination	Eliminate waste generation	N/A	Waste generation cannot be eliminated from the vessels and MODU.	N/A	N/A	N/A
Substitution	N/A	N/A	The use of alternative materials which will produce less wastes is part of the Product Stewardship Standards of Shell. If materials that generate less wastes are identified in the future, these will undergo appropriate assessment.	N/A	N/A	N/A
Engineering	Designated Waste Storage Areas available on vessels and MODU.	Yes	Wastes to be properly stored, secured, adequately contained and transported to avoid the risks of accidental overboard discharge or release, especially during adverse weather.	11.1	Designated waste storage facilities on vessels and MODU are available to enable waste to be secured and stored.	Assurance against waste management facilities, equipment and practices demonstrates that appropriate waste storage facilities have been provided and maintained.
Administrative and Procedural Controls	All discharge of waste from vessels will comply with relevant MARPOL 73/78 and Protection of the Sea (Prevention of Pollution) Act 1983 and subsequent Marine Order requirements (as appropriate for vessel classification).	Yes	The marine assurance system is administered by Shell's Marine team and, amongst other requirements, ensures compliance of contract vessels with MARPOL 73/78 and Protection of the Sea (Prevention of Pollution) Act 1983 and subsequent Marine Order requirements (as appropriate for vessel classification).	11.2	Assurance will be undertaken for MODU and project vessels, including a check for compliance with waste management requirements of MARPOL 73/78 and Protection of the Sea (Prevention of Pollution) Act 1983 and subsequent Marine Order requirements (as appropriate for vessel classification).	Assurance records

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
Administrative and Procedural Controls	Waste management procedures will be implemented for the Crux project that: • provide for waste segregation and storage • safe handling and transport of waste, and • appropriate waste classification and disposal, recycling and landfill.	Yes	Waste management procedures will reduce the likelihood of an unplanned release.	11.3	Hazardous and nonhazardous waste will be managed in accordance with the Waste Management Plan	Records demonstrate compliance against Crux Waste Management Plan.
Administrative and Procedural Controls	Project vessels will maintain a Garbage Management Plan (or equivalent) as relevant to vessel class, type and size.	Yes	Each vessel has its own Garbage Management Plan/Procedure (or equivalent) to manage wastes generated and stored onboard. All wastes that are not permitted for discharge are sent ashore for reuse, treatment, recycling and/or disposal as appropriate. This control measure is in accordance with Protection of the Sea (Prevention of Pollution from Ships) Act 1983 and AMSA Marine Order 95.	11.4	Project vessels (to which MARPOL Annex V / Marine Order 95 applies) have a current Garbage Management Plan (or equivalent).	Garbage Management Plan (or equivalent) is sighted onboard project vessels and are maintained up to date.
				11.5	Vessels to comply with AMSA marine order 94 & 95 (marine pollution prevention – packaged harmful substances/garbage), specifically: No planned disposal of domestic waste, solid wastes or maintenance wastes overboard from vessels (other than planned discharges permitted by this EP).	Garbage record book maintained for project vessels as per Marine Order 95 demonstrates that there were no unpermitted discharges of solid waste as part of the petroleum activities.
Administrative and Procedural Controls	The management and disposal of any quarantine risk material will be in accordance with relevant requirements of the *Biosecurity Act 2015*.	Yes	The management and disposal of any quarantine risk material in accordance with relevant requirements of the *Biosecurity Act 2015* will reduce the risk of impact from	11.6	Any quarantine risk material is managed and disposed of in accordance with relevant requirements of the *Biosecurity Act 2015*.	Records demonstrate that any quarantine risk material is managed and disposed of in

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
			inappropriate disposal to the marine environment.			accordance with relevant requirements of the *Biosecurity Act 2015*.

9.13.5 Acceptability of Impacts

Table 9-61: Acceptability of Impacts – Waste Management

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Are the Impacts of an Acceptable Level?	Acceptability Assessment
Physical Environment	Water Quality	No significant impacts to water quality during the Crux development drilling activity.	Yes	Unplanned discharge of hazardous wastes have the potential to result in reduced water quality at the discharge location. However, small volume discharges will rapidly dilute in the open ocean environment with no significant effect.
Threatened Species and Ecological Communities	Marine mammals Marine reptiles Birds Fish Sharks and rays	No mortality or injury of threatened or migratory MNES fauna from the Crux development drilling activity. Management of aspects of the Crux development drilling activity must be aligned to conservation advice, recovery plans and threat abatement plans published by the DAWE. No significant impacts to threatened or migratory MNES fauna.	Yes	Shell implements MARPOL standards in relation to managing wastes, which reduce the likelihood of wastes being accidentally released to the marine environment. Given the remote location of the Operational Area, any accidental release of wastes to the environment would not be expected to interact with a large number of threatened or migratory MNES species.

The assessment of risks from waste determined the residual risk rating to be Minor. As outlined above, the acceptability of the risks from waste associated with the Crux development drilling activity has been considered in the following context.

Principles of ESD

The risks from waste are consistent with the principles of ESD based on the following points:

- The environmental values/sensitivities within the Operational Area are not expected to be significantly impacted
- The precautionary principle has been applied to the risk assessment.

Relevant Requirements

Management of the risks from waste are consistent with relevant legislative requirements, including:

- MARPOL Annex V as ratified by the Protection of the Sea (Prevention of Pollution from Ships) Act 1983
- Navigation Act 2012 (Cth) and Protection of the Sea (Prevention of Pollution) Act 1983 (Cth):
- Marine Order 94 – Marine pollution prevention – packaged harmful substances
- AMSA Marine Order 95 (marine pollution prevention – garbage).
- Management of impacts and risks are consistent with policies, strategies, guidelines, conservation advice, and recovery plans for threatened species (Table 9-62).

Matters of National Environmental Significance

Threatened and Migratory Species

The evaluation of waste risks indicates significant risks to threatened and migratory species will not credibly result from the waste aspect of the Crux development drilling activity given the limited number of animals that could potentially be impacted in the unlikely event of an unplanned release.

Alignment of the Crux development drilling activity with management plans, recovery plans and conservation advice for threatened and migratory fauna is provided in Table 9-62.

Commonwealth Marine Environment

The impacts and risks from the waste aspect of the Crux development drilling activity on the Commonwealth marine environment will not exceed any of the significant impact criteria provided in Table 8-1.

Table 9-62: Summary of Alignment of the Risks from the Waste Aspect of the Crux Development Drilling Activity with Relevant Requirements for EPBC Threatened Fauna

Matters of National Environmental Significance	MNES Acceptability Considerations (Significant Impact Criteria, EPBC Management Plans/Recovery Plans/Conservation Advices)	Threats Relevant to the Project	Demonstration of Alignment as Relevant to the Project
Threatened and Migratory Species	Conservation advice on sei whale (*Balaenoptera borealis*) (TSSC 2015b)	Pollution (persistent toxic pollutants)	Waste generated during the Crux development drilling activity described in this EP will be managed in accordance with standard maritime requirements, international conventions (MARPOL), relevant Marine Orders and Shell's internal management system requirements. This management reduces the likelihood of the accidental release of hazardous and non-hazardous wastes into the marine environment. The frequency, quantities and nature of wastes that may be accidentally released into the environment are
	Conservation advice on fin whale (*Balaenoptera physalus*) (TSSC 2015c)	Pollution (persistent toxic pollutants)	
	Conservation management plan for the blue whale: A recovery plan under the Environment Protection and Biodiversity Conservation Act 1999 2015–2025	Habitat modification including presence of rigs, marine debris infrastructure and	

Matters of National Environmental Significance	MNES Acceptability Considerations (Significant Impact Criteria, EPBC Management Plans/Recovery Plans/Conservation Advices)	Threats Relevant to the Project	Demonstration of Alignment as Relevant to the Project
	(Commonwealth of Australia 2015a)	acute/chronic chemical discharge	unlikely (C) to result in significant impacts to threatened/migratory species or the Commonwealth Marine Environment (Table 8-1).
	Significant impact guidelines for Critically Endangered, Endangered, Vulnerable and Migratory species (Table 8-1)	Marine debris	
	Recovery Plan for Marine Turtles in Australia 2017– 2027 (Commonwealth of Australia 2017a)	Marine debris	
	Conservation advice on leatherback turtle (*Dermochelys coriacea*) (DEWHA 2008b)	Marine debris	
	Conservation advice on whale shark (Rhincodon typus) (TSSC 2015a)	Marine debris	
Commonwealth Marine Area	Significant Impact Guidelines for the Commonwealth marine environment (Table 8-1)	Marine debris	
	Threat abatement plan for the impacts of marine debris on vertebrate marine life (DEWHA 2009b)	Marine debris	

External Context

There have been no objections or claims raised by Relevant Persons to date around the waste aspect of the Crux development drilling activity. Shell's ongoing consultation program will consider statements and claims made by stakeholders when undertaking future assessment of risks.

Internal Context

Shell has also considered the internal context, including Shell's Waste Strategy and Guidelines, environmental policy and ESHIA requirements. The EPOs, and the controls which will be implemented, are consistent with Shell's internal requirements.

Acceptability Summary

The assessment of and risks from waste determined the residual risk rating to be Minor. As outlined above, the acceptability of the impacts and risks from waste have been considered in the context of:

- the established acceptability criteria for the waste aspect;
- ESD;

- relevant requirements;
- MNES;
- external context (i.e. stakeholder claims); and
- internal context (i.e. Shell requirements).

Shell considers residual risks of Minor or lower to be inherently acceptable if they meet legislative and Shell requirements. The discussion above demonstrates that these requirements have been met in relation to the waste aspect.

Based on the points discussed above, Shell considered the risks from waste associated with the petroleum activities described in this EP to be acceptable.

9.13.6 Environment Performance Outcome

Environment Performance Outcome	Measurement Criteria
No mortality or injury of threatened and migratory MNES species as a result of unplanned waste discharge to sea during the Crux Project petroleum activities.	Fauna observations and incident reports demonstrate no mortality of listed Threatened or Migratory species as a result of unplanned waste discharged from the petroleum activities within the Operational Area.

9.14 Emergency Events

9.14.1 Scenario Context

Two unplanned events (i.e. incidents or emergencies) resulting in the potential for large-scale releases of hydrocarbons were identified for the Crux development drilling activity. These events are:

- Loss of containment (LOC) of well fluids from an uncontrolled, 80 day subsea well blowout after loss of well control
- LOC of fuel as a result of a fuel tank rupture following a vessel collision within the Operational Area (marine diesel).

A worst-case scenario resulting from each of these events has been considered in this environmental risk assessment. Smaller spills have not been discussed specifically as their consequences will be lesser in both magnitude and impact.

9.14.1.1 LOC from a subsea well blowout after loss of well control

The subsea infrastructure associated with the Crux development drilling activity includes five production wells with subsea wellhead systems and blowout preventers, and one drilling template. Shell engineering standards require a range of features which manage the risk of a loss of well control to very low levels. However, there is a possibility that a loss of well control may occur during drilling. While the likelihood is very small, a complete loss of well control (a well blowout) has the potential to release significant volumes of condensate into the environment. Such a release could result in significant environmental damage.

Industry statistics from wells using similar controls that will be applied during drilling of the Crux development wells indicate the likelihood of a well blowout are 2.5×10^{-4} $Q^{-0.3}$ per well (where Q is the mass of spilled hydrocarbons in tonnes (Det Norske Veritas 2011).

These functions are shown in Figure 9-5, and are consistent with observed well blowout data observations in Australia and similar jurisdictions around the world. Most loss of well control incidents do not result in a worst-case well blowout scenario, and typically release relatively small masses of hydrocarbons. The likelihood of a well blowout from development drilling is

considerably lower than a loss of containment from an exploration well, as are the release masses (Figure 9-5).

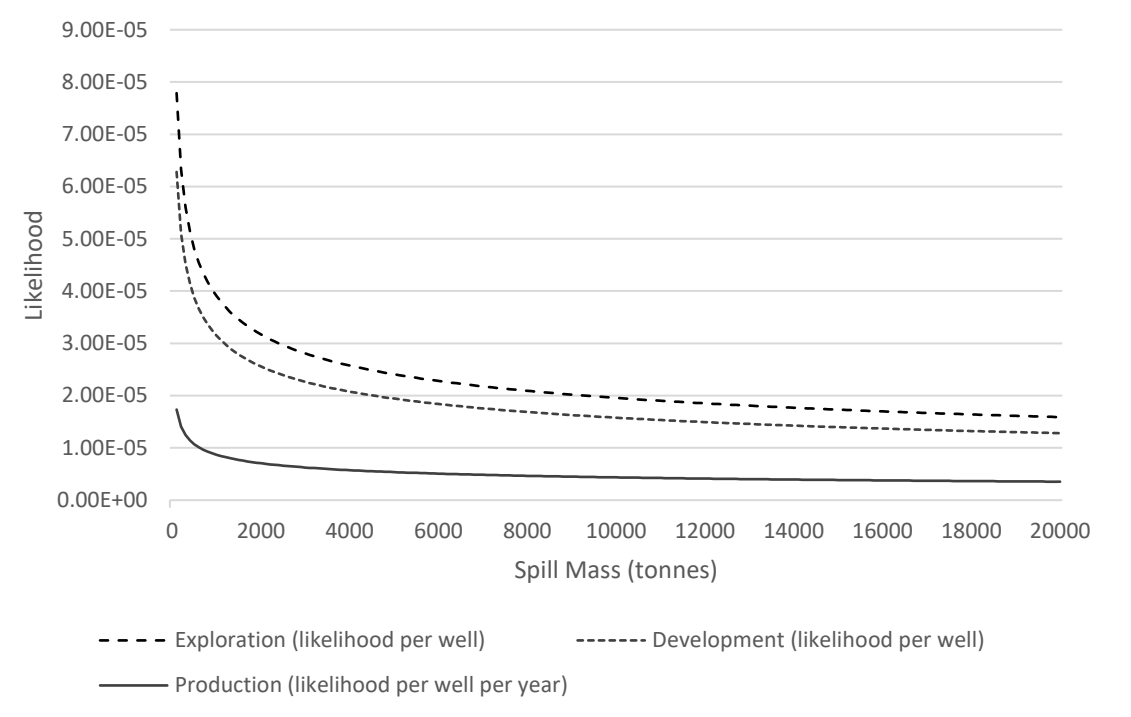


Figure 9-5: Estimated Likelihood and Mass of Well Blowouts for Exploration, Development and Production Wells (after Det Norske Veritas 2011)

Shell has extensive experience with safe and environmentally responsible drilling and reservoir engineering worldwide. Shell has developed a detailed understanding of the Crux field through historical seismic surveys and drilling. The offshore oil and gas industry has improved environmental performance since the Macondo and Montara catastrophes, and Australian regulations require that all environmental risks be managed to a level that is ALARP and acceptable, as demonstrated in this EP. All wells will be drilled and operated in accordance with an accepted WOMP in accordance with the OPGGS Act.

Shell has determined the worst-case credible spill scenario that could occur from drilling of the development wells within the scope of this EP. This scenario is a complete well blowout of a well during drilling. This scenario consists of an 80-day uncontrolled release of 220,000 m^3 of condensate (2,750 m^3 per day). The duration is based on the credible worst-case time required to control the well (either by capping or drilling of a relief well) and the volume is based on the maximum credible rate of release derived from the proposed well design and reservoir characteristics. The release location is at the seabed. While this scenario is very unlikely, using the worst-case credible spill as the basis for the risk assessment provides an environmentally conservative assessment of the potential impacts and risks posed by the Crux development drilling activity. Numerical modelling performed for the OPP has been used to inform the risk assessment in this EP. The modelled volume for the OPP was 206,240 m^3, therefore an additional 15% has been added to the Planning Area derived from the modelling to capture any additional sensitive receptors that could be contacted in the event of a release of the worst-case 220,000 m^3 volume of condensate. Refer to Section 9.14.4 for further information on this worst-case credible spill scenario and associated modelling.

9.14.1.2 LOC from fuel tank rupture following a vessel collision

The Crux development drilling activity will require use of a range of project vessels, including an LCV, AHTS and general support vessels. The nature and scale of the environmental risks and

impacts from a loss of fuel from a vessel varies significantly based on the vessel type and activities. All vessels will be fuelled with marine diesel.

Shell has determined the worst-case credible vessel release is a loss of 390 m^3 of diesel over 1 hour. This scenario was identified as credibly arising from a collision with a large vessel (e.g. bulk carrier). Based on the shipping activity in the region and standard maritime practices, this scenario is considered extremely unlikely. As outlined above in **Loss of Well Control**, this worst-case credible spill scenario is considered to provide an environmentally conservative assessment of potential impacts and risks from a vessel spill.

Smaller volumes of marine diesel oil (MDO) could be spilled during refuelling activities or accidental vessel collision in the Operational Area. These scenarios have not been assessed as they would be within the footprint of the larger spill volumes described above.

9.14.2 Hydrocarbon Characteristics

The physical properties and boiling points of Crux condensate and MDO are presented in Table 9-63 and Table 9-64, respectively.

Table 9-63: Physical Properties of Crux condensate and marine diesel

Physical Properties	Crux Condensate	MDO
Density (kg/m^3)	783.6 (at 15 °C)	829 (at 15° C)
API	49.0	37.6
Dynamic viscosity (cP)	1.052 (at 20 °C)	4.0 at 25° C
Pour point (°C)	9.0	−14
Hydrocarbon property category	Group I	Group II
Hydrocarbon persistence classification	Non-persistent	Light-persistent oil

Table 9-64: Boiling-point Breakdown of Crux condensate and marine diesel

Oil Type	Volatiles (%)	Semi-Volatiles (%)	Low Volatiles (%)	Residual (%)	Aromatics (%)
Boiling point (°C)	< 180 C4 to C10	180–265 C11 to C15	265–380 C16 to C20	> 380 > C20	Of whole oil < 380 BP
	Non-persistent			*Persistent*	-
Crux condensate	54.8	22.8	14.6	7. 8	12.3
MDO	6	34.6	54.4	5	

Crux Condensate

Crux condensate is a light oil (classified as a Group I oil) with a density of 784 kg/m^3 and a very low viscosity (Table 9-63). The pour point of the whole condensate (9 °C) means that the unweathered hydrocarbon will remain in a liquid state over the annual temperature range observed in northern Australian waters.

The condensate 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 54.8% of the hydrocarbon mass should evaporate within 12 hours (BP < 180 °C); a further

22.8% should evaporate within 24 hours (180 °C < BP < 265 °C); and a further 14.6% should evaporate over several days (265 °C < BP < 380 °C).

The residual fraction is inert wax that will not evaporate and could persist at low concentrations for an extended period. This is particularly evident in oil spill modelling results which show a large spatial coverage. Within one or two months, this residual will degrade completely through the action of biodegradation.

Selective evaporation of the lower boiling-point components will lead to a shift in the physical properties of the remaining Crux condensate, including an increase in the viscosity and pour point. Although removal of the most volatile compounds through evaporation and dissolution will result in an increase in density of the remaining Crux condensate, the mixture will not solidify or sink as it weathers.

The whole condensate has low asphaltene content (<0.05%), indicating a low tendency for the hydrocarbon to take up water to form water-in-oil emulsion over the weathering cycle.

Soluble aromatic hydrocarbons contribute approximately 12.3% by mass of the whole condensate, with a large proportion (9.8%) in the C4-C10 range of hydrocarbons. These compounds will evaporate rapidly, reducing the potential for dissolution of a proportion of them into the water.

A series of model weather tests were conducted to illustrate the potential behaviour of Crux condensate when exposed to idealised environmental conditions. The predicted weathering of hydrocarbons when simulations are conducted under constant wind speeds of 5, 10 and 15 knots is shown in Figure 9-6. Increases in wind speed are observed to have a minimal effect on levels of entrainment because the subsurface discharge characteristics dictate that the vast majority of the oil mass will remain entrained after release, as opposed to being present on the sea surface.

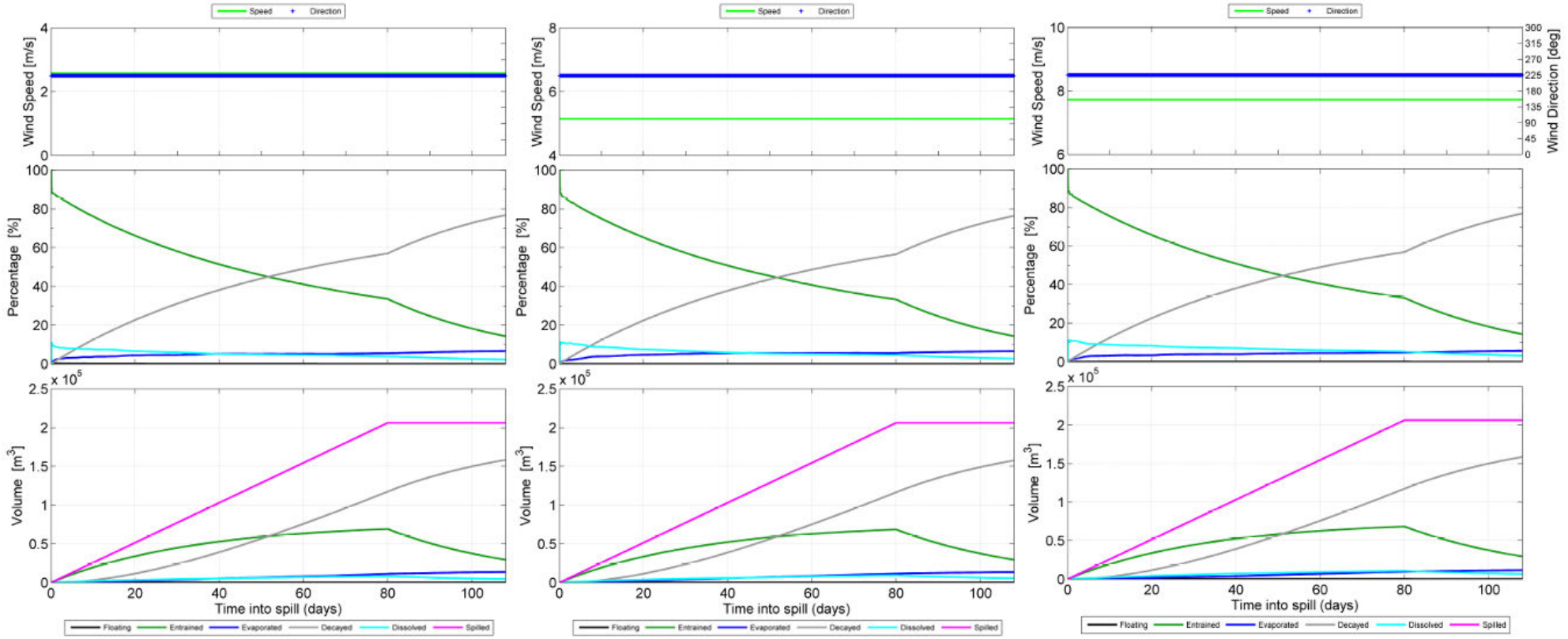


Figure 9-6: Mass balance plot representing, as proportion (middle row) and volume (bottom row), the weathering of an 80-day subsurface release of Crux condensate at a Development Well (Scenario 1) subject to constant wind speeds (top row) of 5 knots (left column), 10 knots (middle column) and 15 knots (right column).

Marine Diesel Oil

MDO is a medium-grade oil (classified as a Group II oil) with a density of 829 kg/m^3 and a very low viscosity (Table 9-64). Because it is less dense than sea water and has low viscosity, it will spread widely on the sea surface to form a thin film. It is highly volatile and will start evaporating as soon as it is exposed to air. The rate of evaporation depends on various factors such as temperature, wind speed, and humidity. It also has a strong tendency to disperse vertically into the upper water column, due to wind - wave action. This can limit evaporation and cause the MDO to persist longer, either in a dispersed or dissolved state. Any dissolved fractions can be harmful to marine life. The persistent fraction, although small, means that it could persist at low concentrations for an extended period. This is particularly evident in oil spill modelling results which show a large spatial coverage. Within one or two months, this residual will degrade completely through the action of naturally occurring microbes.

9.14.3 Hydrocarbon Impact Thresholds

Spilled hydrocarbons can exist as a range of phases in the marine environment. These are floating, entrained, dissolved and accumulated (i.e. stranded onshore) hydrocarbons. Each of these phases, can interact with the environment in diverse ways due to different pathways to receptors and impact mechanisms.

Impact thresholds for floating, entrained, dissolved and accumulated hydrocarbons were applied to the hydrocarbon spill modelling studies and used to inform the assessment of potential impacts and risks. The thresholds applied align with the NOPSEMA Oil Spill Modelling Guidance Bulletin (NOPSEMA, 2019). Three thresholds were applied to each phase i.e. low exposure, moderate exposure and high exposure. These are described in Table 9-65 and are used to delineate the extent (outer edge) of the low, moderate or high exposure zones for each hydrocarbon type. The low, moderate and high exposure zones represent bands/ ranges of hydrocarbon concentrations, grouped on the basis of scientific knowledge of potential impacts of the various hydrocarbon phases on environmental receptors.

The low thresholds have been used to delineate the Environment that May be Affected (Planning Area) by the Crux development drilling activity as presented in Section 7.

The moderate and high thresholds define the Adverse Exposure Zone within which ecological impacts may be expected to occur.

Table 9-65: Hydrocarbon Exposure Zones and Thresholds

Exposure Zone	Threshold	Justification
Floating Oil		
Exposure Zone Low (1–10 g/m^2)	1 g/m^2	The 1 g/m^2 threshold represents the practical limit of observing hydrocarbon sheens in the marine environment and therefore has been used to define the outer boundary of the low exposure zone. This threshold is considered below levels which would cause environmental harm and is more indicative of the areas perceived to be affected due to its visibility on the sea-surface. This exposure zone represents the area contacted by the spill and defines the conservative outer boundary of the Planning Area from a hydrocarbon spill.
Adverse exposure zone Moderate (10–25 g/m^2)	10 g/m^2	Ecological impact has been estimated to occur at 10 g/m^2 as this level of oiling has been observed to mortally impact birds and other wildlife associated with the water surface (French et al. 1996; French 2000). Contact within this exposure zone may result in impacts to the marine environment.
Adverse exposure zone High (> 25 g/m^2)	25 g/m^2	The 25 g/m^2 threshold is above the minimum threshold observed to cause ecological impact. Studies have indicated that a concentration of surface oil 25 g/m^2 or greater would be harmful for the majority of birds that contact the hydrocarbon at this concentration (Koops et al. 2004; Scholten et al. 1996).

Exposure Zone	Threshold	Justification
		Exposure above this threshold is used to define the high exposure zone.
Accumulated (Shoreline) Oil		
Exposure zone Low (10–100 g/m^2)	10 g/m^2	A threshold of 10 g/m^2 has been defined as the zone of potential 'low' exposure. This exposure zone represents the area visibly contacted by the spill and defines the outer boundary of the Planning Area from a hydrocarbon spill.
Adverse exposure zone Moderate (100–1,000 g/m^2)	100 g/m^2	French et al. (1996) and French-McCay (2009) have defined an oil exposure threshold of 100 g/m^2 for shorebirds and wildlife (furbearing aquatic mammals and marine reptiles) on or along the shore, which is based on studies for sub-lethal and lethal impacts. The 100 g/m^2 threshold has been used in previous environmental risk assessment studies (French et al. 2011; French-McCay 2004; French-McCay 2003; French McCay et al. 2012; National Oceanic and Atmospheric Administration 2013). This threshold is also recommended in AMSA's foreshore assessment guide as the acceptable minimum thickness that does not inhibit the potential for recovery and below which is best remediated by natural coastal processes alone (AMSA 2015b). Thresholds of 100 g/m^2 and 1,000 g/m^2 will define the zones of potential 'moderate' and 'high' exposure on shorelines, respectively. Contact within these exposure zones may result in impacts to the marine environment and coastal areas.
Adverse exposure zone High (> 1,000 g/m^2)	1,000 g/m^2	
Entrained Hydrocarbons		
Exposure zone Low exposure (10–100 parts per billion [ppb])	10 ppb	The 10 ppb threshold represents the lowest concentration and corresponds generally with the lowest trigger levels for chronic exposure for entrained hydrocarbons in the ANZECC & ARMCANZ (2000) water quality guidelines. Due to the requirement for relatively long exposure times (> 24 hours) for these concentrations to have an observable impact, they are likely to be more meaningful for juvenile fish, larvae and planktonic organisms that might be entrained (or otherwise moving) within the entrained oil plumes, or when entrained hydrocarbons adhere to organisms or entrained oil is trapped against a shoreline for periods of several days or more. This exposure zone is not considered to be of significant biological impact. This exposure zone represents the area contacted by the spill and conservatively defines the outer boundary of the Planning Area from a hydrocarbon spill.
Adverse exposure zone Moderate (100 ppb–500 ppb)	100 ppb	The 100 ppb threshold is considered conservative in terms of potential for toxic effects leading to mortality for sensitive mature individuals and early life stages of species. This threshold has been defined to indicate a potential zone of acute exposure, which is more meaningful over shorter exposure durations. The 100 ppb threshold has been selected to define the moderate exposure zone. Contact within this exposure zone may result in impacts to the marine environment.
Adverse exposure zone High (> 500 ppb)	500 ppb	The 500 ppb threshold is considered a conservative high exposure level in terms of potential for toxic effects leading to mortality for more tolerant species or habitats. This threshold has been defined to indicate a potential zone of acute exposure, which is more meaningful over shorter exposure durations. The 500 ppb threshold has been selected to define the high exposure zone.

Exposure Zone	Threshold	Justification
Dissolved Aromatic Hydrocarbons		
Exposure zone Low (6 ppb–50 ppb)	6 ppb	The threshold value for species toxicity in the water column is based on global data from French et al. (1999) and French-McCay (2003, 2002), which show that species sensitivity (fish and invertebrates) to dissolved aromatics exposure > 4 days (96-hour LC50) under different environmental conditions varied from 6 ppb–400 ppb, with an average of 50 ppb. This range covered 95% of aquatic organisms tested, which included species during sensitive life stages (eggs and larvae). Based on scientific literature, a minimum threshold of 6 ppb is used to define the low exposure zones (Clark 1984; Engelhardt 1983; Geraci and St Aubin 1990; Jenssen 1994; Tsvetnenko 1998). This exposure zone is not considered to be of significant biological impact and conservatively defines the outer boundary of the Planning Area from a hydrocarbon spill.
Adverse exposure zone Moderate (50 ppb–400 ppb)	50 ppb	A conservative threshold of 50 ppb was chosen as it is more likely to be indicative of potentially harmful exposure to fixed habitats over short exposure durations (French-McCay 2002). French-McCay (2002) indicates that an average 96-hour LC50 of 50 ppb could serve as an acute lethal threshold to 5% of biota. The 50 ppb threshold has been selected to define the moderate exposure zone. Contact within this exposure zone may result in impacts to the marine environment.
Adverse exposure zone High (> 400 ppb)	400 ppb	A conservative threshold of 400 ppb was chosen as it is more likely to be indicative of potentially harmful exposure to fixed habitats over short exposure durations (French-McCay 2002). French-McCay (2002) indicates that an average 96-hour LC50 of 400 ppb could serve as an acute lethal threshold to 50% of biota. The 400 ppb threshold has been selected to define the high exposure zone.

9.14.4 Loss of Well Control

Shell commissioned oil spill modelling for a number of worst case credible spill scenarios (RPS 2018). Model parameters for the loss of well control scenario are summarised in 9.14.1.1.

Table 9-66 Summary of Modelled Hydrocarbon Spill Scenario

Modelled LOC Scenario	Latitude	Longitude	Depth (m)	Hydrocarbon Type	Release Duration	Total Volume (m^3)
Subsurface blowout after loss of well control	12° 57′ 52.46″	124° 26′ 33.21″	168.5	Condensate	80 days	206,240

Oil Spill Model and Response System (OILMAP)-Deep model was used for nearfield modelling and the Spill Impact Mapping and Assessment Program (SIMAP) model used for the far field effects. Simulations were run for 108 days. A stochastic modelling approach was adopted, where the release was repeatedly simulated using different metocean conditions. A total of 300 deterministic model runs were undertaken (100 during summer, 100 during winter and 100 during transitional season). The aggregated deterministic results (300 deterministic runs for each release scenario) constitute the stochastic data set, from which probabilities of contact above thresholds are determined. Shell considers all environmental receptors identified as potentially being contacted, regardless of the likelihood. This will identify more receptors than would be impacted by a given release, and hence it is environmentally conservative.

9.14.4.1 Deterministic Result

A single representative deterministic run was selected from the stochastic set based on the maximum oil volume accumulated across all shoreline receptors. Figure 9-7 presents the predicted evolution of the spill.

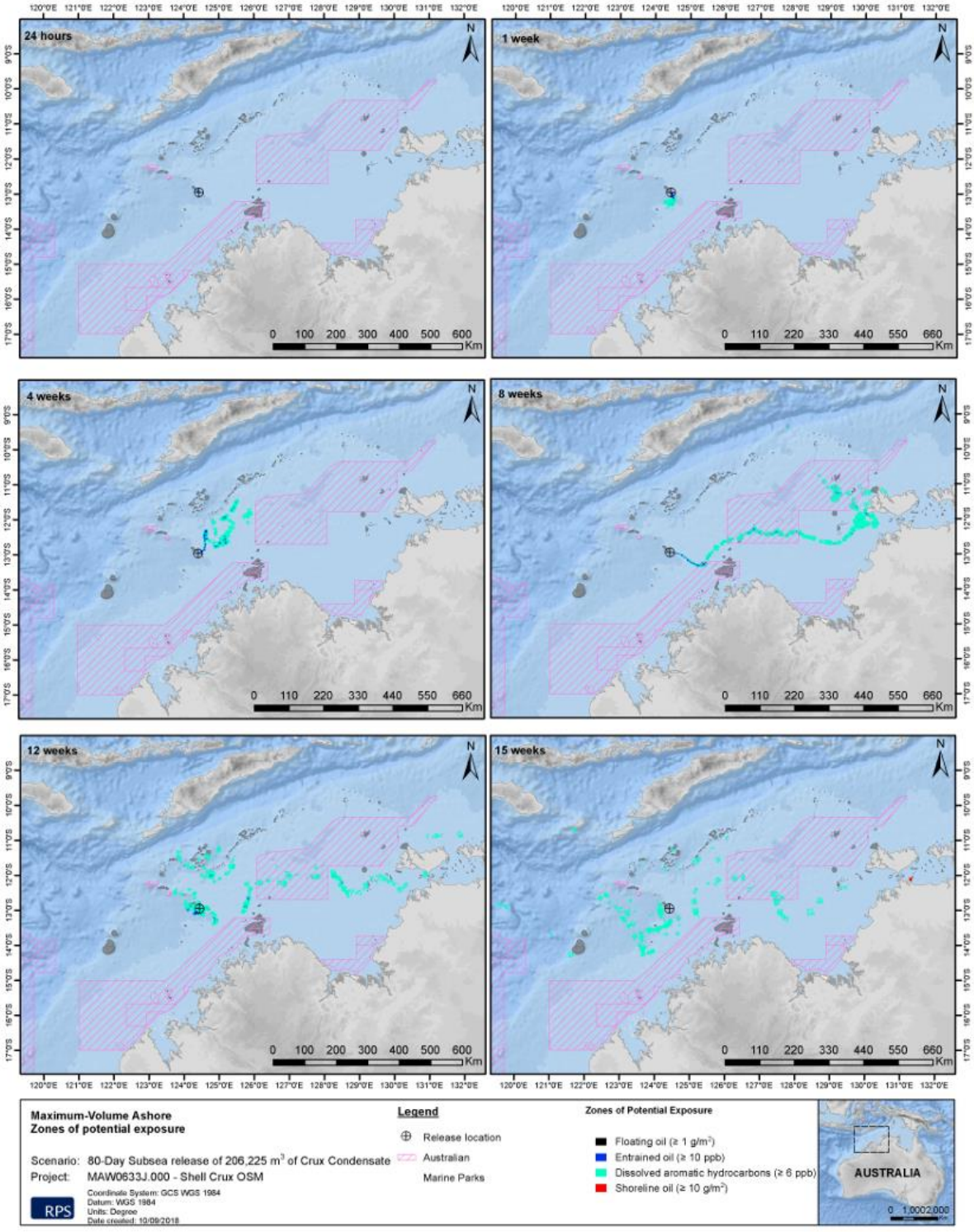


Figure 9-7: Hydrocarbons | Blowout Scenario | Deterministic Outcomes.

Note: Time-varying areal extent of potential exposure at defined floating oil, entrained oil, dissolved aromatic hydrocarbon and shoreline oil threshold concentrations resulting from an 80-day subsurface release of Crux condensate at a development well. Replicate simulation with maximum volume ashore.

A loss of well control will generate a plume of buoyant gas and condensate, which will rise rapidly through the water column (RPS 2018b). The resulting turbulent mixing of the gas and condensate is predicted to entrain liquid hydrocarbons in the water column. Modelling results indicated these liquid hydrocarbon drops will be very small (< 30 µm) and rise very slowly towards the sea surface (approximately 4.3 m per day). The droplets are expected to remain entrained in near-surface waters due to wind and wave action, although may form thin floating slicks under sufficiently calm conditions (RPS 2018b).

Floating oil mainly drifted southwest and was removed rapidly form the sea surface either through evaporation or dispersion back into the water column. Floating oil for the low exposure threshold was limited to within 15 km of the release location, with the moderate and high thresholds not exceeded.

Entrained oil and dissolved aromatic hydrocarbons were transported east and northeast of the release location. After 8 weeks, low, moderate and high entrained hydrocarbons had travelled up to 1,155 km, 1,048 km and 890 km, respectively, from the release location. Low, moderate and high dissolved aromatic hydrocarbons were observed up to 1,071 km, 597 km and 364 km, respectively, from the release location. Approximately 9.3 m^3 of hydrocarbon accumulated on the shoreline within and around the Djukbinj National Park in the NT.

Aromatic concentration will be reduced relatively rapidly through biodegradation leaving the more persistent waxy fraction, which will take longer to biodegrade.

9.14.4.2 Stochastic Result

Metocean conditions significantly affect the distribution of entrained and dissolved hydrocarbons. The strong mesoscale flow associated with the ITF during winter months moved the majority of dissolved and entrained hydrocarbons towards the south-west . Weakening of the ITF during transitional and summer months lead to increased probabilities of entrained and dissolved hydrocarbons moving east from the release location.

Key results from the modelling for a worst-case loss of well control showed:

- Floating hydrocarbons were relatively localised to the release location due to the seabed release and the resulting entrainment of the condensate as very fine drops with low rising velocity. Modelling results indicated floating hydrocarbons would only occur above the low exposure threshold; no exceedance of the moderate or high floating hydrocarbon thresholds were predicted. The maximum distance to the outer extent of the low floating oil threshold is predicted to vary between seasons, extending to within 577 km, 387 km and 93 km during transitional, summer and winter conditions, respectively. Floating oil concentrations above the moderate threshold occurred only during the transitional season. The high floating oil threshold was not exceeded during any season.
- **Accumulation of Shoreline hydrocarbons** is unlikely to occur, with potential accumulation predicted to occur at isolated locations along the NT coastline during the summer season. The modelling predicts less than 1% probability of hydrocarbons accumulating at any shoreline at or above the moderate 100 g/m^2 threshold. The maximum local accumulated concentration on shorelines of 473 g/m^2 forecast at Melville Island. Given the worst-case release volume of condensate for the Crux development drilling activity (220,000 m^3) is slightly larger than the 206,240 m^3 modelled (~7% increase), additional shoreline locations may be contacted by hydrocarbons above the moderate threshold. However, this difference is not expected to be significant. This additional potential for shoreline contact has been taken into consideration in oil spill response planning presented in the Oil Pollution Emergency Plan (OPEP).
- **Entrained hydrocarbon** were predicted to extend in all directions. The maximum distance to the outer extent of the low entrained oil threshold is predicted to vary between seasons, extending up to 3,292 km, 2,589 km and 2,170 km during winter, transitional and summer conditions, respectively. The maximum extent is forecast to be

slightly reduced for the moderate (100 ppb) and high (≥ 500 ppb) thresholds for all the seasons. Most of the spilled liquid hydrocarbons from a worst-case loss of well control will exist in the entrained phase. The extent of entrained oil based on the moderate threshold is presented in Figure 9-8.

- The modelled entrained phase was therefore used to define the Planning Area. As described above, a 15% buffer has been added to the outer extent of the low entrained threshold to capture any additional sensitive receptors that could be contacted in the event of a release of the worst-case 220,000 m^3 volume of condensate, which is slightly larger than the 206,240 m^3 modelled (refer to Figure 9-8). This resulted in an additional extent of ~50 km in all directions. Any additional sensitivities contacted by the extended Planning Area have been outlined in Section 7.
- **Dissolved aromatic hydrocarbons** were predicted to follow a similar distribution to entrained hydrocarbons and extend in all directions. The maximum distance to the outer extent of the dissolved aromatic hydrocarbon low threshold (6 ppb) is predicted to vary between seasons, extending up to 3,280 km, 2,364 km and 1,764 km during winter, transitional and summer conditions, respectively. The maximum extent is forecast to be slightly reduced for the moderate (50 ppb) and high (≥ 400 ppb) thresholds for all the seasons. The extent of dissolved aromatic hydrocarbons based on the moderate threshold is presented in Figure 9-8.

Note that these model results are highly conservative as the thresholds applied are based on ecotoxicity tests, which are undertaken over typically 48 to 96 hours, whilst the modelling results use “instantaneous exposure”. As detailed in Appendix A, if duration of exposure was taken into consideration to match the thresholds, the Planning Area would be significantly smaller.

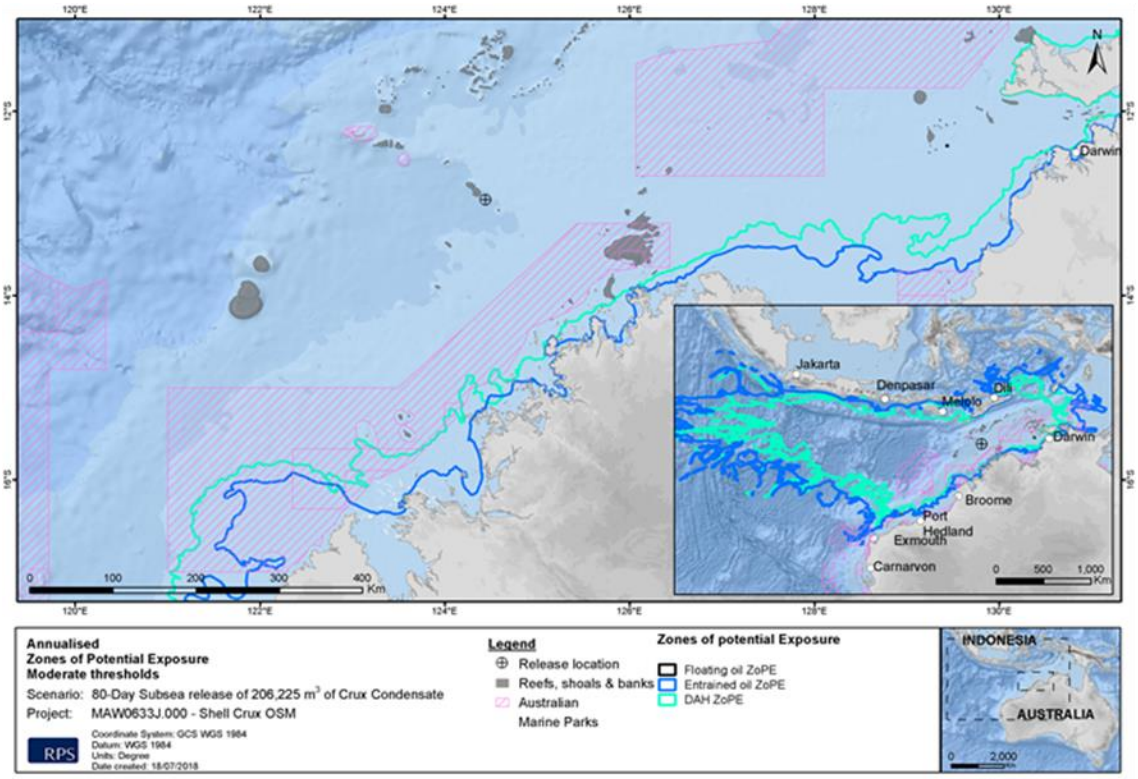


Figure 9-8: Predicted Annualised Moderate Exposure Threshold for Floating, Entrained and Dissolved Hydrocarbons from an 80-day Subsurface Release of Crux Condensate at a Development Well

9.14.5 Vessel collision

For the vessel spill, WebGNONE (https://gnome.orr.noaa.gov/) was used to predict the behaviour of MDO when spilt to sea. Figure 9-9 shows the oil budget for an instantaneous loss of 390 m^3 of diesel with a 10-knot wind. After 12 hour, 289 m^3 is removed from the sea surface through evaporation, 99 m^3 disperses naturally into the water column, a small amount is lost to sedimentation, leaving none left on the sea surface.

The NERA Reference Case (NERA, 2018) on Consequence Analysis for an Accidental Release of Diesel was used to provide a maximum extent for the Planning Area. This analyses results from numerous MDO simulations to derive a worst-case Planning Area of 150 km radius. Details of the modelling studies can be found in the reference case. This distance falls well within the Planning Area for the loss of well control.

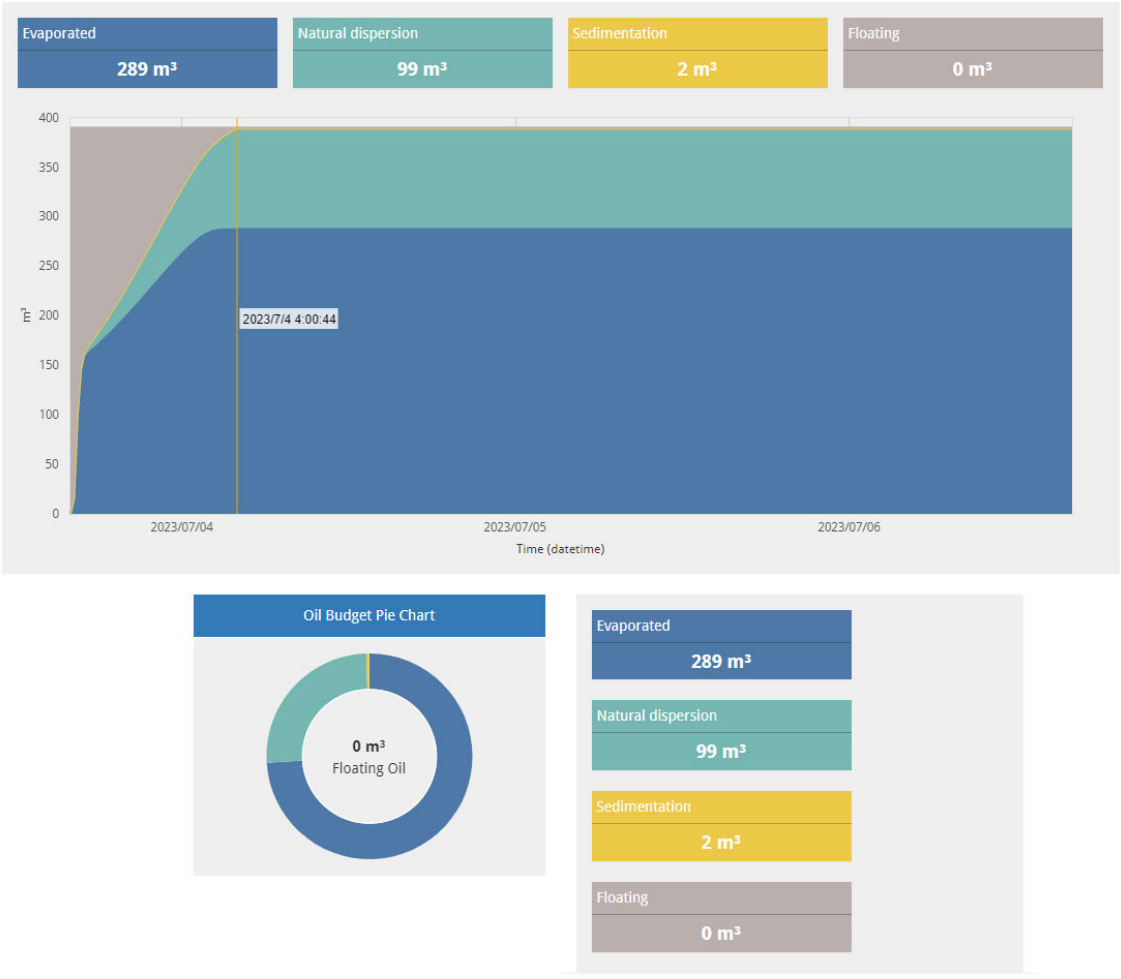


Figure 9-9: WebGNONE oil spill budget for 390 m^3 instantaneous loss of containment of diesel with wind at 10 knots.

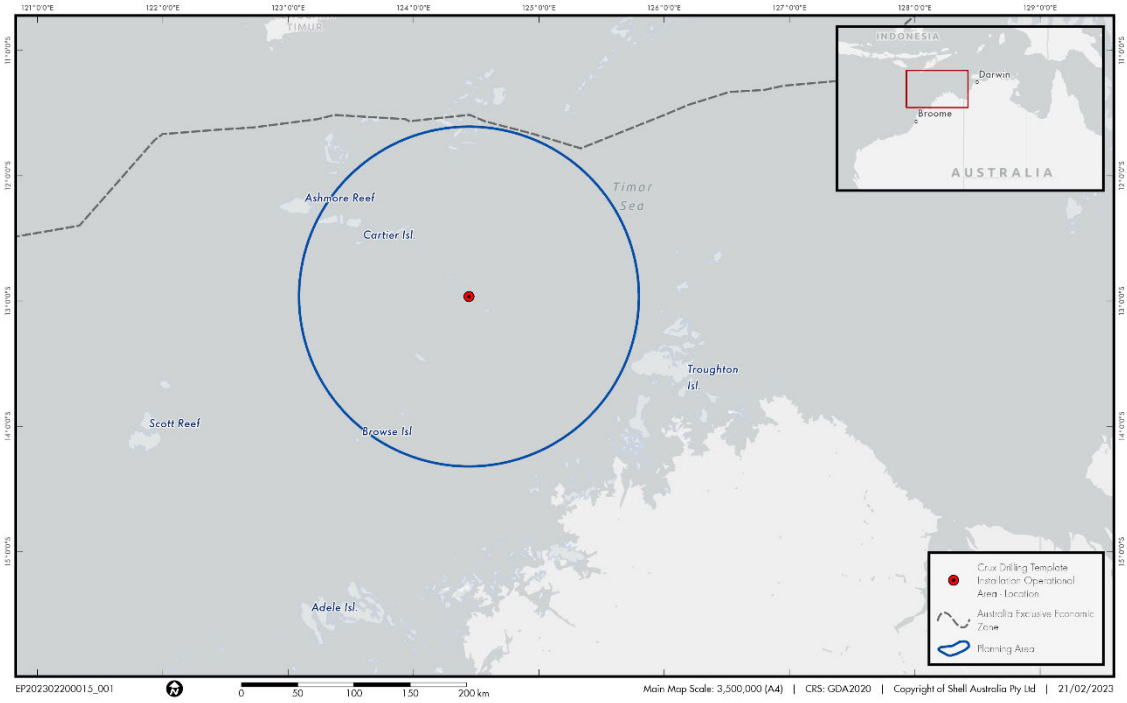


Figure 9-10: Illustration of the Planning Area from the NERA Reference Case (700 m³ diesel spill) applied to the Crux location.

9.14.6 Description and Evaluation of Impacts and Risks

Table 9-67 lists the sensitive receptors that, based on the modelling, are predicted to contact oil at concentrations at or above moderate exposure threshold for the two modelled LOC scenarios. It is noted that an additional 15% buffer was added to the Planning Area presented in Section 7 to account for the slightly larger spill volume that could result from a loss of well control (LOWC) compared to the modelled scenario, as described above. Receptors within this additional 15% buffer have been considered in the evaluation of impacts and risks below.

Table 9-67: Summary of Hydrocarbon Spill Modelling Results for Sensitive Receptors with a ≥50% Likelihood of Contact above Moderate or High Exposure Thresholds

Receptor Category	Scenario: Loss of Well Control				Scenario: Vessel Collision (MDO)			
	Hydrocarbon Phase Above Adverse Exposure Threshold				Hydrocarbon Phase Above Adverse Exposure Threshold			
	Floating	Accumulated	Entrained	Dissolved	Floating	Accumulated	Entrained	Dissolved
Shoals and Banks								
Barracouta Shoals			✓	✓				
Deep Shoal 1			✓					
Echuca Shoal			✓					
Eugene McDermott Shoal			✓	✓				

Receptor Category	Scenario: Loss of Well Control				Scenario: Vessel Collision (MDO)			
	Hydrocarbon Phase Above Adverse Exposure Threshold				Hydrocarbon Phase Above Adverse Exposure Threshold			
	Floating	Accumulated	Entrained	Dissolved	Floating	Accumulated	Entrained	Dissolved
Gale Bank			✓					
Goeree Shoal			✓	✓				
Heywood Shoal			✓	✓				
Johnson Bank			✓					
Vulcan Shoals			✓	✓				
Woodbine Bank			✓	✓				
Reefs and Offshore Islands								
Browse Island			✓					
Seringapatam Reef			✓					
Scott Reef North			✓					
Scott Reef South			✓					
Sandy Islet			✓					
Mainland Coastlines								
No coastlines with likelihood of contact > 50%								
KEFs								
Ancient coastline at 125 m depth contour			✓	✓			✓	✓
Ashmore Reef and Cartier Island and surrounding Commonwealth waters			✓	✓			✓	✓
Carbonate bank and terrace system of Sahul Shelf			✓	✓			✓	✓
Continental slope demersal fish communities			✓	✓			✓	✓
Seringapatam Reef and Commonwealth waters in the Scott Reef Complex			✓					
BIAs								
Flatback turtle			✓	✓				
Green turtle			✓	✓				
Hawksbill turtle			✓					
Loggerhead turtle			✓	✓				
Olive ridley turtle			✓	✓				

Receptor Category	Scenario: Loss of Well Control				Scenario: Vessel Collision (MDO)			
	Hydrocarbon Phase Above Adverse Exposure Threshold				Hydrocarbon Phase Above Adverse Exposure Threshold			
	Floating	Accumulated	Entrained	Dissolved	Floating	Accumulated	Entrained	Dissolved
Habitat Critical to the Survival of a Species								
Green turtle			✓	✓				
Heritage								
Ashmore Reef National Nature Reserve			✓	✓				
Scott Reef and Surrounds – Commonwealth Area			✓					
Ramsar Wetlands								
Ashmore Reef National Nature Reserve			✓	✓				
Marine Parks								
Ashmore Reef AMP			✓				✓	✓
Cartier Island AMP			✓	✓			✓	✓
Kimberley AMP			✓				✓	✓
Oceanic Shoals AMP			✓	✓				
Fisheries								
Northern Prawn Fishery			✓					
NWSTF			✓	✓			✓	✓
Southern Bluefin Tuna Fishery			✓	✓	✓		✓	✓
Western Skipjack Fishery			✓	✓	✓		✓	✓
Western Tuna and Billfish Fishery			✓	✓	✓		✓	✓
Defence								
No defence areas with likelihood of contact > 50%								
Offshore Petroleum								
Montara Production Platform			✓	✓				
Prelude FLNG			✓	✓				
Indonesia and Timor-Leste Coastlines								
No Indonesian or Timorese coastlines with likelihood of contact > 50%								

9.14.6.1 Physical Environment

Water Quality

Large volume releases of Crux condensate or diesel have the potential to result in increased concentrations of dissolved hydrocarbons, which include BTEX and Polycylic Aromatic Hydrocarbons (PAHs). The proportions will vary depending on the type of hydrocarbon. These low molecular weight compounds are known to be toxic to marine biota (refer to **Ecosystems, Communities and Habitats** and **Threatened Species and Ecological Communities** below for a discussion of these effects). BTEX compounds do not persist in the environment due to their volatility and will diminish once released into the environment. The concentration of BTEX is expected to be highest near the release location and will decline as the spilled hydrocarbon weathers. PAHs are less volatile than BTEX and are expected to persist for longer in the environment.

The decrease in water quality from the worst-case hydrocarbon spills presented above are expected to consist of short-term acute toxic effects to phytoplankton and zooplankton. Planktonic communities are characterised by relatively rapid turnover rates of short-lived biota. The high turnover rate will lead to rapid recovery as the spilled hydrocarbons decay in the environment. Within plankton communities, there is evidence from laboratory studies that some taxonomic groups, particularly zooplankton (e.g. copepods) may be more sensitive to hydrocarbon pollution (Almeda et al. 2013; Jiang et al. 2010). Few reliable studies have shown any impacts of hydrocarbon spills on planktonic communities, with most studies concluding that impacts from hydrocarbon pollution cannot be distinguished from natural variability (Abbriano et al. 2011; Davenport et al. 1982; Varela et al. 2006).

The concentrations of hydrocarbons in the water column will decrease over time once the release has stopped due to processes such as dispersion, dilution, physical and biological degradation, and evaporation. For short duration release scenarios (i.e. diesel from a vessel collision), these processes will begin to reduce the total amount of hydrocarbons in the water column shortly after the release. The worst-case loss of well containment will continue to release fresh hydrocarbons for the duration of the release, and the amount of hydrocarbons will increase until the release is stopped.

Sediment Quality (Subsurface)

Sediment quality is not expected to be significantly affected by any of the worst-case scenarios that release Crux condensate or diesel. Hydrocarbon contaminants (e.g. PAHs) from surface releases are unlikely to reach the seabed due to the water depth and low natural sedimentation rates in the region. Hydrocarbon contaminants from the subsea release (loss of well control) may contaminate sediments by advective transport of the plume that will be formed during the release (Romero et al. 2015). This is considered most likely to occur with the worst-case loss of well containment scenario due to the relatively long duration of the release. Any resulting contamination will be concentrated around, and down-current from, the wellhead. Due to the low density and volatile nature of the hydrocarbon, weathered condensate is unlikely to be deposited to the seabed.

Air Quality

The gas plume from the worst-case loss of well containment scenario will result in a gas cloud upon reaching the surface. This potentially large gas cloud is expected to disperse rapidly in the open, offshore environment.

The formation of a gas cloud poses a significant health and safety risk from the formation of explosive mixtures and asphyxiation.

9.14.6.2 Biological Environment

Benthic Communities

A seabed release of Crux condensate from a loss of well control scenario may result in impacts to water quality and sediments in the vicinity of the release location (refer to sections **Water**

Quality and **Sediment Quality** above). The seabed in the vicinity of the potential release locations is characterised by unconsolidated sediments which host sparse assemblages of filter feeding and deposit feeding organisms. These fauna may be subject to acute and chronic toxic effects from exposure to hydrocarbons, however the extent of the affected habitat is expected to be localised to the vicinity of the release location. Unconsolidated sediment habitat is very widely represented in the Timor Sea, and the associated fauna assemblages are not considered to be particularly sensitive of or high conservation value.

Many benthic fauna species have planktonic larval phases (e.g. corals, echinoderms, sponges etc.). Organisms with planktonic larval phases typically produce very high numbers of larvae. A worst-case credible spill may result in increased mortality of planktonic larvae (which are subject to high natural mortality); however, this is not expected to result in population-scale impacts.

Filter feeding benthic communities may be vulnerable to entrained and dissolved hydrocarbons. Entrained hydrocarbons can be ingested by filter feeders, leading to increased exposure due to accumulation of ingested oil droplets (Payne and Driskell 2003). While typically less toxic than dissolved hydrocarbons, entrained oil may still cause toxic effects; entrained oil may also result in physical impacts such as clogging of filter feeding organs, potentially resulting in reduced feeding efficiency. Filter feeder, and sessile organisms in general, may be exposed to concentrations of dissolved hydrocarbons that result in acute and chronic toxic effects.

Results from modelling studies of the worst-case hydrocarbon spill scenarios indicated that several offshore reefs and islands, and bank and shoals, may be contacted by hydrocarbons above impact thresholds. Refer to **Offshore Reefs and Islands** and **Shoals and Banks** below for a discussion of potential impacts to these receptors.

Nearshore benthic communities are typically more diverse than those found in the deep-water habitat of the Operational Area, often due to the presence of primary producers, such as seagrasses, macroalgae, zooxanthellate corals and mangroves.

Most seagrasses within the area that may be affected by the worst-case hydrocarbon spill scenarios are subtidal, although there may be relatively small areas of intertidal seagrasses along the WA and NT coastlines. Seagrass in the subtidal and intertidal zones have different degrees of exposure to hydrocarbon spills. Subtidal seagrass is unlikely to be exposed to spilled hydrocarbons, as most hydrocarbons in subtidal environments will be concentrated at the surface. Intertidal seagrasses are vulnerable to smothering by floating oil slicks, which can lead to mortality if it coats their flowers, leaves and stems (Dean et al. 1998; Taylor and Rasheed 2011). Long-term impacts to seagrass are unlikely unless hydrocarbon is retained within the seagrass meadow for a sustained duration (Wilson and Ralph 2011). Toxicity effects can also occur due to absorption of soluble fractions of hydrocarbons into tissues (Runcie et al. 2010). The potential for toxicity effects of entrained hydrocarbons may be reduced by weathering processes that should serve to lower the content of soluble aromatic components before contact occurs.

Like seagrasses, the potential impacts to macroalgae depend on the exposure pathway; most macroalgae in the region are subtidal, although intertidal macroalgae may be present. Studies of subtidal macroalgal assemblages exposed to fuel oil spills have shown that impacts from exposure is slight (Edgar et al. 2002; Lobón et al. 2008). Effects of exposure to oil on intertidal macroalgae are more variable; some studies reported little evidence of impacts (Díez et al. 2009), while others show significant impacts (De Vogelaere and Foster 1994). Recovery of intertidal macroalgae has been shown to occur faster in areas where oil has been left to degrade naturally compared to areas subject to intensive clean-up operations (De Vogelaere and Foster 1994). Given the potential for shoreline contact is very low in all the worst-case spill scenarios, impacts to macroalgae are considered to be highly unlikely.

Subtidal and intertidal zooxanthellate corals occur widely throughout the Timor Sea, including around offshore reefs and islands, bank and shoals, and the mainland coast. Shallow subtidal and intertidal corals may be coated by stranded floating hydrocarbons during low tides, which may subsequently be re-floated by subsequent incoming tides. Impacts from physical coating of corals appears to also depend on coral morphology. Coral species more likely to retain oil coatings (e.g. due to polyp morphology, or gross morphology with high surface area to volume

ratios such as branching corals) have been shown to be more susceptible to impacts (Shigenaka 2001). Exposure to dissolved and entrained hydrocarbons may result in acute and chronic toxic effects, with longer exposure durations typically leading to greater potential for mortality (Shigenaka 2001). Corals may also ingest entrained oil particles, potentially leading to update of hydrocarbons into coral tissue (Loya and Rinkevich 1980).

Intertidal mangrove habitats occur throughout much of Kimberley and NT coastline, and are highly susceptible to oil pollution (NOAA 2014). Given the distance between potential release locations and the nearest mangroves, any spilled hydrocarbons reaching mangroves will be highly weathered. Mangroves are vulnerable to contact with floating hydrocarbons, which may coat prop roots and pneumatophores (aerial roots that support oxygen uptake) (Duke and Archibald 2016). Exposure can result in direct effects such as yellowed leaves, defoliation and mortality, and indirect effects such as reduced recruitment and increased sensitivity to other stressors (NOAA 2014). Like seagrasses, mangroves can also be impacted by entrained and dissolved aromatic hydrocarbons either in the water or sediment.

Shoals and Banks

The Timor Sea region hosts numerus named shoals and banks, a number of which were identified by the stochastic modelling as being contacted by entrained and dissolved hydrocarbons from worst-case credible spill scenarios. Modelling results indicated shoals relatively close to the release locations are at greatest likelihood of being impacts. These include Goeree Shoal, Eugene McDermott Shoals, Vulcan Shoal, Barracouta Shoals, Heywood Shoals and Echuca Shoals. In the unlikely event of a significant hydrocarbon spill, these benthic features may be contacted by entrained and dissolved hydrocarbons above impact thresholds. The shortest modelled time to contact was ≤ 4 hour, providing relatively little time for hydrocarbons to weather.

Studies of the shoals and banks in the region show these areas host biological communities distinct from the surrounding relatively deep bare sediment habitat (e.g. Heyward et al. 2017, 2012, 1997) indicated the banks were broadly similar. Each bank hosted a range of light-dependent ecosystems characterised by benthic primary producers, such as coral and macroalgae. Surveys of shoals near the Crux project following the Montara oil spill indicated these communities did not exhibit obvious impacts as a result of the spill (Heyward et al. 2013, 2012, 2010). However, considerable natural variation both over time and between locations was observed (Heyward et al. 2013). Reviews of the ecological function of the shoals and banks in the Timor Sea east of the Operational Area concluded there is a relatively high degree of connectivity between shoals and banks, with the banks acting as a series of “stepping stones” (Heyward et al. 2017, 2013). In the event of a disturbance to benthic communities as the result of a hydrocarbon spill, the upstream shoals and banks may act as a source of propagules or larvae, which may enhance recovery.

Contact with dissolved and entrained hydrocarbons above adverse exposure thresholds may result in mortality of benthic biota. The loss of habitat-forming biota such as corals, macroalgae or sponges could result in changes to habitats, with consequent changes to fauna assemblages. As described above in **Benthic Communities**, impacts to corals, seagrasses and macroalgae include acute and chronic toxicity which may result in non-lethal impacts (e.g. reduced feeding) and mortality.

The time required for recovery following disturbance will depend on the nature and scale of the impact. Shoals and banks in the region have been exposed to significant intermittent disturbance for long periods of time, such as damage from cyclones and changes in water temperature associated with the El Niño-Southern Oscillation. Differences in benthic communities over time within and between shoals and banks (such as those observed by Heyward et al. 2013) may represent different phases of ecological succession.

Offshore Reefs and Islands

Several offshore reefs and islands were identified by the modelling study results as potentially being contacted by hydrocarbons above adverse exposure thresholds. These include Cartier Island, Ashmore Reef, Browse Island, Hibernia Reef, Scott Reef and Seringapatam Reef. These

offshore islands and reefs often host biological communities that are distinct from coastal islands and the mainland. Like the **Shoals and Banks** described above, offshore reefs and islands typically host light-dependent ecosystems characterised by benthic primary producers. Potential impacts to submerged receptors associated with offshore reefs and islands will be similar to those described in **Shoals and Banks** above. Unlike shoals and banks, offshore reefs and islands may be exposed to floating hydrocarbons (in addition to entrained and dissolved hydrocarbons). Floating hydrocarbons from the Crux condensate and diesel release scenarios were not predicted to contact or accumulate on any offshore reefs or islands.

The shorelines of offshore reefs and islands typically consist of intertidal reef flats and sandy beaches; shoreline types such as rocky shores, estuaries and mangroves typically do not occur. Given the modelling results estimated the minimum time to contact would be at least 246 hours for an emergent receptor (Ashmore Reef), any residual condensate reaching the shoreline of an offshore island or reef would be highly weathered. Stranding of floating oil on offshore islands and reefs may result in a band of weathered oil between the low- and high-water marks on shorelines and intertidal corals. This may result in impacts to fauna in these habitats, such as nesting turtles and wading birds. Refer to **Key Fauna Species** below for a discussion of potential impacts to these taxa.

Mainland Coastlines

The modelling studies identified potential shoreline contact above the moderate shoreline exposure threshold for the NT (Kakadu Coast, Cobourg Peninsula West Arnhem Land and Darwin Coast), WA (Kimberley Coast), Indonesian and Timor Leste. Minimum time to contact for these shoreline receptors was 589 hours, indicating considerable weathering time prior to reaching a shoreline.

As described above, the worst-case release volume of condensate for the Crux development drilling activity from a loss of well control (220,000 m^3) is slightly larger than the 206,240 m^3 modelled (~7% increase). Additional shoreline locations may therefore be contacted by hydrocarbons above the moderate threshold. However, this difference is not expected to be significant. This additional potential for shoreline contact has been taken into consideration in oil spill response planning presented in the Browse Regional Oil Pollution Emergency Plan (OPEP).

Key Ecological Features

Modelling study results indicated several KEFs may be exposed to hydrocarbons above adverse impact thresholds. KEFs with relatively high likelihoods of contact above impact thresholds include:

- ancient coastline at 125 m depth contour;
- carbonate bank and terrace system of the Sahul Shelf;
- continental slope demersal fish communities;
- Ashmore Reef and Cartier Islands and surrounding Commonwealth waters;
- Seringapatam Reef and Commonwealth waters in the Scott Reef complex, and
- pinnacles of the Bonaparte Basin.

All but two of these KEFs are entirely sub-tidal; discussion of potential impacts in this section is limited to sub-tidal features of the KEFs listed above. The exceptions of Ashmore Reef and Cartier Islands and surrounding Commonwealth waters and Seringapatam Reef and Commonwealth waters in the Scott Reef complex are considered above in **Offshore Reefs and Islands** and **Shoals and Banks**, respectively.

The sub-tidal KEFs may be exposed to entrained and dissolved hydrocarbons above the adverse exposure thresholds. The environmental values of these sub-tidal KEFs are a function of their geomorphology and depth. A worst-case loss of well containment will not alter the geomorphology or depth characteristics of the sub-tidal KEFs. Given the nature of these KEFs (i.e. potentially

more rugose and complex benthic habitats), there may be relatively diverse benthic communities associated with these habitats, such as filter feeding communities and demersal fish assemblages. These biological receptors may be impacted by dissolved and entrained hydrocarbon above adverse exposure thresholds, which may result in acute or chronic toxic effects. KEFs are most likely to be contacted by the subsea loss of well control scenario, due to the large entrained hydrocarbon fraction. The sub-tidal KEFs are large environmental features. Modelling results indicated that a single deterministic run would only affect a minor portion of any sub-tidal KEF. Given the nature of the KEFs and the scale of potential impacts, recovery of impacted parts of a KEF are expected to be facilitated by movement and recruitment of biota from the unaffected areas.

Pelagic Communities

Plankton

Potential impacts to phytoplankton and zooplankton from the worst-case hydrocarbon spills are expected to consist of short-term acute toxic effects. Planktonic communities are characterised by relatively rapid turnover rates of short-lived biota. The high turnover rate will lead to rapid recovery as the spilled hydrocarbons decay in the environment. Within plankton communities, there is evidence from laboratory studies that some taxonomic groups, particularly zooplankton (e.g. copepods) may be more sensitive to hydrocarbon pollution (Almeda et al. 2013; Jiang et al. 2010). Few reliable studies have shown any impacts of hydrocarbon spills on planktonic communities, with most studies concluding that impacts from hydrocarbon pollution cannot be distinguished from natural variability (Abbriano et al. 2011; Davenport et al. 1982; Varela et al. 2006). Many marine species have planktonic larval phases (e.g. corals, many species of fish). Organisms with planktonic larval phases typically produce very high numbers of larvae. A worst-case credible spill may result in increased mortality of planktonic larvae (which are subject to high natural mortality); however, this is not expected to result in population, habitat or species scale impacts.

Fish

Fish respire through gills, which may make them more vulnerable to dissolved hydrocarbon fraction that fauna with less permeable skins, such as cetaceans, marine reptiles and birds. Despite this apparent vulnerability, fish mortalities are rarely observed to occur because of hydrocarbon spills (Fodrie and Heck 2011; International Tanker Owners Pollution Federation 2011b), although instances of fish mortality from spills in confined areas (e.g. bays) have been recorded. These observations are consistent with fish moving away from hydrocarbons in the water (Hjermann et al. 2007). Stochastic modelling results indicated that hydrocarbons are likely to be concentrated in surface waters. As a result, demersal fish are unlikely to be directly affected unless near a subsea release, as these are likely to be associated with seabed features (e.g. **Shoals and Banks** and **Ecological Features**). Pelagic fish are more likely to encounter dissolved and entrained hydrocarbons above adverse exposure thresholds but are may move away from affected areas.

Exposure of fish to hydrocarbons may results in acute and chronic effects and may vary depending on a range of factors such as exposure duration and concentration, life history stage, inter-species differences and other environmental stressors (Westera and Babcock 2016). Environmental monitoring of pelagic and demersal fishes immediately following the Montara oil spill indicated that fish were exposed to hydrocarbons, although no adverse effects were detected (Gagnon and Rawson 2012, 2011). Further sampling and testing over time indicated that fish captured in close proximity to the Montara wellhead were comparable to those collected from reference sites (Gagnon and Rawson 2012, 2011).

Most marine fish species produce very high numbers of eggs, which then undergo a planktonic larval development phase. Early life history stages of fish (planktonic eggs and larvae) may be more vulnerable to hydrocarbon pollution than juvenile and adults, as these early life history phases cannot actively avoid water with high concentrations of hydrocarbons. Fish embryos and larvae may exhibit genetic and developmental abnormalities from long-term exposure to low concentrations of hydrocarbons (Fodrie and Heck 2011), although such long exposures may not

be representative of real world conditions. 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). Given the temporal and spatial scale of the worst-case credible spill scenarios (as shown by a single deterministic run), and the typically high supply of eggs and larvae, it is unlikely that any of the worst-case credible spill scenarios will result in significantly reduced recruitment of fish due to impacts during early life history phases. This conclusion is supported by studies of fish stocks following large-scale hydrocarbon spills, which have shown relatively little evidence of reduced recruitment at the scale of fish stocks/populations (Fodrie and Heck 2011).

Threatened and Migratory Species

Marine Mammals

A range of cetaceans potentially occurring within the adverse exposure zones for the worst-case credible spill scenarios outlined above. These are described in Section 7.3.5. Cetaceans exposed to hydrocarbons may exhibit avoidance behaviour. Geraci (1988) documented apparent avoidance of floating by bottlenose dolphins, suggesting that cetaceans can detect and avoid surface slicks. However, observations during spills have recorded whales and dolphins traveling 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). Cetaceans observed during the spill response for the Montara oil spill included oceanic species such as false killer whales, bottlenose dolphins, spotted dolphins and spinner dolphins (Watson et al. 2009).

Cetaceans exposed to surface, entrained or dissolved aromatic hydrocarbons above adverse exposure thresholds may suffer external oiling, ingestion of oil and inhalation of toxic vapours (Deepwater Horizon Natural Resource Damage Assessment Trustees 2016). Cetaceans in coastal waters (e.g. coastal dolphin species and humpback whales at the northern limit of their migration) are at lower risk of impacts than cetaceans in offshore water due to the oil weathering before reaching coastal waters. Impacts from direct exposure are expected to be irritation of eyes and mucous membranes. Some protection is provided by thick skin and blubber. Entrained hydrocarbons may be ingested by cetaceans during feeding, particularly by baleen whales. Some species of baleen whale, such as blue whales, may be seasonally present during their migrations. However, significant feeding during migration is not expected (although opportunistic feeding may occur).

Dugongs are known to occur in coastal waters and around offshore islands within the adverse exposure zones identified by the stochastic spill modelling. There is a paucity of studies examining the effects of hydrocarbon spills on dugongs, although the direct impacts of exposure to hydrocarbons may be similar to cetaceans. Like cetaceans, dugongs are expected to be resilient to direct impacts due to their thick skin and blubber. Suitable dugong habitat is associated with seagrass meadows, which are typically restricted to shallow waters around the mainland coast and islands. The distance of dugong habitat from the worst-case credible spill release locations means that oil reaching dugong habitat will be highly weathered.

Marine Reptiles

Stochastic modelling results indicated adverse exposure zones overlap the known distribution of several species of marine turtles and sea snakes. Saltwater crocodiles were also identified as potentially occurring within the adverse exposure zone; given the preferred habitat for salt water crocodiles are freshwater rivers and estuaries, impacts to this species from the worst-case hydrocarbon spills are not considered credible.

Marine turtles may be exposed to floating hydrocarbons when at the sea surface (e.g. breathing, basking etc.), and are not expected to avoid floating hydrocarbon slicks (NOAA 2010). Exposure to floating or entrained hydrocarbons may result in external oiling, which could result in impacts such as inflammation or infection (Gagnon and Rawson 2010; Lutcavage et al. 1995; NOAA 2010). Dissolved hydrocarbons may result in toxic effects on marine turtles, however their relatively impermeable skin reduces the potential for these impacts.

Several shoals and banks occur in the vicinity of the Operational Area, which may be used as foraging areas by marine turtles (although none are recognised as BIAs). Impacts to benthic habitats and biota at these shoals and banks may result in a reduction of prey for marine turtles. Refer to **Shoals and Banks** above for further information on potential impacts to shoals and banks.

Stochastic modelling identified a number of shoreline habitats (sandy beaches and inter-nesting habitat) that may be exposed to hydrocarbons above adverse exposure thresholds. Many of these are classified as habitat critical for the survival of marine turtles in the Recovery Plan for Marine Turtles in Australia (Commonwealth of Australia 2017a). Significant breeding and nesting activity occurs at these locations throughout the region. Given the distance of these locations from the Operational Area, worst-case credible spills of Crux condensate reaching these areas will be highly weathered and unlikely to result in impacts. Shorelines with the greatest potential for hydrocarbon accumulation were the Bonaparte Archipelago, Bigge Island, Joseph Bonaparte Gulf, the Kimberley Coast and Bathurst Island, all as a result of the loss of fuel from a vessel scenario. A spill reaching coastal waters during peak periods to turtle nesting may have increased potential to cause impacts. Given the highly weathered state of the oil, this is not expected to result in significant impacts.

Sea snakes have similar exposure pathways to spilled hydrocarbons as marine turtles (although sea snakes will not be exposed to shoreline hydrocarbon accumulation). Potential impacts are expected to be comparable and may include irritation of eyes and mucous membranes. Sea snake mortality has been linked to exposure to hydrocarbon spills, with dead sea snakes recovered from the region of the Montara oil spill showing high levels of petroleum hydrocarbons (including PAHs) in the trachea, lungs and stomach (Gagnon 2009). These results are consistent with exposure through ingestion and respiration of hydrocarbons. Ashmore Reef and Hibernia Reef are noted as being one of the few sites where the critically endangered leaf-scaled sea snake and short-nosed sea snake have been recorded, along with other species of sea snake. Both the leaf-scaled and snort-nosed sea snakes have not been detected at Ashmore Reef since 2001, despite increased biological survey effort. Both locations were identified by the stochastic modelling as potentially being exposed to hydrocarbon above adverse exposure limits.

Birds

A number of seabird and migratory shorebird species have been identified as potentially occurring within the adverse exposure zone for the worst-case hydrocarbon spill scenarios contains. Additionally, a number of BIAs for several seabird and migratory shorebird species occur throughout the adverse exposure zone, centred around offshore and coastal islands and mainland shorelines.

Spills of Crux condensate and MDO are unlikely to pose a significant risk due to their non-persistent nature. 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 ingestion of hydrocarbons when preening to remove hydrocarbons; both impacts may result in mortality (Hassan and Javed 2011).

Seabirds may encounter floating oil when foraging for food. Seabird foraging is typically concentrated around roosting locations, such as offshore and coastal islands. Potential roosting locations lie considerable distances from the Operational Area; the nearest significant roosting location is Cartier Island, which lies approximately 106 km from the Operational Area. Ashmore Reef is a Ramsar-listed wetland and hosts significant seabird colonies and is an important stopping area for migratory shorebirds. Ashmore Reef lies approximately 160 km from the Operational Area. Floating hydrocarbons reaching these locations would be significantly weathered. Seabirds typically nest above the high-water mark and as such, are not likely to encounter stranded hydrocarbons.

Migratory shorebirds are seasonally abundant during summer months, and a spill during this period would have greater potential to impact migratory shorebirds. Migratory shorebirds are not likely to encounter floating oil at sea, but may be affected by shoreline accumulation of oil, or oil and shallow foraging habitats such as intertidal mudflats. Unlike seabirds, shorebird mortality due

to hypothermia from matted feathers is relatively uncommon (Henkel et al. 2012). Indirect impacts, such as reduced prey availability and bioaccumulations of PAHs, may occur (Henkel et al. 2012).

Shark and Rays

Transitory and resident sharks may occur within the adverse exposure zones identified by the stochastic spill modelling. Whale sharks may occur within the Operational Area (e.g. traversing the Operational Area during migration to and from aggregation off Ningaloo Reef) and a BIA for foraging whale sharks overlaps with the Operational Area. Tagging studies by Meekan and Radford (2010) have shown whale sharks traversing the Timor Sea following the seasonal aggregation off the Ningaloo Coast. Whale sharks may be exposed to entrained and dissolved hydrocarbons by contact with their gills and ingestion during feeding. The large volume filter feeding behaviour of whale sharks may result in a relatively high potential for exposure to entrained hydrocarbons compared to many other marine species (Campagna et al. 2011).

Tagging studies off Ningaloo Reef have shown that whale sharks disperse broadly (Meekan and Radford 2010; Wilson et al. 2006). Genetic studies of whale sharks have shown low genetic diversity, which suggests flow of genetic material through the movement of individual sharks over large spatial scales (Schmidt et al. 2009). On this basis, only a portion of the whale shark population in the Timor Sea would be within the area above the adverse exposure threshold at any one time and impacts such as toxic effects leading to mortality would be expected to affect a small number of individual animals.

Other oceanic (e.g. mako) and resident (e.g. reef) sharks will occur throughout the adverse exposure zone, although Heyward et al. (2017) noted that shark numbers were lower than expected, potentially due to fishing pressure. Potential impacts to other oceanic shark species are likely to be similar to fish (see **Fish** above). Any reduction of shark numbers may take longer to recover due to the relatively long lifespans and low reproductive output compared to finfish species.

9.14.6.3 Socio-economic and Cultural Environment

Cultural Heritage Features and Values

No known Indigenous cultural heritage features or values exist within the Operational Area and Shell has received advice that it is highly unlikely that tangible cultural heritage values will exist below 130 m water depth (Cosmos Archaeology, 2023). In shallower water depths it is highly unlikely that underwater cultural heritage features would be impacted as oil is buoyant and remains in the surface waters.

Consultation has confirmed that Indigenous people have strong connection to sea country (as described in Section 7.4.2). Shell has also been made aware of the existence of songlines along the west Kimberly coastline, Brue Reef, as well as an ancient ceremonial site of the Bardi Jawi people underwater on the Dampier Peninsula coast. Stochastic oil spill modelling predicts low level near shore and shoreline contact within the Planning Area where tangible and intangible cultural heritage features exist. In the unlikely event of a Level 2 or 3 oil spill, Shell will enact its OPEP and OSMP. This would involve notifying Traditional Owners to inform of the spill and to obtain advice on cultural features and values.

Given the time at sea until contact with the Kimberley shoreline any oil will be highly weathered and limited to the more persistent, but non-toxic, waxy fraction. Moreover, as explained in Appendix A, model predictions likely overestimate nearshore oil concentrations and shoreline accumulation. The most likely oil spill response nearshore will be *Monitor and Evaluate* whilst the oil degrades naturally so there will be little in the way of clean-up activity at sea or on land with physical activity limited to scientific monitoring, such as water and sediment sampling. Despite this we retain a conservative risk evaluation.

World Heritage

A small portion of the Kakadu World Heritage Area, approximately 800 km from the Operational Area, was overlapped by the dissolved and entrained hydrocarbons above the moderate adverse exposure threshold from the loss of well containment and loss of vessel fuel scenarios. Modelling

results indicate the likelihood of contact above adverse exposure thresholds was very low. No shoreline accumulation above adverse exposure thresholds was predicted to occur by the modelling. However, it is noted that given the slightly larger spill volume predicted for a loss of well control compared to the modelling (~7% as described above), it is possible that some shoreline accumulation could occur. On the basis of the nature and scale of the contact predicted, impacts to the world heritage values of the Kakadu World Heritage Area are not expected to occur.

National Heritage Places

The Kakadu National Heritage Place has the same extent at the Kakadu World Heritage Area discussed above in **World Heritage**; no impacts to the heritage values of the Kakadu National Heritage Place will occur as a results of a worst-case credible hydrocarbon spill.

Spill modelling results indicated that the shorelines of the West Kimberley National Heritage Place may be contacted by accumulated, entrained and dissolved hydrocarbons above impact thresholds. The West Kimberley National Heritage Place contains a range of shoreline types, including rocky shores, sandy beaches and mangroves. Potential impacts to these are discussed above in **WA and NT Mainland Coastline**. Many of the heritage values of the West Kimberley National Heritage Place (refer to Section 7.4.3) lie inland and would not be impacted by a hydrocarbon spill. The modelling study results indicate probabilities of shoreline accumulation above the moderate adverse accumulation threshold within the West Kimberley and Kakadu National Heritage Places are very low, 1.8% and 0.6% respectively. The maximum modelled shoreline accumulation of spilled oil on both the West Kimberley and Kakadu National Heritage Place coastlines are < 45 g/m^2.

Commonwealth Heritage Places

Several offshore islands and reefs listed as Commonwealth Heritage Places were identified by the spill modelling results as potentially being contacted by hydrocarbons. These include:

- the Ashmore Reef National Nature Reserve Commonwealth Heritage Place;
- Scott Reef and Surrounds Commonwealth Heritage Place; and
- Mermaid Reef – Rowley Shoals Commonwealth Heritage Place.

The heritage values of these reefs are primarily their outstanding natural values. Refer to **Offshore Reefs and Islands** above for a discussion of potential impacts to these natural values.

Ramsar Wetlands

Several Ramsar sites were identified in the results of the spill modelling studies as potentially being impacted by spilled hydrocarbons. Most of these are in the far-field of the model and are highly unlikely to be contacted by hydrocarbons above the moderate adverse exposure thresholds. The exception is Ashmore Reef, which is the closest Ramsar site to the Operational Area. The migratory bird species associated with Ramsar sites are most vulnerable to floating oil, and oil accumulations along the shoreline. All credible worst-case scenarios were identified as potentially resulting in shoreline accumulation at Ashmore Reef, however the likelihoods for contact by floating hydrocarbons is very low (≤ 2.4%). Potential impacts of spilled hydrocarbons on migratory shorebirds are discussed above in **Threatened and Migratory Species**; refer to this section for further information.

Note the Protected Matters search tool report identified several Ramsar wetlands at Christmas Island, however given the distance to these receptors these Ramsar wetlands will not credibly be impacted.

Marine Parks

Modelling results of the worst-case credible spill scenarios indicated a range of Commonwealth (AMPs), state and territory marine parks may be contacted above adverse exposure thresholds (Table 9-67). These parks contain a range of environmental values such as marine biota, representative marine habitats and unique sea scapes (e.g. KEFs). Environmental values for

these marine parks are described in Section 7.3.6 and discussed above in **Physical Environment**, **Biological Environment**, and **Threatened and Migratory Species**. Refer to these sections for discussion of potential impacts to these environmental values within marine parks.

Marine Archaeology

No impacts to marine archaeological features will occur because of a worst-case credible hydrocarbon spill. The nearest historic shipwreck, the Anne Millicent, lies approximately 108 km from the Operational Area.

Commercial Fisheries

A number of commercial fisheries operate within the adverse exposure zone determined from spill modelling results. The worst-case credible hydrocarbon spill scenarios may result in a range of impacts to commercial fishing activities, such as (International Tanker Owners Pollution Federation 2011b):

- displacement of fishing effort from areas affected by a spill or spill response activities;
- damage to fish stocks due to mortality;
- closure of fisheries by management agencies;
- inability to sell catch due to perceived or actual fish tainting or contamination; and
- oiling of fishing gear, particularly by floating oil.

A significant hydrocarbon spill would likely result in the temporary closure of areas of fisheries within the area of adverse exposure. The spatial extent and duration of the closure would depend on the nature and scale of the pollution resulting from the hydrocarbon spill. Given the large spatial extent of managed fisheries in the area potentially contacted above adverse exposure thresholds, a spill is unlikely to result in complete closure of a fisher. Rather, the closure of areas to fishing is more likely to result in the displacement of fishing effort. Displacement from productive fishing areas may result in impacts to fishers such as increased costs and reduced catch per unit effort.

Exposure of fish to hydrocarbons may result in tainting, which may render landings unsuitable for human consumption. Tainting may occur even a low levels of hydrocarbon exposure. Monitoring of fish for taint immediately following capping of the Montara well detected differences between fish likely to have been exposed to hydrocarbons, however these differences were not conclusively linked to oil contamination and fell within the range of “normal” fish odours (Rawson et al. 2011). Samples collected at the same monitoring locations two and four months after were not distinguishable (Rawson et al. 2011). These results are consistent with other studies of fisheries resources exposed to hydrocarbon pollution, which acknowledge the potential for impacts to fisheries resources and have shown little potential risk for consumers if suitable fisheries management actions are undertaken (Law and Hellou 1999; Law and Kelly 2004).

Fish caught in areas affected by a significant hydrocarbon spill may be perceived as being of poorer quality, even if no decrease in quality is evident. This may result in lower prices at the time of sale and subsequently lead to reduced income for commercial fishers.

Traditional Indonesian Fishing

Traditional Indonesian fishing activity occurs within the MoU box, which is located approximately 40 km outside the Operational Area and lies within the adverse exposure zones identified by the spill modelling results. Traditional fishing is concentrated around banks, shoals, island and reefs; refer to **Shoals and Banks** and **Offshore Reefs and Islands** for discussion of potential impacts to these receptors. The worst-case credible spill scenarios may impact upon the biological resources exploited by traditional Indonesian fishers, such as fish and benthic invertebrates (e.g. sea cucumbers and trochus shells). Impacts to these biological resources may result in effects on traditional fishers, such as reduced catch rates and displacement of fishing effort. Given the distance between the release locations and the reefs exploited by traditional Indonesian fishers,

impacts to traditional Indonesian fishing activities are considered to be unlikely and would be minor.

Tourism and Recreation

There are currently no known tourism activities in the Operational Area, or surrounds, due to the remoteness of the area. Some tourism activities may occur at the remote offshore islands and reefs within the adverse exposure zones. These activities are expected to be exclusively nature-based tourism and impacts to the environmental values associated with these islands and reefs may impact upon tourism activities. Refer to **Offshore Reefs and Islands** for discussion on the potential impacts to these receptors.

Mainland coastline and islands will typically host more nature-based tourist activities than offshore islands. This activity is expected to be seasonal, with increased visitation during the winter dry season months. Refer to **WA and NT Mainland Coastline** above for a discussion of potential impacts to the natural receptors along these coastlines.

Impacts to tourism activities are expected to be minor based on the likelihood and nature of contact to environmental values that support tourism activities. Impacts to these values may result in displacement of tourism activity, and potentially minor loss of revenue for tourist operators (e.g. charter fishing cancellations due to fishery closures).

Military/Defence

Defence activities within the offshore NAXA are unlikely to be affected by the worst-case credible hydrocarbon spills. Activities may be temporary displaced from areas where spill response operations are underway. This would be highly localised and temporary in nature.

Ports and Commercial Shipping

Potential impacts to ports and commercial shipping from the worst-case credible spill scenarios are expected to be very minor and consist of temporary displacement of other users from areas where spill response activities are underway. These are expected to be concentrated around the release location.

Offshore Petroleum Exploration and Operations

Petroleum activities in the region include the Shell-operated Prelude FLNG facility, the INPEX-operated Ichthys facility and the Montara development (previously operated by PTTEP Australia, now Jadestone Energy). Reduction in water quality as a result of a worst-case credible spill may affect the operation of these facilities if seawater at the facility is no longer suitable for intake (e.g. for use as cooling water or feed water for Reverse Osmosis (RO) water generation). This may result in impacts to routine operations such as decreased production. A worst-case hydrocarbon spill response may result in competition for vessels and potentially drilling rigs (if well intervention or a relief well is required).

Indonesian and Timor-Leste Coastlines

The spill modelling results indicated there is the potential for the worst-case credible spill scenarios to result in contact with the Indonesian and Timor-Leste coastlines above the high adverse exposure threshold for entrained and dissolved hydrocarbons. The likelihood of contact was very low except for the entrained fraction from the worst-case loss of well control scenario. The probabilities of this fraction contacting the Indonesian and Timor-Leste coastlines above the moderate entrained adverse exposure threshold were 17.1% and 14.7% respectively.

Minimum times to contact were 28.2 days and 30.8 days for Indonesia and Timor-Leste respectively. Given the relatively long time to contact, the spilt oil will be weathered. The toxic soluble fraction will have been removed through evaporation and biodegradation processes leaving low quantities of waxy residual. This waxy residual is nontoxic and will degrade naturally over time with negligible environmental impact.

9.14.7 Risk Assessment Summary

The risk assessment summary in Table 9-68 is based on the worst case in terms of consequences spill event, i.e. the loss of well control LOC.

Table 9-68: Emergency Events Evaluation of Residual Risks

Environmental Receptor	Consequence	Likelihood	Residual Risk
Evaluation – Unplanned Risks			
Physical Environment	Massive	B – Remote	Yellow
Biological Environment	Massive	B – Remote	Yellow
Socio-economic Environment	Massive	B – Remote	Yellow

9.14.8 ALARP Assessment and Environmental Performance Standards

Table 9-69: ALARP Assessment and Environmental Performance Standards

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
Elimination	None identified	N/A	N/A	N/A	N/A	N/A
Engineering	Use of radars/ Automatic Identification System (AIS)/ Automatic Radar Plotting Aid (ARPA) and associated alarms on MODU and project vessels	Yes	Use of radars/ Automatic Identification System (AIS)/ ARPA and associated alarms on project vessels. This technology allows early identification and notification of approaching vessels and is crucial in minimising the risk of vessel-to-vessel collision. Specific collision prevention procedures and measures including: • Controlled speed for all marine vessels in the Operational Area • The Operational Area is patrolled by support vessels • MODU radar/ ARPA and associated alarms monitored for approaching vessels • Vessels follow pre-determined access routes to the MODU and assess environmental conditions (wind, current and sea state) • Contractual requirement for vessels to be manned by competent crew • All contracted vessels employed are subjected to a stringent assurance process.	12.1	MODU and support vessels are equipped with suitable and operational navigation and collision avoidance equipment, specifically: • ARPA • AIS • Radar, and/or • Equivalent system.	Marine Assurance records
Engineering	Inspection Maintenance Repair (IMR) during well suspension period	Yes	During the well suspension period, in accordance with the WOMP requirements, IMR activities are planned to be undertaken, with visual observations undertaken on a minimum annual basis. Additional visual observations may occur to coincide with	12.2	Accepted WOMP in place for Crux development wells to manage risks associated with well drilling and suspension.	WOMP acceptance letter

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
			support activities in the Operational Area associated with future Crux activities.			
Engineering	Subsea BOP installed and function tested during drilling operations. The BOP shall meet the requirements below: • one annular preventer • two pipe rams (excluding the test rams) • a minimum of one set of blind shear rams which are capable of sealing • the capability of ROV intervention • back-up power systems or emergency generator power requirements.	Yes	Testing of the BOP will reduce the likelihood of a blowout resulting in release of hydrocarbons to the marine environment. This standard is consistent with API Standard 53.	12.3	Subsea BOP specification, installation and function-testing compliant with internal Shell Standards (Shell Pressure Control Manual for Drilling, Completion and Well Intervention Operations)	Records demonstrate that BOP and BOP control system specifications and function testing were in accordance with minimum standards for the expected drilling conditions.
Engineering	Project specific Mooring Design Analysis completed are guided by: • API RP 2SK – Design and Analysis for station keeping systems for floating structures.	Yes	A Project specific Mooring Design Analysis will ensure adequate MODU station holding capacity to prevent loss of station. This will reduce the likelihood of a blowout resulting in release of hydrocarbons to the marine environment.	12.4	Anchors installed as per Mooring Design Analysis to ensure adequate MODU station holding capacity.	Records demonstrate Mooring Design Analysis completed and implemented during anchor deployment.

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
	• APEEA Guideline for MODU Mooring in Australian Tropical Waters					
Engineering	Use of subsurface well barriers during well suspension period	Yes	Each development well will have two independently verified subsurface barriers in place to manage the risk of a sub-surface blow out. The risk is further reduced as wells will be left unperforated.	12.5	Subsurface barriers are installed and tested in each well prior to suspension.	Drilling records demonstrate subsurface well barriers are installed and tested.
Substitution	Refuel during daylight hours.	Yes	Refuelling operations will commence during daylight under normal conditions and only at the well location. Contractor procedures followed for refuelling activity reduces likelihood of a spill occurring during refuelling.	12.6	Refuelling commences during daylight hours only.	Records demonstrate refuelling operations commenced during daylight hours only.
Administrative and Procedural Controls	Establish a PSZ	Yes	A PSZ of 500 m will be established and gazetted around the drilling location, in accordance with the OPGGS Act (NOPSEMA 2015). Unauthorised marine users are prohibited from entering the PSZ and therefore it is a key safety measure to reduce potential interactions with the Crux development drilling activity and associated subsea infrastructure.	12.7	Compliance with PSZ as per Part 6.6 of the OPGGS Act.	Gazette notice of PSZ Incident report form used to record breaches of PSZ requirements.
Administrative and Procedural Controls	An approved SCREP is in place prior to commencement of drilling, including feasibility and any specific considerations for relief well kill.	Yes	A SCREP with prior assessment of the feasibility considerations for relief well kill may reduce the duration of a spill, resulting in a reduction in consequence and overall risk.	12.8	SCREP is in place prior to drilling that ensures feasibility of performing a well kill operation.	An approved SCREP.

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
Administrative and Procedural Controls	Lifting procedures and maintenance and inspection of lifting equipment.	Yes	MODU and vessel contractors lifting, maintenance and inspection procedures are implemented for all lifting operations. These procedures specify lifting requirements, standards and roles and responsibilities to be implemented to reduce the risk of dropped objects impacting the seabed and subsea infrastructure.	12.9	All lifts are undertaken in line with contractor lifting procedures and associated PTW/risk assessments where applicable.	Records of PTW, lift plans, training records and lifting equipment register.
Administrative and Procedural Controls	Bunkering Procedures for Hydrocarbons and Chemicals	Yes	The purpose of these procedures is to ensure that good practice and industry standards are applied during bunkering operations. Implementation of these procedures will minimise the risk of a spill incident through e.g. both vessels prepared for bunkering, drains plugged, approved bunker plan for specified volumes, designated receiving tanks and agreed pumping rates, direct communication between all involved and supervision at both ends and availability of spill kits onboard each vessel.	12.10	Transfer hoses will have dry-break couplings, inspected and certified bunkering hoses, and this equipment will be maintained.	Assurance and maintenance records.
Administrative and Procedural Controls	Shipboard Oil Pollution Emergency Plan (SOPEP) for vessels[28]	Yes	SOPEP shall be in place for all project vessels and the MODU as required by class in accordance with as per AMSA Marine Order 91.	12.11	Vessels and MODU shall have a current SOPEP onboard to respond to small spills	A valid SOPEP for relevant vessels and MODU is in place
Administrative and Procedural Controls	Vessel anchoring and mooring plan	Yes	No support vessel anchoring in the Operational Area except in emergency situations or under issuance of a specific permit by Shell.	12.12	No support vessel anchoring in the Operational Area except in emergency situations or under issuance of a specific permit by Shell.	Records verify no breaches of anchoring procedures in the Operational Area.

[28] *Advice from the Recognised Organisation will be followed and updates made where required, where there is any variation to the this control measure which may be applicable to the Prelude FLNG.*

Hierarchy of Controls	Control Measure	Adopted?	Justification	EPS #	Environmental Performance Standard (EPS)	Measurement Criteria
Administrative and Procedural Controls	NOPSEMA accepted WOMP	Yes	Maintenance of well integrity is a key requirement to avoid loss of well control. The wells will be covered by NOPSEMA accepted Well Operations Management Plan (WOMP) that details key controls in place for the duration of the well lifecycle.	12.13	Accepted WOMP in place for Crux development wells to manage risks associated with well drilling and suspension.	WOMP acceptance letter
Administrative and Procedural Controls	NOPSEMA accepted safety case	Yes	In accordance with the OPGGS (Safety) Regulations 2009, all drilling activities will be undertaken in accordance with the accepted Safety Case.	12.14	Accepted safety case in place for the Crux development drilling activity to manage risks associated with operations.	Safety case acceptance letter

9.14.9 Acceptability of Risks

Table 9-70: Acceptability of Risks – Emergency Events

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Acceptability Assessment
Physical Environment	Water quality	No significant impacts to water quality during the Crux development drilling activity.	Shell considers large-scale releases of hydrocarbons during the Crux development drilling activity to be unacceptable.. Such spills have potential to result in significant environmental impacts. This has been reinforced through consultation with groups such as DAC and WGAC. Consequently, Shell will apply its considerable experience and knowledge in the offshore petroleum industry to ensure such a release during the Crux project never occurs. Shell has applied a conservative approach to the identification and modelling of the credible worst-case hydrocarbon spills. This information was used to inform the evaluation of the environmental impacts and risks, and is consistent with the precautionary principle. Shell will implement industry standard controls to manage the risk of unplanned hydrocarbon spills. An Oil Pollution Emergency Plan (OPEP) has been developed to support the Crux development drilling activity that is commensurate to the nature and scale of the hydrocarbon pollution risks for the activity.
	Sediment quality	No significant impacts to sediment quality during the Crux development drilling activity.	
	Air quality	No significant impacts to air quality during the Crux project.	
Ecosystems, Communities and Habitats	Benthic communities	No significant impacts to benthic habitats and communities. Impacts to non-sensitive benthic communities limited to a maximum of 5% of the Crux Project Area.	
	Shoals and banks	No direct impacts to named banks and shoals. No loss of coral communities at named banks or shoals as a result of indirect/offsite[29] impacts associated with the Crux development drilling activity.	
	Offshore reefs and islands	No impacts to offshore reefs and islands.	
	WA and NT mainland coastline	No impacts to WA and NT mainland coastline.	
	Key Ecological Features	No significant impacts to environmental values of KEFs.	
	KEFs	No significant impacts to environmental values of KEFs.	
Threatened Species and Ecological Communities	Marine mammals Marine reptiles Birds Fish Sharks and rays	No mortality or injury of threatened or migratory MNES fauna from the Crux development drilling activity. Management of aspects of the Crux development drilling activity must be aligned to conservation advice,	

[29] *As defined in the Matters of National Environmental Significance - Significant impact guidelines 1.1 (Commonwealth of Australia 2013).*

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Acceptability Assessment
		recovery plans and threat abatement plans published by the DAWE. No significant impacts to threatened or migratory MNES fauna.	
Socio-economic and Cultural Environment	Cultural Heritage Features	No impacts to Cultural heritage features	
	Cultural Heritage Values	No significant impacts to cultural heritage values	
	Commonwealth Marine Area	No significant impacts to the Commonwealth marine area beyond 1 km from the Crux drilling locations.	
	World Heritage Properties	No impacts to world heritage values.	
	National Heritage Places	No impacts to national heritage values.	
	Commonwealth Heritage Places	No impacts to Commonwealth heritage values	
	Declared Ramsar Wetlands	No impacts to ecological values of Ramsar wetlands	
	Marine Parks	No impacts to the values of marine parks	
	Commercial fisheries	No negative impacts to exploited fisheries resource stocks which result in a demonstrated direct loss of income.	
	Traditional Indigenous fishing	No negative impacts to exploited fisheries resource stocks.	
	Tourism and recreation	No negative impacts to nature-based tourism resources resulting in demonstrated loss of income.	
	Military / Defence	Temporary displacement of defence activities within the Crux Operational Area (excluding petroleum safety zones) is acceptable. Permanent exclusion of defence activities from gazetted petroleum exclusion zones is acceptable.	
	Ports and commercial shipping	Temporary displacement of commercial shipping within the Crux Operational Area	

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Acceptability Assessment
		(excluding petroleum safety zones) is acceptable. Permanent exclusion of commercial shipping from gazetted petroleum exclusion zones is acceptable.	
	Offshore petroleum exploration and operations	Temporary displacement of petroleum exploration activities and operations within the Crux Operational Area (excluding petroleum safety zones) is acceptable. Permanent exclusion of petroleum exploration activities and operations from gazetted petroleum exclusion zones is acceptable.	
	Indonesian and Timor-Leste Coastlines	No impacts to Indonesian or Timor-Leste coastlines or nearshore environments are acceptable.	

A comprehensive assessment of the risks from the worst-case credible spill scenarios arising from Crux development drilling activity has been undertaken. Globally, Shell is experienced in similar activities and understands the impacts and risks that may arise from these worst case credible spill scenarios. Shell has undertaken environmental studies, numerical modelling and consultation to identify the environmental receptors that may be affected and understands the nature and implications of potential hydrocarbon pollution. These studies, along with Shell's organisational experience, allows a high degree of confidence to be placed in the outcomes of the assessment of the risks.

Principles of ESD

The risks and impacts from the worst-case credible spill scenarios are inherently inconsistent with some of the principles of ESD based on the following:

- Environmental resources and sensitivities may be significantly impacted in the event a worst-case credible spill
- A worst-case credible spill may prevent others exercising their right to access environmental resources.

Shell will apply a range of controls to ensure that a worst-case credible spill from the Crux development drilling activity never occurs. These include a range of industry best practices that have been developed through extensive industry experience, including the lessons learned from significant unplanned releases such as the Macondo and Montara well blowouts. Following successful application of these controls, Shell considers the residual risk to be consistent with the principles of ESD. This consistency is achieved by:

- developing natural resources in an environmental responsible manner, resulting in income for government, generation of Australian jobs, and developing an increased understanding of the Timor Sea environment; and
- application of the precautionary principle in the assessment of hydrocarbon spill scenarios by:

- using worst-case credible spill scenarios. Industry statistics indicate the vast majority of unplanned spills are significantly smaller than the worst-case credible spills.
- using a stochastic modelling approach for numerical modelling of the worst-case credible spill scenarios that includes a large number (hundreds) of deterministic runs covering a range of metocean conditions.
- using environmentally conservative adverse exposure zone thresholds.

Relevant Requirements

Management of the impacts and risks from unplanned hydrocarbon spills are consistent with legislative requirements, including:

- compliance with international maritime conventions, including:
  - STCW Convention
  - SOLAS Convention
  - COLREGS
  - MARPOL: Annex I: prevention of pollution by oil and oily water.
- compliance with Australian legislation and requirements, including:
  - Navigation Act 2012 and Protection of the Sea (Prevention of Pollution from Ships) Act 1983:
    - Marine Order 21 (Safety of Navigation and Emergency Procedures
    - Marine Order 27 (Radio Equipment)
    - Marine Order 30 (Prevention of Collisions)
    - Marine Order 71 (Masters and Deck Officers)
    - Marine Order 91 (Marine pollution prevention – oil).
  - OPGGS Act and OPGGS (E) Regulations:
    - accepted WOMPs for all well activities, including drilling, operation, suspension and abandonment
    - accepted EP and OPEP for all petroleum activities associated with the Crux development drilling activity.
  - Implementation of recognised industry best practices, such as:
    - use of BOPs while drilling over-pressured formations with potential for flow, including regular function and pressure testing of the BOPs
    - mutual aid agreement in place with other petroleum operators to assist with drilling rig availability for relief well drilling
    - agreements in place with oil spill response service providers
    - development of SIMOPS plans for activities that may interact with the Crux development drilling activity.

Matters of National Environmental Significance

A worst-case hydrocarbon spill may result in significant impacts for several MNES. Shell will put in place a range of measures during the Crux development drilling activity to ensure that spills of hydrocarbons that may result in significant impacts to threatened and migratory species do not

occur. Shell considers the residual risk to these MNES to be acceptable, after application of the key management controls proposed in this EP.

Threatened and Migratory Species

The evaluation of impacts and risks indicates that significant impacts to threatened and migratory species may occur in the event of a significant hydrocarbon spill. Pollution from hydrocarbon spills is recognised as a threat in management plans, recovery plans and conservation advice for a number of threatened and migratory species. Alignment of the Crux project with these documents is provided in Table 9-71.

Wetlands of International Importance

While considered very unlikely due to the distance from the Crux Operational Area, results from the stochastic spill modelling studies indicated hydrocarbons above impact thresholds may contact the Ramsar wetland at Ashmore Reef.

Commonwealth Marine Environment

The evaluation of impacts and risks indicates that significant impacts to the Commonwealth marine environment may occur in the event of a significant hydrocarbon spill. The potential for widespread impacts to water quality may result in a number of marine species being affected.

Table 9-71: Summary of Alignment of the Impacts and Risks from the Emergency Events associated with the Crux Development Drilling Activity to Relevant Requirements for MNES

Sensitivity	MNES Acceptability Considerations (Significant Impact Guidelines, EPBC Management Plans/Recovery Plans/Conservation Advices)	Demonstration of Alignment as Relevant to the Project
Marine mammals	Significant impact guidelines for Critically Endangered, Endangered, Vulnerable and Migratory species (Table 8-1)	Shell has identified the potential for hydrocarbon pollution, and potential consequential habitats degradation, from large-scale hydrocarbon releases as a significant environmental risk. Shell has applied a range of controls that are intended to reduce the likelihood of such a release occurring, and mitigative controls to understand and reduce the severity of impacts should such as release occur. Large-scale hydrocarbon releases pose a significant safety risk for Shell personnel, and considerable effort will be applied to the project design to reduce the inherent likelihood of large-scale hydrocarbon releases occurring.
	Conservation management plan for the blue whale: A recovery plan under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth of Australia 2015a)	
	Conservation advice *Balaenoptera borealis* sei whale (TSSC 2015b)	
	Conservation advice *Balaenoptera physalus* fin whale (TSSC 2015c)	
	Conservation management plan for the southern right whale: A recovery plan under the *Environment Protection and Biodiversity Conservation Act 1999* (DSEWPaC 2012b)	
Marine reptiles	Significant impact guidelines for Critically Endangered, Endangered, Vulnerable and Migratory species (Table 8-1)	
	Recovery plan for marine turtles in Australia (Commonwealth of Australia 2017a)	

Sensitivity	MNES Acceptability Considerations (Significant Impact Guidelines, EPBC Management Plans/Recovery Plans/Conservation Advices)	Demonstration of Alignment as Relevant to the Project
	Conservation advice on short-nosed sea snake (*Aipysurus apraefrontalis*) (DSEWPaC 2011a) Conservation advice on leaf-scaled sea snake (*Aipysurus foliosquama*) (DSEWPaC 2011b)	
Birds	Significant impact guidelines for Critically Endangered, Endangered, Vulnerable and Migratory species (Table 8-1)	
	Wildlife conservation plan for migratory shorebirds (Commonwealth of Australia 2015c)	
	Draft national recovery plan for threatened albatrosses and giant petrels (DSEWPaC 2021)	
	Conservation advice for *Sternula nereis* (fairy tern) (DSEWPaC 2011c)	
	Conservation advice *Numenius madagascariensis* eastern curlew (TSSC 2015f)	
	Conservation advice *Calidris ferruginea* curlew sandpiper (TSSC 2015e)	
	Conservation advice *Anous tenuirostris melanops* Australian lesser noddy (TSSC 2015d)	
	Conservation advice *Calidris canutus* red knot (TSSC 2016a)	
	Conservation advice *Calidris tenuirostris* great knot (TSSC 2016b)	
	Conservation advice *Charadrius leschenaultii* greater sand plover (TSSC 2016c)	
	Conservation Advice *Charadrius mongolus* lesser sand plover (TSSC 2016d)	
	Conservation advice *Limosa lapponica menzbieri* bar-tailed godwit (northern Siberian) (TSSC 2016e)	
	Conservation advice Limosa lapponica baurei bar-tailed godwit (western Alaskan) (TSSC 2016f)	
Sharks and rays	Significant impact guidelines for Critically Endangered, Endangered,	

Sensitivity	MNES Acceptability Considerations (Significant Impact Guidelines, EPBC Management Plans/Recovery Plans/Conservation Advices)	Demonstration of Alignment as Relevant to the Project
	Vulnerable and Migratory species (Table 8-1)	
	Conservation advice *Rhincodon typus* whale shark (TSSC 2015a)	
	Recovery plan for the white shark (*Carcharodon carcharias*) (DSEWPaC 2013)	
	Sawfish and river shark multispecies recovery plan (Commonwealth of Australia 2015b)	
	Approved conservation advice for *Glyphis* (speartooth shark) (TSSC 2014c)	
	Approved conservation advice for *Pristis clavata* (dwarf sawfish) (DEWHA 2009a)	
	Approved conservation advice for *Pristis zijsron* (green sawfish) (DEWHA 2008c)	
Commonwealth marine environment	Significant impact guidelines for Commonwealth marine environment (Table 8-1**)**	

External Context

There are no unresolved objections or claims raised by Relevant Persons to date around the emergency events aspect. Shell's ongoing consultation program considers feedback and claims or objections made by Relevant Persons throughout the life of this EP. Where new impacts or risks are established these will be subject to the MOC process described in Section 10.1.3.

Internal Context

Shell has also considered the internal context, including Shell's environmental policy and ESHIA requirements. The EPOs, controls and EPSs which will be implemented, are consistent with Shell's internal requirements. Shell has, and will continue to maintain, an appropriate spill response framework, which includes regular testing of the response arrangements as per Section 10.7.

Acceptability Summary

The assessment of impacts and risks from the worst-case credible unplanned hydrocarbon spills determined the residual impact and risk rating is Yellow (Table 9-68). Given the significant consequence of the risks associated with these worst-case hydrocarbon spills, Shell has undertaken an extensive, conservative risk assessment and will apply a range of controls consistent with relevant requirements and industry best practice.

As outlined above, the acceptability of the impacts and risks from unplanned spills associated with the Crux development drilling activity has been considered in the context of:

- ESD;
- relevant requirements;
- MNES;

- external context (i.e. stakeholder claims); and
- internal context (i.e. Shell requirements).

Based on the points discussed above, Shell considered the impacts and risks from worst case unplanned spill scenarios from the Crux development drilling activity to be acceptable following the application of the controls outlined in the ALARP Demonstration above.

9.14.10 Environment Performance Outcome

Environment Performance Outcome	Measurement Criteria
No emergency events[30] associated with the unplanned release of Crux condensate or vessel fuel to the marine environment during the Crux development drilling activity.	Incident reports associated with spills to water which initiated the Emergency Response Team (ERT) and/or Incident Management Team (IMT).

9.15 Oil Spill Response Strategies

9.15.1 Spill Impact Mitigation Assessment

As described in the Spill Impact Mitigation Assessments (SIMA) presented in the OPEP, not all response strategies are applicable for every spill scenario. It is considered that a combination of response strategies may be required to implement an effective response.

In all spill scenarios (Section 9.14.1), ‘source control’ and ‘monitor and evaluate’ spill response strategies will be implemented. For condensate and marine diesel releases, the success of various response strategies is considered to be limited based on the expected spreading, dispersion and evaporation rates in the marine environment making certain strategies, such as ‘contain and recover’ and ‘surface dispersant application’, ineffective.

The available spill response strategies across multiple spill scenarios that are applicable to the Browse Region are assessed in the Browse Regional OPEP (HSE_PRE_013075) (the OPEP). An ALARP assessment of the oil spill response strategies that are applicable to the Crux development drilling activity are described in Table 9-72.

Capability, readiness and implementation requirements for the specific spill response strategies are addressed in the OPEP, which includes control measures and EPSs around the required level of performance of each response strategy, and hence are not repeated in this EP.

[30] *Emergency events are incidents which result in the mobilisation of the Shell emergency response team.*

Table 9-72: ALARP assessment of oil spill response capability

Oil Spill Response Strategy	Resources	Environmental gain from increasing or improving resources	Alternatives considered	ALARP assessment
Source Control				
Site survey	Documents: Browse Basin Source Control Emergency Response Plan Equipment: Vessel equipped with ROV and tooling Personnel: Subsea Intervention Group/Source Control Branch	A site survey involves the use of a vessel equipped with an ROV to conduct visual observations of the well and surrounding subsea infrastructure, following the loss of containment event. The information gathered is used to enable further source control planning and establish those source control activities that could be implemented. A single vessel with a single ROV is required to conduct the site survey. Multiple vessels and/or ROV's would not result in a better environmental outcome. If the failure can be immediately isolated remotely then this is the quickest response to reduce the environmental impact.	Additional vessels equipped with ROV's would not result in increased benefit for planning source control activities.	A suitable vessel will be acquired by Shell during the timeframe stipulated in the BROPEP. The vessel to undertake the site survey would be sourced from within Australia using Shell's established vessel contracting procedures. The cost of maintaining a vessel with full ROV spread and ROV crew at all times to undertake a site survey is considered to be grossly disproportionate given that several vessels with ROVs could be made available on short notice within the region.
Deployment of SFRT/Subsea Incident Response Toolkit (SIRT) and subsea dispersant injection (SSDI)	Documents: Browse Basin Source Control Emergency Response Plan Equipment: AMOSC Subsea First Response Toolkit (SFRT) including 500 m^3 of Dasic Slick gone NS, mobilised to Broome in 6 days. Oil Spill Response Limited (OSRL) Subsea Incident	Access to the SFRT/SIRT to enable intervention in the event of a loss of well control scenario will also enable SSDI capability. SSDI will increase the entrainment of hydrocarbons in the water column thereby reducing the presence of hydrocarbons at the sea surface that can present environmental impacts. The application of subsea dispersant also has benefits over surface	Consideration was given to moving the AMOSC SFRT to Broome from Perth to enable for faster deployment however, it is owned by industry (others may also need the equipment in other areas) and as it is not on critical	Based on its location in WA, the AMOSC SFRT (located in Perth) would be mobilised as the primary control with the SIRT located in Norway/Brazil as a redundancy. As described in the row above, a vessel equipped to undertake the site survey is expected to be sourced in time and therefore the timeframe for mobilisation of the SFRT is not a limiting factor and improving this timeframe would not result in an environmental benefit.

Oil Spill Response Strategy	Resources	Environmental gain from increasing or improving resources	Alternatives considered	ALARP assessment
	Response Toolkit (SIRT) mobilised to Broome. Personnel: Subsea Intervention Group/Source Control Branch, Shell's Well Control Virtual Emergency Response Team (WC VERT) available in 24 hours. AMOSC (SFRT) and Oceaneering personnel available in 24 hours.	application in that it can reduce volatile organic compounds at the sea surface making it safer for responders to access the area for further source control activities. Where surface application of dispersant can only be applied in daylight hours, SSDI can occur 24 hours a day. The volume of dispersant associated with the SFRT can be replenished from various stockpiles located within Australia and Internationally.	path there is little value to be gained by such.	
Relief well drilling (primary containment method)	Documents: Crux Well Operations Management Plan (WOMP) Crux Safety case Browse Basin Source Control Emergency Response Plan Relief Well Manual Well Kill Modelling & Analysis APPEA MoU Equipment: MODU to drill relief well and kill the well in 80 days, kill fluid & pumping equipment, tubulars, ranging equipment. Personnel: Shell Relief Well Task Force 24-72 hours. Specialist personnel from Wild Well Control and Boots and Coots Various locations internationally +72 hours.	Improving the timeframes to drill a relief well will reduce the volume of hydrocarbons released to the marine environment.	The relief well injection spool (RWIS) is a spool piece with side outlets installed below the BOP of the relief well to enable the connection of more surface pumping resources. These additional resources can deliver greater kill fluid rates to the relief well. As all Crux wells can be killed with the pumping capacity of standard MODU, use of the RWIS would not result in a faster well kill and subsequent environmental benefit.	Compliance with Shell's global standards for well design integrity to assure mechanical and functional integrity for all anticipated loads throughout the life of the well. These standards meet or exceed current International and Australian standards. The APPEA MoU allows the signatories to share rigs, equipment, personnel and services to assist other operators in the event of a well blowout. This would potentially enable Shell to source a suitable relief well MODU in a quicker timeframe, and would also provide access to additional equipment, personnel and services. Access to source control specialists is not considered a limiting factor.

Oil Spill Response Strategy	Resources	Environmental gain from increasing or improving resources	Alternatives considered	ALARP assessment
Deployment of capping stack and OIE (if required)	Documents: Crux Well Operations Management Plan (WOMP) Crux Safety case Browse Basin Source Control Emergency Response Plan Australia Subsea Capping Stack Deployment Procedure Equipment: AMOSC/OSRL specialised equipment: Capping Stack Offset Installation Equipment (OIE) Personnel: Shell Capping stack and OIE Task Force 24/72 hours AMOSC/OSRL trained and experienced personnel.	Improving the timeframes to install a capping stack will reduce the volume of hydrocarbons released to the marine environment.	N/A	Compliance with Shell's global standards for well design integrity to assure mechanical and functional integrity for all anticipated loads throughout the life of the well. These standards meet or exceed current International and Australian standards. The APPEA MoU allows the signatories to share rigs, vessels, equipment, personnel and services to assist other operators in the event of a well blowout. This would potentially enable Shell to source a suitable capping stack installation vessel in a quicker timeframe, and would also provide access to additional equipment, personnel and services. Access to source control specialists is not considered a limiting factor.
Monitor and Evaluate				
Modelling (oil spill trajectory, fate & weathering, met ocean data, satellite imagery)	Processes: AMOSC call-off procedure Equipment: ADIOS2 on IMT Computers In-house deterministic modelling Personnel: Shell Geomatics team	Oil spill trajectory modelling can be commenced using AMOSC call off contract with RPS group within 2 hours of IMT being notified of the spill. The data would be used to inform IAPs and confirm the selection of other response strategies in the following days. Therefore, there is no environmental gain in improving the activation timeframe.	N/A	No alternative or additional controls have been identified that could improve this response.

Oil Spill Response Strategy	Resources	Environmental gain from increasing or improving resources	Alternatives considered	ALARP assessment
Surveillance – vessel	Processes: N/A Equipment: project vessels Personnel: Trained vessel crew	Several project vessels will be present in AC/L10. Shell has a contract with marine vessel contractors to provide additional vessels for oil spill response activities if required. There is no environmental gain from providing additional vessels.	N/A	Increasing vessel surveillance capability is not considered to be warranted based on the limitations associated with visual observations made from a vessel platform. Aerial surveillance in conjunction with deployment of tracking buoys is a more effective method of obtaining situational awareness. Vessel surveillance can be undertaken through the use of existing project vessels.
Surveillance – aerial	Processes: Third party call-off contract Aerial surveillance observation log Equipment: N/A Personnel: Trained aerial observers (AMOSC/AMSA/OSRL)	Shell has third-party call off contracts for helicopters and fixed wing aircraft. These aircraft can be ready for mobilisation in 4-8 hours. Trained aerial observers are available within 24 hours.	Personnel trained in aerial observation could be on standby in order to provide higher quality data to the IMT. However, in the 1st 24 hours the spill it is likely to cover a relatively small geographical location close to the release point. Therefore, initial untrained observations are considered to be adequate given the other data available to the IMT such as spill modelling, tracker buoy data etc.	Untrained aerial observation opportunities exist via Shell crew change helicopters. This in conjunction with tracking buoys and other monitor and evaluate data is expected to provide sufficient information for the IMT in the 1st 24 hours, until such time as trained aerial observers are available.
Tracking buoys	Processes: N/A Equipment: Tracking b uoys Personnel: Trained vessel crew for tracking buoy deployment	Tracker buoys are available for immediate deployment from a variety of locations including vessels. No environmental benefits can be gained by increasing the number of buoys available or time to deploy.	Access to additional buoys is available from the shared stockpile located in Broome.	No alternative or additional controls have been identified that could improve this response.

Oil Spill Response Strategy	Resources	Environmental gain from increasing or improving resources	Alternatives considered	ALARP assessment
Surface Chemical Dispersant				
Vessel based dispersant application	Processes: Shell Surface Dispersant Application Guide Equipment: 5 m^3 Dasic Slickgone and AFEDO spray set on each ISV (3 vessels in field or en-route) Personnel: Vessel personnel trained in vessel application techniques	Based on the existing capability, Shell could commence vessel based dispersant application immediately subject to AMSA approval (where relevant). Additional supplies of dispersant can be obtained from stockpiles on the Australian mainland.	N/A	In the event of a spill that was amenable, surface application of dispersant from vessels can be implemented immediately upon approval. In the event that additional stockpiles of dispersant are required they can be accessed from stockpiles in various locations across Australia.
Fixed Wing Aerial Dispersant (FWAD) application	Processes: Shell Surface Dispersant Application Guide. AMOSC/OSRL call-off procedure. Equipment: N/A Personnel: Air attack supervisors and pilots.	Pre-positioning of aircraft and personnel (air attack supervisor) in particular could enable a faster response time resulting in quicker application of dispersant with more oil treated and hence an overall environmental benefit.	Additional costs associated with pre-positioning aircraft and personnel are estimated to be in the order of 10s of thousands of dollars per day and are considered to be grossly disproportionate given the access to vessel-based dispersant application.	Shell has access to AMSA fixed wing aircraft wheels up in 4 hours and first implementation within 36 hours with supporting monitoring aircraft. Surface application of dispersant using vessels can be implemented much faster and therefore the costs associated with increasing FWAD capability are considered to be grossly disproportionate given the risk.
Contain and recover				
Containment and recovery equipment (offshore boom and skimmer system)	Processes: Shell Offshore Contain and Recover Guide. Equipment: project vessels AMOSC stockpile (Broome) 400 m of offshore boom and skimmer system. Waste storage capability	Increasing a contain and recover response will results in the removal of more oil from the sea surface and therefore less will accumulate on shorelines resulting in less environmental impacts to shoreline receptors and less waste generation.	Additional dedicated vessels with offshore boom and skimmer systems would cost in the order of 10s of thousands of dollars per day and is not considered warranted given the availability of such equipment is not a limiting factor in the	Shell has access to the AMOSC stockpile located at Broome (and other stockpiles elsewhere in Australia). The effectiveness of this response strategy is affected by sea state conditions and the thickness of oil at the sea surface; therefore it may only be applicable to an IFO spill. Maintaining booms and skimmers offshore is not practicable due to space limitations. The availability of contain and recover equipment is not a limiting factor and other response strategies could be implemented in

Oil Spill Response Strategy	Resources	Environmental gain from increasing or improving resources	Alternatives considered	ALARP assessment
	Personnel: AMOSC/AMSA/OSRL trained and experienced personnel.		effectiveness of this strategy.	faster timeframes (vessel-based dispersant) that would be more effective on IFO spills.
Shoreline Protection and Deflection				
Shoreline and nearshore booming equipment	Processes: Browse Island Incident Management Guide Equipment: AMOSC/OSRL specialised equipment Personnel: AMOSC/OSRL trained and experienced personnel.	Undertaking an improved shoreline protection and deflection response may reduce shoreline accumulation of oil resulting in less environmental impacts to shoreline receptors and less waste generation. However, shorelines in the Browse Basin are difficult to access due to their remoteness and safety risks and may not result in an overall environmental gain.	Access to additional booming equipment would cost in the order of thousands of dollars per day and is not considered warranted given the availability of such equipment is not a limiting factor in the effectiveness of this strategy.	Given the logistical and safety limitations with shoreline response in the Browse Basin, implementation of the response will take approximately 1 week to occur from decision being made to commence (noting that this decision may be made by WA DoT as the Control Agency). Pre-positioning of booms may result in potential damage to sensitive locations and is not considered ALARP. Improving on this response is not considered to provide an environmental gain.
Shoreline Clean-up				
Shoreline Clean-up Assessment	Processes: Shoreline Clean-Up Assessment Operational Monitoring Plan (OMP) Browse Island Incident Management Guide Helicopter call-off contract Equipment: Staging and accommodation facility Personnel: AMOSC/OSRL trained and experienced personnel.	Shoreline assessment specialised personnel can be deployed to remote shorelines from staging/accommodation facilities within 5-6 days. Undertaking quicker shoreline assessment would be beneficial to obtain pre-impact results, however, shorelines in the Browse Basin are difficult to access due to their remoteness and safety risks. Earlier deployment may not result in an overall environmental gain.	N/A	Shoreline surveys must be conducted systematically to be a crucial component of effective decision-making. Repeated surveys are needed to monitor the effectiveness and effects of ongoing treatment methods (i.e. changes in shoreline oiling conditions, as well as natural recovery). Improving the time for specialised personnel to access remote shorelines to make assessments is not warranted and will not result in an environmental gain. Noting that the decision to commence this strategy may be made by WA DoT as the Control Agency.

Oil Spill Response Strategy	Resources	Environmental gain from increasing or improving resources	Alternatives considered	ALARP assessment
Manual and mechanical removal (washing, flooding & flushing, sediment reworking & surf washing)	Processes: Shoreline Clean-Up Assessment OMP, Browse Island Incident Management Guide Equipment: AMOSC/OSRL specialised equipment Personnel: AMOSC/OSRL trained and experienced personnel.	Predictive oil spill modelling indicates the largest volumes accumulating on shorelines is 473 g/m^2 of condensate at Melville Island 7,777 g/m^2 of IFO at Bonaparte Archipelago, Kimberley PMZ and Kimberley Coast. Depending on the sensitivity of the shoreline removal of accumulated oil using heavy machinery and/or large numbers of personnel may result in additional environmental damage. Access by heavy machinery would also be restricted at offshore islands.	Costs for additional clean-up equipment are considered to be negligible and are not considered a limiting factor in the effectiveness of this strategy. Constraints primarily lie in mobilising equipment and personnel safely rather than sourcing additional equipment.	Shell has access to shoreline response kits. Given the logistical and safety limitations with shoreline response in the Browse Basin, implementation of the response will take approximately 1 week to occur from decision being made to commence (noting that this decision may be made by WA DoT as the Control Agency). Large scale operations involving large numbers of personnel and/or heavy equipment may cause adverse environmental impacts at many of these sensitive shoreline locations and would not result in an environmental gain. Manual clean-up equipment, using smaller teams for longer periods would be more effective in most of the shoreline locations predicted to be contacted.
Oiled Wildlife Response				
Oiled wildlife response implementation	Processes: WA Oiled Wildlife Response Plan (WAOWRP)/ NTOWRP Equipment: AMOSC Oiled Wildlife Response (OWR) containers (2) and box kits. NatPlan OWR containers (4), OSRL OWR equipment. Personnel: AMOSC/OSRL trained and experienced national and international OWR personnel.	Given access to local OWR equipment and personnel (AMOSC) through existing arrangements the response capability cannot be improved to result in an environmental gain unless an OWR kit is maintained offshore.	Any OWR will be undertaken in consultation with the relevant agencies e.g. WA DBCA, WA DoT and NT DEPWS. Such consultation is more likely to be a time limiting factor than accessing additional OWR resources.	Shell is a participating member of AMOSC with access to Mutual aid arrangements. AMSA MoU and OSRL contracts, enabling access to national and international oiled wildlife expertise. The closest OWR container is located in Fremantle and can be mobilised to Broome within 30 hours by vessel. Additional containers and box kits are available from other locations within Australia (including Broome for the closest box kit). Maintaining a dedicated OWR kit offshore is not considered to be reasonable given the low likelihood of needing to implement an OWR and the requirement for trained OWR personnel.

Oil Spill Response Strategy	Resources	Environmental gain from increasing or improving resources	Alternatives considered	ALARP assessment
Waste Management				
Waste management	Processes: Oil Spill Waste Management Plan Template. Equipment: Assorted waste receptacles and trucks from waste contractor with additional stocks from sub-contractors located in Darwin, Broome and/or Dampier. 635 m^3 capacity of offshore storage in Darwin. Personnel: Waste contractor personnel.	There are no limitations to obtaining the required waste storage capacity for this EP and no environmental benefit obtained by accessing additional waste storage capacity.	Costs for additional waste management resources are considered to be negligible.	Based on the Browse Regional OPEP, the volume of waste generated by the worst case spill is up to 5500 m^3. Decanting from contain and recover operations will also generate waste for disposal. Typically, this oily liquid waste would be held in the inboard storage tanks of the project vessels and disposed of at an onshore facility. Based on Shell's waste contractor capability the available resources are considered to be suitable for the worst-case spill scenario.

9.15.2 Aspect Context

This section describes any new or unique environmental impacts or risks presented by implementation of the emergency events response strategies included in the OPEP (HSE_PRE_013075) which may be enacted to respond to hydrocarbon spills as described in Section 9.14. Where impacts and risks are already adequately addressed in the preceding sections of this EP, as indicated in Table 9-73, they are not discussed further in this section.

Typically, environmental aspects, impacts and risks that arise from conducting the emergency response activities are similar to those already described in Section 9.3 to 9.14 for the planned and unplanned activities, particularly for vessel-based operations. Where additional impacts or risks exist for the identified aspects, these are described in the following subsection. Table 9-73 summarises the aspects generated by implementing the spill response activities and identifies any that are new or unique aspects for further assessment.

Table 9-73: Spill response strategies and associated environmental aspects identified for each including those that are considered new or unique

		Aspects Generated											
		Physical Presence	Lighting[2]	Noise Generated	Disturbance to Seabed	Disturbance to Ground[1]	Introduced Marine Pests	Discharge of Liquid Wastes	Planned Chemical Discharge[1]	Atmospheric Emissions	Greenhouse Gas Emissions	Waste Management	Emergency Events
Response Activities	Source Control (including SSDI)[3]	✓	✓	✓	✓		✓	✓	×	✓	✓	✓	✓
	Monitor and Evaluate	✓		✓			✓	✓		✓	✓	✓	✓
	Natural Recovery												
	Chemical Dispersant (Surface)	✓		✓			✓	✓	×	✓	✓	✓	✓
	Contain and Recover	✓		✓	✓		✓	×		✓	✓	✓	✓
	Protect and Deflect	✓		✓		×	✓	✓		✓	✓	✓	✓
	Shoreline Clean-up		×			×		✓		✓	✓	✓	
	Oiled Wildlife Response	✓		✓			✓	✓		✓	✓	✓	✓
	Scientific/ Oil Spill Monitoring	✓		✓			✓	✓		✓	✓	✓	✓

Notes:

✓ *The aspects and associated impacts and risks are already adequately addressed in the EP Sections 9.3 to 9.13.*

There is an aspect of the response activity that may produce a new or unique impact/risk not already addressed in the EP.

[1] New or different aspect not previously described in the EP

[2] Due to daylight operations only for typical vessel-based activities (excluding source control), lighting impacts for stationary, non-operating vessels at sea during night will not present a credible impact to sensitive receptors.

[3] As described further in the OPEP, source control activities to respond to a LoWC emergency event may include drilling a relief well. All source control activities will be managed in accordance with the accepted OPEP, Safety Case and WOMP.

9.15.2.1 Subsea (Source Control) and Surface Dispersant Application

Dispersants are applied to hydrocarbon spills to enhance the breakdown of hydrocarbon droplets and enhance dispersion into the water column to:

- break up floating oil and reduce floating oil concentrations, thereby reducing the exposure of seabirds and surfacing marine fauna to hydrocarbons; and
- reduces the size of the entrapped oil droplets further aiding dispersion and enhancing biodegradation.

Source control is the primary response strategy for the well loss of containment scenario and is aimed at stopping the flow of well fluids to the environment. Dispersant application at the well has the potential to increase in-water concentrations of hydrocarbons including soluble aromatic compounds and can result in a dispersant/oil mix in the water column with a similar distribution to the entrained/dissolved exposure for an untreated loss of well control scenario (refer to Section 9.14.4). Although the elevated concentrations will generally be of short duration, impacts may occur on values and sensitivities in the water column (refer to Section 9.15.3.1). Subsea Dispersant Injection (SSDI) may be required as part of the overall source control strategy to ensure conditions are safe for responders (i.e. minimise gas cloud concentration and extent) to enable relief well drilling.

9.15.2.2 Relief Well Drilling

The Crux relief wells are designed in accordance with Shell's Relief Well Manual and Browse Basin experience. Relief well planning and well kill modelling has been documented in the Crux Relief Well Plan.

Relief Well Locations

Preliminary relief well locations and trajectories were developed for each well accounting for seasonal metocean conditions and safe offset distance from the Crux drill centre.

The proposed relief well spud locations, relief well trajectories and subsea intersection points used for relief well design planning purposes are illustrated in Figure 9-11 and shown in Table 9-74.

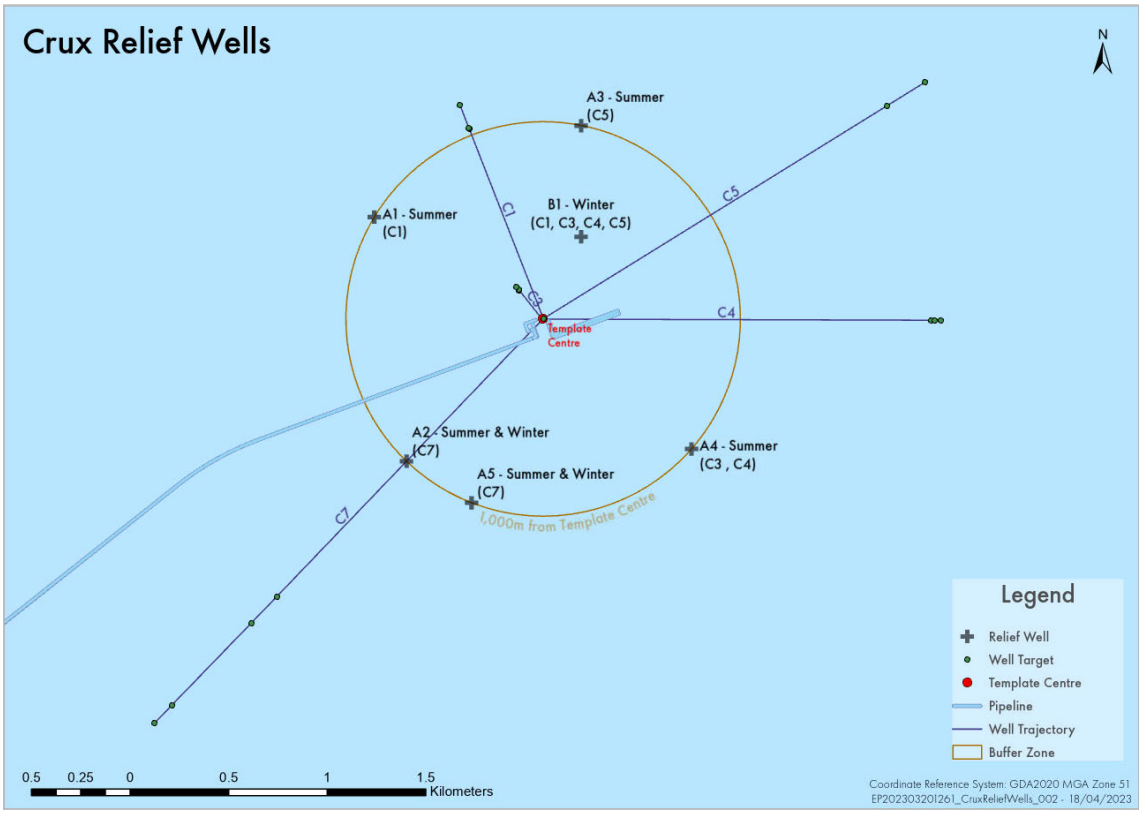


Figure 9-11: Illustration of proposed relief well spud locations, relief well trajectories and subsea intersection points.

Table 9-74: Preliminary Relief Well Surface Locations

Name	Target	East (GDA2020)	North (GDA2020)
A1 (Summer)	C1	655614.7m	8566858.0m
A2 (Summer & Winter)	C7	655778.33m	8565620.25m
A3 (Summer)	C5	656663.2m	8567321.1m
A4 (Summer)	C3 & C4	657223.3m	8565682.5m
A5 (Summer & Winter)	C7	656108.19m	8565409.65m
B1 (Winter)	C1, C3, C4 & C5	657378.40m	8566757.9m

A review of the seafloor was conducted using survey data collected in 2017 and is suitable for the mooring of a semi-submersible for drilling purposes. Generally, the seafloor is flat and featureless within a distance of at least 350m from all proposed relief well locations. Within an assumed 1km radius mooring spread, anchor scours from historical Crux exploration drilling operations and carbonate mounds may be found, but do not prevent the mooring of the relief well drilling unit.

Relief well design criteria

The criteria below were adopted to define the relief well trajectories for planning purposes, as described in the Crux Relief Well Plan. Actual relief well trajectories may be adjusted as deemed necessary.

- Intersection point at the deepest casing shoe

- Bypass the target well at least 900ft (300m) before intersection
- The combined position uncertainty of both target and relief well is less than circa 45ft (15m) at the bypass depth
- No anticollision issues with other nearby Crux wells, either drilled or planned
- Inclination of less than 60 degrees used for planning purpose
- Incident angle between relief and target well between 2 and 8 degrees
- Maximum 3deg/100ft DLS used for planning purpose
- 9-5/8" casing set in the relief well prior to intersecting target well with 8-1/2" BHA
- Relief well shoe setting depth criteria similar as the target well, with the exception of the 9-5/8" casing that is set slightly shallower prior to intersecting the 8-1/2" hole in the target well.

Relief well design & inventory

The relief well design follows the Shell Casing and Tubing Design Manual requirements. The relief well configuration follows a similar design rationale as the Crux Development wells:

- Conductor: provides structural support for the installation of the inner conductor and provides structural and fatigue integrity for the well. The low-pressure housing is welded to the first conductor joint. For the Crux development wells a 36" conductor setting depth up to circa 62m TVD below mudline is targeted.
- Inner conductor: provides structural and fatigue integrity of the well, including all subsequent casing strings and the weight of the Blowout Preventer (BOP). For the Crux development wells a 26" inner conductor is used with setting depth at circa 350m TVD below mudline.
- Surface casing: provides pressure integrity when drilling the subsequent 12-1/4" section with BOP installed. For the Crux development wells the high-pressure wellhead housing is welded to a 22" extension joint and swedged to 13-3/8" casing (or similar).
- Intermediate casing: The last casing set prior to drilling the intersect section. This string is designed to withstand all loads associated with the dynamic kill. On the Crux development a tapered 10-3/4" x 9-5/8" casing is used.
- Wellhead system: A dedicated wellhead system has been ordered as part of the Crux relief well inventory, which is the same wellhead system as used on the Crux development wells. Hence service agreements will be in place for running tools and associated wellhead services.
- Casing accessories: Casing shoes, float equipment and centralisers will be available as part of the Crux relief well inventory throughout the drilling campaign. Service agreements will be in place as part of the Crux Development drilling campaign, including for Casing Accessories and Tubular Running Services.

Casing and liner, associated accessories and wellhead equipment will be maintained to ensure there is always equipment readily available to drill a Crux relief well. The minimum relief well equipment inventory is defined in the Crux Relief Well Plan and shown below in Table 9-75:

Table 9-75: Minimum Relief Well Equipment Inventory

String	Quantity
36" 553ppf 1.5" WT X65-M Viper-3ST M95 or similar	2 jts
36" 553ppf 1.0" WT X65-M Viper-3ST M95 or similar	2 jts
36" 553ppf 1.0" WT X65-M Viper-3ST M95 shoe joint or similar	1 jts

26” 202ppf 0.75” WT X70-M Viper-3ST M95 or similar	350m
26” 202ppf 0.75” WT X70-M Viper-3ST M95 shoe joint or similar	1 jts
13-3/8” 72ppf P110 VAM21 or similar	2213m
10-3/4” 65.7ppf L80 VAM21 or similar	600m
9-5/8” 53.5ppf Q125R VAM21 or similar	4050m
Wellhead	**Quantity**
LB-2M Low-pressure wellhead housing	1 x
LB-2M 15ksi High-pressure wellhead housing	1 x

Well Kill Modelling Summary

Dynamic well kill simulations were conducted by Schlumberger and are documented in the Crux Relief Well Plan. Single relief well kill capability was confirmed for all scenarios. The modelling for a blowout from the 8-1/2” reservoir section with the drill string stripped back into 9-5/8” shoe is shown below:

- Kill method — Single stage kill
- Modelled Kill mud weight (sg) — 1.4
- Rig pumps assumed — 4x 14-P-220
- Modelled Kill rate down DP (bpm) — 10
- Modelled Kill rate down C&K lines (bpm) — 54
- Killable with 1 relief well — Yes

No intersection of the reservoir is planned in 12 ¼” hole and no zones with hydrocarbon flow potential are prognosed in this hole section. For due diligence, well kill modelling sensitivities were also performed for blowout scenarios from the 12 ¼” hole for the low likelihood scenario of an unplanned penetration into the reservoir. Single relief well capability was confirmed for all scenarios.

Table 9-76: Well Kill Modelling Sensitivity Confirmation

Scenario	12-1/4” DP in hole Deep intersect	12-1/4” DP in hole Shallow intersect	12-1/4” Open hole Shallow intersect
Kill method	Single stage kill	Single stage kill	Staged kill
Modelled Kill mud weight (sg)	1.3	1.3	1.55 / 1.2
Rig pumps assumed	4 x 14-P-220	4 x 14-P-220	4 x 14-P-220
Modelled Kill rate down DP (bpm)	10	12	32
Modelled Kill rate down C&K lines (bpm)	48	89	89
Killable with 1 relief well	Yes	Yes	Yes

Whilst a single relief well is capable of killing the well in all these scenarios, additional pumping capability above what could be expected for a conventional drilling rig would be required the achieve the necessary kill rates for the 12 ¼” shallow intersect case (8” pump liners) and for the 12 ¼” case where there is no drill string in the hole (8” pump liners and an additional 2000HP pump). This additional equipment would be sourced in line with the relief well response time model. Equipment suppliers have been engaged during the planning process to verify timely availability of this equipment. Suitable pump skids can be sourced locally from local service

providers with global framework agreements in place. Pump liners would also be sourced through the rig service provider.

Relief Well Drilling Rig Specifications

Relief well drilling rig specifications are captured within the Crux Relief Well Plan, with key specifications summarised in Table 9-77 below.

Table 9-77: Relief Well Drilling Rig Specifications

Specification	Value
Water depth rating	> 170m
Station keeping	Anchor moored
BOP rating	10,000psi or more
Fluid storage capacity	> 4050bbl (min. 3 x Crux Dev. Well volume)
Mud pump system	4x 14-P-220 or Lewco W-2215 triplex or similar mud pumps
Cement unit	> 2,000 HP
Choke & kill lines	3 1/16” or more
Hookload	860,000lbf (Min. required for drilling of the Crux Dev. Wells)
Max. Drilling depth	Min. circa 4,000m (Deepest planned intersect point)

Relief Well Drilling Rig Sourcing

Shell is a signatory to an Australian Petroleum Production and Exploration Association (APPEA) memorandum of understanding 2022 (MoU) between Australian offshore operators to provide mutual aid to facilitate and expedite mobilising a MODU and drilling a relief well in the event of a loss of well control incident. The MoU enables the signatories to share rigs, equipment, personnel and services to assist another operator in need.

MODU availability is tracked on a monthly basis. Shell has access to Clarksons Sea/response software platform through its OSRL membership. The software uses its patented technology to identify emergency vessels, rigs and equipment most suitable for source control operations and those that are closest to the incident location.

Sea/response real-time vessel tracking has been set up to search vessels on pre-identified mission requirements covering Capping, Containment and Offset Installation Equipment (OIE). Vessels that already have an approved Safety Case for working in Australia are tracked.

Shell Australia has arrangements in place for specialist assistance to help with engineering and operational support for relief well planning and execution. Shell has Global Framework Agreements (GFA) in place with the two preferred tertiary well control contractors Wild Well Control (Outline Agreement 4610064445) and Halliburton Boots & Coots (Outline Agreement 4610065559). In turn, Shell Australia has local contracts with both providers to allow a rapid call-off.

The scope of services covered by these contracts includes but is not limited to:

- Emergency response services involving all activities necessary to establish control over a blowing well.
- Well control management services involving the integration of the well control contractor into the Source Control Branch for effective and harmonized levels of communication and control.
- Routine engineering services and contingency planning.
- Training of personnel.
- Developing well intervention methods.

- Modelling the reservoir including inflow performance and kill rate requirements.
- Civil / logistics involving platform inspection, design and repairs.
- Firefighting, including well capping, snubbing, freezing, hot tapping and valve drilling.
- Relief well planning and drilling, pumping services.
- Environmental clean-up services.

Directional drilling and ranging services can be provided under the existing local Shell Australia Well Services Contract. Alternatively, ranging services can also be provided by Halliburton under the Boots and Coots GFA. Similarly, well kill modelling services are available under the above mentioned GFAs with Wild Well Control and Halliburton Boots & Coots. Alternatively, these services can also be provided through the existing Well Services Contract with Schlumberger, who have provided relief well planning services for Crux in 2022.

Relief Well Drilling Response Time Model

It is estimated a suitable MODU could reach the well location and kill the well within 80 days. A detailed response time model with key milestones in line with APPEA Source Control Guidelines is presented in the table below for MODU's active in Australian waters.

Non-drilling performance specific durations follow the APPEA Source Control Guidance document. Drilling durations are based on the Crux Development well planning assumptions with additional allowance for ranging and well kill (Table 9-78). Drilling timings benchmark within the Q2 quartile of the Rushmore database and follow Operator historical Trouble Free Time (TFT) and Non Productive Time (NPT) offset drilling performance trends.

Table 9-78: Relief Well Drilling and Well Kill Duration

Phase	Task / Milestone	Duration
Activation (7days)	• Event reported • Begin sourcing of relief well rig • Concurrently begin activation of source control team and source control specialists	1
	• Relief well rig confirmed. • Relief well MODU suspends operations and commence preparations for mobilization to relief well location. • Commence demobilisation of equipment from previous operator • Concurrently, commence preparation of relief well MODU Safety Case Revision. • Concurrently, commence preparation of relief well design, dynamic kill plan and relief well WOMP.	6
Transit (21 days)	• Relief well MODU contract confirmed. • Finalise demobilisation of equipment from previous operator. • Finalise preparations for mobilization to relief well location.	3
	• Mobilise rig to relief well location.	18
Drilling & Well kill (52 days)	• Relief well MODU Safety Case Revision and WOMP approved by NOPSEMA. • Commence preparations for spud	3

Phase	Task / Milestone	Duration
	• Commence mobilisation of equipment to relief well MODU.	
	• Commence relief well drilling operations to intercept and kill the well • Continue mobilisation of equipment & personnel required to kill the well • Finalise well kill preparations & conduct well kill	49

9.15.2.3 Contain and Recover – Decanting Operations

Application of the Contain and Recover strategy is significantly limited by weather, logistics, and requires substantial temporary waste storage for recovered hydrocarbons. Recovered hydrocarbons will inevitably contain a large proportion of water in addition to recovered oil that may need to be decanted back to the sea to optimise the recovered oil fraction. Refer to the OPEP for further details.

9.15.2.4 Shoreline Clean-up and Protect and Deflect – Disturbance to Ground

Conducting shoreline protection and clean-up involves moving personnel and equipment, which includes the environmental aspect of ground disturbance. The objective of shoreline clean-up is to apply clean-up techniques that are appropriate to the shoreline type to remove as much oil as possible where there is a net environmental benefit in doing so. Various techniques may be used alone or in combination to clean up oiled shorelines, including Shoreline Clean-up Assessment Technique (SCAT), natural recovery, absorbents, sediment reworking, manual and mechanical removal and washing, flooding, and flushing. Considerations for selecting and implementing shoreline clean-up techniques are included in the OPEP.

The deployment of booms to protect sensitive shoreline receptors, typically pre-emptively, introduces the potential for ground disturbance or damage to nearshore habitats such as intertidal reefs, mangroves, seagrasses and macroalgal communities that are present at offshore island groups present in the Planning Area (Table 7-3), or along the WA and NT coastlines.

9.15.3 Description and Evaluation of Impacts

9.15.3.1 Subsea and Surface Dispersant Application – Planned Chemical Discharges

Surface and subsea dispersant application has the potential to increase in-water concentrations of hydrocarbons, including soluble aromatic compounds. Associated environmental effects include an increase in the mass of entrained hydrocarbons with smaller droplet sizes affecting larger areas and increased bioavailability for marine organisms (e.g. fish, plankton, benthic invertebrates). The effects of entrained hydrocarbons on sensitive environmental receptors are discussed in Section 9.14.6. Although these elevated concentrations will generally be of short duration, impacts may occur on values and sensitivities in the water column. Particular values and sensitivities in the area that may be affected by the dispersant chemical, and oil/dispersant mix in the water column are described below.

9.15.3.1.1 Physical Environment

Water Quality

Environmental effects associated with dispersant application include a temporary reduction in water quality and exposure of marine biota to the inherent toxicity, biodegradability and bioaccumulation properties of dispersant chemical, which vary according to dispersant types. Additionally, dispersants combined with dispersed oil can increase the toxicity of spilled oil and this may affect sensitive receptors such as corals, seagrass, and macroalgae (Couillard et al. 2005).

Dispersant combined with hydrocarbons in the water column can be acutely toxic to marine biota (Couillard et al. 2005). The increase in toxicity results from the chemical dispersant making the hydrocarbons more readily bioavailable (ERM 2013, Fuller et al. 2009). The elevated concentrations will generally be of short duration; however, impacts may occur on sensitive values and sensitivities in the water column. Values and sensitivities that may be affected by the use of dispersants in the water column are described in the following sections.

9.15.3.1.2 Biological Environment

Benthic Communities

The Crux Development Drilling activity is located within the dispersant application exclusion zone as defined in the OPEP (Section 4.5.5), with the closest shallow water features being Goeree Shoal, Eugene McDermott Shoal and Vulcan Shoal:

- Goeree Shoal is located ~8 km north north-west of the Operational Area in water depths of ~20 m
- Eugene Mc Dermott Shoal is located ~8 km east south-east of the Operational Area in water depths of ~15 m
- Vulcan Shoal is located ~17 km north north-west of the Operational Area in water depths of ~10 m

When the source of a spill is located within a dispersant exclusion zone, under certain environmental conditions and operational response circumstances, it may still be appropriate to use either subsea or surface dispersants. To exemplify this, subsea dispersant may be used in response to a loss of well control to reduce hydrocarbons at the surface, thereby allowing for safe operation of response teams onboard vessels or the MODU, which undertake critical response tasks which reduce or limit the duration of an overall spill event. In this example the use of the dispersant may be assessed as critical to bring a well back into control, which will have a greater net benefit to the environment than the potential negative effects of dispersants and dispersed hydrocarbons on local shoals and banks.

The extent of impacts from the use of dispersants will depend on the chemical dispersant type and dose rates, and external conditions (time of the year, weather and sea conditions, proximity of sensitive receptors and their life stage, etc.). These impacts will provide another consideration into the decision process on strategy selection (SIMA) and timing on a case-by-case basis at the time of the incident as described in the OPEP.

By design, the application of chemical dispersants (surface and subsea) will break up oil into smaller droplets so that they are dispersed, diluted and biodegraded more rapidly in the water column. As such, dispersant use increases the risk to benthic habitats primarily through increasing the concentration of bioavailable hydrocarbons in the water column and facilitates the dissolution of any soluble compounds (French McCay and Payne 2001). In shallow water the temporarily increased concentrations of hydrocarbons within the water column may result in greater exposure of benthic habitat and sediments within the immediate response area. Most benthic habitats, including benthic fauna species have planktonic larval phases (e.g. corals, echinoderms, sponges etc.) and sessile filter feeders are at greater risk of toxicity from chemically dispersed hydrocarbons than untreated hydrocarbons, however the sensitivity range of most species is such that, except in the immediate area and only for a short period of time following the dispersant application, impacts are expected to be minimal.

Nearshore benthic communities are also impacted by the application of chemical dispersants on oil. Studies have shown that the effects of physical contact (smothering) on subtidal habitats by the oil/dispersant mix can cause sublethal stress and reduced growth rates in seagrass (Zieman et al 1984, Peters et al 1997) and are likely to cause a decline in metabolic rates and partial mortality in corals (Shigenaka 2001, Negri and Heyward 2000). Photosynthesis may also be impaired in symbiotic zooxanthellae along with impaired respiration rates (Peters 1981, Knap et al 1985). Smothering of macroalgae can reduce or block diffusion of CO_2 across cell walls

(O'Brien and Dixon 1976) resulting in mortality or partial mortality. Studies following the Deepwater Horizon incident showed long-term, non-acute effects of the spill on coral colonies up to seven years following the event (Girard and Fisher 2018).

A 25-year study documented by DeMicco et al. 2011 on the net environmental benefits of the use of dispersants on benthic communities including mangroves, seagrass and coral in a tropical environment observed mortality to invertebrate fauna, seagrass, and corals in the short term at both the dispersed oil and non-dispersed oil sites. In the long-term (10–25 years), as compared to the reference site, there was little to no oil detected and the ecosystem appeared to have returned to pre-dosing condition at the dispersed oil site. Although dispersant use resulted in short-term impacts, long-term disruption was not observed, and the area returned to pre-impact condition.

Marine Fauna

Marine mammals may be exposed to dispersed oil within the water column externally (e.g. swimming through surface slick) or internally (direct ingestion or consumption of affected prey) (AMSA 2015, IPIECA 1995). The physical impacts from ingested hydrocarbons with subsequent lethal or sublethal impacts are applicable; however, the susceptibility of cetaceans varies with feeding habits. Baleen Whales are not particularly susceptible to ingestion of oil in the water column as they feed by skimming the surface (i.e., they are more susceptible to surface slicks). Toothed Whales and dolphins may be susceptible to ingestion of dissolved and entrained oil as they gulp feed at depth. As highly mobile species, in general it is not expected that these animals will be constantly exposed to concentrations of hydrocarbons in the water column for continuous durations (e.g., >48–96 hours) that would lead to chronic effects. Furthermore, Geraci J.R and St. Aubin D.J (1988) identified that several cetaceans are able to detect and avoid a variety of oils and therefore dispersed oil.

Fish, including sharks and rays, may be exposed to dispersed oil within the water column. Potential effects include damage to the liver and lining of the stomach and intestine, and toxic effects on embryos (Fodrie et al 2014). Fish are most vulnerable to oil during embryonic, larval and juvenile life stages. However, very few studies have demonstrated increased mortality of fish as a result of oil spills (Fodrie et al 2014, Hjermann et al 2007, IPIECA 1999) and therefore dispersed oil.

Research on the toxic effects of oil/dispersant mixture on fish and crustacean larvae found that the median lethal concentration for total petroleum hydrocarbons was ~4.0 mg/L (4000 ppb), compared to hydrocarbons treated with chemical dispersants where it ranged from ~22 mg/L to 62 mg/L. For dispersant exposures alone, the median lethal concentration ranged from 17 mg/L to 50 mg/L (Couillard et al 2005). The differences in the relative toxicity among the tests indicated that most petroleum hydrocarbons in the chemically enhanced test are in less acutely toxic forms than the components that dominate the untreated tests (Couillard et al 2005).

Pelagic free-swimming fish and sharks are not expected to suffer long-term damage from oil spill exposure because dissolved/entrained hydrocarbons are typically insufficient to cause harm (ITOPF 2014). Pelagic species are also generally highly mobile and as such would not suffer extended exposure (e.g., >48–96 hours) at concentrations that would lead to chronic effects due to their patterns of movement. Fish that have been exposed to dissolved hydrocarbons can eliminate the toxicants once placed in clean water; hence, individuals exposed to a spill are expected to recover (King et al 1996). Marine fauna with gill-based respiratory systems, including Whale Sharks, are expected to have higher sensitivity to exposures of entrained oil.

In any case, dispersant application as a response option will be strategically assess by the IMT including the development of an Operational SIMA, which considers the net environment benefit gained and will only be selected if the success of the response option outweighs environment impact.

If applied appropriately, dispersants can provide a net environmental benefit by limiting exposure of an oil spill to receptors of high environmental value. Chemical dispersant has been applied successfully for several large well control events, including Montara in 2009. As such, these

practices are well understood within the industry. Elevated concentrations of dispersant are generally localised and of short duration, with dilution and dissipation being relatively rapid after application. Therefore, residual impacts from the use of dispersants are expected to be low in nature and scale when assessed in isolation compared to the impact of the spill without dispersant application, and ranked as minor impact consequence (Magnitude – – 2, Sensitivity M).

9.15.3.2 Relief Well Drilling

The drilling of relief wells is not dissimilar to the drilling of production wells and its associated activities. Like the drilling of well, including vessel operations required to support this activity, an evaluation of relief well drilling environmental impacts and risks, has the same/similar affects and level of impact (if required) as production well drilling activities and require the same/similar management controls. A key difference between the two drilling programs is the increased focus on the expeditious implementation of oil spill response and prevention measures to avoid a substantial impact emanating from a production well. Implementation of relief well drilling will be undertaken in accordance with Shell's Relief Well Manual, the Crux Relief Well Plan and Browse Basin experience. Refer to each aspect listed in Section 9.3 to 9.13 for an evaluation of potential impact assessment, ALARP assessment, acceptability, and EPOs associated with relief well drilling and associated activities/operations.

9.15.3.3 Decanting Operations/Contain and Recover – Discharge of Liquid Wastes

9.15.3.3.1 Physical Environment

Water Quality

In order to optimise recovery of floating hydrocarbon removed from the sea surface during Contain and Recover operations, it may be required to decant some of the oily water from temporary storage back into the ocean which may result in dissolved and entrained hydrocarbons being released back into the marine environment. This is not expected to lead to additional environmental impacts compared to the pre-application state of this strategy as the decanted water will be released at the spill site within already affected boomed areas and not elsewhere. Thus, no additional adverse environmental impacts are expected for water quality and marine biota and the residual impact consequence is assessed as nil (Magnitude 0, Sensitivity – L).

9.15.3.4 Shoreline Clean-up and Protect and Deflect– Disturbance to Ground and Lighting

9.15.3.4.1 Biological Environment

Disturbance to Intertidal Habitats and Marine Fauna

Conducting shoreline clean-up activities, including moving personnel and equipment, has the potential to cause damage to terrestrial and intertidal habitats, with subsequent impacts to dune/beach structure, flora such as mangroves and fauna such as turtles and birds (including nests). Invasive or frequent clean-up can also involve physical removal of substrates that could adversely impact habitats, fauna and alter coastal geomorphology and hydrodynamics. The impacts associated with undertaking shoreline clean-up may be more than if the product was left in place and remediated through natural processes (Natural Recovery). Leaving the product in place is a very common response option if continual human and vessel/vehicle traffic has the potential to generate greater impacts than the product itself. The optimal suite of response strategies will be determined through the SIMA process described in the OPEP.

The deployment of booms to protect shorelines and intertidal environments could potentially cause physical damage to coral reefs/intertidal ecosystems through the movement of the booms and/or anchors. A review of shoreline and shallow water habitats, and bathymetry, and the establishment of demarcated areas for access and anchoring will reduce impacts to nearshore environments.

Shoreline clean-up and protect/deflect activities will be managed to minimise impacts on turtles (including hatchlings) and birds through minimising disturbance to nesting, and feeding sites. Responder transfer to shore would be on small boats or helicopters. Responders would be accommodated on nearby medium sized vessels or facilities such as Prelude (if available). An assessment of appropriate equipment and personnel numbers required to reduce habitat damage, along with the establishment of access routes/demarcation zones, and operational restrictions on equipment and personnel movements will limit sensitive habitat damage and damage to important fauna areas. The establishment of temporary camp areas will be done in consultation with WA DoT, WA DBCA, NT Department of Environment, Parks and Water Security and a Heritage Advisor if access is sought to culturally significant areas.

Given the controls in place and the short-term and localised incidental environmental effects from shoreline clean-up activities, there would only be minor residual impact consequences presented by personnel and equipment undertaking shoreline clean-up activities (Magnitude – – 2, Sensitivity – M).

Lighting

Shoreline response activities may require use of lighting which can cause disorientation, disruption to nesting and breeding behaviours in seabirds, shorebirds and turtles.

Shoreline clean-up and protect/deflect activities will be managed to minimise impacts on turtles (including hatchlings) and birds through minimising disturbance to nesting, and feeding sites. An assessment of the need to conduct night-time operations in sensitive areas will be made and operational restrictions established. Due to the remote location of potentially impacted shorelines, conduct of response operations with smaller teams to reduce ecological impacts and the safety implications associated with dangerous marine fauna (e.g. saltwater crocodiles), it is unlikely that operations will be conducted at night.

Given the controls in place and the short-term and localised incidental environmental effects from shoreline clean-up activities, there would only be minor residual impact consequences presented by personnel and equipment undertaking shoreline clean-up activities (Magnitude – – 2, Sensitivity – M).

9.15.4 Impact Assessment Summary

Table 9-79 lists the highest residual impact consequence rankings of the relevant environmental receptor groups.

Table 9-79: Spill Response Strategies Evaluation of Residual Impacts

Environmental Receptor	Magnitude	Sensitivity	Residual Impact Consequence
Physical Environment – water quality	-2	M	Minor
Biological Environment – benthic communities, intertidal habitats and marine fauna	-2	M	Minor
Socio-economic and Cultural Environment[1]	N/A	N/A	N/A

[1] *Potential impacts to socio-economic and cultural environment receptors are not predicted to exceed those presented in Section 9.14 and are therefore not repeated in this section.*

9.15.5 ALARP Assessment and Environmental Performance Standards

An ALARP assessment of oil spill response capability is presented in Table 9-80. A description of controls, EPSs and MC for each oil spill response strategy are presented in the OPEP.

9.15.6 Acceptability of Impacts

Table 9-80 Acceptability of Impacts – Oil Spill Response Strategies

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Are the Impacts of an Acceptable Level?	Acceptability Assessment
Physical Environment	Water quality	No significant impacts to water quality during the Crux development drilling activity.	Yes	Spills from decanting and the application of dispersant may result in a temporary reduction in water quality. The level of toxicity varies amongst the different dispersant types and can result in increased in-water concentrations of the toxic components of hydrocarbons. Dispersant combined with dispersed oil can be acutely toxic in the water column. Dispersant application has a limited window of opportunity, as the ability for the dispersants to break up the hydrocarbons typically decreases as the product weathers therefore surface application would only be considered as a secondary response option for an IFO spill in conjunction with the operational SIMA, Shell Surface Dispersant Application Guide and the necessary regulatory approvals. Residual impacts from the use of dispersants are expected to be low in nature and scale when assessed in isolation compared to the impact of the spill without dispersant application.
Biological Environment	Benthic communities	No significant impacts to benthic habitats and communities. Impacts to non-sensitive benthic communities limited to a maximum of 5% of the Operational Area.	Yes	Increased in-water concentrations of toxic components of hydrocarbons due to dispersant application may potentially contact submerged receptors such as corals, seagrass and macroalgae. Damage from protect and deflection equipment such as booms and anchors has a potential to damage intertidal habitats. The optimal suite of response strategies will be determined through the operational SIMA.
	Threatened and	No mortality or injury of threatened or migratory MNES	Yes	Moving personnel and equipment associated with shoreline clean-up activities has the potential to

Receptor Category	Receptor Sub-category	Acceptable Level of Impact	Are the Impacts of an Acceptable Level?	Acceptability Assessment
	Migratory Species	fauna from the Crux development drilling activity. Management of aspects of the Crux development drilling activity must be aligned to conservation advice, recovery plans and threat abatement plans published by the DAWE. No significant impacts to threatened or migratory MNES fauna.		cause ground disturbance or lighting impacts which may affect listed Threatened or Migratory MNES fauna populations fauna such as nesting turtles and birds (including nests). The impacts associated with undertaking shoreline clean-up may be more than if the product was left in place and remediated through natural processes (Natural Recovery). Leaving the product in place is a very common response option if continual human and vessel/vehicle traffic has the potential to generate greater impacts than the product itself. The optimal suite of response strategies will be determined through the operational SIMA and in consultation with relevant agencies such as WA DBCA, WA DoT and NT DEPWS.
	WA and NT mainland coastline	Limited environmental impacts to mainland coastline.	Yes	Damage from protect and deflection equipment such as booms and anchors has a potential to damage nearshore habitats along the WA and NT coastline. The optimal suite of response strategies will be determined through the operational SIMA and in consultation with the relevant agencies such as WA DoT and NT DEPWS.
Socio-economic Environment	Commercial fisheries	No negative impacts to exploited fisheries resource stocks which result in a demonstrated direct loss of income.	Yes	Shell will implement industry standard controls to manage impacts from the implementation of oil spill response strategies required due to unplanned hydrocarbon spills. An operational SIMA will be developed by the IMT using real-time monitoring and evaluation data to select the optimal suite of response strategies.
	Traditional Indigenous fishing	No negative impacts to exploited fisheries resource stocks.	Yes	
	Tourism & recreation	No negative impacts to nature-based tourism resources resulting in demonstrated loss of income.	Yes	

New and/or unique environmental impacts associated with implementation of the possible spill response strategies are considered to be acceptable where they present a net environmental benefit compared to the 'do nothing' option as determined and documented through the SIMA process as described in the OPEP.

Assessment of these impacts from the spill response strategies discussed above determined the residual ranking of minor or lower (Table 9-79). The acceptability of these impacts has been considered in the context of:

Principles of ESD

The response option impacts described above are consistent with the principles of ESD based on the following points:

- The health, diversity and productivity of the marine environment will be optimised for future generations through minimising the impact of any large scale spills through implementation of the accepted OPEP and associated response strategies
- The precautionary principle has been applied, and studies undertaken where knowledge gaps were identified. This knowledge has been applied during the evaluation of environmental impacts
- With the prevention and mitigation controls in place, the conservation of biological diversity and ecological integrity shall be optimised following a large scale spill.

Relevant Requirements

Management of the impacts associated with spill response strategy implementation are consistent with relevant legislative requirements, including:

- the NOPSEMA accepted OPEP (HSE_PRE_013075).

Matters of National Environmental Significance

Threatened and Migratory Species

Alignment with the relevant management plans, recovery plans and conservation advice for threatened and migratory fauna will be addressed on a case-by-case basis through the SIMA process when selecting appropriate spill response strategies. These plans and advisory documents will assist with determining protection priorities once the nature, scale and trajectory of the spill is understood post event.

Commonwealth Marine Environment

The new and/or unique environmental impacts presented by dispersant application, decanting and/or shoreline clean-up on the Commonwealth marine environment when assessed in isolation from the spill event itself will not credibly exceed any of the significant impact criteria provided in Table 8-1.

External Context

There have been no objections or claims raised by Relevant Persons to date around the dispersant application, decanting or shoreline clean-up aspects. Shell's ongoing consultation program will consider statements and claims made by stakeholders when undertaking further assessment of the risks.

Internal Context

Shell has also considered the internal context, including Shell's environmental policy and ESHIA requirements. The EPOs and the controls which will be implemented are consistent with Shell's internal requirements.

Acceptability Summary

As outlined above, the acceptability of the associated impacts has been considered in the context of:

- the established acceptability criteria;
- ESD;
- relevant requirements;
- MNES;
- external context (i.e. stakeholder claims); and
- internal context (i.e. Shell requirements).

The residual impacts have been assessed as minor, which Shell considers to be acceptable if they meet legislative and Shell requirements. The discussion above demonstrates that these requirements have been met in relation to the new and/or unique impacts associated with implementation of the identified spill response strategies. Based on the points discussed above, Shell considers the residual impacts to be ALARP and acceptable.

9.15.7 Environment Performance Outcome

Environment Performance Outcome	Measurement Criteria
Spill response strategies shall be selected and implemented to minimise the overall environmental impacts from a spill and the associated implementation of the response strategies themselves.	OPEP implementation records and SIMA records.

10 Environmental Plan Implementation Strategy

The OPGGS (E) Regulations require an Implementation Strategy to be incorporated into the EP that includes the following:

- Measures, systems and practices to ensure that environmental risks continue to be identified and reduced to a level that is ALARP, mitigating measures are effective, and EPOs and standards are met
- Chain of Command
- Measures to ensure workers are aware of their responsibilities
- Monitoring and management
- Records and reporting
- OPEP provided as a separate document together with this EP submission
- Consultation (see Section 5 Stakeholder Consolation).

10.1 Management Systems

The Shell HSSE & SP-MS provides a structured and documented framework for the effective management of HSSE & SP risks and demonstrates how the requirements of the Shell Group HSSE & SP Control Framework are implemented throughout Shell. The Shell HSSE & SP-MS Manual consists of the following sections:

- Leadership & Commitment
- Policy & Objectives
- Organisation, Responsibility & Resources, Standard & Documents
- Risk Management
- Planning & Procedures
- Implementation, Monitoring & Reporting
- Assurance
- Management Review.

The HSSE & SP-MS is subject to a continuous improvement ‘plan, do, check, review’ loop, with eight components as outlined in Table 10-1. There are numerous, specific ongoing (typically annual) assurance activities against each of the eight components in this HSSE & SP-MS Manual as detailed below. The audit and review function of the HSSE-MS seeks to ensure that the system is being implemented, is effective and to identify areas for improvement. Examples of elements that demonstrate continuous improvement are highlighted under each section.

Table 10-1: HSSE & SP-MS Elements Implementation and Improvement

Management System Element	Implementation and Improvement
Leadership and Commitment *Creating and sustaining a culture that drives Shell’s commitment of no harm to people or the environment*	Seek ongoing feedback on how others perceive HSSE & SP leadership (performance reviews, HSE Culture Survey (Shell People Survey), 360 feedback)
Policy and Objectives *Supporting the implementation of Shell HSSE & SP Commitment and policy*	Set annual HSSE & SP targets to drive continuous performance Annually Review and approve HSSE & SP objectives

Management System Element	Implementation and Improvement
Organization, Responsibilities and Resources *Establishing and maintaining an organization that enables the compliance with the HSSE & SP Control Framework*	When there are changes in the Business or organization, identify the positions that require Competence assurance. HSSE & SP Critical Position Register, Shell People Competency Profiles
Risk Management *Identifying the HSSE & SP hazards and establishing the controls to reduce the risks to ALARP*	Ongoing review of Hazards and Risks. Regular review of Risk Registers
Planning and Procedures *To integrate the requirements of the HSSE & SP Control Framework into business plan and procedures: Emergency & Crisis Response, Spill Preparedness and Response, MOC, PTW*	Establish and maintain a programme of testing of Emergency Response plans and procedures at least once a year or more frequently based on the level of risk. Shell Australia Emergency Response Plan (ERP), Records of Emergency Response (ER) drills, exercises and After Action Reviews (AARs).
Implementation, Monitoring and Reporting *Implement the HSSE & SP requirements embedded in plans and procedures and take corrective action when necessary*	Report all Incidents, including Near Misses, to the Supervisor of the work activity. Learn from Significant Incidents and High Potential Incidents through communication and implementation of required actions.
Assurance *Providing assurance that the HSSE &SP Control Framework requirements are implemented and effective*	Establish, maintain and execute HSSE & SP Self-Assessments in support of the Business HSSE & SP Assurance Plan, self-assessment, CF Gap Analysis, HSSE & SP Management Review. Management Review (documents demonstrating how Shell Australia reviews the effectiveness, adequacy and fitness for purpose of the HSSE & SP Management System and take action to improve) Review the HSSE & SP Management System and its individual elements at least once a year and document the results.
Management Review *Reviewing the effectiveness, adequacy and fitness for purpose of the HSSE & SP MS and taking actions for improvement*	Assess the Effectiveness and Adequacy of the management system in delivering the policy and Objectives and in driving continual improvement.

Shell's HSSE & SP-MS covers all operations within its business, including those activities associated with the Crux Development Drilling Program.

Shell's Wells Global Management System operates within the HSSE & SP Control Framework and provides for a consistent approach across Shell's well activities globally. It sets out the principles, policies, standards, and processes that must be adhered to for risk management, technical assurance and standards, competency as well as HSE management. The WOMP for the Crux drilling campaign describes the application of the Shell Global Well Management System specifically to the activities covered in this EP.

10.1.1 Contractor Management

Contractors and their sub-contractors carry out a number of activities on behalf of Shell. Effective management of environment, integrity, health and safety risks in contracts involves setting clear expectations and managing these risks throughout the contract lifecycle.

Shell implements specific processes and activities aimed at ensuring that contracts consistently and effectively cover the management of HSSE & SP risks for the contracted activities. The contractor management processes implemented for Crux are consistent with the requirements of the Shell HSSE & SP Control Framework Contractor HSSE Management Manual.

Key aspects of the Contractor HSSE Management are:

Pre-contract Award Activities

- Appointing a competent contract owner and contract holder for each contract
- Determine the Contract HSSE & SP risk, by assessing the risk associated with the contracted activities
- Determine the contract mode consistent with International Association of Oil and Gas Producers (IOGP) modes of contacting
- For a high contract HSSE Risk, the contractor is to develop and provide a Contract HSSE Plan
- Assess whether the Contractor has the capability and resources to manage the risks associated with the contracted activities
- Before contract award, confirming that the Contractor meets requirements. Focus on closing gaps in draft contract HSSE & SP Plan submitted by Contractor
- Define the level of Company monitoring based on the capability of the Contractor, the contract HSSE & SP risk and the contract mode.

Post-contract Award Activities

- Require the Contractor to demonstrate that Contractor personnel responsible for managing the HSSE Risks of the contracted activity have knowledge of the HSSE requirements of the contract and any associated Contract HSSE Plan related to their role.
- Require the Contractor to demonstrate that all Contractor personnel will be given an induction on the HSSE risks of the contracted activities including the controls to manage those Risks specified in the contract and any associated Contract HSSE Plan.
- Verify that the HSSE requirements of the contract and any associated Contract HSSE Plan are being implemented and are effective at managing the HSSE Risk of the contract. Where necessary implement actions for improvement.
- Regularly assess the HSSE performance of the Contractor, including its management of Subcontractors.

Typically, the IOGP mode of contracting for activities occurring under this EP are Mode 2. Under this mode of contracting, as a minimum, all relevant field active contractors' HSSE & SP-MS will be assessed to ensure they meet materially equivalent outcomes to Shell's HSSE & SP-MS.

Additionally, the MODU contractor operates under a safety case which identifies major accident events and the associated controls and mitigation measures for the MODU. The safety case also describes MODU operation; explains the risk identification and assessment processes; demonstrates how the contractor's HSE systems manage those risks to ALARP, and details recovery measures.

The MODU contractor also implements a Safety Case Revision Document that identifies any additional risks specifically associated with the Crux drilling campaign that are not already covered in the safety case. It demonstrates how Shell's Management Systems are planned to be bridged to the contractor's HSE Management Systems to maintain a consistent management approach between the two companies, including linkages to Shell's IMT(W) Emergency Response Plan (HSE_GEN_011209).

Vessel based activities occurring within the Operational Area predominantly operate under a Mode 2 contract and use their own vessel HSSE-MSs to manage work scopes onboard.

10.1.2 Contractor Competency Requirements and Assurance

The contractor is responsible for ensuring that all their personnel have the appropriate level of competence required to safely and effectively carry out the work. The contractor is also responsible for the development and implementation of a competence assurance plan. The contract holder is responsible for ensuring that the contractor's competence assurance system is reviewed, robust and meets the Shell requirements.

In addition to trade competencies and qualification requirements, the minimum competence requirements for key contractors working on Shell assets are based on the required contractor work scope and are developed in consultation between Shell and the contractor.

10.1.3 Management of Change (MOC)

The MOC process for the Crux project is described in the Crux Management of Change Procedure. The overall objectives of the Project MOC Process are:

- Fully assess significant impacts of proposed project-level changes before decisions are made
- Prevent changes that would threaten the achievement of project objectives
- Ensure all potentially affected disciplines/parties are considered in the change assessment
- Permit changes that add value to the project with full consideration of impacts and risks
- Fully assess the risks associated with implementing, or not, the change.

Potential changes covered by this procedure includes:

- HSSE Change: changes that may impact HSSE requirements, including commitments within regulatory documents, such as Environmental Plans
- Scope Change: changes to the technical scope of the project, including mandatory requirements, specifications and procedures
- Organisational Change: changes to critical roles in the project, including Critical HSSE Leadership roles.

The MoC procedure is supported by specific procedures, templates and checklists.

- Identify – identify the need for change, initiate a MoC request with a proposed solution and gain endorsement by project management
- Screen – the screening identifies and considers the HSSE and project risks to confirm whether the MoC requires further development. This includes considered alternatives, HSSE considerations if any, required resources, cost and schedule consequences as far as is reasonable possible with the available data
- Develop – the change is detailed to a sufficient level to be risk-assessed by impacted parties. HSSE hazard screening may take place to confirm the need for a subsequent risk assessment. Where possible, actions to mitigate the risks will be identified and requirements to verify the effectiveness and inclusion of the mitigating actions will be detailed
- Approve – the proposed change(s) and the associated risks is reviewed by an MOC Panel to determine whether the change should be accepted or rejected
- Implement – following acceptance from the MOC panel, the change is implemented by impacted parties

- Close-out – verify once the change has been implemented that all outstanding issues have been addressed, that all work is closed out and all open action items are completed.

The Develop step for changes includes an assessment of HSSE&SP aspects as per the Crux Management of Change Procedure.

The following will also trigger the review of the management of a particular environmental impact or risk to ensure that ongoing management of impacts and risks are at ALARP and Acceptable levels:

- Changes in regulatory requirements/standards
- Information which may suggest an increase in environmental risks or impacts to those outlined in the EP
- Prominent new scientific studies which may 'negatively' change the understanding of environmental risks and impacts
- Objections or claims raised which require changes in EP content following the process outlined in Section 5.0.

The screening process for all new changes require assessment of HSSE&SP aspects as per Crux Management of Change Procedure. this may result in a change being flagged as possibly needing a change to the EP which require compliance with Regulation 17 of the Environment Regulations. If a change is considered significant as per Regulation 17 (5) or (6) and as determined by the MOC process, then a revised or new EP will be submitted to NOPSEMA for acceptance. Minor EP revisions will not be submitted to NOPSEMA for formal assessment.

10.1.4 Chemical Selection Process

Shell has adopted a chemical selection and approval process in accordance with Shell's chemical selection and approval guidelines as indicated in Shell Chemical Management Process (HSE_GEN_007879) and Shell Global Product Stewardship guidelines to assess chemicals than may pose environmental impact via planned discharges.

Figure 10-1: Chemical Approval Lifecycle

All chemical applications are required to be screened in accordance with Shell Global Product Stewardship guidelines (Figure 10-2). Importantly, the review, selection and approval of chemicals to be used to support the petroleum activity is required to be undertaken prior to chemical purchase and use.

Where chemicals may be discharged to the marine environment preference shall be given to chemicals that are deemed environmentally acceptable (PLONOR, Gold, Silver, D and E) with no substitution warning under the Offshore Chemical Notification Scheme (OCNS) adopted in the United Kingdom and the Netherlands. Chemicals that fall within this banding require no further assessment and are deemed ALARP and accepted.

Chemicals that do not have an OCNS ranking or fall outside of the preferential banding (PLONOR, Gold, Silver, D and E with no substitution warning) are required to be assessed further incorporating seeking a suitable alternative chemical of lower environmental impact. If no alternative is technically suitable, the chemical is required to be assessed via Shell Global Product Stewardship guidelines and ALARP demonstration with risk reduction control measures (Figure 10-3). Approval will be provided by the Shell Production Chemist / Product Steward Focal Point. Chemicals that are not deemed ALARP will be not approved, and an alternative product shall be requested.

To ensure that chemicals which may pose impact to the marine environment are managed appropriately on an ongoing basis, annual compliance checks will be made by Shell and chemical vendors of Shell's Chemical Programme Treatment Guide (TEC_PRE_006805) and Chemical Risk Assessment Register operational chemical registers. To accompany routine compliance checks, the impact of chemicals in key discharge streams will be assessed on an ongoing basis as indicated in Shell's Adaptive Management Framework.

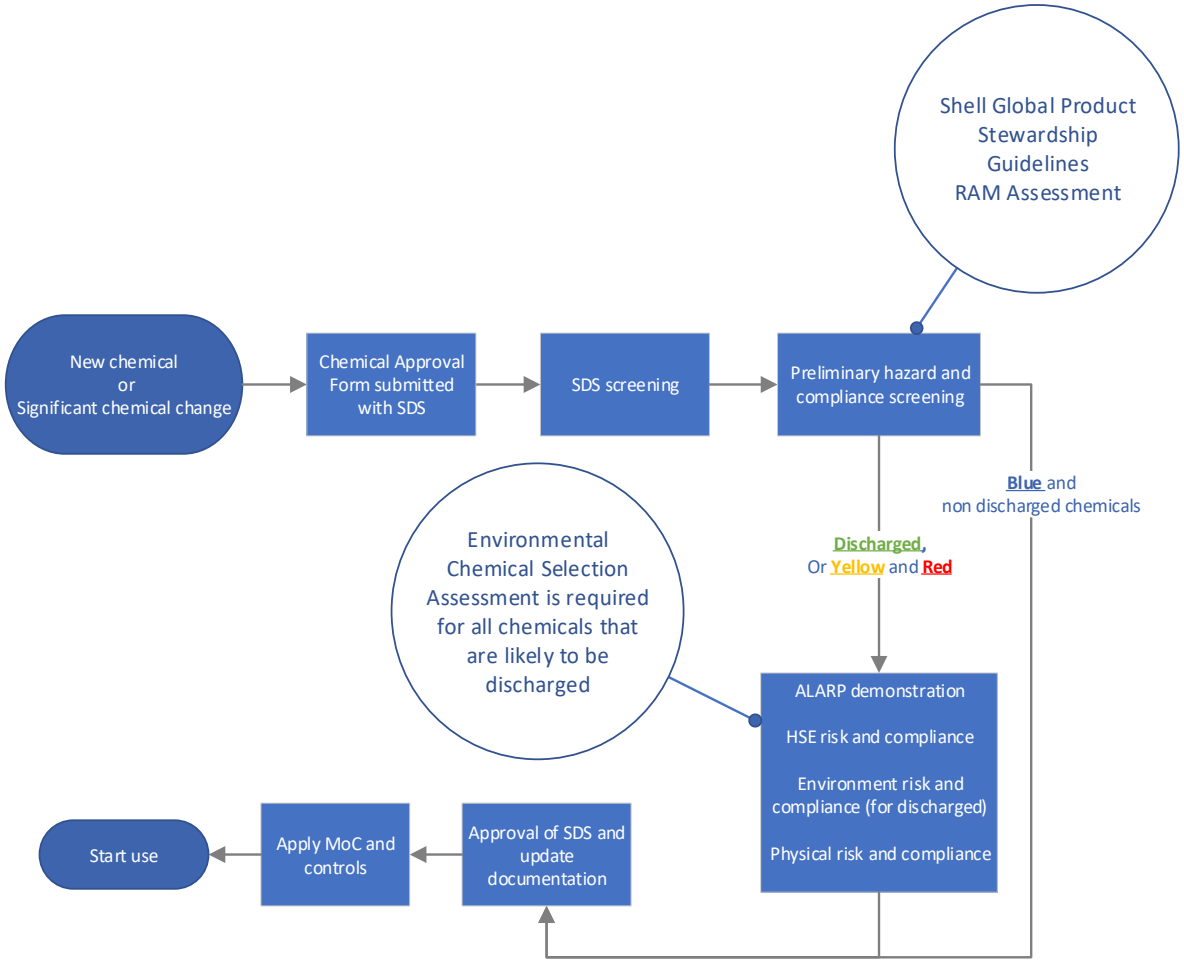


Figure 10-2: Chemical Approval Process

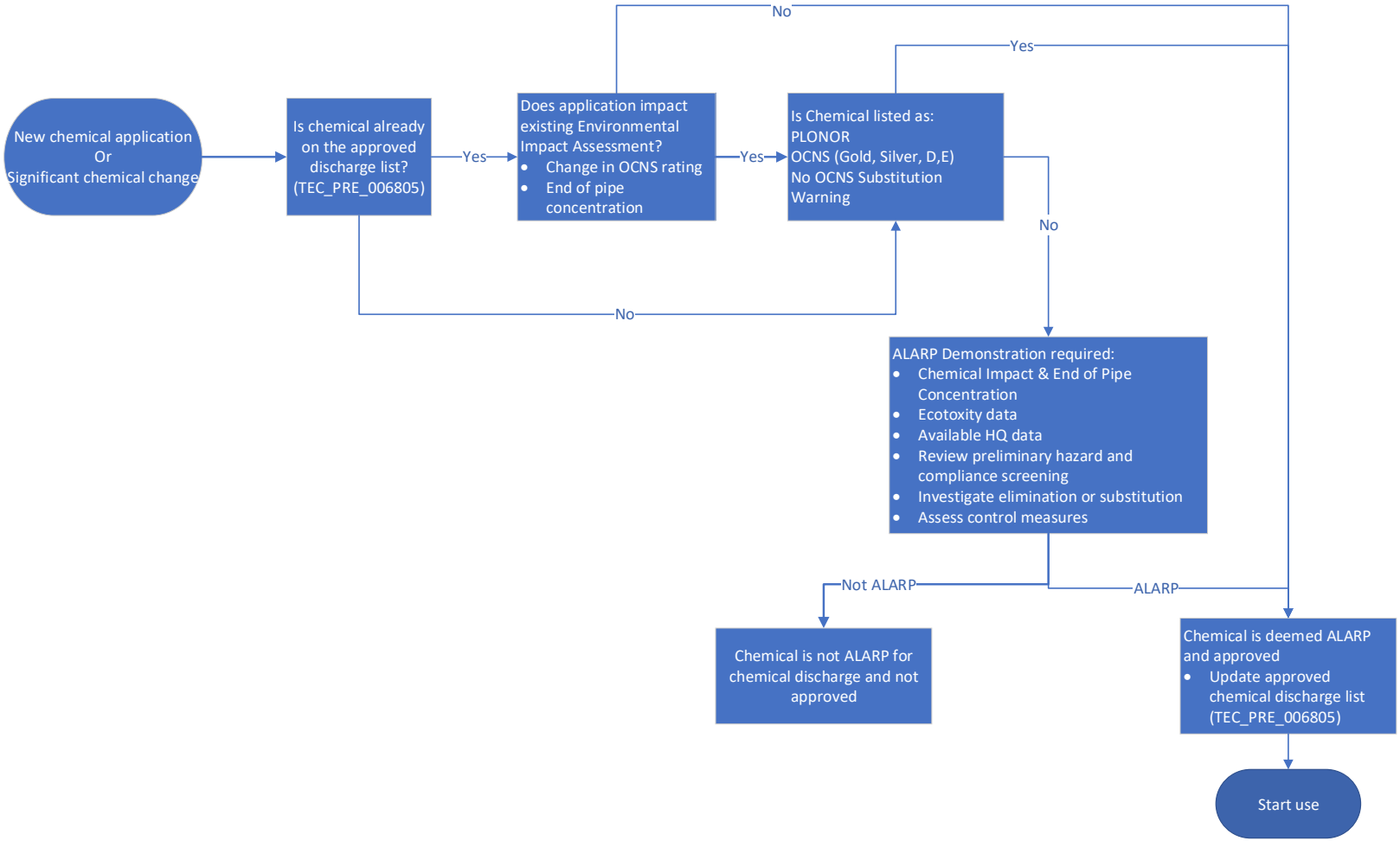


Figure 10-3: Environmental Chemical Impact Assessment

10.2 Roles and Responsibilities

Roles and responsibilities associated with this EP for key personnel are summarised in Table 10-2. Key roles and responsibilities related to the management and implementation of oil spill response arrangements in the event of an emergency event are outlined within the Shell Australia Regional OPEP.

Table 10-2: Key Responsibilities

Position	Responsibilities
Well Operations Team Lead	• Overall accountability for the activity. • Responsible for assigning resources and planning. • Responsible for the competence of the crews and contractors. • Responsible for auditing and verification. • Responsible for external reporting. • Accountable for Emergency and Oil Spill Response preparedness and readiness.[31] • Responsible for Environmental Performance and compliance with the EP.
SA Senior Well Engineer Operations (SWEO) [Rig Superintendent role]	• Reports to Well Operations Team Lead. • Responsible for the implementation of the EP. • Responsible for monitoring compliance (including contractor performance). • Responsible for the drilling unit compliance with Shell standards and any additional requirements laid out in this EP. • Responsible for the operational obligations outlined in this EP are communicated to the well site and is understood by the Senior Shell well site representative (SA Drilling Supervisor).
MODU Offshore Installation Manager (OIM)	• Responsible for carrying out all operations aboard the MODU in a manner consistent with EP. • Responsible for training and competency of all personnel so that they can carry out duties as required in this EP. • Responsible for notifying the Shell Australia Drilling Supervisor of any incidents arising from operations that may have an adverse impact on the performance objectives identified in this EP. • Manage deck spills per SOPEP.
AHT Master	• Responsible for acting immediately to rectify any environmental incident from the AHT • Ensure all crew members comply with the EP. • Manage deck spills per SOPEP. • Responsible for ensuring cetacean sighting recording is undertaken.
SA Drilling Supervisor(s) (DSV) (Company Site Representative)	• Infield implementation and monitoring including implementation of maintenance plan, waste management plan, operational procedures, maintaining logs. • Responsible for the operational obligations of this EP, communicating these obligations to the rig crew and enforcing compliance. • Prepare the well site operations plan and communicate this to the rig crew.

[31] *Note, this does not include any responsibilities specifically around executing emergency or oil spill response activities. These are all outlined within the OPEP.*

Position	Responsibilities
	• Daily reporting to the SWEO. • Responsible for ensuring Sphera reports and reporting incidents to Shell.
MODU Crew	• Responsible for immediate reporting of any environmental incident to the OIM. • Responsible for waste materials disposal such that no waste materials are disposed of to the sea (other than waste from the vessel's ablutions). • Follow any directive issues by the OIM with respect to environmental protection.
Wells and Logistics HSSE advisor	• Support and provide advice to the SWEO on HSE for the activity. • Compile monthly reporting and end of activity reports. • Manages HSSE incident investigations and closeout of actions and reporting.
MM Lead Wells	• Accountable for the provision of logistics resources including supply base, warehouse, road transport, airfreight and waste services and compliance with this EP.
Onshore Supply Chain Coordinator	• Responsible for execution of supply base, warehouse, road transport, airfreight and waste services and compliance with this EP.
Offshore Supply Chain Coordinator	• Responsible for execution of cargo management to and from the MODU in coordination with the Onshore Supply Chain Coordinator and compliance with this EP.
Aviation Service Coordinator	• Responsible for implementation of aviation logistics in compliance with this EP.
Rig Maintenance Supervisor	• Maintains a list of environmentally sensitive hoses as well as other critical maintenance items.

10.3 Competence and Inductions

10.3.1 Competency

All personnel required to work on the development drilling campaign shall be employed on the basis they are competent to do their job.

Within Shell, the Shell HSSE & SP Control Framework requires people in HSSE Critical Positions to have their HSSE-MS competence assured. These people must attain a set proficiency level in three competences: HSSE Lead; HSSE Prepare; and HSSE Apply. People in HSSE Critical Positions are responsible for the development and maintenance of effective barriers to prevent incidents.

SA maintains a HSSE Critical Positions Register and HSSE Critical Positions have been identified and positional competency requirements have been defined according to the Group HSSE Competence Framework Critical Leaders.

The minimum standard of competency in the Wells department staff is detailed in the Global Wells Management System Manual. HSSE professionals, including the Wells and Logistics HSSE advisor, have competency requirements established in the Global HSSE and SP Management System Manual.

Shell Drilling Supervisors must have attended a W320 Advanced Well Control course in the past 4 years (an internally run Shell course) or have sat a Shell Trade Test (for contractors) and hold a valid International Well Control Forum (IWCF) / International Association of Drilling Contractors (IADC) certification.

In terms of the MODU and vessel operators, only prequalified companies with whom Shell has a service agreement are qualified to bid for the activity. A HSE pre-qualification questionnaire is included in the tender package, which is evaluated by the HSE department in parallel to the technical and commercial evaluations. The Shell Maritime assurance processes including an approval through the Group Maritime Assurance Process and including the use of the OCIMF Offshore Vessel Inspection Database (OVID) and OVMSA assurance processes apply to all contractor vessel activities associated with Shell. Shell stakeholders required to assure a positive vetting through the Subject Matter Expert – Maritime Safety (or delegate), Aviation Subject Matter Expert and country security manager, Global Maritime Marine Warranty Surveyor and the project workstreams responsible for the activity to be conducted. Contractors have their own Competence requirements in place.

10.3.2 EP Induction

OPGGS(E) Regulation 14(5) requires that the implementation strategy must include measures to ensure that each employee and contractor working on, or in connection with, the activity is aware of their roles and responsibilities in relation to the EP.

All personnel will be given an HSSE induction prior to the commencement of work on the development drilling activity so that they are aware of their obligations and commitments. The HSSE inductions shall cover:

- Shell Australia HSSE & SP Policy and Commitment;
- legislative requirements – including key MARPOL requirements;
- key environmental aspects, impacts and risks associated with the activity; and
- Shell's key EP commitments and environmental management requirements.

Additionally, on arrival at the facility or vessel, personnel (including short-term visitors) attend an onsite orientation designed to familiarise them with the general operations and location of key areas. The orientation explains the site-specific safety, environmental and emergency response aspects.

10.4 Monitoring, Assurance and Incident Investigation

This section of the EP outlines the measures undertaken by Shell to regularly monitor the management of environmental risks and impacts of the activities against the performance outcomes, standards and measurement criteria, with a view to continuous improvement of environmental performance. The effectiveness of the Management System is also reviewed periodically as part of the monitoring and assurance process.

10.4.1 Environmental Performance Monitoring

Monitoring and review of environmental performance is done in a number of ways including monitoring of emissions and discharges, and through the use of various tools and systems. These monitoring systems meet the requirements of the following:

- Shell Australia Environmental Reporting Procedure (HSE_GEN_003179)
- Shell Australia Offshore Environmental Regulatory Approvals & Compliance Procedure (HSE_GEN_003180).

In accordance with OPGGS(E) Regulation 14 (7), the implementation strategy must provide for sufficient monitoring of, and maintain quantitative records of, emissions and discharges (whether occurring during normal operations or otherwise), such that the record can be used to assess whether the EPOs and EPSs in the EP are being met.

Parameters that are monitored and recorded during activities are detailed in relevant parts of Section 9 and are summarised in Table 10-3.*

Table 10-3: Emissions and Discharges Monitoring

Source	Parameter to be Monitored	Monitoring Frequency	Monitoring Equipment/ Methodology*	Records	EP Reference
Discharge from bilge system	Oil Content Volume As per IOPP Certificate	Per discharge	As per IOPP Certificate	Maintenance records of oily water separator Oil Record Book	Section 9.10
Discharge from the sewage and greywater	Quality Volume As per ISPP Certificate	As per ISPP Certificate	As per ISPP Certificate	Maintenance records of sewage treatment system	Section 9.10
Drill Cutting Fluids (including pit cleaning in the event of SBM being used)	Volume of Oil in Water	End of campaign	Oil on Cuttings test	Daily Mud Report	Section 9.10
Ballast Water	Volume Location	As required / per exchange	Ballast Water log	Ballast Water log	Section 9.8
Atmospheric Emissions	Diesel sulfur content	As required (every delivery)	Delivery certificates	Delivery certificates	Section 9.11
	Diesel volume used	As required (every delivery)	Delivery certificates	Delivery certificates	
Non-hazardous wastes generated and disposed	Volume of wastes	As required (every delivery)	Garbage Record Book	Garbage Record Book	Section 9.13
Hazardous wastes generated and disposed	Volume of wastes	As required (every delivery)	Garbage Record Book	Garbage Record Book	Section 9.13
Accidental releases of hydrocarbons or chemicals	Type, volume and concentrations of release Incidents reported in accordance with Shell and regulatory requirements.	Per incident	Monthly incident reports and analysis. Volumes will be estimated based on technical data and evaluations (e.g. duration of release and known inventory)	Incident reports Monthly Environmental Incident Reports	Section 9.14

10.4.2 Marine Vessel Assurance

All marine vessels which are planned to be used within the Operational Area are required to achieve “Positive Vetting” in accordance with the requirements specified in the HSSE & SP Control Framework – Transport Manual – Maritime Safety. Numerous assurers are required in order to assure a positive vetting, including Marine Subject Matter Expert (SME), Aviation SME and country security manager, Global Maritime Marine Warranty Surveyor and the project workstreams responsible for the particular activity to be conducted. The Marine Vessel Assurance process ensures that the physical controls are robust, including:

- Navigation Equipment and Aids;
- Communication Equipment;
- Dynamic Positioning System;
- Lifting Equipment ; and
- Emergency shut-down, alarm and lighting systems.

Oil Companies International Marine Forum (OCIMF) OVID is the basis for all support vessel vetting. Additionally, vessels are screened for class and port state control infractions.

Offtake tankers are positively vetted against the OCIMF inspection.

The following compliance are required for “Positive Vetting” for vessel operating in the Crux field, excluding equipment and material transportation vessels.

10.4.2.1 Marine Warranty Survey

All vessels and activities are assessed by the Marine Warranty Surveyor (MWS) on behalf of Shell’s underwriter. Where required by the Marine Warranty Surveyor (MWS) and in accordance with Construction All Risk (CAR) insurance rules, a marine vessel inspection/suitability survey is performed and a Vessel Suitability Report issued by the MWS with all significant actions and findings closed.

10.4.2.2 Pre-Mobilisation Inspection Report

The Pre-Mobilisation Inspection is conducted to ensure compliance with HSSE, marine and technical requirements and readiness prior to commencing work. Vessels (inclusive of their equipment, processes and procedures) are thoroughly inspected and the inspection report items are closed prior to completion of mobilization.

10.4.2.3 Shell Aircraft International (SAI) Approval

The Shell Aircraft International (SAI) approval ensures that all helidecks on any selected marine vessels utilised for personnel transport are approved. Furthermore, helicopters and helicopter refuelling equipment are approved by SAI.

10.4.2.4 Group Maritime Assurance System (GMAS) Clearance

A GMAS clearance from the Shell Marine SME must be obtained prior to the commencement of marine operations on the Project and prior to the contracted marine vessel entering the Operational Area. This ensures that the above marine vessel assurance has been completed satisfactorily.

10.4.2.5 Biofouling Risk Assessments

In accordance with Shells Biosecurity Management Procedure (2000-010-G000-GE00-G00000-HX-5798-00003) and to ensure the ongoing ‘Low Risk Status’ of offshore infrastructure, the assessment of biofouling risk will be carried out for all vessels which will operate within the Operational Area.

The risk assessment will be carried out by the Vessel Owner/Operator.

10.4.3 Environmental Assurance

Shell and its contractors' HSSE Plans make provisions for monitoring, audits and review. Annual HSSE Plans identify environmental audits and reviews that are to be conducted for the year. These audits and reviews include internal and external environmental audits, contractor HSSE audit, waste management audit/review and gap analyses against HSSE Control Framework Manuals.

A series of audits and inspections are undertaken prior to commencing the activities as part of the vessel and MODU pre-qualification and premobilisation assurance process, including:

- Shell's Global Rig Start-up Team inspect the MODU prior to acceptance for compliance with applicable Shell Standards and the drilling contract;
- Shell Aviation International shall conduct an audit of the MODU helideck and aircraft refuelling facilities prior to rig acceptance; and
- Offshore Vessel Inspection Database (OVID) is conducted by the SA Marine department (results will not be published to the database) to confirm the marine integrity of the MODU and vessel.

Shell Group audits are undertaken across all Shell businesses on an intermittent basis. This auditing process assures the HSSE & SP management system as a whole. For example, audits will take into consideration system and procedural implementation, environmental performance standards, management controls and commitments, corrective action response and close-out. Audit timing and frequency commensurate with the duration of the petroleum activity and potential risks.

Regular onsite HSSE assurance is conducted, which includes checking that environmental controls are implemented. Any specific environmental issues, like any HSSE issues, identified during these assurance checks are raised in the HSSE Leadership and Assurance meeting and resolved as part of continually reducing the risks to ALARP and Acceptable levels.

The outputs of the audits and reviews are the corrective actions that feed the improvement process. Close-out of these corrective actions is monitored and reviewed.

The SA Drilling Supervisor (DSV) is Shell's representatives aboard the MODU. They are responsible for ensuring the operational requirements of the EP are communicated to the MODU crew and implemented on a daily basis. The DSV may attend tool box talks, pre-phase meetings and after-action reviews as required.

The DSV also conduct's regular informal HSE checks of the MODU activities to ensure that the EP commitments are implemented, attend the daily MODU operations meetings and prepare the daily report to the SA SWEO, which details any environmental incidents that have occurred in the previous 24 hours.

The MODU contractor also conduct's checks in line with contractor requirements.

The SA Marine Department communicates the operational requirements of the EP to the vessel crew, conduct regular informal HSE checks of the vessel activities to ensure that the EP commitments are implemented.

Any hazards or areas of concern identified during formal or informal inspections, or during normal working operations, will be rectified immediately where possible. Any specific worksite environmental issues identified are discussed with site management and highlighted to supervisors to brief their teams during toolbox talks and shift handovers.

Critical Monitoring and measuring equipment to be identified and inspected to ensure calibration and operation is correct. It is the responsibility of the Well Operations Team Lead to ensure this occurs.

10.4.4 Management of Incidents and Non-Conformances

All Health, Safety, Security and Environmental incidents and non-conformances are managed in accordance with the Shell Australia HSSE Incident Reporting, Investigation and Follow up Procedure (HSE_GEN_000027) that describes the process of reporting, classification, investigation, follow-up and close out. Non-conformances are treated in the same way as incidents and for the purposes of this document are referred to as incidents.

All incident records are managed in an online electronic system called Sphera. Below is the overview of the incident management process:

- The system allows incidents to be raised by any employee of the company including offshore personnel
- The incident is then assigned to a Responsible Supervisor (Incident Owner) who then retains the ownership of the incident until closeout
- The Responsible Supervisor initiates the Incident Investigation the depth of which depends on the actual and potential risk ranking of the incident
- The recommendations of the investigation team are reviewed by the Incident Owner who then assigns the corrective and preventative actions to the appropriate action party. Actions are tracked to closeout where the Incident Owner accepts that the remedial action is successfully completed based on the evidence recorded and logged in Sphera
- Sphera provides functionality for automatic reminders for Incident Owner and Action Parties about the actions due. However, in addition reviews of outstanding actions are carried out both at asset/department level, and at the Shell Business Assurance Committee level at regular intervals to ensure timely closeout of actions.

In addition to the Incident Management Process outlined above, Shell also reports the number of non-compliances (incidents/ non-conformance) to the Shell Group on a quarterly basis, along with other HSE data in accordance with Shell Group Performance Monitoring and Reporting (PMR) standard. This information is reviewed in a dedicated HSE Business Performance Review where Shell Australia performance is reviewed by the Shell Group.

All employees or contracted staff are encouraged to submit incident reports to alert the organisation about the occurrence of an incident or non-conformance. The SA Drilling Supervisor is responsible for making sure these reports are raised in Sphera. Incidents will be reported to Shell by the SA DSV or SA Marine Superintendent for marine vessels.

The incident investigation process works to understand the cause of an incident and the reason why a control/mitigation measure has failed and to rectify the fault to prevent recurrence and the reporting process works to track performance and allows sharing of learnings. This process contributes to reducing the risks to ALARP and Acceptable Levels.

10.5 Reporting

10.5.1 Annual Environmental Performance Reporting

Regulation 14(2) and 26C requires that an Environmental Performance report will be submitted to NOPSEMA in intervals of not more than one year. Annual Environmental Performance Reports will contain a full year (1 July – 30 June the following year) and will be submitted to NOPSEMA by 31 December.

Shell is also required to report annual GHG emissions and energy usage and pollutants emissions under the NGER Scheme and NPI reporting, respectively. The reporting period for these also cover a full year (1 July – 30 June the following year).

10.5.2 External Incident Reporting

10.5.2.1 Reportable Incidents

NOPSEMA will be notified of all reportable incidents under Regulation 26 of the OPGGS (E) Regulation within two hours of the incident and in writing within three days. Under the OPGGS (E) Regulations, Reportable Incidents are defined as *'an incident relating to the activity that has caused, or has the potential to cause, moderate to significant environmental damage'*. The Shell Risk Assessment Matrix (refer to Section 9.2) uses magnitude levels +1 to −5 to define environmental consequences (positive effect, no effect, slight effect, minor effect, moderate effect, major effect and massive effect'). All environmental effects with a magnitude −3 or greater (i.e. moderate to massive) are considered Reportable Incidents. Based on the risk assessments documented in Section 9, three events are considered to be of moderate or higher consequence:

- Any confirmed introduced marine pest species in Australian waters attributable to the petroleum activities
- Hydrocarbon release resulting from a collision with another vessel
- Hydrocarbon release from a well control incident.

With specific regard to the accidental death or injury of threatened, migratory or cetacean species as a result of project activities (as listed under the EPBC act), Shell elects to report these events as Reportable incidents to NOPSMEA. These incidents may not result in moderate to significant Environmental damage, however, they could result in the potential for moderate stakeholder/RP impacts, therefore Shell elects to report these events as Reportable Incidents.

The reportable incident report contains all material facts and circumstances concerning the reportable incident, actions taken to avoid or mitigate any adverse impacts and corrective action taken. This report will be submitted to NOPSEMA.

10.5.2.2 Recordable Incidents

For the purpose of this activity, in accordance with the OPGGS (E) Regulations, a recordable incident, for an activity, means 'a breach of an environmental performance outcome or environmental performance standard, in the environment plan that applies to the activity that is not a reportable incident'.

NOPSEMA will be notified of all Recordable Incidents, according to the requirements of Regulation 26B of the *OPGGS (E) Regulations*. A report of Recordable Incidents must be given to NOPSEMA *'as soon as practicable after the end of each calendar month, and in any case not later than 15 days after the end of the calendar month'*.

As per the OPGGS (E) Regulations, the report will comprise:

- a record of 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; and
- the corrective action that has been taken, or proposed to be taken, to prevent similar Recordable Incidents.

10.5.2.3 Other Externally Notifiable Incidents

Key externally notifiable incidents are captured in Table 10-4. Additional notification requirements relevant to oil spill incidents are included in the BROPEP.

Table 10-4: Other Externally Notifiable Incidents

Incident	Timing of Notification with respect to the occurrence of the incident.	Contact Details
Hydrocarbon spill within a marine park or likely to impact on a marine park.	As soon as possible	Director of National Parks. Notification should be provided to the 24-hour Marine Compliance Duty Officer on 0419 293 465. The notification 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.
Hydrocarbon spill predicted to enter NT waters	Verbal, immediately POLREP (Harmful Substances Report - oil), within 24 hrs SITREP, as required.	NT Department of Environment, Parks and Water Security (Territory Emergency Management Council [TEMC]) pollution@nt.gov.au Phone: 1800 064 567
Hydrocarbon spill predicted to enter WA waters	Verbal, immediately (<2hrs) POLREP, within 24 hrs SITREP, as required.	WA DoT (Maritime Environmental Emergency Response) CEO of the DoT (HMA) (08) 9480 9924 (24 hours) marine.pollution@transport.wa.gov.au
Hydrocarbon spill predicted to enter international waters	Verbal, within 8 hours email follow up as requested	Department of Industry, Science and Resources (DISR will notify DFAT who will notify the relevant foreign government) +61 2 6213 6000 opicc@industry.gov.au.
Vessel spill to marine environment (oil, oily mixtures or noxious liquid)	Verbally, within two hours. POLREP, within 24 hours. SITREP as required	AMSA RCC duty officer 1800 641 792 Email: rccaus@amsa.gov.au
Any breach in the quarantine regulations, including exchange of ballast water within the twelve nautical mile limit.	As soon as practicable	DAFF (National Maritime Centre) 1300 004 605 maritimenc@agriculture.gov.au
Any confirmed introduced marine pest species in	Within 24 hours.	DPIRD FishWatch 1800 815 507

Incident	Timing of Notification with respect to the occurrence of the incident.	Contact Details
Western Australian state waters.		Email: aquatic.biosecurity@dpird.wa.gov.au Aquatic Pest Biosecurity Section: 08 9203 0111
Death or injury of threatened, migratory or cetacean species.	Within 7 days	DCCEEW EPBC.permits@environment.gov.au
Any sighting and entanglements of a cetacean:	Within 2 months	DCCEEW (Australian Antarctic Division, Australian Marine Mammal Centre)[32]
Any ship strike incident with cetaceans	Within 72 hours	National Ship Strike database[33]: DCCEEW (Australian Antarctic Division, Australian Marine Mammal Centre)

10.5.3 Internal Reporting

Shell also has internal reporting requirements against environment parameters identified in the Shell Group Performance Monitoring and Reporting (PMR) standard. This data is used as the basis for an annual Shell Group Sustainability Report.

10.5.4 Notifications

In accordance with Regulation 19 of the OPGGS (E) Regulations, this EP remains valid from NOPSEMA acceptance for the period of the activity as outlined in Section 5.8, or until NOPSEMA has accepted an end-of- activity notification under Regulation 25A or Shell Australia revise and resubmit this EP.

Notifications set out within performance standards; those required by legal and other requirements; and those established through RP consultation are summarised in Table 10-5.

Table 10-5: Routine External Reporting and Notification Requirements

Reporting Requirement	Description	Recipient	Submission/ Notification Timing
Pre-activity			
29 and 29(2) OPGGS(E) Regulations: NOPSEMA must be notified that the activity is started.	Complete NOPSEMA's Start or end of activity form (N-04750-FM1405)[35]	NOPSEMA[36]	At least 10 days before the activity commences.
Department of Agriculture, Fisheries and Forestry (DAFF) biosecurity requirements	Submit PAR and ballast water report using MARS online forms[34] for	DAFF	Within 96 to 12 hours prior to vessels arrival into Australian territory.

[32] sightingsdata@aad.gov.au

[33] https://data.marinemammals.gov.au/report/shipstrike

[34] https://www.agriculture.gov.au/biosecurity-trade/aircraft-vessels-military/vessels/mars

Reporting Requirement	Description	Recipient	Submission/ Notification Timing
	vessels arriving from international waters.		
AMSA including Joint Joint Rescue Coordination Centre (JRCC) Notification	Activity commencement and duration notification.	AMSA	With 24-48 hours before vessel activities commence
AHO Notification	Activity commencement and duration notification to enable publication of Notice to Mariners.	AHO	Prior to the commencement of activities.
During activity			
26B OPPGS(E) Regulations: Recordable Incident Report	Complete NOPSEMA's Recordable Environmental Incident Monthly Report form (N-03000-FM0928)[35]	NOPSEMA[36]	Monthly, no later than 15 days after the end of the calendar month.
26C and 14(2) OPPGS(E) Regulations: *Environmental Performance Report*	Report to include: • summary of activities undertaken throughout the reporting period • sufficient information to determine compliance with EPOs and standards.	NOPSEMA[36]	Annually and within 4 months[37]
AMSA including Joint Joint Rescue Coordination Centre (JRCC) Notification	Activity updates, particularly changes to previously communicated operations.	AMSA (JRCC)	As soon as possible.
AHO Notification	Activity updates, particularly changes to previously communicated operations.	AHO	As soon as possible.
Notification submitted to the NLC detailing any Tier 2 or 3 hydrocarbon spill which has the potential to impact communities and environment.	The Notification will contain all material facts and circumstances concerning the incident, actions taken to avoid or mitigate any adverse impacts and corrective action taken.	NLC (RPs contact details as held in Shells RP Consultation Database).	Immediately following establishment of potential impacts.

[35] https://www.nopsema.gov.au/document-hub/forms-and-templates

[36] https://securefile.nopsema.gov.au/filedrop/submissions

Reporting Requirement	Description	Recipient	Submission/ Notification Timing
Notification submitted to Relevant Persons (RPs), Tier 1 and 2[38] Indigenous persons detailing any Tier 2 or 3 hydrocarbon spill which has the potential to impact each RPs functions, interests or activities.	The Notification will contain all material facts and circumstances concerning the incident, actions taken to avoid or mitigate any adverse impacts and corrective action taken.	RPs contact details as held in Shells RP Consultation Database.	Immediately following establishment of potential impacts to RPs functions, interests or activities.
End of Activity			
29 and 29(2) OPGGS(E) Regulations: NOPSEMA must be notified that the activity is completed	Complete NOPSEMA's Start or end of activity form (N-04750-FM1405)[35].	NOPSEMA[36]	Within 10 days of activity completion.
AMSA including Joint Joint Rescue Coordination Centre (JRCC) Notification	Activity has been completed notification.	AMSA (JRCC)	Within 10 days of completion.
AHO Notification	Activity has been completed notification.	AHO	Within 10 days of completion.
25A(a) OPGGS(E) Regulations: End of operations of an EP notification	Complete NOPSEMA's Regulation 25A – End of operation of environment plan form (N-04750-FM1408)[35].	NOPSEMA[36]	Following the end of the activity when all obligations under the EP have been completed.
26C and 14(2) OPPGS(E) Regulations: *Environmental Performance Report*	Report to include: • summary of activities undertaken throughout the reporting period • sufficient information to determine compliance with EPOs and standards.	NOPSEMA[39]	Annually (aligned to the financial year), submitted within 6 months following each financial year (1 July to 30 June).

10.5.5 Details of Titleholder and Liaison Person

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

Titleholder:

Shell Australia Pty. Ltd. (ACN/ABN: 009663576/14009663876)

562 Wellington Street, Perth 6000 WA

[38] Tiers as defined in Table 5-8.

[39] https://securefile.nopsema.gov.au/filedrop/submissions

Activity Contact:

Rama Gunturi

Crux Project Director

Email address: SDA-Crux-Project@shell.com

Contact numbers: 1800 059 152

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

10.6 Record Keeping

Compliance records will be maintained. Record keeping will be in accordance with OPGGS (E) Regulation 14(7) that addresses maintaining quantitative records of emissions and discharges which is accurate and can be monitored and audited against the against the environmental performance standards and measurement criteria.

10.7 Emergency Preparedness and Response

Under Regulations 14(8) the Implementation Strategy must contain an OPEP and provide for the updating of the OPEP. Regulation 14(8AA) outlines the requirements for the OPEP, which must include adequate arrangements for responding to and monitoring of oil pollution.

A summary of Shell Australia's emergency and incident management framework and arrangements are presented in Figure 10-4 and described in the following sections.

10.7.1 Shell HSSE & SP Control Framework

The Shell HSSE & SP Control Framework is a comprehensive corporate management framework that applies to every Shell Company, contractor and joint venture under Shell's operational control. The framework contains a simplified set of mandatory requirements that define high level HSSE & SP principles and expectations. Emergency Response Management and Spill Preparedness and Response are two areas covered in the Shell HSSE & SP Control Framework.

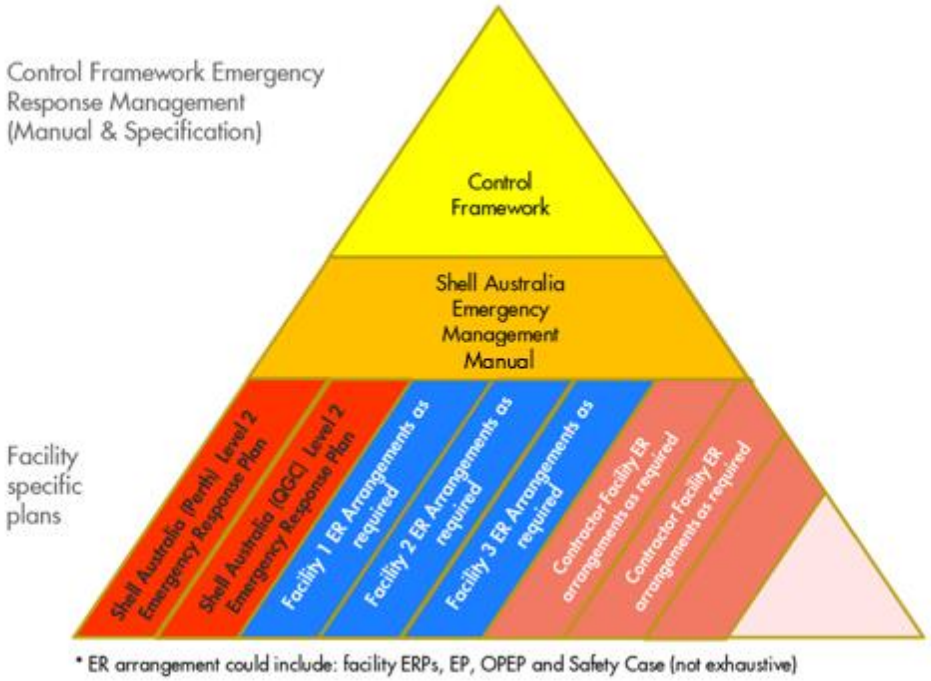


Figure 10-4: Shell Australia Emergency and Incident Management System Overview

10.7.2 Shell Australia Emergency Management Manual

The Shell Australia Emergency Management Manual (HSE_GEN_010996) provides a tiered response framework which classifies incidents based on the level of resourcing and support required. It also outlines communication arrangements associated with each level of emergency, emergency response roster arrangements, emergency response training and competencies, and requirements for emergency management drills and exercises.

10.7.3 Incident Management Team (West) (IMT(W)) Emergency Response Plan

The Incident Management Team (West) (IMT(W)) Emergency Response Plan (HSE_GEN_011209) is a supporting document to the Shell HSSE & SP Control Framework, Shell Australia Emergency Management Manual (HSE_GEN_010996) and is consistent with Australian Commonwealth and State Emergency Management Arrangements. The purpose of the IMT (W) Emergency Response Plan (HSE_GEN_011209) is to provide specific assistance and guidance to Shell Australia IMT (W) in support of Shell owned, operated or contracted facilities. The following topics are detailed in the document:

- Shell Australia emergency management arrangements
- Shell Australia IMT(W) role checklists and duty cards
- Incident management, action planning, Incident Command System (ICS) forms and briefing templates
- IMT (W) communications
- Guidance for responding to emergencies
- Supporting subject matter expert units
- De-escalation and recovery.

10.7.4 Oil Pollution Emergency Plan

The Shell Browse Regional OPEP (HSE_PRE_013075) outlines emergency management arrangements to respond to credible spill scenarios associated with all offshore activities, including Crux. The OPEP provides the information required for an effective response in the unlikely event of an unplanned release of petroleum products. The OPEP details the actions to be taken in response to the incident and provides contact details of emergency specialist response groups, statutory authorities and other external bodies requiring notification.

10.7.5 Operational and Scientific Monitoring Framework

Shell is required to have in place arrangements for monitoring oil pollution as part of its OPEP. Shell is adopting use of the Joint Industry Operational and Scientific Monitoring Plan (OSMP) f (APPEA, 2020) and its associated OMP's and SMP's to guide environmental monitoring that may be implemented in the event of a Level/Tier 2-3 spill of hydrocarbons. Further information on how the Joint Industry OSMP Framework interfaces with Shell's activities, spill risks and internal management systems is presented in Shell's browse Regional Operational and Scientific Monitoring Bridging Implementation Plan (HSE_PRE_16370).

10.7.6 WAFIC Loss Adjustment

In response to consultation with WAFIC, the adjustment protocols developed and included in the NERA Collaboration EP (taken to mean the NERA Collaborative Seismic Environment Plan) will be applied in the event of an unplanned spill or introduction of IMS. Shell refers to Appendix 3 of the NERA Collaborative Seismic Environment Plan (Revision 1) as information previously given under Regulation 31(1) of the OPGGS (E) Regulations. The full text NERA Collaborative Seismic Environment Plan is available on the NOPSEMA Environment Plans website (Industry environment plans (nopsema.gov.au).

10.7.7 Shell Australia's Emergency Management Structure

Shell Australia applies the Incident Command System (ICS) methodology for emergency management. The ICS is a management system designed to enable incident management through integrating facilities, equipment, personnel, procedures and communications operating under one structure. An ICS is commonly structured into functional areas that facilitate incident management activities, including operations, planning, logistics, finance and incident command.

Shell Australia also applies a graduated response framework that increases resource involvement based on the significance and escalation potential of the incident. This graduated framework involves three key emergency management teams, as described below:

- Emergency Response Team (ERT) which is based on the facility and is responsible for the initial response to the incident. The Facility Incident Commander (Offshore Installation Manager (OIM)) will liaise closely with the IMT West Leader (onshore) and will identify when additional support is required to respond to an incident
- Incident Management Team (West) (IMT(W)) is based onshore and supports the ERT, by providing advice, logistical support and managing the operational and technical aspects of the response
- Crisis Management Team (CMT) is based onshore and is responsible for the overall management of the incident from a strategic, commercial, legal, reputational and high level liaison perspective.

The ERT and IMT (W) are scalable to the nature and scale of the response i.e. one person can take on multiple roles where circumstances permit. The mobilisation of the ERT is at the directive of the Facility Incident Commander or delegate. The mobilisation of the IMT (W) will occur by the Facility Incident Commander contacting the on-duty IMT (W) Leader who will then mobilise the IMT (W) as the situation warrants. Duty positions within IMT (W) area are staffed by a roster system where each position has required personnel identified for the role. On-call positions within IMT (W) provide specific functional expertise that helps the business respond to relevant incident scenarios. On-call positions are activated as part of the IMT(W) at the discretion of the IMT Leader

based upon known or potential requirements. A number of people are identified and trained for each on-call position, with a rotating on-call list used to contact these personnel.

Figure 10-5 outlines the emergency management escalation process adopted by the IMT (W) and the IMT (W) structure is shown in Figure 10-6.

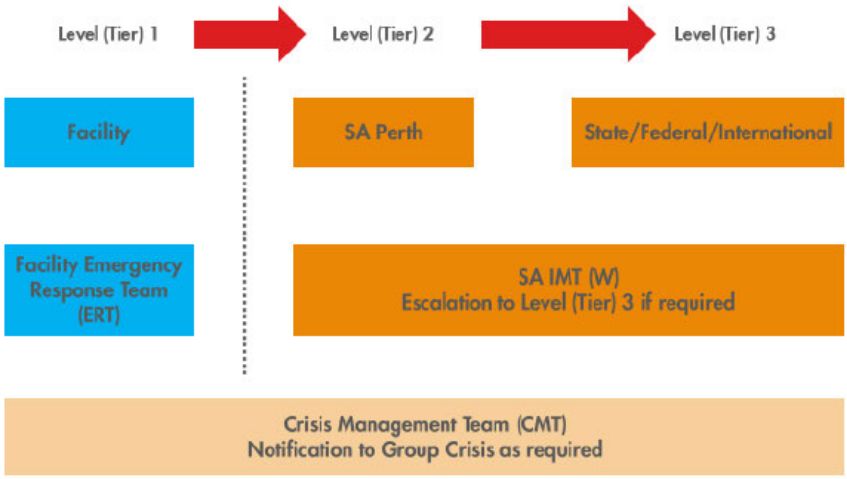
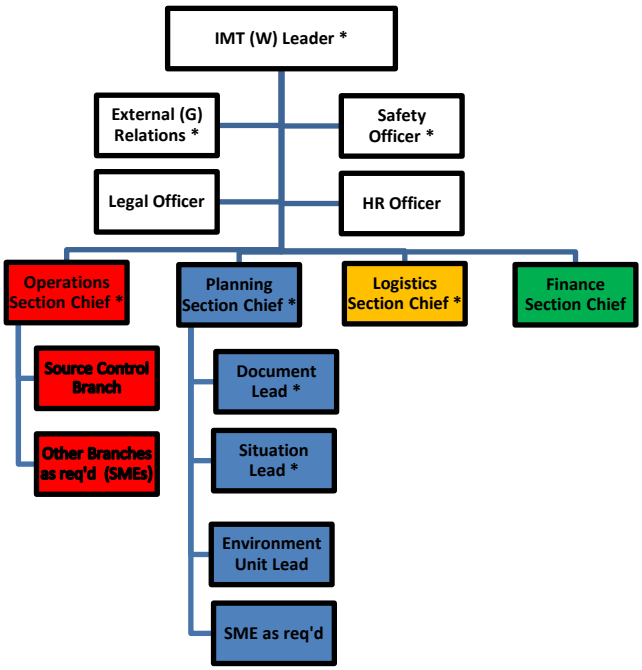


Figure 10-5: Emergency Management Escalation Process Adopted by IMT (W)

Interface between the IMT and Crisis Management Team (CMT) is outlined in the Shell Australia Weekly Contact List (HSE_GEN_011648). The affected facility business executive will have been notified by the IMT (W) Leader and will in turn notify the Shell Australia CMT leader.

In addition to these resources, Shell Australia can activate additional support through the Shell Global Response Support Network (GRSN). The GRSN is a network of emergency response trained Shell Staff employed in a wide range of positions within Shell's global and local businesses who have received specific training related to oil spill response and who may be called upon to support any business or country globally which is responding to a large scale incident. Shell Australia also has access to the Well Control Virtual Emergency Response Team (WCVERT), which provides virtual or physical mobilisation of a wide range of technical expertise.

Shell Australia could also activate external additional resources for Level/Tier 2-3 spills to fill various ERT and IMT roles for the duration of the response, if they were required. This includes Oil Spill Response Organisation (OSRO) personnel and trained mutual aid personnel (as per AMOSPlan), as outlined in the Browse Regional OPEP (HSE_PRE_013075).



**indicates duty roles, all other positions are on-call*

Figure 10-6: Incident Management Team (West) (IMT (W)) Structure

The Source Control Branch (if required), falls under the Operations Section of the IMT and develops and implements strategies and tactics to regain control of the well, and stop or contain the discharge of hydrocarbons. This strategy includes:

- development of solutions;
- coordination of engineering safety and operational activities;
- development of task-specific plans and procedures;
- identification of required tools and equipment; and
- monitoring progress in achieving well control.

The activities of the Source Control Branch in Australia will be organised into additional groups, according to the specific requirements of the incident. These additional groups may include a Capping and Subsea Intervention Group, Well Control Group and Offset Installation Taskforce. All source control personnel complete ICS 100 and 200 training.

10.7.8 Emergency Management Roles and Responsibilities

Shell Australia's Incident Management Team (West) (IMT(W)) Emergency Response Plan (HSE_GEN_011209) provides detailed guidance on roles and responsibilities for all emergency management personnel.

A summary of key roles and responsibilities for Shell Australia personnel for incident response are outlined in Table 10-6. Also provided are the roles and responsibilities of Shell Australia personnel required to work within the WA Department of Transport (DoT) organisational structure (Table 10-7), where DoT has responsibilities for spill response as a Control Agency, as per DoT's Offshore Petroleum Industry Guidance Note – Marine Oil pollution: Response and Consultation Arrangements. DoT will provide two roles to Shell's IMT/CMT in a coordinated response. These roles and responsibilities are provided in Table 10-8.

Table 10-6: Summary of Roles and Responsibilities of Key Emergency Management Personnel

Key Roles	Responsibilities
MODU Incident Commander (OIM) (Offshore)	• Maintain the safety of all personnel and initiates actions to protect the environment and the MODU • Ensure all first strike actions carried out as per OPEP • Control source of spill (if practicable) • Classify the Level/Tier of spill • Notify and maintain regular communications with Incident Management Team Leader (West) of incident • Verbally notify NOPSEMA (within 2 hours of spill) if spill is within Commonwealth waters • Initiate monitor and evaluate activities, as per OPEP
MODU On-scene Commander (Offshore)	• Responsible for emergency scene coordination and safety of all personnel at the emergency scene • Move ERT forward when authorised by Incident Commander (OIM) • Provide regular situation updates to the Operations Section Chief on incident progress against response plan priorities
SA Drilling Supervisor	• Assist OIM in the implementation of first strike actions set out in the OPEP • Assist OIM in the clarification of Level/Tier of spill • Notify and maintain regular communications with Incident Management Team Leader (West) of incident • Verbally notify NOPSEMA (within 2 hours of spill) if spill is within Commonwealth waters • Initiate monitor and evaluate activities, as per OPEP
IMT (W) Leader (Onshore)	• Ensure all first strike actions carried out per OPEP • Activate IMT, if required • Conduct overall management of incident response operations • Assess the situation and confirm or adjust the spill classification Level/Tier in consultation with the OIM and Operations Section Chief • Notify CMT Leader of event and initial response level • Determine incident priorities and objectives for IMT • Confirm Incident Action Plan (IAP) is being developed, approve and authorise implementation of IAPs • Confirm all external notifications and reporting have been made, as outlined in OPEP • Mobilise external support, if required, as per OPEP
Operations Section Chief (OSC) (Onshore)	• Oversees all operational resources and activities supporting an emergency • Establish communications with ERT • Provide overview of response operations at initial IMT brief • Communicate incident updates provided by the ERT to IMT through meetings and team briefs • Provide incident details to the Planning Section Chief and Situation Unit Lead for development of Initial IAP and help develop incident objectives and strategies

Key Roles	Responsibilities
	• Determine operational areas e.g. staging areas, forward command, incident area, oiled wildlife receiving and demobilisation areas • Executes IAPs for each operational period • Responsible for safety of all personnel involved in response
Planning Section Chief (PSC) (Onshore)	• Facilitate all IMT meetings • Assist the IMT (W) Leader in development of incident objectives • Facilitate development of IAP for next operational period • Mobilise Environment Unit • Monitor situation reports and update status displays with additional information and adjust IAP as necessary
Logistic Section Chief (LSC) (Onshore)	• Source all logistical requirements to complete response operations, including personnel, equipment and supplies for ongoing incidents • Liaise with Planning Section Chief on specialist resource requirements being considered in response strategies. Verify availability as this may affect strategy selection • Where required incident resources are not immediately available through existing contracts, liaise with Contracts & Procurement to develop contractual arrangements as required
Environment Unit Lead (EUL) (Onshore)	• Conduct relevant external notifications, as outlined in OPEP • Review OMP initiation criteria and activate OSMP contractor where required • Confirm protection priorities • Validate strategic SIMA and generate the initial operational SIMA • Provide guidance to the OSC on environmental management measures to be followed during response operations.

Source Control Branch Director	• Develops and implements strategies and tactics to regain control of the well, and stop or contain the discharge of hydrocarbons. This strategy includes:
	  ○ the development of task-specific plans and procedures
	  ○ the identification of required tools and equipment
	  ○ monitoring progress in achieving well control
	• Assign a person or persons to liaise with the SIMOPS unit (if assigned) under the Operations Section, which is overall in charge of simultaneous operations and maintenance of the Common Operating Picture
	• Activate specialist Source Control Groups as required

Situation Unit Lead (Onshore)	• Responsible for collecting, processing and organising incident information relating to the growth, mitigation or intelligence activities taking place on the incident • Manages all situational awareness and intelligence information relating to the incident, including geospatial/meteorological information • Ensure status boards updated, retain clear records of out of date vs current information • Prepare and disseminate resource and situation status information as required, including special requests.

Key Roles	Responsibilities
Documentation Unit Lead (Onshore)	• Responsible for the maintenance of accurate, up-to-date incident files i.e. IAP, incident reports, communications logs • Compiles and collates all unit logs, communications and other records so that a consolidated set of incident documentation is maintained. • Liaise with the Situation Unit Lead to collate and store all relevant documentation produced for Situation Updates
External (Government) Relations/ Public Information Officer (PIO) (Onshore)	• Conduct relevant external notifications, as outlined in OPEP • Manages all external communications until CMT assumes responsibility • Evaluate the need for a joint information communication centre • Ensure active and ongoing engagement with all relevant stakeholders and external response agencies. Prepare stakeholder management plan for approval by IMT • Develop material for use in media releases
Safety Officer (Onshore)	• Conduct hazard assessment and advise OIM of recommended safety actions and safe approach routes • Assist the OSC and LSC by facilitating risk assessments during event response and recovery plan development as required • Review IAPs for safety implications
Finance Section Chief (Onshore)	• The Finance (& Admin) Section Chief is responsible for all financial, administrative and cost analysis aspects of an emergency • Provide financial and cost analysis information as requested

Table 10-7: Shell Personnel Roles Positioned within the State Maritime Environmental Emergency Coordination Centre (MEECC)/ DOT IMT

Key Roles	Responsibilities
CST Liaison Officer	• Provide a direct liaison between the Shell and the State MEECC • Facilitate effective communications and coordination between the Shell CMT Leader and the State Maritime Environmental Emergency Coordinator (SMEEC) • Offer advice to SMEEC on matters pertaining to Shell crisis management policies and procedures
Deputy Incident Officer	• Provide a direct liaison between the DoT IMT and the Shell IMT • Facilitate effective communications and coordination between the Shell IMT (W) Leader and the DoT Incident Controller • Offer advice to the DoT Incident Controller on matters pertaining to the Shell incident response policies and procedures • Offer advice to the Safety Coordinator on matters pertaining to Shell safety policies and procedures particularly as they relate to Shell employees or contractors operating under the control of the DoT IMT
Intelligence Support Officer	• 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 Shell IMT • Assist in the interpretation of modelling and predictions originating from the Shell IMT • Facilitate the provision of relevant situation and awareness information originating from the DoT IMT to the Shell IMT

Key Roles	Responsibilities
	• Facilitate the provision of relevant mapping from the Shell IMT • Assist in the interpretation of mapping originating from the Shell IMT • Facilitate the provision of relevant mapping originating from the Shell IMT
Deputy Planning Officer	• 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 Shell IMT • Assist in the interpretation of the Shell OPEP from Shell • Assist in the interpretation of the Shell IAP and sub plans from the Shell IMT • Facilitate the provision of relevant IAP and sub plans originating from the DoT IMT to the Shell IMT • Assist in the interpretation of Shell's existing resource plans • Facilitate the provision of relevant components of the resource sub plan originating from the DoT IMT to the Shell IMT • (Note this individual must have intimate knowledge of the relevant Shell OPEP and planning processes)
Environmental Support Officer	• As part of the Planning Team, assist the Environmental Officer in the performance of their duties in relation to the provision of environmental support into the planning process • Assist in the interpretation of the Shell OPEP and relevant Tactical response Plans (TRP) • Facilitate in requesting, obtaining and interpreting environmental monitoring data originating from the Shell IMT • Facilitate the provision of relevant environmental information and advice originating from the DoT IMT to the Shell IMT
Public Information Support & Media Liaison Officer	• As part of the Public Information Team, provide a direct liaison between the Shell Media team and DoT IMT Media team • Facilitate effective communications and coordination between Shell 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 DoT Media Coordinator on matters pertaining to Shell media policies and procedures • Facilitate effective communications and coordination between Shell 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 Shell community liaison policies and procedures • Facilitate the effective transfer of relevant information obtained from through the Contact Centre to the Shell IMT
Deputy Logistics Officer	• 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 Shell's existing OSRL, AMOSC and private contract arrangements • Collects Request Forms from DoT to action via the Shell IMT

Key Roles	Responsibilities
	• (Note this individual must have intimate knowledge of the relevant Shell logistics processes and contracts)
Deputy Operations Officer	• 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 Shell Operations Section and the DoT Operations Section • Offer advice to the DoT Operations Officer on matters pertaining to Shell incident response procedures and requirements • Identify efficiencies and assist to resolve potential conflicts around resource allocation and simultaneous operations of Shell and DoT response efforts
Deputy Waste Management Coordinator	• 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 Shell's existing private contract arrangements related to waste management and in line with legislative and regulatory requirements • Collects Waste Collection Request Forms from DoT to action via the Shell IMT
Deputy Finance Officer	• 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 Shell's existing OSRL, AMOSC and private contract arrangements • Facilitate the communication of financial monitoring information to the Shell 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 Shell
Deputy On Scene Commander (FOB)	• As part of the Field Operations Team, assist the On Scene 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 Shell's Forward Operations Base/s (FOB/s) and the DoT FOB • Facilitate effective communications and coordination between Shell On Scene Commander and the DoT On Scene Commander • Offer advice to the DoT On Scene Commander on matters pertaining to Shell incident response policies and procedures • Assist the Safety Coordinator deployed in the FOB in the performance of their duties, particularly as they relate to Shell employees or contractors • Offer advice to the Safety Coordinator deployed in the FOB on matters pertaining to Shell safety policies and procedures

Table 10-8: Roles and Responsibilities of DoT Personnel to be Positioned in Shell's IMT/CMT

Key Roles	Responsibilities
DoT Liaison Officer	• Facilitate effective communications between DoT's SMEEC and Incident Controller and Shell's appointed CMT Leader and Incident Controller

Key Roles	Responsibilities
	• 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 Shell • Facilitate the provision technical advice from DoT to Shell's Incident Controller as required
Media Liaison Officer	• Provide a direct liaison between Shell's Media team and DoT IMT Media team • Facilitate effective communications and coordination between Shell and DoT media teams • Assist in the release of joint media statements and conduct of joint media briefings • Assist in the release of joint information and warnings through the DoT Information and Warnings team • Offer advice to the Shell Media Coordinator on matters pertaining to DoT and wider Government media policies and procedures

10.7.9 Emergency Management Exercises, Training and Competencies

Shell Australia follows the approved ICS and IMO emergency management training requirement for ICS command and general staff. Specific competencies for IMT members are defined in the Shell Operational HSSE Competence Framework and are tracked in the Shell Open University. A summary of training requirements and core competencies for Shell key ERT, IMT and CMT personnel are outlined in Table 10-9.

Only persons that have completed all mandatory training requirements can be placed on the IMT roster. Training status of IMT personnel is reviewed monthly (or following significant personnel or policy change by the SA Emergency Response Coordinator) and notifications issued in advance to personnel requiring re-validation by training and/or emergency response exercise participation.

Oil spill responder training requirements are outlined in Table 10-10.

Table 10-9: Exercise and Training Requirements for Key ERT, IMT and CMT Personnel

Key Roles	Exercises	Training
MODU ERT Personnel MODU OIM	As per contractor ERT requirements	Some offshore roles may have AMOSC – IMO training.
IMT Personnel IMT (W) Leader	It is required that 80% of personnel will participate in an IMT exercise annually.	All IMT personnel complete ICS 100, 200 and IMT induction. IMT (W) leader undertakes – IMO3 Oil Spill Command & Control
Operations Section Chief (OSC) Planning Section Chief (PSC) Logistic Section Chief (LSC) Environment Unit Lead (EUL)	It is a target that 80% of personnel will participate in an IMT exercise annually. Participation in exercises is tracked in the Shell Australia Exercises & Training Schedule and is reviewed monthly or following significant personnel or policy change by the Shell Australia Emergency Response Coordinator.	AMOSC – IMO2 Oil Spill Management
CMT Personnel	Level/Tier 2/3 exercise on a biennial basis	Shell specific – Group Crisis training

Table 10-10: Oil Spill Responder Training and Resources

Key Roles	Exercises/Training	Available Resources
Shell AMOSC Core Group members	AMOSC Core Group Workshop (refresher training undertaken every 2 years) Operations stream and management stream	As defined in AMOSC contractual core group requirements
AMOSC Core Group Responders	AMOSC Core Group Workshop (refresher training undertaken every 2 years)	As defined in AMOSC contractual core group requirements
OSRL Oil Spill Response Personnel	As per OSRL training and competency matrix	As defined in OSRL Service Level Agreement
AMOSC Oil Spill Response Specialists	As per AMOSC training and competency matrix	As defined in AMOSC Master Services Agreement
Operational and Scientific Monitoring Service Providers	As defined in the Shell Australia Operational and Scientific Monitoring (OSM) Bridging Implementation Plan (HSE_PRE_16370).	As per Standby Capability and Competency Report
Oiled Wildlife Responders (Level 2-4) Shoreline clean-up personnel	As per D0BCA OWR requirements (WA OWRRP) As per WA DoT requirements	As per OWR stateboard (AMOSC & DBCA) As defined in AMOSC Master Services and OSRL Service Level Agreements. Team members available through labour hire contracts (training provided prior to deployment)

Shell Australia maintains an Exercise and Training Schedule as detailed in the Shell Australia Emergency Management Manual (HSE_GEN_010996) to ensure its competency in responding to and managing major incidents, including oil spills. The Exercise and Training Schedule is reviewed and revised (if required) annually.

As part of this schedule, Shell conducts a number of different exercise types, which are further described in Table 10-11.

Table 10-11: Exercise Types, Objectives and Frequency

Exercise Type	Objective	Frequency
Notification exercise	To test all communication and notification processes to service providers and regulatory agencies defined within the OPEP	At least annually When OPEP is accepted or introduced When response arrangements have been significantly amended If a new location for the activity is added after the response arrangements have been tested
Equipment deployment exercises	To focus on Shell's deployment capability To inspect and maintain the condition of Shell's oil spill response equipment To maintain training of field response personnel	Level /Tier 1 – Annually Level/Tier 2 – Every 2 years
Tabletop exercise	To encourage interactive discussions of a simulated scenario amongst IMT	As per Shell Australia's Exercise and Training Schedule

Exercise Type	Objective	Frequency
	members and refresh roles and responsibilities	
Incident Management Exercise	To activate IMT and establish command, control, and coordination of a simulated Level/Tier 2 or 3 incident and test response arrangements in OPEP	Minimum of one oil spill exercise per year for Shell Australia's activities. Where response arrangements are the same for a number of activity-specific OPEPs, one exercise may be used to test these response arrangements for these OPEPs at the same time
National Plan Exercises or WA DoT exercises	Participate as required to ensure alignment between National/State Response Framework and Shell Australia's Response Framework	As determined by AMSA and/or WA DoT, Shell may not be requested to participate every year
Shell Global Response Support Network (GRSN)	Test the functionality of Shell's Regional Core Group Level/Tier 3 oil spill response capabilities Target of 100% for participation of Shell Australia's Core Group personnel in GRSN regional exercises as required.	Annually Every 2 years
AMOSC Audit	To test deployment readiness and capability of AMOSC as per its Master Services Agreement with Shell	Annually
OSRL Audit	To test deployment readiness and capability of OSRL in Singapore as per OSRLs Service Level Agreement with Shell	Every 2 years

As part of the exercise process, a number of documents are prepared to ensure exercises are well planned, conducted and evaluated. To support this, the following documents are used:

- Exercise scope document – provides background context to the exercise, outlines the exercise need, aim, objectives, details of the scenario, participating groups and agencies, exercise deliverables and management structure. This document can be used to engage a third-party contractor to assist in conducting the exercise
- Exercise plan and instructions – provide instructions and 'play' (including any injects) for conducting the exercise
- Post exercise report – includes an after-action review of the exercise, evaluating how the exercise performed against meeting its aim and objectives.

10.7.9.1 Source Control Emergency Response Test Plan

Training

Competency of Source Control Team Members and Team Leads is tested through training. Shell Australia Source Control Team Members follow IOGP 591 competency framework recommendations defining the typical skills needed to support a subsea source control response.

All Shell Australia Source Control Team Members must have completed ICS100, ICS200 and Source Control Training, which covers IOGP 591 at 'awareness' level.

The Well Operations Management Plan (WOMP) details critical positions that are required to hold a certificate of well control competency. Before drilling commences, Well Control Competency assessments will be undertaken on the MODU. Details of processes by which the competency of

supervisors, employees, and contractors to operate equipment and to execute procedures will be managed are detailed within the WOMP. The OPGGS (Resource Management and Administration Regulations) require that the WOMP must adequately demonstrate (among other matters) that competency of supervisors, employees and contractors are to a level such that risks to integrity of the well are reduced to ALARP.

SCERP Test and Exercise Plan

There are three exercise styles that will be conducted to exercise and test the response arrangements:

- Desktop exercise in the form of a workshop
- Functional exercise
- Communication exercise

A desktop exercise (tier 1) will be conducted prior to commencement of the drilling activity. This exercise will be run in the form of a workshop and will provide an overview of OPEP and SCERP response strategies that may be employed during a loss of well containment event. The objective of the workshop will be to validate adequate resourcing across the local ICS organization and specialist contractors to support source control response. In addition, the workshop allows familiarization of the Emergency Response Team and Shell IMT members with their roles and responsibilities in the event of an incident.

A functional source control exercise (tier 2) will be conducted prior to spud in the form of a scenario-based simulation (without actual deployment of any equipment). This will involve representation from Shell Australia IMT, Source Control Branch within the IMT, rig contractor, general staff and support from selected specialist contractors.

Once rig is on location, a Communications Exercise will be conducted with the rig contractor to test the emergency response management plans and processes.

Evaluation of source control response arrangements

An independent assessor (either internal or external to Shell) will be engaged to facilitate and assess the functional (tier 2) exercise. The effectiveness of the response arrangements during a Source Control exercise will be assessed to determine the outcome of the objectives. The assessor will make written findings and recommendations from the test for consideration by Shell to assist in identifying deficiencies with response arrangements and continually improve the overall response readiness of Shell Australia. Recommendations from the tests will be actioned and tracked to closure by Shell Australia (and where applicable by contractors) using a dedicated action register.

Exercise objectives

The exercise objectives for testing the SCERP include:

<u>People:</u>

- Practice activation and response readiness of local ICS organization for Source Control Emergency Response
- Demonstrate effectiveness of organizational interfaces throughout the Source Control Emergency Response exercise
- Practice developing Source Control strategies and tactics that meet the objectives

<u>Equipment availability:</u>

- Validate vessel tracking capability to identify vessels with ROV support for site survey, debris clearance, BOP intervention and subsea dispersant injection
- Validate vessel tracking capability for capping stack transport and deployment vessel

- Validate activation protocol for AMOSC subsea dispersant supply
- Validate activation protocol for AMOSC/OSRL toolkits for site survey, debris clearance/BOP intervention and subsea dispersant injection

Procedure and Process:

Validation activation process of capping stack and ancillary equipment

Testing of contractor capability

AMOSC deployment readiness and capability will be tested on an annual basis as per its master Service agreement with Shell Australia.

OSRL deployment readiness and capability in Singapore will be tested on a 2-year basis as per its master Service agreement with Shell Australia.

10.7.10 Mechanism to examine the effectiveness of the response arrangements

Shell Australia routinely undertakes post-exercise debriefings following Level/Tier 2-3 OPEP exercises to evaluate effectiveness of response arrangements against the exercise objective/s, identify opportunities for improvement and communicate lessons learned. Shell sets Specific, Measurable, Achievable, Realistic and Timely (SMART) objectives for oil spill exercises so that they can be clearly evaluated as being met or not.

An independent assessor (either internal or external) will examine the effectiveness of the response arrangements during a spill exercise. The assessor will make written findings and recommendations from the test for consideration by Shell to assist in identifying deficiencies with response arrangements and continually improve the overall response readiness of Shell.

Recommendations from the tests will have SMART actions put against them where appropriate and they will be tracked to closure in Shell's Action Tracking System. This system assigns a responsible person and due date against each action to ensure they are tracked to closure.

10.7.11 Assurance of Shell Group Response Arrangements

The major advantage of the GRSN/WCVERT is the ability to leverage the resources and support from the Shell Group for a local operations team, which may have a reasonably small footprint, in the event of an incident. However, it is recognised and must be made clear that during an incident the accountability for the response remains with the local organisation, in this case Shell Australia. It is therefore a requirement that the local organisation has the ability to test, evaluate and assure the capability of the Shell GRSN and WCVERT to meet their response needs on an ongoing basis.

The GRSN and WCVERT partake in frequent exercises around the world to ensure a state of readiness; these may be validated by local operating units as follows.

- Upon request the GRSN/ WCVERT will share an updated drill schedule for forthcoming global drills in which they will partake
- Where practicable and under instruction from Shell Australia General Manager Wells some of the Shell Australia Source Control team may attend such drills to enhance training and validate response capability
- Where practicable reports from previously conducted drills including learnings may be requested by Shell Australia to validate GRSN/ WCVERT response capabilities.

In order to monitor and track the availability of personnel, the WCVERT simulates regular call out drills. This involves sending a group communication to the WCVERT Source Control Branch members and recording the response, availability and response time.

- As required, a local operating unit may request from the Well Control Principle Technical Expert an overview of the recent call out drills to validate response capabilities.

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12 Abbreviations

Acronym	Description
%	Percent
>	Greater than
°C	Degrees Celsius
AAPA	Aboriginal Areas Protection Authority
AAR	After Action Review
ABF	Australian Border Force
ACAP	The Agreement on the Conservation of Albatrosses and Petrels
ACCUs	Australian Carbon Credit Units
ACF	Australian Conservation Foundation
ADB	Asian Development Bank
ADF	Australian Defence Force
AFMA	Australian Fisheries Management Authority
AHD	Along Hole Depth
AHS	Australian Hydrographic Service
AHTS	Anchor Handling Tug Supply
AIS	Automatic Identification System
ALARP	As low as reasonably practicable
AMOSC	Australian Marine Oil Spill Centre
AMP	Australian Marine Park
AMSA	Australian Maritime Safety Authority
AMSC	Australian Marine Conservation Society
ANSI	American National Standards Institute
ANZECC & ARMCANZ	Australian and New Zealand Environment and Conservation Council & Agriculture and Resource Management Council of Australia and New Zealand
APPEA	Australian Petroleum Production & Exploration Association
ARPA	Automatic Radar Plotting Acid
ASBTIA	Australian Southern Bluefin Tuna Industry Association
BIA	Biologically Important Area
BOD	Biological Oxygen Demand
BOM	Bureau of Meteorology
Bonn Convention	Convention on the Conservation of Migratory Species of Wild Animals 1979.
BOP	Blowout Preventer
BP	Before Present
BTEX	Benzene, toluene, ethylbenzene, xylenes
BWMP	Ballast Water Management Plan
CAMBA	China-Australia Migratory Bird Agreement

Acronym	Description
CAR	Construction All Risk
Cd	Cadmium
CER	Clean Energy Regulator
CFA	Commonwealth Fisheries Association
CHARM	Chemical Hazard and Risk Management
CMT	Crisis Management Team
CO_2	Carbon dioxide
COLREGS	International Regulations for Preventing Collisions at Sea 1972
CR	Corporate Relations
CSIRO	Commonwealth Scientific and Industrial Research Organisation
Cth	Commonwealth
DAC	Djarindjin Aboriginal Corporation
DAFF	Commonwealth Department of Agriculture, Fisheries and Forestry (current to the above reference DAWE)
DAWE	Former Commonwealth Department of Agriculture, Water and the Environment (historic)
DBCA	Western Australian Department of Biodiversity Conservation and Attractions
DCCEEW	Commonwealth Department of Climate Change, Environment, Energy and Water
DEWHA	Former Commonwealth Department of Environment, Water, Heritage, and Arts
DFAT	Commonwealth Department of Foreign Affairs
DFES	Western Australian Department of Fire and Emergency Services
DHA	Commonwealth Department of Home Affairs
DMIRS	Western Australian Department of Mines, Industry Regulation & Safety
DoT	Western Australia Department of Transport
DP	Dynamic Positioning
DPIRD	Western Australian Department of Primary Industries and Regional Development
DPLH	Western Australian Department of Planning, Land and Heritage
DSEWPaC	Former Commonwealth Department of Sustainability, Environment, Water, Population and Communities
DSV	Drilling Supervisor
DWER	Western Australian Department of Water and Environmental Regulation
EAAFP	The East Asian–Australian Flyway Partnership 2006
eDNA	Environmental Deoxyribonucleic acid
EDOWA	Environmental Defender's Office of WA
EGR	External and Government Relations
EHS	Environment, Health, and Safety
EIAPP	Engine International Air Pollution Prevention
EMBA	Environment that May be Affected, set by the Planning Area

Acronym	Description
EMGS	Emergency Diesel Generators
EP	Environmental Plan
EPBC Act	*Environmental Protection Biodiversity and Conservation Act 1999* (Cth)
EPO	Environmental Performance Outcome
EPS	Environmental Performance Standards
ER	Emergency Response
ERP	Emergency Response Plan
ERT	Emergency Response Team
ESD	Ecological Sustainable Development
ESHIA	Environmental, Social and Health Impact Assessment
EU	European Union
EUL	Environment Unit Lead
Ev	Exposure value
FCA	Federal Court of Australia
FESA	Former Western Australian Department of Fire and Emergency Services
FLNG	Floating Liquefied Natural Gas
FOB	Forward Operations Base
FPSO	Floating Production Storage and Offloading
FSR	Facility Status Report
FWAD	Fixed Wing Aerial Dispersant
g/m^2	Grams per square meter
GHG	Greenhouse Gas
GHGEM	Greenhouse Gas Emergency Management
GHGEMP	Greenhouse Gas Emergency Management Plan
GMAS	Group Maritime Assurance System
GPS	Global Positioning System
GRSN	Global Response Support Network
H	High
HEMP	Hazards and Effects Management Process
HFO	Heavy Fuel Oil
Hg	Mercury
HSSE	Health, Security, Safety, and Environment
HWU	Hydraulic Workover Unit
Hz	Hertz
IACD	International Association of Drilling Contractors
IAP	Incident Action Plan
IAPP	International Air Pollution Prevention Certificate

Acronym	Description
ICS	Incident Command System
IEE	International Energy Efficiency
IFC	International Finance Corporation
IFO	Intermediate Fuel Oil
ILUA	Indigenous Land Use Agreement
IMCRA	Integrated Marine and Coastal Regionalisation of Australia
IMO	International Maritime Organisation
IMR	Inspection Maintenance Repair
IMS	Invasive Marine Species
IMT	Incident Management Team
IOGP	International Association of Oil and Gas Producers
IOPP	International Oil Pollution Prevention
IPA	Indigenous Protected Area
IPCC	Intergovernmental Panel on Climate Change
IPIECA	International Petroleum Industry Environmental Conservation Association
ISPP	International Sewage Pollution Prevention
IUCN	International Union for the Conservation of Nature
IWCF	International Well Control Forum
JAMBA	Japan-Australia Migratory Bird Agreement
JMP	Joint-Management Plan
JTSI	Department of Jobs, Tourism, Science and Innovation
KEF	Key Ecological Feature
Kj	Kilojoules
KLC	Kimberley Land Council
km	kilometre
L	Low
LAO	Linear Alpha Olefin
LCV	Light Construction Vessel
LNG	Liquefied Natural Gas
LOC	Loss of Containment
London Convention	London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972
LOS	Line of Sight
LOWC	loss of well control
LSC	Logistic Section Chief
Lux	Luminous flux per unit area
M	medium

Acronym	Description
m	Metre
m^2	Square metre
m^3	Cubic metre
MARPOL	International Convention for Prevention of Pollution from Ships
MARS	Maritime Arrivals Reporting System
MBC	Maritime Border Command
MDO	Marine Diesel Oil
MEG	Mono-ethylene Glycol
MFO	Marine Fauna Observers
MHW	Mean High Water
MLW	Mean Low Water
mm	millimetres
MNES	Matters of National Environmental Significance
MOC	Management of Change
MODU	Mobile Offshore Drilling Unit
MOU	Memorandum of Understanding
MPA	Marine Protected Area
MPR	Modular Platform Rig
MS	Management System
MSL	Mean Sea Level
MWS	Marine Warranty Surveyor
N/A	Not Applicable
NAXA	North Australian Exercise Area
NDC	Nationally Determined Contributions
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measures
NGER Act	Commonwealth *National Greenhouse and Energy Reporting Act 2007*
NGO	Non-governmental Organisations
NLC	Northern Land Council
NLPG	National Light Pollution Guidelines for Wildlife
NO_2	Nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration (US)
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority
NOx	Nitrogen oxides
NPI	National Pollutant Inventory
NT	Northern Territory
NTA	Native Title Act 1993 (Commonwealth)

Acronym	Description
NTTA	National Native Title Tribunal
NWBM	Non water based muds
NWMR	North-West Marine Region
OCIMF	Oil Companies International Marine Forum
OCNS	Offshore Chemical Notification Scheme
ODS	Ozone Depleting Substances
OILMAP	Oil Spill Model and Response System
OIM	Offshore Installation Manager
OMP	Operational Monitoring Plan
OP	Operating Plan
OPEP	Oil Pollution Emergency Plan
OPGGS Act	*Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth)
OPP	Offshore Project Proposal
OSC	Operations Section Chief
OSM	Operational and Scientific Monitoring
OSMP	Operational and Scientific Monitoring Plan
OSPAR	Oil Spill Prevention, Administration and Response
OSRL	Oil Spill Response Limited
OSRO	Oil Spill Response Organisation
OVID	Offshore Vessel Inspection Database
OWR	Oiled Wildlife Response
PA	Parks Australia
PAH	Polycyclic aromatic hydrocarbon
pH	Power of Hydrogen
PIO	Public Information Officer
PLONOR	Pose Little or No Risk to the Environment
PM	Particulate Matter
PM_{10} / $PM_{2.5}$	Particulate Matter with aerodynamic diameter less than 10 microns or 2.5 microns respectively
PMR	Performance Monitoring and Reporting
PMST	Protected Matters Search Tool
POPs	Persistent Organic Pollutants
ppb	Parts per billion
ppm	Parts per million
PSC	Planning Section Chief
PSZ	Petroleum Safety Zone
PTS	Permanent threshold shift

Acronym	Description
PTW	Permit to Work
RAM	Risk Assessment Matrix
Ramsar	International Convention on Wetlands of International Importance 1975
RAN	Royal Australian Navy
RMR	Riserless Mud Recovery
RNTBC	Registered Native Title Bodies Corporate
RO	Reverse Osmosis
ROKAMBA	Republic of Korea-Australia Migratory Bird Agreement
ROV	Remote Operated Vehicle
RWIS	Relief Well Injection Spoon
SA	Shell Australia
SAI	Shell Aircraft International
SBM	Synthetic Based Mud
SCAT	Shoreline Clean-up Assessment Technique
SEEMP	Ship Energy Efficiency Management Plan
SEL	Sound Exposure Level
SFRT	Subsea First Response Toolkit
SGGS	Synthetic Greenhouse Gases
SIMA	Spill Impact Mitigation Assessment
SIMAP	Spill Impact Mapping and Assessment Program
SIRT	Subsea Incident Response Toolkit
SMART	Specific, Measurable, Achievable, Realistic and Timely
SME	Subject Matter Expert
SMEEC	State Maritime Environmental Emergency Coordinator (WA)
SMP	Scientific Monitoring Plan
SO_2	Sulphur dioxide
SOLAS	Safety of Life at Sea Convention 1974
SOPEP	Shipboard Oil Pollution Emergency Plan
SO_x	Sulphur oxides
SP	Social Performance
SSDI	Subsea Dispersant Injection
STCW	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers
SWEO	Senior Well Engineer Operations
tCO_2e	Tonnes of carbon dioxide equivalent
TD	Total Depth
TEC	Threatened Ecological Community

Acronym	Description
TRP	Tactical response Plans
TTS	Temporary Threshold Shift
US EPA	United States Environmental Protection Agency
UV	Ultra Violet
UXO	Unexploded Ordinance
VOC	Volatile Organic Compound
W	West
WA	Western Australia
WAFIC	Western Australian Fishing Industry Council
WAOWRP	WA Oiled Wildlife Response Plan
WB	World Bank
WBCU	Wellbore Clean Up
WBM	Water Based Mud
WCVERT	Well Control Virtual Emergency Response Team
WGAC	Wunambal Gaambera Aboriginal Corporation
WHA	World Heritage Area
WOMP	Well Operations Management Plan
WWF	World Wildlife Fund

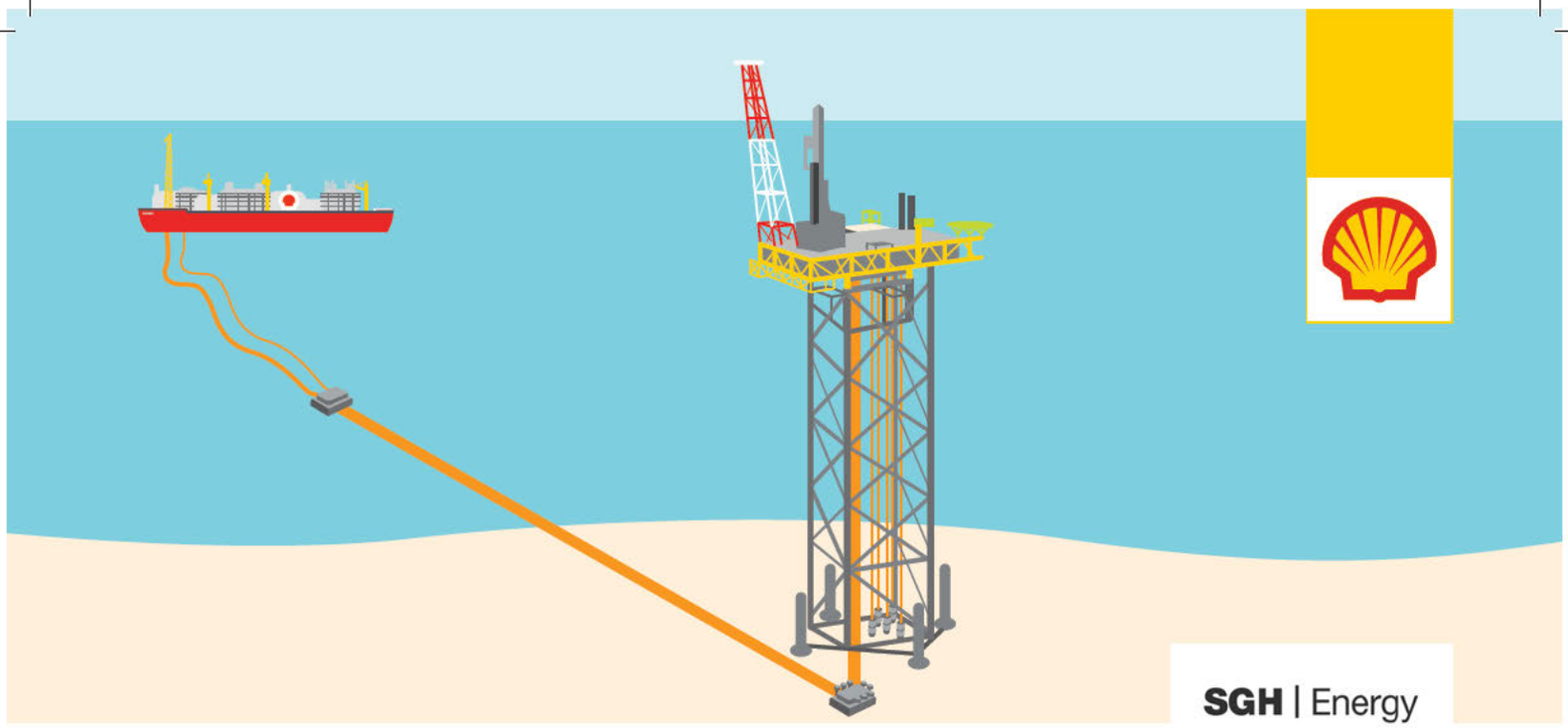
Appendix A Consultation Material

1. Consultation Material – Table of Content

Content	
1. Factsheets	1.00 Development Drilling Factsheet **Supporting Factsheets** 1.01 General Environment Plan Factsheet 1.02 Cultural and Social Values Factsheet 1.03 Hydrocarbon Release Factsheet
2. Information Booklet	2.00 Crux Information Booklet – *distributed in hard copy only.*
3. Maps	3.00 Development Drilling Planning Area Map 3.01 Community Map
4. Public Notices	4.00 Crux Campaign Overview 4.01 Print advert • ACM • Koori Mail • National Indigenous Times • Newscorp • SWM • The West 4.02 Social media post • Facebook • Linkedin 4.03 Radio ads 4.04 Drop-in session advert • Broome • Darwin • Exmouth • Port Hedland • Derby 4.05 Community briefing advert: • Broome • Darwin 4.06 Community drop-in session social media post
5. Community / Industry Presentations	5.00 Community Briefing – Darwin 5.01 Community Briefing - Broome 5.02 Industry Briefing - Perth
6. Videos	6.00 Crux Animation Video 6.01 Crux Animation Transcript
7. Indigenous relevant persons consultation material	7.01 Initial email invitation – March/April 7.02 Survey issued for Indigenous Forums (attached to email) 7.03 Presentation – Indigenous Forum 1 in Perth 7.04 Presentation – Indigenous Forum 2 in Broome 7.05 Presentation – Indigenous Forum 3 in Darwin 7.06 Presentation - Bardi Jawi, Mayala and Walalakoo Meeting – 15 August 2023 7.07 Presentation – Wunambal Gaambera Aboriginal Corporation – 15 September 2023 7.08 Presentation - Dambimangari Meeting – 19 September 2023 7.09 Email invitation to Broome forum – end of April 7.10 Email follow up – end of May

Content	
	7.11 Presentation – Larriakia meeting - 5 September 2023 7.12 Presentation – NTGAC meeting – 24 October 2023
8. NOPSEMA	8.01 NOPSEMA Consultation on Offshore Petroleum Environment Plan Brochure

Appendix A – 1.00 Development Drilling Factsheet



CR X DR L ENVIRONMENT PLAN FACTSHEET

AB RUX

h C p ct o s an imp r an par o Shell s ralia s gas port olio and will be backfill for the xisting Prelude FLNG facility. The project consists of a not normally manned platfo m with five production wells, in ocean waters approximately 165 m deep. The facility will be connected to Prelude via a 160km export pipeline and will be operated remotely from the Prelude FLNG fac lity.

The project i being progre sed by operator She Australia n joint v n ure with SGH Energy

R r s t ti M i Offs r Dri i g Unit

Location:

Bro se Bas 9 o shore nor h es us ra a and 6 0 k nor h ea t of Broome.

O shore etroleum Ti les:

In Co on ea h Wa ers and he err or o A h o e nd C er s ands roduction Licence AC/L10.

Proposed c ivi :

n a lat on of a dril ing template, guideposts and five deviated production wells

Drilling Methodology:

Mob le Offshore Drilling Unit; batch dril ing; tempora y suspension.

Wa er dep h at drilling location:

165 m

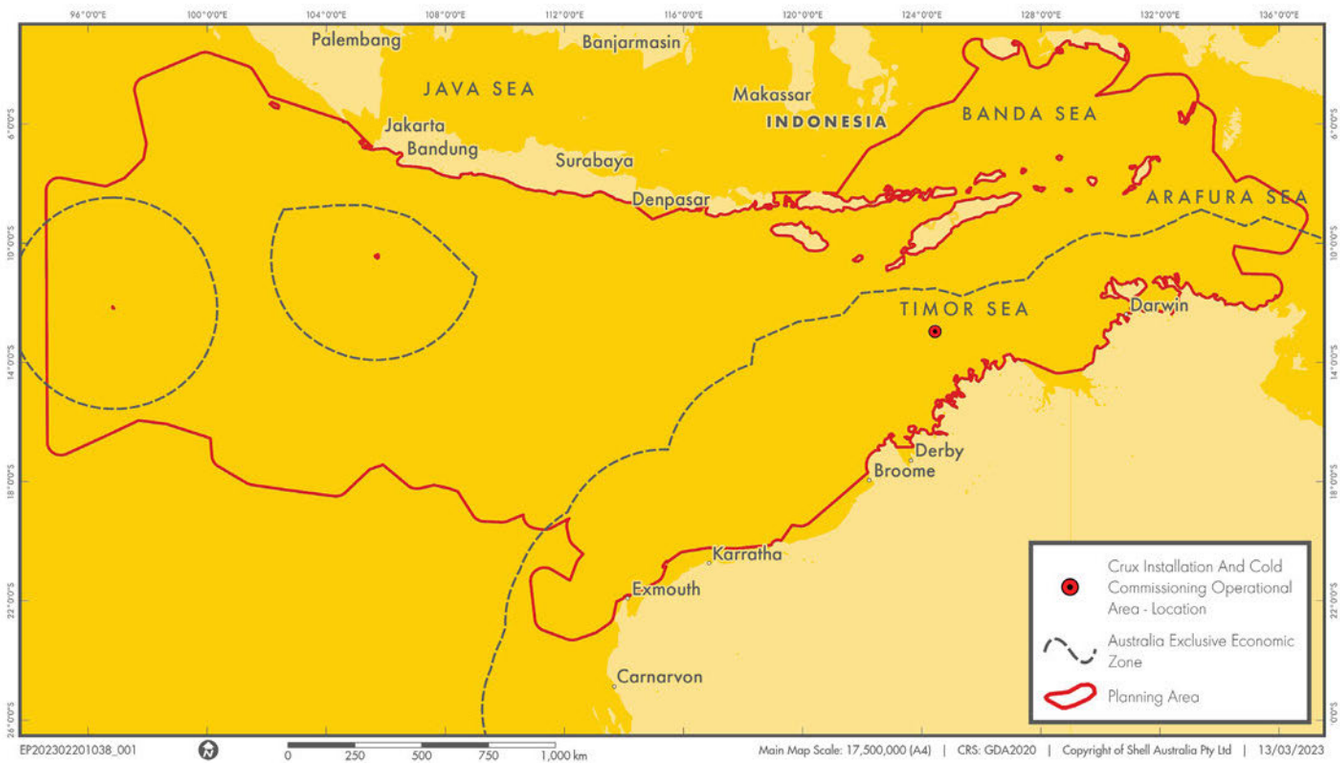
Timing*

- Expected Mobile Offshore Drill ng Unit Operations – late 2023 - early 2024

Duration

- Scope completed no later than the end of 2025
- Expected temporary well suspension period, approximately 2-3 years.

*Dates for the commencement of activities and duration are subject to schedule change.



THE PLANNING AREA

This is the largest area where the Crux Development Drilling could potentially have a direct or indirect environmental impact, as a result of a loss of well control or vessel collision.

The planning area represents the total area that a spill could travel, depending on sea surface conditions, currents and weather at the time of an incident. These combined pathways are developed using a hydrocarbon release modelling, and the planning area boundary captures the greatest extent of hundreds of potential release pathways produced by the modelling software.

This means that in the highly unlikely event of a loss of well control or vessel collision resulting in a spill, only a small part of the planning area would be impacted. Understanding the greatest extent of a release allows Shell to ensure that it has adequate response plans to effectively respond.

ENVIRONMENTAL APPROVAL

Before Shell begins substantial work on major projects or existing facilities, regulatory, environmental and social impacts are assessed, alongside commercial and technical considerations.

The Crux Offshore Project Proposal was accepted in August 2020 by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) and is publicly available on the NOPSEMA website.

The Crux drilling program is the first infield activity planned to occur to support the execution of the Crux development.

Future Environment Plans will cover:

- The installation and commissioning of the remaining Crux substructure, platform and other project infrastructure.
- The startup, commissioning and operations of Crux, including the completion and clean-up of the Crux production wells drilled by the Mobile Offshore Drilling Unit.

ACTIVITY DESCRIPTION

The Crux Drilling Environment Plan includes provision for the installation of guideposts and five deviated production wells via the preinstalled drilling template. The location of the drill center has been selected to optimise well length and reservoir penetration, and for avoidance of any potential subsurface hazards.

- **The guideposts:** ensure that the Crux substructure and topsides are accurately positioned over the drilling template when installed during the subsequent installation campaigns. The guideposts will remain on location at the seabed for the life of the asset. The drilling template and guideposts have an approximate structural footprint of Length 28 m x Width 9 m x Height 10 m
- **The wells:** will be drilled and suspended from a Mobile Offshore Drilling Unit, prior to installation of the Crux Substructure and Topsides. They will be drilled from a single drill center, via the pre-installed drilling template. The wells will be suspended and left in-situ with well completions planned to occur following installation of the Crux platform.
- **Mobile Offshore Drilling Unit:** This will be a semi-submersible Mobile Offshore Drilling Unit – which will be held in position by anchor spread.

The development drilling program will be supported by a range of services including helicopter transfers from mainland Australia, a dedicated installation vessel, four anchor handling, tug and support vessels and remotely operated vehicles undertaking inspection, maintenance and repair activities.

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We are committed to working with relevant persons as part of our ongoing efforts to engage and improve our understanding of the sensitivities and values of the region and welcome and seek feedback on these.

ENVIRONMENTAL MANAGEMENT

Aspect	Proposed Controls
Planned	
Physical Presence, vessel movements and seabed disturbance	▪ Implementation of national and international regulations and conventions for collision prevention, safety and navigation at sea ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area ▪ Environmental Protection and Biodiversity Conservation Regulations (2000) (EPBC Regulations), Part 8.1 – Interacting with cetaceans ▪ Australian Hydrographic Office Notice to Mariners
Lighting	▪ External lighting on vessels minimised to that required for navigation, safety of deck operations and security considerations
Noise	▪ Apply EPBC policy statement 2.1 – Part B (seismic survey guidelines) to geophysical survey activities as applicable to the scope. This is planned to be applied using trained crew members. ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area ▪ EPBC Regulations Part 8.1 – Interacting with cetaceans ▪ Marine fauna observations
Discharge of liquid effluent	▪ Comply with relevant requirements of the International Convention for the Prevention of Pollution from Ships (MARPOL) and associated regulations ▪ Chemical Management Process for chemical assessment and selection
Atmospheric emissions	▪ Comply with relevant requirements of the International Convention for the Prevention of Pollution from Ships (MARPOL) and associated regulations. ▪ Relevant vessels to have a valid International Air Pollution Prevention Certificate ▪ Use of low sulphur fuel when possible
Greenhouse gas emissions	▪ Comply with International Convention for the Prevention of Pollution from Ships (MARPOL) requirements and associated regulations ▪ Comply with the National Greenhouse and Energy Reporting Act (2007) and National Greenhouse and Energy Reporting Regulations (2008)
Waste management	▪ Discharge of waste from vessels will comply with relevant International Convention for the Prevention of Pollution from Ships (MARPOL) requirements and associated regulations ▪ Waste management procedures ▪ Waste tracking process ▪ The management and disposal of any quarantine risk material will be in accordance with state and commonwealth regulations
Unplanned	
Emergency events – hydrocarbon spill	▪ Align with relevant International Convention for the Prevention of Pollution from Ships requirements and subsequent regulations ▪ Valid Shipboard Oil Pollution Emergency Plan or Shipboard Marine Pollution Emergency Plan (as appropriate for vessel classification) ▪ Implementation of national and international regulations and conventions for collision prevention, safety and navigation at sea ▪ Offshore Vessel Inspection Database (OVID) process ▪ Australian Hydrographic Office Notice to Mariners ▪ NOPSEMA accepted Environment Plan and Oil Pollution Emergency Plan (OPEP) in place ▪ Relevant Persons consultation process ▪ Vessel Maintenance management system
Introduction of invasive marine species from vessels	▪ Ballast water exchange operations will comply with the international conventions and associated national regulations. ▪ Biofouling management for vessels in accordance with state, national and international biofouling management guidelines ▪ Biofouling management in compliance with state and commonwealth regulations ▪ Vessels (of appropriate class) will have a valid International Anti-Fouling System Certificate ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area

NOTIFICATION TO MARINERS

The 500 m Petroleum Safety Zone will be established under the Offshore Petroleum and Greenhouse Gas Storage Act (2006) and administered by NOPSEMA. This zone will also be marked on all relevant marine navigation charts issued through the Australian Hydrographic Office. Because the suspended wells and drilling template will be left in-situ following the completion of the drilling activities, the Petroleum Safety Zone will remain in place for subsequent installation campaigns and for the operating life of the Crux development. A notice to mariners will be issued via the Australian Hydrographic Office in advance of key offshore installation campaigns, detailing the Petroleum Safety Zone and associated restrictions of entry.

CONTACT US Community Hotline: 1800 059 152 Email: SDA-crux-project@shell.com **www.shell.com.au/crux**

Shell welcomes any feedback on Environment Plan submissions, including requests for further information. If you have functions, interests or activities that may be affected by any of our projects, Shell Australia invites you to get in touch.

Appendix A - 1.01 General Environment Plan Factsheet

ENVIRONMENT PLAN GENERAL FACT SHEET

SHELL AUSTRALIA

Shell has operated in Australia for over 120 years. From operating Australia's first oil refinery, which was central to meeting Australia's fuel needs, to fuelling the first Qantas commercial flight in the 1920s, to playing a foundation role in building some of Australia's largest and most innovative natural resource developments - as the energy needs of Australia have changed, so have we.

Today, we are a leading natural gas producer and are playing our part in the transition to a low-carbon future by investing in the power sector, renewable energy solutions and carbon abatement activities.

WHAT IS AN ENVIRONMENT PLAN (EP)?

An Environment Plan, or EP, outlines all the environmental impacts and risks of an activity and how these are managed to minimise impacts and risks to the environment. It is required by the Australian Government regulator the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance, prior to starting an offshore oil and gas activity.

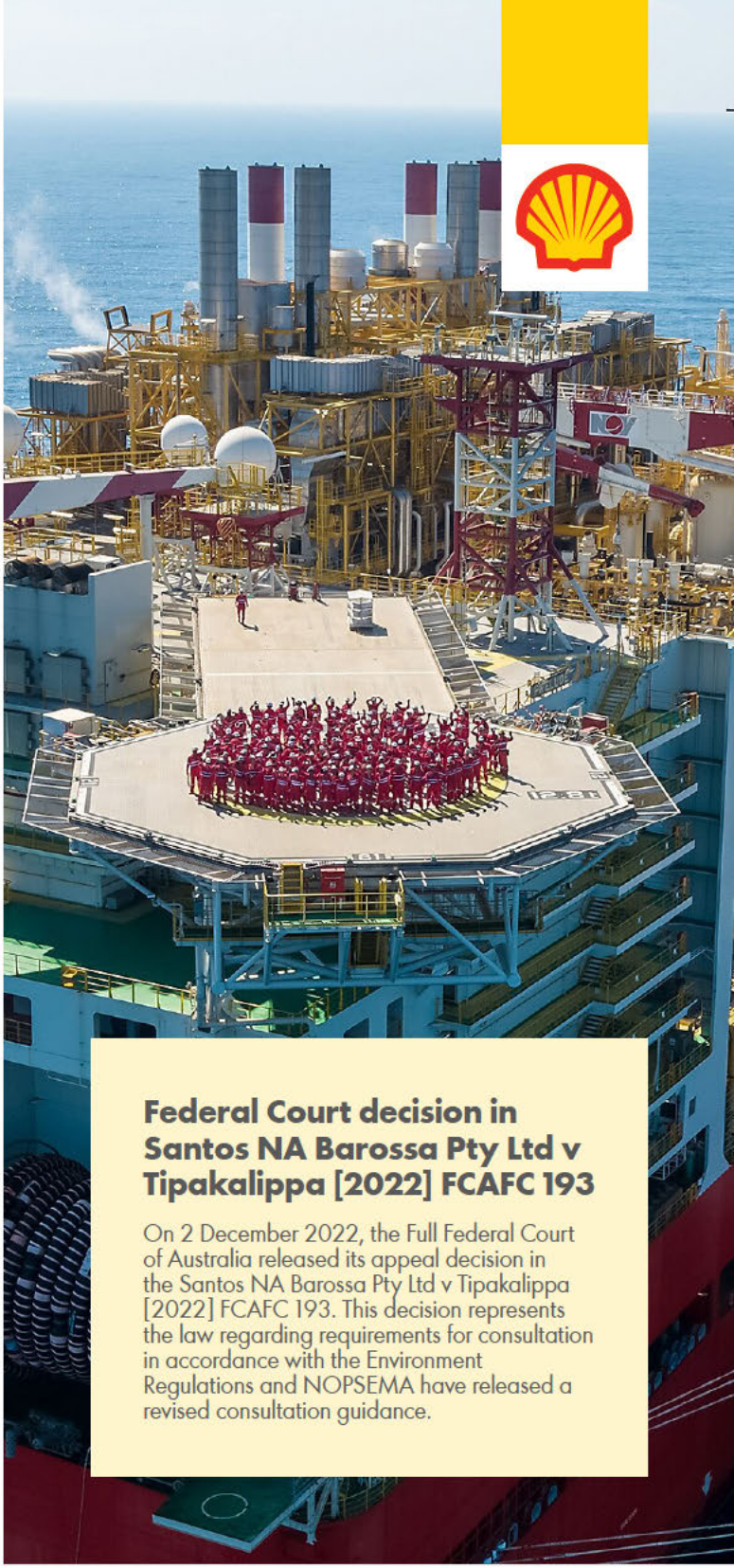
CONSULTATION IS KEY TO THE EFFECTIVE DEVELOPMENT OF AN EP

Guidelines for consultation are outlined in the Offshore Petroleum and Greenhouse Gas Storage Environment Regulation 11A.

The purpose is to ensure that authorities, persons or organisations that are potentially affected by oil and gas activities are consulted, and their input considered in the development of an EP.

Consultation is designed to ensure that relevant persons are identified and given sufficient information and a reasonable period to allow them to make an informed assessment of the possible consequences of the proposed petroleum or greenhouse gas activity on them. It is also intended to help inform a better understanding of the environment.

Shell Australia must consider and adopt appropriate measures in response to the matters raised by relevant persons. These actions will in turn inform the management of environmental impacts and risks to which the activity and EP relate.



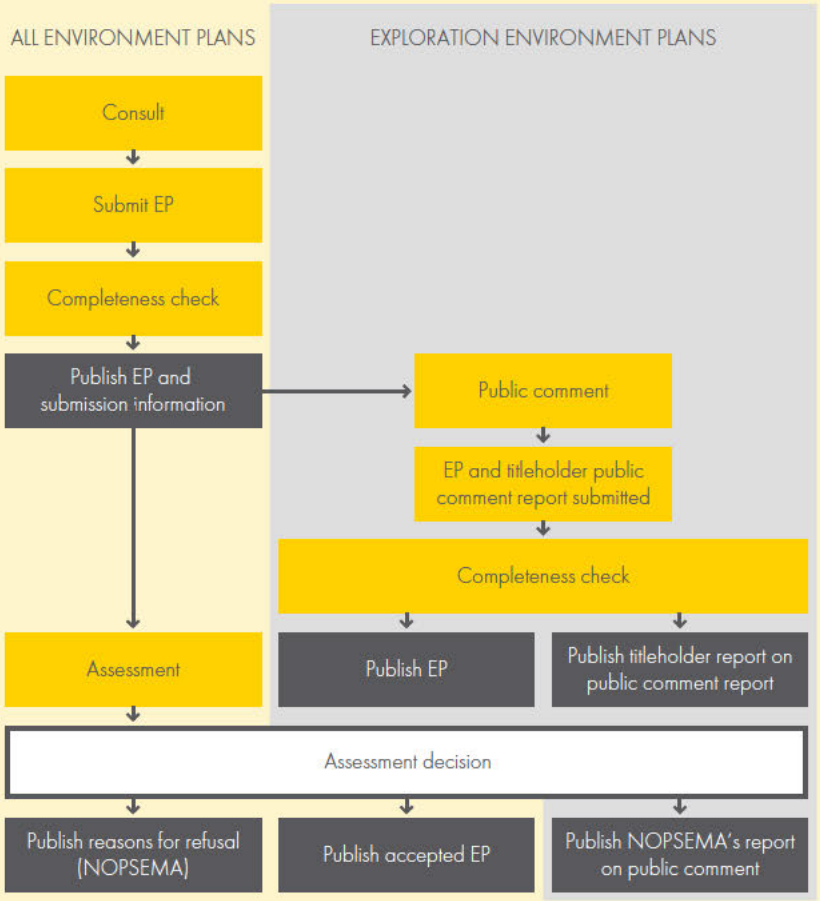
Federal Court decision in Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193

On 2 December 2022, the Full Federal Court of Australia released its appeal decision in the Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193. This decision represents the law regarding requirements for consultation in accordance with the Environment Regulations and NOPSEMA have released a revised consultation guidance.

National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA)

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) is Australia's independent expert regulator for health and safety, structural (well) integrity and environmental management for all offshore energy operations and greenhouse gas storage activities in Commonwealth waters, and in coastal waters where regulatory powers and functions have been conferred.

NOPSEMA'S ASSESSMENT PROCESS FOR EPS



FEEDBACK

At Shell, we recognise the environmental, heritage, social, cultural, and economic values of the region. Shell has undertaken extensive surveys, studies, and a comprehensive review of available information in order to understand and detail the sensitivities and values within the region.

We welcome and seek feedback from relevant persons on our understanding of these values. We are committed to working with relevant persons as part of our ongoing efforts to engage and improve our understanding of the sensitivities and values of the region. Additionally, values and sensitivities are assessed during the risk and impact assessments for any project. Shell will demonstrate how those impacts and risks will be reduced to a level that is as low as reasonably practicable through additional control measures and/or project modifications.

Shell welcomes any feedback, including requests to receive further information. If you have functions, interests or activities that may be affected by any of our projects, Shell Australia invites you to get in touch.

GLOSSARY

Term	Definition
Functions	Refers to "a power or duty to do something"
Activities	To be read broadly and is broader than the definition of 'activity' in regulation 4 of the Environment Regulations and is likely directed to what the relevant person is already doing
Interests	To be construed as conforming with the accepted concept of "interest" in other areas of public administrative law 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"
Reasonable Period	The titleholder must allow a relevant person a reasonable period for the consultation.
Sufficient Information	For the purpose of the consultation, the 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.
Relevant Persons	In the course of preparing an environment plan, or a revision of an environment plan, a titleholder must consult each of the following (a relevant person): a) each Department or agency of the Commonwealth to which the activities to be carried out under the environment plan, or the revision of the environment plan, may be relevant; b) each Department or agency of a State or the Northern Territory to which the activities to be carried out under the environment plan, or the revision of the environment plan, may be relevant; c) the Department of the responsible State Minister, or the responsible Northern Territory Minister; d) a person or organisation whose functions, interests or activities may be affected by the activities to be carried out under the environment plan, or the revision of the environment plan; e) any other person or organisation that the titleholder considers relevant.

CONTACT US Community Hotline: 1800 059 152 Email: SDA-crux-project@shell.com **www.shell.com.au/crux**

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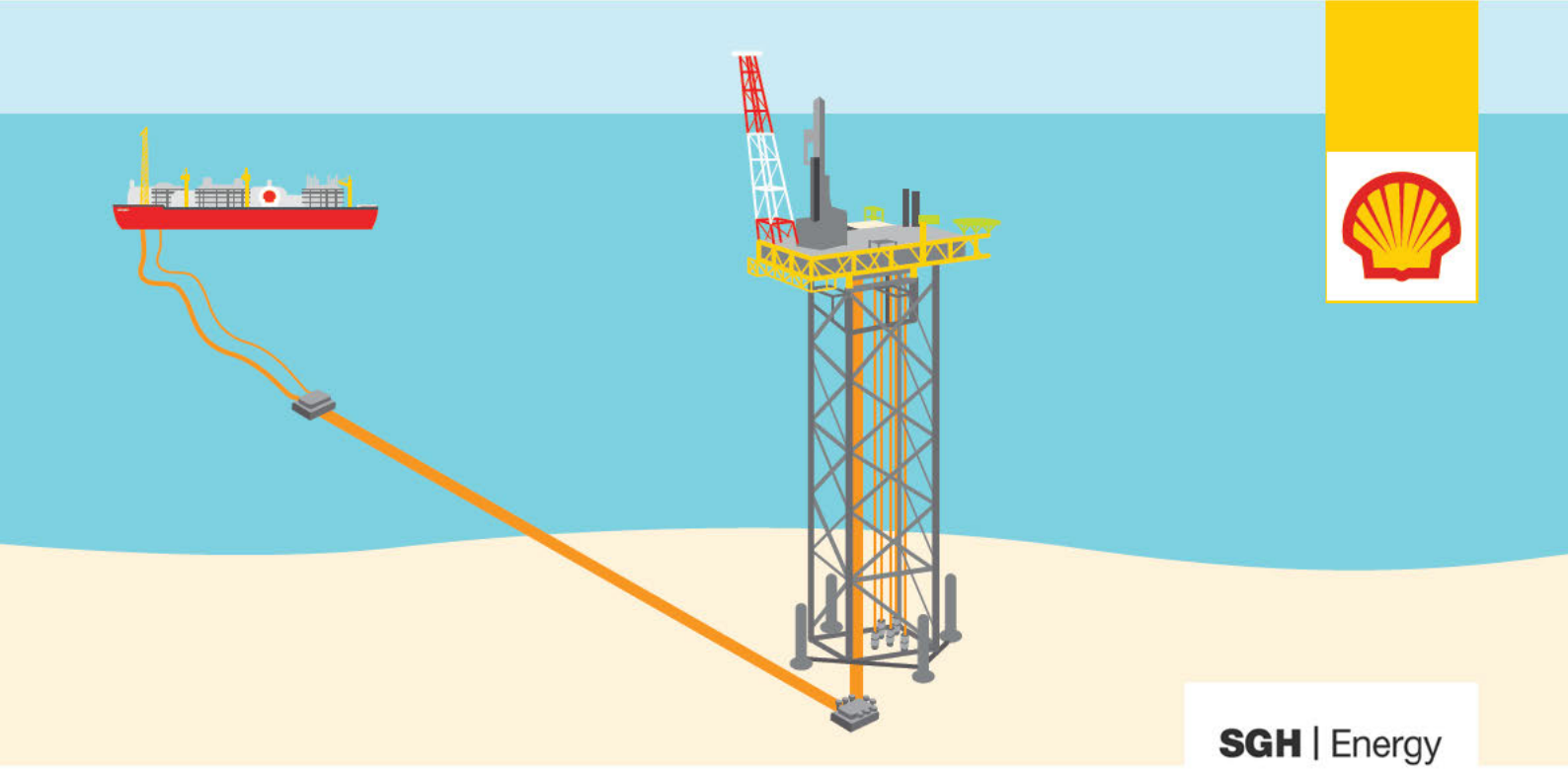
Appendix A - 1.02 Cultural and Social Values Factsheet



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EXISTING ENVIRONMENT CULTURAL AND SOCIAL VALUES SUMMARY

ABOUT CRUX

The Crux project forms an important part of Shell Australia's gas portfolio and will be backfill for the existing Prelude FLNG facility. The project consists of a not normally manned platform with five production wells, in ocean waters approximately 165m deep. The facility will be connected to Prelude via a 160km export pipeline and will be operated remotely from the Prelude FLNG facility.

The project is being progressed by operator Shell Australia in joint venture wi h SGH Energy

As part of the project's approvals process Shell is required to identify the cult ral and env ronmental values of the Prelude-Crux Planning Area which may be affected by Shell's activities.

At Shell, we recognise the importance of e vironmental, heritage, social, cultural, and economic values

Shell has undertaken comprehensive surveys, studies and a review of available information to understand and detail the sensitivities and values within the region

We wil demonstrate how these impacts and risks will be reduced to a level that is as low as reasonably practicable through additional control measures, seeking first to avoid and then minimise impacts.

We are committed to working with relevant persons as part of our ongoing efforts to engage and improve our understanding of the sensitivities and values of the region and welcome and seek feedback on these.

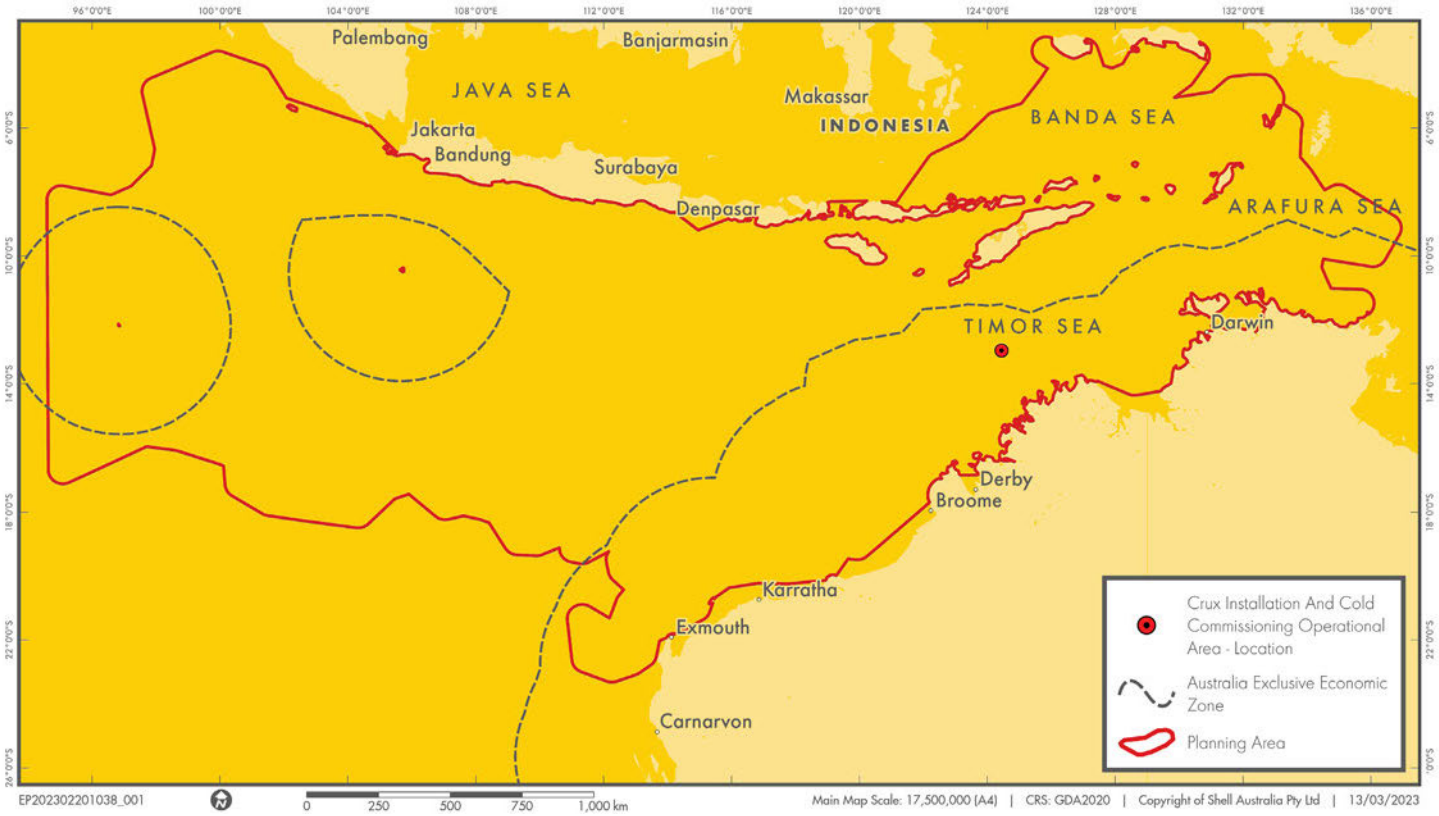

Figure 1: The planning area

THE PLANNING AREA

This is the largest area where the Crux Project could potentially have direct or indirect environmental impacts, as a result of an unplanned hydrocarbon spill. The planning area includes both inshore (State and Territory) and Commonwealth waters, as well as the claimable continental shelf beyond the Exclusive Economic Zone (Figure 1). The planning area extends to the highwater mark.

The planning area represents the total area of many possible pathways that a spill could travel, depending on sea surface conditions, currents and weather at the time of an incident. These combined pathways are developed using hydrocarbon release modelling, and the planning area boundary captures the greatest extent of hundreds of potential release pathways produced by the modelling software.

This means that in the highly unlikely event of one of these scenarios occurring, only a small part of the planning area would be impacted. Understanding the greatest extent of a release allows Shell to ensure that it has adequate response plans to effectively respond.

IDENTIFICATION OF CULTURAL AND SOCIAL VALUES

To understand the cultural and social values of the planning area, information on ecosystems and human activities in the planning area were gathered across the following themes:

- Biological and physical characteristics – identifying the biologically important areas and key ecological features
- Protected areas - including world, commonwealth, state and territory protected areas, Indigenous protected areas and their associated values
- Human activities - including recreational, commercial and research activities
- Community values and aspirations - cultural and social
- Indigenous values and aspirations and connection to land and sea Country
- Indigenous functions and activities with reference to land ownership (i.e., Native Title), Indigenous land, sea and resource management and use.

CULTURAL AND SOCIAL VALUES

The table below provides a summary of the key cultural and social values that exist within the planning area.

Cultural and Social Values	Description
Indigenous Culture	Indigenous peoples have connection to different and overlapping geographic locations within the planning area. Common cultural values link groups to land and sea. These values include an understanding that all natural features, flora and fauna, and marine processes (tides) are the result of journeys and actions taken by ancient creation ancestors. The planning area includes an extensive sea area. Sea country is equally important to Indigenous people as land country. Many of the Indigenous peoples along the Western Australia (WA) and Northern Territory (NT) coastline are saltwater people who have an intimate connection to the sea and associated marine and coastal habitats. For saltwater people all aspects of social, cultural, and economic life are intimately connected to the health of their lands and seas. Features such as reefs and shoals, and marine animals such as sawfish, turtle, whale and dolphin are elements of sea country that are deeply ingrained in Indigenous people's culture, including creation stories. Many of the marine and freshwater fauna species are totemic featuring in art, craft and stories. Connection to sea country is accompanied by cultural rights and responsibilities some of which have been recognized through Native Title determinations, the creation of Indigenous Protected Areas, and Land Trusts in WA and NT. Database searches identified more than 2000 coastal Aboriginal heritage places in WA that overlap with the planning area. These Aboriginal heritage sites include shell middens, fish traps, stone artefacts, stone arrangements and rock paintings and carvings (incl. petroglyphs).
Indigenous Land and Sea Resource Use	Contemporary Indigenous land and sea resource use within the planning area includes: ▪ Hunting and fishing for consumption, cultural and ceremonial purposes ▪ Collection of resources for medicinal and cultural purposes ▪ Commercial resource harvesting ▪ Land and sea management activities conducted by land and sea ranger groups across WA and NT.
Native Title	Native Title determinations within WA and the NT overlap with the planning area. These determinations include both land and sea areas. There are also a number of registered Native Title claims and Indigenous Land Use Agreements overlapping with the planning area.
Conservation Values and Sensitivities	The planning area includes the Ningaloo Coast and the Shark Bay World Heritage Areas, and the tentatively listed Murujuga Cultural Landscape World Heritage Area. Commonwealth, State and Territory protected areas overlap the Planning Area and include several Australian marine parks, biologically important areas, Indigenous Protected Areas, Ramsar wetlands, parks and reserves. These protected areas contain environmental and cultural values of significant interest, importance and value to individuals and communities including Indigenous peoples. Maritime archaeological heritage sites (e.g., shipwrecks), protected under national heritage, and state and local heritage legislation, are also located within the planning area.
Communities	There are many regional centres and remote communities, including Indigenous communities and outstations located along the coastline of the mainland and on islands located within or close to the planning area. Key regional communities include Exmouth, Port Headland, Broome, and Darwin.
Commercial Fisheries	Commercial fisheries overlap the Planning Area and include Commonwealth, WA and NT fishers. Fisheries activities in the planning area include net and line fishing as well as pearling and aquaculture. Indigenous commercial fishing activities are also undertaken in the planning area.
Commercial tourism activities	Protected areas in the planning area support a diverse range of nature-based recreational and tourism activities. Commercial tourism activities undertaken within the planning area include diving, snorkelling, sailing and kayaking, fishing, whale watching and sunset cruising. Nearby land-based activities include birdwatching and chartered tours of coastline areas. Indigenous based commercial tourism activities also occur within the planning area and include on-country experiences, camping with custodians, guided tours of land and sea, marine based fishing experiences. Tourism accommodation operations are located along the mainland coastline and on some islands within or close to the planning area. Many accommodation providers offer marine based tourism activities (for example charter fishing activities) to guests.
Recreational activities	Camping, fishing, beach combing, swimming, snorkelling, diving and kayaking, sailing and bird watching activities are undertaken within or close to the planning area. Many recreation-based interest groups (e.g. fishing, sailing and surf lifesaving clubs) conduct activities that overlap with the planning area

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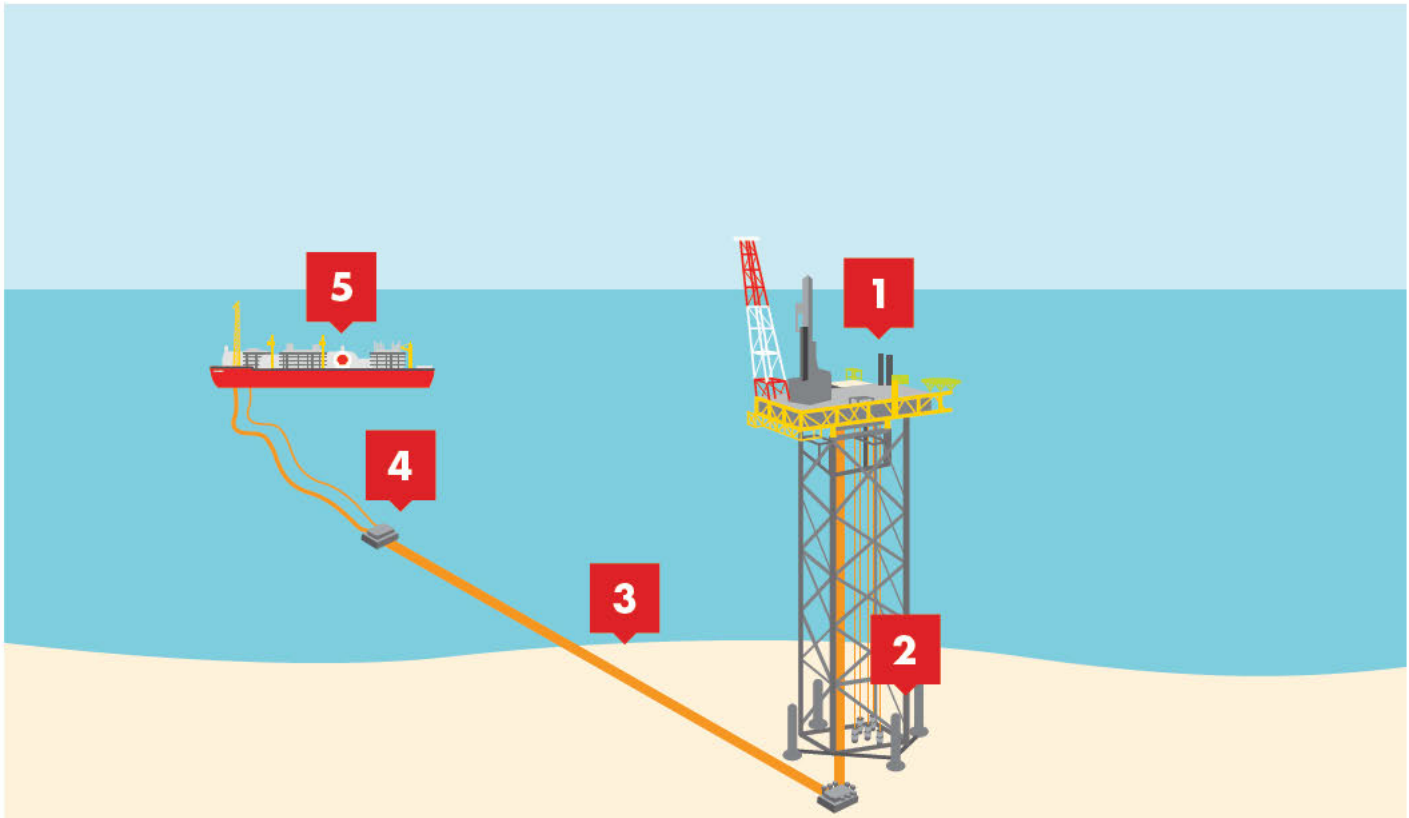
Appendix A - 1.03 Hydrocarbon Release Factsheet

CRUX HYDROCARBON RELEASE FACTSHEET

ABOUT CRUX

The Crux project forms an important part of Shell Australia's gas portfolio and remains an important backfill opportunity for the existing Prelude FLNG facility. The project consists of a not normally manned platform with five production wells, in ocean waters approximately 165m deep. The facility will be connected to Prelude via a 160km export pipeline and will be operated remotely from the Prelude FLNG facility.

The project is being progressed by operator Shell Australia in joint venture with SGH Energy.



1

A NOT NORMALLY MANNED PLATFORM which includes dry trees, minimal processing facilities and associated utility systems.

2

5 PRODUCTION WELLS connected to the Not Normally Manned Platform for completions, perforations, unloading and future operations.

3

AN EXPORT PIPELINE approximately 165km long, which lies in the Crux platform back to the Prelude FLNG facility.

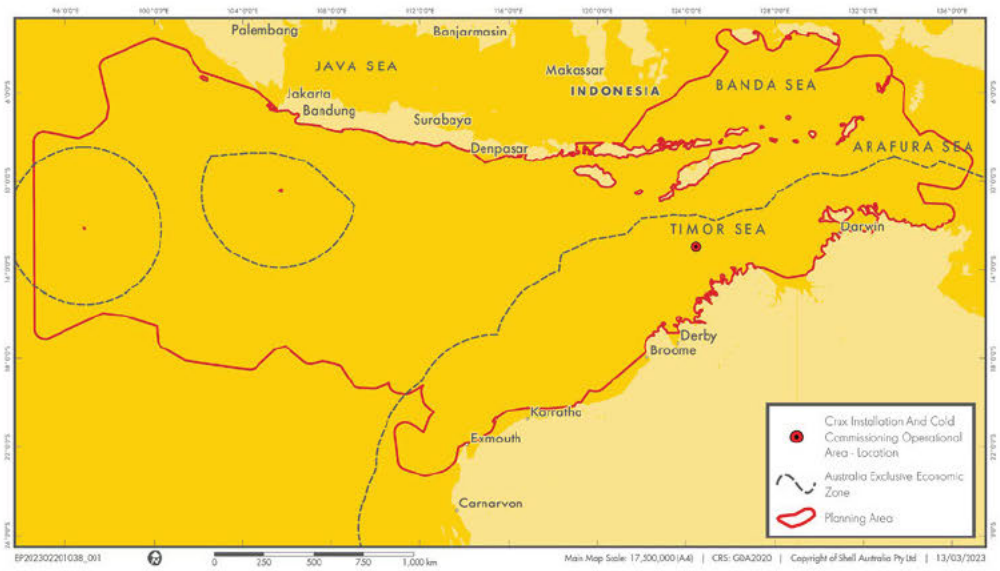
4

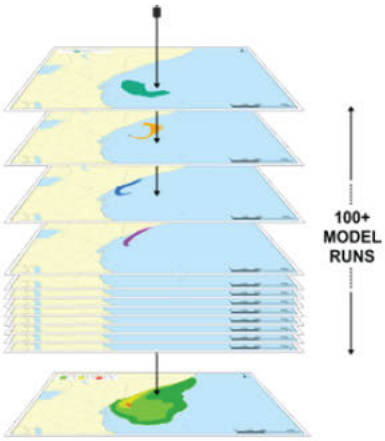
SUBSEA TIE-IN SYSTEM connecting the export pipeline system between the Crux Not Normally Manned Platform and the Prelude FLNG facility.

5

REMOTE OPERATIONS the Crux Platform is connected to and remotely operated from the Prelude FLNG facility.

Concept Schematic of the Crux Project





THE PLANNING AREA

This is the largest area where the Crux Project could potentially have a direct or indirect environmental impact, as a result of:

- loss of well control during drilling and operations
- loss of process storage tank containment on the Crux platform
- loss of subsea containment from the export pipeline, or
- loss of fuel from a vessel.

The planning area represents a combined area of many possible pathways that a spill could travel, depending on sea surface conditions, currents and weather at the time of an incident. These combined pathways are developed using a computer model, and the planning area boundary represents the greatest extent of the hundreds of potential release pathways produced by the modeling software.

This means that in the highly unlikely event of one of these scenarios occurring, only a small part of the planning area would be impacted. Understanding the greatest extent of a release allows Shell to ensure that it has adequate response plans to effectively respond.

SUMMARY OF THE MODELED HYDROCARBON SPILL SCENARIOS

SCENARIO	LOCATION NAME	LATITUDE	LONGITUDE	DEPTH (M)	HYDROCARBON TYPE	DURATION	TOTAL VOLUME (M^3)
LOSS OF WELL CONTROL	Platform	12° 57′ 12.46″	124° 26′ 33.21″	169	Crux condensate	80 days	206,225
LOSS OF PROCESS TANK CONTAINMENT ON CRUX PLATFORM	Platform	12° 57′ 12.46″	124° 26′ 33.21″	Surface	Crux condensate	Instant	88
LOSS OF CONTAINMENT FROM EXPORT PIPELINE	Near Haywood Shoal - export pipeline	13° 15′ 29.00″	123° 54′ 39.00″	199	Crux condensate	< 6 hours	2,037
LOSS OF FUEL FROM VESSEL	Platform	12° 57′ 12.46″	124° 26′ 33.21″	Surface	IFO - 180	1 hour	1,000

RISK MANAGEMENT

Shell has extensive experience with safe and environmentally responsible drilling and reservoir engineering worldwide and safe design and operation of subsea pipelines. Shell has developed a detailed understanding of the Crux field through historical seismic surveys and drilling.

The oil and gas industry routinely implements a range of design standards and operational inspections to ensure pipeline and infrastructure integrity. This is reflected in the very low likelihoods of significant hydrocarbon releases from pipelines in jurisdictions similar to Australia.

Australian regulations require that all environmental risks be managed to a level that is "as low as practically possible" and acceptable. This is done through NOPSEMA's Environment Plan (EP) framework. All petroleum activities will be undertaken under an accepted EP.

All wells will be drilled and operated in accordance with an accepted Well Operations Management Plan (WOMP) in accordance with the Offshore Petroleum and Greenhouse Gas Storage Act (OPGGS).

LOSS OF PROCESS STORAGE TANK CONTAINMENT

The Crux platform will process well fluids, before exporting the hydrocarbon to the Prelude FLNG facility for processing. The process equipment on the Crux platform will store considerable volumes of condensate, that could be released to the environment in the event of loss of containment from process infrastructure.

A significant loss of containment from process equipment is highly unlikely. The offshore oil and gas industry routinely implements safety by design to reduce the likelihood of a process loss of containment and reduce personnel exposure to significant risks (a key safety benefit of a Not Normally Manned design of the Crux platform). This is reflected in industry statistics, which indicate a significant release of liquid hydrocarbons from offshore process equipment is very low, particularly for unmanned platforms.

LOSS OF CONTAINMENT FROM CRUX EXPORT PIPELINE

The export pipeline will contain a significant volume of gas and condensate during production operations. A loss of containment from the pipeline may lead to the release of condensate to the marine environment. Pipeline loss of containment events can range from small 'pinhole' leaks (localised corrosion) through to complete rupture of the pipeline (significant mechanical impacts such as a drilling rig anchor being dragged over the export pipeline).

LOSS OF FUEL FROM A VESSEL

The Crux project will require considerable use of a range of project vessels, from small platform support vessels to heavy lift and pipeline installation vessels. The frequency and duration of vessel activities will vary considerably depending on the project phase.

Installation and decommissioning will be peak periods of vessel activity, and vessels will include heavy lift and construction vessels. The commissioning and operations phases (the longest phases of the Crux project) will involve relatively low vessel activity, comprised primarily of platform support vessels.

The nature and scale of the environmental risks and impacts from a loss of fuel from a vessel varies significantly based on the vessel type and activities. Vessels such as heavy lift and pipeline vessels typically store relatively large quantities of fuel. Often these types of vessels are fueled using relatively heavy fuel oils.

Smaller vessels, such as platform support vessels, typically store smaller quantities of fuel. Smaller vessels are typically fueled using lighter fuel oils such as marine diesel, which are less persistent in the environment than heavier fuel oils.

LOSS OF WELL CONTROL

The Crux project involves drilling and completion of, and production from, a series of subsea wells.

Shell's engineering standards require a range of features that manage the risk of a loss of well control to very low levels. However, there is a possibility that a loss of well control may occur during drilling and operation of the Crux platform.

While the likelihood is very small, a complete loss of well control (a well blowout) has the potential to release significant volumes of condensate into the environment. Such a release could result in significant environmental damage.

The likelihood and volume of condensate that could be released during such an event will change during different phases of the Crux project. Most loss of well control incidents do not result in a worst-case well blowout scenario, and typically release relatively small masses of hydrocarbons.

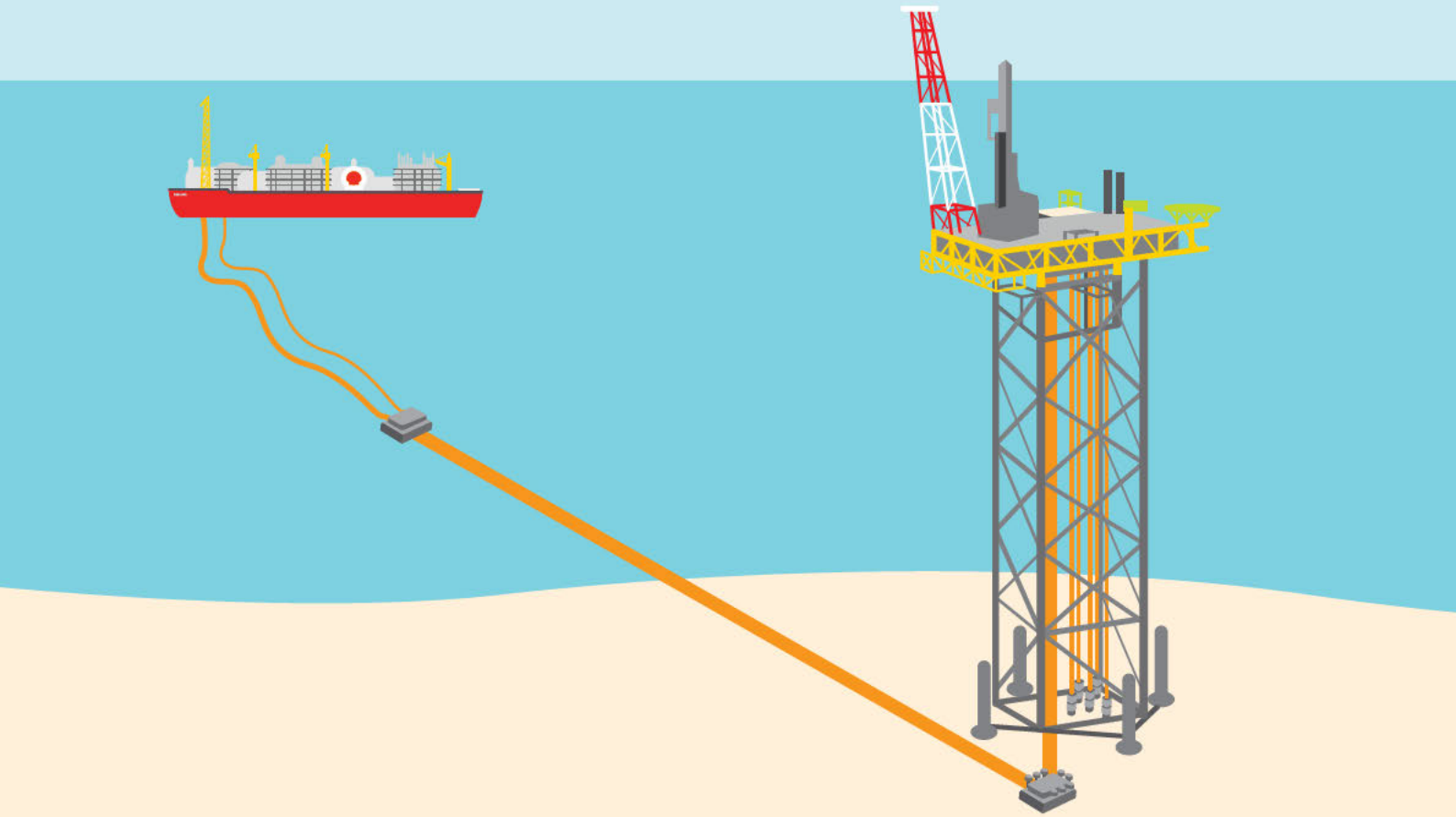
The likelihood of a well blowout from development drilling and production are considerably lower than a loss of containment from an exploration well, as are the likely release volumes. Exploration wells will not be drilled during the Crux project.

At Shell, we recognise the importance of environmental, heritage, social, cultural, and economic values.

Shell has undertaken comprehensive surveys, studies and a review of available information to understand and detail the sensitivities and values within the region.

We will demonstrate how these impacts and risks will be reduced to a level that is as low as reasonably practicable through additional control measures, seeking first to avoid and then minimise impacts.

We are committed to working with relevant persons as part of our ongoing efforts to engage and improve our understanding of the sensitivities and values of the region and welcome and seek feedback on these.



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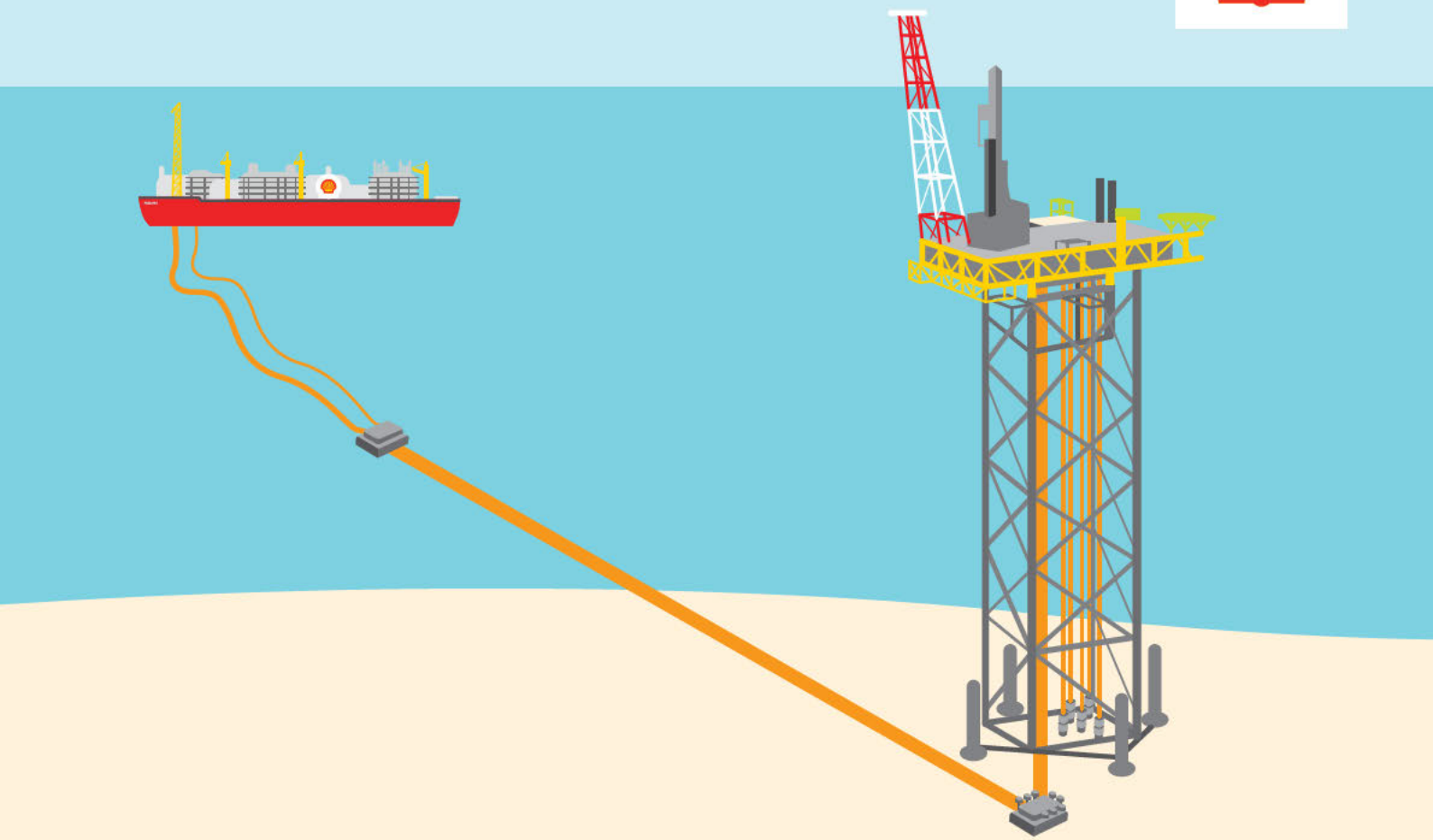
Appendix A - 2.00 Crux Information Booklet – distributed in hard copy only.



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SHELL'S CRUX PROJECT

2023

INTRODUCTION

Shell has operated in Australia for over 120 years. From operating Australia's first oil refinery, which was central to meeting Australia's fuel needs, to fuelling the first Qantas commercial flight in the 1920s, to playing a foundation role in building some of Australia's largest and most innovative natural resource developments - as the energy needs of Australia have changed, so have we.

Today, we are a leading natural gas producer and are playing our part in the transition to a low-carbon future by investing in the power sector, renewable energy solutions and carbon abatement activities.

ABOUT CRUX

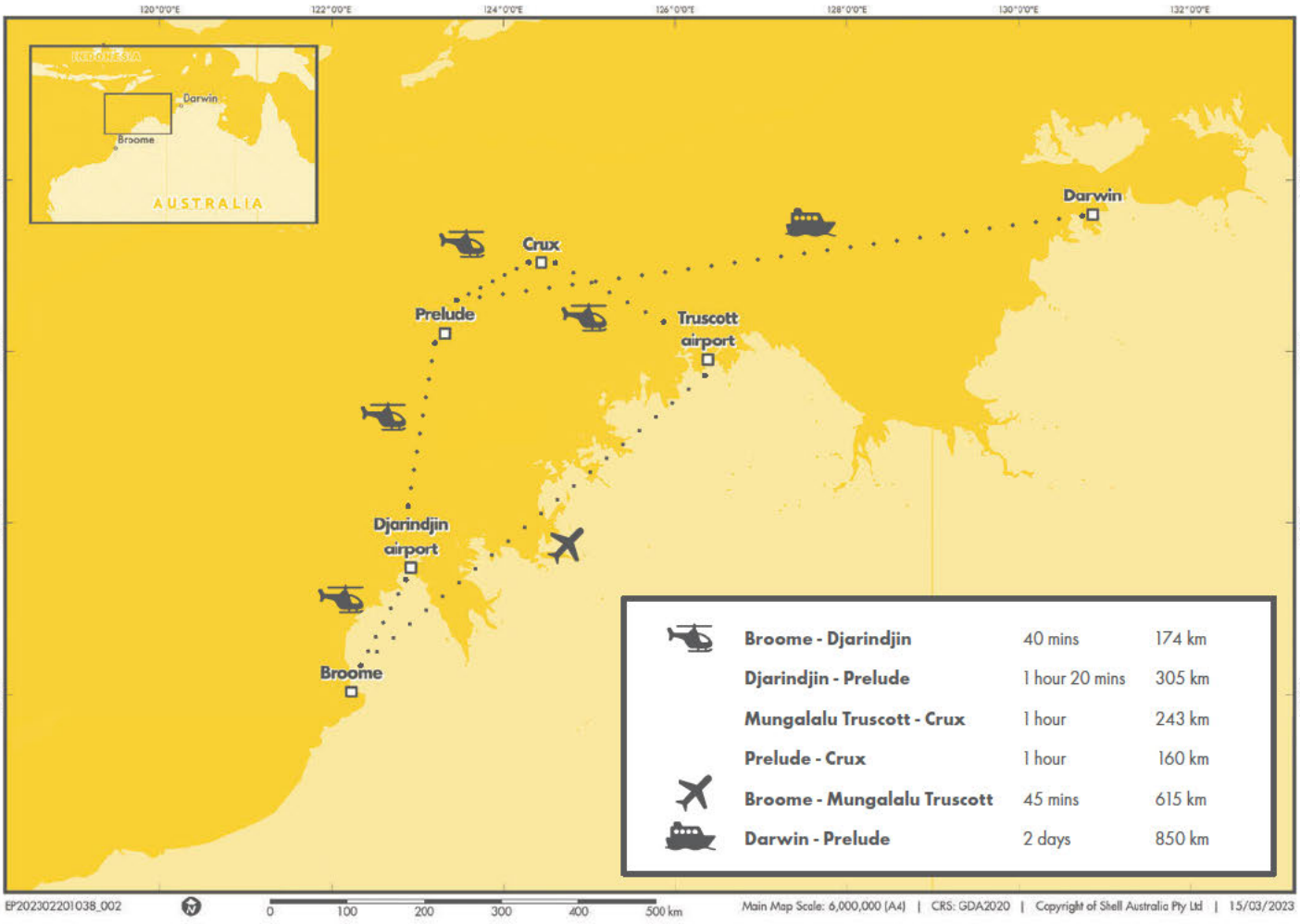
The Crux project forms an important part of Shell Australia's gas portfolio and remains an important backfill opportunity for the existing Prelude FLNG facility. The project consists of a not normally manned platform with five production wells, in ocean waters approximately 165m deep. The facility will be connected to Prelude via a 160km export pipeline and will be operated remotely from the Prelude FLNG facility.

The project is being progressed by operator Shell Australia in joint venture with SGH Energy.

THE LOCATION OF OUR OPERATIONS

Prelude is located approximately 475km north-east of Broome, Western Australia, in the Browse Basin.

Once installed, the Crux platform will be connected to Prelude via a 160km, located approximately 190 km off the Kimberley coast of Western Australia and 620 km north-east of Broome.



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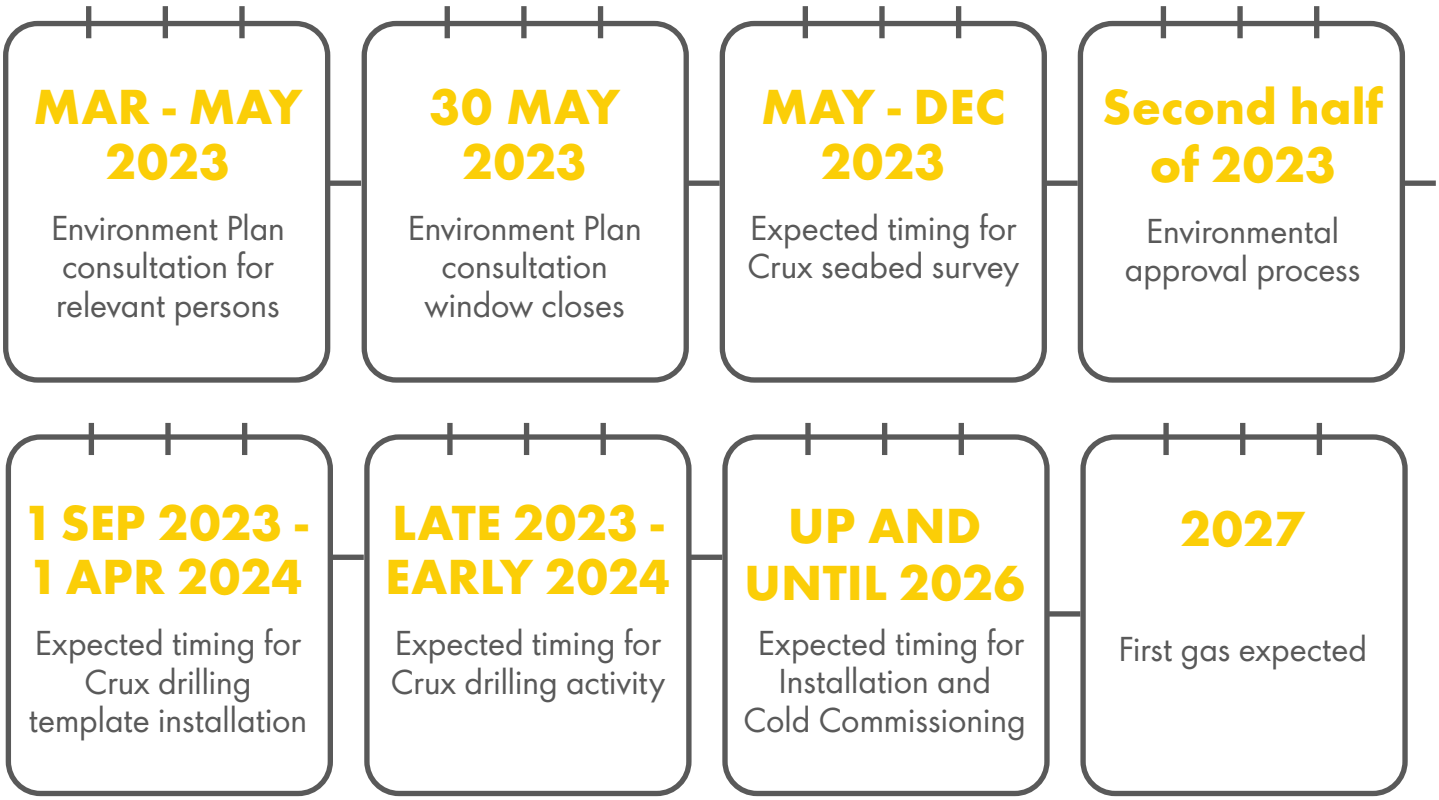


**Dates for the commencement of activities and durations are subject to change and are pending regulatory approvals.*

Shell is planning to commence engagement with relevant persons end of March 2023.

Construction activities are planned to start in late 2023, with drilling planned to commence in early 2024.

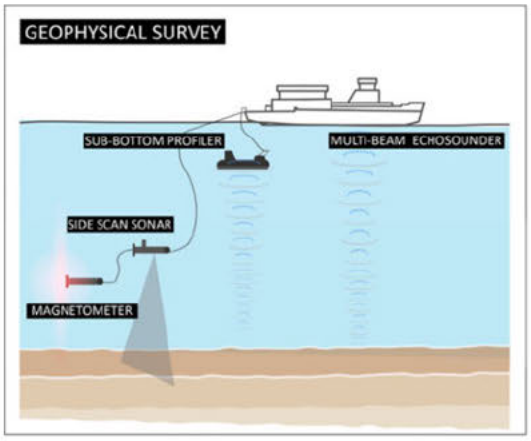
RELEVANT PERSONS

At Shell, we recognise the environmental, heritage, social, cultural, and economic values of the region. Shell has undertaken extensive surveys, studies, and a comprehensive review of available information in order to understand and detail the sensitivities and values within the region.

We welcome and seek feedback from relevant persons on our understanding of these values. We are committed to working with relevant persons as part of our ongoing efforts to engage and improve our understanding of the sensitivities and values of the region. Additionally, values and sensitivities are assessed during the risk and impact assessments for any project. Shell will demonstrate how those impacts and risks will be reduced to a level that is as low as reasonably practicable through additional control measures, seeking first to avoid and then minimise impacts.

PROJECT ACTIVITIES

SEABED SURVEY

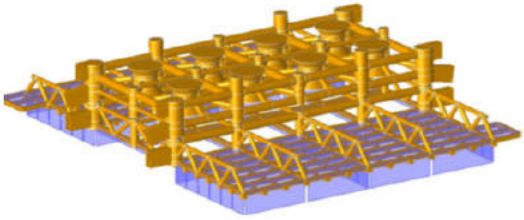


A survey of the seabed along the Crux pipeline route will be carried out using technology like sonar mounted on the hull of a survey vessel. The pipeline will connect the Crux field with the Prelude Floating Liquified Natural Gas (FLNG) facility.

The survey will make sure we have accurate information about the seabed along the pipeline, so construction of the pipeline can be carried out safely and all environment impacts are effectively managed.

The survey is expected to be completed within a five-day period during a single vessel-based campaign operating 24 hrs/day.

DRILLING TEMPLATE INSTALLATION



Drilling Template Structure including mudmats

The steel prefabricated drilling template will be installed on the seabed to act as a guide to the drill bit during drilling operations. Once installed the drilling template will remain in place for the life of Crux.

The drilling template includes eight drill slots to support an initial five well development drilling campaign.

Once installed the drilling template will remain in place for the life of the Crux activity.

The drilling template installation campaign is expected to occur over a one-month period subject to weather and subsurface conditions. The drilling template will be installed within approximately 24 hrs. The activity window is 1 month to account for variability in weather and subsurface conditions

Once installed the template will remain in place for the life of the Crux Project.

PROJECT ACTIVITIES

DEVELOPMENT DRILLING

Representative Mobile Offshore Drilling Unit

Drilling the wells includes the installation of guideposts and five deviated production wells via the preinstalled drilling template.

Installation of guideposts

This ensures that the Crux substructure and topsides are accurately positioned over the drilling template when installed during the subsequent installation campaigns.
The guideposts will remain on location at the seabed for the life of the Crux Project.
The guideposts have an approximate structural footprint of Length 28 m X Width 9 m X Height 10 m.

Drilling and suspending the wells

The wells will be drilled from a Mobile Offshore Drilling Unit. They will be drilled from a single drill centre, via the pre-installed drilling template. The wells will be suspended and left in-situ with well completions planned to occur following installation of the Crux platform. The Mobile Offshore Drilling Unit will be a semi-submersible Mobile Offshore Drilling Unit – which will be held in position by anchor spread.

The drilling campaign is expected to be carried out for approximately 2 years with scope completed no later than the end of 2025. It will be supported by a range of services including helicopter transfers from mainland Australia, a dedicated installation vessel, four anchor handling, tug and support vessels and remotely operated vehicles undertaking inspection, maintenance and repair activities.

PROJECT ACTIVITIES

INSTALLATION AND COLD COMMISSIONING

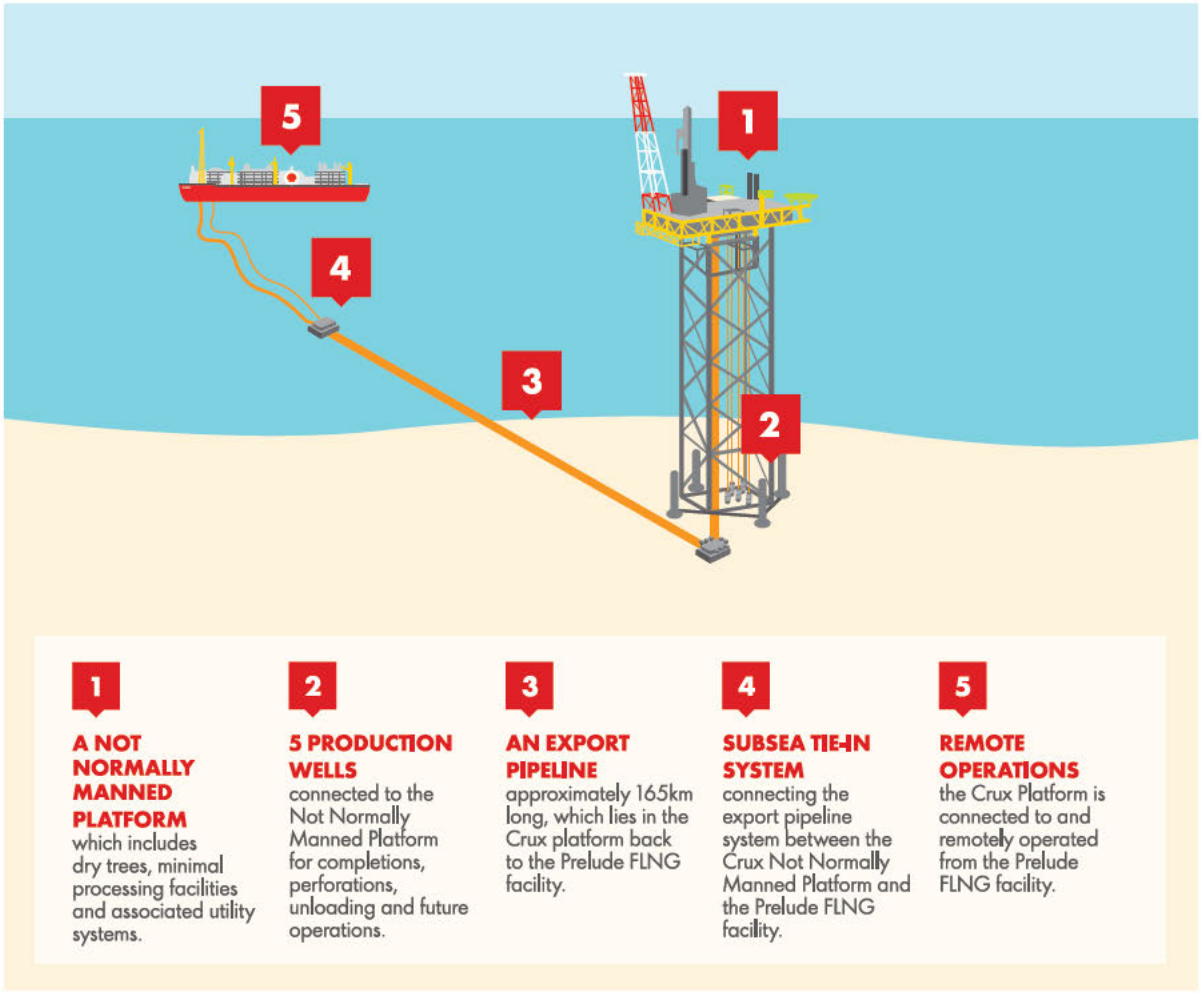
This covers a number of activities including:

- Installation of the subsea integration system, including the Crux pipeline to export gas from Crux field to Prelude FLNG facility for processing into LNG. The pipeline will be approximately 26 inches in diameter and approximately 165 km long.
- Installation of the Crux not-normally manned platform, jacket and topsides. The platform will be held in position by piled foundations on the seabed. It includes processing facilities and associated utility systems.
- Cold commissioning activities such as hydrotesting and dewatering of the pipeline.

The installation phase will be supported by crews being transported via helicopter from Broome, while supply vessels will be serviced from Darwin.

PROJECT ACTIVITIES

START UP AND OPERATIONS



Concept Schematic of the Crux Project

This is where operations to commence production will be completed including

- commissioning testing and monitoring topside equipment on the platform and the export pipeline
- well, flowline and riser operations
- remote production and processing operations

DECOMMISSIONING

This will include well abandonment, decommissioning of the platform and decommissioning of subsea facilities and export pipeline.

ENVIRONMENTAL IMPACT MANAGEMENT

Construction activities have been designed to operate and manage environmental risks to as low as reasonably practicable and acceptable levels.

LIGHT

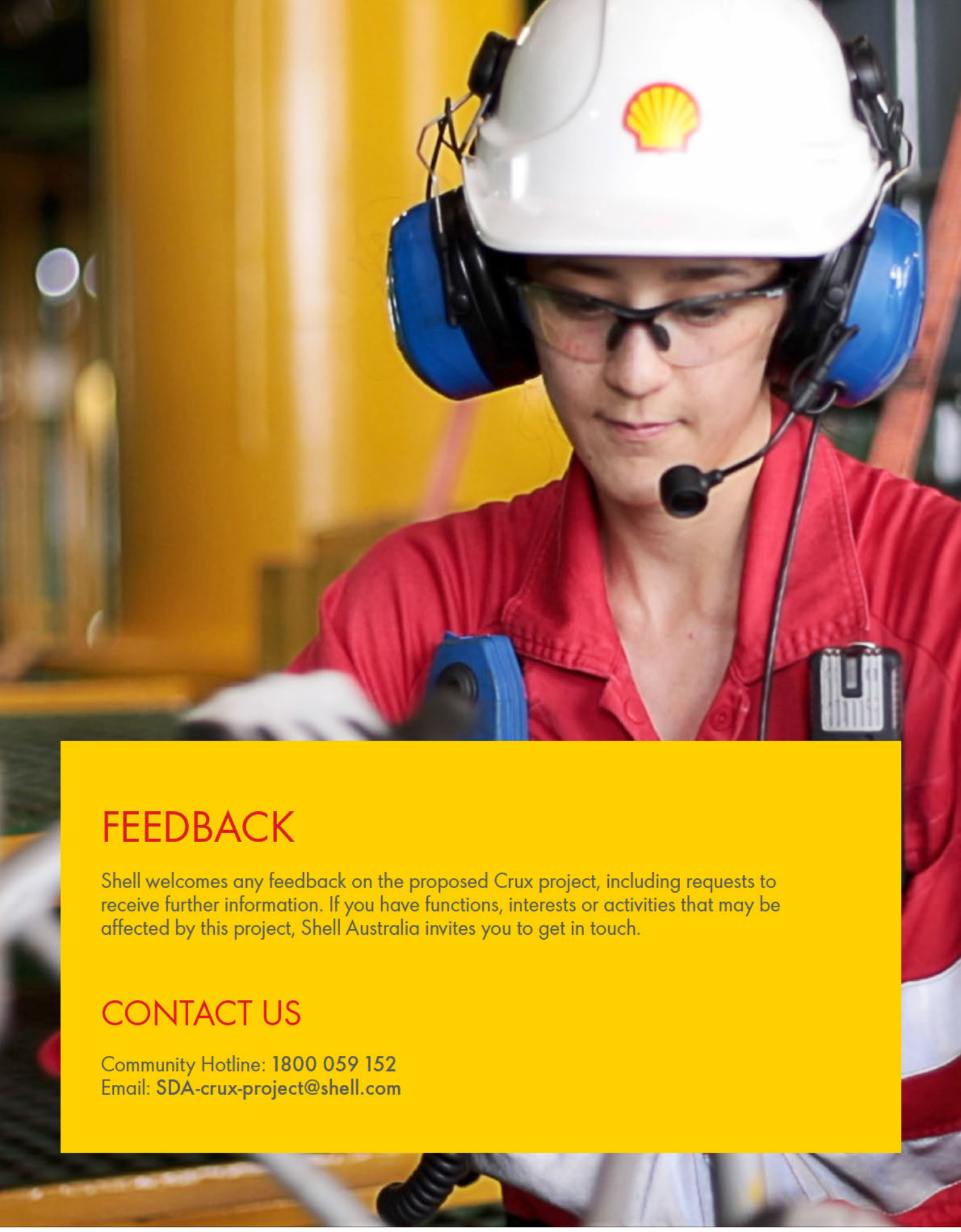
External lighting on offshore facilities have been minimised to the lowest levels possible to that required for navigation and safe operations on deck.

NOISE

There will be some noise during the day and night while the project is being constructed. Any marine life in the area will be monitored and there will be no activity within 1 km of any shoals.

NOTIFICATION TO MARINE USERS

The 500 m Petroleum Safety Zone will be in place and marked on all relevant marine navigation charts. The Safety Zone will remain in place for the life of the Crux project. A notice to mariners will be issued via the Australian Hydrographic Office in advance of any activities commencing.



FEEDBACK

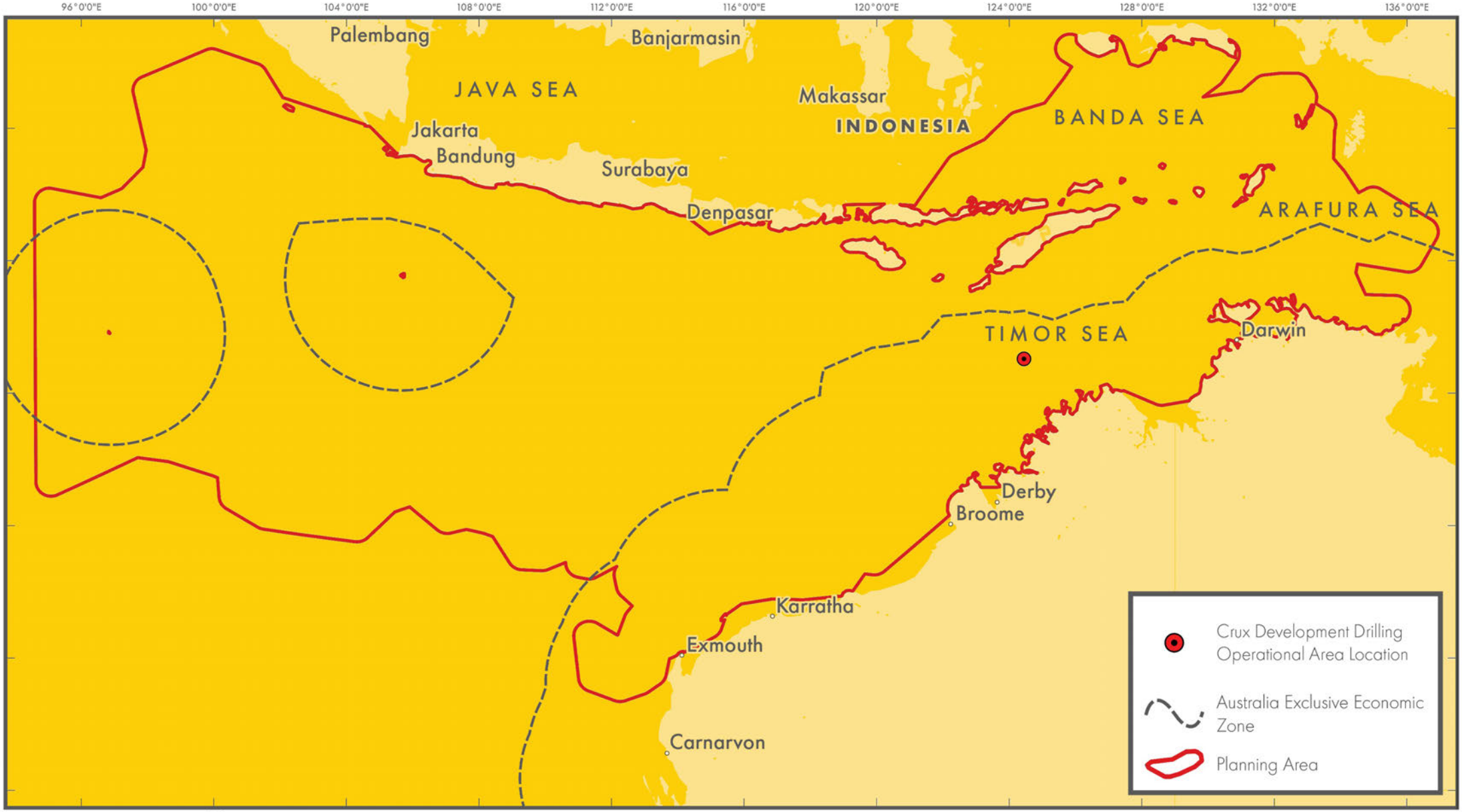
Shell welcomes any feedback on the proposed Crux project, including requests to receive further information. If you have functions, interests or activities that may be affected by this project, Shell Australia invites you to get in touch.

CONTACT US

Community Hotline: **1800 059 152**
Email: **SDA-crux-project@shell.com**

WWW.SHELL.COM.AU/CRUX

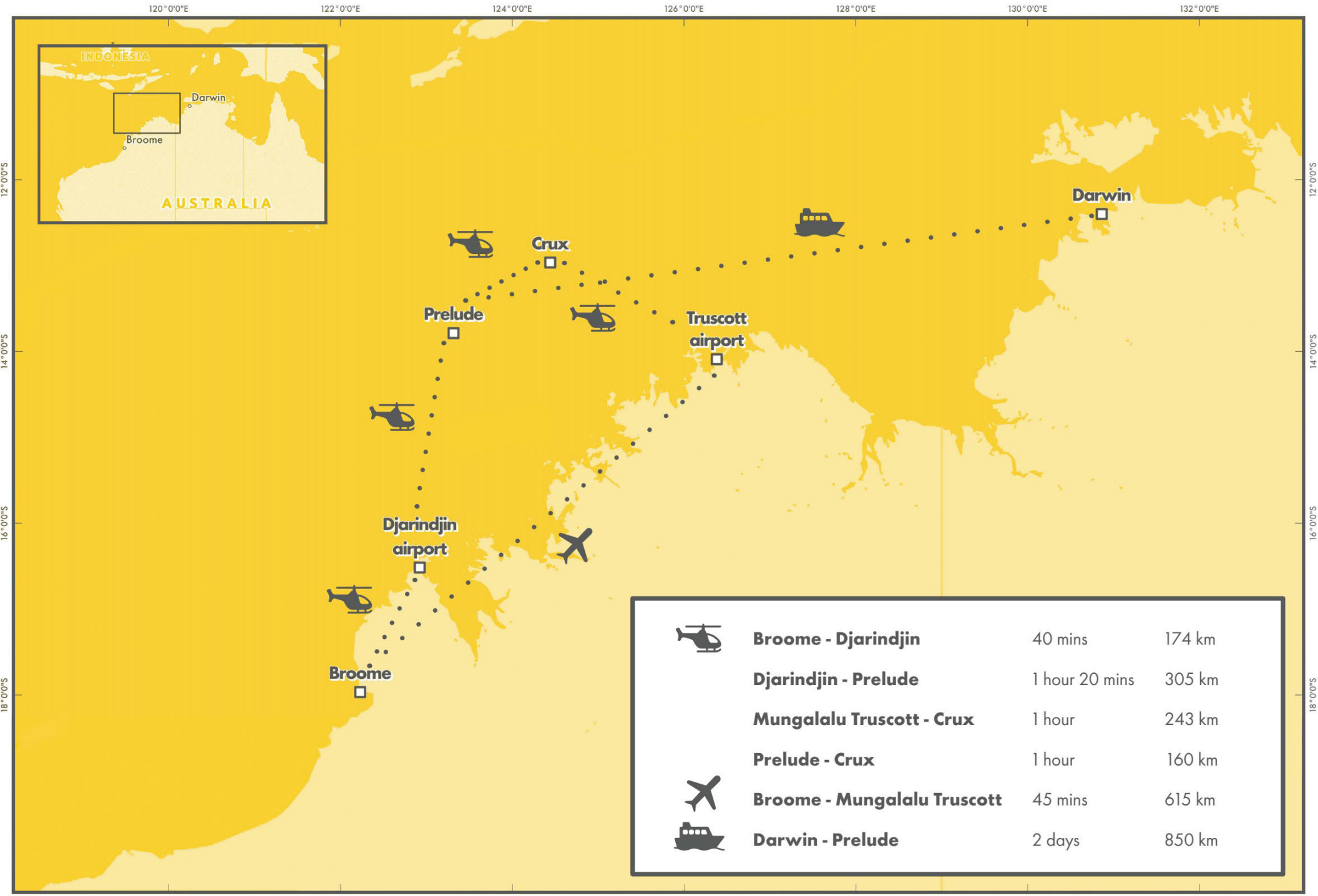
Appendix A - 3.00 Development Drilling Planning Area Map



EP202302201038_001

Main Map Scale: 17,500,000 (A4) | CRS: GDA2020 | | 13/03/2023

Appendix A - 3.01 Community Map



EP202302201038_002

Main Map Scale: 6,000,000 (A4) | CRS: GDA2020 | | 15/03/2023

Appendix A - 4.00 Crux Campaign Overview

Shell Crux Campaign 2023

Crux Media Plan – print and radio

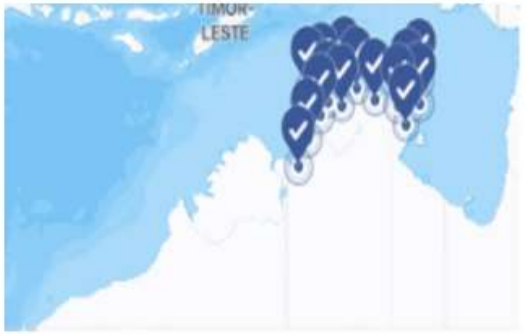
OFFLINE					Est 1+ Reach (PX+)	2/5/2023	2/12/2023	2/19/2023	2/26/2023	3/5/2023	3/12/2023	3/19/2023	3/26/2023	4/2/2023	4/9/2023	4/16/2023	4/23/2023
SUPPLIER	MARKET	FORMAT / PLACEMENT	ROLE	METRIC	DEMO												
Newscorp / NT News	NT	Half Page Horizontal -EGN- Saturday	Reach	Impressions	Total People						1	1					
Newscorp / NT News	NT	Half Page Horizontal -EGN- M to F	Reach	Impressions	Total People						1	1					
Newscorp / Sunday Territorian	NT	Half Page Horizontal -EGN- Sunday	Reach	Impressions	Total People						1	1					
ACM - Katherine Times	NT	Half Page Horizontal - Wednesday	Reach	Impressions	Total People						1	1					
ACM - Farm Weekly		Half Page Horizontal - Thursday	Reach	Impressions	Total People						1	1					
Leba - National Indigenous Times	National	Half Page Horizontal - Monthly, Last Tues	Reach	Impressions	Total People						1						
Leba - Koori Mail	National	Half Page Horizontal - Fortnightly, Wed	Reach	Impressions	Total People							1					
ACM - The Senior	WA	Half Page Horizontal - Monthly	Reach	Impressions	Total People								1				
SWM - West Australian	WA	Half Page Horizontal - M-F	Reach	Impressions	Total People						1	1					
SWM - Sunday Times	WA	Half Page Horizontal - Sunday	Reach	Impressions	Total People						1	1					
SCA -HIT 106.5 Karratha		30's Audio - BMAD	Reach	Impressions	Total People							21	21	21			
SCA - Triple M Karratha 102.5		30's Audio - BMAD	Reach	Impressions	Total People							21	21	21			
SCA - Hit 91.7 Port Hedland		30's Audio - BMAD	Reach	Impressions	Total People							21	21	21			
SCA - Triple M Port Hedland 94.1		30's Audio - BMAD	Reach	Impressions	Total People							21	21	21			
SCA - Hit Northwest		30's Audio - BMAD	Reach	Impressions	Total People							21	21	21			
SCA - Triple M Northwest		30's Audio - BMAD	Reach	Impressions	Total People							21	21	21			
SCA - Hit 99.7 Carnarvon		30's Audio - BMAD	Reach	Impressions	Total People							21	21	21			
SCA - Triple M Carnarvon 666		30's Audio - BMAD	Reach	Impressions	Total People							21	21	21			
SCA - Hit 96.5 Geraldton		30's Audio - BMAD	Reach	Impressions	Total People							21	21	21			
SCA - Triple M Geraldton 98.1		30's Audio - BMAD	Reach	Impressions	Total People							21	21	21			
Leba - One Mob Radio	National	30's Audio - BMAD	Reach	Impressions	Total People							7	7	7			
Leba - BEAR GOVE FM	Nhulunbuy	30's Audio - BMAD	Reach	Impressions	Total People							7	7	7			
Leba - 8TEA TEABBA RADIO	NT	30's Audio - BMAD	Reach	Impressions	Total People							7	7	7			
Leba - 8YOL Yolngu Radio	Nhulunbuy	30's Audio - BMAD	Reach	Impressions	Total People							7	7	7			
Leba - 6CAN	Carnavon	30's Audio - BMAD	Reach	Impressions	Total People							7	7	7			
Leba - 6GME - Radio Goolari	Broome	30's Audio - BMAD	Reach	Impressions	Total People							7	7	7			
Leba - 6HCR Hedland Radio	Port Headland	30's Audio - BMAD	Reach	Impressions	Total People							7	7	7			
Leba - 6RM Radio Mama	Geraldton	30's Audio - BMAD	Reach	Impressions	Total People							7	7	7			
Leba - 6WR	Kununurra	30's Audio - BMAD	Reach	Impressions	Total People							7	7	7			
ARN - HOT 100 FM Darwin	NT - Darwin	30's Audio - BMAD	Reach	Impressions	Total People							20	20	20			
ARN - MIX 104.9 Darwin	NT - Darwin	30's Audio - BMAD	Reach	Impressions	Total People							20	20	20			
ARN - Territory FM Darwin	NT - Darwin	30's Audio - BMAD	Reach	Impressions	Total People							20	20	20			
SBS - NITV	WA + QLD + NT	30's Audio - AM/FM & Digital TV	Reach	Impressions	Total People								3	3	3		
Meta	Postcode Targeting	Static Ads	Reach	Reach	P18+						1						
LinkedIn	NT + WA (Ex Perth)	Static Ads	Reach	Impressions	P18+						1						

Meta – targeted maps

Area 1

Area 2

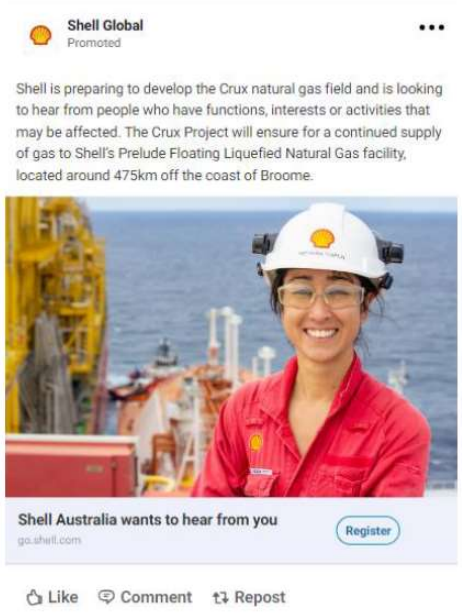
Area 3



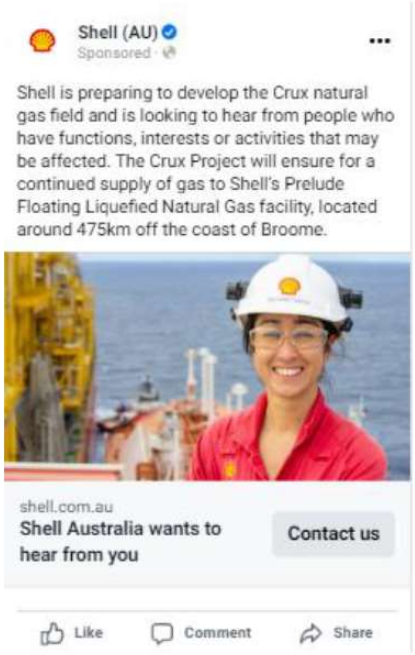
Creative

Identical creative and copy was used across LinkedIn and Meta.

LinkedIn



Meta



MOST CONFIDENTIAL

Appendix A - 4.01 Print adverts

ACM

Koori Mail

National Indigenous Times

Newscorp

SWM

The West

SHELL AUSTRALIA INVITES YOU TO GET IN TOUCH ON THE CRUX PROJECT

In Australia, Shell has an integrated energy solutions portfolio which includes gas production and liquefaction, as well as renewable power and energy solutions businesses.

With our joint venture partner, SGH Energy, we are preparing to develop the Crux natural gas field. This is to ensure a continued supply of gas to Shell's Prelude Floating Liquefied Natural Gas (FLNG) facility, which extracts, liquefies and stores natural gas at sea, before it is transferred and shipped to customers. Prelude FLNG is located around 475km north-north east of Broome in Western Australia.

As part of the Crux development, we will be preparing environmental approvals for submission to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Consultation with relevant persons is an important part of these approvals.

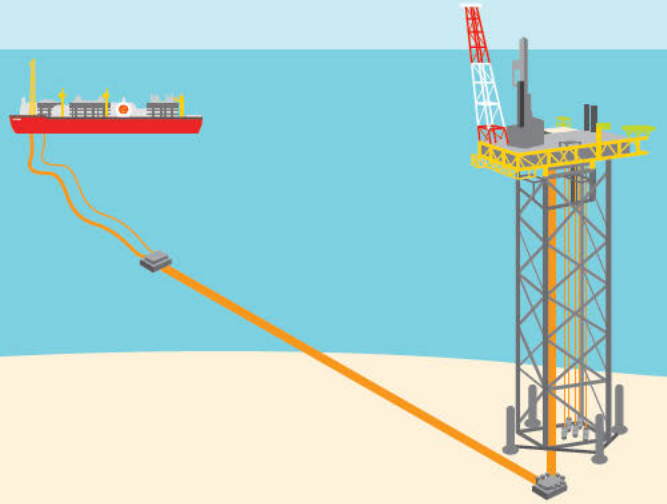
If you have functions, interests or activities that may be affected by this project, Shell Australia invites you to get in touch.

Please respond by 30 April 2023.

For more information please visit:
www.shell.com.au/crux

CRUX PROJECT JOINT VENTURE PARTNER

SGH | Energy



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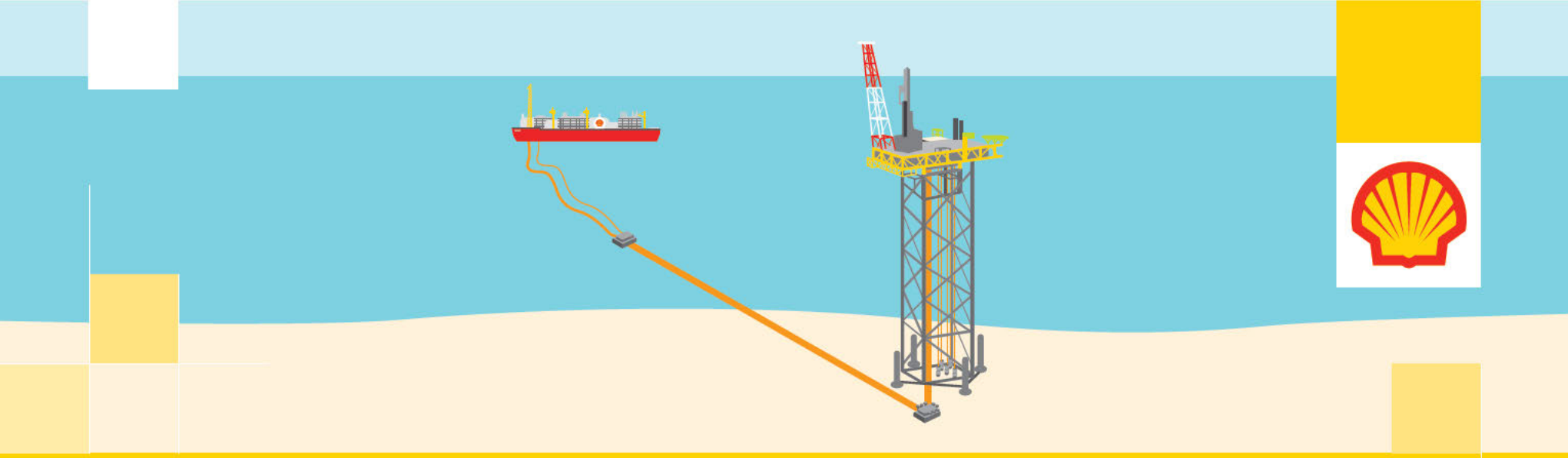

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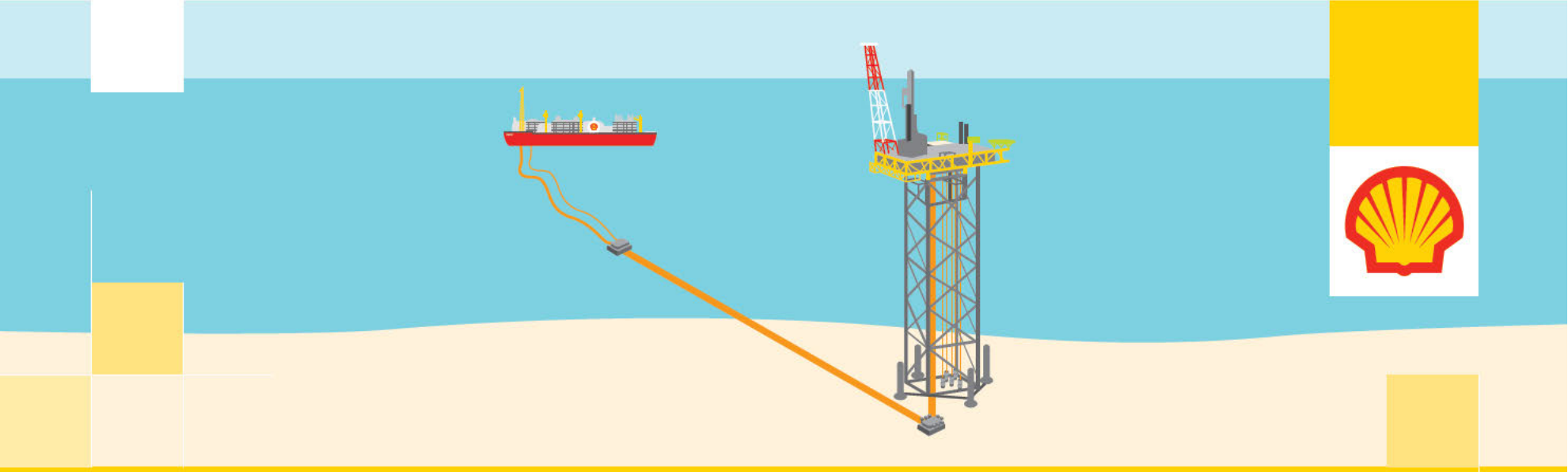

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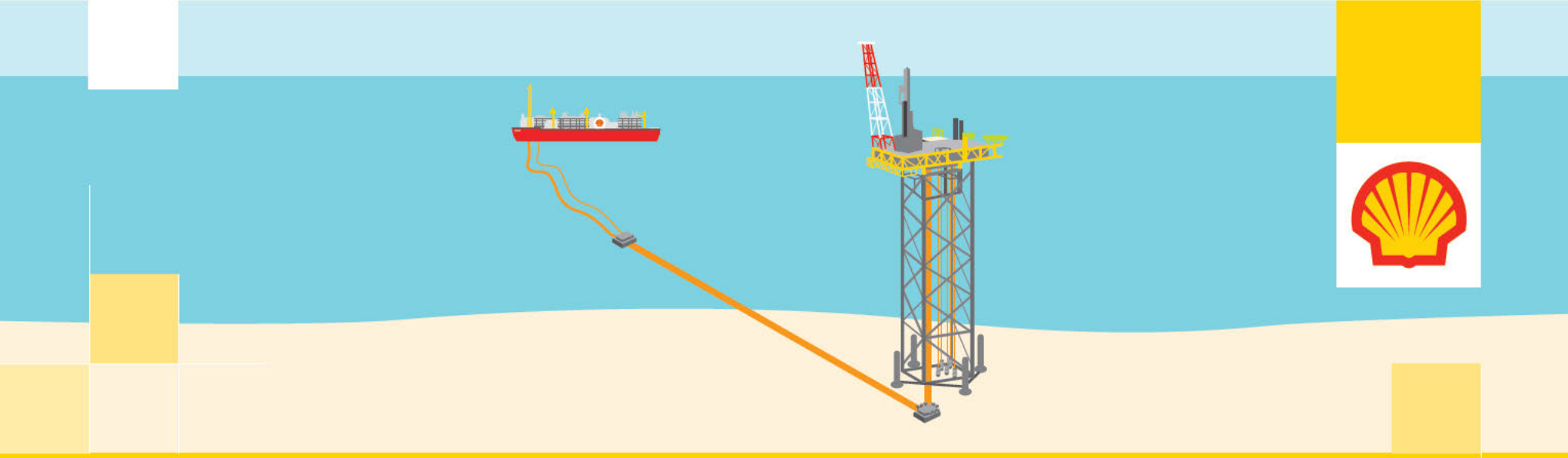

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CRUX PROJECT JOINT VENTURE PARTNER

SGH | Energy

Some Col comfort amid quit rumours

SHANNON HAMPTON

Police Minister Paul Papalia has rubbished rumours Police Commissioner Col Blanch is standing down as "ridiculous" amid law enforcement rivalries linked to massive drug bust off Perth.

Rumours have swirled for several weeks about the police chief's future, but Mr Papalia, pictured below, shot them down on Thursday.

It is understood the rumours may have stemmed from tensions between WA Police and Australian Federal Police after the operation that culminated in an Australian record 2.4-tonne cocaine sting.

The operation was carried out in cooperation with the US Drug Enforcement Administration — but without the AFP.

Mr Papalia said on radio that rumours Mr Blanch's career was "on the line" and that there were "issues that could cause him to stand aside" were "ridiculous".

"The Commissioner is doing an excellent job, as is the Western Australian Police Force under his leadership," he said. "Most recently, we saw Operation Beech, the biggest cocaine bust in history, where they were working closely with the DEA and the NSW Police, resulting in excellent outcomes and stopping massive amounts of illicit drugs coming into the nation.


The West Australian
OPERATION BEECH BUST · READ EXCLUSIVE
GOTCHA!

"That's a result of the relationships and knowledge the Commissioner has of his days in the ACIC (Australian Criminal Intelligence Commission).

"I look forward to working with him in coming years to do an excellent job and continue to deliver on great reforms and great changes and better capacity in the Western Australian Police Force."

As revealed by The West Australian this month, WA Police launched a sophisticated undercover operation to catch members of a Mexican drug syndicate operating in Perth after the DEA seized 2.4 tonnes of cocaine off the South American coast.

Before details of the record-breaking seizure were revealed, it was reported the AFP had complained about the two Sydney-based DEA agents involved in the operation and they were sent home to the US. The complaint was made by AFP Commissioner Reece Kershaw to US Ambassador Caroline Kennedy.

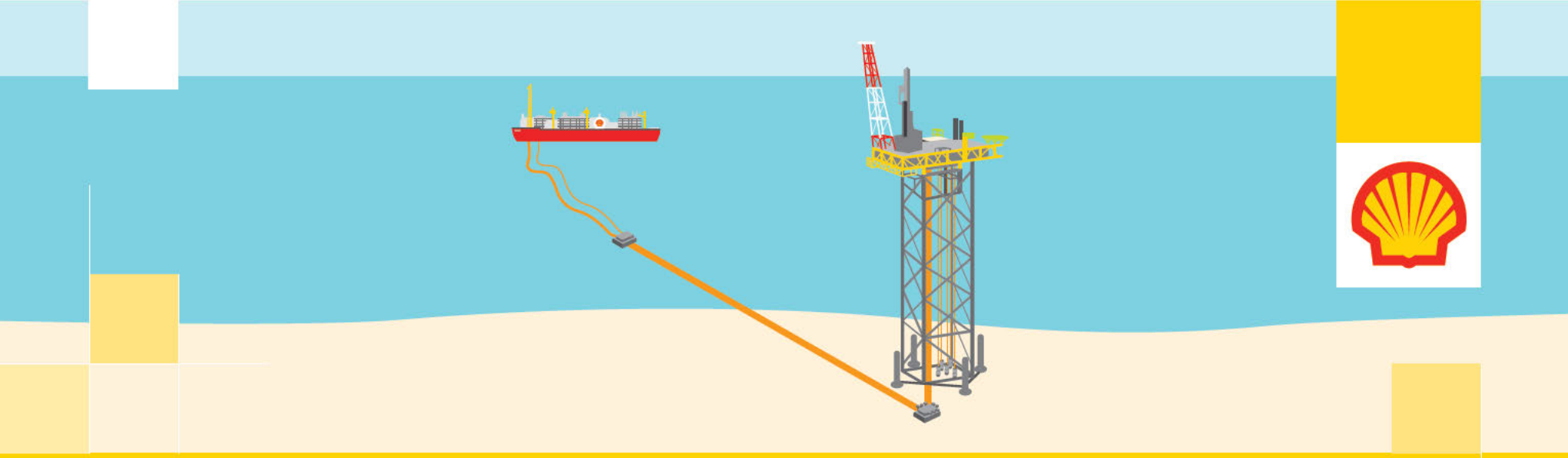
The AFP had said "it is imperative international agencies that operate in Australia adhere to Australian laws and respect Australia's sovereignty".

Mr Blanch told The West he had "nothing but praise" for the two agents.

"We do this job lawfully . . . we make sure we do these jobs properly. I've got nothing but praise for those officers on this particular case and they did a good job with us."

Mr Papalia acknowledged the AFP had "expressed some concerns with our relationships with the DEA" but said he also had no concerns about how the operation ran.

"I applaud our relationships with the DEA," he said. "I applaud the Commissioner's efforts with the DEA. I applaud the Commissioner's efforts to build those relationships."



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As part of the Crux development, we will be preparing environmental approvals for submission to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Consultation with relevant persons is an important part of these approvals.

If you have functions, interests or activities that may be affected by this project, Shell Australia invites you to get in touch.

Please respond by 30 April 2023.

For more information please visit: www.shell.com.au/crux

CRUX PROJECT JOINT VENTURE PARTNER

SGH | Energy

Appendix A - 4.02 Social media post

Facebook

Linkedin

Shell (AU)

Written by Sprinklr Ads [?] · 42m ·

Shell is preparing to develop the Crux natural gas field and is looking to hear from people who have functions, interests or activities that may be affected. The Crux Project will ensure for a continued supply of gas to Shell's Prelude Floating Liquefied Natural Gas facility, located around 475km off the coast of Broome.

SHELL.COM.AU

Shell Australia wants to hear from you

Get in touch on the Crux Project

Contact us

Shell Global
Promoted

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Shell Australia wants to hear from you
go.shell.com

Register

Like Comment Repost

Appendix A - 4.03 Radio ads

Radio ad

https://creativehub.shell.com/m/244f29d784234f2a/original/SHEL0323CTA01.mp3

Transcript of radio ad.

'Shell have been providing energy to Australians for 120 years. In 2023, Shell is preparing to develop the Crux natural gas field, to ensure the supply of gas to their natural gas facility, Prelude, 475km NNE off Broome. Environmental approvals are being prepared. If you have functions, interest or activities that may be affected by this Project Shell invites you to get in touch. Responses are required by April 30. For more information visit shell.com.au/crux'

Radio ad

https://creativehub.shell.com/m/244f29d784234f2a/original/SHEL0323CTA01.mp3

Appendix A - 4.04 Drop-in session advert

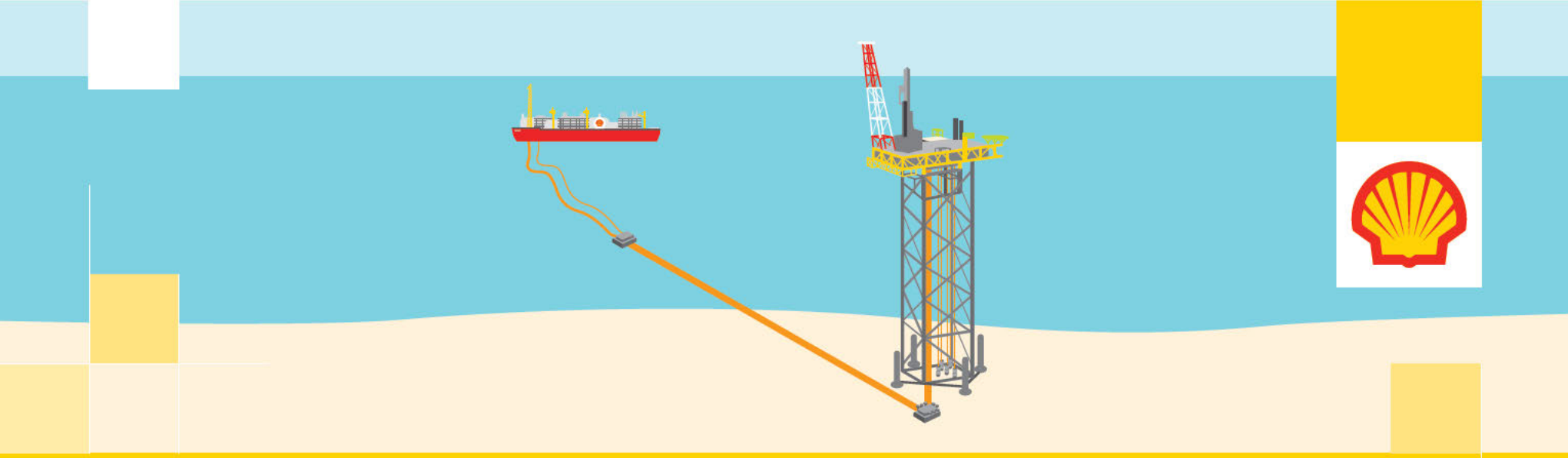
Broome

Darwin

Exmouth

Port Hedland

Derby



SHELL AUSTRALIA INVITES YOU TO COME AND TALK TO US ABOUT THE CRUX PROJECT

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CRUX PROJECT JOINT VENTURE PARTNER

SGH | Energy

As part of the Crux development, we will be preparing environmental approvals for submission to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Consultation with relevant persons is an important part of these approvals.

If you are interested in learning more, Shell Australia invites you to join us at a drop-in session as follows:

Date: Thursday 27 April 2023
Time: 15.00 – 17.00
Location: Mangrove Hotel, 47 Carnarvon Street Broome.

For more information please visit:
www.shell.com.au/crux

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CRUX PROJECT JOINT VENTURE PARTNER

SGH | Energy

As part of the Crux development, we will be preparing environmental approvals for submission to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Consultation with relevant persons is an important part of these approvals.

If you are interested in learning more, Shell Australia invites you to join us at a drop-in session as follows:

Date: Wednesday 17 May 2023
Time: 15.00 – 17.00
Location: GTNT Group- Harrison Room, 38 Woods St, Darwin City NT 0800

For more information please visit:
www.shell.com.au/crux

SHELL AUSTRALIA INVITES YOU TO COME AND TALK TO US ABOUT THE CRUX PROJECT

In Australia, Shell has an integrated energy solutions portfolio which includes gas production and liquefaction, as well as renewable power and energy solutions businesses.

With our joint venture partner, SGH Energy, we are preparing to develop the Crux natural gas field. This is to ensure a continued supply of gas to Shell's Prelude Floating Liquefied Natural Gas (FLNG) facility, which extracts, liquefies and stores natural gas at sea, before it is transferred and shipped to customers. Prelude FLNG is located around 475km north-north east of Broome in Western Australia.

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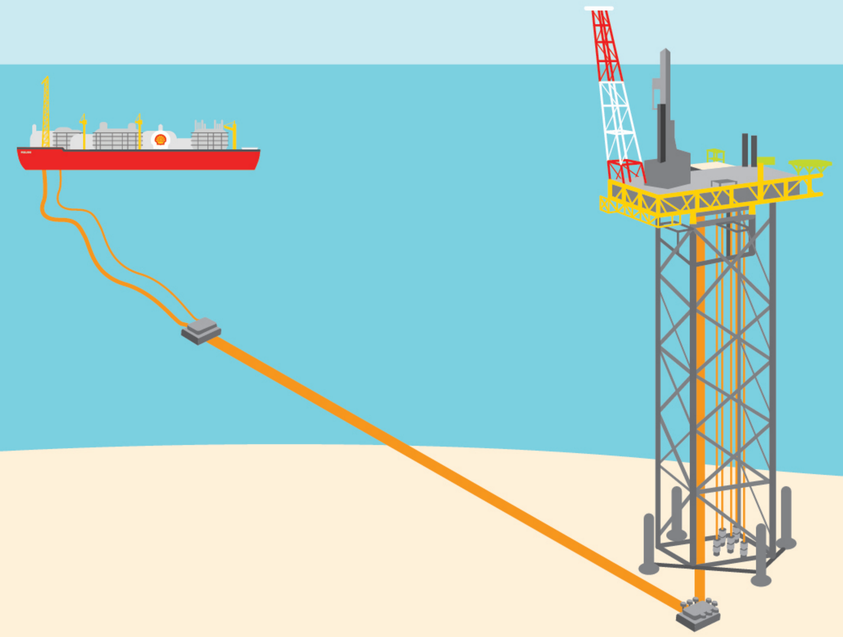
If you are interested in learning more, Shell Australia invites you to join us at a drop-in session as follows:

Date: Tuesday 4 April 2023
Time: Join us anytime between 7.30am to 6.00pm
Location: Derby Professional Centre – Conference Room, 2 Clarendon Street, Derby

For more information please visit:
www.shell.com.au/crux



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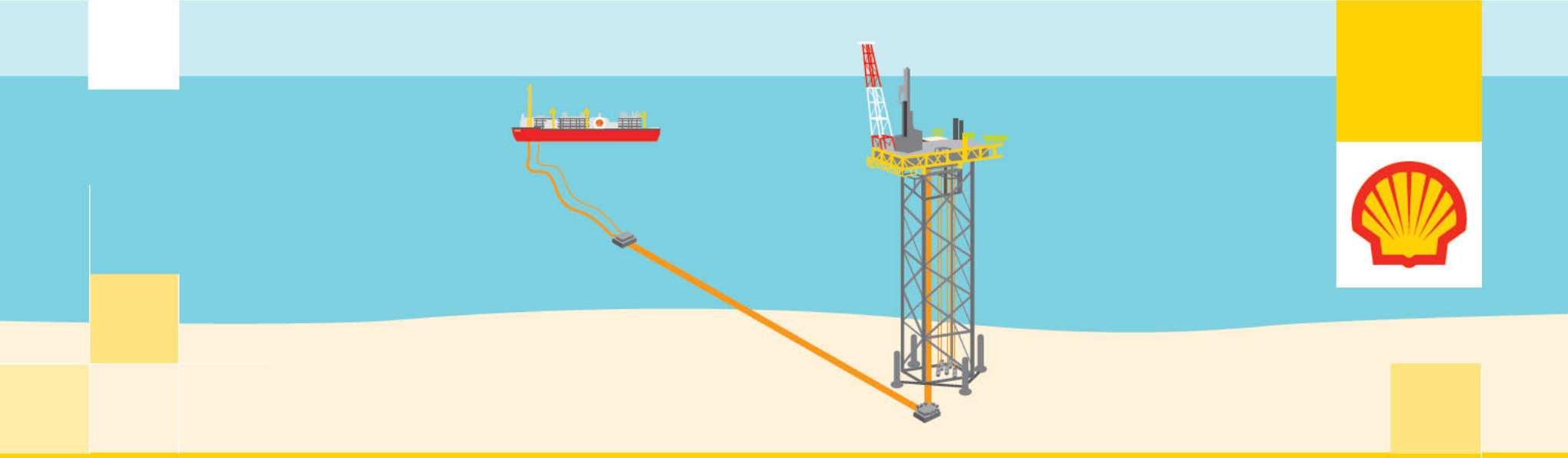
If you are interested in learning more, Shell Australia invites you to join us at a drop-in session as follows:

Date: Wednesday 10 May 2023 **Time:** 07.30 - 14.30

Location: Ningaloo Aquarium and Discovery Centre-Mandu Mandu Room, 2 Truscott Cres, Exmouth WA 6707

Lunch provided.

For more information please visit:
www.shell.com.au/crux



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If you are interested in learning more, Shell Australia invites you to join us at a drop-in session as follows:

Date: Wednesday 3 May 2023 **Time:** 07.30 - 14.30

Location: Colin Matheson Pavilion, 17 Tinder St, Port Hedland WA 6721.

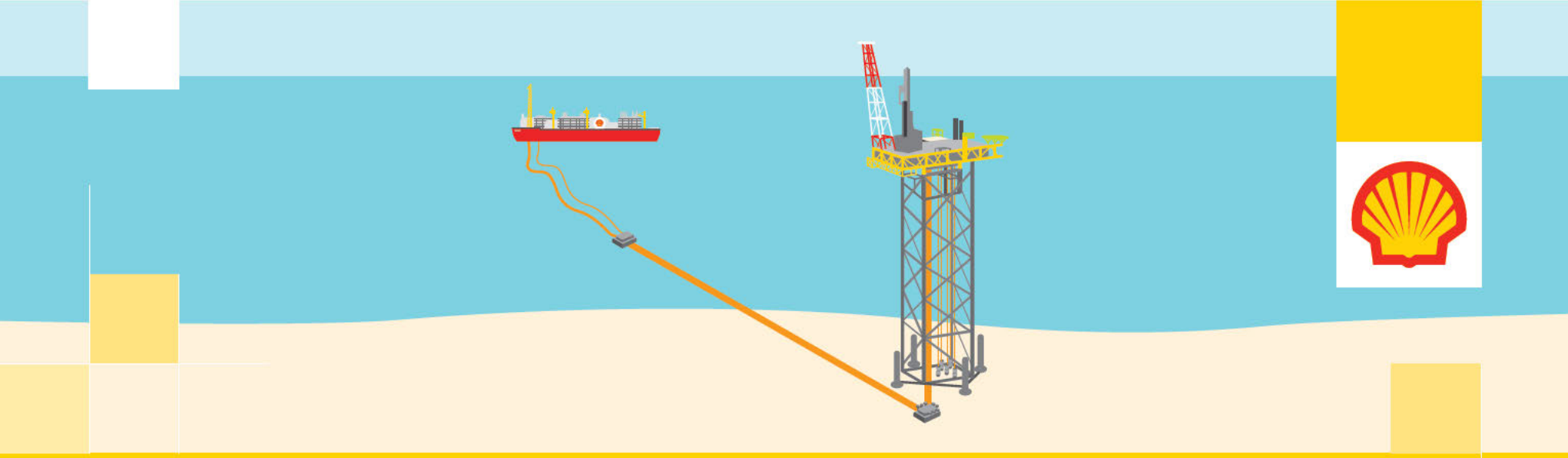
Lunch provided.

For more information please visit:
www.shell.com.au/crux

Appendix A - 4.05 Community briefing advert:

Broome

Darwin



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CRUX PROJECT JOINT VENTURE PARTNER

SGH | Energy

As part of the Crux development, we will be preparing environmental approvals for submission to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Consultation with relevant persons is an important part of these approvals.

If you are interested in learning more, Shell Australia invites you to join us at an Information Session, led by our Senior Management and Environment team, as follows;

Date: Wednesday 17 May 2023 **Time:** 13.00 – 14.00
Location: GTNT Group- Harrison Room,
38 Woods St, Darwin City NT 0800

Lunch provided.

For more information please visit:
www.shell.com.au/crux

Appendix A - 4.06 Community drop-in session social media post

Shell
Sponsored ·

Shell is preparing to develop the Crux natural gas field and is looking to hear from people in Derby who have functions, interests or activities that may be affected. If you are interested in learning more, we invite you to join us at a community drop-in session on Tuesday 4 April 2023, between 7.30am to 6.00pm, at Derby Professional Centre – Conference Room, 2 Clarendon Street.

shell.com.au
Come and talk to us about the Crux Project

Learn more

9 1 comment 4 shares

Like Comment Share

Appendix A - 5.00 Community Briefing – Darwin

Shell in Australia Community Briefing Darwin

Agenda

Time	Agenda Item	Presenter
1.00pm	Introduction Welcome to Country	Dani Tassone Mary Williams
1.10pm	Welcome- why we are hear today, context setting	Bruce Lockyer
1.25pm	Asset and project overview	Bruce Lockyer
1.35-1.50	Environmental Plan Presentation Crux Development Drilling EP Crux Installation and Cold Commissioning Environment Plan Additional Environmental Plans: Crux Seabed Survey Crux Template Installation EP	Bruce Lockyer/Andy Gowing
1.50-2.00pm	Q&A	Bruce Lockyer/Andy Gowing
2.00pm	Light lunch	All

Shell Australia

respectfully acknowledges the many Traditional Owner groups of the lands and waters on which we operate and pay our respect to the Elders past, present and emerging.

Definitions & cautionary note

Cautionary Note

The companies in which Shell plc directly and indirectly owns investments are separate legal entities. In this presentation "Shell", "Shell Group" and "Group" are sometimes used for convenience where references are made to Shell plc and its subsidiaries in general. Likewise, the words "we", "us" and "our" are also used to refer to Shell plc and its subsidiaries in general or to those who work for them. These terms are also used where no useful purpose is served by identifying the particular entity or entities. ''Subsidiaries'', "Shell subsidiaries" and "Shell companies" as used in this presentation refer to entities over which Shell plc either directly or indirectly has control. Entities and unincorporated arrangements over which Shell has joint control are generally referred to as "joint ventures" and "joint operations", respectively. "Joint ventures" and "joint operations" are collectively referred to as "joint arrangements". Entities over which Shell has significant influence but neither control nor joint control are referred to as "associates". The term "Shell interest" is used for convenience to indicate the direct and/or indirect ownership interest held by Shell in an entity or unincorporated joint arrangement, after exclusion of all third-party interest.

Forward-Looking Statements

This presentation contains forward-looking statements (within the meaning of the U.S. Private Securities Litigation Reform Act of 1995) concerning the financial condition, results of operations and businesses of Shell. All statements other than statements of historical fact are, or may be deemed to be, forward-looking statements. Forward-looking statements are statements of future expectations that are based on management's current expectations and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in these statements. Forward-looking statements include, among other things, statements concerning the potential exposure of Shell to market risks and statements expressing management's expectations, beliefs, estimates, forecasts, projections and assumptions. These forward-looking statements are identified by their use of terms and phrases such as "aim", "ambition", ''anticipate'', ''believe'', ''could'', ''estimate'', ''expect'', ''goals'', ''intend'', ''may'', "milestones", ''objectives'', ''outlook'', ''plan'', ''probably'', ''project'', ''risks'', "schedule", ''seek'', ''should'', ''target'', ''will'' and similar terms and phrases. There are a number of factors that could affect the future operations of Shell and could cause those results to differ materially from those expressed in the forward-looking statements included in this **[report]**, including (without limitation): (a) price fluctuations in crude oil and natural gas; (b) changes in demand for Shell's products; (c) currency fluctuations; (d) drilling and production results; (e) reserves estimates; (f) loss of market share and industry competition; (g) environmental and physical risks; (h) risks associated with the identification of suitable potential acquisition properties and targets, and successful negotiation and completion of such transactions; (i) the risk of doing business in developing countries and countries subject to international sanctions; (j) legislative, judicial, fiscal and regulatory developments including regulatory measures addressing climate change; (k) economic and financial market conditions in various countries and regions; (l) political risks, including the risks of expropriation and renegotiation of the terms of contracts with governmental entities, delays or advancements in the approval of projects and delays in the reimbursement for shared costs; (m) risks associated with the impact of pandemics, such as the COVID-19 (coronavirus) outbreak; and (n) changes in trading conditions. No assurance is provided that future dividend payments will match or exceed previous dividend payments. All forward-looking statements contained in this presentation are expressly qualified in their entirety by the cautionary statements contained or referred to in this section. Readers should not place undue reliance on forward-looking statements. Additional risk factors that may affect future results are contained in Shell plc's Form 20-F for the year ended December 31, 2021 (available at www.shell.com/investor and www.sec.gov). These risk factors also expressly qualify all forward-looking statements contained in this **[report]** and should be considered by the reader. Each forward-looking statement speaks only as of the date of this presentation, 27 April 2023. Neither Shell plc nor any of its subsidiaries undertake any obligation to publicly update or revise any forward-looking statement as a result of new information, future events or other information. In light of these risks, results could differ materially from those stated, implied or inferred from the forward-looking statements contained in this presentation.

Shell's net carbon footprint

Also, in this presentation we may refer to Shell's "Net Carbon Footprint" or "Net Carbon Intensity", which include Shell's carbon emissions from the production of our energy products, our suppliers' carbon emissions in supplying energy for that production and our customers' carbon emissions associated with their use of the energy products we sell. Shell only controls its own emissions. The use of the term Shell's "Net Carbon Footprint" or "Net Carbon Intensity" are for convenience only and not intended to suggest these emissions are those of Shell plc or its subsidiaries.

Shell's net-Zero Emissions Target

Shell's operating plan, outlook and budgets are forecasted for a ten-year period and are updated every year. They reflect the current economic environment and what we can reasonably expect to see over the next ten years. Accordingly, they reflect our Scope 1, Scope 2 and Net Carbon Footprint (NCF) targets over the next ten years. However, Shell's operating plans cannot reflect our 2050 net-zero emissions target and 2035 NCF target, as these targets are currently outside our planning period. In the future, as society moves towards net-zero emissions, we expect Shell's operating plans to reflect this movement. However, if society is not net zero in 2050, as of today, there would be significant risk that Shell may not meet this target.

Forward Looking Non-GAAP measures

This presentation may contain certain forward-looking non-GAAP measures such as **[cash capital expenditure]** and **[divestments]**. We are unable to provide a reconciliation of these forward-looking Non-GAAP measures to the most comparable GAAP financial measures because certain information needed to reconcile those Non-GAAP measures to the most comparable GAAP financial measures is dependent on future events some of which are outside the control of Shell, such as oil and gas prices, interest rates and exchange rates. Moreover, estimating such GAAP measures with the required precision necessary to provide a meaningful reconciliation is extremely difficult and could not be accomplished without unreasonable effort. Non-GAAP measures in respect of future periods which cannot be reconciled to the most comparable GAAP financial measure are calculated in a manner which is consistent with the accounting policies applied in Shell plc's consolidated financial statements.

The contents of websites referred to in this presentation do not form part of this presentation.

We may have used certain terms, such as resources, in this presentation that the United States Securities and Exchange Commission (SEC) strictly prohibits us from including in our filings with the SEC. Investors are urged to consider closely the disclosure in our Form 20-F, File No 1-32575, available on the SEC website www.sec.gov.

Why are we here today?

As part of the Environment Plan approvals process, Shell is undertaking consultation with relevant persons whose functions, interests or activities may be affected by the activities we are proposing in relation to the development of the Crux project.

Shell is here to consult on the **Development Drilling Environmental Plan and** Crux Installation and Cold Commissioning Environment Plan

For your awareness we are currently consulting on 2 other Environmental Plans. Darwin is not within the planning area of these activities

1. Seabed Survey Environment Plan
2. Drilling Template Environment Plan

Shell Australia's Footprint

SHELL OPERATED

Crux	82%
Gangarri	100%
Prelude	67.5%
QGC	75%

WHOLLY OWNED SUBSIDIARIES

Powershop	100%
Select Carbon	100%
Shell Energy Australia	100%
sonnen	100%

NON-OPERATED

Arrow	50%
Browse	27%
ESCO Pacific	49%
Gorgon	25%
Kondinin Energy	50%
North West Shelf	16.67%
WestWind	49%

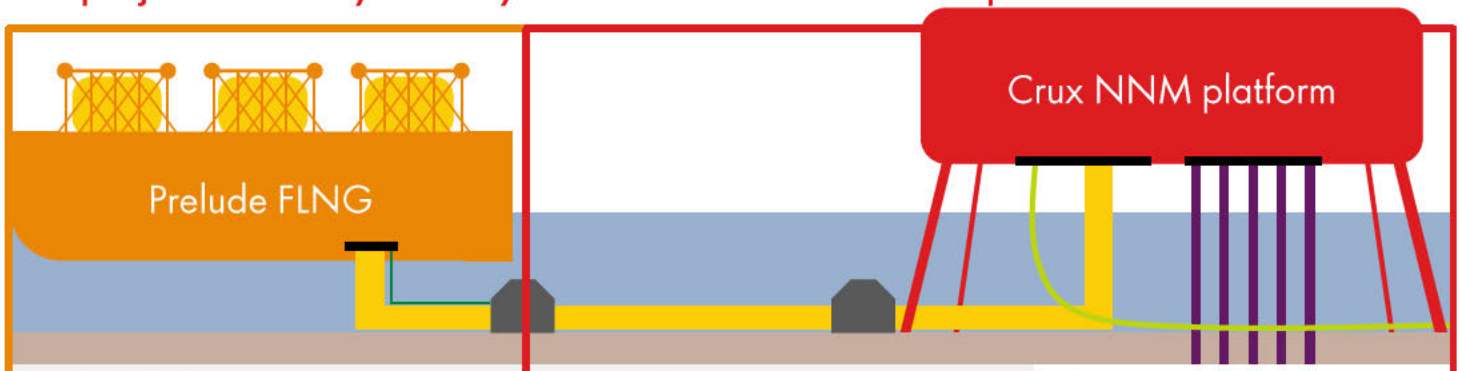
Prelude – Overview

- Prelude is a Floating Liquefied Natural Gas (FLNG) project located 475km north-northeast of Broome, Western Australia, in the Browse Basin.
- The Prelude FLNG facility is moored over the Prelude gas field in 250m water depth and more than 200km from the coastline.
- Prelude produces LNG, LPG and condensate.
- Prelude has an onshore supply base in Darwin.
- Crux has a supply base in Broome (utilized for drilling activities)
- The Prelude FLNG facility is operated by Shell Australia in joint venture with Inpex, OPIC and Kogas.
- The Prelude Joint Venture has executed agreements to allow for processing of Crux hydrocarbons, which are expected to commence in 2027.

Prelude and Crux

Crux will leverage Prelude FLNG's existing infrastructure to its fullest extent to maximise capital efficiency and deliverability

Crux project boundary and key infrastructure under development



Prelude infrastructure

- Riser, umbilical, and receiver
- Pipeline termination point and subsea isolation valve

Prelude participants

Shell	67.5% (Operator)
INPEX	17.5%
KOGAS	10%
CPC Corporation, Taiwan	5%

Crux infrastructure

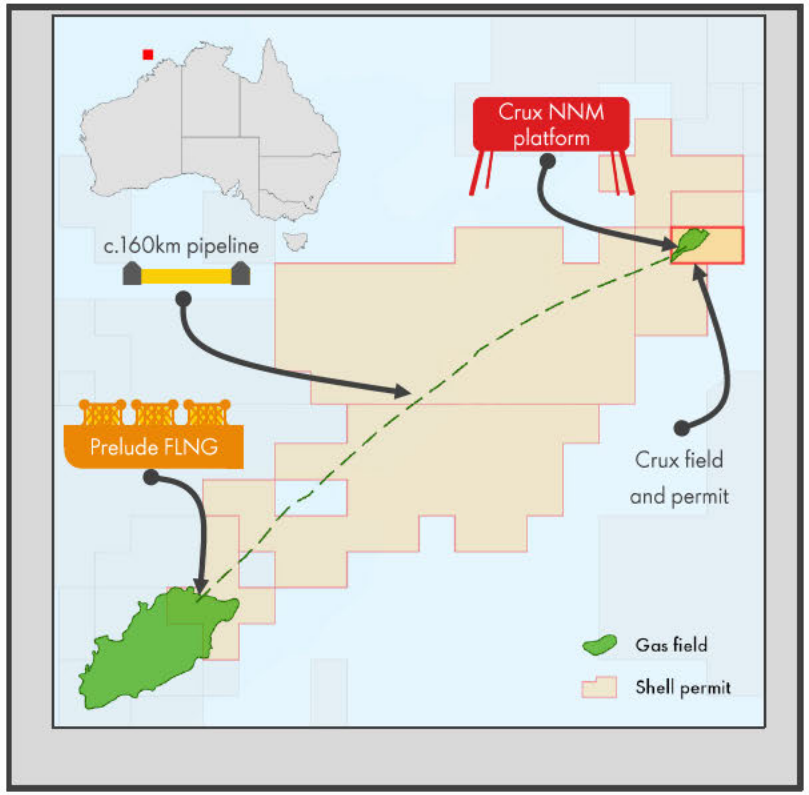
- 5x dry tree wells
- Pipeline termination point and subsea isolation valve
- Riser and fibre optic cable
- c.160km pipeline

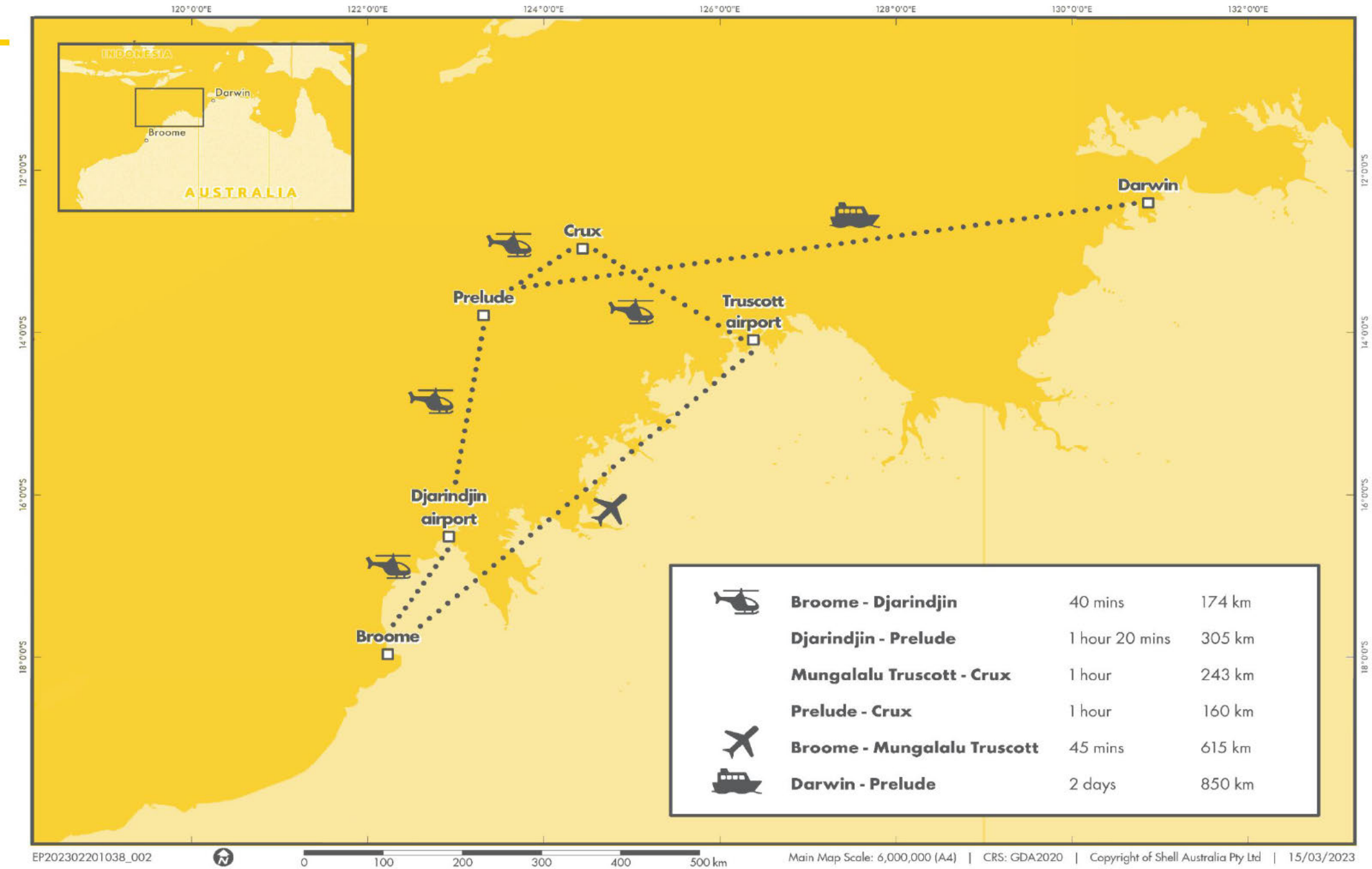
Crux participants

Shell	SGH | Energy
84.5% (Operator)	15.5%

- Crux platform topsides and substructure

Crux field overview



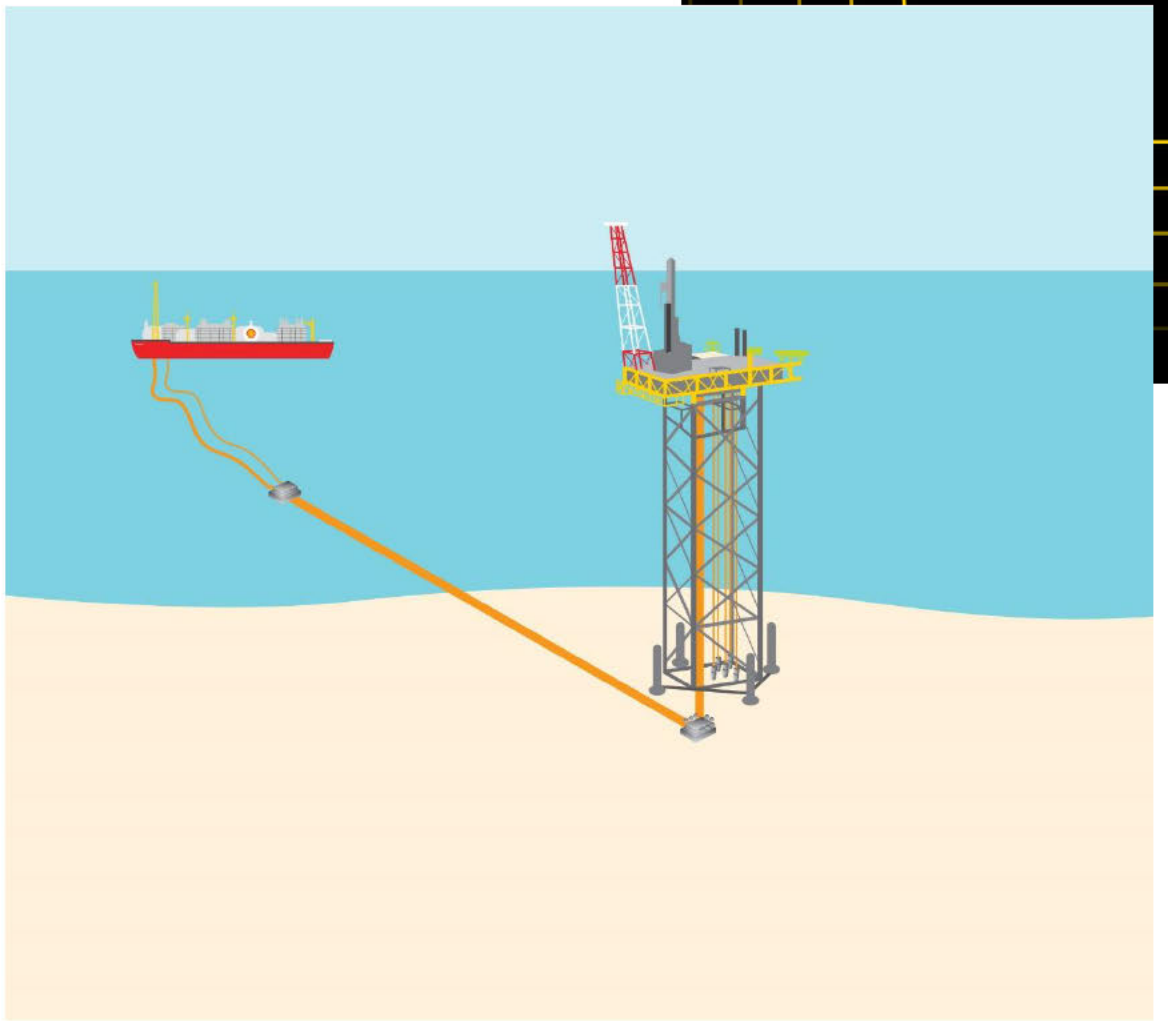


EP202302201038_002

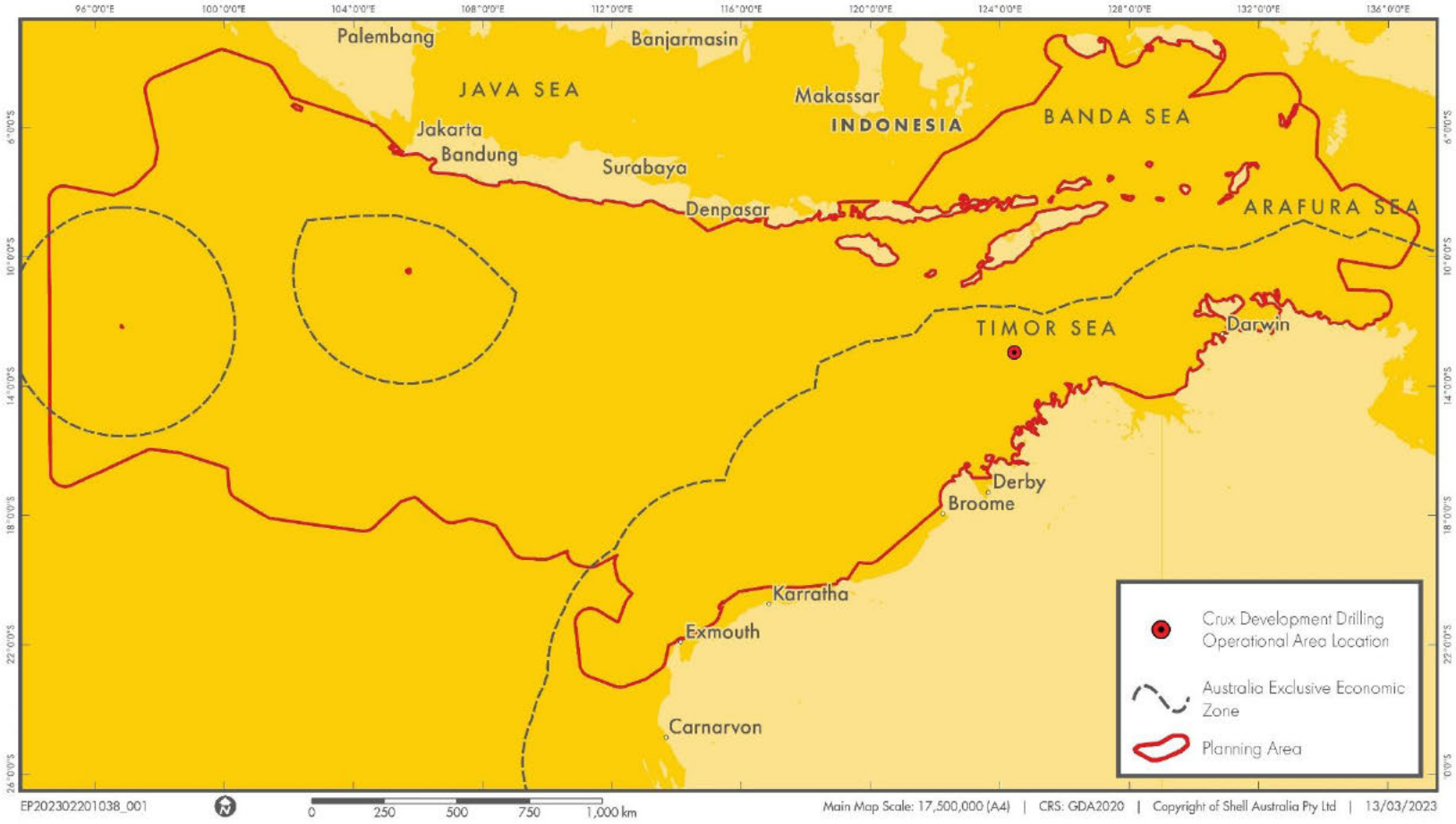
Main Map Scale: 6,000,000 (A4) | CRS: GDA2020 | | 15/03/2023

Crux update

- In May 2022, Shell Australia and SGH Energy took final investment decision to approve the development of Crux.
- The project is an important longer term backfill opportunity for the existing Prelude FLNG facilities. The proposed concept is an unmanned platform with minimal facilities, remotely operated from the Prelude FLNG.
- The project aligns with Shell's strategy and forms an important part of Shell's gas portfolio and will help meet the needs of gas users as the energy market transitions to a lower carbon future, noting the expected increasing demand for natural gas, renewables, low and zero carbon technologies, and the criticality of security in energy supply.
- The natural gas from Crux and Prelude will be a key part of how we help move Asian customers from coal to gas as a cleaner burning fuel.



3. Crux Development Drilling Environment Plan



Shell is planning to drill five production wells through a drilling template and suspend them. The suspended wells will be commissioned once the Crux facility has been installed.

Timing:

- Expected Mobile Offshore Drilling Unit Operations – End 2023 - early 2024.
- Expected temporary well suspension period, approximately 2-3 years. Scope completed no later than the end of 2025

4. Activities Related to Crux Development Drilling Environment Plan

ACTIVITY DESCRIPTION

The Crux Drilling Environment Plan includes provision for the installation of guideposts and five deviated production wells via the preinstalled drilling template. The location of the drill center has been selected to optimise well length and reservoir penetration, and for avoidance of any potential subsurface hazards.

- **The guideposts:** ensure that the Crux substructure and topsides are accurately positioned over the drilling template when installed during the subsequent installation campaigns. The guideposts will remain on location at the seabed for the life of the asset. The drilling template and guideposts have an approximate structural footprint of Length 28 m X Width 9 m X Height 10 m
- **The wells:** will be drilled and suspended from a Mobile Offshore Drilling Unit, prior to installation of the Crux Substructure and Topsides. They will be drilled from a single drill center, via the pre-installed drilling template. The wells will be suspended and left in-situ with well completions planned to occur following installation of the Crux platform.
- **Mobile Offshore Drilling Unit:** This will be a semi-submersible Mobile Offshore Drilling Unit – which will be held in position by anchor spread.

The development drilling program will be supported by a range of services including helicopter transfers from mainland Australia, a dedicated installation vessel, four anchor handling, tug and support vessels and remotely operated vehicles undertaking inspection, maintenance and repair activities.

Crux Development Drilling Environment Plan

Aspect	Proposed Controls
Planned	
Physical Presence, vessel movements and seabed disturbance	▪ Implementation of national and international regulations and conventions for collision prevention, safety and navigation at sea ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area ▪ Environmental Protection and Biodiversity Conservation Regulations (2000) (EPBC Regulations), Part 8.1 – Interacting with cetaceans ▪ Australian Hydrographic Office Notice to Mariners
Lighting	▪ External lighting on vessels minimised to that required for navigation, safety of deck operations and security considerations
Noise	▪ Apply EPBC policy statement 2.1 – Part B (seismic survey guidelines) to geophysical survey activities as applicable to the scope. This is planned to be applied using trained crew members. ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area ▪ EPBC Regulations Part 8.1 – Interacting with cetaceans ▪ Marine fauna observations
Discharge of liquid effluent	▪ Comply with relevant requirements of the International Convention for the Prevention of Pollution from Ships (MARPOL) and associated regulations ▪ Chemical Management Process for chemical assessment and selection
Atmospheric emissions	▪ Comply with relevant requirements of the International Convention for the Prevention of Pollution from Ships (MARPOL) and associated regulations. ▪ Relevant vessels to have a valid International Air Pollution Prevention Certificate ▪ Use of low sulphur fuel when possible
Greenhouse gas emissions	▪ Comply with International Convention for the Prevention of Pollution from Ships (MARPOL) requirements and associated regulations ▪ Comply with the National Greenhouse and Energy Reporting Act (2007) and National Greenhouse and Energy Reporting Regulations (2008)
Waste management	▪ Discharge of waste from vessels will comply with relevant International Convention for the Prevention of Pollution from Ships (MARPOL) requirements and associated regulations ▪ Waste management procedures ▪ Waste tracking process ▪ The management and disposal of any quarantine risk material will be in accordance with state and commonwealth regulations

Key aspect and control

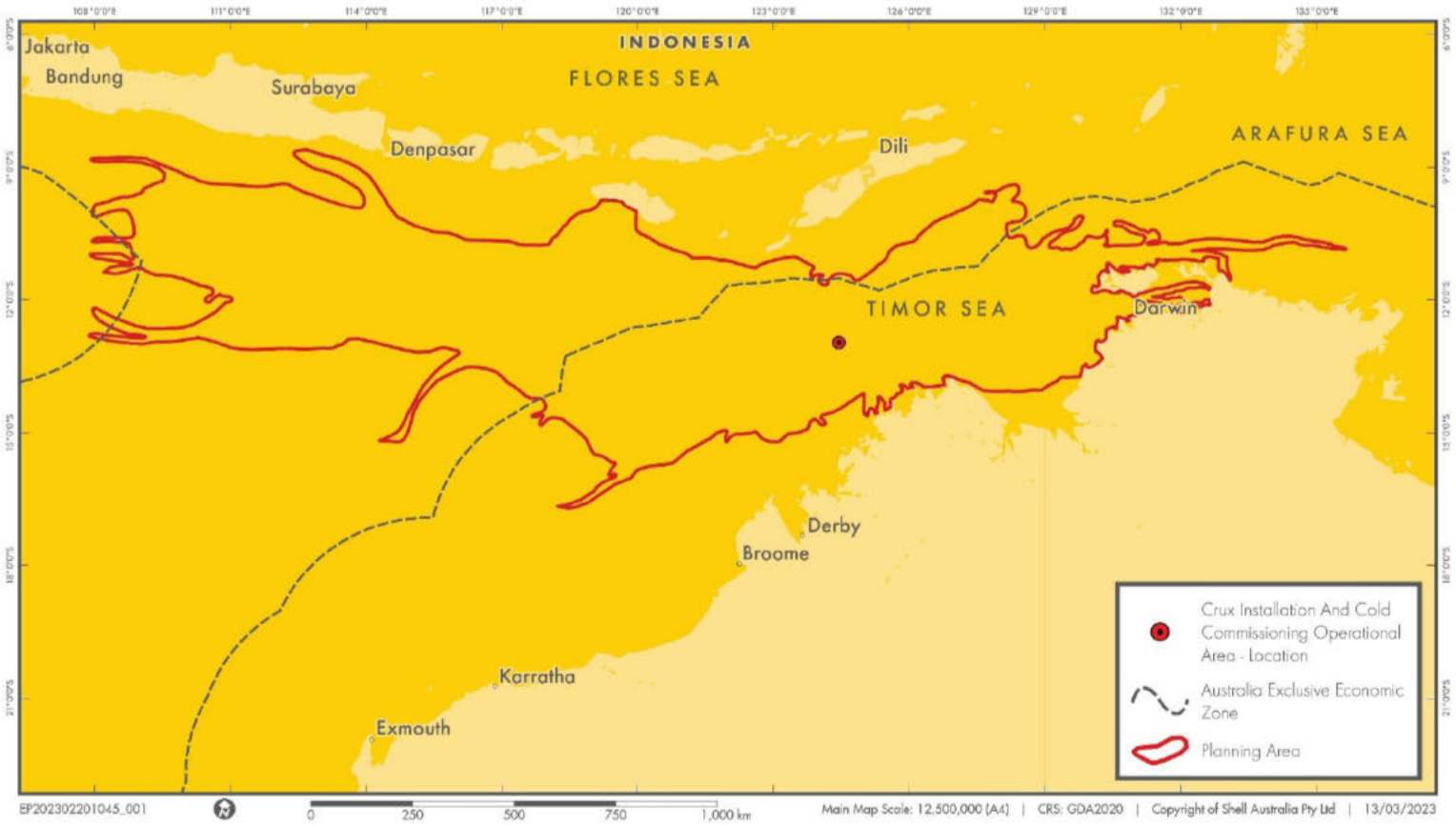
Discharge of liquid effluent (including drilling discharges)

The drilling activity includes discharges of liquids and materials to the marine environment

Key Controls:

- Shell Chemical Management Process:
- Chemicals selected for use in accordance with the Shell Chemical Management Process to minimise potential environmental risks.
- Chemicals that are planned for discharge to sea are substitution warning free and Gold, Silver, D, or E rated through the Offshore Chemical Notification Scheme (OCNS), or are considered to Pose Little or No Risk to the Environment (PLONOR) (listed by the Oil Spill Prevention, Administration and Response (OSPAR) Commission), or have a complete ALARP assessment.

4. Crux Installation and Cold Commissioning Environment Plan



Shell is planning to install the Crux Jacket and Topsides which will be fixed to the seabed.

The facility will commence cold commissioning once installation is complete.

Duration: 360 days
Timing: 1 August 2024 – 31 Dec 2028*

Crux Installation and Cold Commissioning Environment Plan

Aspect	Proposed Controls
Planned	
Physical Presence, vessel movements and seabed disturbance	▪ Implementation of national and international regulations and conventions for collision prevention, safety and navigation at sea ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area ▪ Environmental Protection and Biodiversity Conservation Regulations (2000) (EPBC Regulations), Part 8.1 – Interacting with cetaceans ▪ Australian Hydrographic Office Notice to Mariners
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Noise	▪ Apply EPBC policy statement 2.1 – Part B (seismic survey guidelines) to geophysical survey activities as applicable to the scope. This is planned to be applied using trained crew members. ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area ▪ EPBC Regulations Part 8.1 – Interacting with cetaceans ▪ Marine fauna observations
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Noise

Scope include piling campaign which results in under water noise.

Key controls:

Start-up and shutdown procedures which consider approach by sensitive species and actions taken when species come too close.

Environmental Management Unplanned – All Environment Plan

Unplanned	
Emergency Events – Hydrocarbon Spill	▪ Align with relevant International Convention for the Prevention of Pollution from Ships requirements and subsequent regulations ▪ Valid Shipboard Oil Pollution Emergency Plan or Shipboard Marine Pollution Emergency Plan (as appropriate for vessel classification) ▪ Implementation of national and international regulations and conventions for collision prevention, safety and navigation at sea ▪ Offshore Vessel Inspection Database (OVID) process ▪ Australian Hydrographic Office Notice to Mariners ▪ NOPSEMA accepted Environment Plan and Oil Pollution Emergency Plan (OPEP) in place ▪ Relevant Persons consultation process ▪ Vessel Maintenance management system
Introduction of Invasive Marine Species from Vessels	▪ Ballast water exchange operations will comply with the international conventions and associated national regulations. ▪ Biofouling management for vessels in accordance with state, national and international biofouling management guidelines ▪ Biofouling management in compliance with state and commonwealth regulations ▪ Vessels (of appropriate class) will have a valid International Anti-Fouling System Certificate ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area

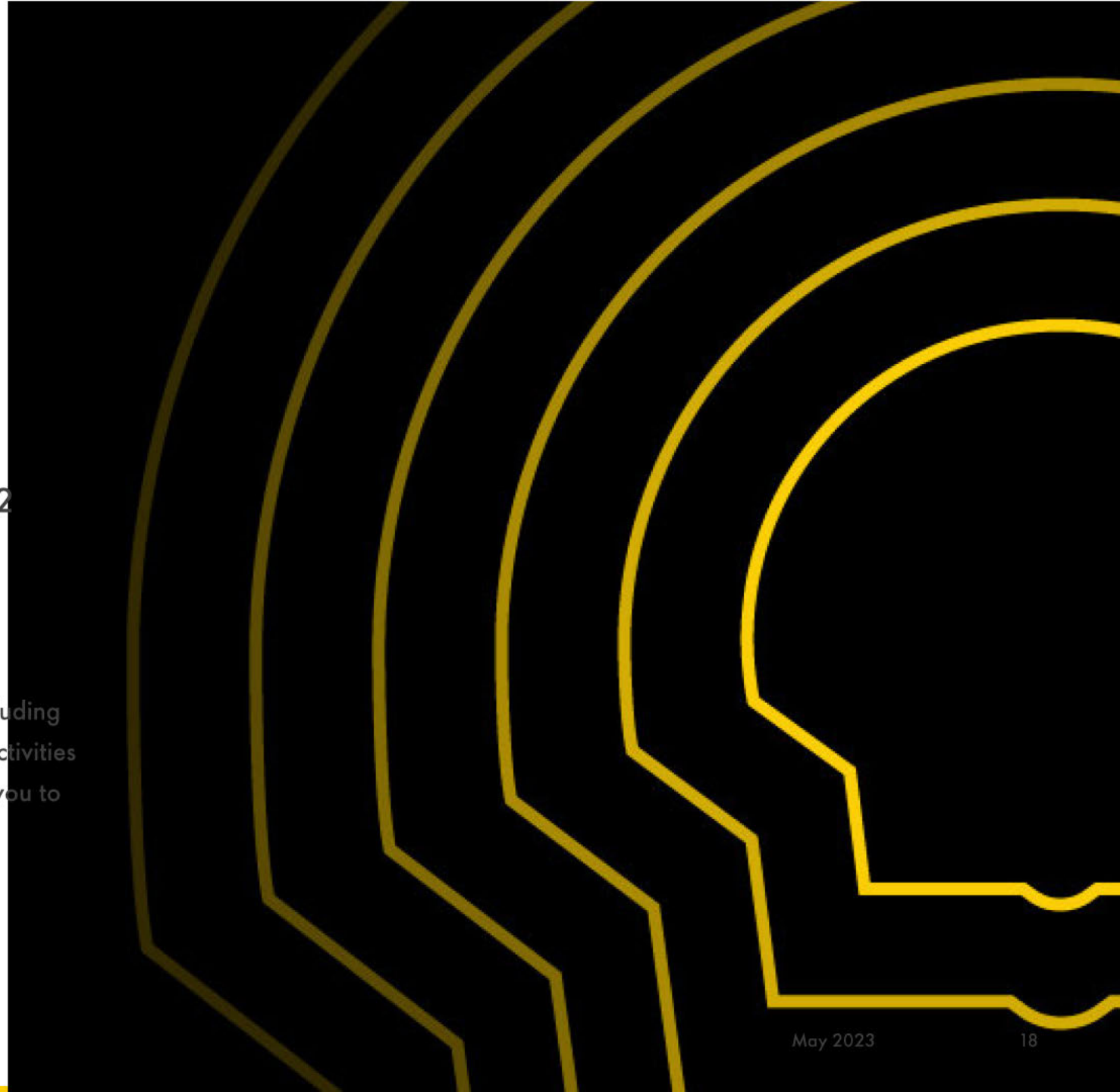
Q&A

CONTACT US Community Hotline: 1800 059 152

Email: SDA-crux-project@shell.com

www.shell.com.au/crux

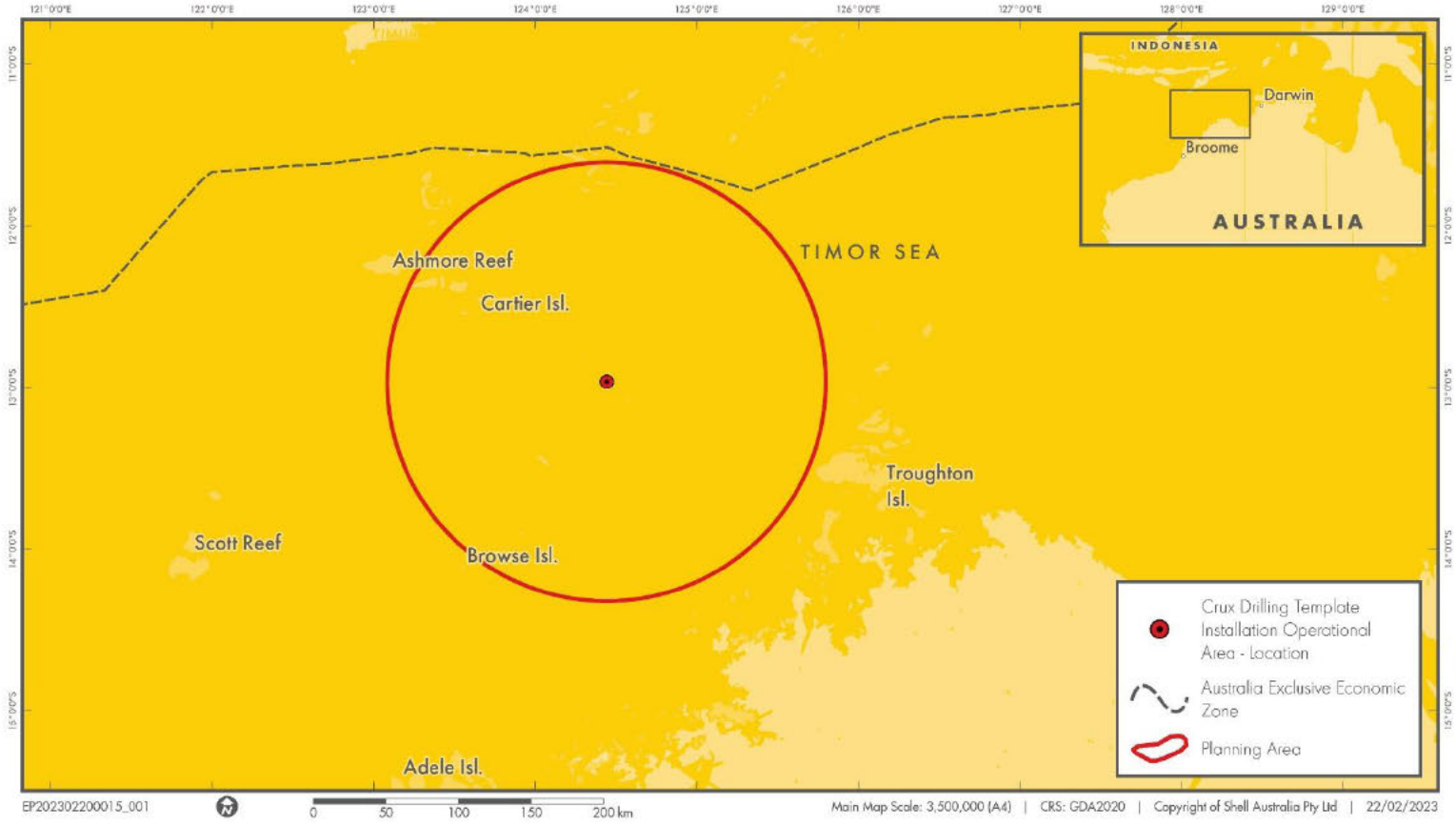
Shell welcomes any feedback on Environment Plan submissions, including requests for further information. If you have functions, interests or activities that may be affected by any of our projects, Shell Australia invites you to get in touch.



Additional Slides

2. Crux Template Installation Environment Plan

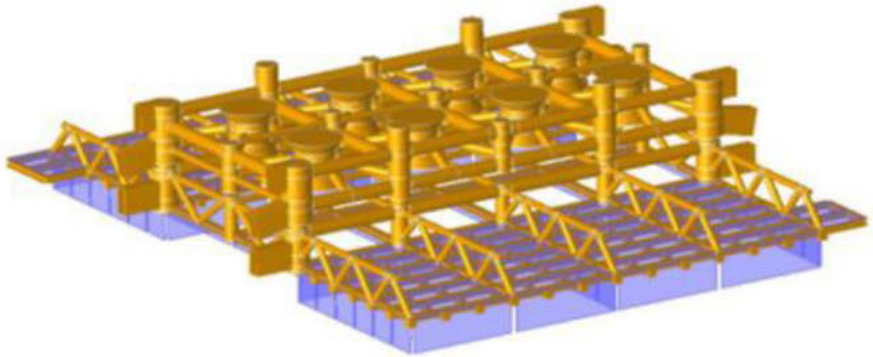
A template which will act as a guide for the drill bit during drilling operations



Shell is planning to lower a fabricated steel structure onto the seabed, which will assist with orienting and locating the drilling activities and the installation of the Crux jacket.

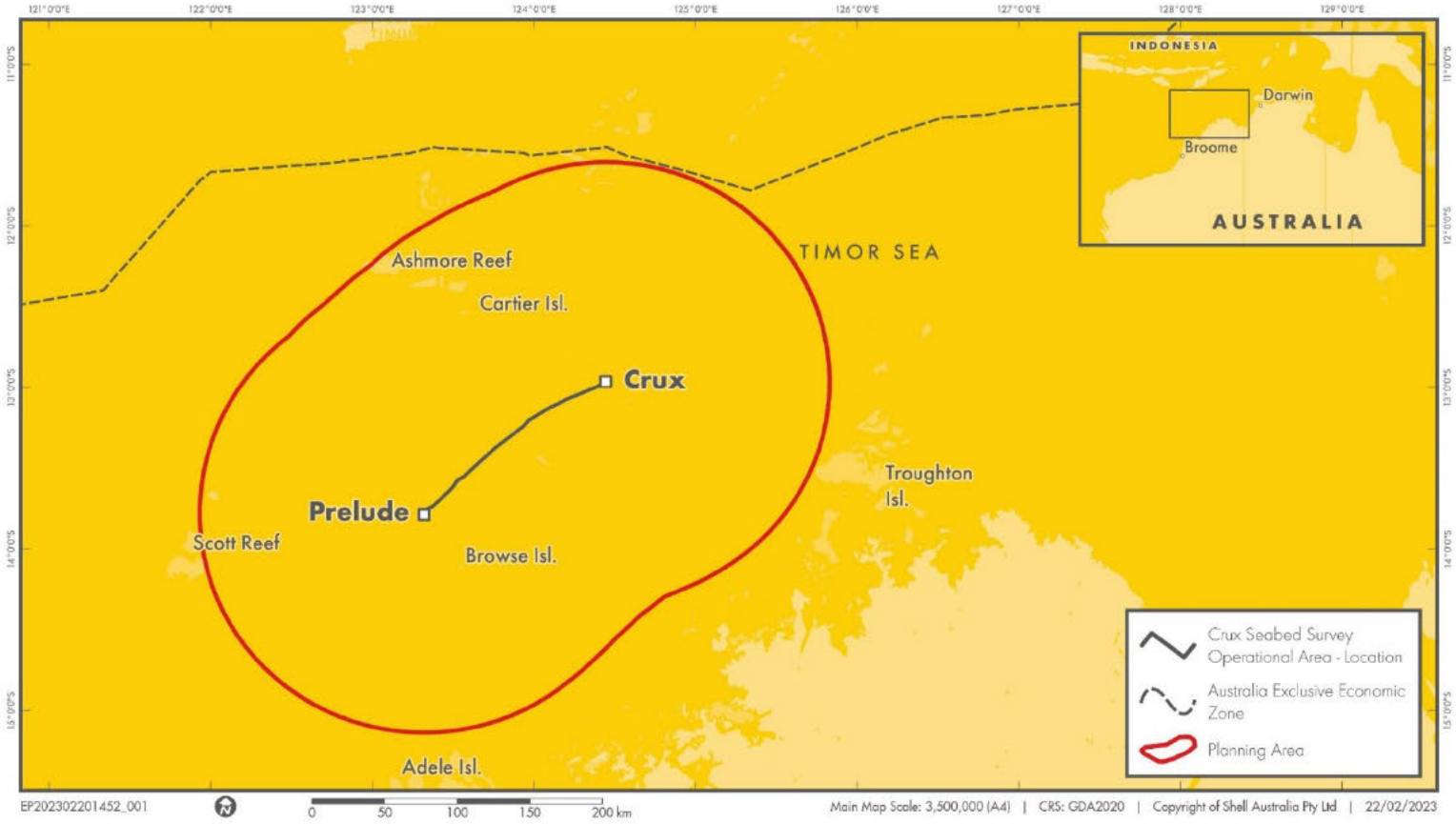
Duration: <7 days

Timing: 1 September 2023 – 1 April 2024*



1. Crux Seabed Survey Environment Plan

Investigating the sub-seabed conditions



Shell is planning to carry out a survey of the pipeline route and terminals connecting the Crux and Prelude facilities.

A vessel will traverse the pipeline route, towing survey and monitoring equipment.

Duration: <5 days

Timing: 1 May – 31 December 2023*

Appendix A - 5.01 Community Briefing - Broome

Shell in Australia Community Briefing Broome

Agenda

Time	Agenda Item	Presenter
1.00pm	Introduction	Dani Tassone
1.05pm	Welcome to Country	Dianne Appleby
1.15pm	Welcome- why we are hear today, context setting	Bruce Lockyer
1.25pm	Asset and project overview	Bruce Lockyer
1.35-1.50	Environmental Plan Presentation Crux Development Drilling EP Crux Installation and Cold Commissioning EP Additional Environmental Plans: Crux Seabed Survey Crux Template Installation EP	Bruce Lockyer/Nathan Waugh
1.50-2.00pm	Q&A	Bruce Lockyer/Nathan Waugh
2.00pm	Light lunch	All

Shell Australia respectfully acknowledges the many Traditional Owner groups of the lands and waters on which we operate and pay our respect to the Elders past, present and emerging.

Definitions & cautionary note

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Why are we here today?

As part of the Environment Plan approvals process, Shell is undertaking consultation with relevant persons whose functions, interests or activities may be affected by the activities we are proposing in relation to the development of the Crux project.

Shell is here to consult on the **Development Drilling Environmental Plan and** Crux Installation and Cold Commissioning Environment Plan

For your awareness we are currently consulting on 2 other Environmental Plans. Broome is not within the planning area of these activities

1. Seabed Survey Environment Plan
2. Drilling Template Environment Plan

Shell Australia's Footprint

SHELL OPERATED

Crux	82%
Gangarri	100%
Prelude	67.5%
QGC	75%

WHOLLY OWNED SUBSIDIARIES

Powershop	100%
Select Carbon	100%
Shell Energy Australia	100%
sonnen	100%

NON-OPERATED

Arrow	50%
Browse	27%
ESCO Pacific	49%
Gorgon	25%
Kondinin Energy	50%
North West Shelf	16.67%
WestWind	49%

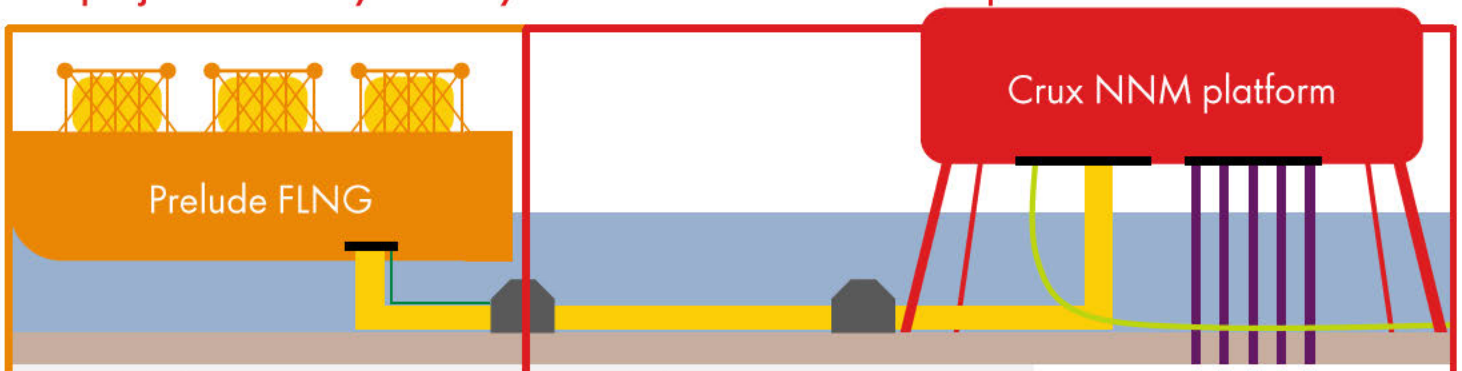
Prelude – Overview

- Prelude is a Floating Liquefied Natural Gas (FLNG) project located 475km north-northeast of Broome, Western Australia, in the Browse Basin.
- The Prelude FLNG facility is moored over the Prelude gas field in 250m water depth and more than 200km from the coastline.
- Prelude produces LNG, LPG and condensate.
- Prelude has an onshore supply base in Darwin.
- Crux has a supply base in Broome (utilized for drilling activities)
- The Prelude FLNG facility is operated by Shell Australia in joint venture with Inpex, OPIC and Kogas.
- The Prelude Joint Venture has executed agreements to allow for processing of Crux hydrocarbons, which are expected to commence in 2027.

Prelude and Crux

Crux will leverage Prelude FLNG's existing infrastructure to its fullest extent to maximise capital efficiency and deliverability

Crux project boundary and key infrastructure under development



Prelude infrastructure

- Riser, umbilical, and receiver
- Pipeline termination point and subsea isolation valve

Prelude participants

Shell	67.5% (Operator)
INPEX	17.5%
KOGAS	10%
CPC Corporation, Taiwan	5%

Crux infrastructure

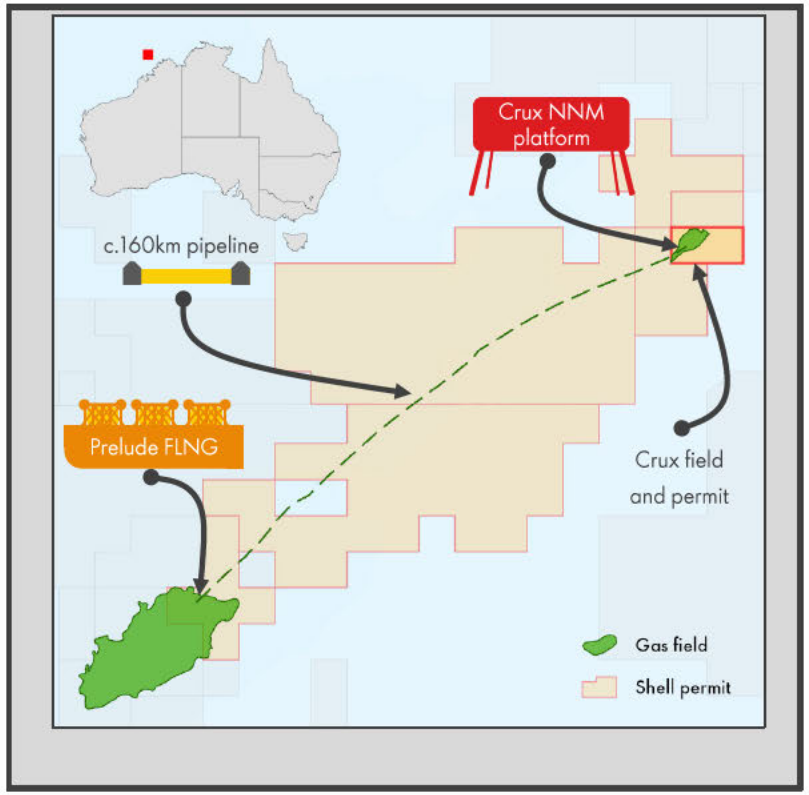
- 5x dry tree wells
- Pipeline termination point and subsea isolation valve
- Riser and fibre optic cable
- c.160km pipeline

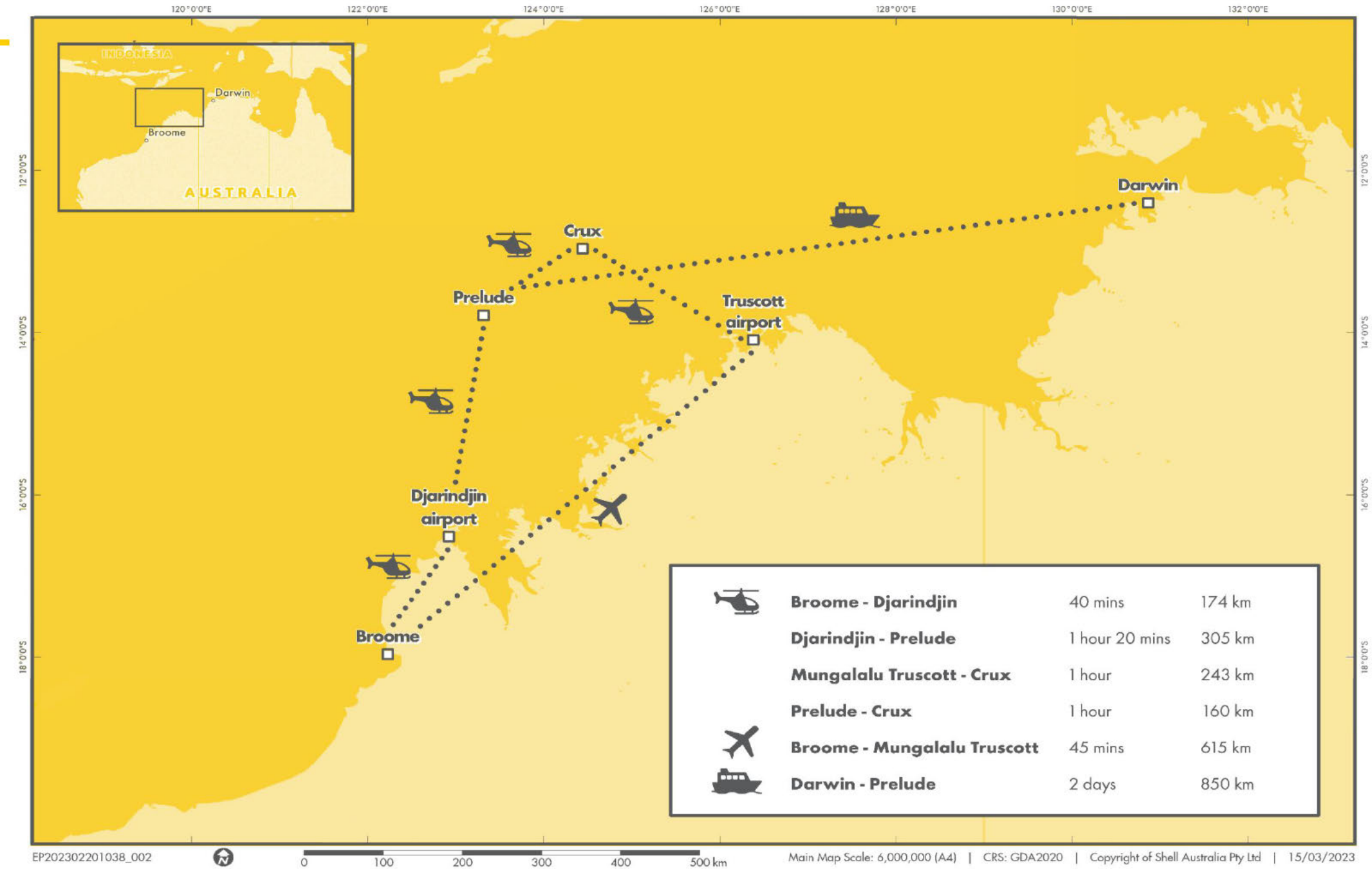
Crux participants

Shell	SGH | Energy
84.5% (Operator)	15.5%

- Crux platform topsides and substructure

Crux field overview



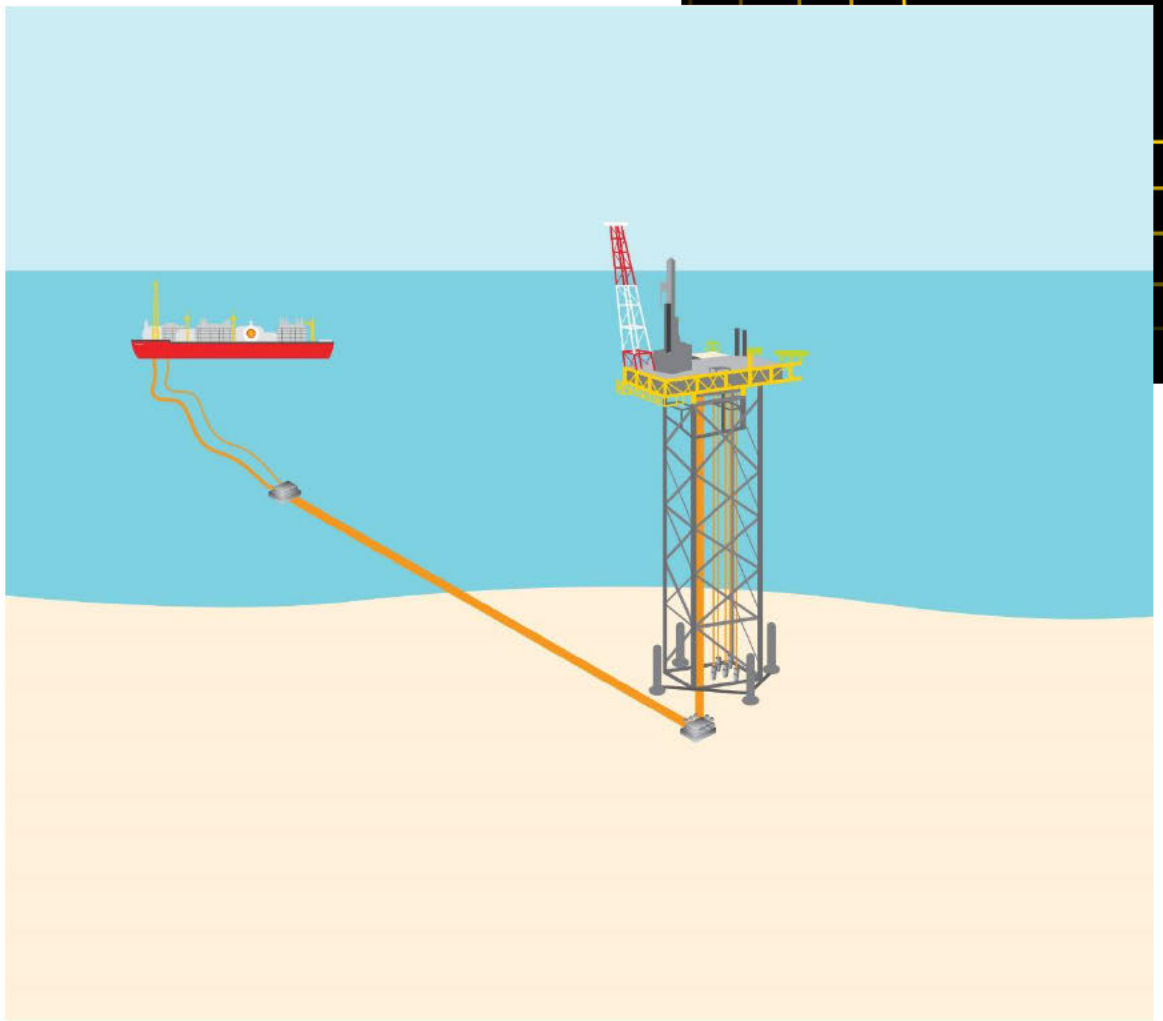


EP202302201038_002

Main Map Scale: 6,000,000 (A4) | CRS: GDA2020 | | 15/03/2023

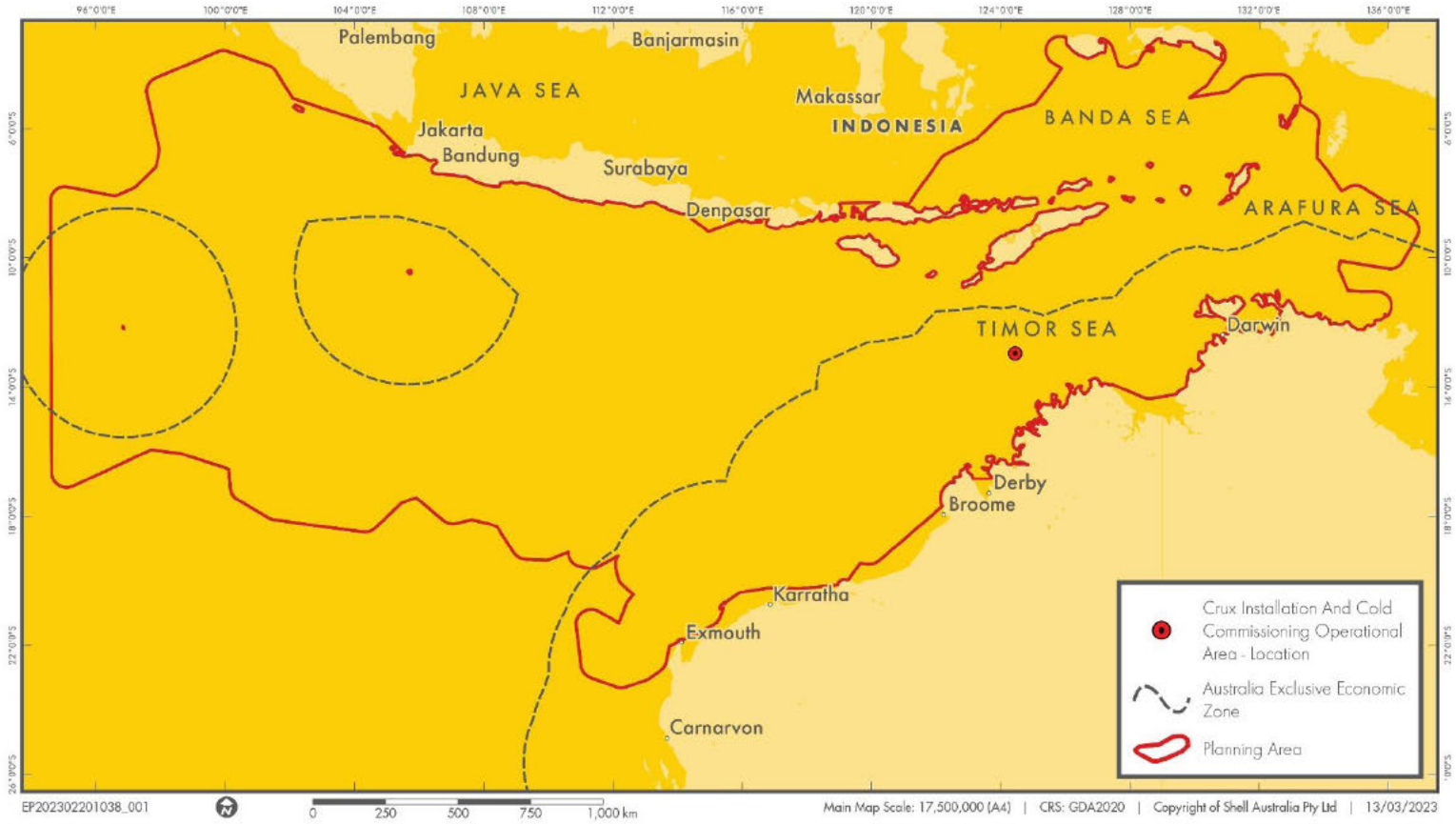
Crux update

- In May 2022, Shell Australia and SGH Energy took final investment decision to approve the development of Crux.
- The project is an important longer term backfill opportunity for the existing Prelude FLNG facilities. The proposed concept is an unmanned platform with minimal facilities, remotely operated from the Prelude FLNG.
- The project aligns with Shell's strategy and forms an important part of Shell's gas portfolio and will help meet the needs of gas users as the energy market transitions to a lower carbon future, noting the expected increasing demand for natural gas, renewables, low and zero carbon technologies, and the criticality of security in energy supply.
- The natural gas from Crux and Prelude will be a key part of how we help move Asian customers from coal to gas as a cleaner burning fuel.



Crux Video to be played

3. Crux Development Drilling Environment Plan



Shell is planning to drill five production wells through a drilling template and suspend them. The suspended wells will be commissioned once the Crux facility has been installed.

Timing:

- Expected Mobile Offshore Drilling Unit Operations – End 2023 - early 2024.
- Expected temporary well suspension period, approximately 2-3 years. Scope completed no later than the end of 2025

4. Activities Related to Crux Development Drilling Environment Plan

ACTIVITY DESCRIPTION

The Crux Drilling Environment Plan includes provision for the installation of guideposts and five deviated production wells via the preinstalled drilling template. The location of the drill center has been selected to optimise well length and reservoir penetration, and for avoidance of any potential subsurface hazards.

- **The guideposts:** ensure that the Crux substructure and topsides are accurately positioned over the drilling template when installed during the subsequent installation campaigns. The guideposts will remain on location at the seabed for the life of the asset. The drilling template and guideposts have an approximate structural footprint of Length 28 m X Width 9 m X Height 10 m
- **The wells:** will be drilled and suspended from a Mobile Offshore Drilling Unit, prior to installation of the Crux Substructure and Topsides. They will be drilled from a single drill center, via the pre-installed drilling template. The wells will be suspended and left in-situ with well completions planned to occur following installation of the Crux platform.
- **Mobile Offshore Drilling Unit:** This will be a semi-submersible Mobile Offshore Drilling Unit – which will be held in position by anchor spread.

The development drilling program will be supported by a range of services including helicopter transfers from mainland Australia, a dedicated installation vessel, four anchor handling, tug and support vessels and remotely operated vehicles undertaking inspection, maintenance and repair activities.

Crux Development Drilling Environment Plan

Aspect	Proposed Controls
Planned	
Physical Presence, vessel movements and seabed disturbance	▪ Implementation of national and international regulations and conventions for collision prevention, safety and navigation at sea ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area ▪ Environmental Protection and Biodiversity Conservation Regulations (2000) (EPBC Regulations), Part 8.1 – Interacting with cetaceans ▪ Australian Hydrographic Office Notice to Mariners
Lighting	▪ External lighting on vessels minimised to that required for navigation, safety of deck operations and security considerations
Noise	▪ Apply EPBC policy statement 2.1 – Part B (seismic survey guidelines) to geophysical survey activities as applicable to the scope. This is planned to be applied using trained crew members. ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area ▪ EPBC Regulations Part 8.1 – Interacting with cetaceans ▪ Marine fauna observations
Discharge of liquid effluent	▪ Comply with relevant requirements of the International Convention for the Prevention of Pollution from Ships (MARPOL) and associated regulations ▪ Chemical Management Process for chemical assessment and selection
Atmospheric emissions	▪ Comply with relevant requirements of the International Convention for the Prevention of Pollution from Ships (MARPOL) and associated regulations. ▪ Relevant vessels to have a valid International Air Pollution Prevention Certificate ▪ Use of low sulphur fuel when possible
Greenhouse gas emissions	▪ Comply with International Convention for the Prevention of Pollution from Ships (MARPOL) requirements and associated regulations ▪ Comply with the National Greenhouse and Energy Reporting Act (2007) and National Greenhouse and Energy Reporting Regulations (2008)
Waste management	▪ Discharge of waste from vessels will comply with relevant International Convention for the Prevention of Pollution from Ships (MARPOL) requirements and associated regulations ▪ Waste management procedures ▪ Waste tracking process ▪ The management and disposal of any quarantine risk material will be in accordance with state and commonwealth regulations

Key aspect and control

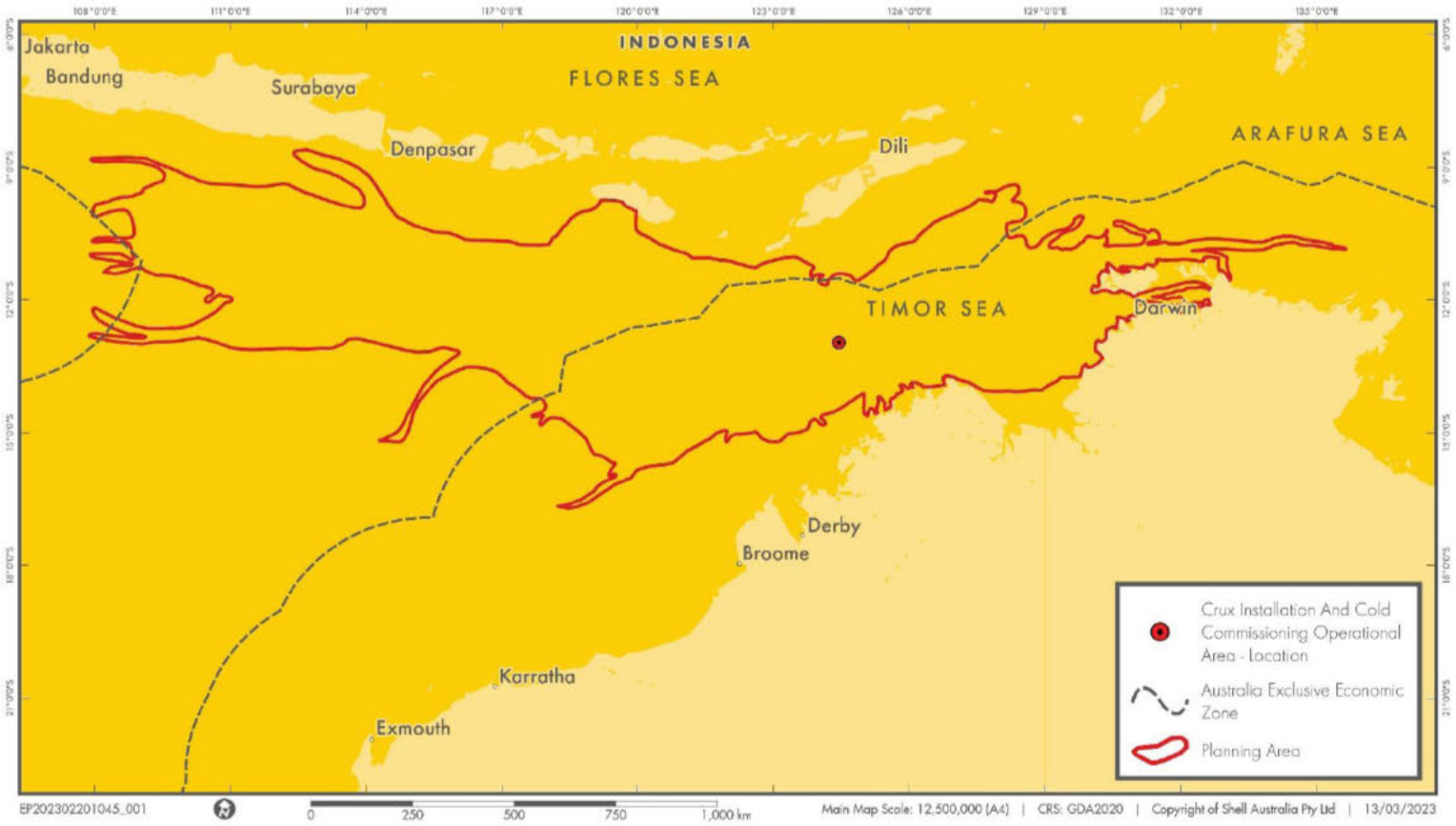
Discharge of liquid effluent (including drilling discharges)

The drilling activity includes discharges of liquids and materials to the marine environment

Key Controls:

- Shell Chemical Management Process:
- Chemicals selected for use in accordance with the Shell Chemical Management Process to minimise potential environmental risks.
- Chemicals that are planned for discharge to sea are substitution warning free and Gold, Silver, D, or E rated through the Offshore Chemical Notification Scheme (OCNS), or are considered to Pose Little or No Risk to the Environment (PLONOR) (listed by the Oil Spill Prevention, Administration and Response (OSPAR) Commission), or have a complete ALARP assessment.

4. Crux Installation and Cold Commissioning Environment Plan



Shell is planning to install the Crux Jacket and Topsides which will be fixed to the seabed.

The facility will commence cold commissioning once installation is complete.

Duration: 360 days
Timing: 1 August 2024 – 31 Dec 2028*

Crux Installation and Cold Commissioning Environment Plan

Aspect	Proposed Controls
Planned	
Physical Presence, vessel movements and seabed disturbance	▪ Implementation of national and international regulations and conventions for collision prevention, safety and navigation at sea ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area ▪ Environmental Protection and Biodiversity Conservation Regulations (2000) (EPBC Regulations), Part 8.1 – Interacting with cetaceans ▪ Australian Hydrographic Office Notice to Mariners
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Noise

Scope include piling campaign which results in under water noise.

Key controls:

Start-up and shutdown procedures which consider approach by sensitive species and actions taken when species come too close.

Environmental Management Unplanned – All Environment Plan

Unplanned	
Emergency Events – Hydrocarbon Spill	▪ Align with relevant International Convention for the Prevention of Pollution from Ships requirements and subsequent regulations ▪ Valid Shipboard Oil Pollution Emergency Plan or Shipboard Marine Pollution Emergency Plan (as appropriate for vessel classification) ▪ Implementation of national and international regulations and conventions for collision prevention, safety and navigation at sea ▪ Offshore Vessel Inspection Database (OVID) process ▪ Australian Hydrographic Office Notice to Mariners ▪ NOPSEMA accepted Environment Plan and Oil Pollution Emergency Plan (OPEP) in place ▪ Relevant Persons consultation process ▪ Vessel Maintenance management system
Introduction of Invasive Marine Species from Vessels	▪ Ballast water exchange operations will comply with the international conventions and associated national regulations. ▪ Biofouling management for vessels in accordance with state, national and international biofouling management guidelines ▪ Biofouling management in compliance with state and commonwealth regulations ▪ Vessels (of appropriate class) will have a valid International Anti-Fouling System Certificate ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area

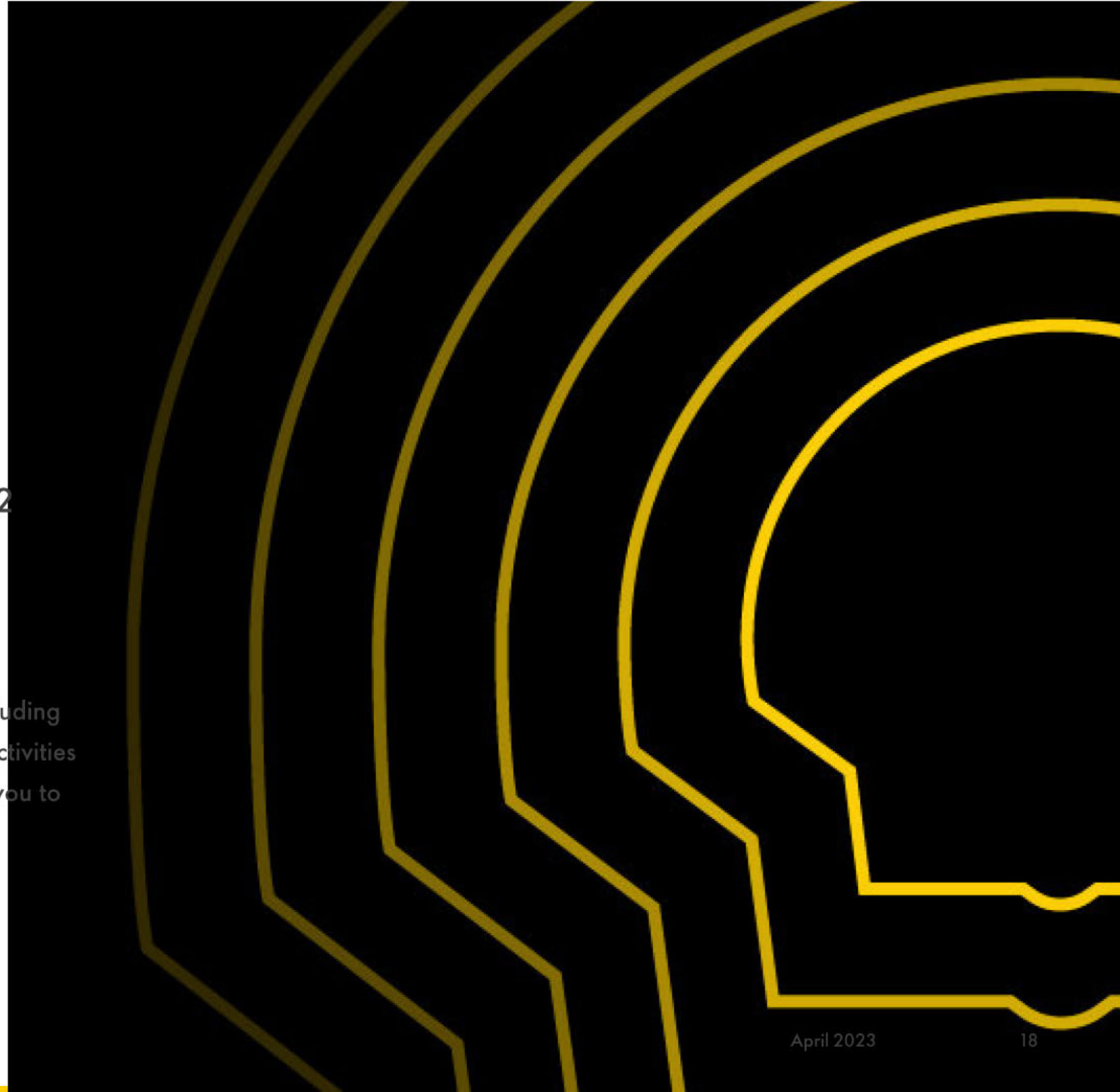
Q&A

CONTACT US Community Hotline: 1800 059 152

Email: SDA-crux-project@shell.com

www.shell.com.au/crux

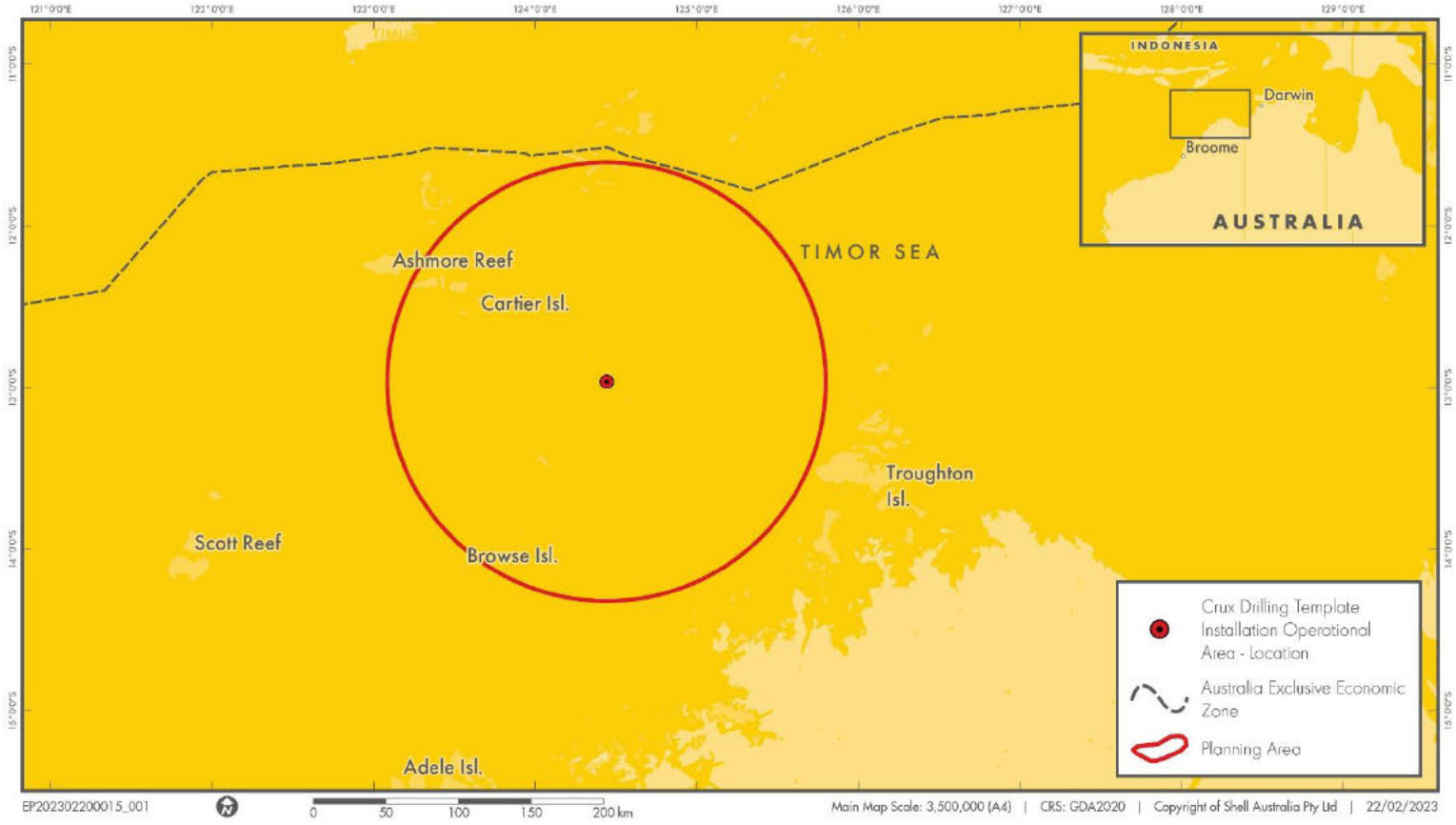
Shell welcomes any feedback on Environment Plan submissions, including requests for further information. If you have functions, interests or activities that may be affected by any of our projects, Shell Australia invites you to get in touch.



Additional Slides

2. Crux Template Installation Environment Plan

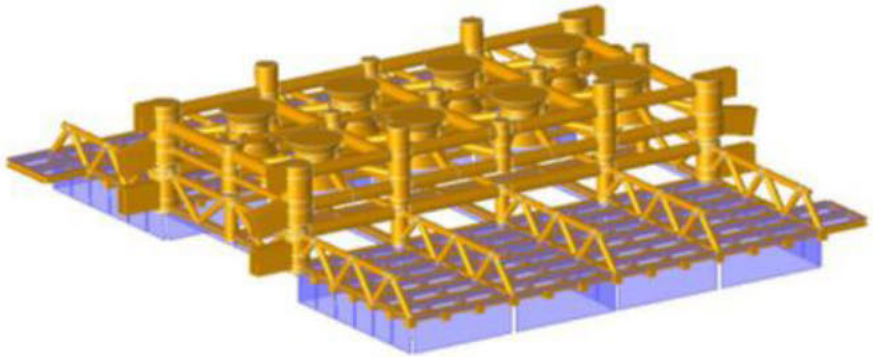
A template which will act as a guide for the drill bit during drilling operations



Shell is planning to lower a fabricated steel structure onto the seabed, which will assist with orienting and locating the drilling activities and the installation of the Crux jacket.

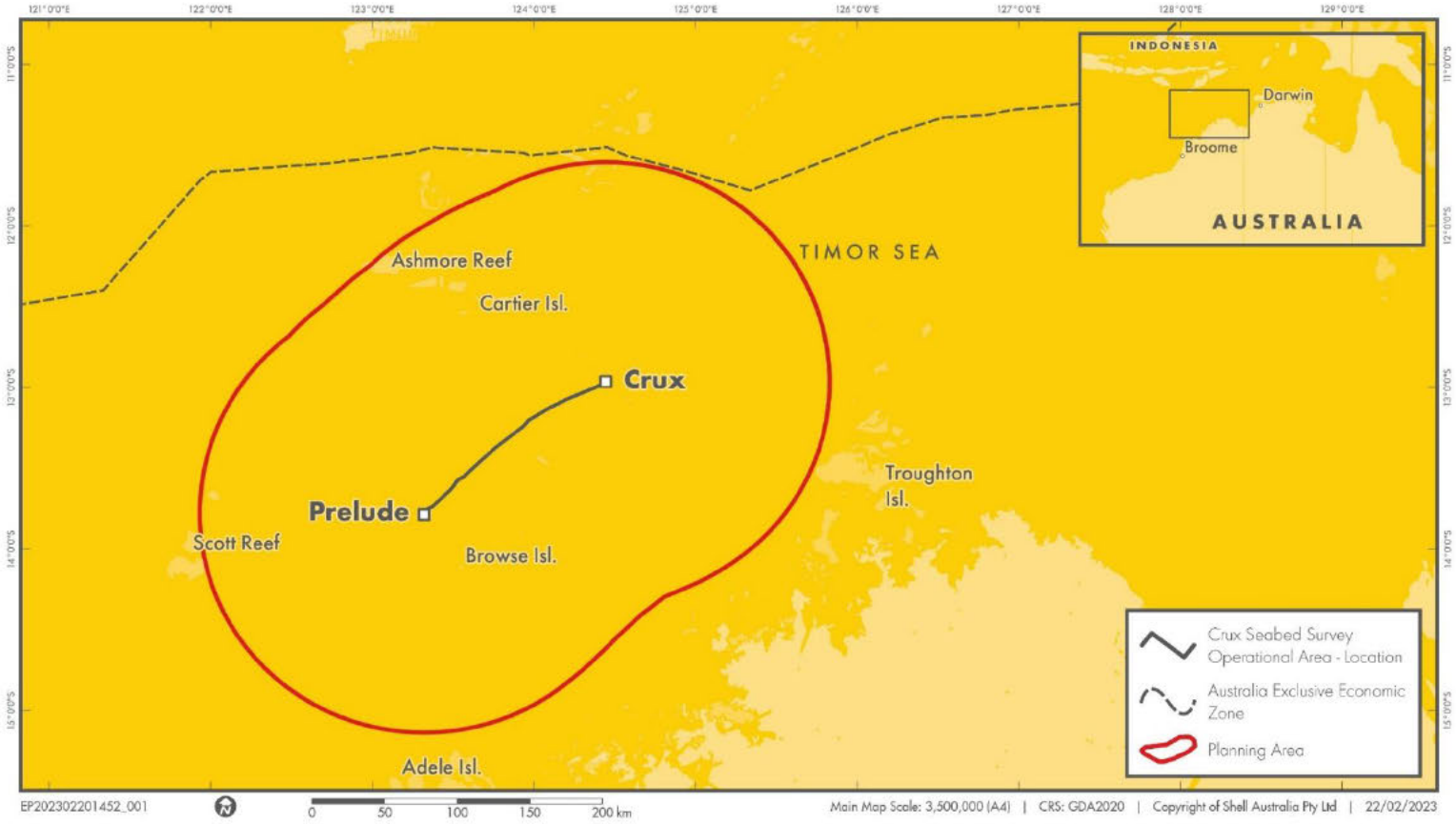
Duration: <7 days

Timing: 1 September 2023 – 1 April 2024*



1. Crux Seabed Survey Environment Plan

Investigating the sub-seabed conditions



Shell is planning to carry out a survey of the pipeline route and terminals connecting the Crux and Prelude facilities.

A vessel will traverse the pipeline route, towing survey and monitoring equipment.

Duration: <5 days

Timing: 1 May – 31 December 2023*

Appendix A - 5.02 Industry Briefing - Perth

Shell in Australia Industry Briefing

Agenda

Agenda Item	Presenter
Introductions	Nandini Pereira
Acknowledgement of Country & welcome	Brendan Herbst
Purpose of forum	Nandini Pereira
Asset and project overview	Rama Gunturi
Crux Seabed Survey Environment Plan overview	Andy Gowing
Crux Template Installation Environment Plan overview	Andy Gowing
Crux Development Drilling Environment Plan overview	Andy Gowing
Crux Installation and Cold Commissioning Environment Plan overview	Andy Gowing
Q&A	Nandini Pereira

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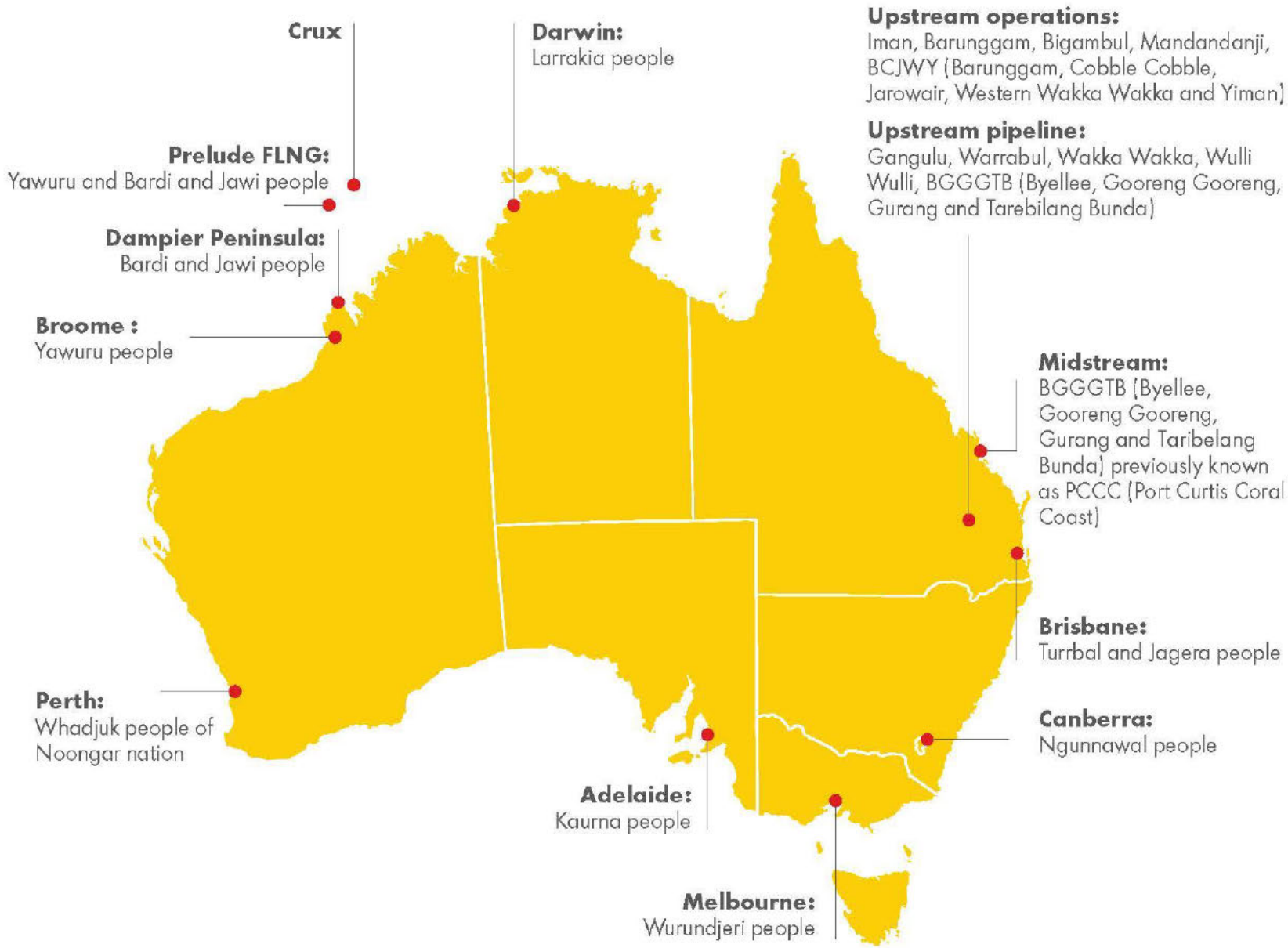

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North West Shelf	16.67%
WestWind	49%

Why are we here today?

As part of the Environment Plan approvals process, Shell is undertaking consultation with relevant persons who may be impacted by the activities we are proposing in relation to the development of the Crux project.

We are consulting on four Environment Plans:

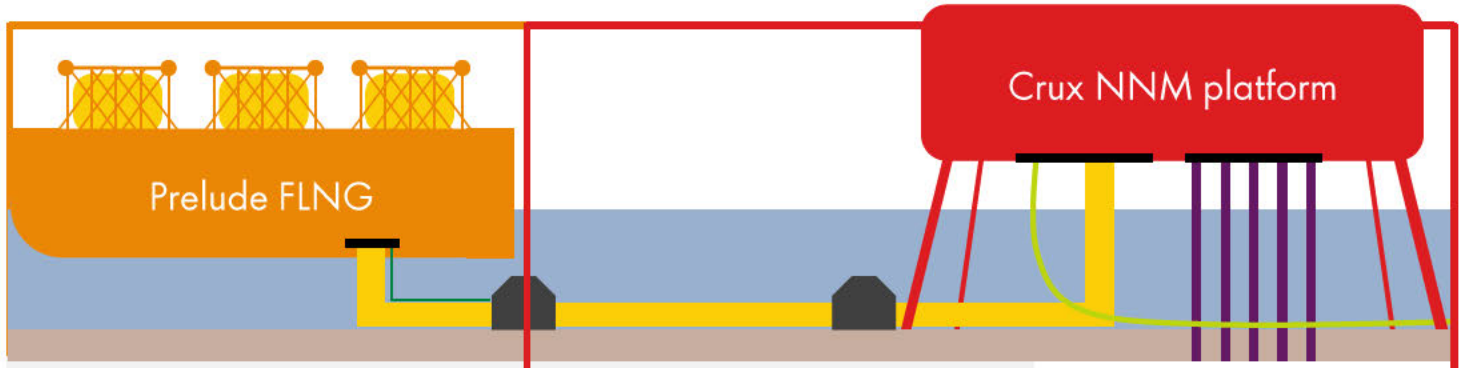
1. Seabed Survey Environment Plan
2. Drilling Template Environment Plan
3. Development Drilling Environment Plan
4. Crux Installation and Cold Commissioning Environment Plan

Prelude – Overview

- Prelude is a Floating Liquefied Natural Gas (FLNG) project located 475km north-northeast of Broome, Western Australia, in the Browse Basin.
- The Prelude FLNG facility is moored over the Prelude gas field in 250m water depth and more than 200km from the coastline.
- Prelude produces LNG, LPG and condensate.
- Prelude has an onshore supply base in Darwin.
- The Prelude FLNG facility is operated by Shell Australia in joint venture with INPEX, OPIC and Kogas.
- The Prelude Joint Venture has executed agreements to allow for processing of Crux hydrocarbons, which are expected to commence in 2027.

Prelude and Crux

Crux will leverage Prelude FLNG's existing infrastructure to its fullest extent to maximise capital efficiency & deliverability



Prelude infrastructure

- Riser, umbilical, and receiver
- Pipeline termination point and subsea isolation valve

Prelude participants

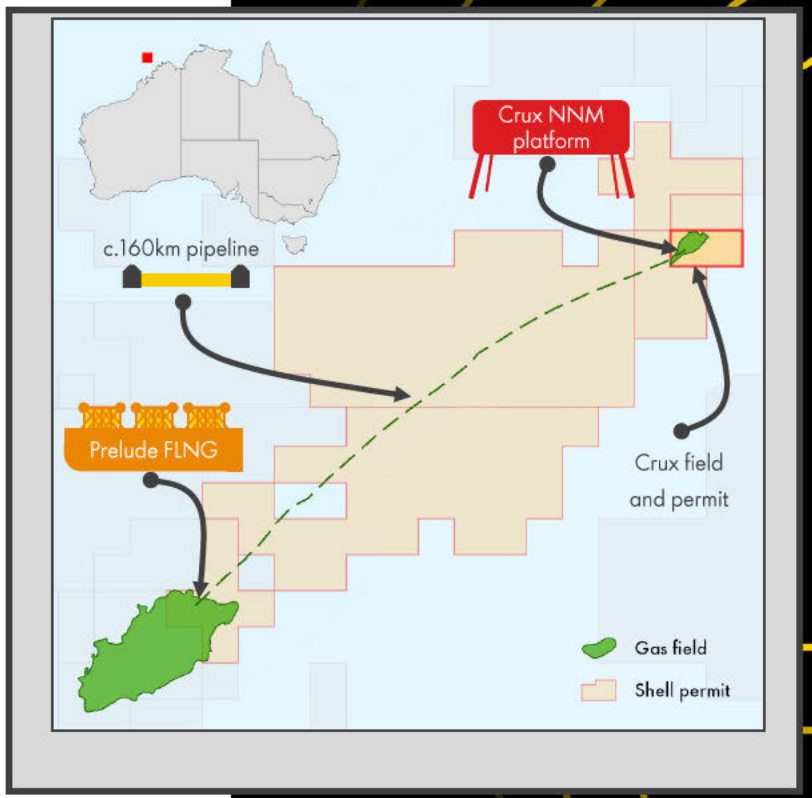
Shell	67.5% (Operator)
INPEX	17.5%
KOGAS	10%
CPC Corporation, Taiwan	5%

Crux infrastructure

- 5x dry tree wells
- Pipeline termination point and subsea isolation valve
- Riser and fibre optic cable
- c.160km pipeline
- Crux platform topsides and substructure

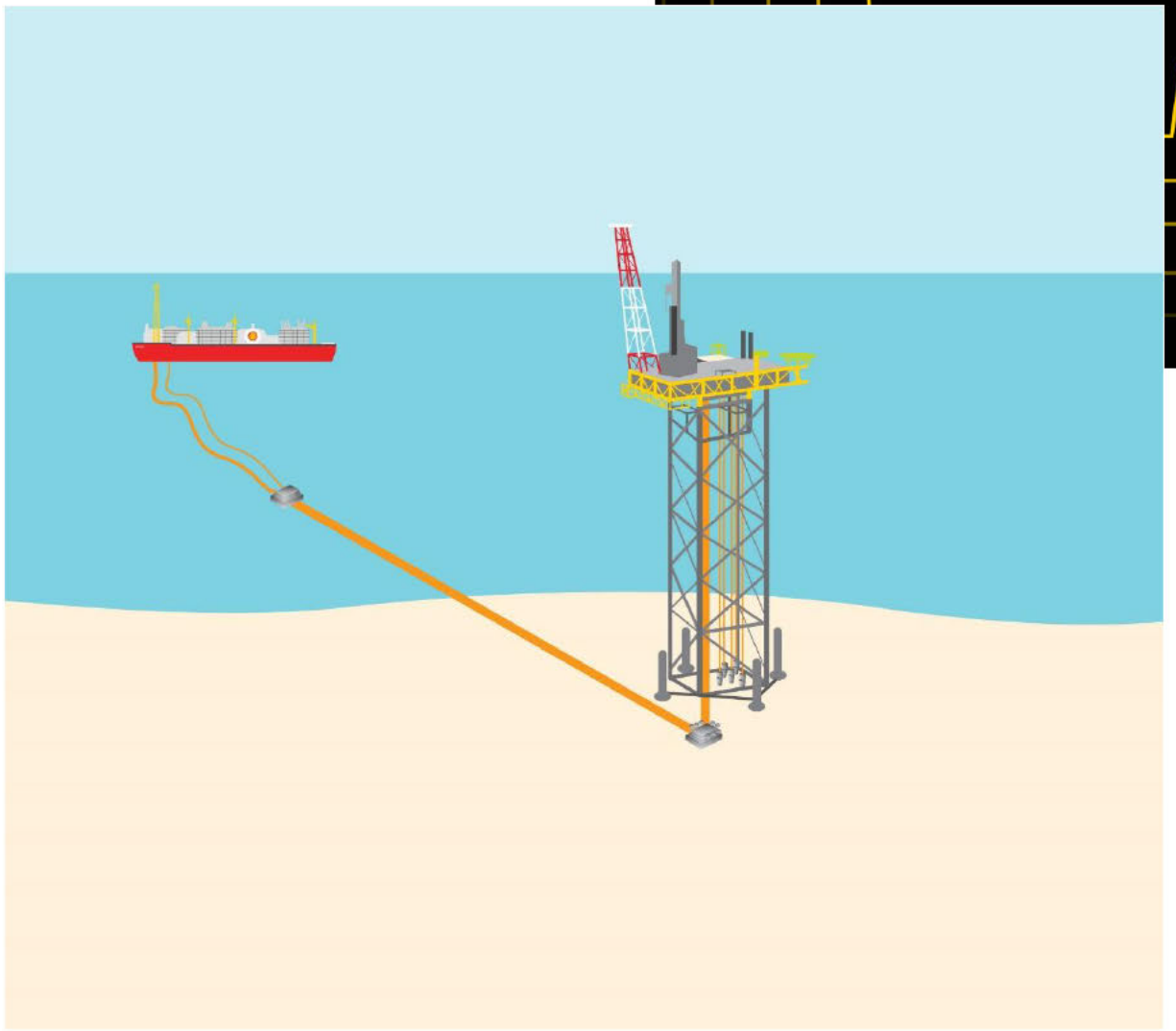
Crux participants

Shell	SGH | Energy
84.5% (Operator)	15.5%



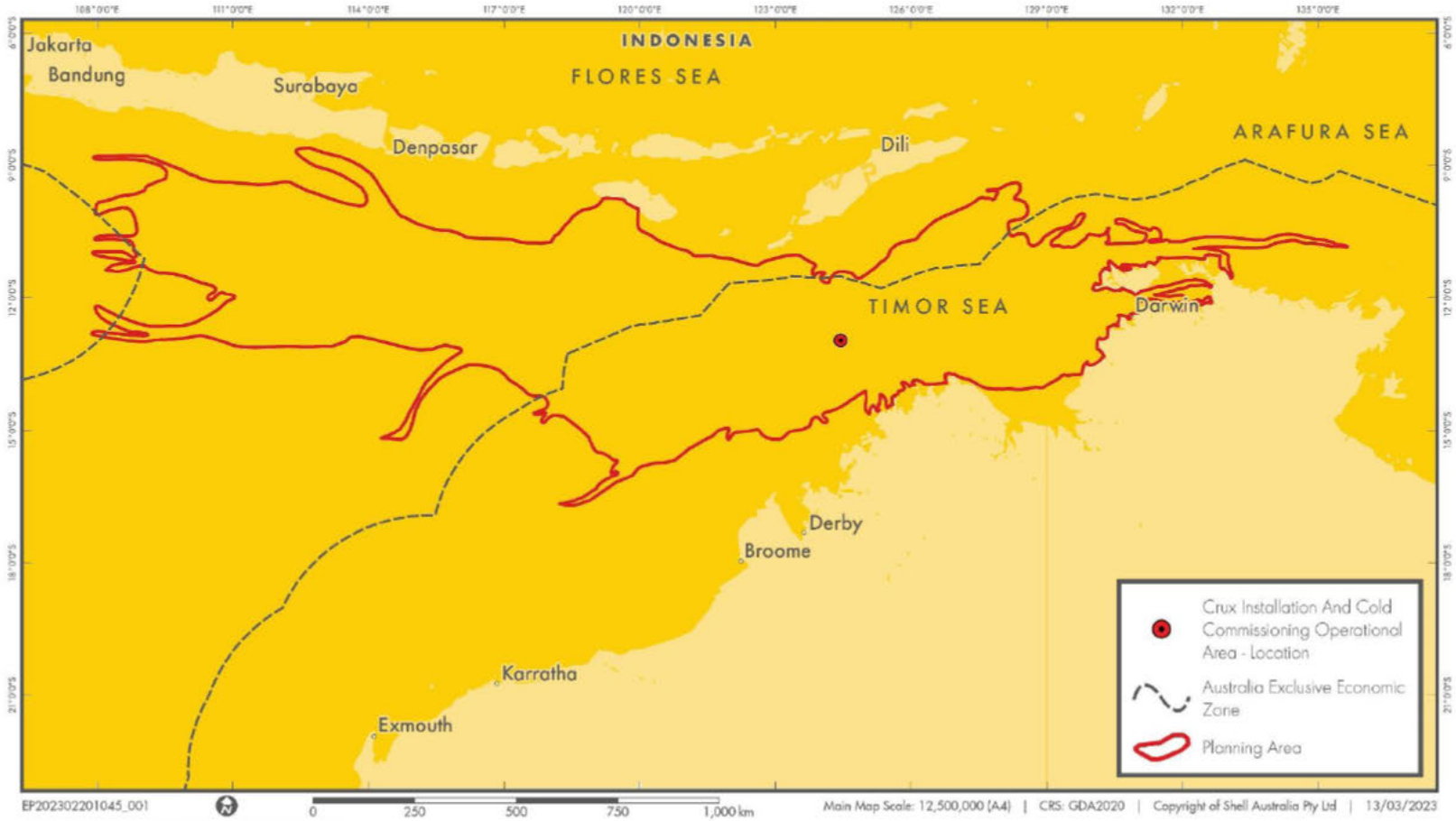
Crux update

- In May 2022, Shell Australia and SGH Energy took final investment decision to approve the development of Crux.
- The project is an important longer term backfill opportunity for the existing Prelude FLNG facilities. The proposed concept is an unmanned platform with minimal facilities, remotely operated from the Prelude FLNG.
- The project aligns with Shell's strategy and forms an important part of Shell's gas portfolio and will help meet the needs of gas users as the energy market transitions to a lower carbon future, noting the expected increasing demand for natural gas, renewables, low and zero carbon technologies, and the criticality of security in energy supply.
- The natural gas from Crux and Prelude will be a key part of how we help move Asian customers from coal to gas as a cleaner burning fuel.



Crux Environment Plans

Each EP describes controls to mitigate both the planned impacts and unplanned risks to as low and reasonably practicable



Planned impacts

Includes activities that result in physical impact to the environment:

- Disturbances to the seabed
- Drilling Fluid Discharges
- Noise generated from construction activities.

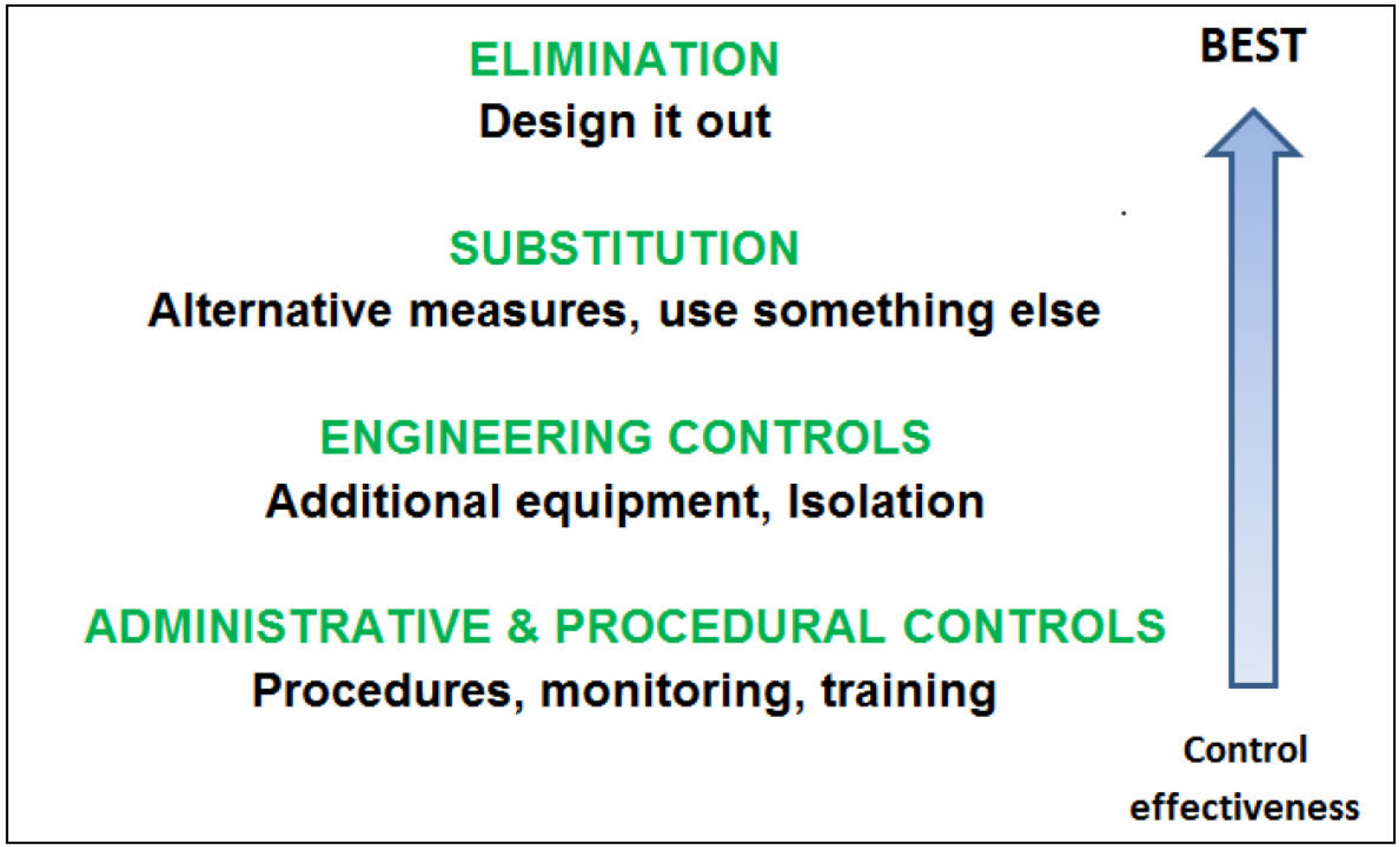
Unplanned risks

Includes events that may occur as a result of an incident:

- Release of diesel as a result of a vessel collision.
- Release of hydrocarbons as a result of loss of well control.

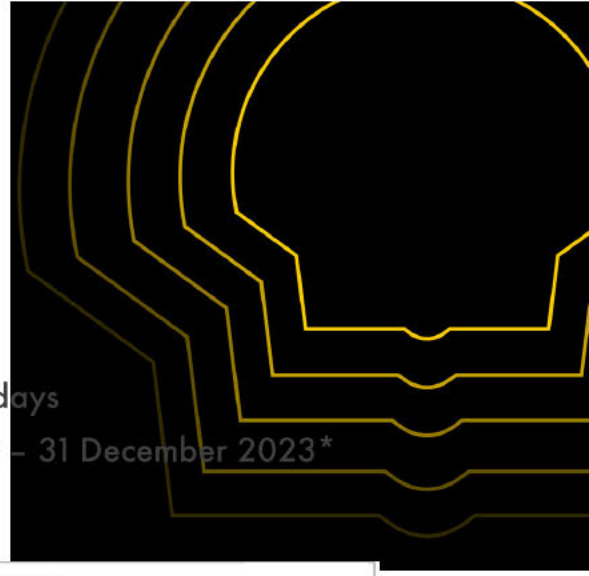
Crux Environment Plans

Shell applies a hierarchy of control process to establish controls which mitigate environmental impacts and risk.



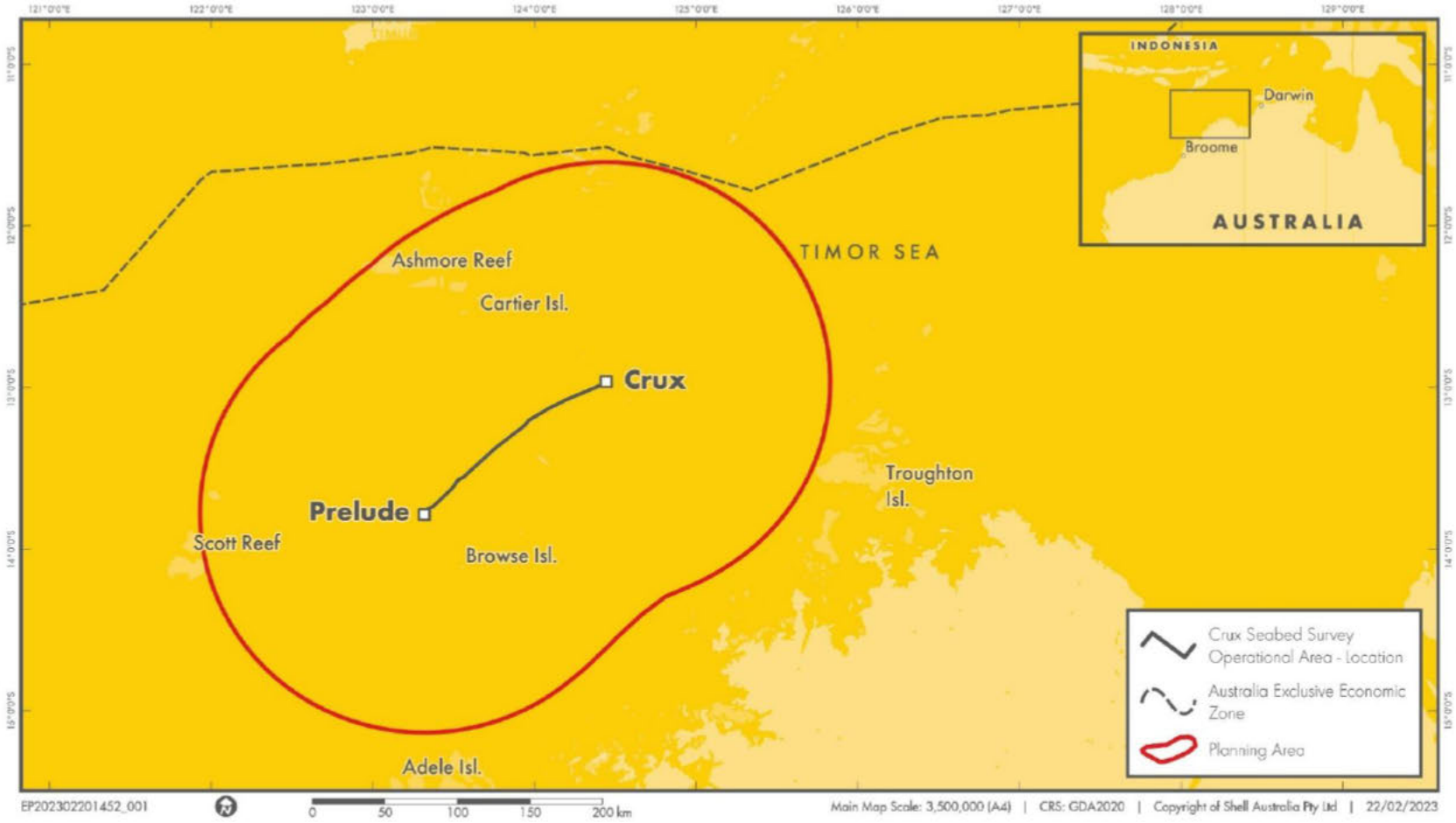
1. Crux seabed survey environment plan

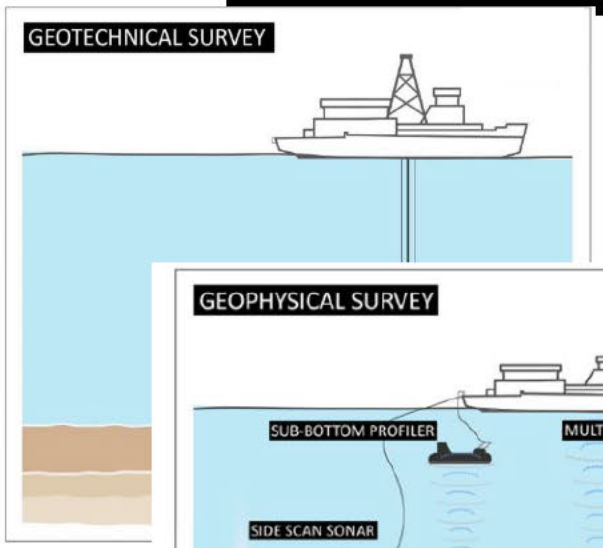
To carry out a survey of the pipeline route and terminals connecting the Crux and Prelude facilities.

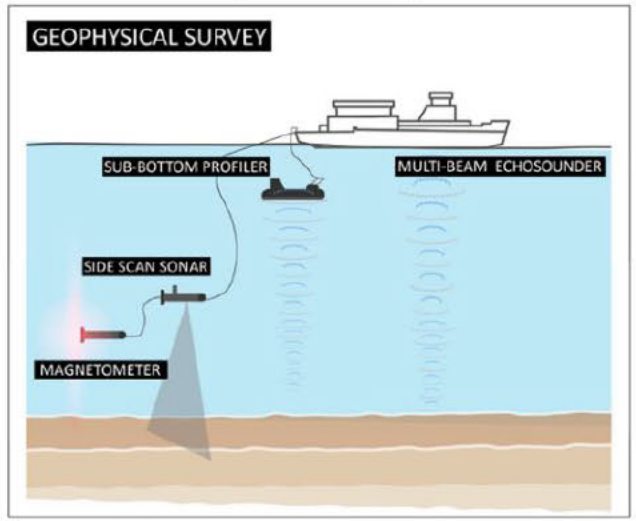


Duration: <5 days

Timing: 1 May – 31 December 2023*







*Dates for the commencement of activities and duration are subject to schedule change

1. Crux seabed survey environment plan
Key aspects and controls

Key aspect: Noise

The geophysical survey equipment emits impulsive noise which can affect marine fauna if in proximity.

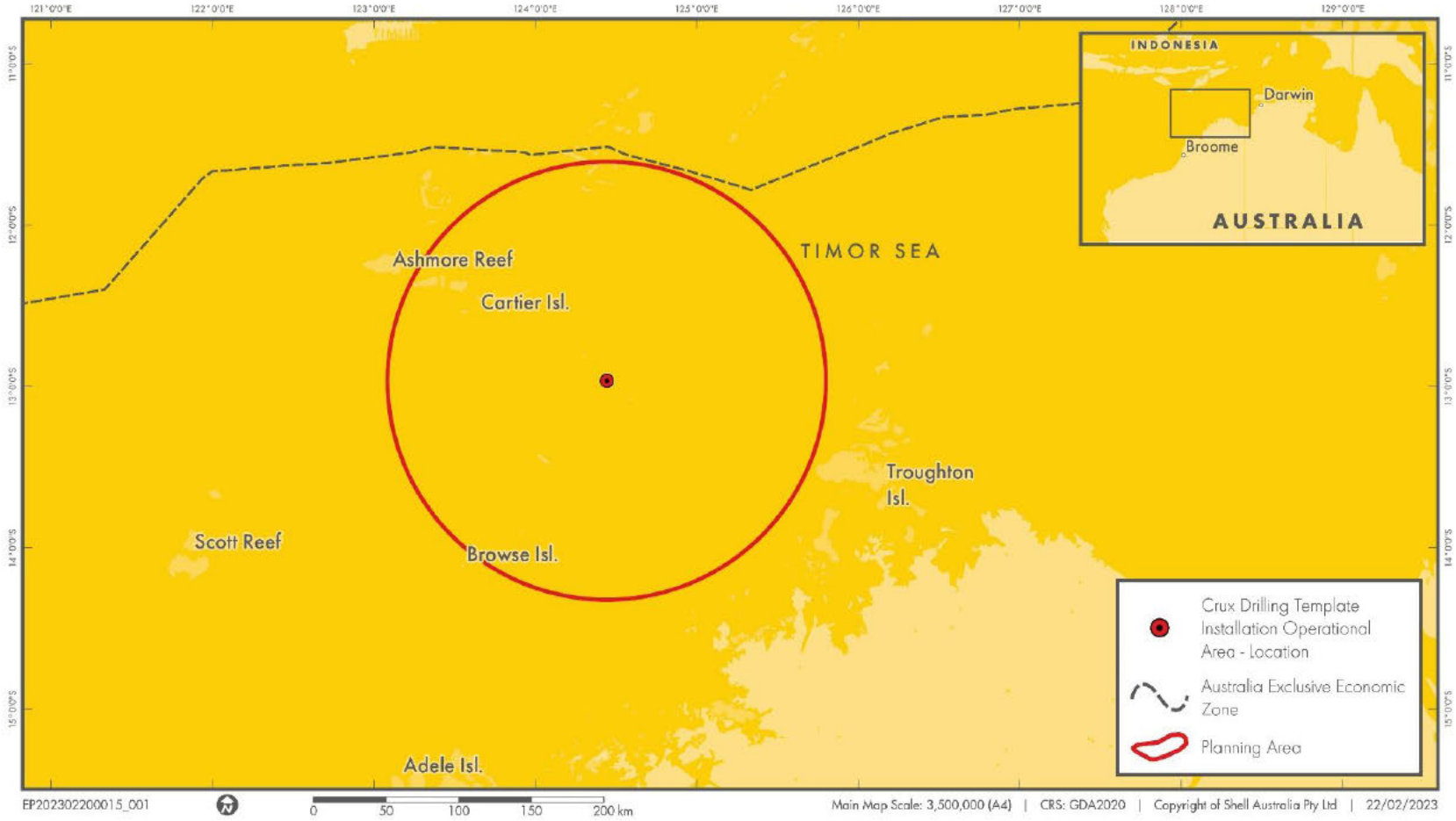
Proposed controls: Observations

- Pre-start visual observations out to 3 km for 30 minutes.
- If a whale or turtle is observed during the pre- start observations, delay start up for 30 minutes.
- If no whales or turtles are observed, activate acoustic equipment.

Aspect	Proposed control
Planned	
Physical Presence, vessel movements and seabed disturbance	▪ Implementation of national and international regulations and conventions for collision prevention, safety and navigation at sea ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area ▪ Environmental Protection and Biodiversity Conservation Regulations (2000) (EPBC Regulations), Part 8.1 – Interacting with cetaceans ▪ Australian Hydrographic Office Notice to Mariners
Lighting	▪ External lighting on vessels minimised to that required for navigation, safety of deck operations and security considerations
Noise	▪ Apply EPBC policy statement 2.1 – Part B (seismic survey guidelines) to geophysical survey activities as applicable to the scope. This is planned to be applied using trained crew members. ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area ▪ EPBC Regulations Part 8.1 – Interacting with cetaceans ▪ Marine fauna observations
Discharge of Liquid Effluent	▪ Comply with relevant requirements of the International Convention for the Prevention of Pollution from Ships (MARPOL) and associated regulations ▪ Chemical Management Process for chemical assessment and selection
Atmospheric Emissions	▪ Comply with relevant requirements of the International Convention for the Prevention of Pollution from Ships (MARPOL) and associated regulations. ▪ Relevant vessels to have a valid International Air Pollution Prevention Certificate ▪ Use of low sulphur fuel when possible
Greenhouse Gas Emissions	▪ Comply with International Convention for the Prevention of Pollution from Ships (MARPOL) requirements and associated regulations ▪ Comply with the National Greenhouse and Energy Reporting Act (2007) and National Greenhouse and Energy Reporting Regulations (2008)
Waste Management	▪ Discharge of waste from vessels will comply with relevant International Convention for the Prevention of Pollution from Ships (MARPOL) requirements and associated regulations ▪ Waste management procedures ▪ Waste tracking process ▪ The management and disposal of any quarantine risk material will be in accordance with state and commonwealth regulations

2. Crux template installation environment plan

to lower a fabricated steel structure onto the seabed, which will assist with orienting and locating the drilling activities and the installation of the Crux jacket.

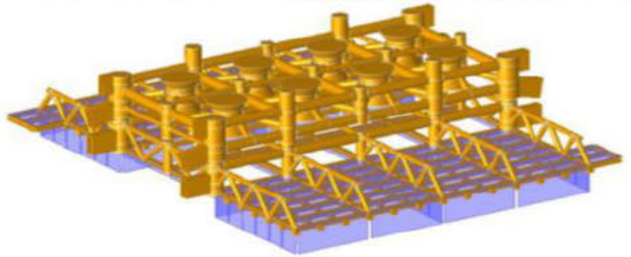


Duration: <7 days

Timing: 1 September 2023 – 1 April 2024*

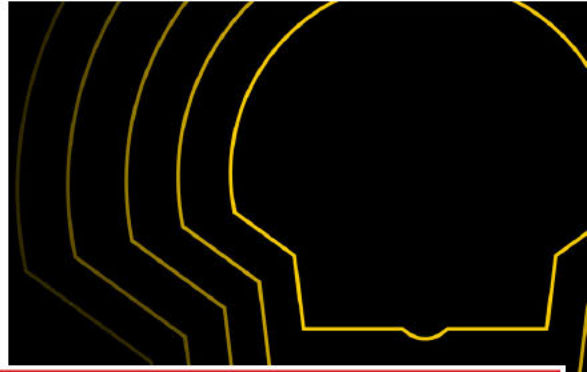
Dimensions: 19m length, 14m width, 4m high and covers a seabed footprint of 266m2.

It weights 200 tonnes



*Dates for the commencement of activities and duration are subject to schedule change

2. Crux template installation environment plan
Key aspects and controls



Key aspect: Physical Presence

The drilling template will be left on the seabed for the life of Crux.

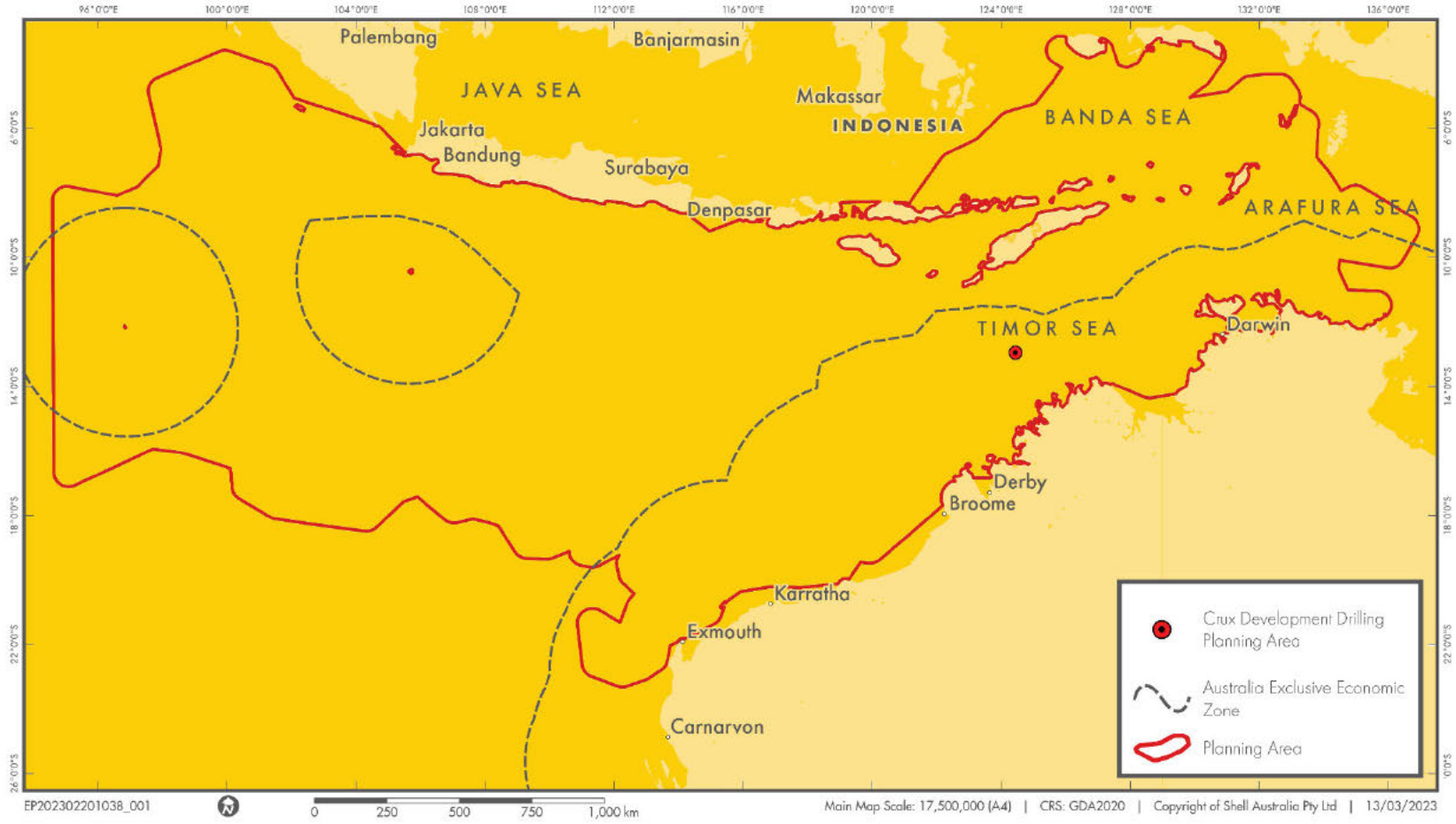
Proposed controls:

- AHS is given notification in advance to enable a 'Notice to Mariners' to be issued prior to petroleum activities occurring within the operational area
- Relevant persons consultation – other marine users will be made aware of the location of the drilling template via Shells consultation process.

Aspect	Proposed Controls
Planned	
Physical presence, vessel movements and seabed disturbance	▪ Implementation of national and international regulations and conventions for collision prevention, safety and navigation at sea ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area ▪ Environmental Protection and Biodiversity Conservation Regulations (2000) (EPBC Regulations), Part 8.1 – Interacting with cetaceans ▪ Australian Hydrographic Office Notice to Mariners
Lighting	▪ External lighting on vessels minimised to that required for navigation, safety of deck operations and security considerations
Noise	▪ Apply EPBC policy statement 2.1 – Part B (seismic survey guidelines) to geophysical survey activities as applicable to the scope. This is planned to be applied using trained crew members. ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area ▪ EPBC Regulations Part 8.1 – Interacting with cetaceans ▪ Marine fauna observations
Discharge of liquid effluent	▪ Comply with relevant requirements of the International Convention for the Prevention of Pollution from Ships (MARPOL) and associated regulations ▪ Chemical Management Process for chemical assessment and selection
Atmospheric emissions	▪ Comply with relevant requirements of the International Convention for the Prevention of Pollution from Ships (MARPOL) and associated regulations. ▪ Relevant vessels to have a valid International Air Pollution Prevention Certificate ▪ Use of low sulphur fuel when possible
Greenhouse gas emissions	▪ Comply with International Convention for the Prevention of Pollution from Ships (MARPOL) requirements and associated regulations ▪ Comply with the National Greenhouse and Energy Reporting Act (2007) and National Greenhouse and Energy Reporting Regulations (2008)
Waste management	▪ Discharge of waste from vessels will comply with relevant International Convention for the Prevention of Pollution from Ships (MARPOL) requirements and associated regulations ▪ Waste management procedures ▪ Waste tracking process ▪ The management and disposal of any quarantine risk material will be in accordance with state and commonwealth regulations

3. Crux development drilling environment plan

Shell is planning to drill five production wells through a drilling template and suspend them. The suspended wells will be commissioned once the Crux facility has been installed.



Timing:

- Expected Mobile Offshore Drilling Unit Operations – End 2023 - early 2024.
- Expected temporary well suspension period, approximately 2-3 years. Scope completed no later than the end of 2025*

*Dates for the commencement of activities and duration are subject to schedule change

3. Crux development drilling environment plan
Key aspects and controls

Key aspect: Discharge of liquid effluent (including drilling discharges)

The drilling activity includes discharges of liquids and materials to the marine environment.

Proposed Controls:

- Shell Chemical Management Process:
  - Chemicals selected for use in accordance with the Shell Chemical Management Process to minimise potential environmental risks.
  - Chemicals that are planned for discharge to sea are substitution warning free and Gold, Silver, D, or E rated through the Offshore Chemical Notification Scheme (OCNS), or are considered to Pose Little or No Risk to the Environment (PLONOR) (listed by the Oil Spill Prevention, Administration and Response (OSPAR) Commission), or have a complete ALARP assessment.

Aspect	Proposed Controls
Planned	
Physical Presence, vessel movements and seabed disturbance	▪ Implementation of national and international regulations and conventions for collision prevention, safety and navigation at sea ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area ▪ Environmental Protection and Biodiversity Conservation Regulations (2000) (EPBC Regulations), Part 8.1 – Interacting with cetaceans ▪ Australian Hydrographic Office Notice to Mariners
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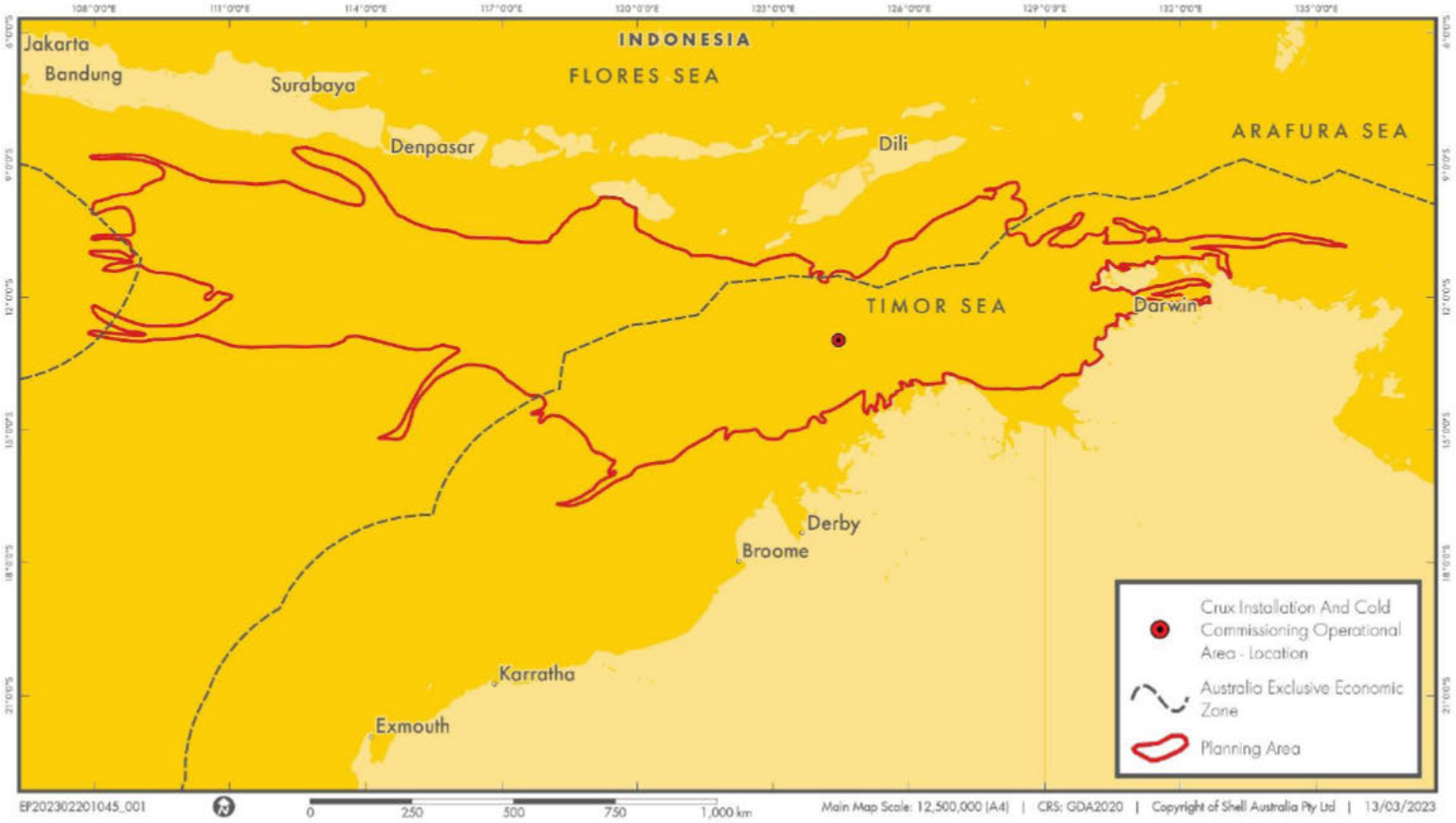
4. Crux installation and cold commissioning environment plan



Shell is planning to install the Crux Jacket and Topsides which will be fixed to the seabed.

The facility will commence cold commissioning once installation is complete.

Duration: 360 days
Timing: 1 August 2024 – 31 Dec 2026*

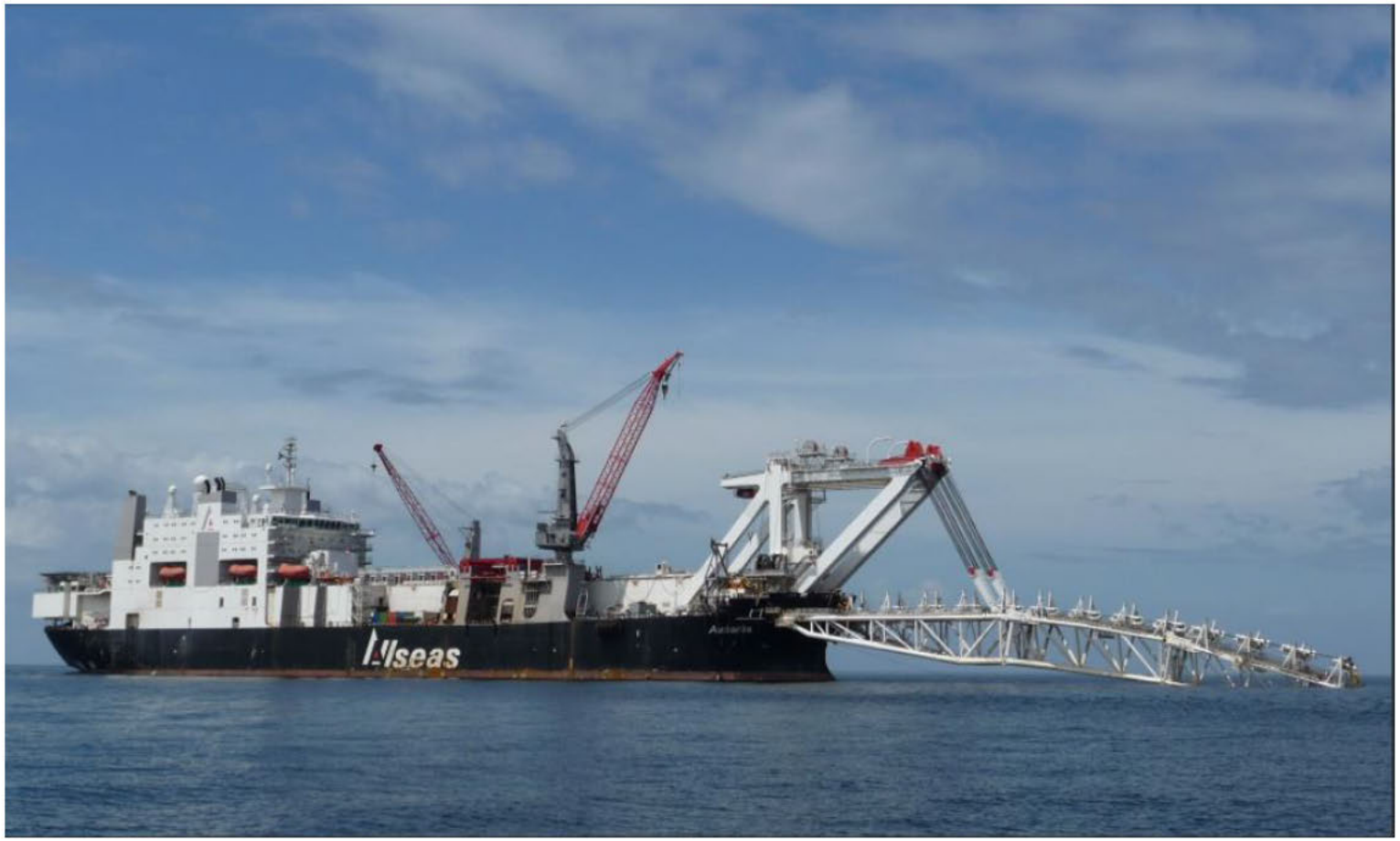
**Dates for the commencement of activities and duration are subject to schedule change*

4. Crux installation and cold commissioning environment plan
Key activities

Installation of 26-inch export pipeline (~165 km long) from Prelude to Crux

Vessel operations

- Pre- and post-lay geophysical surveys
- Pipeline hydrotest, preservation and associated discharges



4. Crux installation and cold commissioning environment plan

Key activities

Substructure Installation

Construction Vessel

DLV2000

Support Vessels

Pile Transport barge, Tugs, Supply Vessel

Jacket Transport & Launch

Transported on Launch Barge + approximately 3 Tugs

Activity includes pile driving and pile drilling

4. Crux installation and cold commissioning environment plan

Key activities

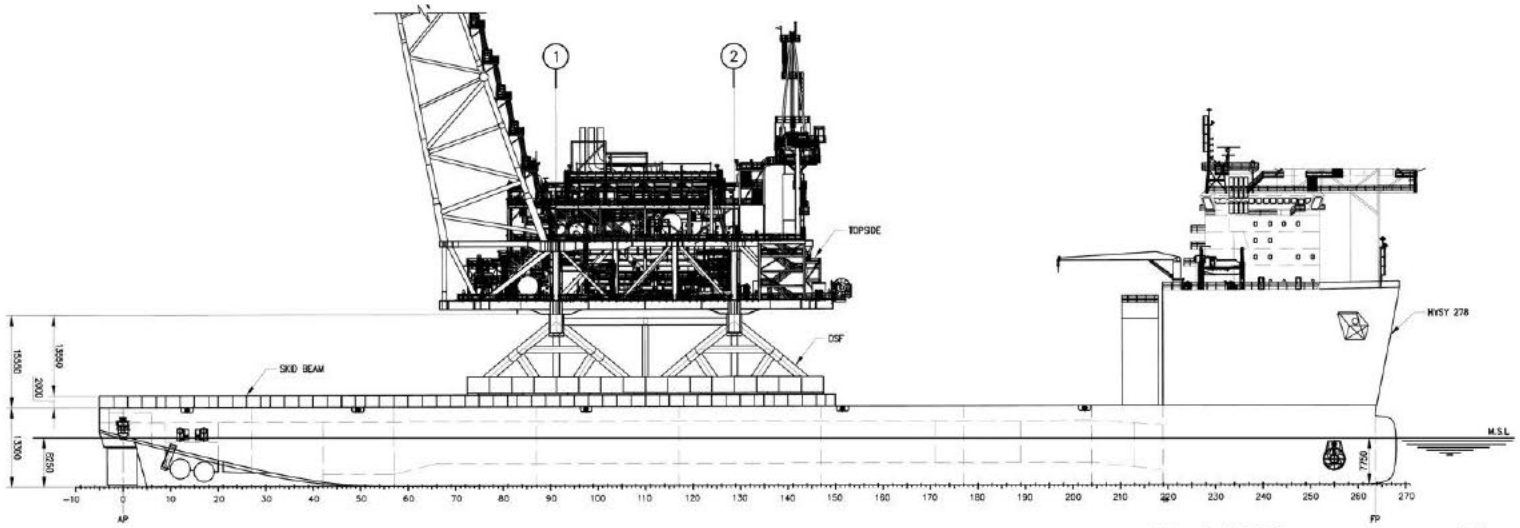
Topsides Installation

Float Over Installation Vessel

HYSY 278 (or similar)

Support Vessels

Tugs/Supply Vessel



4. Crux installation and cold commissioning environment plan
Key aspects and controls

Key aspect: Noise

Scope include multiple vessel operations and a piling campaign which results in underwater noise.

Proposed controls:

- During piling operations, start-up and shutdown procedures will be adopted which consider approach by sensitive species and actions taken when species approach.
- Vessel interactions with threatened and migratory species to follow the of EPBC Regulations 2000 – Part 8 Division 8.1 (Regulations 8.05 and 8.06). In particular:
- Support vessels will not deliberately approach closer than 50 m to a dolphin, turtle or whale shark; 100 m for an adult whale; 300 m for a whale calf; and 150 m for a dolphin calf.
- If the whale, dolphin, turtle or whale shark shows signs of being distressed, support vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots.

Aspect	Proposed Controls
Planned	
Physical Presence, vessel movements and seabed disturbance	▪ Implementation of national and international regulations and conventions for collision prevention, safety and navigation at sea ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area ▪ Environmental Protection and Biodiversity Conservation Regulations (2000) (EPBC Regulations), Part 8.1 – Interacting with cetaceans ▪ Australian Hydrographic Office Notice to Mariners
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Greenhouse gas emissions	▪ Comply with International Convention for the Prevention of Pollution from Ships (MARPOL) requirements and associated regulations ▪ Comply with the National Greenhouse and Energy Reporting Act (2007) and National Greenhouse and Energy Reporting Regulations (2008)
Waste management	▪ Discharge of waste from vessels will comply with relevant International Convention for the Prevention of Pollution from Ships (MARPOL) requirements and associated regulations ▪ Waste management procedures ▪ Waste tracking process ▪ The management and disposal of any quarantine risk material will be in accordance with state and commonwealth regulations

Crux environment plan – unplanned events

Unplanned	
Emergency Events – Hydrocarbon Spill	▪ Align with relevant requirements from the International Convention for the Prevention of Pollution from Ships and subsequent regulations ▪ Valid Shipboard Oil Pollution Emergency Plan or Shipboard Marine Pollution Emergency Plan (as appropriate for vessel classification) ▪ Implementation of national and international regulations and conventions for collision prevention, safety and navigation at sea ▪ Offshore Vessel Inspection Database (OVID) process ▪ Australian Hydrographic Office Notice to Mariners ▪ NOPSEMA accepted Environment Plan and Oil Pollution Emergency Plan (OPEP) in place ▪ Relevant Persons consultation process ▪ Vessel Maintenance management system
Introduction of Invasive Marine Species from Vessels	▪ Ballast water exchange operations will comply with the international conventions and associated national regulations. ▪ Biofouling management for vessels in accordance with state, national and international biofouling management guidelines ▪ Biofouling management in compliance with state and commonwealth regulations ▪ Vessels (of appropriate class) will have a valid International Anti-Fouling System Certificate ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area

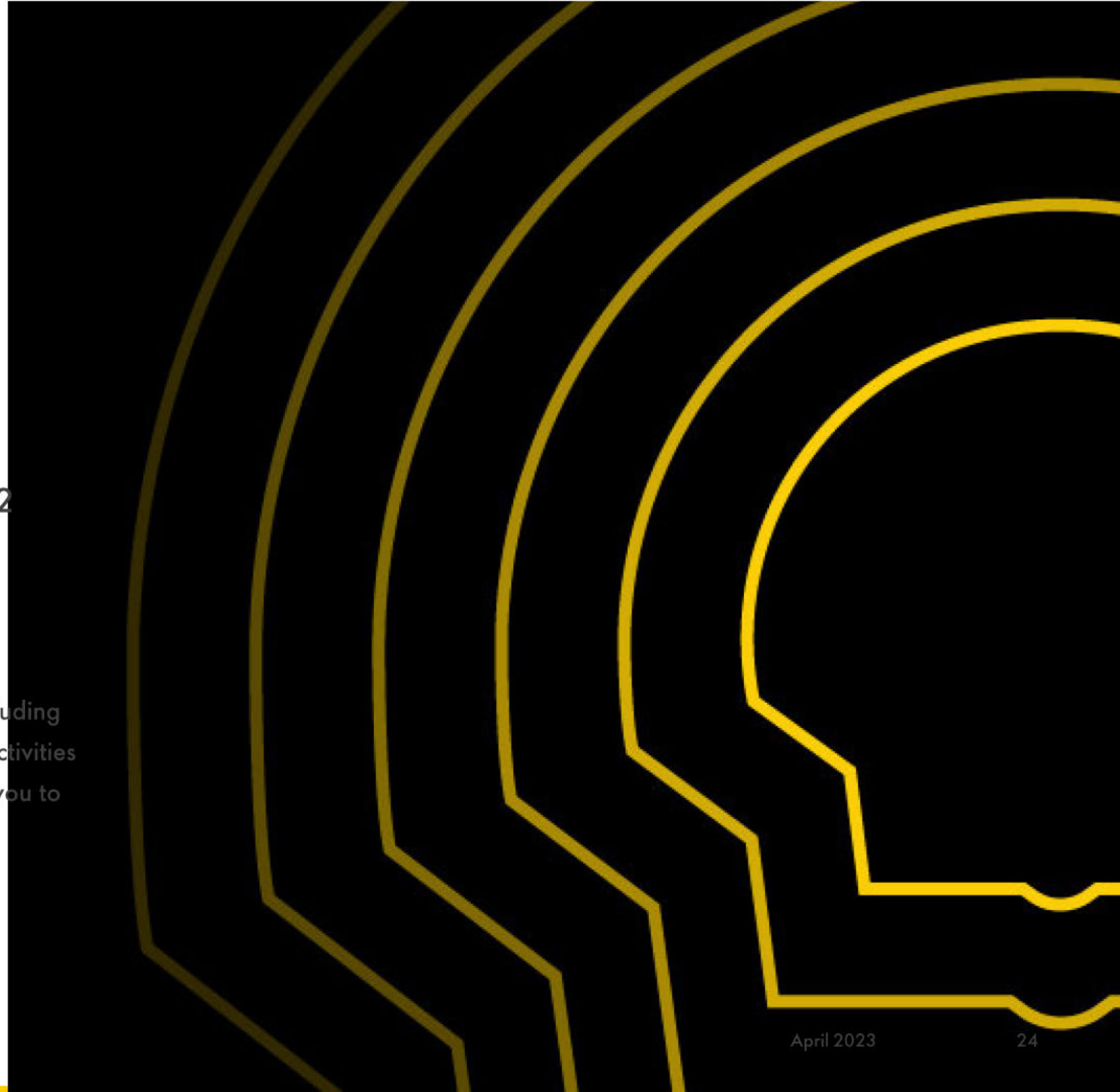
Q&A

CONTACT US Community Hotline: 1800 059 152

Email: SDA-crux-project@shell.com

www.shell.com.au/crux

Shell welcomes any feedback on Environment Plan submissions, including requests for further information. If you have functions, interests or activities that may be affected by any of our projects, Shell Australia invites you to get in touch.



Appendix A - 6.00 Crux Animation Video

Crux Animation

https://creativehub.shell.com/m/61f586aae5cb405e/original/Crux-Stakeholder-Engagement-2023-05-10.mp4

Appendix A - 6.01 Crux Animation Transcript

The Crux Project is located 190km off the north-west coast of Western Australia, in waters of around 165m deep. It will provide continued supply of gas to the existing Prelude Floating Liquefied Natural Gas (FLNG) facility, approximately 160km southwest of the Crux field. The Crux Project forms an important part of Shell Australia's natural gas portfolio, and is being progressed with our joint venture partner, SGH Energy.

The project features a Not Normally Manned platform with five production wells, minimal processing facilities and utility systems. The platform will be operated remotely from the existing Prelude FLNG facility, requiring only periodic maintenance visits, significantly reducing the operational safety exposure to staff. A 26" export pipeline will connect the Crux Project to Prelude along the seabed approximately 160km long away. The pipeline route is relatively straight, and there are no seabed obstructions. The Prelude Floating LNG facility is 488mm long and 74m wide and is designed to remain moored in the field for at least 25 years. The facility extracts, liquefies, and stores natural gas at sea, before it is transferred and shipped to customers.

Development of Crux begins with drilling of the five wells. A subsea template structure provides a guide for the drill bit, with eight slots to allow for contingency. The wells will be drilled by a Mobile Offshore Drilling Unit, then suspended ready for completion after the platform and substructure have been installed.

The 26" rigid, concrete-clad export pipeline will be laid by a specialised pipelay vessel along a seabed corridor in water depths from 170m - 280m. A pipeline termination structure will be installed at each end, allowing for tie-in operations to be completed afterwards. The substructure will be brought to site, then landed over the guideposts on the drilling template. 12 anchor piles will be driven through the foundation to hold it in place. The topside facility will then be brought in and lowered onto the substructure. Subsea tie-in activities will then connect the platform to the export pipeline and to Prelude FLNG.

All systems will then be commissioned and safety-tested before production begins. At peak capacity the Crux Project is expected to provide approximately 2.9 million tonnes per annum of natural gas.

Before Shell commences substantial work on major projects or existing facilities, the regulatory, environmental, and social impacts are assessed, alongside commercial and technical considerations. As part of the Crux development, Shell will be preparing environmental approvals for submission to NOPSEMA. These Environmental plans outline the potential impacts and risks of an activity and how they will be managed.

Shell is consulting with relevant community members who have functions, interests or activities that may be affected, which is an important part of these approvals.

For more information on these plans please visit shell.com.au/crux

Shell has been operating in Australia since 1901. In this time, the needs of our customers and the nation have changed. Today, Shell Australia has an integrated energy solutions portfolio which includes gas production and liquefaction businesses, and Shell has been investing in renewable power and energy solutions to create a low- and zero-carbon energy business in Australia.

The Crux Project is a key part of Shell's current and future energy goals, helping to meet the growing demand for LNG. It aligns with Shell's "Powering Progress" strategy by helping customers switch to liquefied natural gas (LNG) as an alternative to more carbon intensive forms of fuel such as coal. Natural gas emits around half the greenhouse gas than coal does when used to generate electricity and less than one-tenth of the air pollutants.

To Whom It May Concern,

Shell Australia would like to invite you to attend our upcoming forums in April and May 2023, to talk about Shell Australia's Crux project. **Due to the easter public holidays, registrations to our upcoming forums have been extended.** The location of the Shell forums will be subject to a majority vote by the conference participants invited to the Shell forums.

If you are interested in attending our Shell forums, please ensure you complete the attached registration form **by Friday 14th April, at 5pm (AWST)** and email your form to SDA-crux-project@shell.com. Shell will provide travel and accommodation support for your representative to attend.

The options we have provided in the attached registration form will also ensure all forum participants have an opportunity to tell us how, where and when they want to be consulted.

This event will be restricted to a maximum of 120 Indigenous people and organisations, due to venue capacity.

The forums will be held on the following dates:

Forum 1
Date: Wednesday 19 April 2023
Time: 8:15am Arrival (For an 8:30am start)
Location: Subject to majority vote
About this Forum: Forum 1 is an introduction to our Shell leaders who will provide an update on Shell's National Indigenous Affairs, Prelude and Crux projects and environmental approvals related to the Crux project which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Forum 2
Date: Wednesday 10 May 2023
Time: 8:15am Arrival (For an 8:30am start)
Location: Subject to majority vote
About this Forum: Forum 2 will provide all attendees with the opportunity to provide feedback and raise any concerns that your community has raised in response to Shell's forum 1 on the Crux project. The sessions in forum 2 will be in smaller groups, that will include a Shell leader, and an environmental or cultural heritage expert, to listen to your concerns and answer questions.

If you have any other enquiries not identified in the attached registration form, please email SDA-crux-project@shell.com.

Yours faithfully,
[info redacted]

Appendix A – 7.00 Indigenous relevant persons consultation material

Appendix A - 7.01 Initial email invitation – March/April

REGISTRATION INSTRUCTIONS

Shell Australia is extending invitations to relevant persons and organisations, to attend our upcoming forums on 19 April and 10 May 2023 to talk to us about our Crux Project.

You have an opportunity to nominate one person to represent your Organization, Native Title Determination Group, Native Title Holders, Native Title Claimants, or Individual/s Family Groups, at the Shell forums.

- All Shell forum participants will be provided with travel and accommodation support.
- All Shell forum participants will have an opportunity to vote on the location of the forum.
- Due to the venue capacity, the forums will be restricted to a maximum of 120 participants.
- To register for the Shell forums, please complete this form by Friday 7th April 2023, 5pm (AWST) and return your form to SDA-crux-project@shell.com.

Appendix A - 7.02 Survey issued for Indigenous Forums (attached to email)

NOMINATE YOUR REPRESENTATIVE
Please provide contact details for your nominated representative.

1. PERSONAL DETAILS
p Click here to enter text
PHONE OR MOBILE: Click here to enter your number
EMAIL: Click here to enter your email address
ADDRESS: Click here to your address
STATE: Click here to enter a State
POSTCODE: Click here to enter your postcode

2. ORGANISATION (only complete this section if it applies to you)
ORGANISATION NAME: Click here to enter your organisation name
POSITION: Click here to enter position details

3. NATIVE TITLE GROUP/NATIVE TITLE HOLDERS/NATIVE TITLE CLAIMANTS
If relevant, please tell us which native title group, native title holders, or native title claimant, which you will be representing at the Shell forums? Click here to enter your response

4. PLEASE TELL US HOW AND WHERE YOU WOULD LIKE FORUM 1 AND FORUM 2 DELIVERED, BY TICKING AN OPTION BELOW.

FORUM 1 (19 APRIL) OPTIONS
☐ **Option 1** PERTH WA (Shell will provide your nominated representative with travel and accommodation support to attend a forum in Perth)

☐ **Option 2** BROOME WA (Shell will only provide travel/accommodation support to participants not living in Broome WA)

☐ **Option 3** Drop-in Session in Broome ➥ Broome Civic Centre, Monday 27 April

☐ **Option 4** Not available for several months due to cultural commitments

☐ **Option 5** Not available but interested in providing feedback at forum 2 in May.

FORUM 2 (10 MAY) OPTIONS
☐ **Option 1** BROOME WA (Shell will only provide travel/accommodation support to participants not living in Broome WA)

☐ **Option 2** Not available for several months due to cultural commitments

☐ **Option 3** Not available in May but interested in providing feedback at a later date. (Please email SDA-crux-project@shell.com when you're ready to provide feedback)

5. CATERING ➥ DIETARY REQUIREMENTS

For catering purposes, please tell us if you have any special dietary requirements or food allergies? Click here to enter your dietary requirements

6. CONTACT US

Shell Australia welcomes any other suggestions, or feedback on how and where you would like to be consulted.

Click here to enter your response.

7. OTHER OPTIONS

If you didn't select an option from one of the forum locations that we provided to you in Section 4, then as an alternative, you can also select from one of the options below:

☐ **Option 1** On-Country Consultation (Please note this will include Shell leadership and Indigenous Affairs, Environmental and Cultural Heritage experts)
☐ **Option 2** Not interested

8. FILMING CONSENT

We are intending to film the presentations delivered by our Shell leaders at forum 1. The film will be emailed to all nominated representatives who attended the forum to share with your organization, community, or extended family groups.

You may appear in this film, so we are requesting your consent, noting:

The breakout sessions planned for forum 1, will not be filmed.

The filming of forum 1 will not be used for any online media, YouTube, LinkedIn, Facebook, Twitter or Instagram promotions.

☐ I provide consent to be filmed.
☐ I prefer not to be filmed and would like to be seated out of view of the Camera Operator.

Appendix A - 7.03 Presentation – Indigenous Forum 1 in Perth

Shell Australia – Indigenous Forum

Wednesday 19 April 2023

Definitions & cautionary note

Cautionary Note

The companies in which Shell plc directly and indirectly owns investments are separate legal entities. In this presentation "Shell", "Shell Group" and "Group" are sometimes used for convenience where references are made to Shell plc and its subsidiaries in general. Likewise, the words "we", "us" and "our" are also used to refer to Shell plc and its subsidiaries in general or to those who work for them. These terms are also used where no useful purpose is served by identifying the particular entity or entities. ''Subsidiaries'', "Shell subsidiaries" and "Shell companies" as used in this presentation refer to entities over which Shell plc either directly or indirectly has control. Entities and unincorporated arrangements over which Shell has joint control are generally referred to as "joint ventures" and "joint operations", respectively. "Joint ventures" and "joint operations" are collectively referred to as "joint arrangements". Entities over which Shell has significant influence but neither control nor joint control are referred to as "associates". The term "Shell interest" is used for convenience to indicate the direct and/or indirect ownership interest held by Shell in an entity or unincorporated joint arrangement, after exclusion of all third-party interest.

Forward-Looking Statements

This presentation contains forward-looking statements (within the meaning of the U.S. Private Securities Litigation Reform Act of 1995) concerning the financial condition, results of operations and businesses of Shell. All statements other than statements of historical fact are, or may be deemed to be, forward-looking statements. Forward-looking statements are statements of future expectations that are based on management's current expectations and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in these statements. Forward-looking statements include, among other things, statements concerning the potential exposure of Shell to market risks and statements expressing management's expectations, beliefs, estimates, forecasts, projections and assumptions. These forward-looking statements are identified by their use of terms and phrases such as "aim", "ambition", ''anticipate'', ''believe'', ''could'', ''estimate'', ''expect'', ''goals'', ''intend'', ''may'', "milestones", ''objectives'', ''outlook'', ''plan'', ''probably'', ''project'', ''risks'', "schedule", ''seek'', ''should'', ''target'', ''will'' and similar terms and phrases. There are a number of factors that could affect the future operations of Shell and could cause those results to differ materially from those expressed in the forward-looking statements included in this **[report]**, including (without limitation): (a) price fluctuations in crude oil and natural gas; (b) changes in demand for Shell's products; (c) currency fluctuations; (d) drilling and production results; (e) reserves estimates; (f) loss of market share and industry competition; (g) environmental and physical risks; (h) risks associated with the identification of suitable potential acquisition properties and targets, and successful negotiation and completion of such transactions; (i) the risk of doing business in developing countries and countries subject to international sanctions; (j) legislative, judicial, fiscal and regulatory developments including regulatory measures addressing climate change; (k) economic and financial market conditions in various countries and regions; (l) political risks, including the risks of expropriation and renegotiation of the terms of contracts with governmental entities, delays or advancements in the approval of projects and delays in the reimbursement for shared costs; (m) risks associated with the impact of pandemics, such as the COVID-19 (coronavirus) outbreak; and (n) changes in trading conditions. No assurance is provided that future dividend payments will match or exceed previous dividend payments. All forward-looking statements contained in this presentation are expressly qualified in their entirety by the cautionary statements contained or referred to in this section. Readers should not place undue reliance on forward-looking statements. Additional risk factors that may affect future results are contained in Shell plc's Form 20-F for the year ended December 31, 2021 (available at www.shell.com/investor and www.sec.gov). These risk factors also expressly qualify all forward-looking statements contained in this **[report]** and should be considered by the reader. Each forward-looking statement speaks only as of the date of this presentation, 27 April 2023. Neither Shell plc nor any of its subsidiaries undertake any obligation to publicly update or revise any forward-looking statement as a result of new information, future events or other information. In light of these risks, results could differ materially from those stated, implied or inferred from the forward-looking statements contained in this presentation.

Shell's net carbon footprint

Also, in this presentation we may refer to Shell's "Net Carbon Footprint" or "Net Carbon Intensity", which include Shell's carbon emissions from the production of our energy products, our suppliers' carbon emissions in supplying energy for that production and our customers' carbon emissions associated with their use of the energy products we sell. Shell only controls its own emissions. The use of the term Shell's "Net Carbon Footprint" or "Net Carbon Intensity" are for convenience only and not intended to suggest these emissions are those of Shell plc or its subsidiaries.

Shell's net-Zero Emissions Target

Shell's operating plan, outlook and budgets are forecasted for a ten-year period and are updated every year. They reflect the current economic environment and what we can reasonably expect to see over the next ten years. Accordingly, they reflect our Scope 1, Scope 2 and Net Carbon Footprint (NCF) targets over the next ten years. However, Shell's operating plans cannot reflect our 2050 net-zero emissions target and 2035 NCF target, as these targets are currently outside our planning period. In the future, as society moves towards net-zero emissions, we expect Shell's operating plans to reflect this movement. However, if society is not net zero in 2050, as of today, there would be significant risk that Shell may not meet this target.

Forward Looking Non-GAAP measures

This presentation may contain certain forward-looking non-GAAP measures such as **[cash capital expenditure]** and **[divestments]**. We are unable to provide a reconciliation of these forward-looking Non-GAAP measures to the most comparable GAAP financial measures because certain information needed to reconcile those Non-GAAP measures to the most comparable GAAP financial measures is dependent on future events some of which are outside the control of Shell, such as oil and gas prices, interest rates and exchange rates. Moreover, estimating such GAAP measures with the required precision necessary to provide a meaningful reconciliation is extremely difficult and could not be accomplished without unreasonable effort. Non-GAAP measures in respect of future periods which cannot be reconciled to the most comparable GAAP financial measure are calculated in a manner which is consistent with the accounting policies applied in Shell plc's consolidated financial statements.

The contents of websites referred to in this presentation do not form part of this presentation.

We may have used certain terms, such as resources, in this presentation that the United States Securities and Exchange Commission (SEC) strictly prohibits us from including in our filings with the SEC. Investors are urged to consider closely the disclosure in our Form 20-F, File No 1-32575, available on the SEC website at www.sec.gov.

Shell Australia's Footprint

SHELL OPERATED

Crux	82%
Gangarri	100%
Prelude	67.5%
QGC	75%

WHOLLY OWNED SUBSIDIARIES

Powershop	100%
Select Carbon	100%
Shell Energy Australia	100%
sonnen	100%

NON-OPERATED

Arrow	50%
Browse	27%
ESCO Pacific	49%
Gorgon	25%
Kondinin Energy	50%
North West Shelf	16.67%
WestWind	49%

Why are we here today?

As part of the Environment Plan approvals process, Shell is undertaking consultation with relevant persons who may be impacted by the activities we are proposing in relation to the development of the Crux project.

We are consulting on four Environment Plans:

1. Seabed Survey Environment Plan
2. Drilling Template Environment Plan
3. Development Drilling Environment Plan
4. Crux Installation and Cold Commissioning Environment Plan

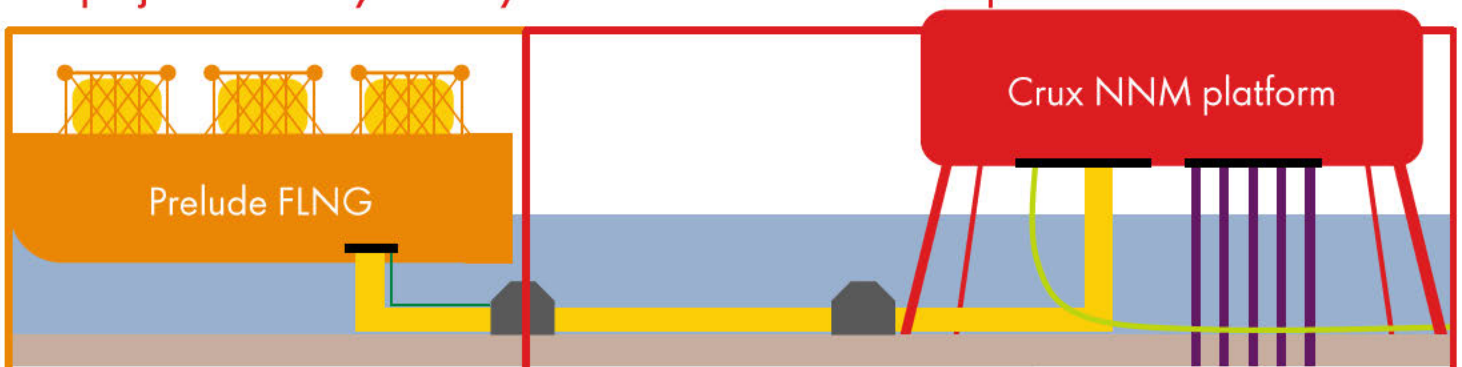
Prelude – Overview

- Prelude is a Floating Liquefied Natural Gas (FLNG) project located 475km north-northeast of Broome, Western Australia, in the Browse Basin.
- The Prelude FLNG facility is moored over the Prelude gas field in 250m water depth and more than 200km from the coastline.
- Prelude produces LNG, LPG and condensate.
- Prelude has an onshore supply base in Darwin.
- The Prelude FLNG facility is operated by Shell Australia in joint venture with Inpex, OPIC and Kogas.
- The Prelude Joint Venture has executed agreements to allow for processing of Crux hydrocarbons, which are expected to commence in 2027.

Prelude and Crux

Crux will leverage Prelude FLNG's existing infrastructure to its fullest extent to maximise capital efficiency and deliverability

Crux project boundary and key infrastructure under development



Prelude infrastructure

- Riser, umbilical, and receiver
- Pipeline termination point and subsea isolation valve

Prelude participants

Shell	67.5% (Operator)
INPEX	17.5%
KOGAS	10%
CPC Corporation, Taiwan	5%

Crux infrastructure

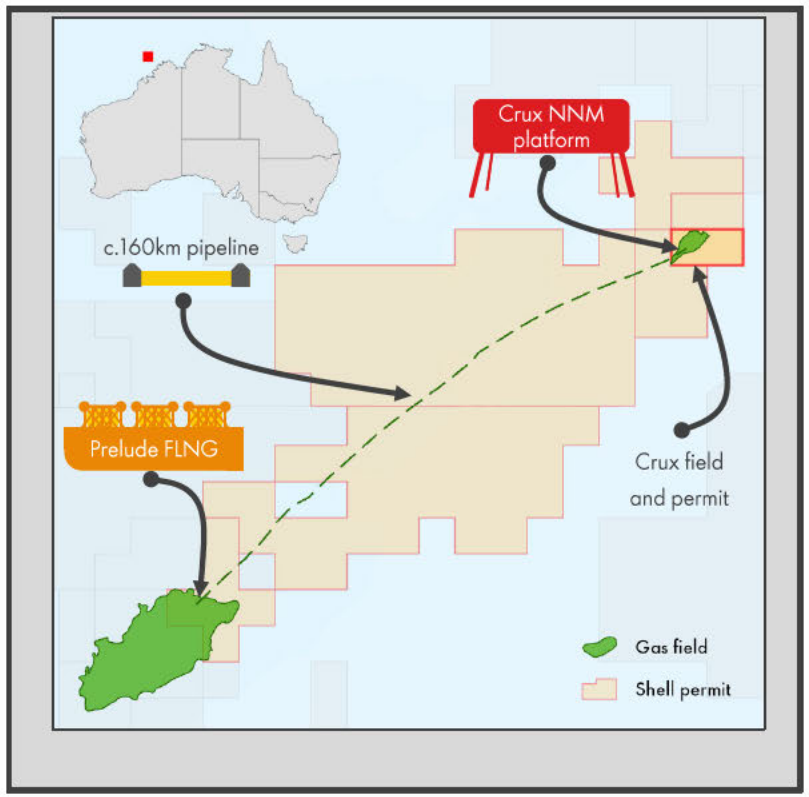
- 5x dry tree wells
- Pipeline termination point and subsea isolation valve
- Riser and fibre optic cable
- c.160km pipeline

Crux participants

Shell	SGH | Energy
84.5% (Operator)	15.5%

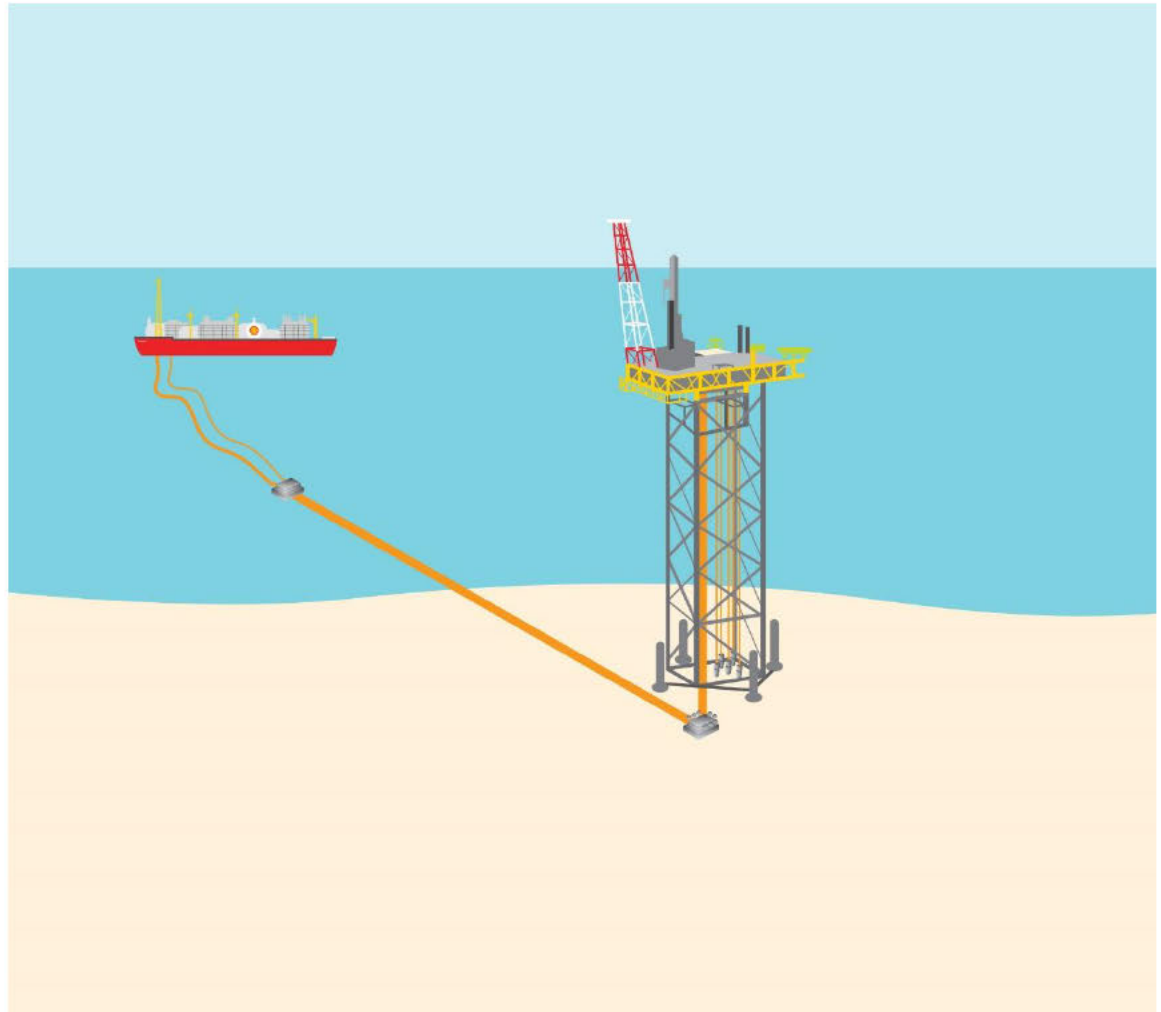
- Crux platform topsides and substructure

Crux field overview



Crux update

- In May 2022, Shell Australia and SGH Energy took final investment decision to approve the development of Crux.
- The project is an important longer term backfill opportunity for the existing Prelude FLNG facilities. The proposed concept is an unmanned platform with minimal facilities, remotely operated from the Prelude FLNG.
- The project aligns with Shell's strategy and forms an important part of Shell's gas portfolio and will help meet the needs of gas users as the energy market transitions to a lower carbon future, noting the expected increasing demand for natural gas, renewables, low and zero carbon technologies, and the criticality of security in energy supply.
- The natural gas from Crux and Prelude will be a key part of how we help move Asian customers from coal to gas as a cleaner burning fuel.



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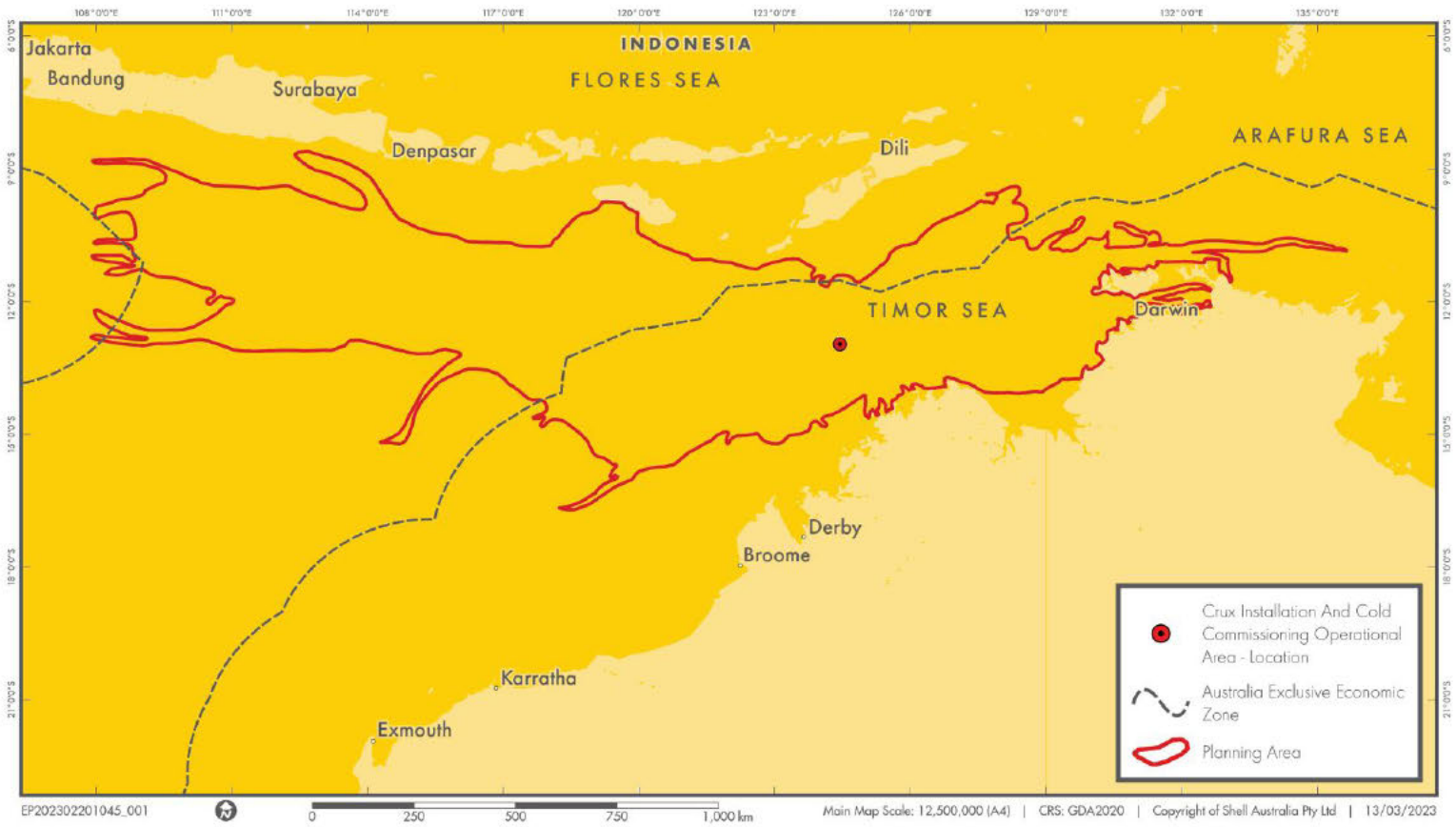
3. Development Drilling Environment Plan
4. Crux Installation and Cold Commissioning Environment Plan

Crux Environment Plans

To help frame how Shell describes impacts and risk EPs can be broken into planned impacts and unplanned risks/potential impacts.



Planned impacts include activities that result in physical impact to the environment, i.e:

- Disturbances to the seabed.
- Drilling Fluid Discharges.
- Noise generated from construction activities.

These planned impacts will occur within close proximity to the operational area.

Unplanned risks include events that may occur as a result of an incident i.e:

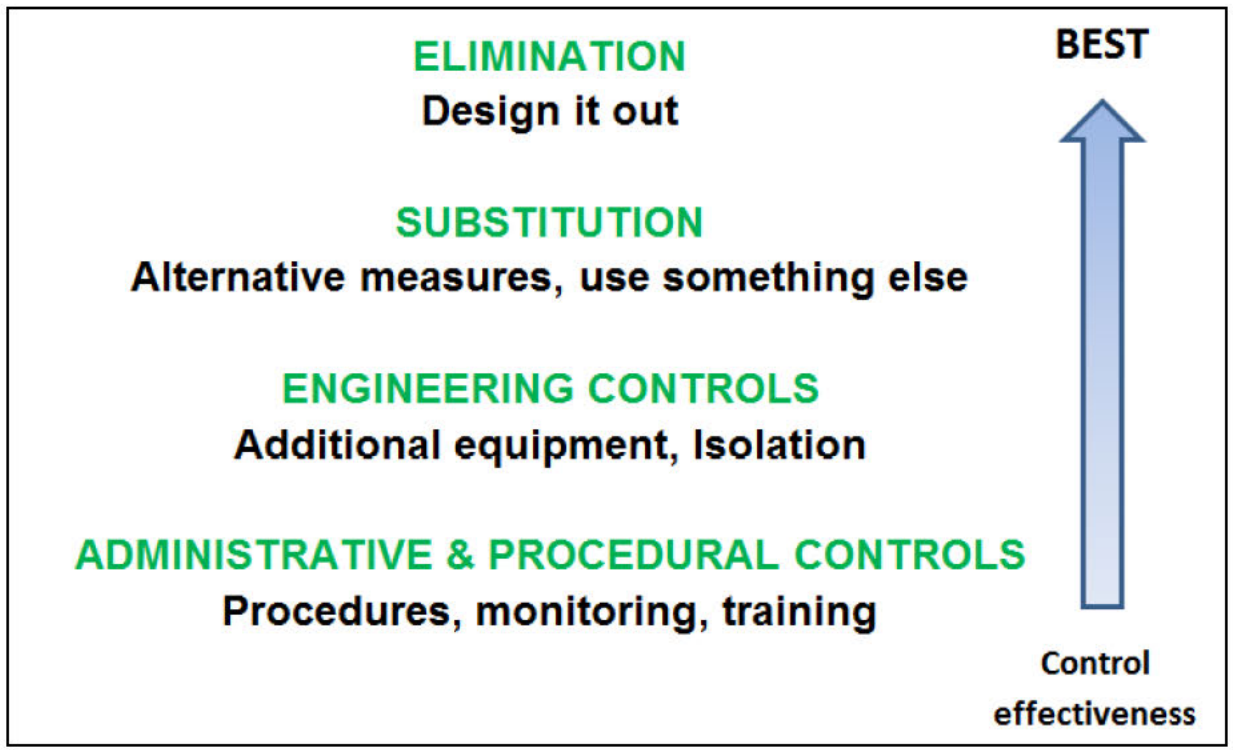
- Release of Diesel as a result of a vessel collision.
- Release of hydrocarbons as a result of loss of well control.

These unplanned events are very rear however are necessary to described to ensure adequate controls are adopted – these unplanned events define the **Planning Area**.

Each EP describes the controls that are adopted to mitigate both the planned impacts and unplanned risks to as low and reasonably practicable.

Crux Environment Plans

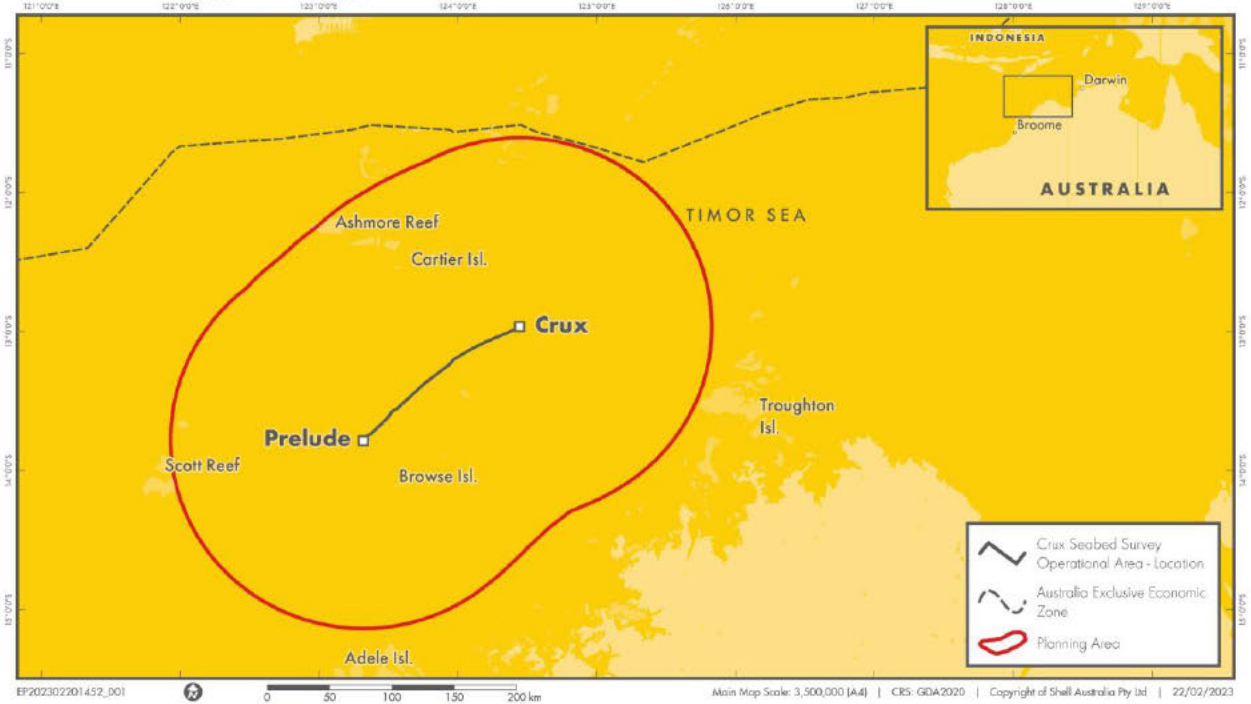
Hierarchy of controls – Impact/Risk reduction.

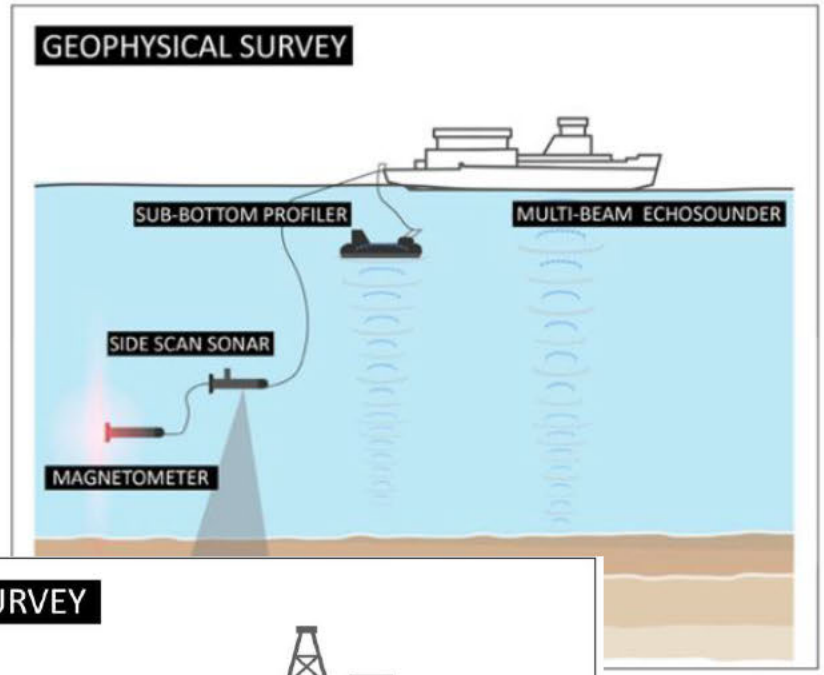


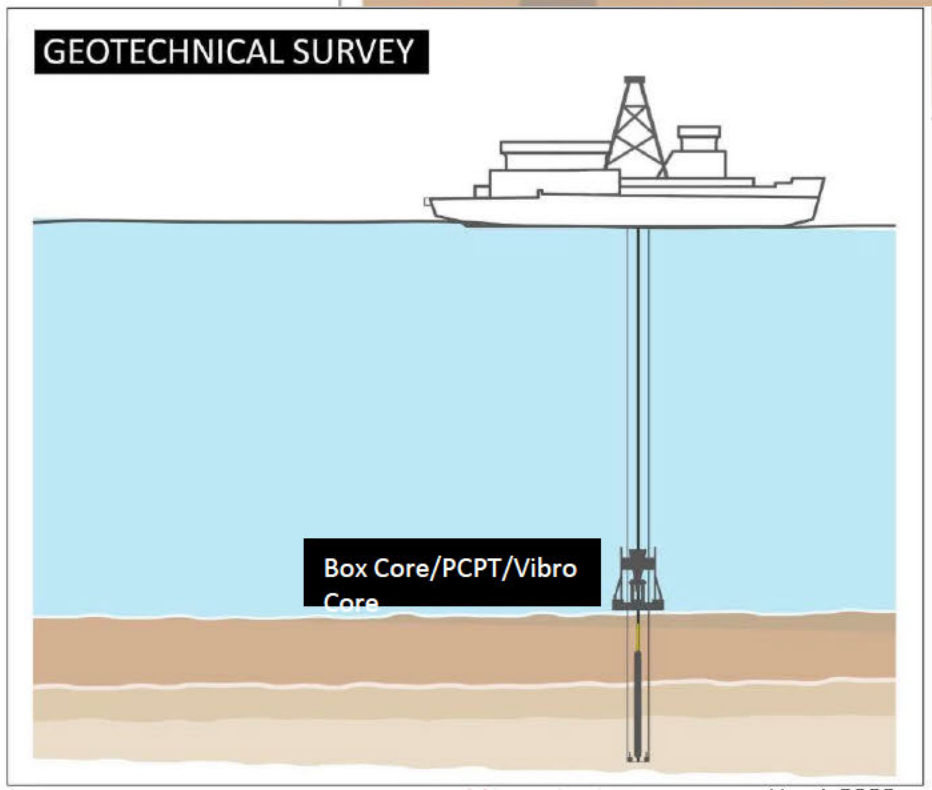
Shell applies a hierarchy of control process to establish controls which mitigate environmental impacts and risk.

1. Crux Seabed Survey Environment Plan

Investigating the seabed and sub-seabed conditions







Activity: Shell is planning to carry out a survey of the pipeline route and terminals connecting the Crux and Prelude facilities.

A vessel will traverse the pipeline route, towing survey equipment and deploying coring equipment.

Duration: <5 days

Timing: 1 May – 31 December 2023*

1.(cont.) Crux Seabed Survey Environment Plan

Investigating the seabed and sub-seabed conditions

Aspect	Proposed control
Planned	
Physical Presence, vessel movements and seabed disturbance	▪ Implementation of national and international regulations and conventions for collision prevention, safety and navigation at sea ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area ▪ Environmental Protection and Biodiversity Conservation Regulations (2000) (EPBC Regulations), Part 8.1 – Interacting with cetaceans ▪ Australian Hydrographic Office Notice to Mariners
Lighting	▪ External lighting on vessels minimised to that required for navigation, safety of deck operations and security considerations
Noise	▪ Apply EPBC policy statement 2.1 – Part B (seismic survey guidelines) to geophysical survey activities as applicable to the scope. This is planned to be applied using trained crew members. ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area ▪ EPBC Regulations Part 8.1 – Interacting with cetaceans ▪ Marine fauna observations
Discharge of Liquid Effluent	▪ Comply with relevant requirements of the International Convention for the Prevention of Pollution from Ships (MARPOL) and associated regulations ▪ Chemical Management Process for chemical assessment and selection
Atmospheric Emissions	▪ Comply with relevant requirements of the International Convention for the Prevention of Pollution from Ships (MARPOL) and associated regulations. ▪ Relevant vessels to have a valid International Air Pollution Prevention Certificate ▪ Use of low sulphur fuel when possible
Greenhouse Gas Emissions	▪ Comply with International Convention for the Prevention of Pollution from Ships (MARPOL) requirements and associated regulations ▪ Comply with the National Greenhouse and Energy Reporting Act (2007) and National Greenhouse and Energy Reporting Regulations (2008)
Waste Management	▪ Discharge of waste from vessels will comply with relevant International Convention for the Prevention of Pollution from Ships (MARPOL) requirements and associated regulations ▪ Waste management procedures ▪ Waste tracking process ▪ The management and disposal of any quarantine risk material will be in accordance with state and commonwealth regulations

Key aspect and control:

Noise

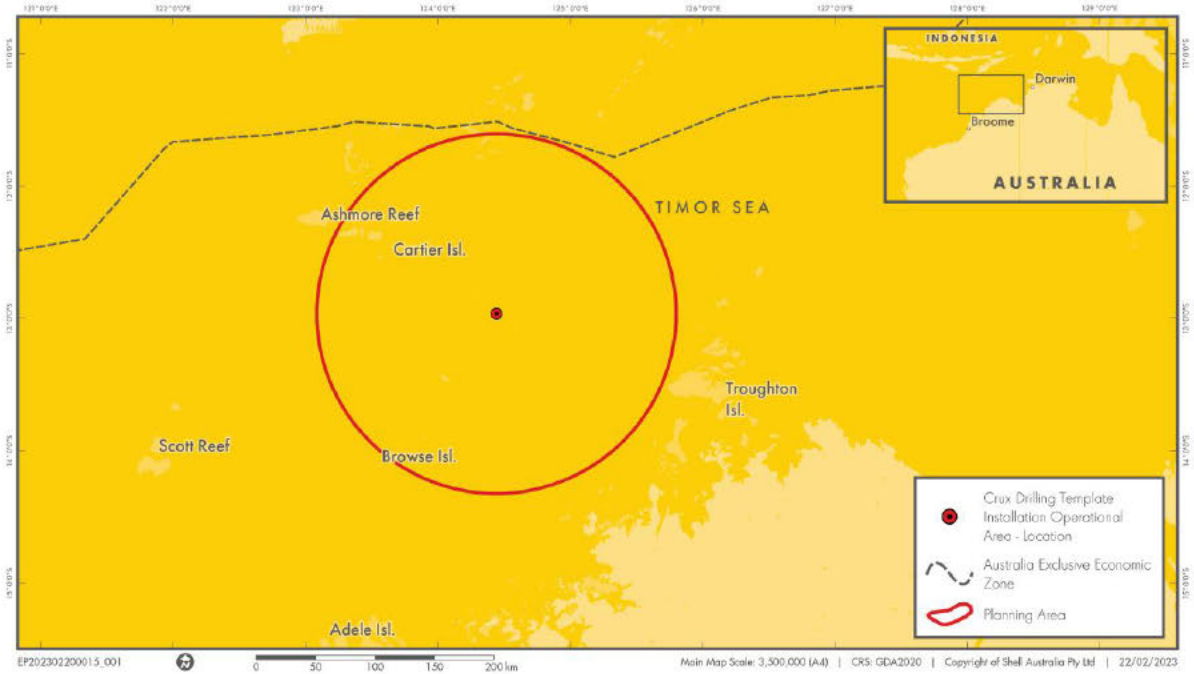
The geophysical survey equipment emits impulsive noise which can affect marine fauna if in proximity.

Key control: Pre Start-Up Visual Observations

- Pre-start visual observations out to 3 km for 30 minutes.
- If a whale or turtle is observed during the pre- start observations, delay start up for 30 minutes.
- If no whales or turtles are observed, activate acoustic equipment (soft start is not possible on the MBES, SSS or SBP, nor is it possible for the shallow seismic source

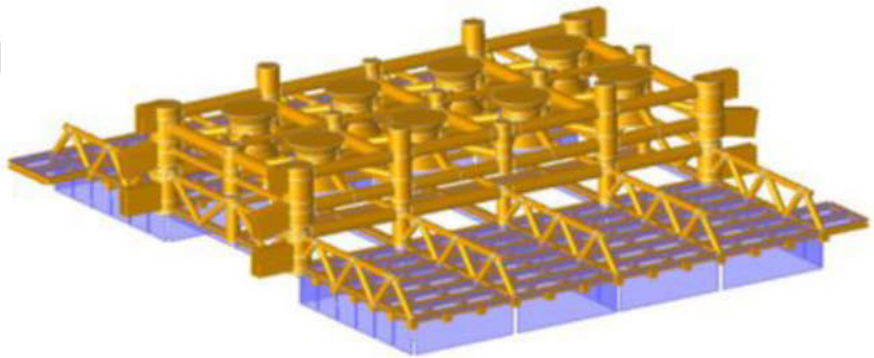
2. Crux Drilling Template Installation Environment Plan

A template which will act as a guide for the drill bit during drilling operations



Activity: Shell is planning to lower a fabricated steel structure onto the seabed, which will assist with orienting and locating the drilling activities and the installation of the Crux jacket.

Dimensions: 19m length, 14m width, 4m high and covers a seabed footprint of 266m2. It weights 200 tonnes



Duration: <7 days **Timing:** 1 September 2023 – 1 April 2024*

2.(cont.) Crux Drilling Template Installation Environment Plan

A template which will act as a guide for the drill bit during drilling operations

Aspect	Proposed Controls
Planned	
Physical presence, vessel movements and seabed disturbance	▪ Implementation of national and international regulations and conventions for collision prevention, safety and navigation at sea ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area ▪ Environmental Protection and Biodiversity Conservation Regulations (2000) (EPBC Regulations), Part 8.1 – Interacting with cetaceans ▪ Australian Hydrographic Office Notice to Mariners
Lighting	▪ External lighting on vessels minimised to that required for navigation, safety of deck operations and security considerations
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Waste management	▪ Discharge of waste from vessels will comply with relevant International Convention for the Prevention of Pollution from Ships (MARPOL) requirements and associated regulations ▪ Waste management procedures ▪ Waste tracking process ▪ The management and disposal of any quarantine risk material will be in accordance with state and commonwealth regulations

Key aspect and control

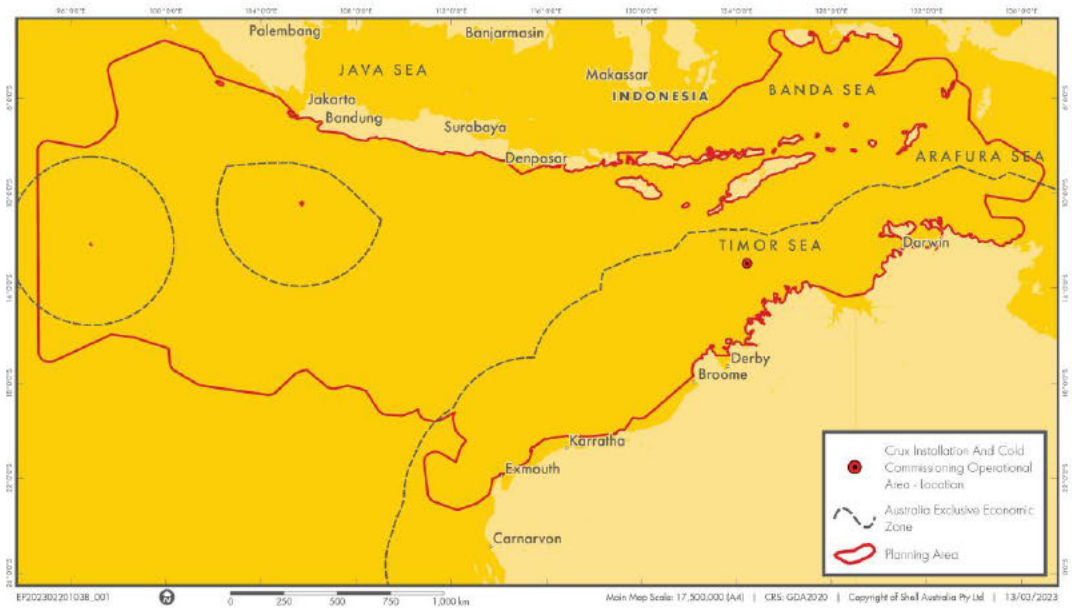
Physical Presence

The drilling template will be left on the seabed for the life of Crux.

Key Controls:

- AHS is given notification in advance to enable a 'Notice to Mariners' to be issued prior to petroleum activities occurring within the operational area
- Relevant Persons consultation – Other marine users will be made aware of the location of the drilling template via Shells consultation process.

3. Crux Development Drilling Environment Plan



Activity: Shell is planning to drill five production wells through a drilling template and suspend them. The suspended wells will be commissioned once the Crux facility has been installed.

Timing:

- Expected Mobile Offshore Drilling Unit Operations start date – end 2023 - early 2024.
- Duration: approximately 10 months, with 10 months contingency.
- Expected temporary well suspension period, approximately 2-3 years.

3. (cont.) Crux Development Drilling Environment Plan

Aspect	Proposed Controls
Planned	
Physical Presence, vessel movements and seabed disturbance	▪ Implementation of national and international regulations and conventions for collision prevention, safety and navigation at sea ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area ▪ Environmental Protection and Biodiversity Conservation Regulations (2000) (EPBC Regulations), Part 8.1 – Interacting with cetaceans ▪ Australian Hydrographic Office Notice to Mariners
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Key aspect and control

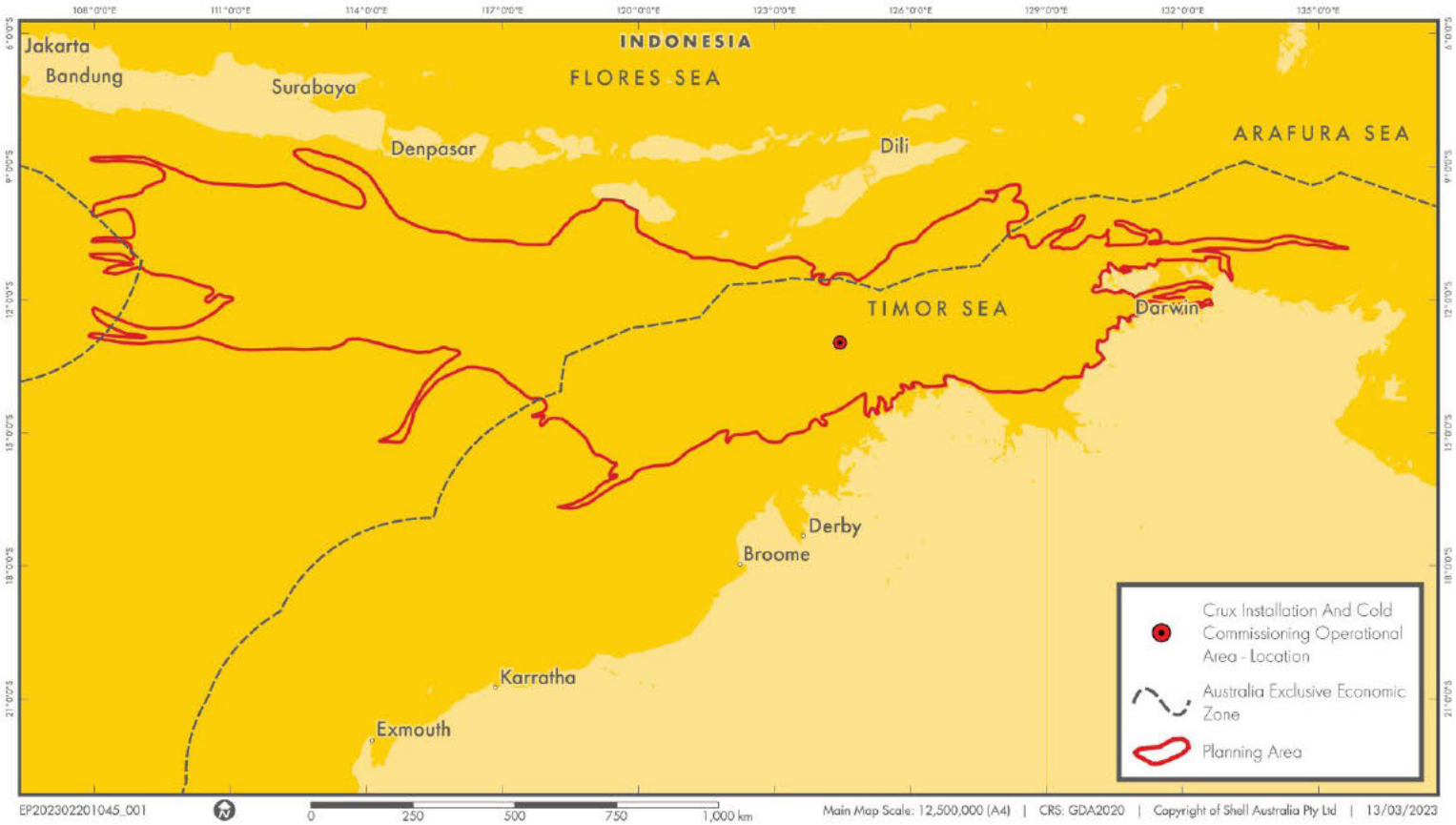
Discharge of liquid effluent (including drilling discharges)

The drilling activity includes discharges of liquids and materials to the marine environment

Key Controls:

- Shell Chemical Management Process:
- Chemicals selected for use in accordance with the Shell Chemical Management Process to minimise potential environmental risks.
- Chemicals that are planned for discharge to sea are substitution warning free and Gold, Silver, D, or E rated through the Offshore Chemical Notification Scheme (OCNS), or are considered to Pose Little or No Risk to the Environment (PLONOR) (listed by the Oil Spill Prevention, Administration and Response (OSPAR) Commission), or have a complete ALARP assessment.

4. Crux Installation and Cold Commissioning Environment Plan



Shell is planning to install the Crux pipeline, substructure and Topsides.

The facility will commence cold commissioning once installation is complete.

Duration: Mid 2024 – Dec 2026
Timing: start mid 2024, pending regulatory approvals.

Dates for the commencement of activities and duration are subject to schedule change

4. (cont.) Crux Installation and Cold Commissioning Environment Plan

Key activities

Crux pipelay

Installation of 26-inch export pipeline (~165 km long) from Prelude to Crux

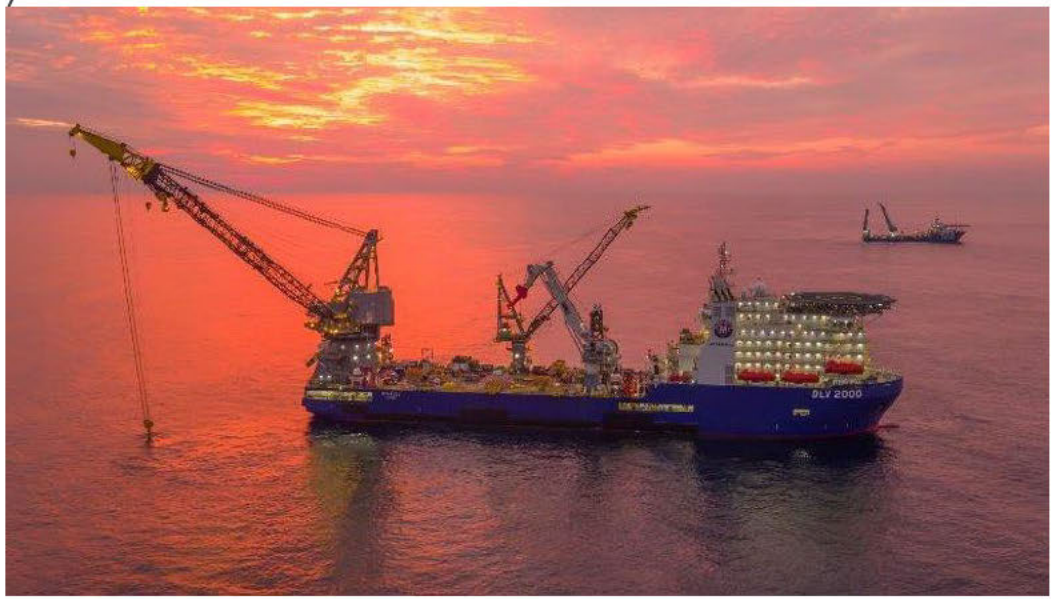
Vessel operations

Pre- and post-lay geophysical surveys

Pipeline hydrotest, preservation and associated discharges

4. (cont.) Crux Installation and Cold Commissioning Environment Plan

Key activities



Substructure Installation

Construction Vessel

DLV2000

Support Vessels

Pile Transport barge, Tugs, Supply Vessel

Jacket Transport & Launch

Transported on Launch Barge + approximately 3 Tugs

Activity includes pile driving and pile drilling

4. (cont.) Crux Installation and Cold Commissioning Environment Plan

Key activities

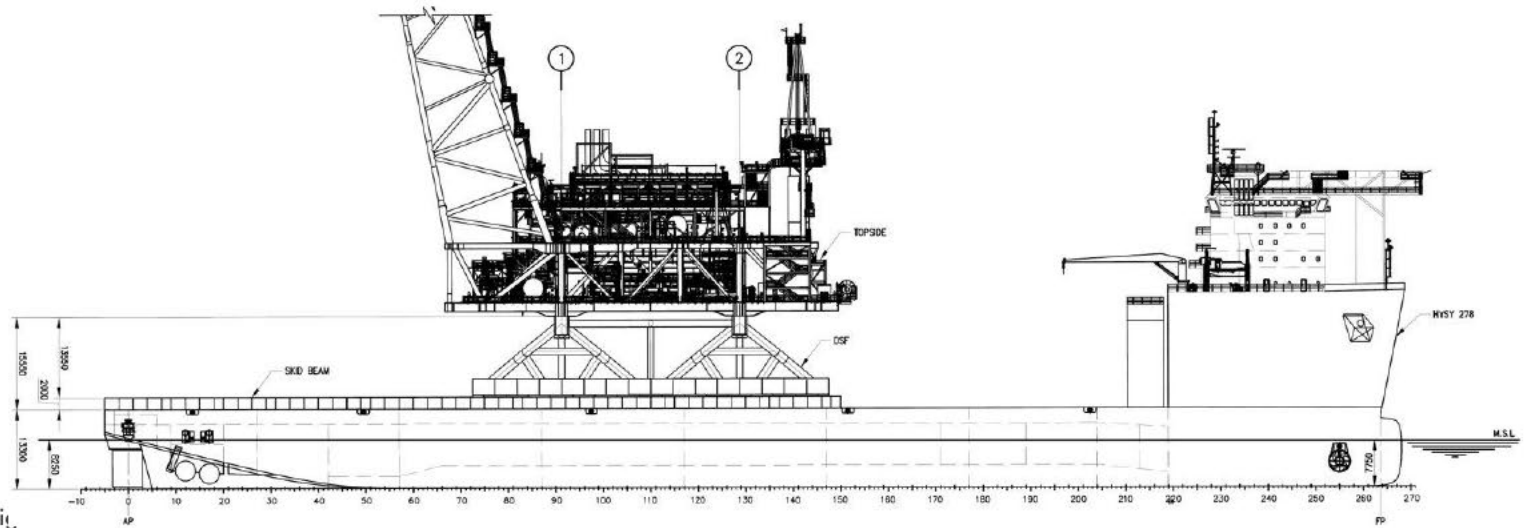
Topsides Installation

Float Over Installation Vessel

HYSY 278 (or similar)

Support Vessels

Tugs/Supply Vessel



4. (cont.) Crux Installation and Cold Commissioning Environment Plan

Aspect	Proposed Controls
Planned	
Physical Presence, vessel movements and seabed disturbance	▪ Implementation of national and international regulations and conventions for collision prevention, safety and navigation at sea ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area ▪ Environmental Protection and Biodiversity Conservation Regulations (2000) (EPBC Regulations), Part 8.1 – Interacting with cetaceans ▪ Australian Hydrographic Office Notice to Mariners
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Noise

Scope include multiple vessel operations and a piling campaign which results in underwater noise.

Key controls:

During piling operations, start-up and shutdown procedures will be adopted which consider approach by sensitive species and actions taken when species approach.

Vessel interactions with threatened and migratory species to follow the of EPBC Regulations 2000 – Part 8 Division 8.1 (Regulations 8.05 and 8.06). In particular:

Support vessels will not deliberately approach closer than 50 m to a dolphin, turtle or whale shark; 100 m for an adult whale; 300 m for a whale calf; and 150 m for a dolphin calf.

If the whale, dolphin, turtle or whale shark shows signs of being distressed, support vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots.

Crux Environment Plan – Unplanned Events

Unplanned	
Emergency Events – Hydrocarbon Spill	▪ Align with relevant requirements from the International Convention for the Prevention of Pollution from Ships and subsequent regulations ▪ Valid Shipboard Oil Pollution Emergency Plan or Shipboard Marine Pollution Emergency Plan (as appropriate for vessel classification) ▪ Implementation of national and international regulations and conventions for collision prevention, safety and navigation at sea ▪ Offshore Vessel Inspection Database (OVID) process ▪ Australian Hydrographic Office Notice to Mariners ▪ NOPSEMA accepted Environment Plan and Oil Pollution Emergency Plan (OPEP) in place ▪ Relevant Persons consultation process ▪ Vessel Maintenance management system
Introduction of Invasive Marine Species from Vessels	▪ Ballast water exchange operations will comply with the international conventions and associated national regulations. ▪ Biofouling management for vessels in accordance with state, national and international biofouling management guidelines ▪ Biofouling management in compliance with state and commonwealth regulations ▪ Vessels (of appropriate class) will have a valid International Anti-Fouling System Certificate ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area

Crux Environment Plans – Additional Information

Additional information is available on the **Shell Crux Website**:

Factsheets on each individual Environment Plan.
Drafts of the Environment Plans, as they become available.

www.shell.com.au/crux

Independent technical environmental assistance:

Shell has engaged several local Environmental Consultancies to provide support to Traditional Owners in the interpretation, guidance and fundamentals of the Crux Environment Plans.
Groups or individuals are encouraged to use these resources directly.
Introductions – Consultants

Q&A

CONTACT US Community Hotline: 1800 059 152 Email: SDA-crux-project@shell.com **www.shell.com.au/crux**

Shell welcomes any feedback on Environment Plan submissions, including requests for further information. If you have functions, interests or activities that may be affected by any of our projects, Shell Australia invites you to get in touch.

Appendix A - 7.04 Presentation – Indigenous Forum 2 in Broome

SHELL CRUX PROJECT
Broome meeting

Welcome & Housekeeping

Exits
Toilets
Facilitators

Acknowledgement of Country

Shell acknowledges Yawuru people as the Traditional Custodians of the land and sea country in and around Broome, since the time before time, and the importance of their connection to land, sea and community.

We pay our respect to Elders past, present and emerging and extend that respect to all Aboriginal and Torres Strait Islander people today.

This is Yawuru Country

WHY ARE WE HERE TODAY?

Overview of why we are here / the day agenda

There will be a bit of info today – no pressure to comment today (but can if you have any questions or comments).

- Desired outcome is that you all walk away understanding who Shell is and our Crux Project.
- How Shell is going to deliver the Crux Project
- How the Crux Project might affect you and your people
- To let Shell know of any concerns you may have about the project that you would like us to take into consideration (today) or at the very least take away what you might need to know to discuss with your community.

Things to cover today

- Who is Shell?
- What is Crux?
- What are the main components of Crux?
  - Seabed survey
  - Drilling template
  - Drilling development
  - Commissioning

- Crux Environmental Plans
- Cultural heritage, marine systems, coastlines, TO access to country – what is Shell doing?

- Options for meeting with Shell – forums, on-Country, use of the Panel, direct and one-on-one.
- Independent Panel – Andrew, Sam, Richard.

Shell Australia – Crux Project Forum
Bruce Lockyer

Wednesday 10 May 2023

Definitions & cautionary note

Cautionary Note

The companies in which Shell plc directly and indirectly owns investments are separate legal entities. In this presentation "Shell", "Shell Group" and "Group" are sometimes used for convenience where references are made to Shell plc and its subsidiaries in general. Likewise, the words "we", "us" and "our" are also used to refer to Shell plc and its subsidiaries in general or to those who work for them. These terms are also used where no useful purpose is served by identifying the particular entity or entities. ''Subsidiaries'', "Shell subsidiaries" and "Shell companies" as used in this presentation refer to entities over which Shell plc either directly or indirectly has control. Entities and unincorporated arrangements over which Shell has joint control are generally referred to as "joint ventures" and "joint operations", respectively. "Joint ventures" and "joint operations" are collectively referred to as "joint arrangements". Entities over which Shell has significant influence but neither control nor joint control are referred to as "associates". The term "Shell interest" is used for convenience to indicate the direct and/or indirect ownership interest held by Shell in an entity or unincorporated joint arrangement, after exclusion of all third-party interest.

Forward-Looking Statements

This presentation contains forward-looking statements (within the meaning of the U.S. Private Securities Litigation Reform Act of 1995) concerning the financial condition, results of operations and businesses of Shell. All statements other than statements of historical fact are, or may be deemed to be, forward-looking statements. Forward-looking statements are statements of future expectations that are based on management's current expectations and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in these statements. Forward-looking statements include, among other things, statements concerning the potential exposure of Shell to market risks and statements expressing management's expectations, beliefs, estimates, forecasts, projections and assumptions. These forward-looking statements are identified by their use of terms and phrases such as "aim", "ambition", ''anticipate'', ''believe'', ''could'', ''estimate'', ''expect'', ''goals'', ''intend'', ''may'', "milestones", ''objectives'', ''outlook'', ''plan'', ''probably'', ''project'', ''risks'', "schedule", ''seek'', ''should'', ''target'', ''will'' and similar terms and phrases. There are a number of factors that could affect the future operations of Shell and could cause those results to differ materially from those expressed in the forward-looking statements included in this **[report]**, including (without limitation): (a) price fluctuations in crude oil and natural gas; (b) changes in demand for Shell's products; (c) currency fluctuations; (d) drilling and production results; (e) reserves estimates; (f) loss of market share and industry competition; (g) environmental and physical risks; (h) risks associated with the identification of suitable potential acquisition properties and targets, and successful negotiation and completion of such transactions; (i) the risk of doing business in developing countries and countries subject to international sanctions; (j) legislative, judicial, fiscal and regulatory developments including regulatory measures addressing climate change; (k) economic and financial market conditions in various countries and regions; (l) political risks, including the risks of expropriation and renegotiation of the terms of contracts with governmental entities, delays or advancements in the approval of projects and delays in the reimbursement for shared costs; (m) risks associated with the impact of pandemics, such as the COVID-19 (coronavirus) outbreak; and (n) changes in trading conditions. No assurance is provided that future dividend payments will match or exceed previous dividend payments. All forward-looking statements contained in this presentation are expressly qualified in their entirety by the cautionary statements contained or referred to in this section. Readers should not place undue reliance on forward-looking statements. Additional risk factors that may affect future results are contained in Shell plc's Form 20-F for the year ended December 31, 2021 (available at www.shell.com/investor and www.sec.gov). These risk factors also expressly qualify all forward-looking statements contained in this **[report]** and should be considered by the reader. Each forward-looking statement speaks only as of the date of this presentation, 27 April 2023. Neither Shell plc nor any of its subsidiaries undertake any obligation to publicly update or revise any forward-looking statement as a result of new information, future events or other information. In light of these risks, results could differ materially from those stated, implied or inferred from the forward-looking statements contained in this presentation.

Shell's net carbon footprint

Also, in this presentation we may refer to Shell's "Net Carbon Footprint" or "Net Carbon Intensity", which include Shell's carbon emissions from the production of our energy products, our suppliers' carbon emissions in supplying energy for that production and our customers' carbon emissions associated with their use of the energy products we sell. Shell only controls its own emissions. The use of the term Shell's "Net Carbon Footprint" or "Net Carbon Intensity" are for convenience only and not intended to suggest these emissions are those of Shell plc or its subsidiaries.

Shell's net-Zero Emissions Target

Shell's operating plan, outlook and budgets are forecasted for a ten-year period and are updated every year. They reflect the current economic environment and what we can reasonably expect to see over the next ten years. Accordingly, they reflect our Scope 1, Scope 2 and Net Carbon Footprint (NCF) targets over the next ten years. However, Shell's operating plans cannot reflect our 2050 net-zero emissions target and 2035 NCF target, as these targets are currently outside our planning period. In the future, as society moves towards net-zero emissions, we expect Shell's operating plans to reflect this movement. However, if society is not net zero in 2050, as of today, there would be significant risk that Shell may not meet this target.

Forward Looking Non-GAAP measures

This presentation may contain certain forward-looking non-GAAP measures such as **[cash capital expenditure]** and **[divestments]**. We are unable to provide a reconciliation of these forward-looking Non-GAAP measures to the most comparable GAAP financial measures because certain information needed to reconcile those Non-GAAP measures to the most comparable GAAP financial measures is dependent on future events some of which are outside the control of Shell, such as oil and gas prices, interest rates and exchange rates. Moreover, estimating such GAAP measures with the required precision necessary to provide a meaningful reconciliation is extremely difficult and could not be accomplished without unreasonable effort. Non-GAAP measures in respect of future periods which cannot be reconciled to the most comparable GAAP financial measure are calculated in a manner which is consistent with the accounting policies applied in Shell plc's consolidated financial statements.

The contents of websites referred to in this presentation do not form part of this presentation.

We may have used certain terms, such as resources, in this presentation that the United States Securities and Exchange Commission (SEC) strictly prohibits us from including in our filings with the SEC. Investors are urged to consider closely the disclosure in our Form 20-F, File No 1-32575, available on the SEC website at www.sec.gov.

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Shell Australia's Footprint

SHELL OPERATED

Crux	82%
Gangarri	100%
Prelude	67.5%
QGC	75%

WHOLLY OWNED SUBSIDIARIES

Powershop	100%
Select Carbon	100%
Shell Energy Australia	100%
sonnen	100%

NON-OPERATED

Arrow	50%
Browse	27%
ESCO Pacific	49%
Gorgon	25%
Kondinin Energy	50%
North West Shelf	16.67%
WestWind	49%

Why are we here today?

As part of the Environment Plan approvals process, Shell is undertaking consultation with relevant persons who may be impacted by the activities we are proposing in relation to the development of the Crux project.

We are consulting on four Environment Plans:

1. Seabed Survey Environment Plan
2. Drilling Template Environment Plan
3. Development Drilling Environment Plan
4. Crux Installation and Cold Commissioning Environment Plan

Prelude – Overview

- Prelude is a Floating Liquefied Natural Gas (FLNG) project located 475km north-northeast of Broome, Western Australia, in the Browse Basin.
- The Prelude FLNG facility is moored over the Prelude gas field in 250m water depth and more than 200km from the coastline.
- Prelude produces LNG, LPG and condensate.
- Prelude has an onshore supply base in Darwin.
- The Prelude FLNG facility is operated by Shell Australia in joint venture with Inpex, OPIC and Kogas.
- The Prelude Joint Venture has executed agreements to allow for processing of Crux hydrocarbons, which are expected to commence in 2027.

Location:
WA-44-L, in Commonwealth marine waters, 475 km north-north east of Broome in Western Australia

Facility Type:
Floating liquefied natural gas (FLNG) facility

Number of wells:
Seven

Production capacity:
3.6 million tonnes per annum (mtpa) LNG, 1.3 mtpa LPG, 1.3mtpa condensate

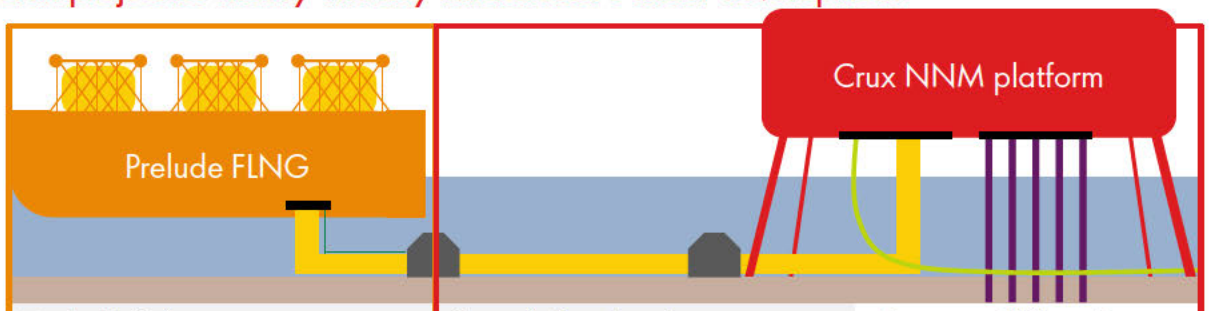
Water depths:
250m

Status:
In operation

Prelude and Crux

Crux will use Prelude FLNG's existing infrastructure to enable maximum efficiency and production

Crux project boundary and key infrastructure under development



Prelude infrastructure

- Riser, umbilical, and receiver
- Pipeline termination point and subsea isolation valve

Prelude participants

- 67.5% (Operator)
- INPEX 17.5%
- KOGAS 10%
- CPC Corporation, Taiwan 5%

Crux infrastructure

- 5x dry tree wells
- Pipeline termination point and subsea isolation valve
- Riser and fibre optic cable
- c.160km pipeline

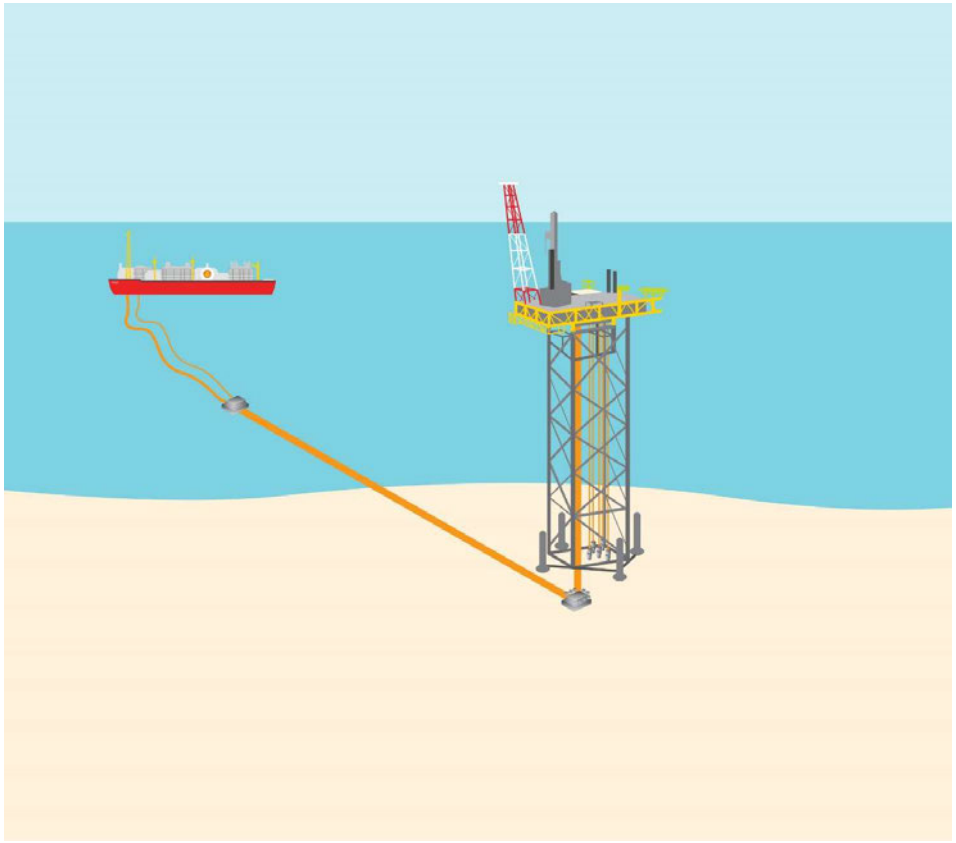
Crux participants

- SGH | Energy

Crux platform topsides and substructure

Crux update

- In May 2022, Shell Australia and SGH Energy took final investment decision to approve the development of Crux.
- The project is an important long term extension to the existing Prelude FLNG facilities. The proposed concept is an unmanned platform with minimal facilities, remotely operated from the Prelude FLNG.
- The project aligns with Shell's strategy and forms an important part of Shell's gas portfolio and will help meet the needs of gas users as the energy market transitions to a lower carbon future.
- The natural gas from Crux and Prelude will be a key part of how we help move Asian customers from coal to gas as a cleaner burning fuel.



Why are we here today?

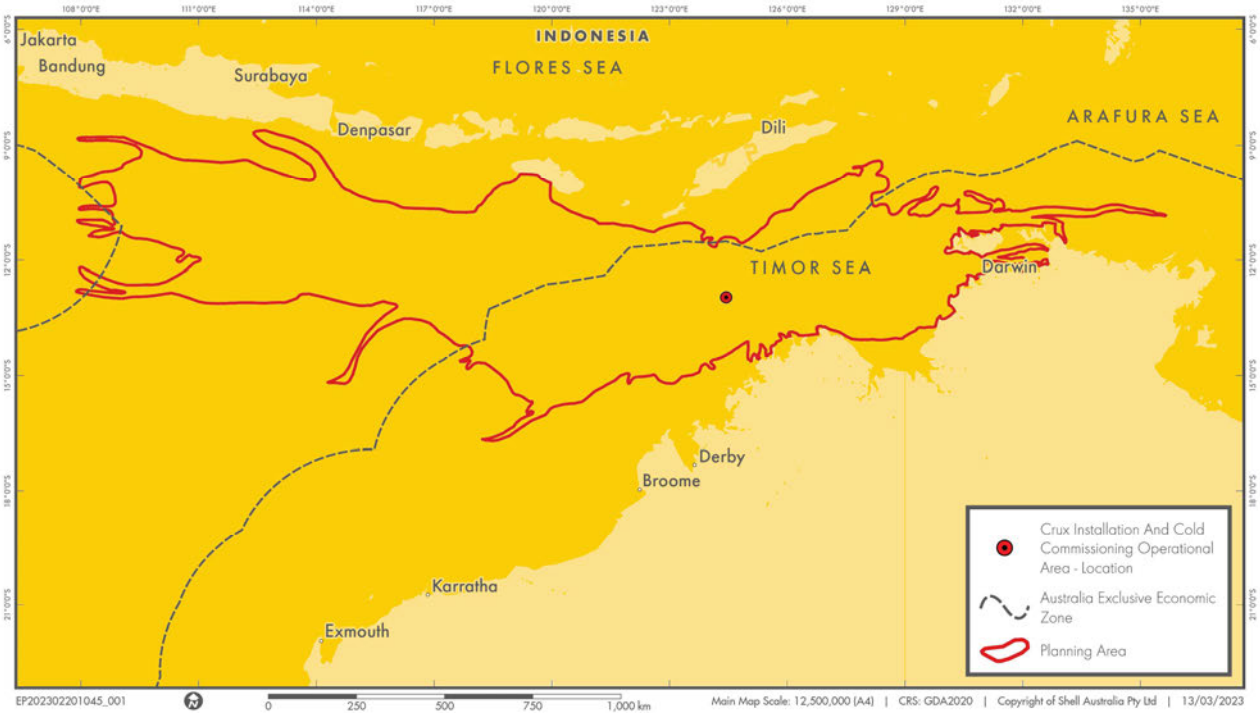
As part of the Environment Plan approvals process, Shell is undertaking consultation with people who ca0 may be impacted by the proposed activities in relation to the development of the Crux project.

There are four Environment Plans:

1. Seabed Survey Environment Plan
2. Drilling Template Environment Plan
3. Development Drilling Environment Plan
4. Crux Installation and Cold Commissioning Environment Plan

Crux Environment Plans

These describe the impacts and risks, both planned and unplanned that may occur



Planned impacts are known activities that result in physical impact to the environment, i.e.:

- Disturbances to the seabed.
- Drilling Fluid Discharges.
- Noise generated from construction activities.

These planned impacts will occur within close proximity to the operational area.

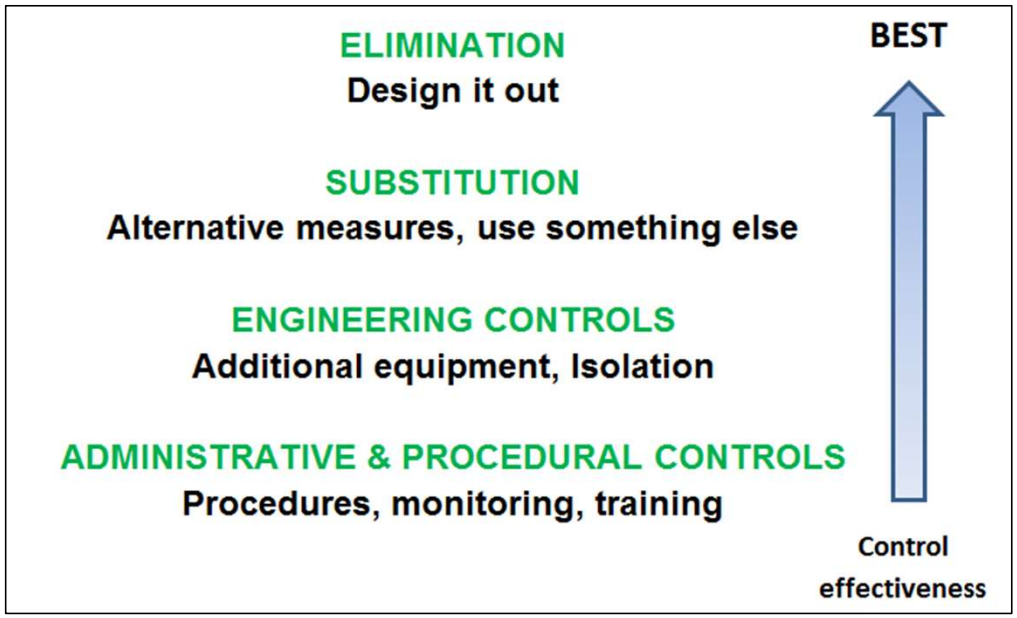
Unplanned risks include events that may occur as a result of an incident i.e:

- Diesel spill as a result of a vessel collision.
- Hydrocarbon spill as a result of loss of well control.

These unplanned events are very rare however are necessary to described to ensure adequate controls are adopted – these unplanned events define the **Planning Area**.

Each EP describes the controls that are adopted to mitigate both the planned impacts and unplanned risks to as low and reasonably practicable.

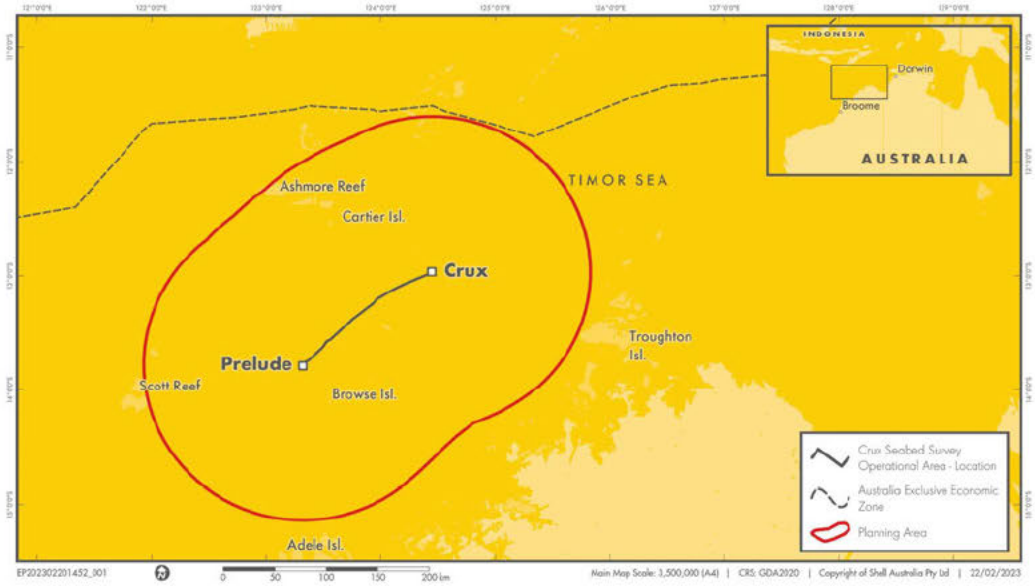
Crux Environment Plans
how we reduce risks

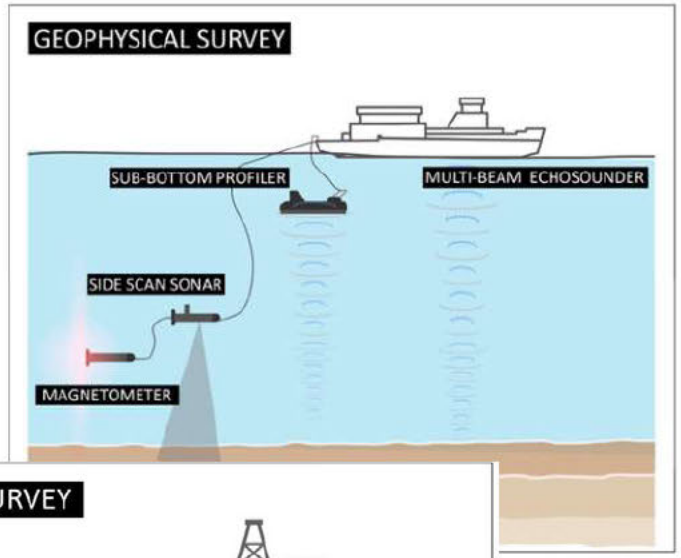


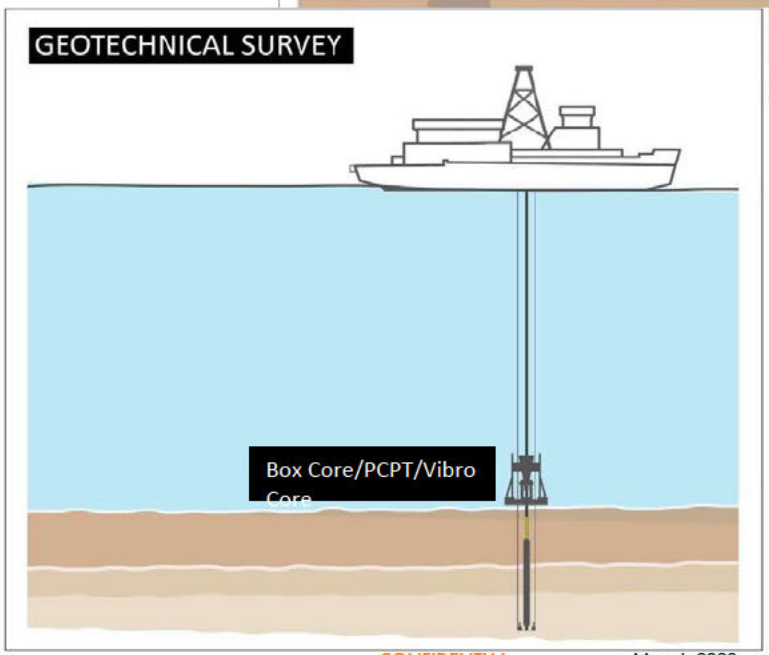
Shell applies a hierarchy of control process to establish controls which mitigate environmental impacts and risk.

1. Crux Seabed Survey Environment Plan

Investigating the seabed and sub-seabed conditions







Activity: Shell is planning to carry out a survey of the pipeline route and terminals connecting the Crux and Prelude facilities.

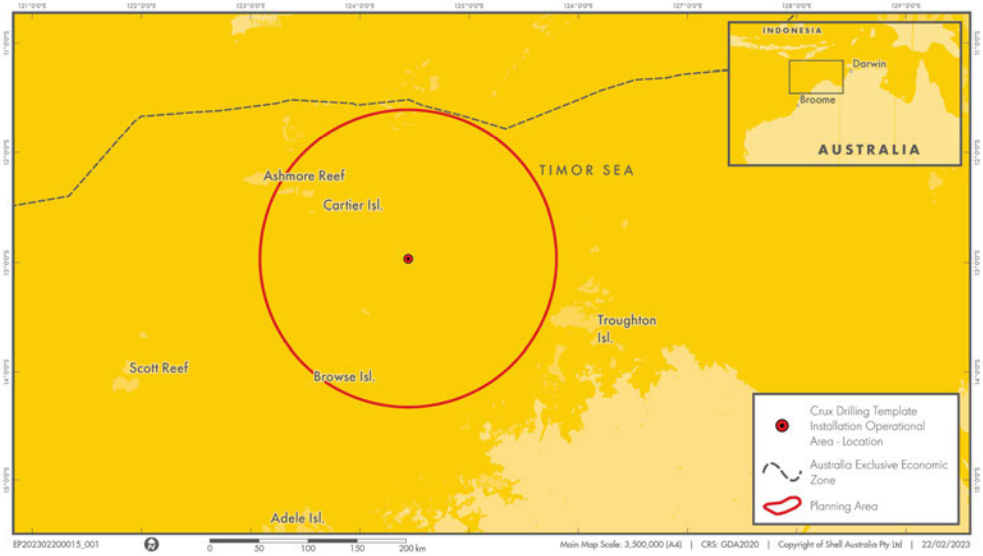
A vessel will traverse the pipeline route, towing survey equipment and deploying coring equipment.

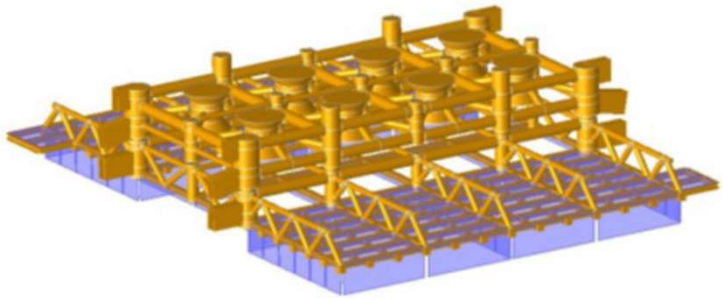
Duration: <5 days

Timing: 1 May – 31 December 2023*

2. Crux Drilling Template Installation Environment Plan

A template which will act as a guide for the drill bit during drilling operations



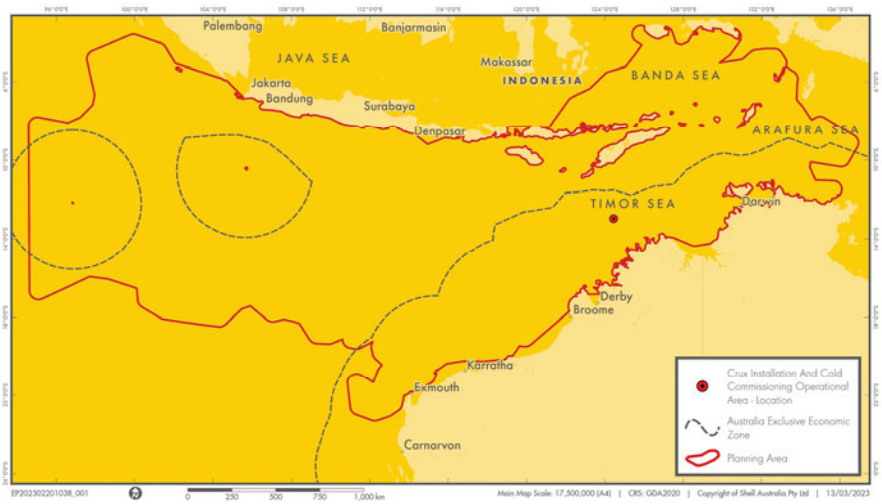


Activity: Shell is planning to lower a fabricated steel structure onto the seabed, which will assist with orienting and locating the drilling activities and the installation of the Crux jacket.

Dimensions: 19m length, 14m width, 4m high and covers a seabed footprint of 266m2. It weights 200 tonnes

Duration: <7 days **Timing:** 1 September 2023 – 1 April 2024*

3. Crux Development Drilling Environment Plan

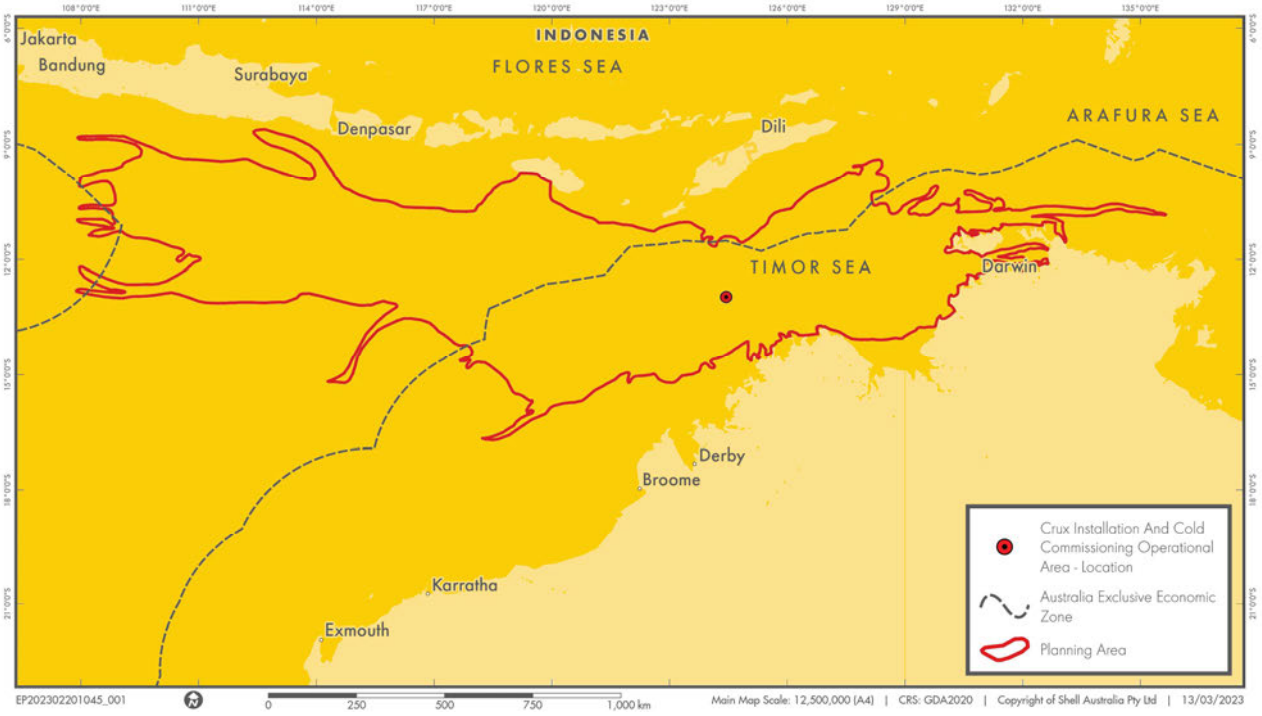


Activity: Shell is planning to drill five production wells through a drilling template and suspend them. The suspended wells will be commissioned once the Crux facility has been installed.

Timing:

- Expected Mobile Offshore Drilling Unit Operations start date – end 2023 - early 2024.
- Duration: approximately 10 months, with 10 months contingency.
- Expected temporary well suspension period, approximately 2-3 years.

4. Crux Installation and Cold Commissioning Environment Plan



Shell is planning to install the Crux pipeline, substructure and Topsides.

The facility will commence cold commissioning once installation is complete.

Duration: Mid 2024 – Dec 2026
Timing: start mid 2024, pending regulatory approvals.

Dates for the commencement of activities and duration are subject to schedule change

4. (cont.) Crux Installation and Cold Commissioning Environment Plan

Key activities

Crux pipelay

- Installation of 26-inch export pipeline (~165 km long) from Prelude to Crux
- Vessel operations
- Pre- and post-lay geophysical surveys
- Pipeline hydrotest, preservation and associated discharges

Crux Environment Plan – Unplanned Events

Unplanned	
Emergency Events – Hydrocarbon Spill	▪ Align with relevant requirements from the International Convention for the Prevention of Pollution from Ships and subsequent regulations ▪ Valid Shipboard Oil Pollution Emergency Plan or Shipboard Marine Pollution Emergency Plan (as appropriate for vessel classification) ▪ Implementation of national and international regulations and conventions for collision prevention, safety and navigation at sea ▪ Offshore Vessel Inspection Database (OVID) process ▪ Australian Hydrographic Office Notice to Mariners ▪ NOPSEMA accepted Environment Plan and Oil Pollution Emergency Plan (OPEP) in place ▪ Relevant Persons consultation process ▪ Vessel Maintenance management system
Introduction of Invasive Marine Species from Vessels	▪ Ballast water exchange operations will comply with the international conventions and associated national regulations. ▪ Biofouling management for vessels in accordance with state, national and international biofouling management guidelines ▪ Biofouling management in compliance with state and commonwealth regulations ▪ Vessels (of appropriate class) will have a valid International Anti-Fouling System Certificate ▪ Maintenance of a minimum 1 km buffer from shoals and the Operational Area

Crux Environment Plans – Additional Information

Additional information is available on the **Shell Crux Website**:

www.shell.com.au/crux

Independent technical environmental assistance:

- There is an independent panel, who you can go to with questions, concerns and complaints. Its anonymous, unless you want it not to be. These consultants don't work for Shell and will comment freely on their project, give their opinion and help answer your questions.

Q&A

CONTACT US Community Hotline: 1800 059 152 Email: SDA-crux-project@shell.com **www.shell.com.au/crux**

Shell welcomes any feedback on Environment Plan submissions, including requests for further information. If you have functions, interests or activities that may be affected by any of our projects, Shell Australia invites you to get in touch.

Indigenous Consultation

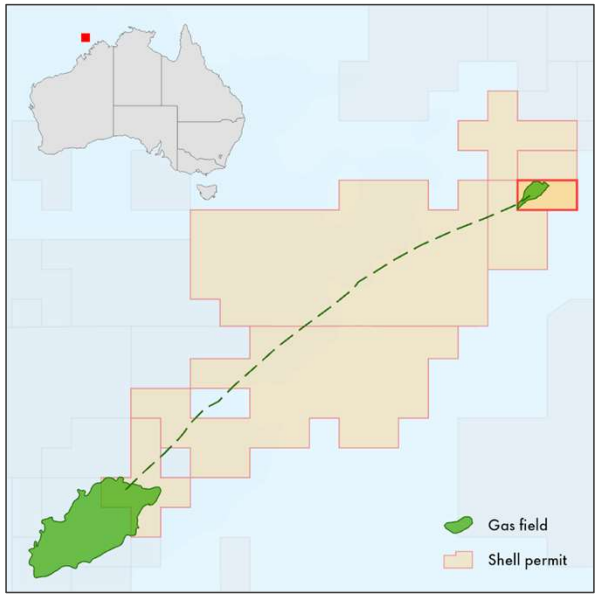
Additional information

Jaimie Henderson
Corporate Relations Lead

Crux Operations

Investigating the likelihood of tangible underwater archaeology

Crux field overview



What we know

- Database searched have been undertaken through the WA and NT government systems for registered sites. While many intersect with the larger planning areas, there are no sites currently registered within the operational area.
- Crux operational footprint is below the historical seabed levels (below 130m sea level) meaning that there is a very high unlikelihood that there is any tangible cultural heritage – the area was never above sea levels when human occupation existed.
- Further work is in the process of being commissioned from a mapping perspective on what tangible underwater cultural heritage could remain intact.

What we don't know

- Any concerns for particular areas and sites that may exist for each relevant person
- Perceived effectiveness of our current management methods

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Options for Engagement

- Understand a lot of proponents have been reaching out desiring consultation
- Shell want to make it as easy as possible for our Indigenous relevant persons to engage
- There are a variety of options available for which to hear about the project and be consulted – this forum is but one option.
- Once you've had time to consider information there are many options for next steps:
  - Community drop-in centres,
  - Traditional methods (phone, emails, video calls)
  - On-Country visits

We are happy to work with each group's individual preference so please let us know.

Environmental Panel

A panel of subject matter experts has been established and Indigenous relevant persons will be provided access to the panel, with the costs incurred by Shell.

Information is sometimes specialized and Shell wants to ensure that each person or group is comfortable and confident in their understanding of the more technical components.

The panel:

- is comprised predominantly of businesses and specialists who are independent of Shell although there is some who have previously worked for Shell
- Costs to be covered by Shell
- Selection of what panel member to be used is at the discretion of the client (you)
- You will be the panel's clients – Shell will not see any of the information shared, or advice sought between the panel and the client, only the amount of hours worked and to which party the avice was provided for acquittal purposes.

Our aim is that the information provided by the panels will ensure that our Indigenous relevant persons have access to all the relevant information to provide feedback on our Crux EP**.**

Shell Crux Project Forum 1

- Meeting the Independent Environmental Panel Experts

About Us

- Xodous
- MCC Environmental
- S2Services
- RPS

How can we help

Q&A's

Q&A

Appendix A - 7.05 Presentation – Indigenous Forum 3 in Darwin

SHELL CRUX PROJECT
Darwin
31 May 2023

This is Larrakia Country

Shell acknowledges the Larrakia people people as the Traditional Custodians of the land and sea country, since the time before time, and the importance of their connection to land, sea and community.

We pay our respect to Elders past, present and emerging and extend that respect to all Aboriginal and Torres Strait Islander people today.

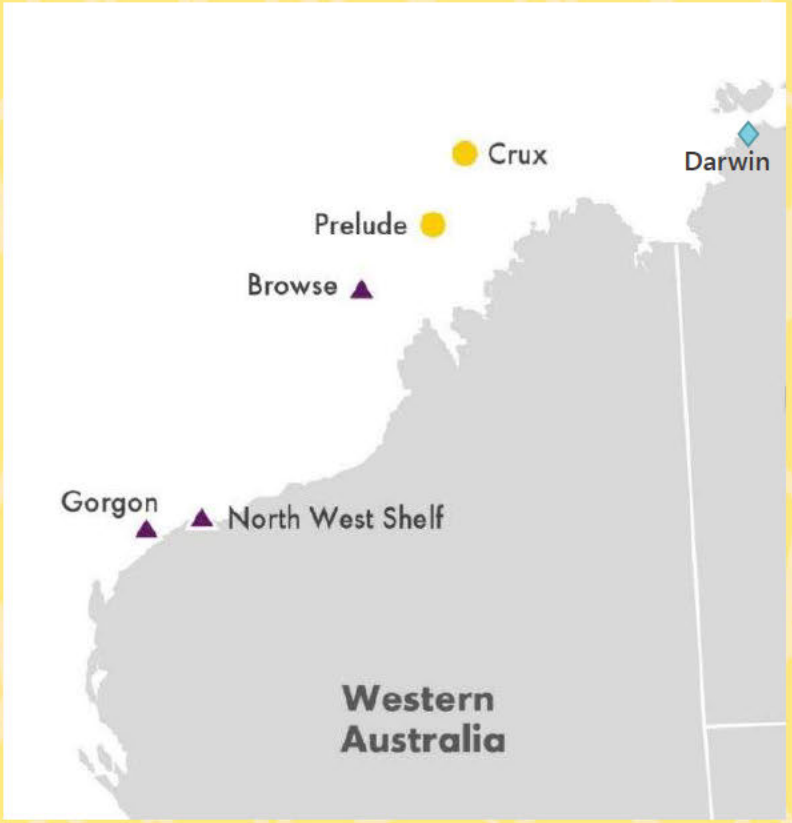
Brief summary

- Who is Shell?
- What is the Crux Project, and how might it affect the environment?
  - Seabed survey
  - Drilling template
  - Drilling development
  - Installation and Commissioning

The Shell Crux Environmental Plans

- What Shell is doing to protect cultural heritage, marine systems, coastlines, TO access to country

- Options after today
- Ongoing consultation and the Independent Panel



Who is Shell?

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Prelude	67.5%
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NON-OPERATED

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Gorgon	25%
Kondinin Energy	50%
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WestWind	49%

What is Prelude?

- Prelude is a Floating Liquefied Natural Gas (FLNG) project located 475km north-northeast of Broome, Western Australia, in the Browse Basin.
- The Prelude FLNG facility is moored over the Prelude gas field in 250m water depth and more than 200km from the coastline.
- Prelude produces LNG, LPG and condensate.
- Prelude has an onshore supply base in Darwin.

Location:
WA-44-L, in Commonwealth marine waters, 475 km north-north east of Broome in Western Australia

Facility Type:
Floating liquefied natural gas (FLNG) facility

Number of wells:
Seven

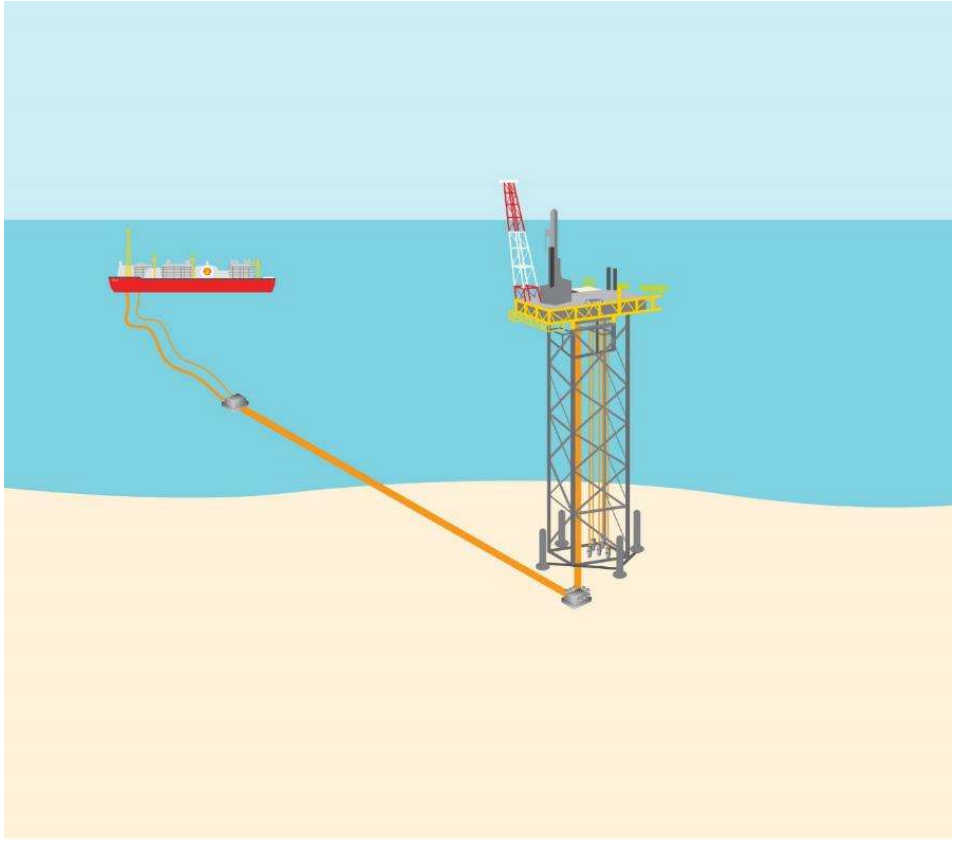
Production capacity:
3.6 million tonnes per annum (mtpa) LNG, 0.4mtpa 1.3mtpa condensate LPG

Water depths:
250m

Status:
In operation

What is Crux?

- In May 2022, Shell Australia and SGH decided to go ahead with Crux.
- The project is a long term extension to the existing Prelude FLNG facilities.
- Crux consists of a platform (which is not normally manned), above 5 gas wells. The gas is delivered via a pipeline to Shell's Prelude project, which is moored some 165 Km away, and processed onboard.
- The project is part of Shell's strategy to help meet the needs of gas users as the energy market moves to a lower carbon future.

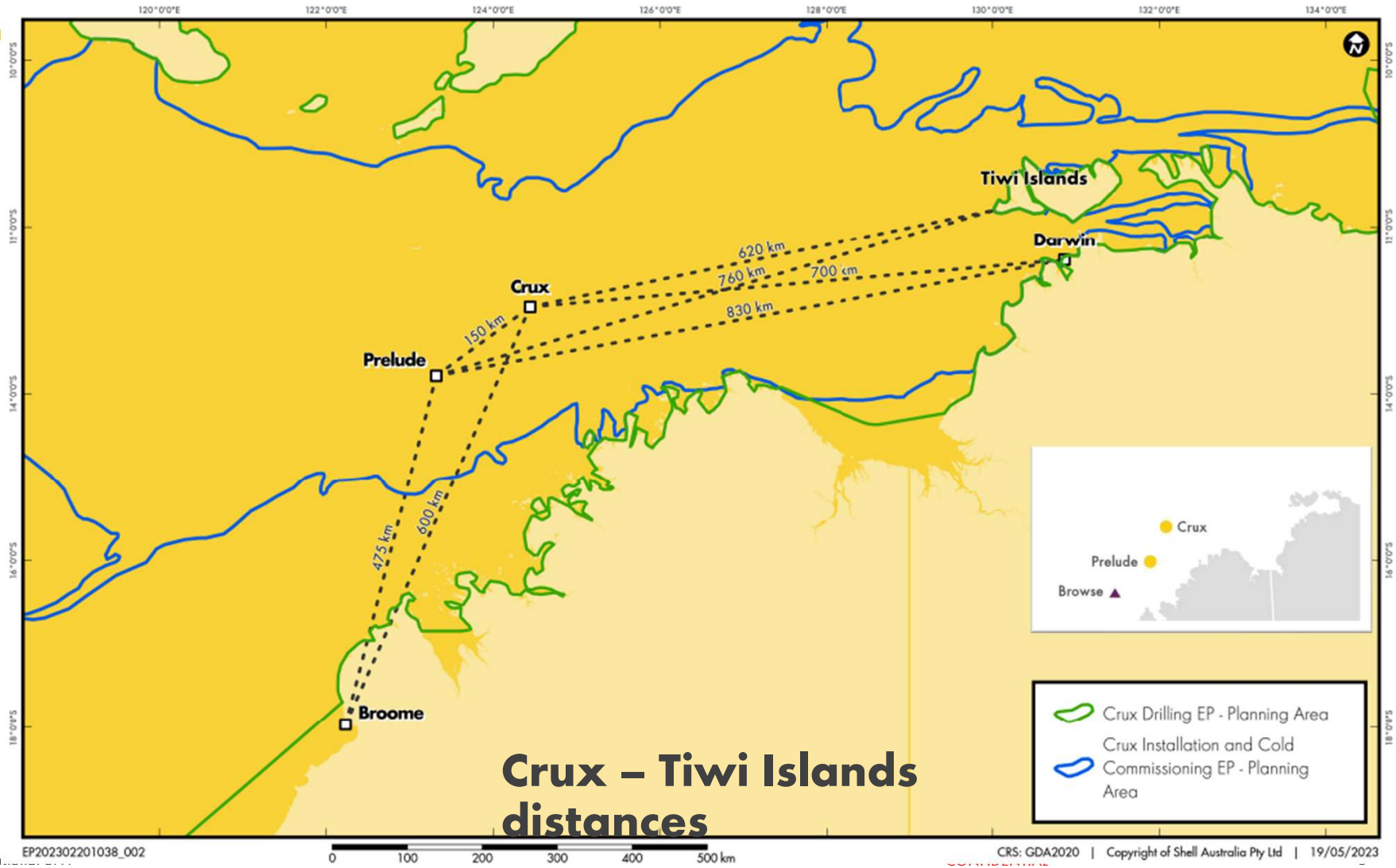


The environmental plans

There are four Environment Plans for Crux that describe what Shell will do to protect the environment.

These must be submitted to, and approved by NOPSEMA. This consultation is a key part of that process. NOPSEMA has a key role in the approvals process and has the power to approve and reject environmental plans. They also have the power to ensure Shell implements all the requirements of the Environmental Plans, and can enforce these by law.

1. Seabed Survey Environment Plan
2. Drilling Template Environment Plan
3. **Development Drilling Environment Plan**
4. **Crux Installation and Cold Commissioning Environment Plan**



Crux – Tiwi Islands distances

Crux Environment Plans

These describe the impacts and risks, both planned and unplanned that may occur

Planned impacts are known activities that result in physical impact to the environment, i.e.:

- Disturbances to the seabed.
- Drilling Fluid Discharges.
- Noise generated from construction activities.
- These planned impacts will occur within close proximity to the operational area.

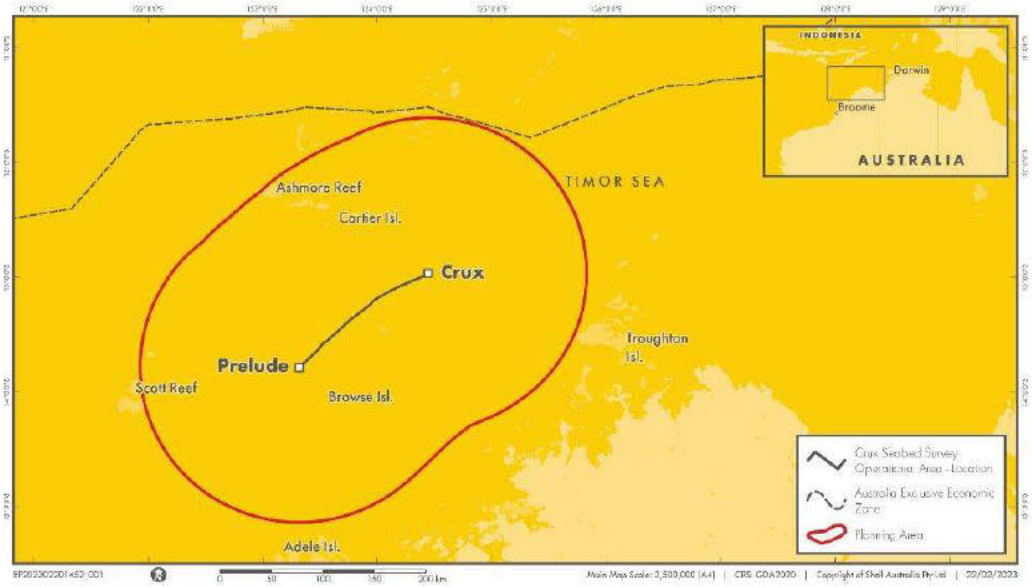
Unplanned risks are accidents. These could include:

- Diesel spill as a result of a vessel collision.
- Hydrocarbon spill as a result of loss of well control.
- Introduction of invasive species from the vessels that will be entering Australian waters.

Such accidents are very rare however, Shell has to be prepared for them, to ensure they have adequate controls. Potential accidents are what define the whole of the **Planning Area**.

Each Environmental Plan describes how Shell plans to minimize planned impacts and keep unplanned risks to as low and reasonably practicable.

1. Crux Seabed Survey Environment Plan -
Looking at the seabed and sub-seabed conditions



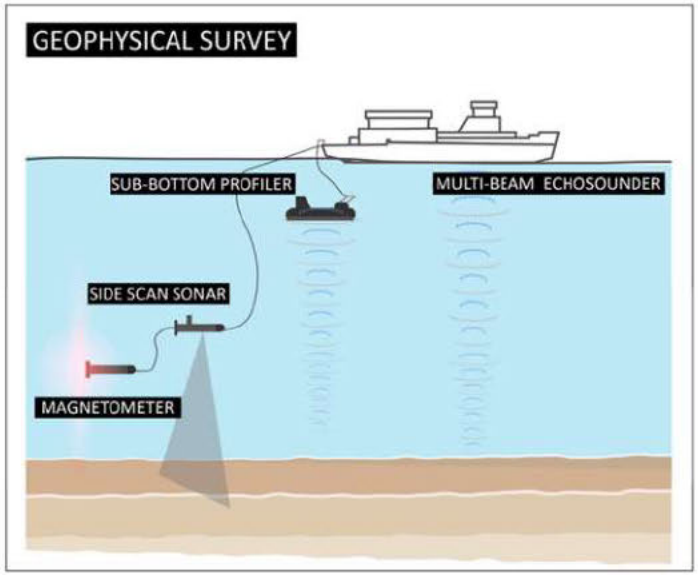
Activity: Shell is planning to carry out a survey of the pipeline route and terminals connecting the Crux and Prelude facilities.

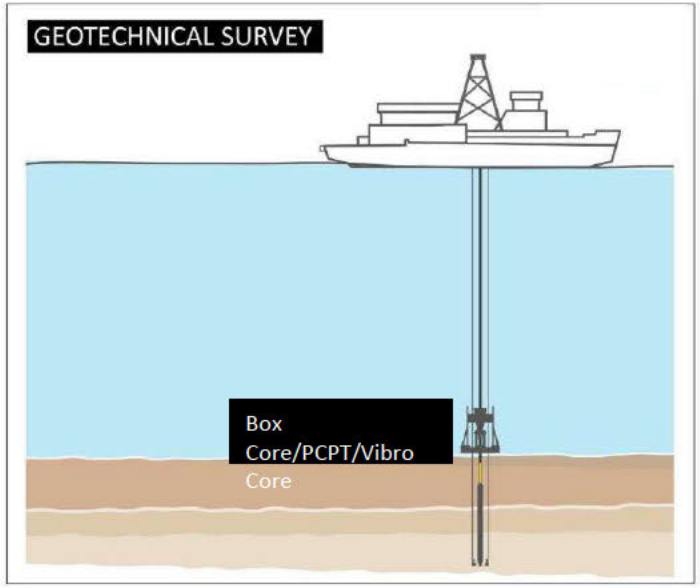
A vessel will traverse the pipeline route, towing survey equipment and deploying coring equipment.

Duration: <5 days

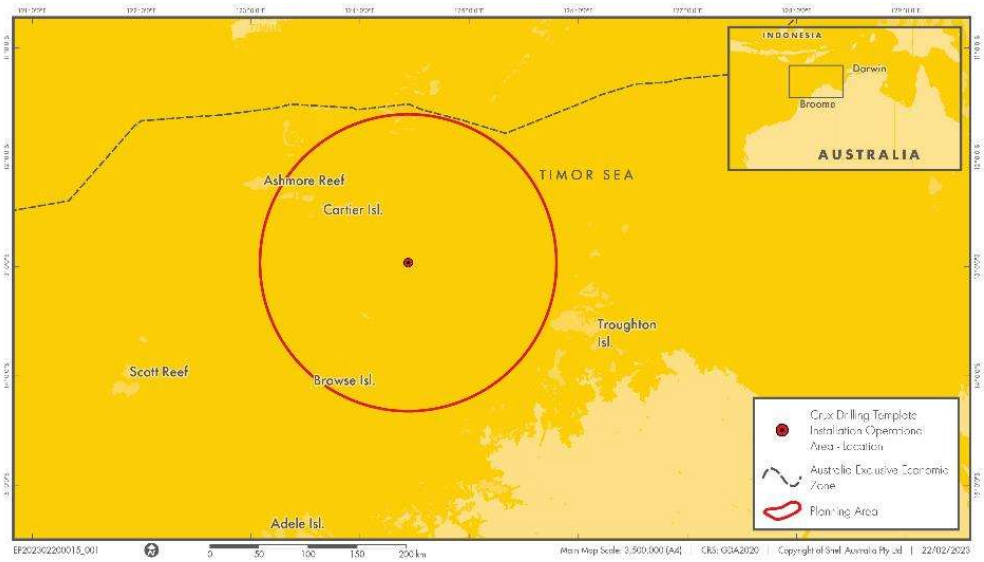
Timing: 1 July – 31 December 2023*

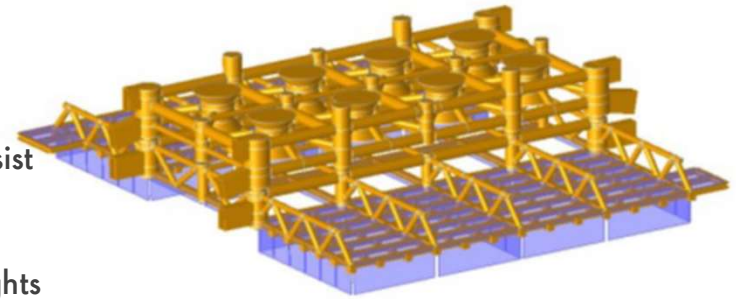
Key points





2. Crux Drilling Template Installation Environment Plan -
The template will act as a guide for the drill bits during drilling operations





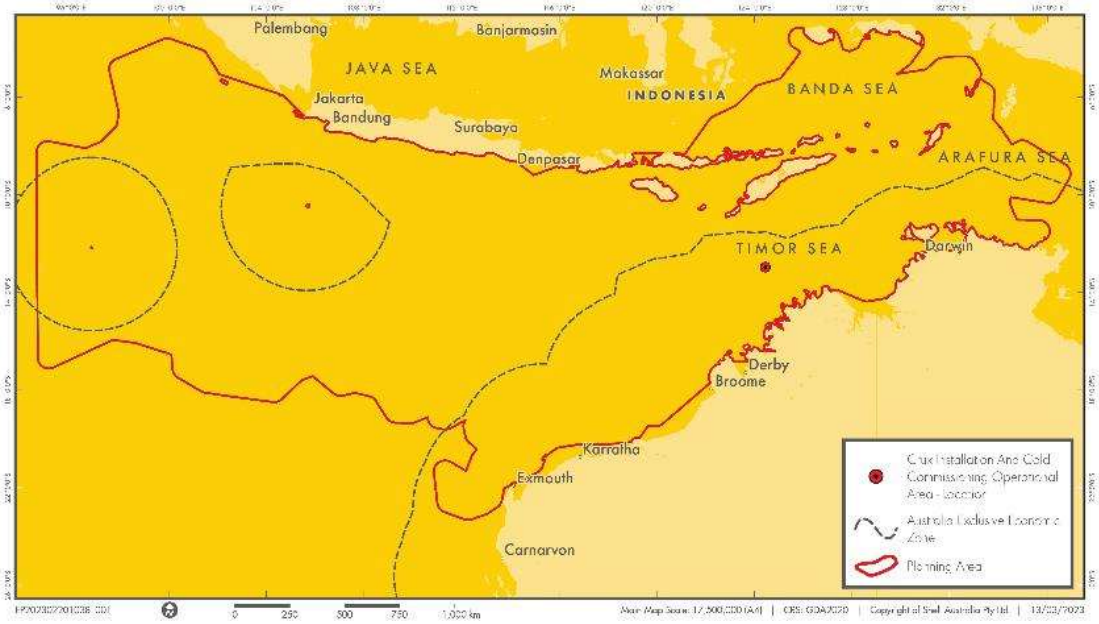
Activity: Shell is planning to lower a fabricated steel structure onto the seabed, which will assist with orienting and locating the drilling activities and the installation of the Crux platform.

Dimensions: 19m length, 14m width, 4m high and covers a seabed footprint of 266m2. It weights 200 tonnes

Duration: <7 days **Timing:** 1 September 2023 – 1 April 2024*

Key points

3. Crux Development Drilling Environment Plan – drilling the wells



Graphic showing individual spill – show NOPSEMA video here:

https://www.nopsema.gov.au/offshore-industry/environmental-management/oil-pollution-risk-management

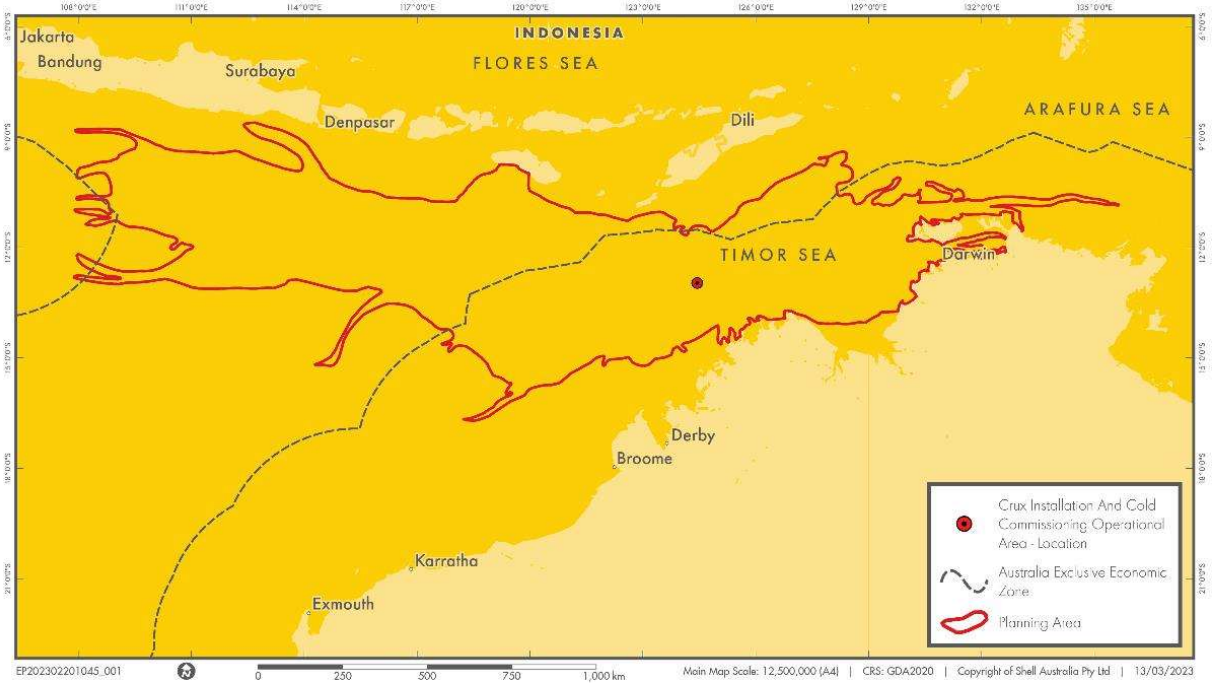
Activity: Shell is planning to drill five production wells through a drilling template and suspend them. The suspended wells will be commissioned once the Crux facility has been installed.

Duration: approximately 10 months, with 10 months contingency. Expected temporary well suspension period, approximately 2-3 years.

Timing: Expected Mobile Offshore Drilling Unit Operations start date – end 2023 - early 2024.

Key point

4. Crux Installation and Commissioning Environment Plan – putting in the pipeline and substructure and checking everything works



Crux pipelay

- Putting in the 26-inch export pipeline (~165 km long) from Prelude to Crux
- Vessel operations
- Pre- and post-lay surveys
- Testing it all

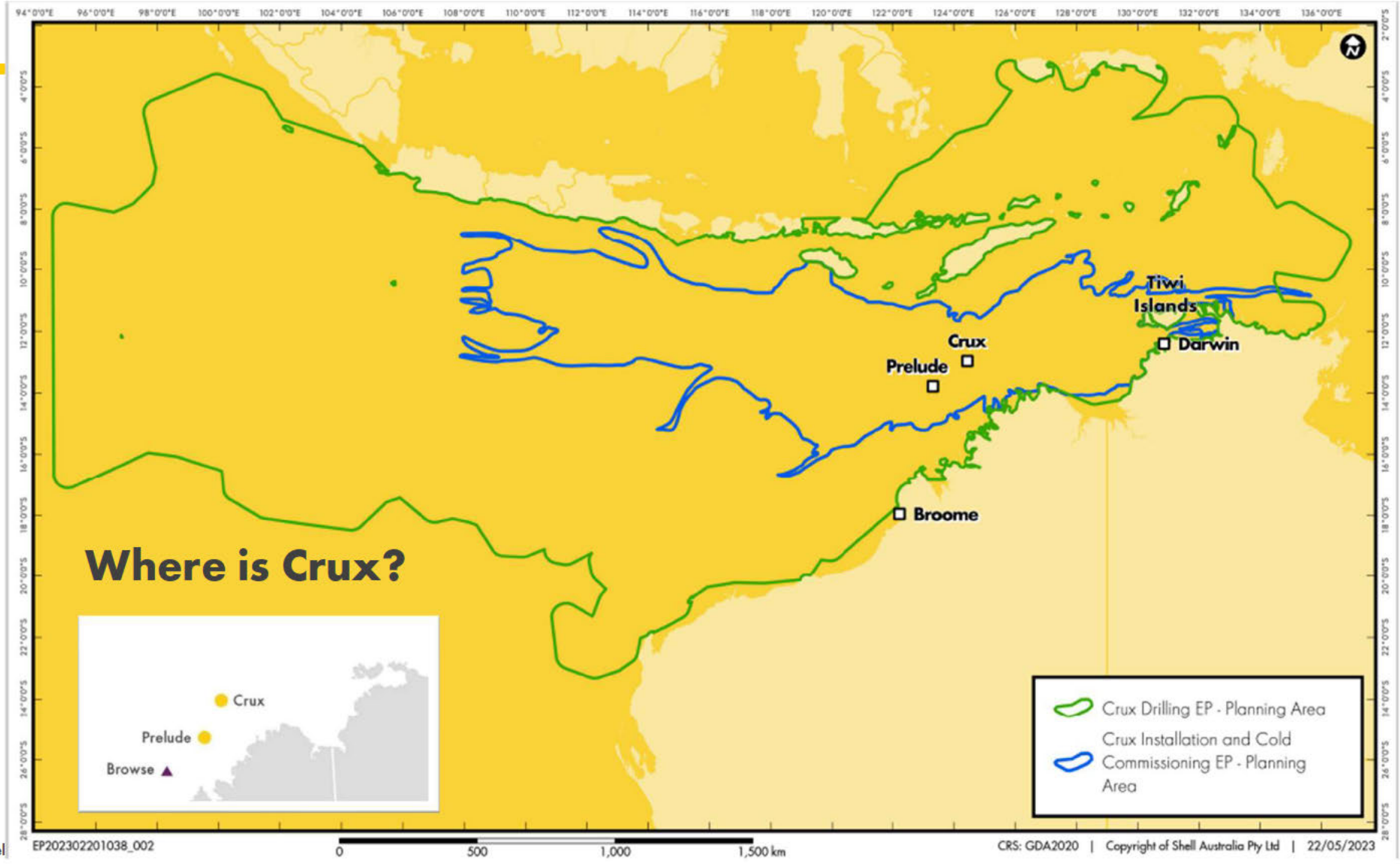
The facility will commence cold commissioning(testing) once installation is complete.

Duration: Mid 2024 – Dec 2026

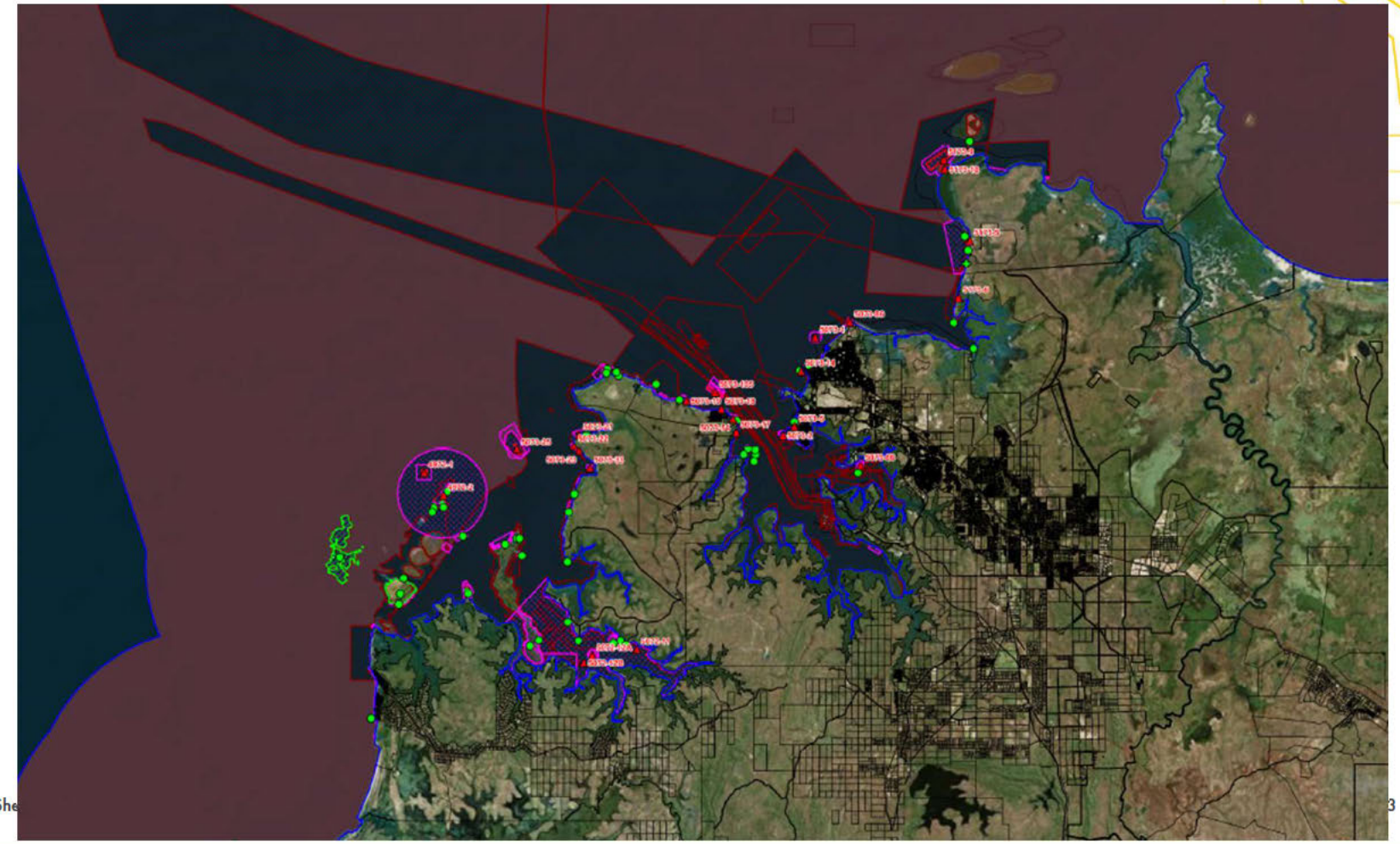
Timing: start mid 2024, pending regulatory approvals.

Key points

Dates for the commencement of activities and duration are subject to schedule change



Crux Operations - Protecting land and sea Country.



Crux Operations - Protecting land and sea Country.

There are places, histories, stories and sites that are important to Aboriginal people in the Crux Planning area. Shell is seeking to understand this, using

- Healthy Country plans,
- Native Title Determinations,
- ILUAs and IPAs
- Cultural Heritage Surveys and Assessments

Shell is also listening directly with Aboriginal people.

Underwater Cultural Heritage

- Shell have searched the WA and NT government systems for registered sites. While many intersect with the larger planning areas, there are no **UCH sites currently registered within the operational areas.**
- The Crux platform is below the historical seabed levels (below 130m sea level). **Its very unlikely there are tangible cultural heritage that far out to sea – the area was never above sea levels when human occupation existed.**
- Further work is being done on what tangible UCH could be in the **broader planning area**
- Shell still needs to understand sites and places that have spiritual and sacred importance

What Shell doesn't know

- Shell's understanding of what is important to Aboriginal people is limited and partial.
- Shell doesn't fully understand the concerns Aboriginal people have for particular areas and sites, especially as these differ from group to group.
- If Shell's current management methods are good enough

Shell Community Programs relevant to NT & Tiwi Islands

Prelude to the future (Darwin)

- Qualifications and training in areas of skills shortage for to get people employed
- Shell co-funds the program with Department of Trade, Business and Innovation, and Group Training NT (GTNT) run the program.
- 70 of the 83 graduates have gained full time work since the program commenced in 2016
- A sixth group intake focussing on areas of skills shortage will occur in the second half of 2023.

Shell Community Programs relevant to NT & Tiwi Islands

Indigenous Business Support Program – Darwin

- TOs have said they want pathways to jobs and business opportunities for economic independence.
- The IBS program is delivered by Northern Territory Indigenous Business Network (NT IBN) and supported by Shell as part of Shells social investment portfolio.
- The program provides business development, training and networking services.

Lidiar Group – Darwin and Brisbane

- Enterprise development support available for Indigenous businesses within our supply chain.
- Assist with retaining and growing genuine Indigenous business opportunities within our supply chain.

Environmental Panel

A panel of subject matter experts has been established.
Indigenous relevant can use the panel, with the costs incurred by Shell.

Shell wants to ensure that anyone can ask whatever they like from people who are not part of Shell, but who are experts in the areas of environmental protection .

The panel made up of specialists who are independent of Shell although there is some who have previously worked for Shell.

Key points to know:

- Costs to be covered by Shell
- Selection of what panel member to be used is up to you
- You will be the panel's clients – Shell will not see any of the information shared, or advice sought between the panel and the client, only the amount of hours worked and to which party the advice was provided for acquittal purposes.

Crux Environment Plans – Additional Information

Additional information is available on the **Shell Crux Website**:

www.shell.com.au/crux

Independent technical environmental assistance:

- There is an independent panel, who you can go to with questions, concerns and complaints. Its anonymous, unless you want it not to be. These consultants don't work for Shell and will comment freely on their project, give their opinion and help answer your questions.

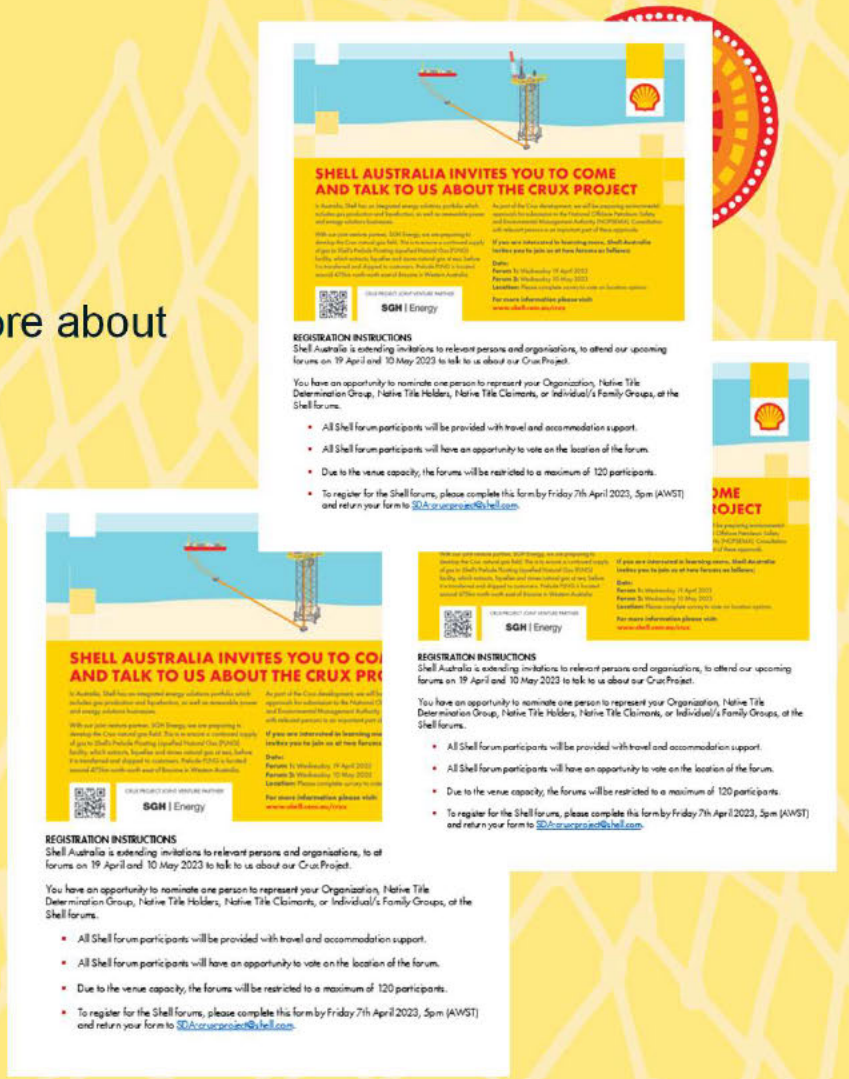
Shell Crux Project

After this?

- Possible further meetings – let Shell know
- Talk to your communities
- Ask questions of the Panel
- Ask questions of Shell what you want to know more about or have concerns
- Info on the web

Email:
SDA-crux-project@shell.com

Web:
- www.shell.com.au/about-us
- Google “Shell Crux”



Appendix A - 7.06 Presentation - Bardi Jawi, Mayala and Walalakoo Meeting – 15 August 2023

Shell Australia
Bardi and Jawi Niimidiman Aboriginal Corporation, Mayala Inninalang Aboriginal Corporation and Walalakoo Aboriginal Corporation

15 August 2023

Aims of today

1. Introductions – who's in the room – Walalakoo, Mayala, Bardi Jawi, Shell
2. Some background on Shell in Australia and Shell in WA
3. Crux - what it is, where it is at now.
4. Environmental issues – Q and A
5. Priorities for Aboriginal groups- Indigenous Social and Economic Impacts
6. Traditional Owner only time
7. Regroup - Where to from here – relationships into the future, opportunities

Who is Shell?

SHELL OPERATED

Crux	82%
Gangarri	100%
Prelude	67.5%
QGC	75%

WHOLLY OWNED SUBSIDIARIES

Powershop	100%
Select Carbon	100%
Shell Energy Australia	100%
sonnen	100%

NON-OPERATED

Arrow	50%
Browse	27%
ESCO Pacific	49%
Gorgon	25%
Kondinin Energy	50%
North West Shelf	16.67%
WestWind	49%

Crux

- What is the Crux Project?
- The four Environmental Plans and what they cover
    1. Seabed survey
    2. Drilling template
    3. Drilling development
    4. Installation and Commissioning
    5. There will be more EPs to come

    - Crux Video -

- What the Crux Environmental Plans do to protect cultural heritage, marine systems, coastlines, TO access to country
- Ongoing engagement with TO groups and other Relevant Persons.
- The Independent Panel

What is Prelude?

- Prelude is a Floating Liquefied Natural Gas (FLNG) project located 475km north-northeast of Broome, Western Australia, in the Browse Basin.
- The Prelude FLNG facility is moored over the Prelude gas field in 250m water depth and more than 200km from the coastline.
- Prelude produces LNG, LPG and condensate.
- Prelude has an onshore supply base in Darwin.

Location:
WA-44-L, in Commonwealth marine waters, 475 km north-north east of Broome in Western Australia

Facility Type:
Floating liquefied natural gas (FLNG) facility

Number of wells:
Seven

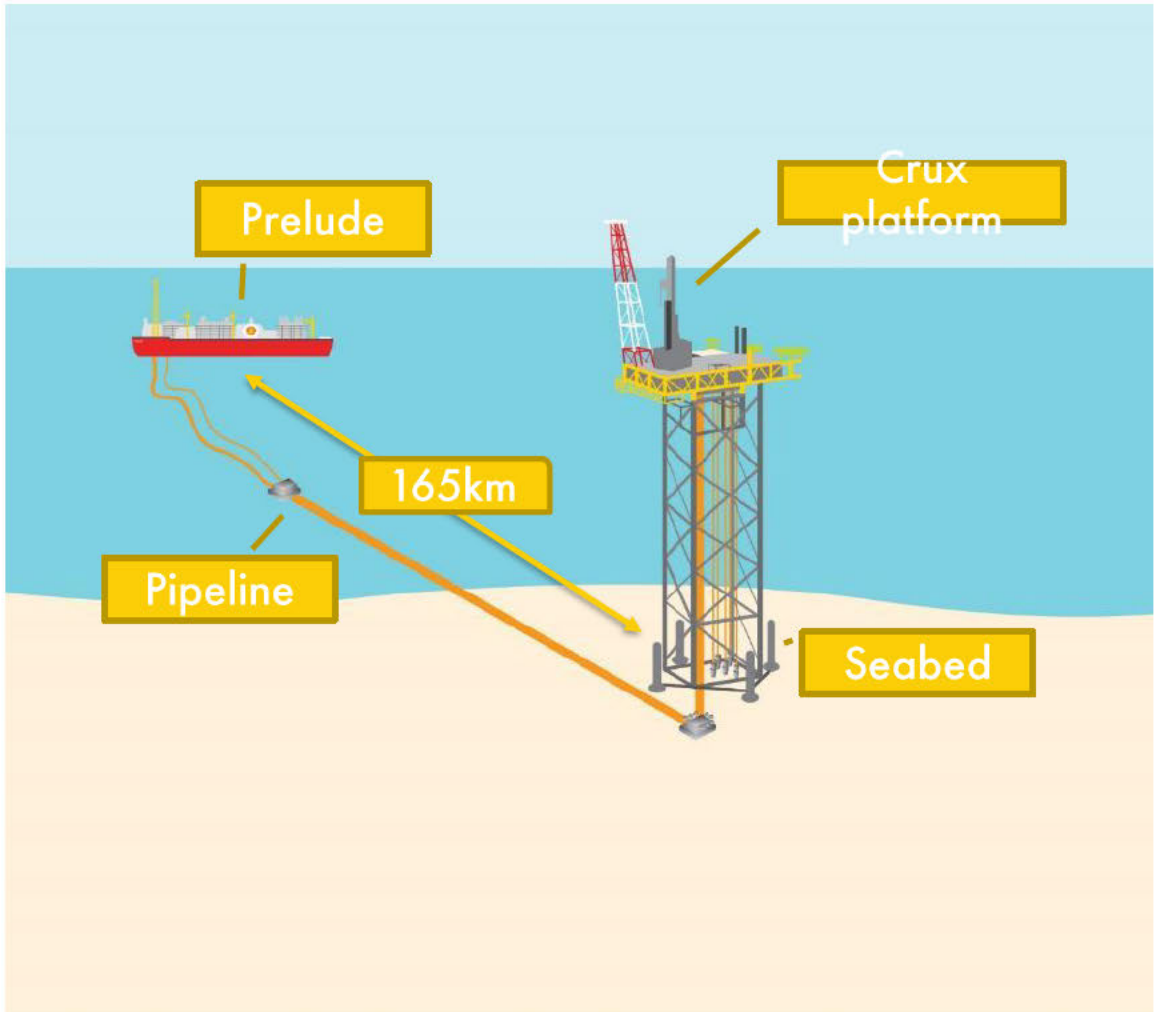
Production capacity:
3.6 million tonnes per annum (mtpa) LNG, 1.3 mtpa LPG, 1.3mtpa condensate

Water depths:
250m

Status:
In operation

What is Crux?

- In May 2022, Shell Australia and SGH decided to go ahead with Crux.
- The project is a long-term extension to the existing Prelude FLNG facilities.
- Crux consists of a platform (which is not normally manned), above 5 gas wells. The gas is delivered via a pipeline to Shell's Prelude project, which is moored some 165 Km away, and processed onboard.
- The project is part of Shell's strategy to help meet the needs of gas users as the energy market moves to a lower carbon future.



The environmental plans

There are four Environment Plans for Crux that describe what Shell will do to protect the environment.

These must be submitted to, and approved by NOPSEMA.

1. *Seabed Survey Environment Plan – submitted*
2. *Drilling Template Environment Plan – submitted*
3. **Development Drilling Environment Plan – submitted**
4. **Crux Installation and Cold Commissioning Environment Plan – to be submitted in November**
5. **Additional EPs will deal with the operations of Crux and modifications to Prelude.**

Crux Environment Plans

These describe the impacts and risks, both planned and accidental that may occur

Planned impacts are known activities that result in physical impact to the environment, i.e.:

- Disturbances to the seabed.
- Drilling Fluid Discharges.
- Noise generated from construction activities.

These planned impacts will occur within close proximity to the operational area. Shell has means to control the impact of these.

Accidents could include:

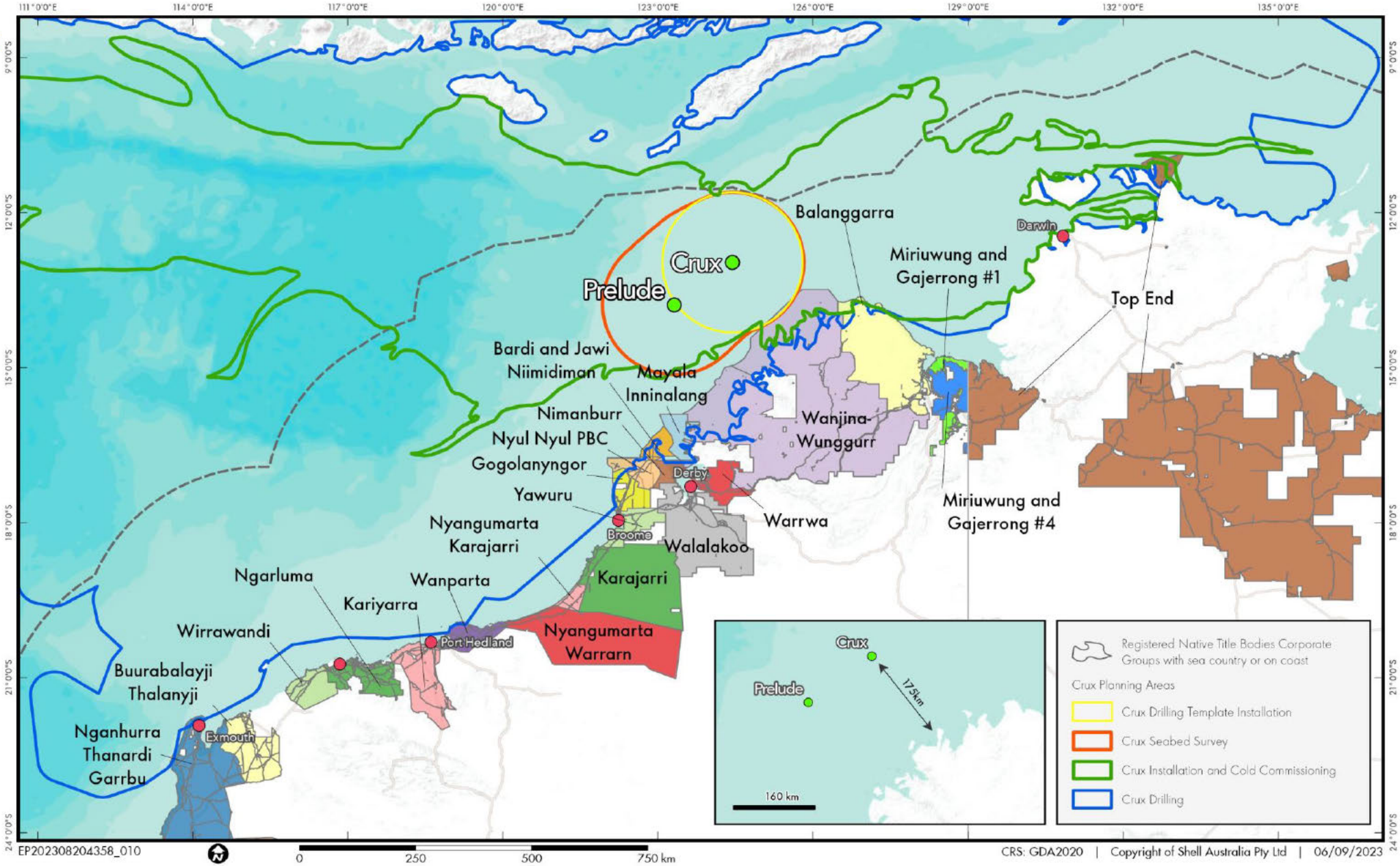
- Diesel spill as a result of a vessel collision.
- Hydrocarbon spill as a result of loss of well control.
- Introduction of invasive species from the vessels that will be entering Australian waters.

Such accidents are very rare. Shell has to be prepared for them, to ensure they have adequate controls. For each key stage of Crux, Shell develops an Environmental Plan which looks at the key risks of that stage, and the size and scale of any impacts – planned or accidental.

The Environmental **Planning Areas are the outside limit of hundreds of individual, mapped accidents**

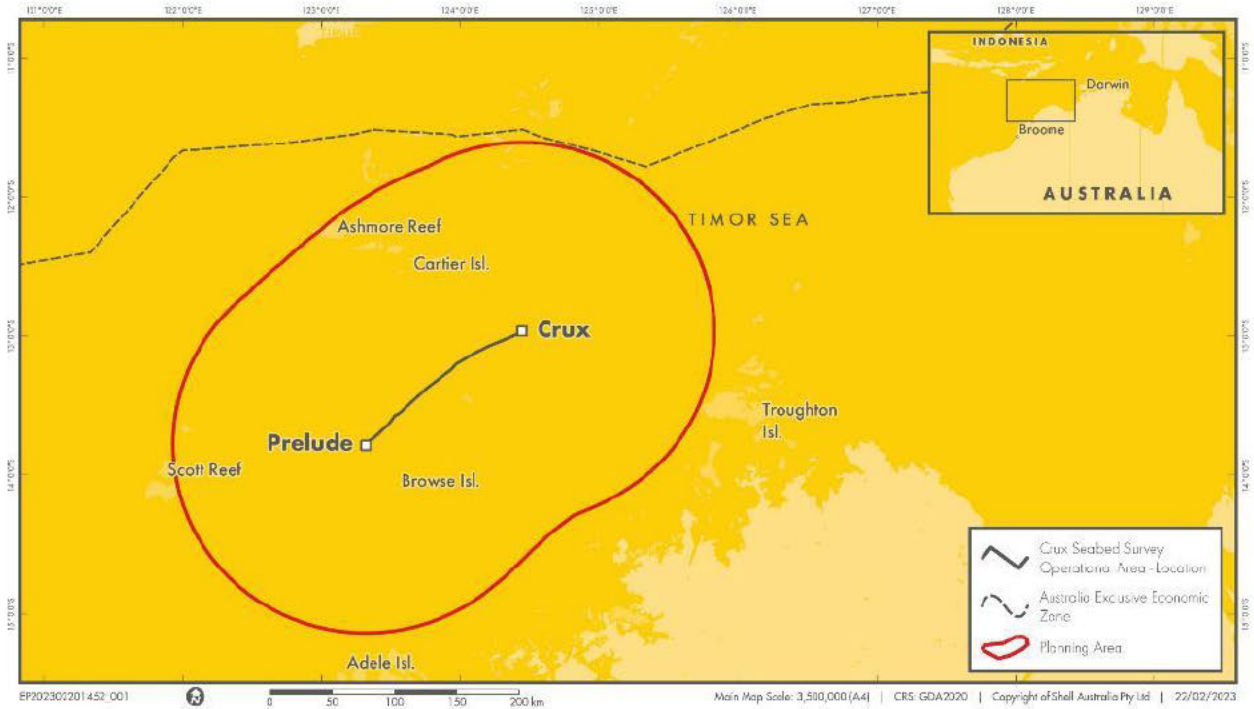
Oil Spill modelling

The 4 EP planning areas



1. Crux Seabed Survey Environment Plan -

Looking at the seabed and sub-seabed conditions



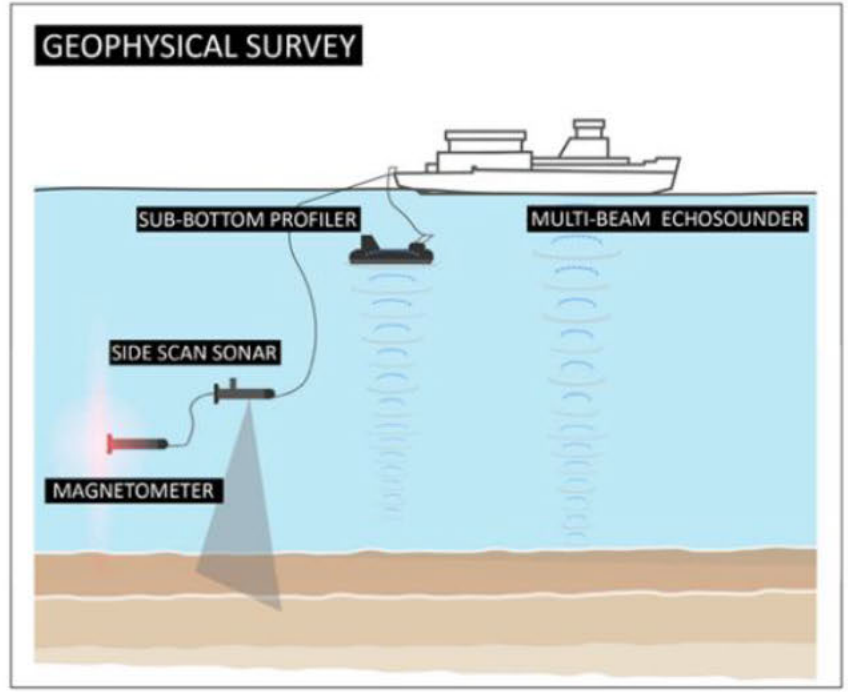
Activity: Shell is planning to carry out a survey of the pipeline route and terminals connecting the Crux and Prelude facilities.

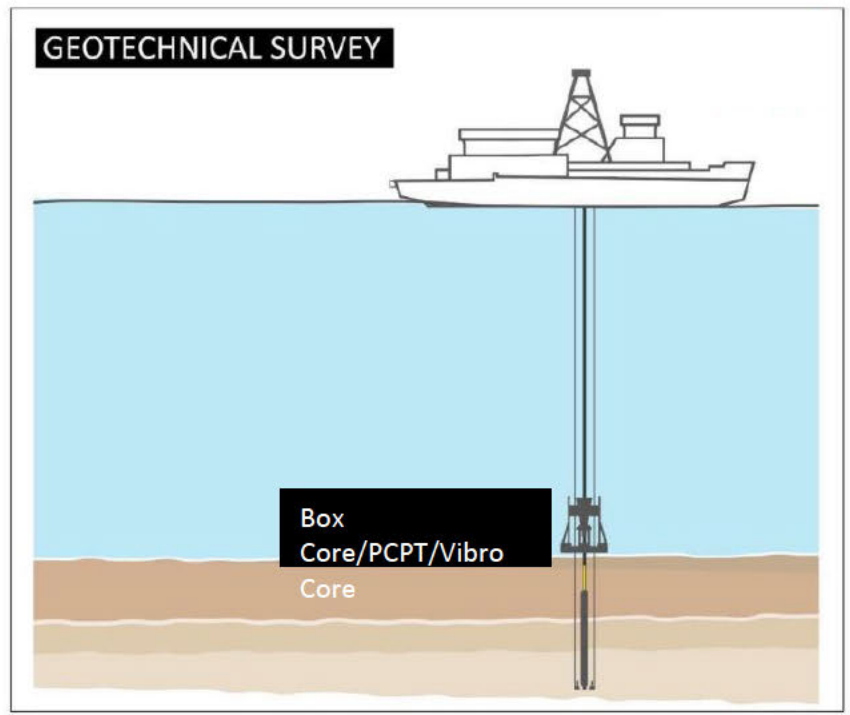
A vessel will traverse the pipeline route, towing survey equipment and deploying coring equipment.

Duration: <5 days

Timing: 1 July – 31 December 2023*

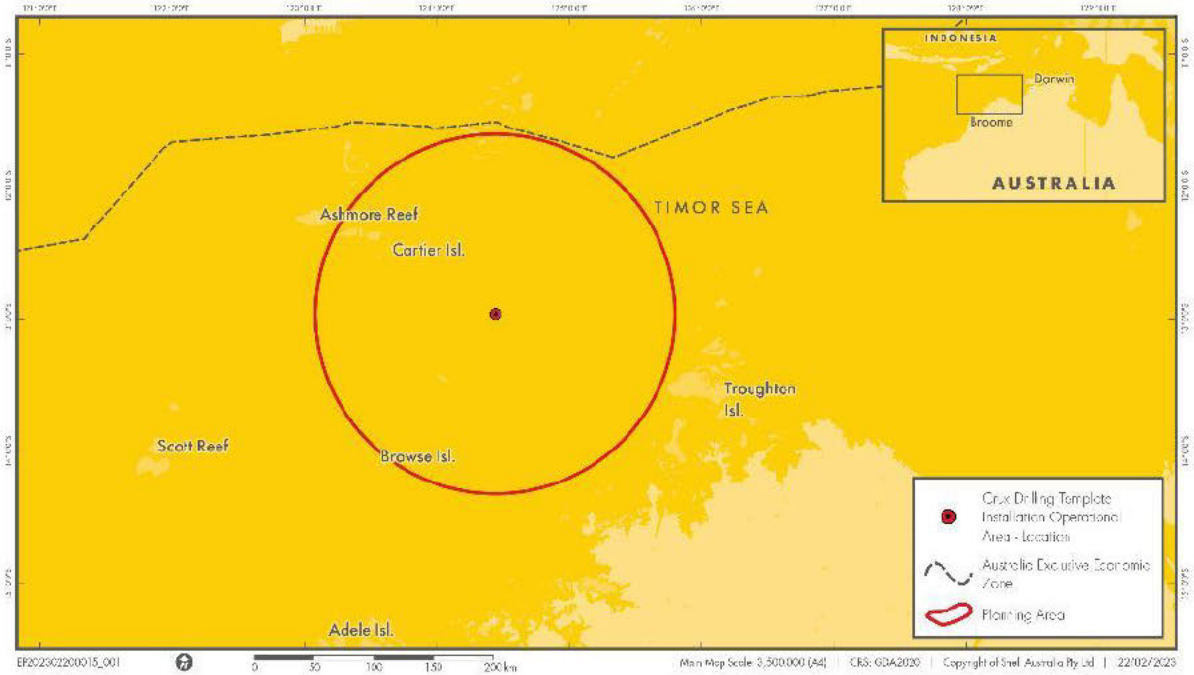
Key points

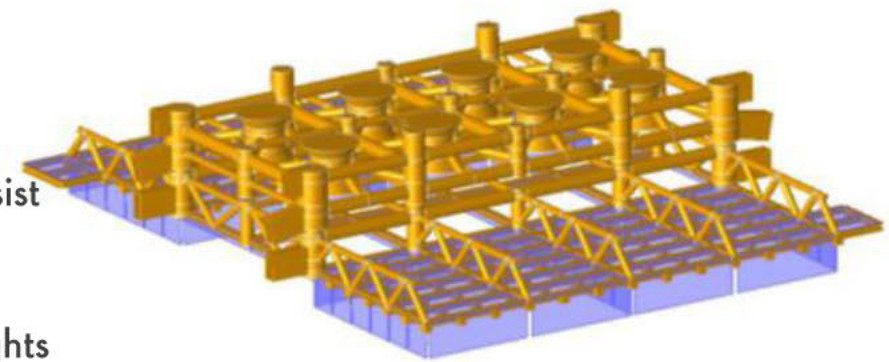




2. Crux Drilling Template Installation Environment Plan -

The template will act as a guide for the drill bits during drilling operations





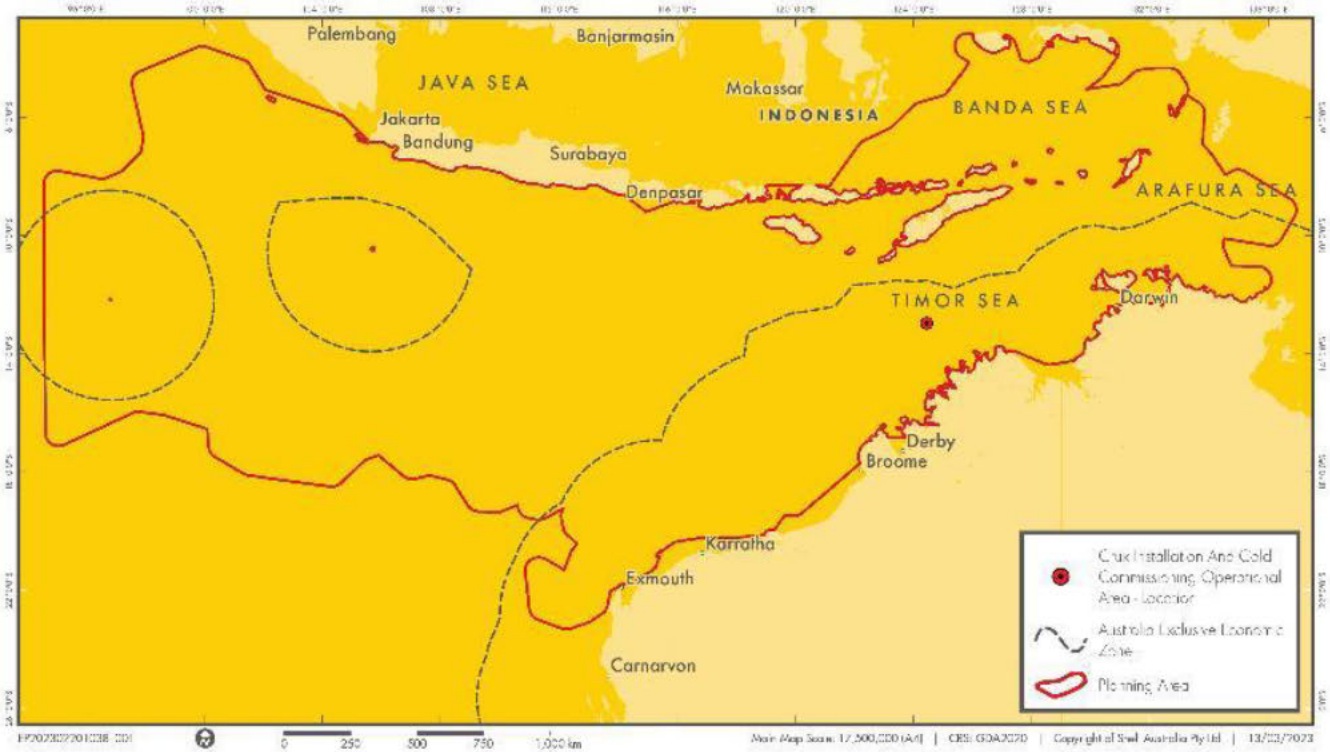
Activity: Shell is planning to lower a fabricated steel structure onto the seabed, which will assist with orienting and locating the drilling activities and the installation of the Crux platform.

Dimensions: 19m length, 14m width, 4m high and covers a seabed footprint of 266m2. It weights 200 tonnes

Duration: <7 days **Timing:** 1 September 2023 – 1 April 2024*

Key points

3. Crux Development Drilling Environment Plan – drilling the wells



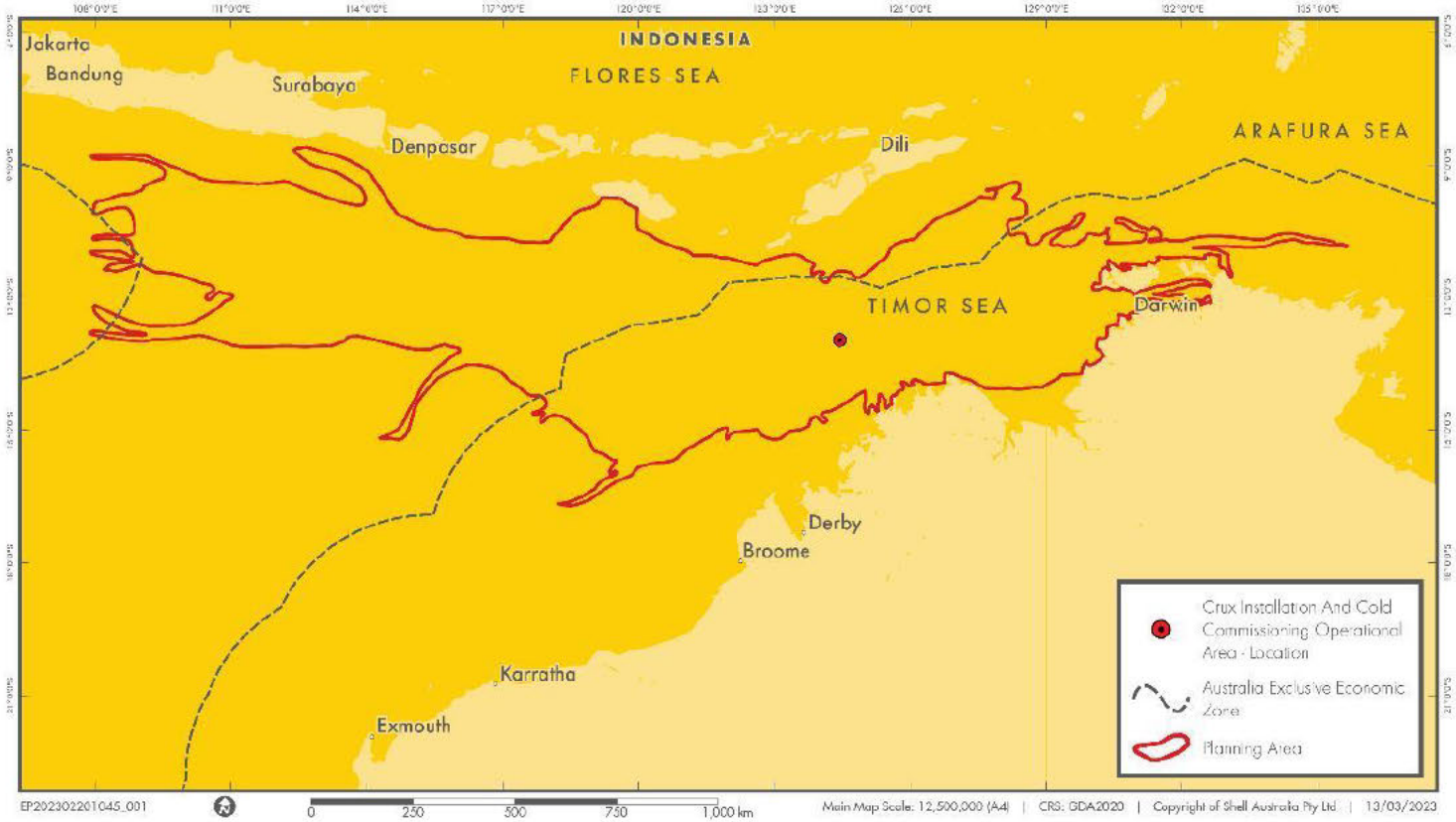
Activity: Shell is planning to drill five production wells through a drilling template and suspend them. The suspended wells will be commissioned once the Crux facility has been installed.

Duration: approximately 10 months, with 10 months contingency. Expected temporary well suspension period, approximately 2-3 years.

Timing: Expected Mobile Offshore Drilling Unit Operations start date – end 2023 - early 2024.

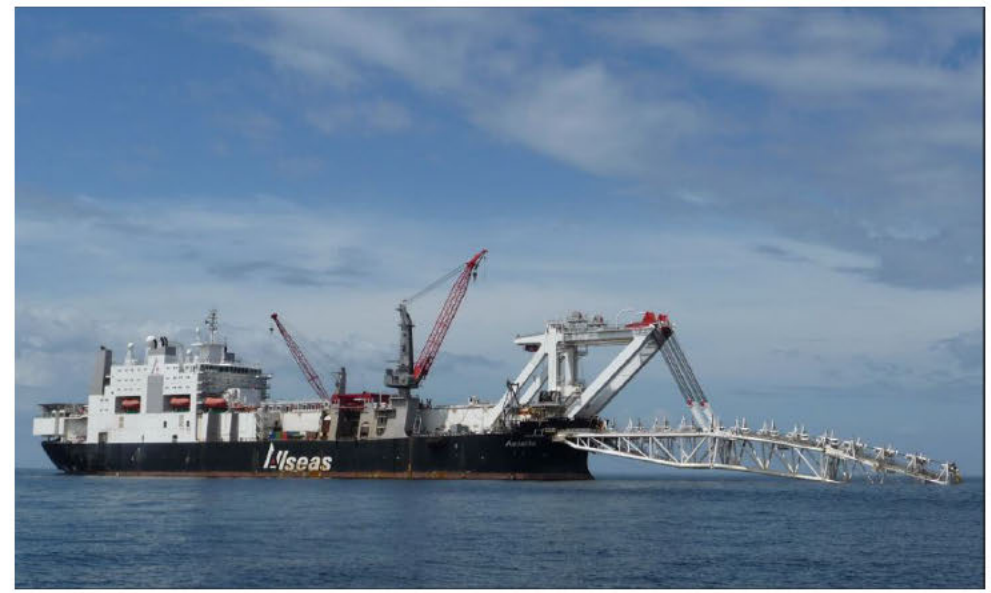
Key point

4. Crux Installation and Commissioning Environment Plan – putting in the pipeline and substructure and checking everything works



Crux pipelay

- Putting in the 26-inch export pipeline (~165 km long) from Prelude to Crux
- Vessel operations
- Pre- and post-lay surveys
- Testing it all



The facility will commence cold commissioning(testing) once installation is complete.

Duration: Mid 2024 – Dec 2026

Timing: start mid 2024, pending regulatory approvals.

Key points

Dates for the commencement of activities and duration are subject to schedule change

Shell has done a lot of research into what is important to Aboriginal people in the Crux Planning area.

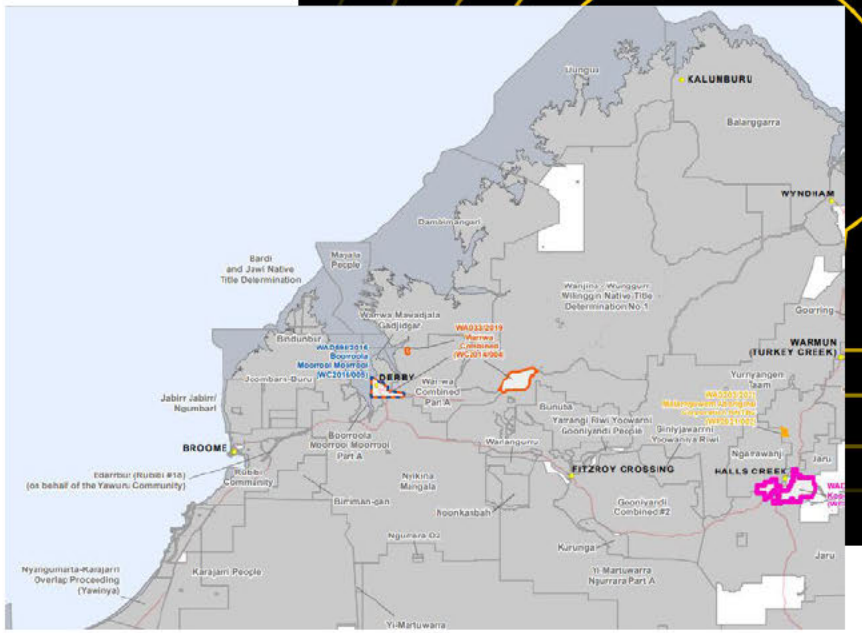
This has been done using Healthy Country plans, Native Title Determinations, ILUAs, IPAs, Cultural Heritage Surveys and Assessments, heritage site registration and talking directly with Aboriginal groups.

Underwater Cultural Heritage

- We've looked at WA and NT databases for registered sites. There are no sites currently registered within the operational areas.
- The Crux operating area is below the historical seabed levels (below 130m sea level). Its very unlikely there is any cultural heritage that far out to sea – the area was never above sea levels when human occupation existed.
- Further work mapping is being done on what tangible underwater cultural heritage could remain in the larger planning area

What we don't know

- Any concerns for particular areas and sites that may exist for each different TO groups
- What you think of our current management methods



Crux Operations Protecting land and sea Country.

Environmental Panel

A panel of subject matter experts has been established, who you can go to with questions, concerns and complaints
You have access to the panel, with the costs incurred by Shell. It is anonymous.

You can ask whatever you like from the Panel.

They are independent of Shell (although some have previously worked for Shell)

- Shell will not see any of the information shared.
- Any conversation is between you and the panel member.

[redacted]

[redacted]

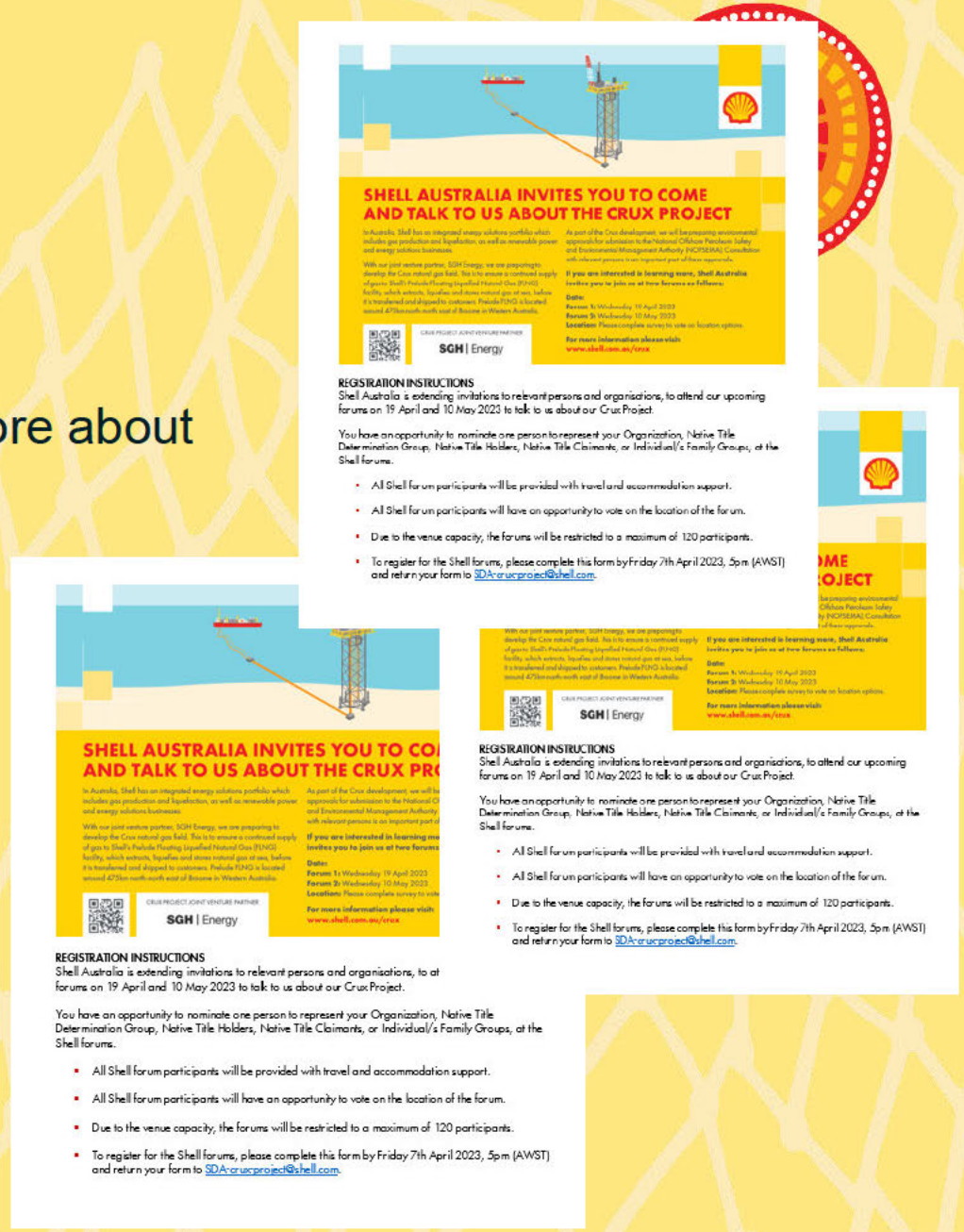
Now what

Shell is keen to keen in touch and develop stronger relationships.

- Possible further meetings – let Shell know
- Talk to your communities
- Ask questions of the Panel
- Ask questions of Shell what you want to know more about or have concerns
- Info on the web

Web:

- www.shell.com.au/about-us
- Google “Shell Crux”



Appendix A - 7.07 Presentation – Wunambal Gaambera Aboriginal Corporation – 15 September 2023

Shell Australia
Wunambal Gaambera

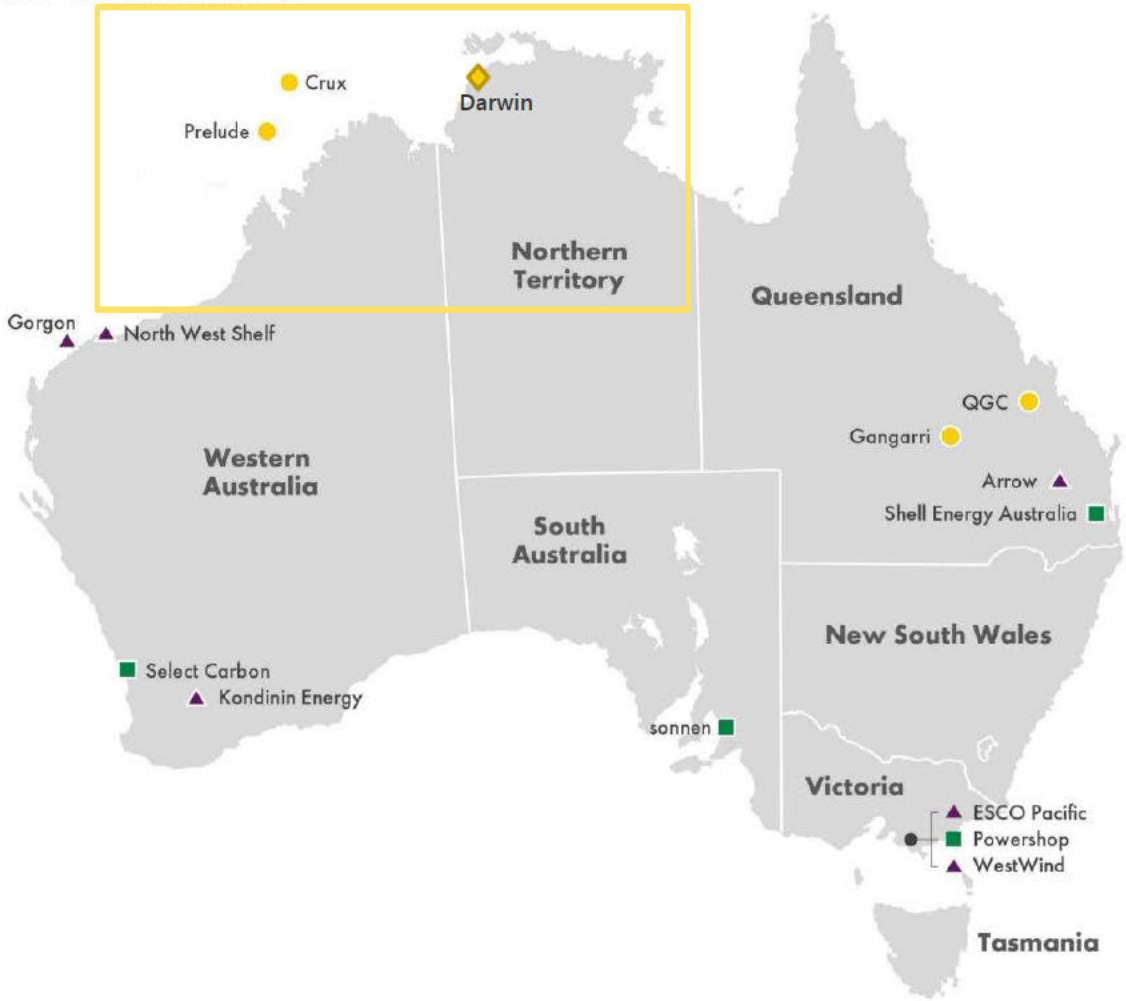
15 September 2023

Aims of today

1. Some background on Shell in Australia and Shell in WA
2. Crux - what it is, where it is at now.
3. Environmental Management and Impacts
4. Your priorities
5. Where to from here

- ask questions at any time -

Who is Shell?



SHELL OPERATED

Crux	82%
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Prelude	67.5%
QGC	75%

WHOLLY OWNED SUBSIDIARIES

Powershop	100%
Select Carbon	100%
Shell Energy Australia	100%
sonnen	100%

NON-OPERATED

Arrow	50%
Browse	27%
ESCO Pacific	49%
Gorgon	25%
Kondinin Energy	50%
North West Shelf	16.67%
WestWind	49%

What is Prelude?

- Prelude is a Floating Liquefied Natural Gas (FLNG) project located 475km north-northeast of Broome, Western Australia, in the Browse Basin.
- The Prelude FLNG facility is moored over the Prelude gas field in 250m water depth and more than 200km from the coastline.
- Prelude produces LNG, LPG and condensate.
- Prelude has an onshore supply base in Darwin.

Location:
WA-44-L, in Commonwealth marine waters, 475 km north-north east of Broome in Western Australia

Facility Type:
Floating liquefied natural gas (FLNG) facility

Number of wells:
Seven

Production capacity:
3.6 million tonnes per annum (mtpa) LNG, 1.3 mtpa LPG, 1.3mtpa condensate

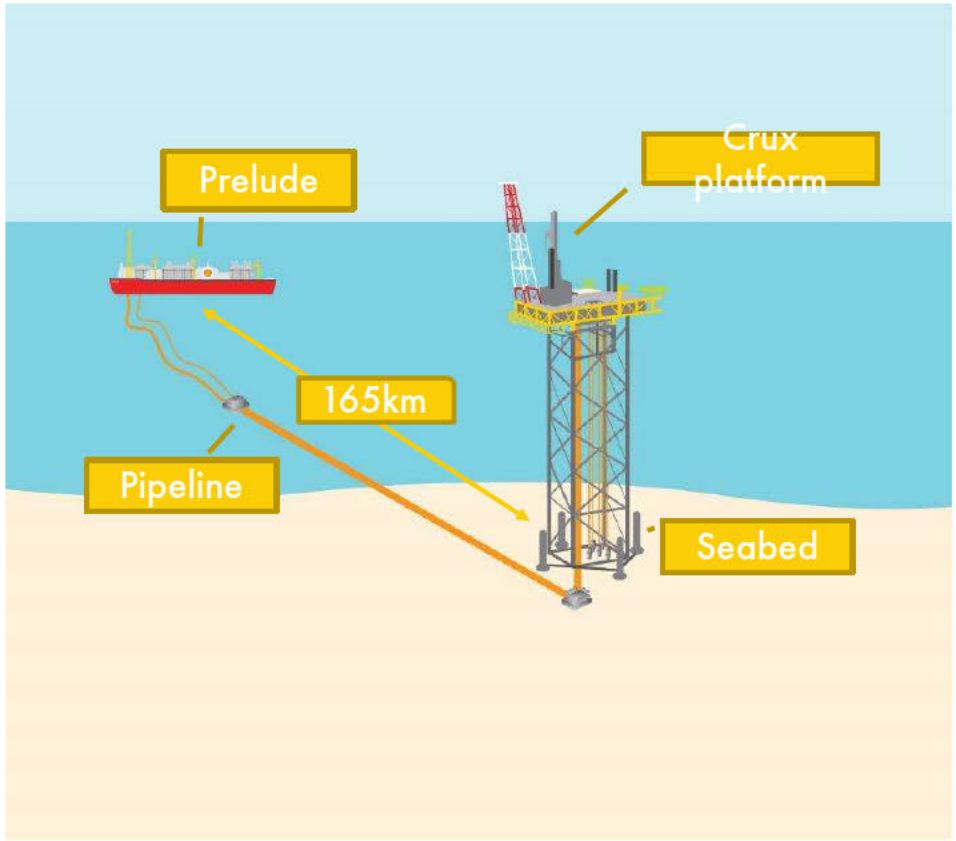
Water depths:
250m

Status:
In operation

The Crux Project

What is Crux?

- In May 2022, Shell Australia and SGH decided to go ahead with Crux.
- The project is a long-term extension to the existing Prelude FLNG facilities.
- Crux consists of a platform (which is not normally manned), above 5 gas wells. The gas is delivered via a pipeline to Shell's Prelude project, which is moored some 165 Km away, and processed onboard.
- The project is part of Shell's strategy to help meet the needs of gas users as the energy market moves to a lower carbon future.



Crux

- The five Environment Plans and what they cover
  1. Seabed survey
  2. Drilling template
  3. Drilling development
  4. Installation and Commissioning
  5. Completions, Start-up and Operations (just started preparation)

- **Shell's obligations to consult, and your rights to raise objections and claims.**
- Are there others we should consult?
- What the Crux Environmental Plans do to protect cultural heritage, marine systems, coastlines, Traditional Owner access to country
- Ongoing engagement with Traditional Owner groups and other Relevant Persons.
- The Independent Panel

WNFSP1

WNFSP0

Slide 7

WNFSP0 Important this stays in every Shell consultation information package initially sent out from now moving forward. Good to reinforce in the meeting too.
Waugh, Nathan F SDA-PTS/SD/I, 2023-09-04T01:32:05.897

WNFSP1 This is also a question we should ask all TO groups now moving forward. Put it in the slide is important I think.
Waugh, Nathan F SDA-PTS/SD/I, 2023-09-04T01:32:55.634

Crux Environment Plans

These describe the impacts and risks, both planned and accidental that may occur

Planned impacts are known activities that result in physical impact to the environment, i.e.:

- Disturbances to the seabed.
- Drilling Fluid Discharges.
- Noise generated from construction activities.

These planned impacts will occur within close proximity to the operational area. Shell has means to control the impact of these.

Accidents could include:

- Diesel spill as a result of a vessel collision.
- Hydrocarbon spill as a result of loss of well control.
- Introduction of invasive species from the vessels that will be entering Australian waters.

Such accidents are very rare. Shell has to be prepared for them, to ensure they have adequate controls. For each key stage of Crux, Shell develops an Environmental Plan which looks at the key risks of that stage, and the size and scale of any impacts – planned or accidental.

The Environmental **Planning Areas represent the maximum outside limit of hundreds of individual, possible spill incidents. They take into account weather, waves, currents, and other conditions.**

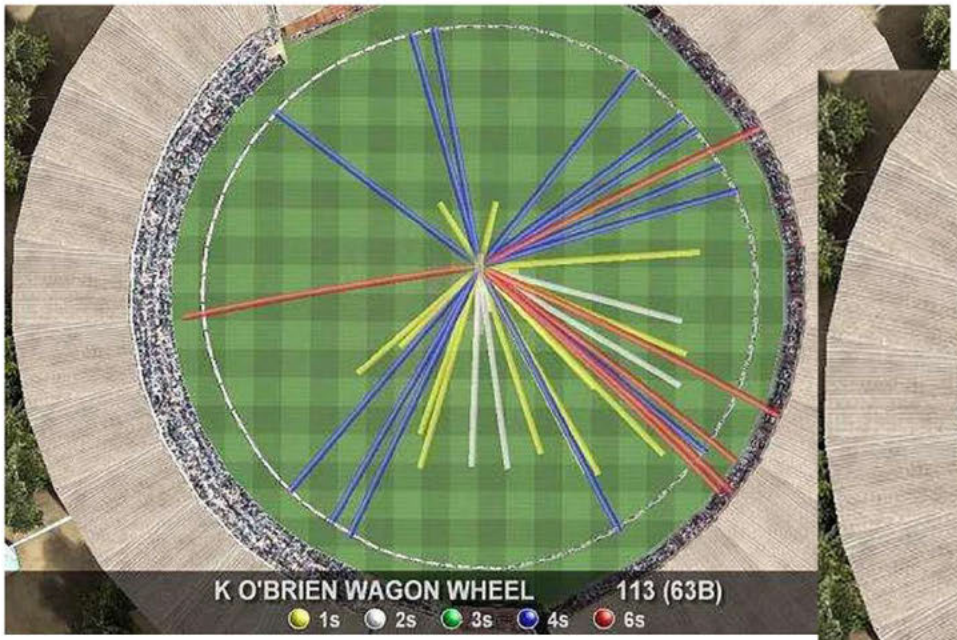
The environmental plans

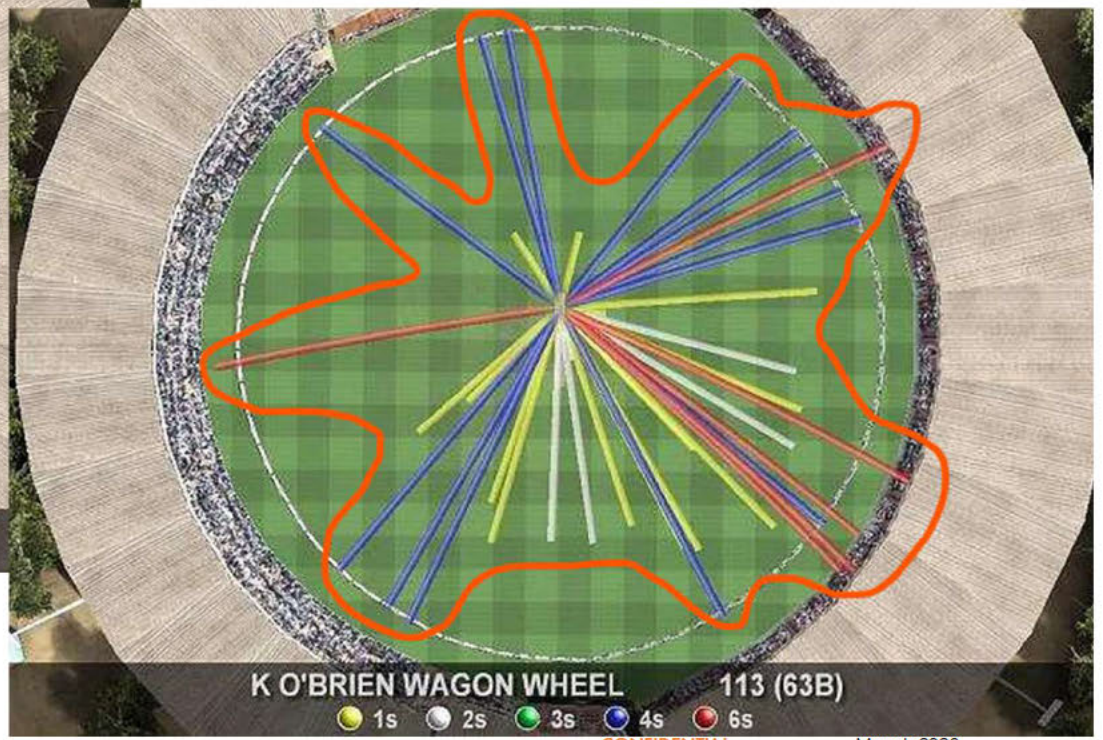
There are four Environment Plans for Crux that describe what Shell will do to protect the environment. These must be submitted to, and approved by NOPSEMA.

1. *Seabed Survey Environment Plan – submitted*
2. *Drilling Template Environment Plan – submitted*
3. **Development Drilling Environment Plan – submitted**
4. **Crux Installation and Cold Commissioning Environment Plan – to be submitted in November**
5. **Completions, Start-up and Operations Environment Plan – just started preparation**

Environmental Plans

The Environmental Planning Areas are the outside limit of hundreds of individual, mapped accidents. A single incident will not affect the entire Planning area. Like in a cricket game...





Oil Spill modelling

Crux Operations - Protecting land and sea Country.

Shell has done a lot of research into what is important to Aboriginal people in the Crux Planning area. We used Healthy Country plans, Native Title Determinations, ILUAs, IPAs, Cultural Heritage Surveys and Assessments, heritage site registration and are talking directly with Aboriginal groups.

Underwater Cultural Heritage

- We've looked at WA and NT databases for registered sites. There are no sites currently registered within the operational areas.
- The Crux operating area is below the historical seabed levels (below 130m sea level). Its very unlikely there is any cultural heritage that far out to sea – the area was never above sea levels when human occupation existed.
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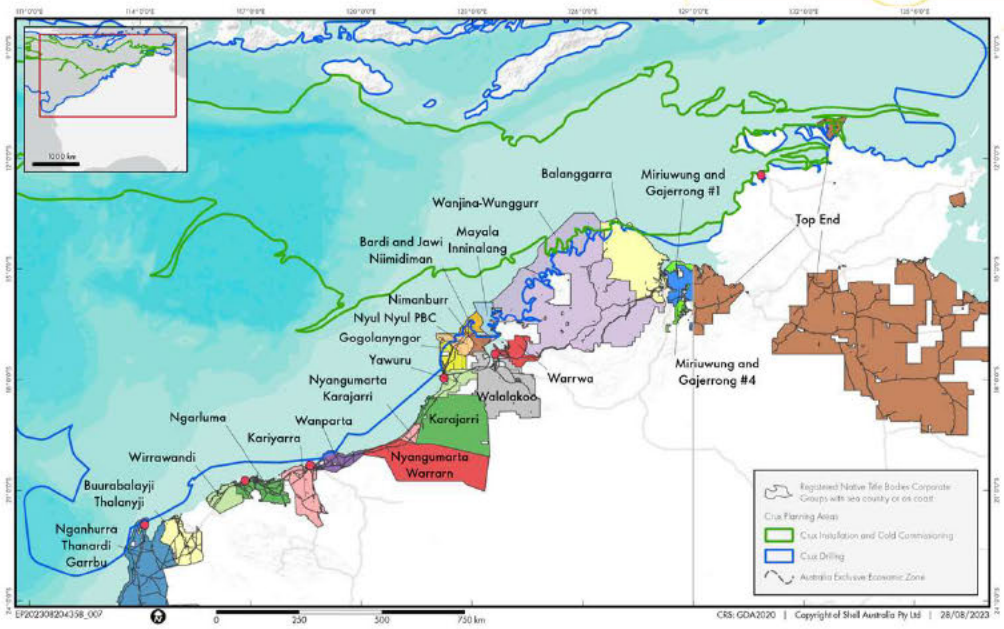


What we don't know

- Any concerns for particular areas and sites that may exist for each different Traditional Owner groups
- What you think of our current management methods

Environmental Panel

A panel of subject matter experts has been established, who you can go to with questions, concerns and complaints
You have access to the panel, with the costs incurred by Shell. It is anonymous.

You can ask whatever you like from the Panel.

They are independent of Shell (although some have previously worked for Shell)

- Shell will not see any of the information shared.
- Any conversation is between you and the panel member.

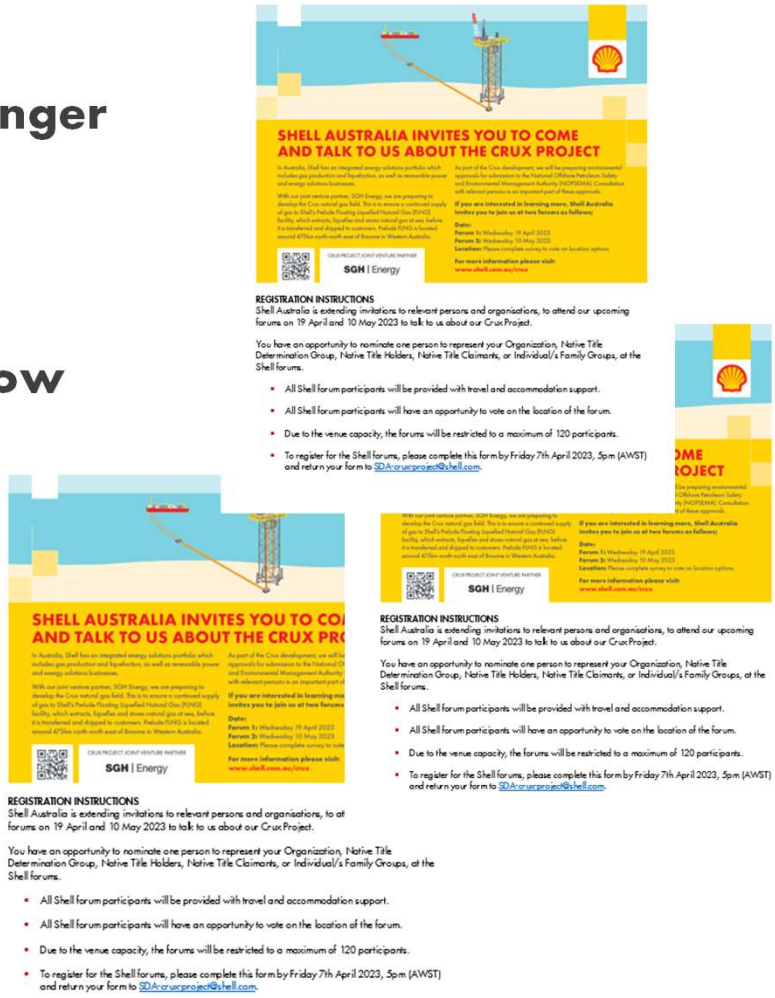
Now what

Shell is keen to keen in touch and develop stronger relationships.

- **Possible further meetings – let Shell know**
- **Talk to your communities**
- **Ask questions of the Panel**
- **Ask questions of Shell what you want to know more about or have concerns**
- **Info on the web**

Web:

- **www.shell.com.au/about-us**
- **Google "Shell Crux"**



Appendix A - 7.08 Presentation - Dambimangari Meeting – 19 September 2023


Shell Australia
Dambimangari Aboriginal
Corporation
19 September

Acknowledgement of Country

Aims of today

1. Introductions – who's in the room
2. Shell and the Crux project
3. Overview of the environmental management plans (incl clarification on question from DAC re seismic surveys)
4. Key issues for Dambimangari
5. Further consultation from here

Who is Shell?

SHELL OPERATED

Crux	82%
Gangarri	100%
Prelude	67.5%
QGC	75%

WHOLLY OWNED SUBSIDIARIES

Powershop	100%
Select Carbon	100%
Shell Energy Australia	100%
sonnen	100%

NON-OPERATED

Arrow	50%
Browse	27%
ESCO Pacific	49%
Gorgon	25%
Kondinin Energy	50%
North West Shelf	16.67%
WestWind	49%

Crux

- What is the Crux Project?
- The four Environmental Plans and what they cover
    1. Seabed survey
    2. Drilling template
    3. Drilling development
    4. Installation and Commissioning
    5. There will be more EPs to come

    - Crux Video -

- What the Crux Environmental Plans do to protect cultural heritage, marine systems, coastlines, TO access to country
- Ongoing engagement with TO groups and other Relevant Persons.
- The Independent Panel

What is Prelude?

- Prelude is a Floating Liquefied Natural Gas (FLNG) project located 475km north-northeast of Broome, Western Australia, in the Browse Basin.
- The Prelude FLNG facility is moored over the Prelude gas field in 250m water depth and more than 200km from the coastline.
- Prelude produces LNG, LPG and condensate.
- Prelude has an onshore supply base in Darwin.

Location:
WA-44-L, in Commonwealth marine waters, 475 km north-north east of Broome in Western Australia

Facility Type:
Floating liquefied natural gas (FLNG) facility

Number of wells:
Seven

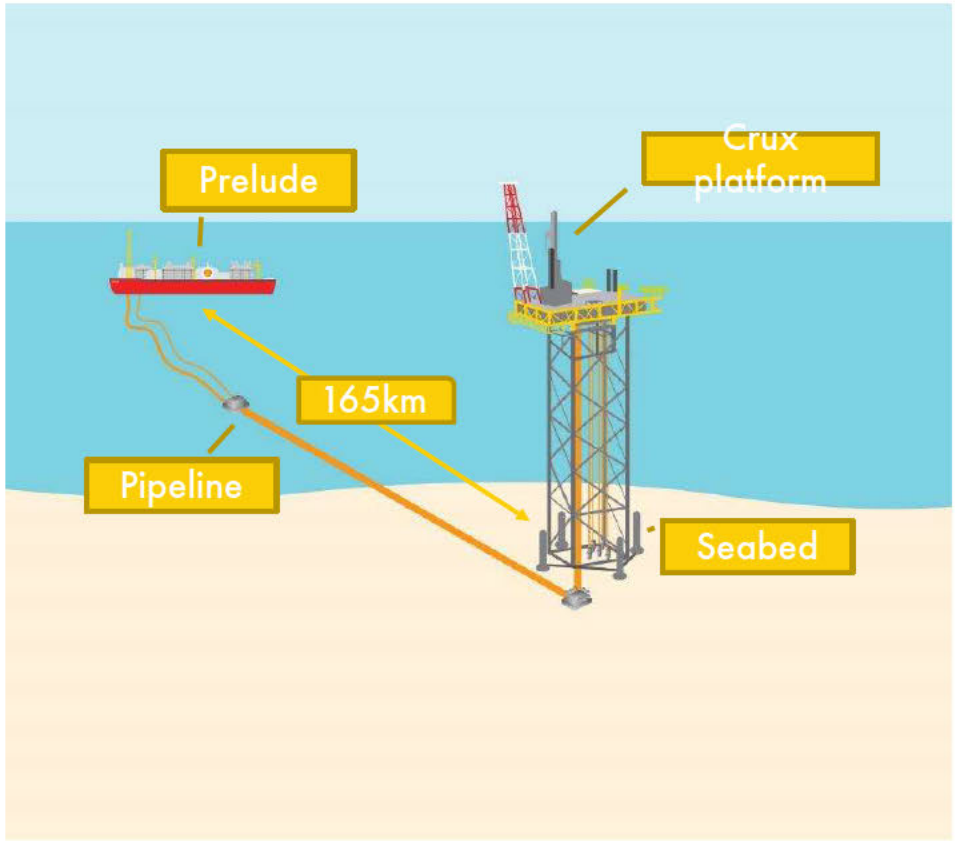
Production capacity:
3.6 million tonnes per annum (mtpa) LNG, 1.3 mtpa LPG, 1.3mtpa condensate

Water depths:
250m

Status:
In operation

What is Crux?

- In May 2022, Shell Australia and SGH decided to go ahead with Crux.
- The project is a long-term extension to the existing Prelude FLNG facilities.
- Crux consists of a platform (which is not normally manned), above 5 gas wells. The gas is delivered via a pipeline to Shell's Prelude project, which is moored some 165 Km away, and processed onboard.
- The project is part of Shell's strategy to help meet the needs of gas users as the energy market moves to a lower carbon future.



The environmental plans

There are four Environment Plans for Crux that describe what Shell will do to protect the environment. These must be submitted to, and approved by NOPSEMA.

1. *Seabed Survey Environment Plan – submitted*
2. *Drilling Template Environment Plan – submitted*
3. **Development Drilling Environment Plan – submitted**
4. **Crux Installation and Cold Commissioning Environment Plan – to be submitted in November**
5. **Additional EPs will deal with the operations of Crux and modifications to Prelude.**

Crux Environment Plans

These describe the impacts and risks, both planned and accidental that may occur

Planned impacts are known activities that result in physical impact to the environment, i.e.:

- Disturbances to the seabed.
- Drilling Fluid Discharges.
- Noise generated from construction activities.

These planned impacts will occur within close proximity to the operational area. Shell has means to control the impact of these.

Accidents could include:

- Diesel spill as a result of a vessel collision.
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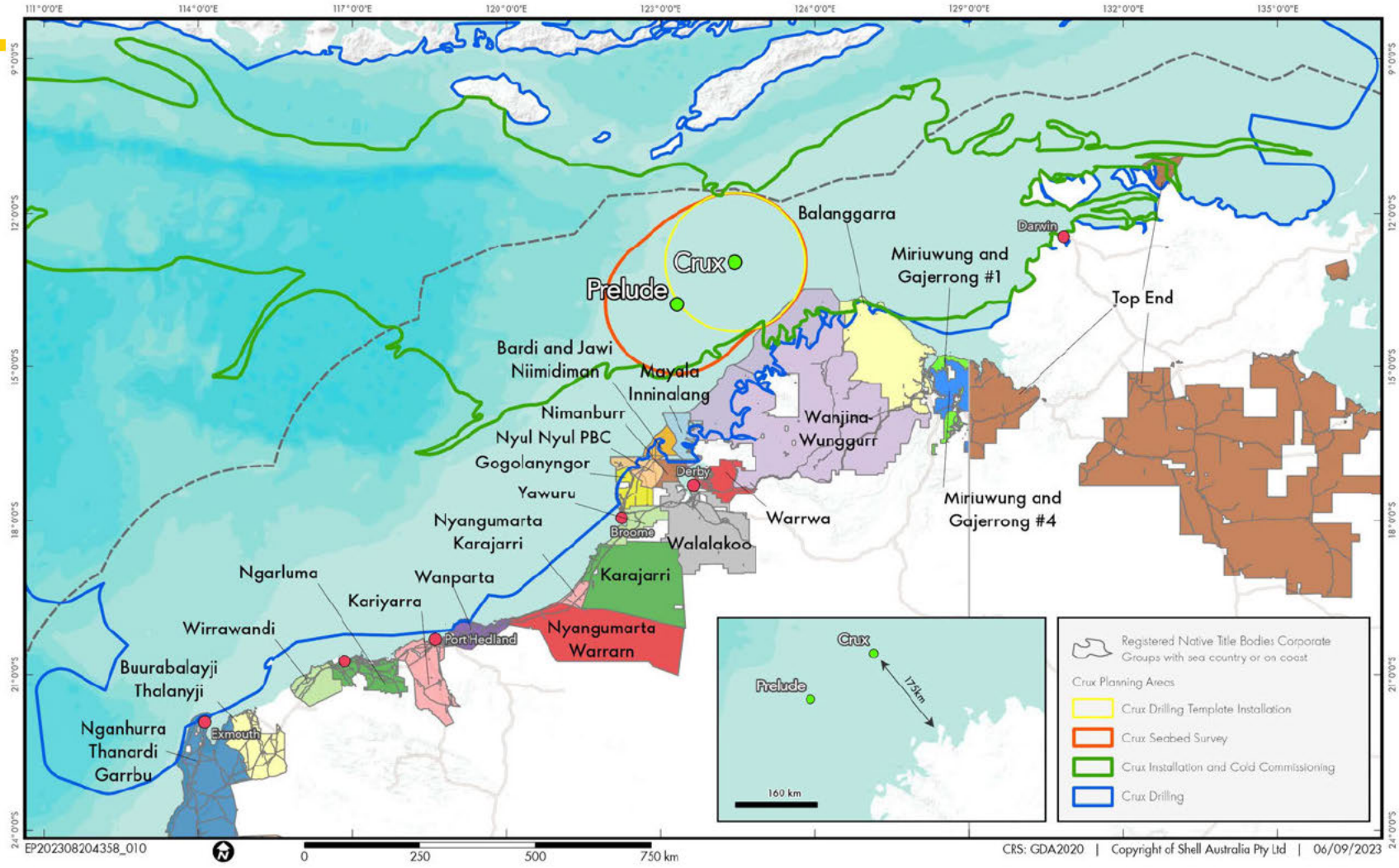
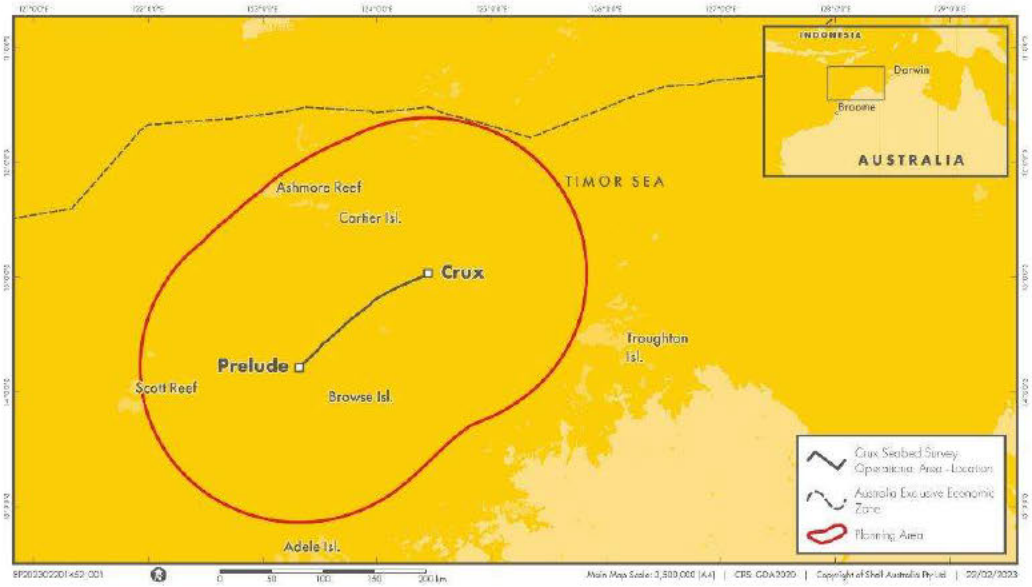
Oil Spill modelling

The 4 EP planning areas



1. Crux Seabed Survey Environment Plan -
Looking at the seabed and sub-seabed conditions



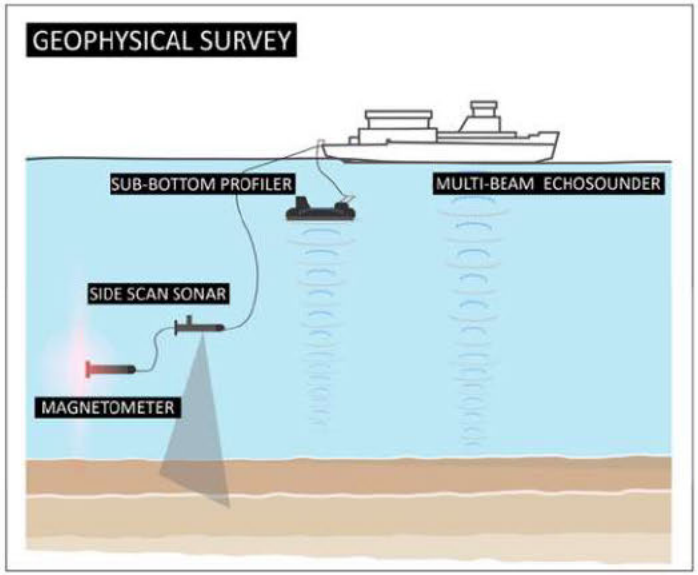
Activity: Shell is planning to carry out a survey of the pipeline route and terminals connecting the Crux and Prelude facilities.

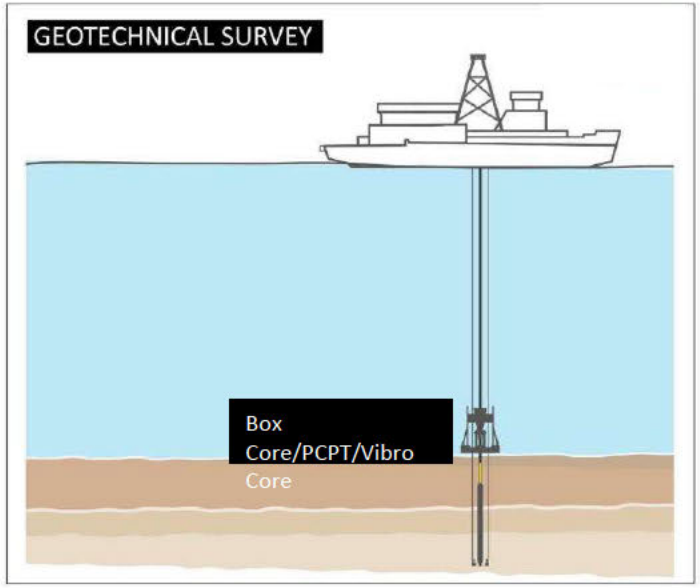
A vessel will traverse the pipeline route, towing survey equipment and deploying coring equipment.

Duration: <5 days

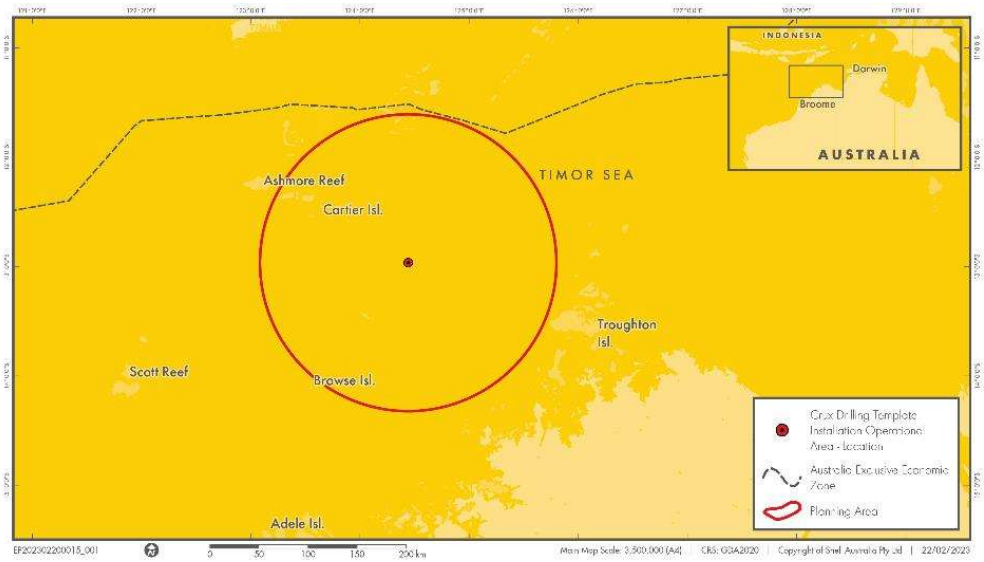
Timing: 1 July – 31 December 2023*

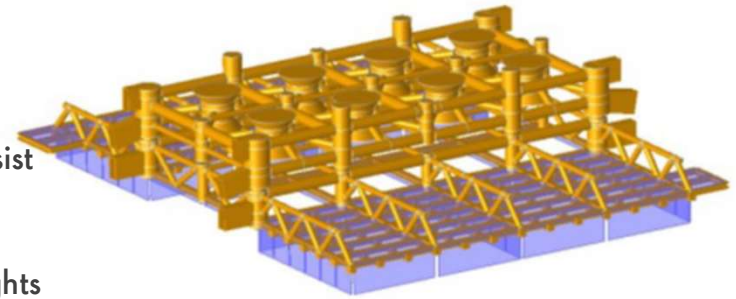
Key points





2. Crux Drilling Template Installation Environment Plan -
The template will act as a guide for the drill bits during drilling operations





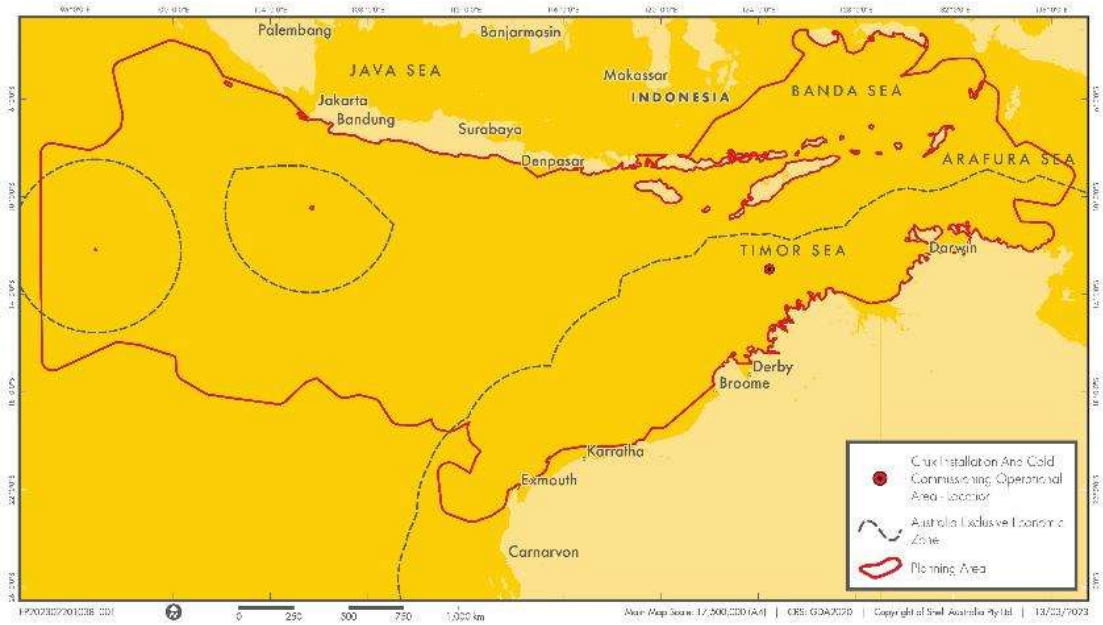
Activity: Shell is planning to lower a fabricated steel structure onto the seabed, which will assist with orienting and locating the drilling activities and the installation of the Crux platform.

Dimensions: 19m length, 14m width, 4m high and covers a seabed footprint of 266m2. It weights 200 tonnes

Duration: <7 days **Timing:** 1 September 2023 – 1 April 2024*

Key points

3. Crux Development Drilling Environment Plan – drilling the wells



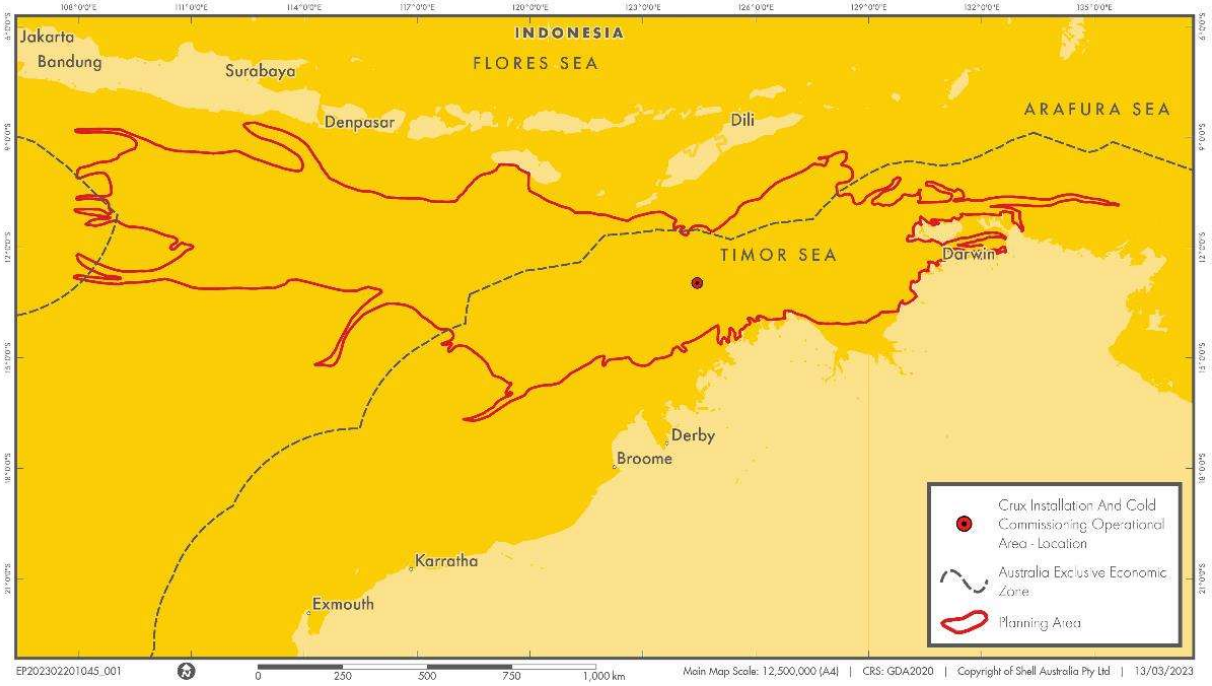
Activity: Shell is planning to drill five production wells through a drilling template and suspend them. The suspended wells will be commissioned once the Crux facility has been installed.

Duration: approximately 10 months, with 10 months contingency. Expected temporary well suspension period, approximately 2-3 years.

Timing: Expected Mobile Offshore Drilling Unit Operations start date – end 2023 - early 2024.

Key point

4. Crux Installation and Commissioning Environment Plan – putting in the pipeline and substructure and checking everything works



Crux pipelay

- Putting in the 26-inch export pipeline (~165 km long) from Prelude to Crux
- Vessel operations
- Pre- and post-lay surveys
- Testing it all

The facility will commence cold commissioning(testing) once installation is complete.

Duration: Mid 2024 – Dec 2026

Timing: start mid 2024, pending regulatory approvals.

Key points

Dates for the commencement of activities and duration are subject to schedule change

Shell has done a lot of research into what is important to Aboriginal people in the Crux Planning area.

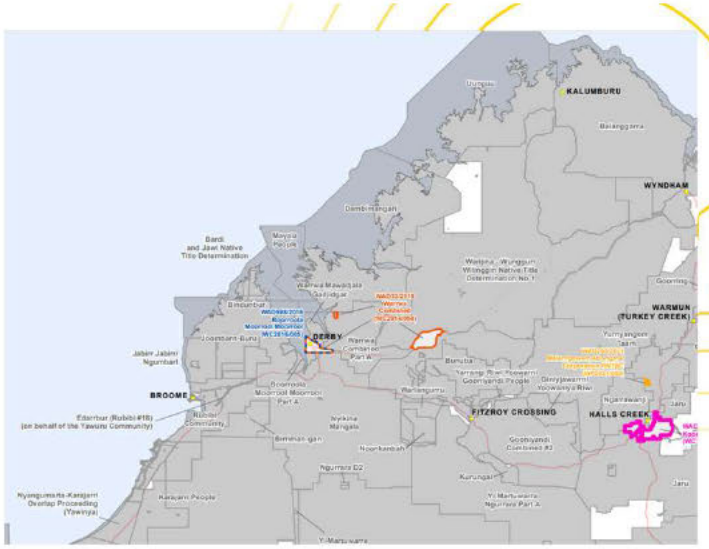
This has been done using Healthy Country plans, Native Title Determinations, ILUAs, IPAs, Cultural Heritage Surveys and Assessments, heritage site registration and talking directly with Aboriginal groups.

Underwater Cultural Heritage

- We've looked at WA and NT databases for registered sites. There are no sites currently registered within the operational areas.
- The Crux operating area is below the historical seabed levels (below 130m sea level). Its very unlikely there is any cultural heritage that far out to sea – the area was never above sea levels when human occupation existed.
- Further work mapping is being done on what tangible underwater cultural heritage could remain in the larger planning area

What we don't know

- Any concerns for particular areas and sites that may exist for each different TO groups
- What you think of our current management methods



Crux Operations Protecting land and sea Country.

Environmental Panel

A panel of subject matter experts has been established, who you can go to with questions, concerns and complaints
You have access to the panel, with the costs incurred by Shell. It is anonymous.

You can ask whatever you like from the Panel.

They are independent of Shell (although some have previously worked for Shell)

- Shell will not see any of the information shared.
- Any conversation is between you and the panel member.

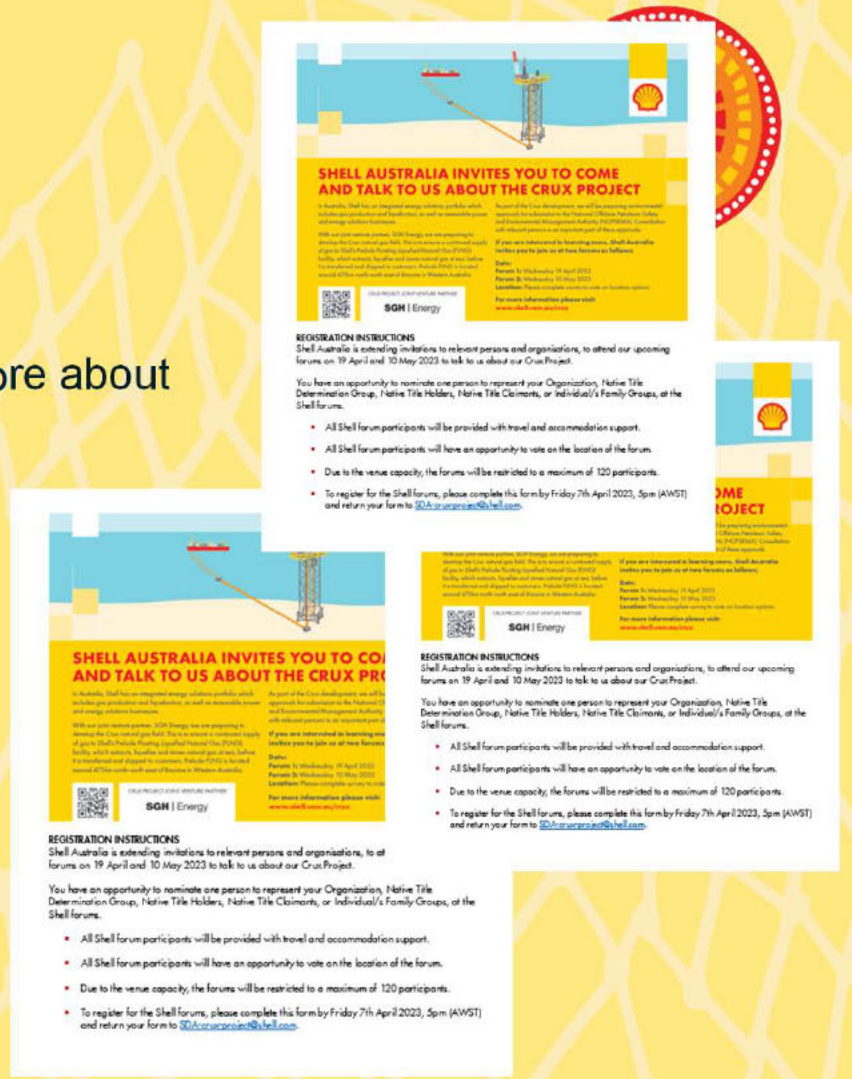
Now what

Shell is keen to keen in touch and develop stronger relationships.

- Possible further meetings – let Shell know
- Talk to your communities
- Ask questions of the Panel
- Ask questions of Shell what you want to know more about or have concerns
- Info on the web

Web:

- www.shell.com.au/about-us
- Google “Shell Crux”



Appendix A - 7.09 Email invitation to Broome forum – end of April

Traditional Owners in Australia's North West,

You are invited to a meeting to talk about Shell Australia's Crux project.

Crux is a gas project, located 190km off the Kimberley coast which will provide future supply for Shell's existing Prelude Floating Liquid Natural Gas (FLNG) facility. We want to give you the opportunity to hear about the project and for you to ask any questions. Detailed information about the project is available on our website
- http://www.shell.com.au/crux

We are holding a full day forum, details as follows :

Date: Wednesday 10 May 2023
Time: 9.30am – 3.00pm
Venue: Nyamba Buru Yawuru, 55 Reid Road Cable Beach, Broome
Food and drink provided.

(If you received an earlier invite from us, this meeting was called "Forum 2")

If you missed Forum 1 in Perth, Forum 2 will cover a similar update. If you attended Forum 1 and have feedback or new questions– please come along.

We'll provide food and drinks throughout the day, so come as early as you like – we'll start around 9.30am. We'll provide a good lunch at 12.30 too.

Please let us know if you are coming, by sending your RSVP to SDA-crux-project@shell.com by Friday 5 May . In your response please let us know if you need to travel to Broome as we may be able to assist.

Also, please pass the word on –TO groups from Exmouth through to Darwin have land and sea country and your views matter - we want to hear from you. If you can't come, but still want to talk to us, let us know and we will follow up with you.

In the meantime if you have any questions, please call [details redacted]

The Crux Team

Appendix A - 7.10 Email follow up – end of May

PBCs, Traditional Owners, and Aboriginal Organisations,

In recent weeks, Shell has held several forums and meetings to provide information about plans to install a gas platform, called Crux.

Crux will be installed offshore, about 620km north-east of Broome, and it will supply gas to Prelude, via a 160km pipeline, which is Shell's existing gas facility in the Browse basin.

To do this, environmental approvals need to be in place, from NOPSEMA. NOPSEMA is the National Offshore Petroleum Safety and Environmental Management Authority. To give approval, NOPSEMA must be confident that Shell will act responsibly to protect the environment, limit emissions, and that it can respond quickly and effectively to any incidents.

NOPSEMA also require that Shell has made information available to all relevant persons who may be affected.

If you have attended one of the forums, you will know a bit about the project by now, but you or your community may have other questions.

If you were not able to attend, Shell is still keen to hear from you, and to respond to your questions.

- Either way**, you can contact Shell via this email address: SDA-crux-project@shell.com, or** call: 1800 059 152**.**

Shell also filmed the first forum, and you can watch parts of it via this link: [link redacted].

Shell has also established an independent environmental panel – people who are not employed by Shell, who can answer any questions you have. If you are unsure about what you've heard at a Forum, or would like more information, please contact any of the people listed below. There is no cost to this, and anything you ask or say will be confidential.

Independent Panel Members
[Details redacted]

Detailed information about these activities is available on our website - http://www.shell.com.au/crux - together with maps of impacted areas. For convenience, please review the below factsheets outlining the main areas of activity for your understanding of the project overall:

- Seabed Survey Environment Plan Factsheet
- Drilling Template Environment Plan Factsheet
- Development Drilling Environment Plan Factsheet
- Crux Installation and Cold Commissioning Factsheet

There are also draft versions of the Environment Plans that will be submitted to NOPSEMA.

A final forum will be held in Darwin at the Hilton Boardroom on 31 May (32 Mitchell St, Darwin), from 9.30 – 1.30pm.

We hope to see you there. Please let Shell know on this email address **SDA-crux-project@shell.com**, if you are attending, or need help getting there, as Shell can help with travel.

Thanks,
The Crux Team.

Appendix A - 7.11 Presentation – Larriakia meeting - 5 September 2023

Shell Australia Larrakia

5 September 2023

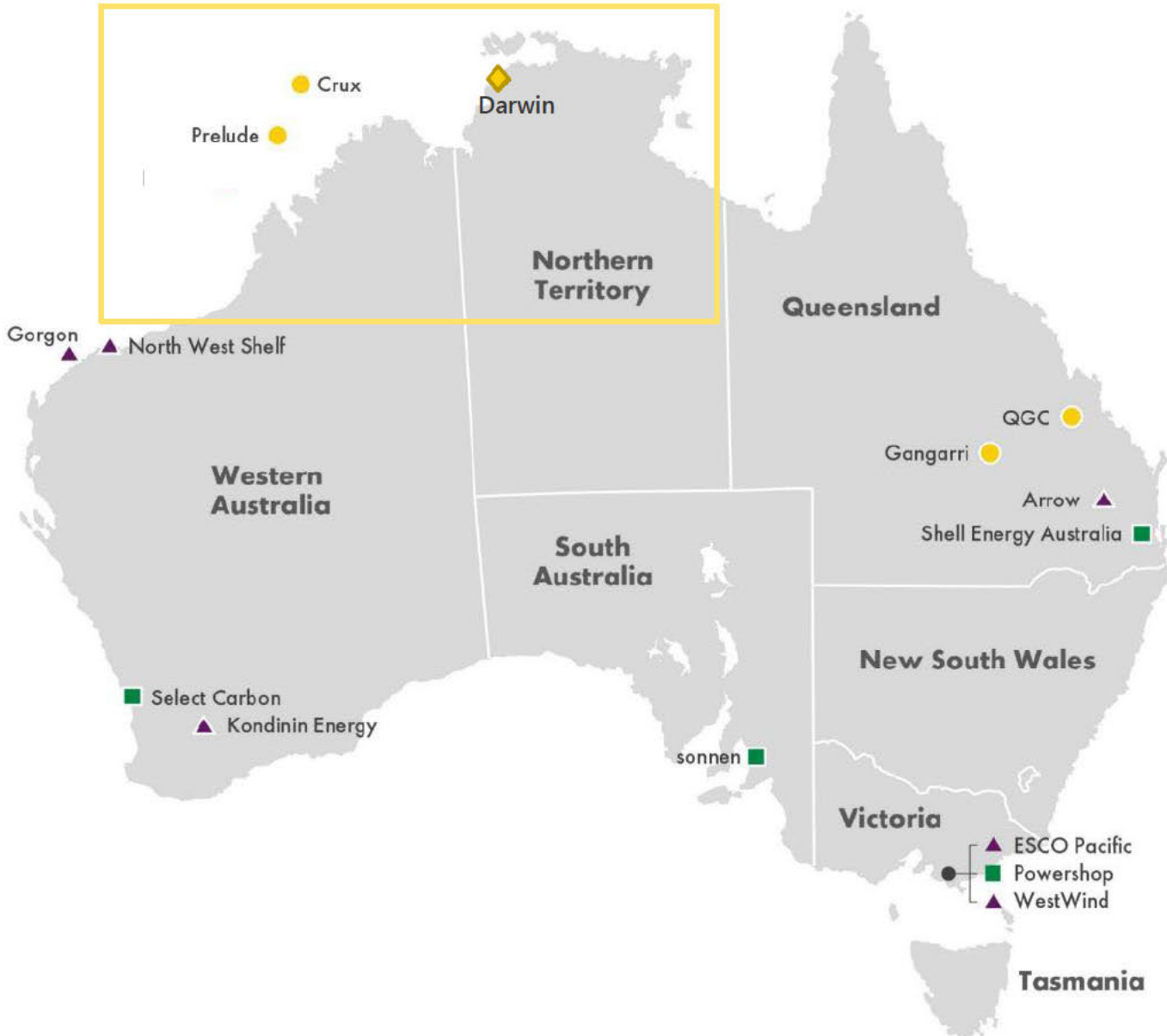
This is Larrakia Country

Aims of today

1. Some background on Shell in Australia and Shell in WA
2. Crux - what it is, where it is at now.
3. Environmental Management and Impacts
4. Priorities for Larrakia
5. Where to from here

- ask questions at any time -

Who is Shell?



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What is Prelude?

- Prelude is a Floating Liquefied Natural Gas (FLNG) project located 475km north-northeast of Broome, Western Australia, in the Browse Basin.
- The Prelude FLNG facility is moored over the Prelude gas field in 250m water depth and more than 200km from the coastline.
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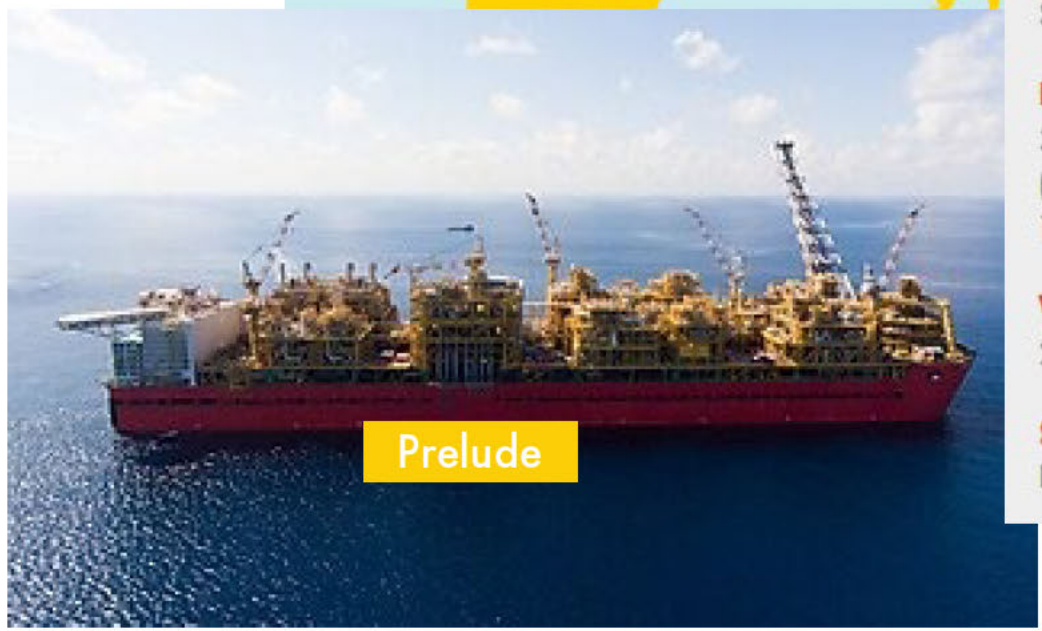

Location:
WA-44-L, in Commonwealth marine waters, 475 km north-north east of Broome in Western Australia

Facility Type:
Floating liquefied natural gas (FLNG) facility

Number of wells:
Seven

Production capacity:
3.6 million tonnes per annum (mtpa) LNG, 1.3 mtpa LPG, 1.3mtpa condensate

Water depths:
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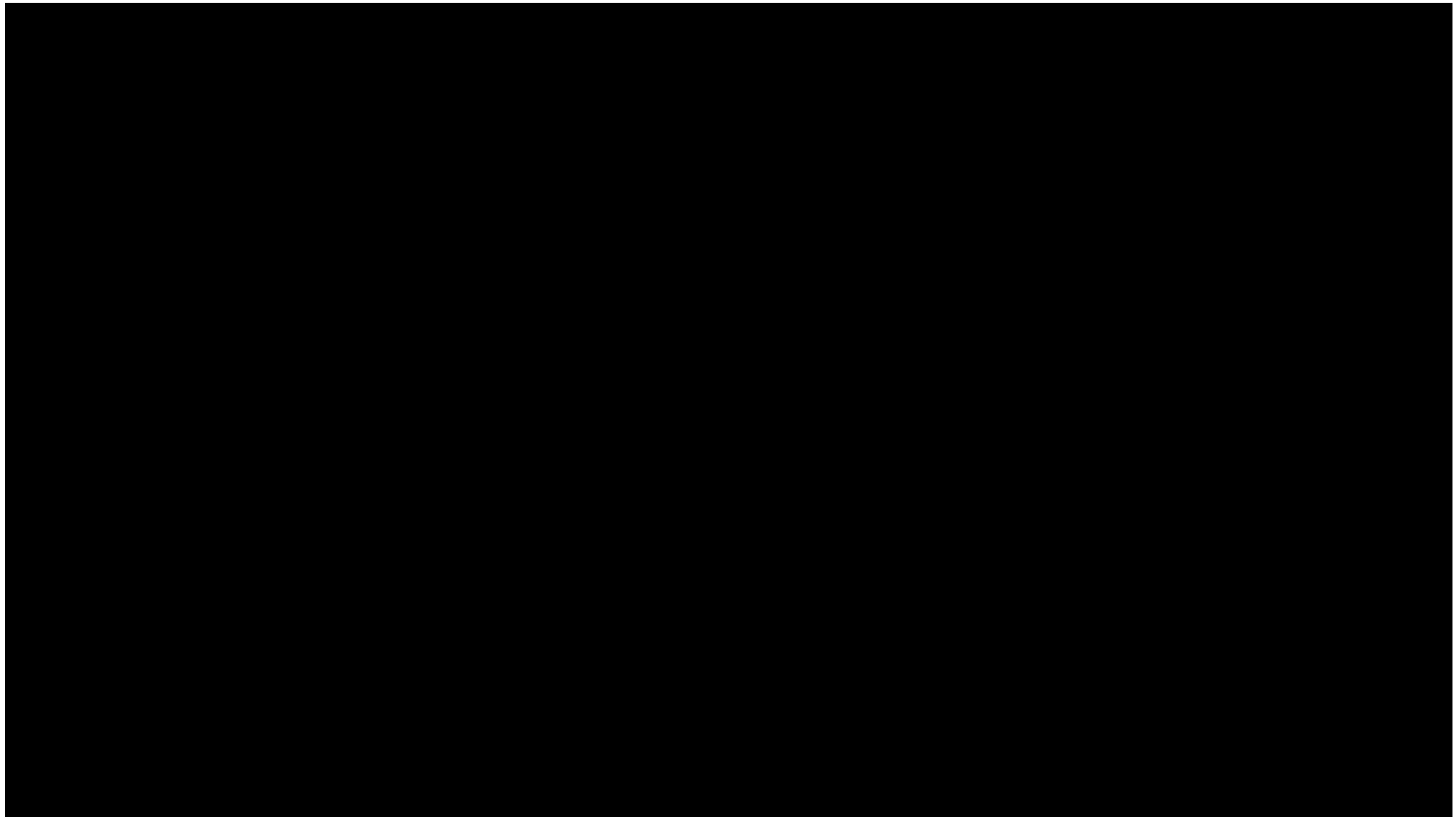
Status:
In operation

The Crux Project



What is Crux?

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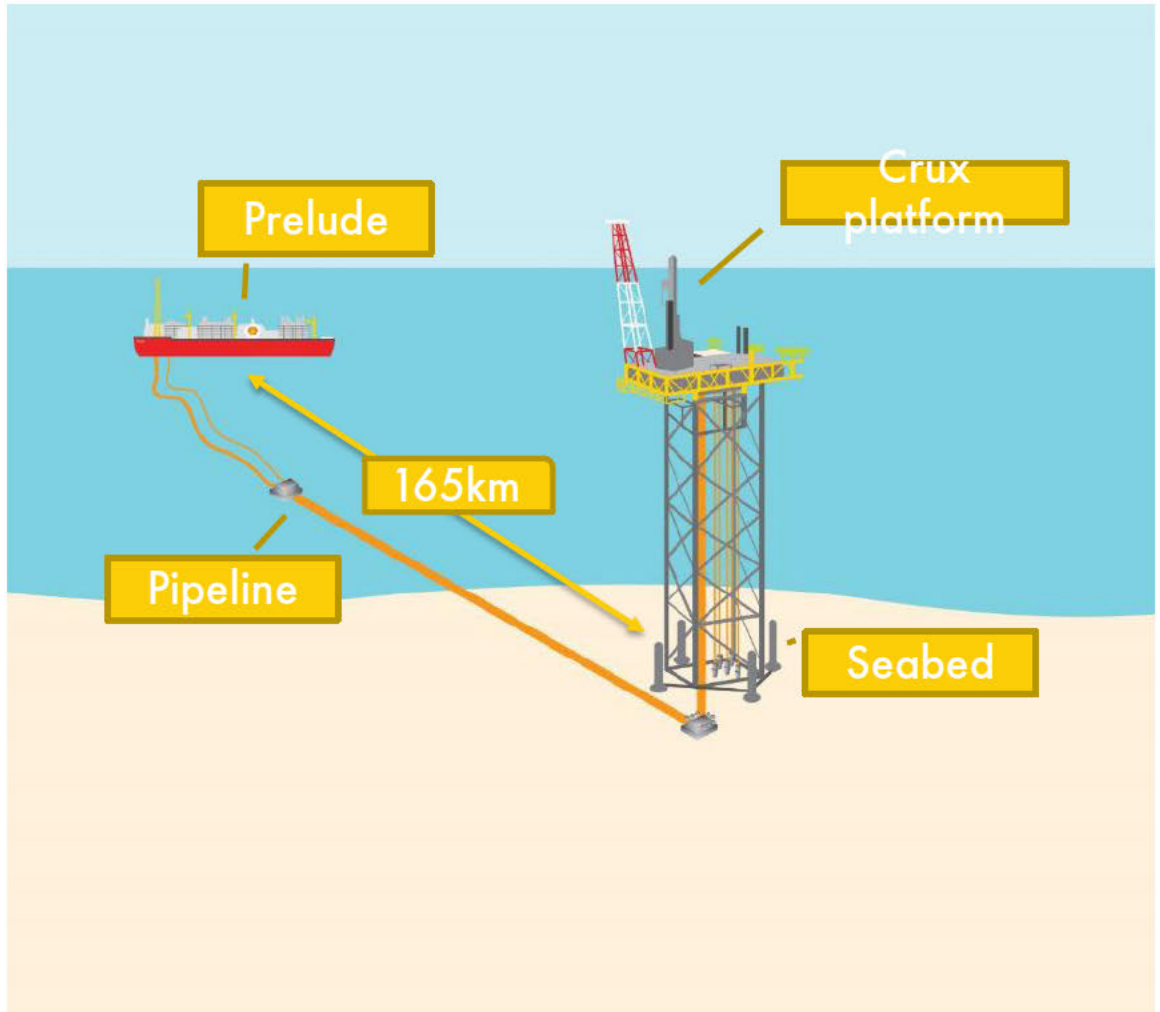

Crux

- Crux Project?
- The five Environmental Plans and what they cover
    1. Seabed survey
    2. Drilling template
    3. Drilling development
    4. Installation and Commissioning
    5. Completions, Start-up and Operations (just started preparation)

- <u>Shell's obligations to consult, and your rights to raise objections and claims.</u>
- Are there others in Larrakia we should consult?
- What the Crux Environmental Plans do to protect cultural heritage, marine systems, coastlines, TO access to country
- Ongoing engagement with TO groups and other Relevant Persons.
- The Independent Panel

Crux Environment Plans

These describe the impacts and risks, both planned and accidental that may occur

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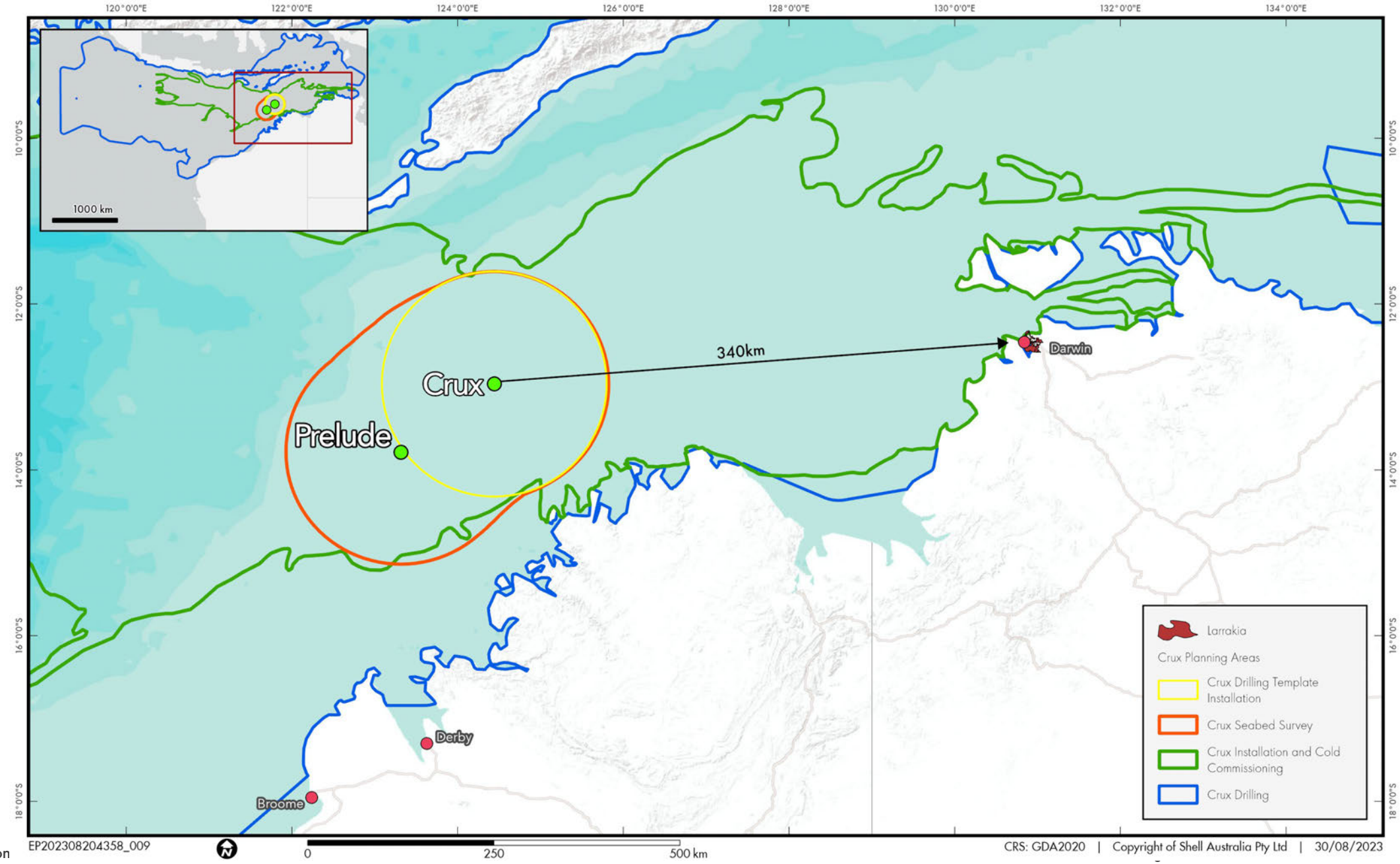
4. Crux Installation and Cold Commissioning Environment Plan – to be submitted in November
5. Completions, Start-up and Operations Environment Plan – just started preperation

The 4 EP planning areas, Larrakia country.

- Each of the 4 plans relates to a specific geographic area.
- Only EPs 3 and 4 have potential impact to the NT



Oil Spill modelling

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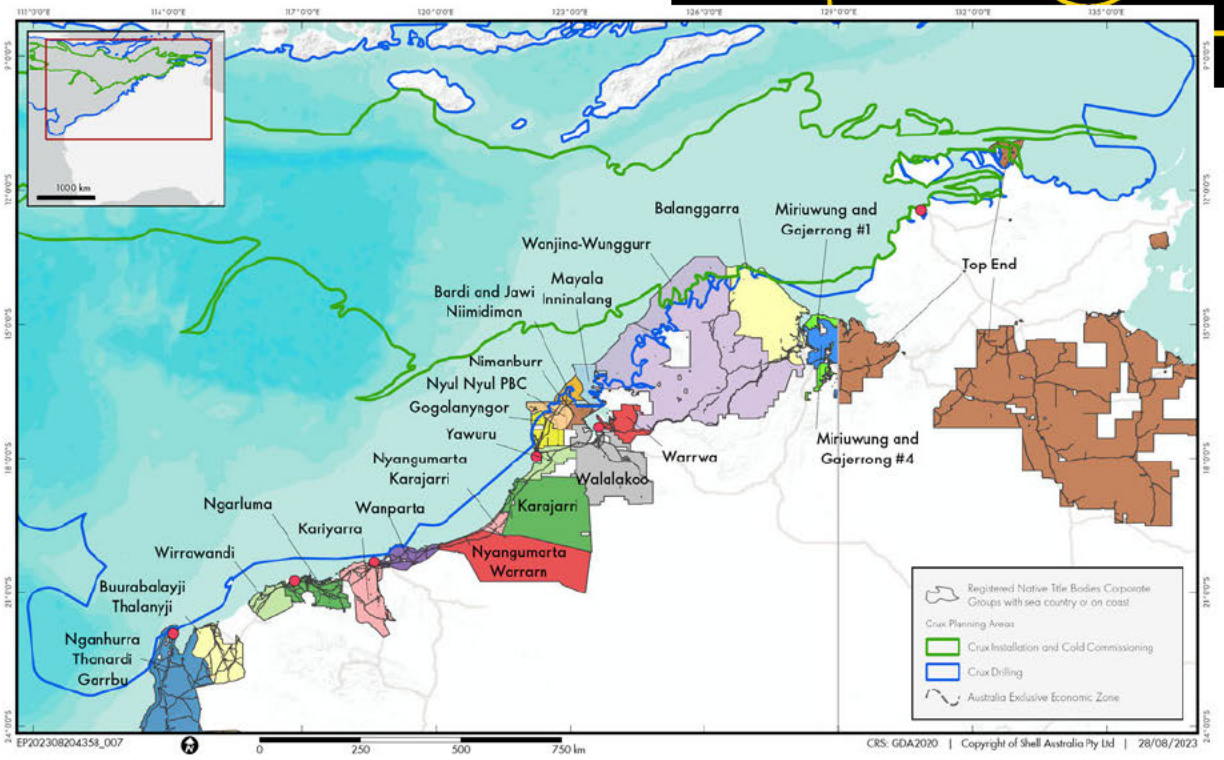

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Redacted names Redacted phone numbers redacted emails

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- **Info on the web**

Web:

- **www.shell.com.au/about-us**
- **Google "Shell Crux"**

Appendix A - 7.12 Presentation – NTGAC meeting – 24 October 2023

Shell Australia

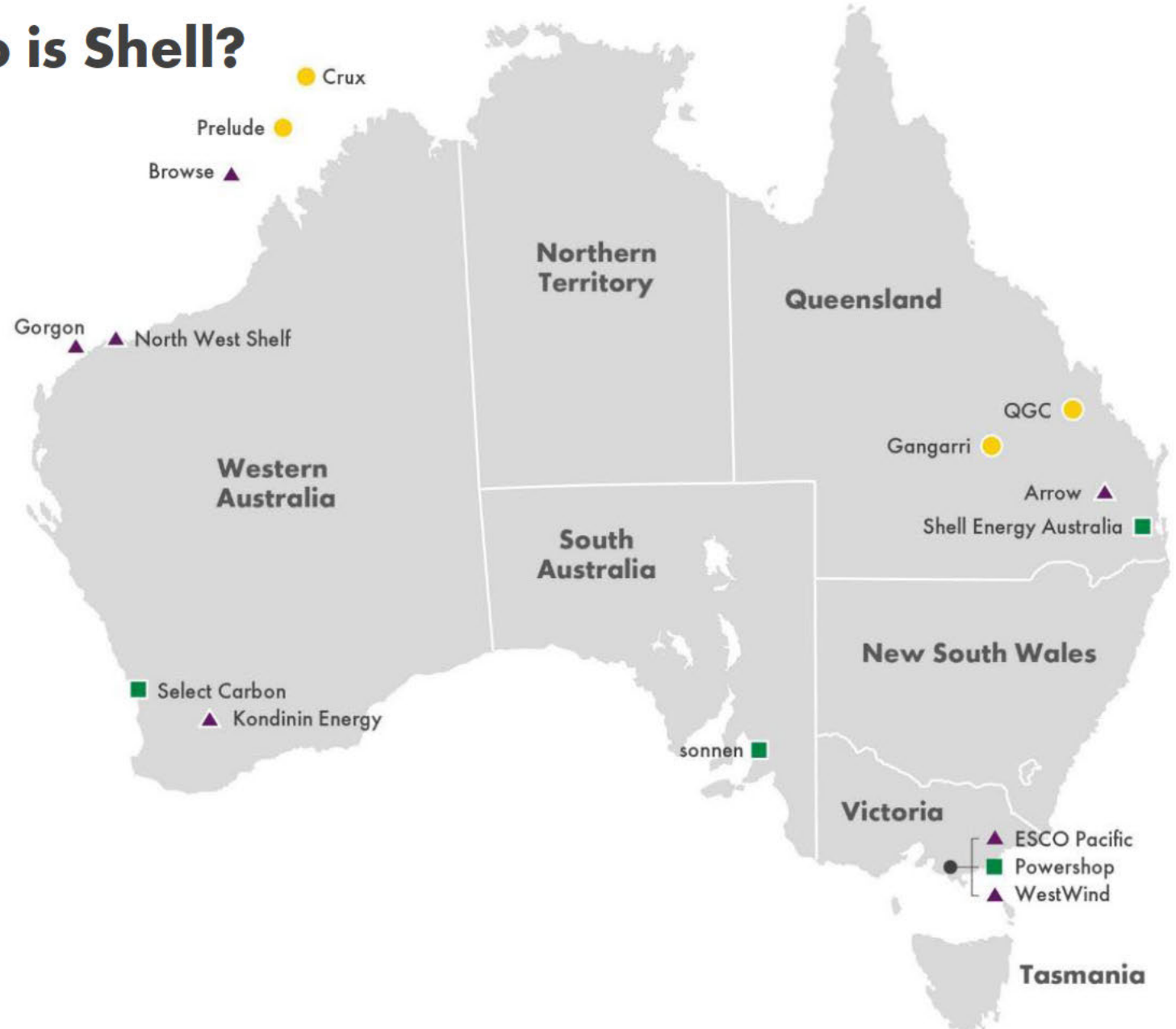
Nganhurra Thanardi Garrbu
24 October 2023

Shell Australia respectfully acknowledges the many Traditional Owner groups of the lands and waters on which we operate and pay our respect to the Elders past, present and emerging.

Aims of today

1. Some background on Shell in Australia and Shell in WA
2. Crux - what it is, where it is at now.
3. Management and Impacts - Environmental, social and economic
4. Priorities for NTGAC
5. Where to from here – relationships into the future, opportunities

Who is Shell?



SHELL OPERATED

Crux	82%
Gangarri	100%
Prelude	67.5%
QGC	75%

WHOLLY OWNED SUBSIDIARIES

Powershop	100%
Select Carbon	100%
Shell Energy Australia	100%
sonnen	100%

NON-OPERATED

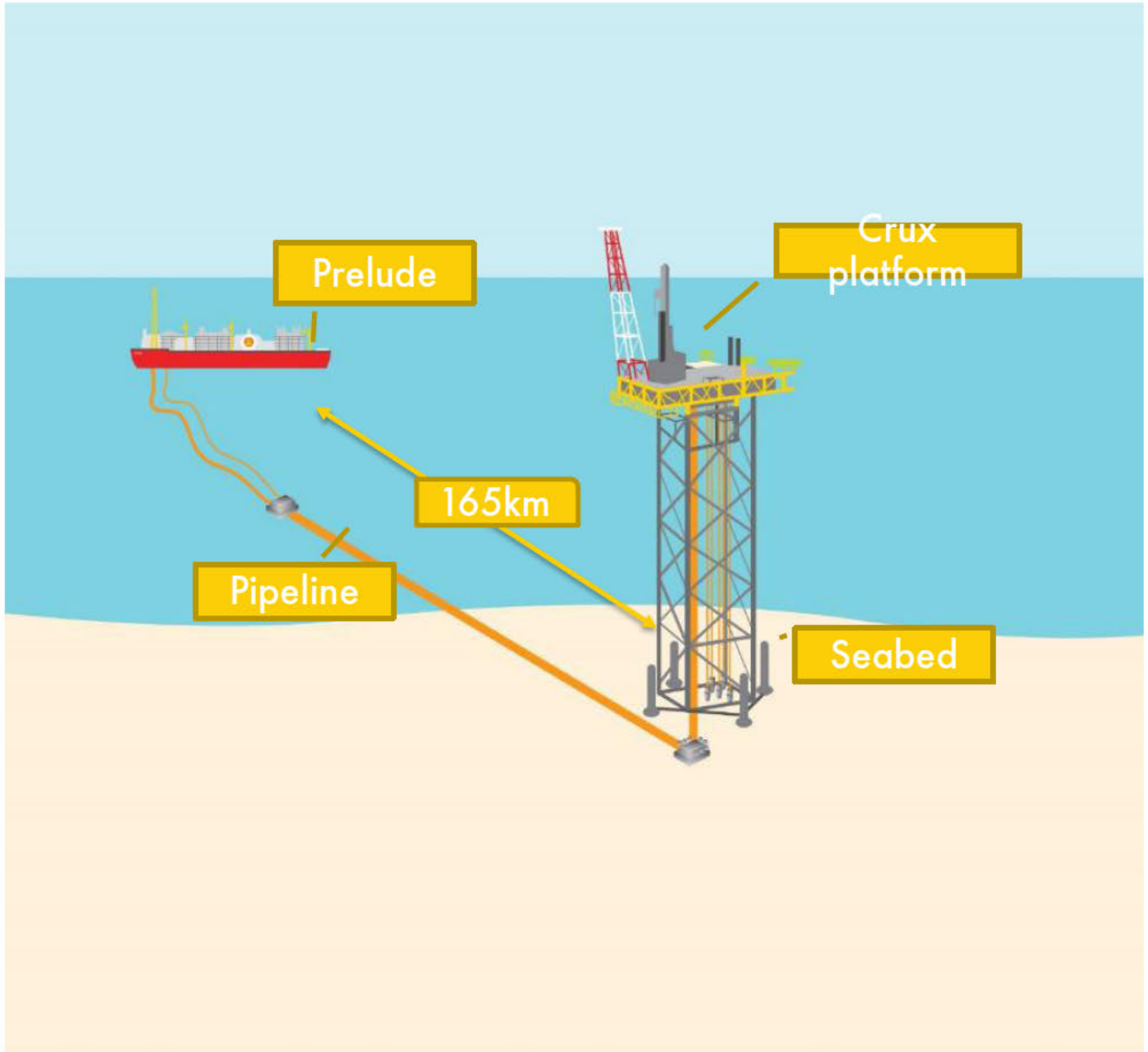
Arrow	50%
Browse	27%
[illegible]	49%
Gorgon	25%
Kondinin Energy	50%
North West Shelf	16.67%
WestWind	49%

What is Prelude?

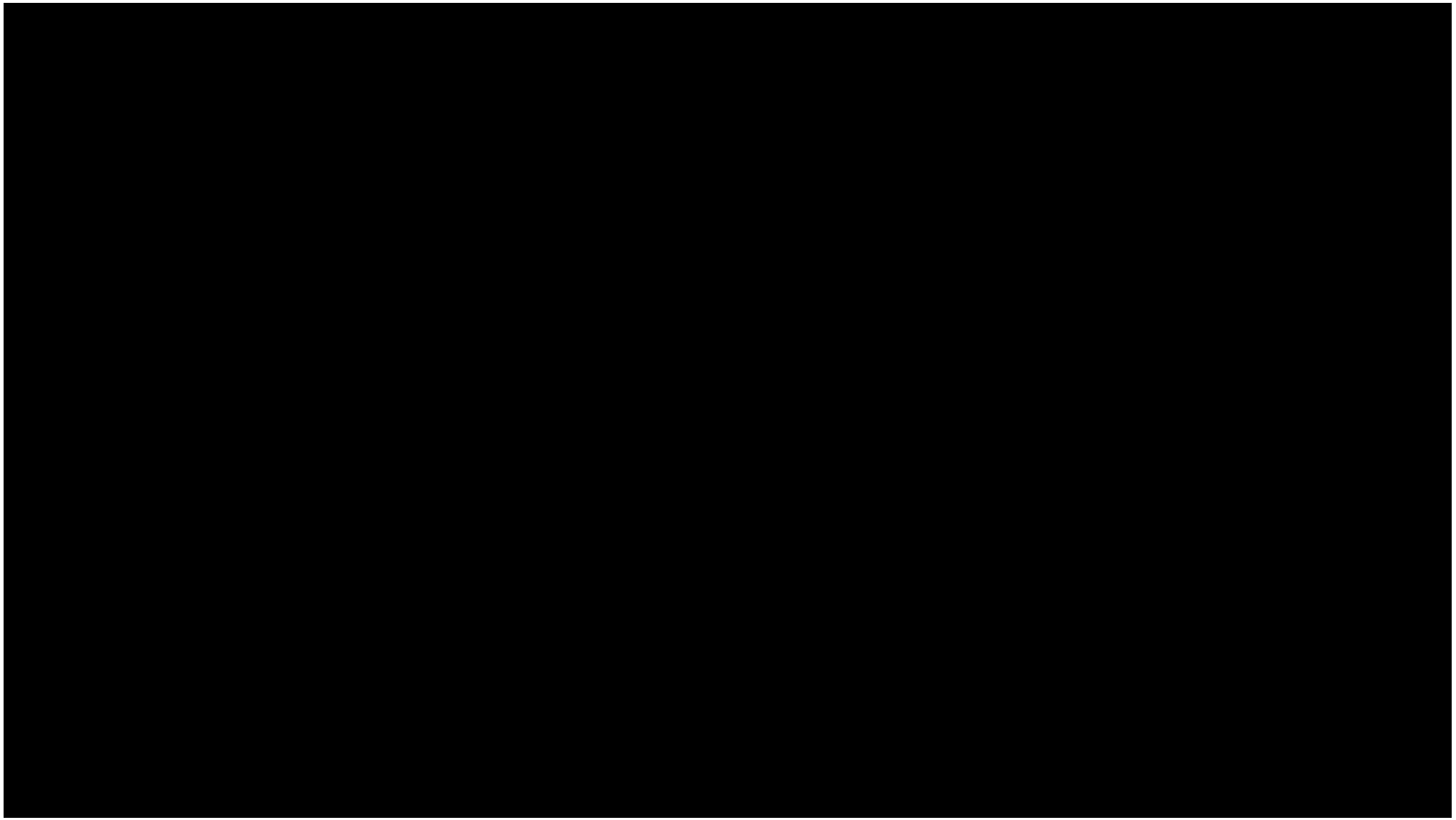
- Prelude is a Floating Liquefied Natural Gas (FLNG) project located 475km north-northeast of Broome, Western Australia, in the Browse Basin.
- The Prelude FLNG facility is moored over the Prelude gas field in 250m water depth and more than 200km from the coastline.
- Prelude produces LNG, LPG and condensate.
- Prelude has an onshore supply base in Darwin.

What is Crux?

- In May 2022, Shell Australia and SGH decided to go ahead with Crux.
- The project is a long-term extension to the existing Prelude FLNG facilities.
- Crux consists of a platform (which is not normally manned), above 5 gas wells. The gas is delivered via a pipeline to Shell's Prelude project, which is moored some 165 Km away, and processed onboard.
- The project is part of Shell's strategy to help meet the needs of gas users as the energy market moves to a lower carbon future.



Crux video



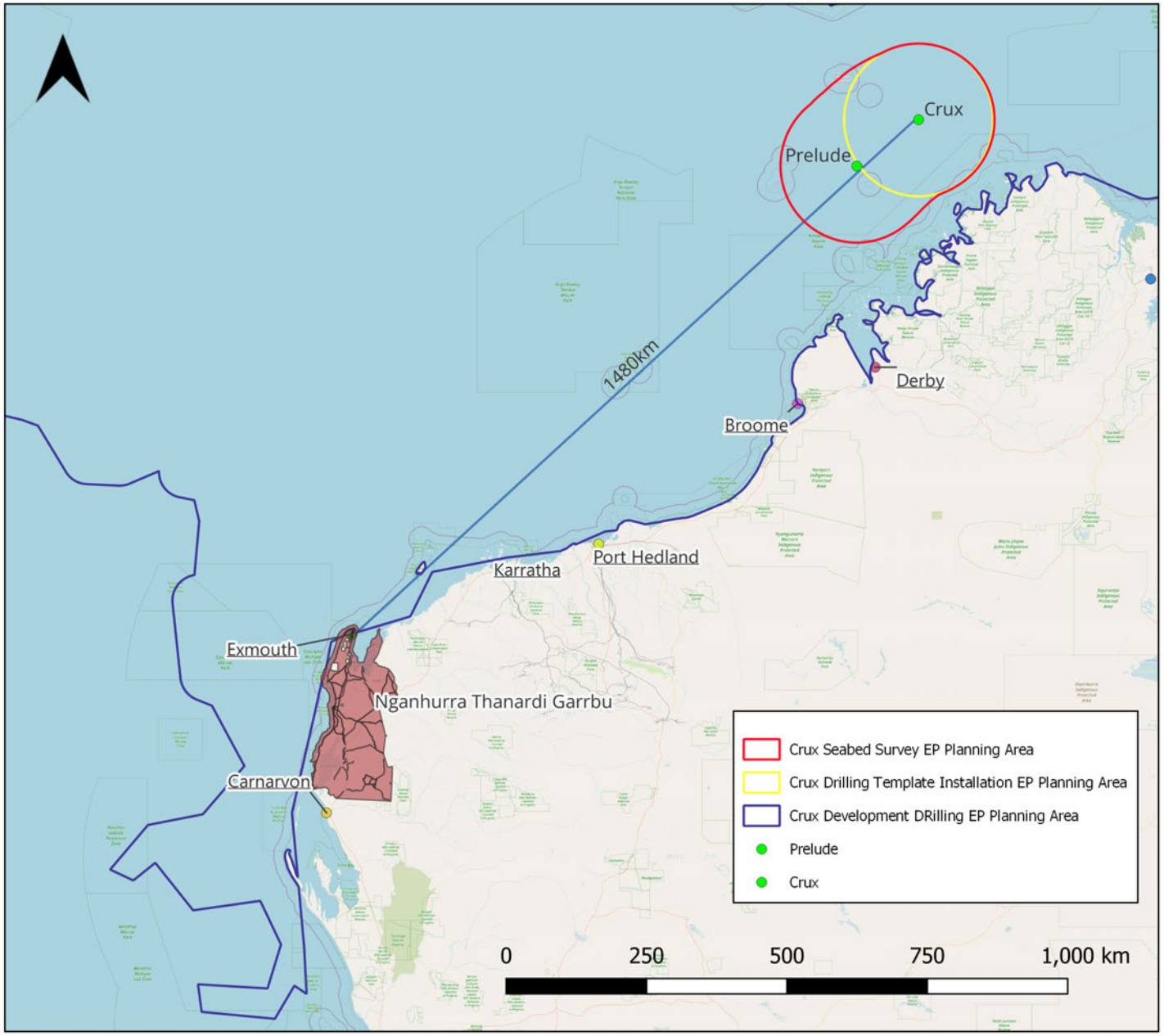
Oil Spill modelling

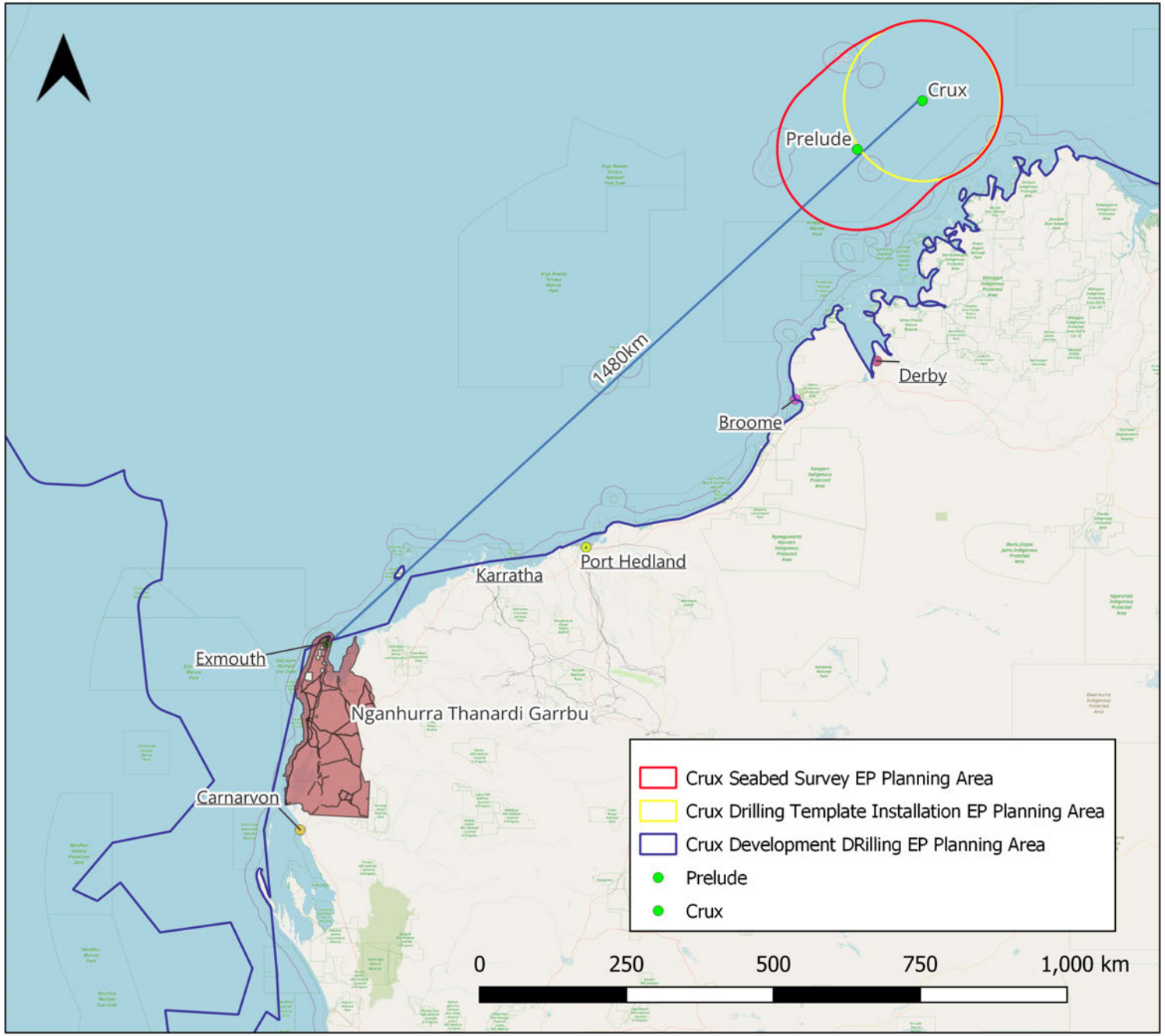
Crux

- There are four Environment Plans for Crux that describe what Shell will do to protect th environment. These must be submitted to, and approved by NOPSEMA.

1. *Seabed Survey Environment Plan*
2. *Drilling Template Environment Plan*
3. Development Drilling Environment Plan
4. Crux Installation and Cold Commissioning Environment Plan

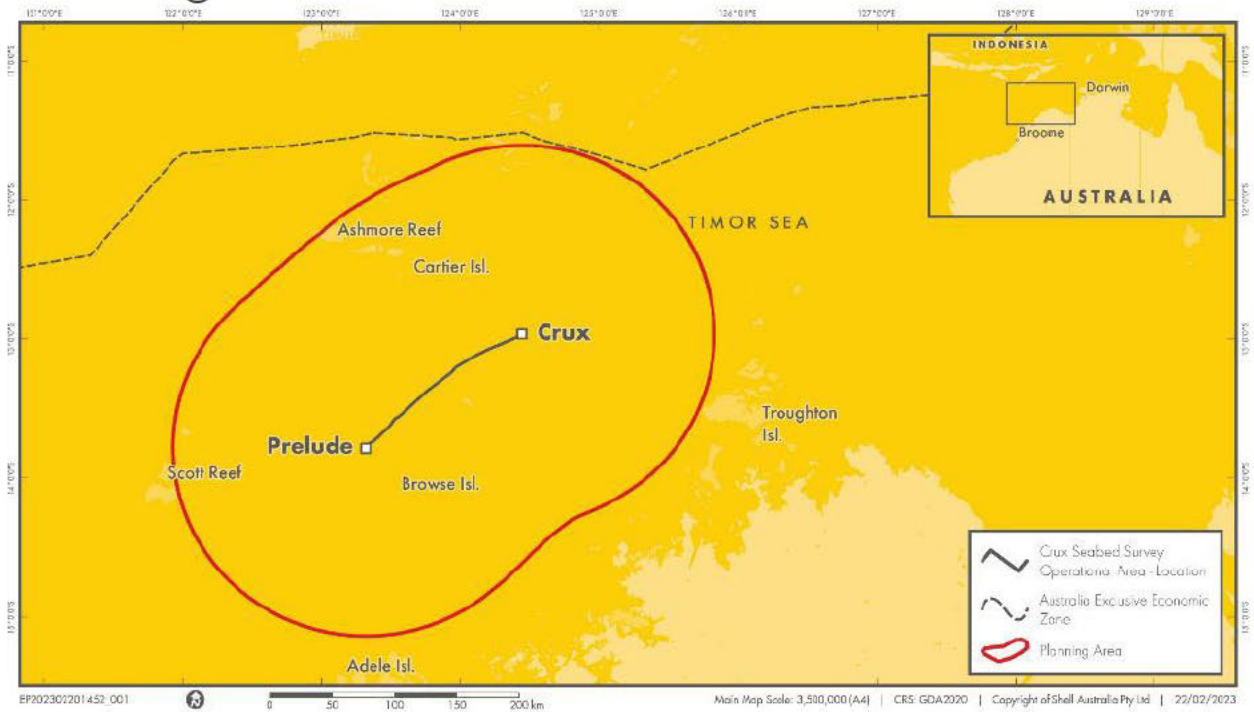
- What the Crux Environmental Plans do to protect cultural heritage, marine systems, coastlines, TO access to country
- Ongoing engagement with TO groups and other Relevant Persons.

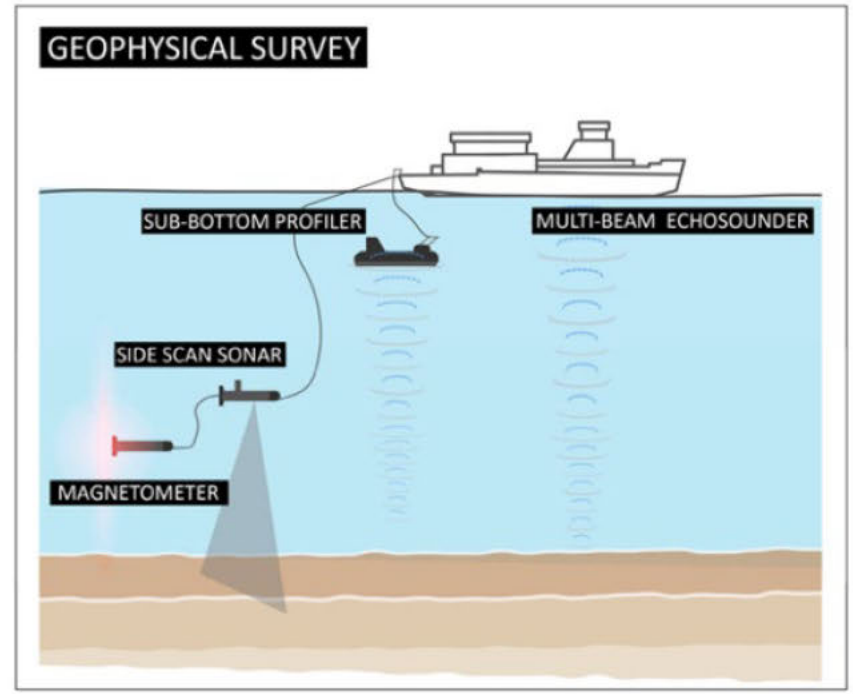


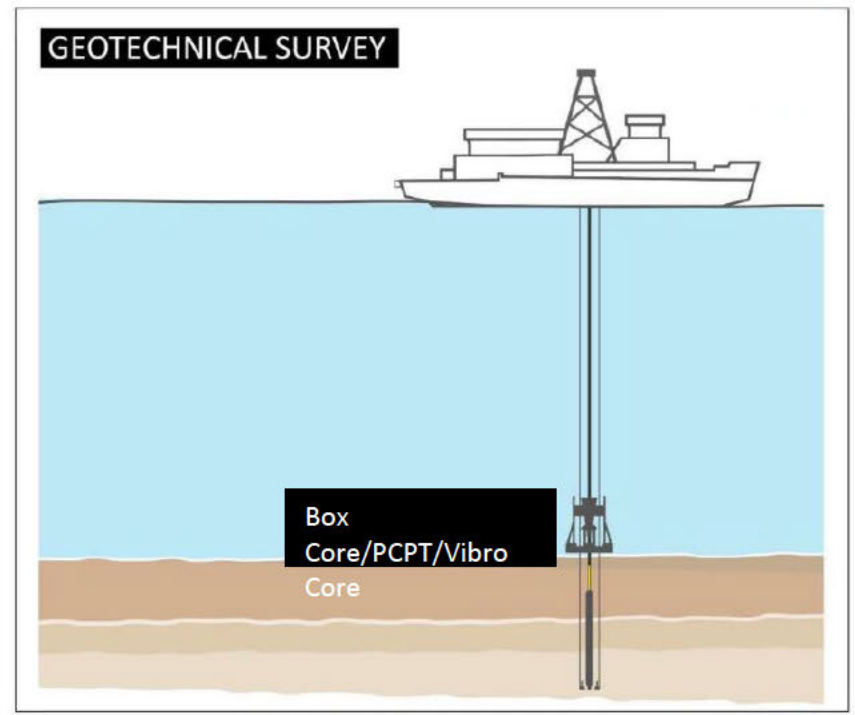


1. Crux Seabed Survey Environment Plan -

Looking at the seabed and sub-seabed conditions







Activity: Shell is planning to carry out a survey of the pipeline route and terminals connecting the Crux and Prelude facilities.

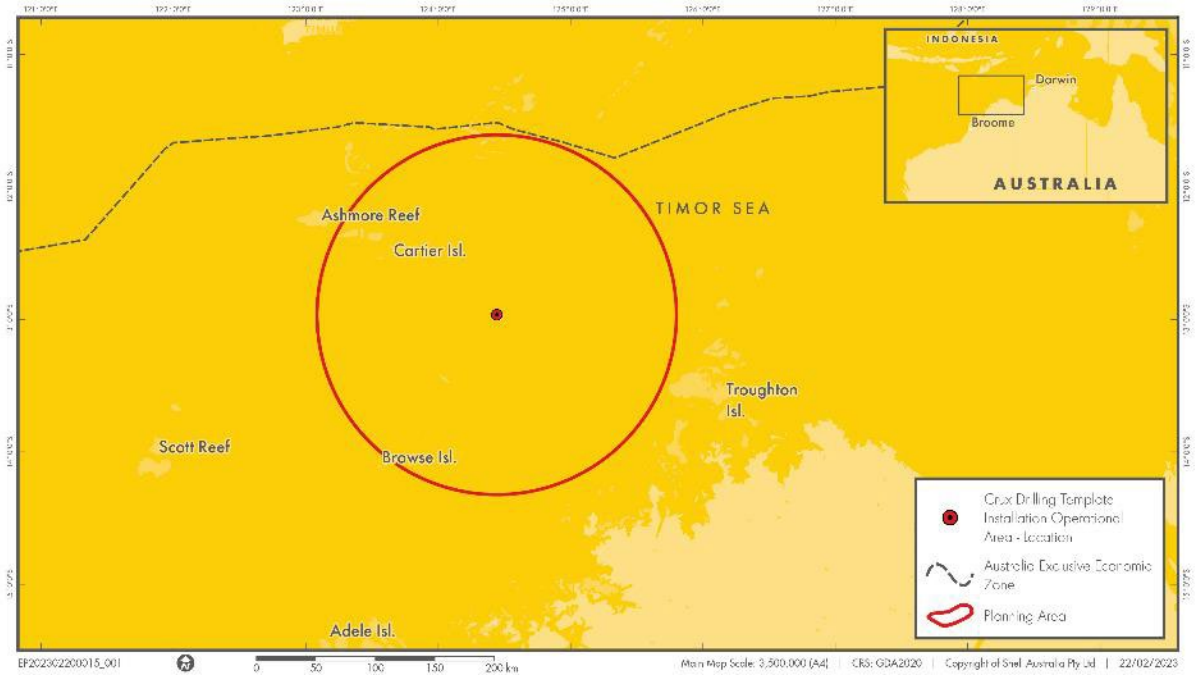
A vessel will traverse the pipeline route, towing survey equipment and deploying coring equipment.

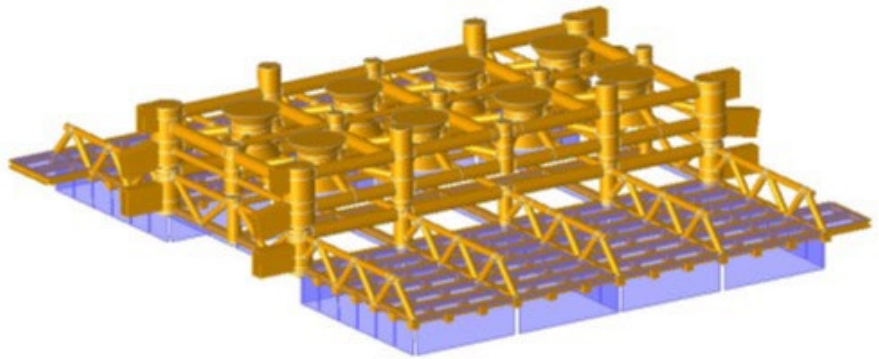
Duration: <5 days

Timing: 1 July – 31 December 2023*

2. Crux Drilling Template Installation Environment Plan -

The template will act as a guide for the drill bits during drilling operations



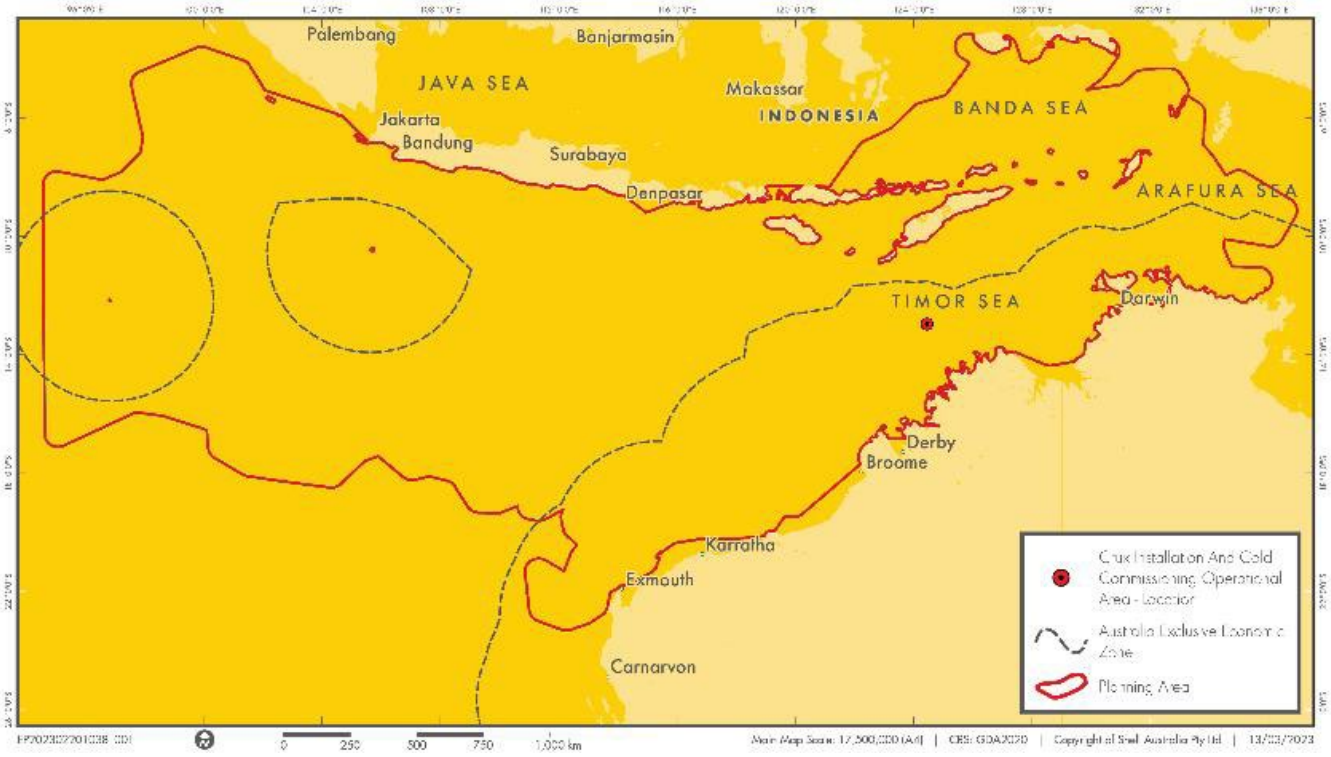


Activity: Shell is planning to lower a fabricated steel structure onto the seabed, which will assist with orienting and locating the drilling activities and the installation of the Crux platform.

Dimensions: 19m length, 14m width, 4m high and covers a seabed footprint of 266m2. It weights 200 tonnes

Duration: <7 days Timing: 1 September 2023 – 1 April 2024*

3. Crux Development Drilling Environment Plan – drilling the wells

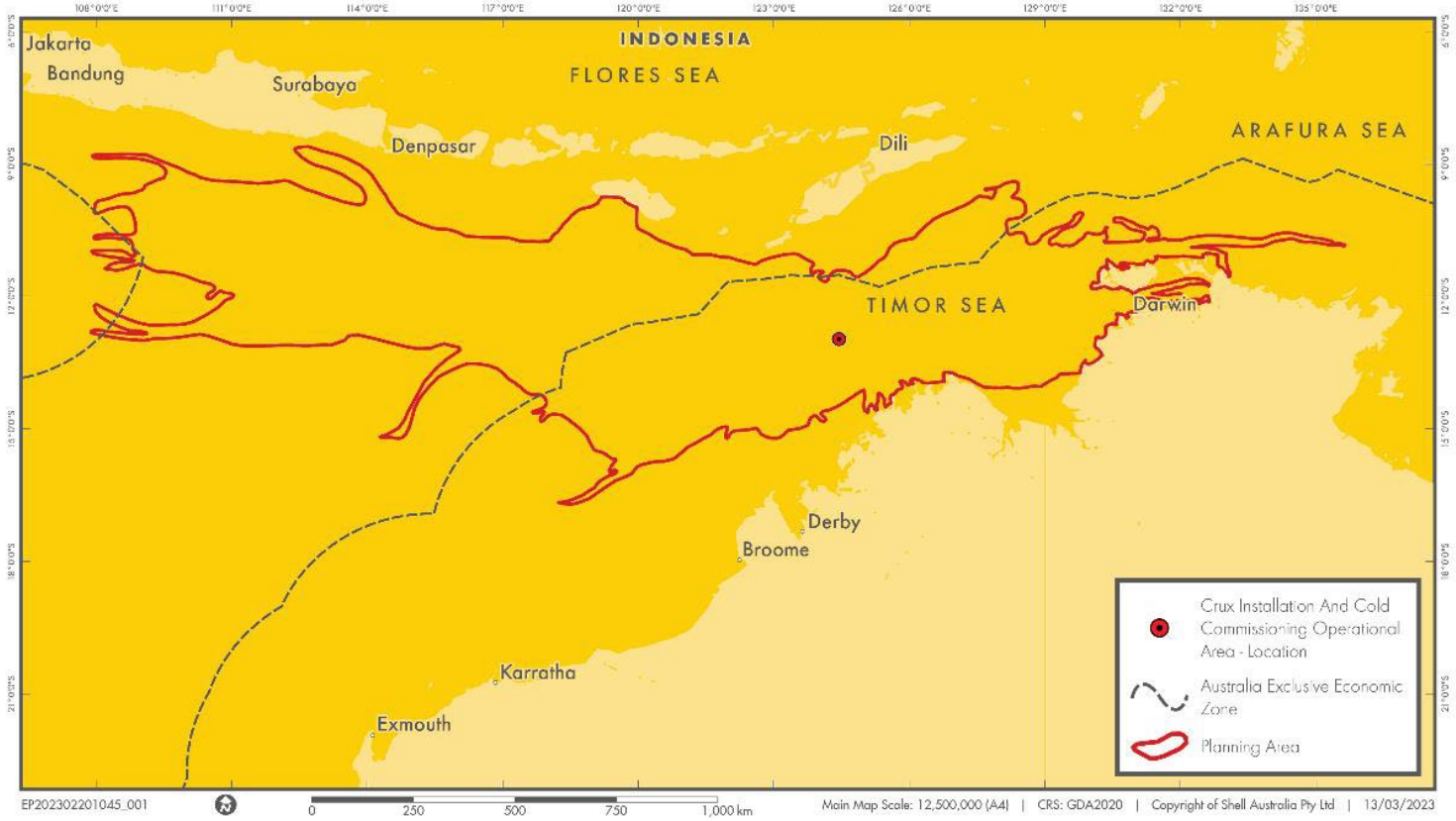


Activity: Shell is planning to drill five production wells through a drilling template and suspend them. The suspended wells will be commissioned once the Crux facility has been installed.

Duration: approximately 10 months, with 10 months contingency. Expected temporary well suspension period, approximately 2-3 years.

Timing: Expected Mobile Offshore Drilling Unit Operations start date – end 2023 - early 2024.

4. Crux Installation and Commissioning Environment Plan – putting in the pipeline and substructure and checking everything works



Crux pipelay

- Putting in the 26-inch export pipeline (~165 km long) from Prelude to Crux
- Vessel operations
- Pre- and post-lay surveys
- Testing it all

The facility will commence cold commissioning(testing) once installation is complete.

Duration: Mid 2024 – Dec 2026

Timing: start mid 2024, pending regulatory approvals.

Key points *Dates for the commencement of activities and duration are subject to schedule change*

Crux Environment Plans

These describe the impacts and risks, both planned and accidental that may occur

Planned impacts are known activities that result in physical impact to the environment, i.e.:

- Disturbances to the seabed.
- Drilling Fluid Discharges.
- Noise generated from construction activities.

These planned impacts will occur within close proximity to the operational area. Shell has means to control the impact of these.

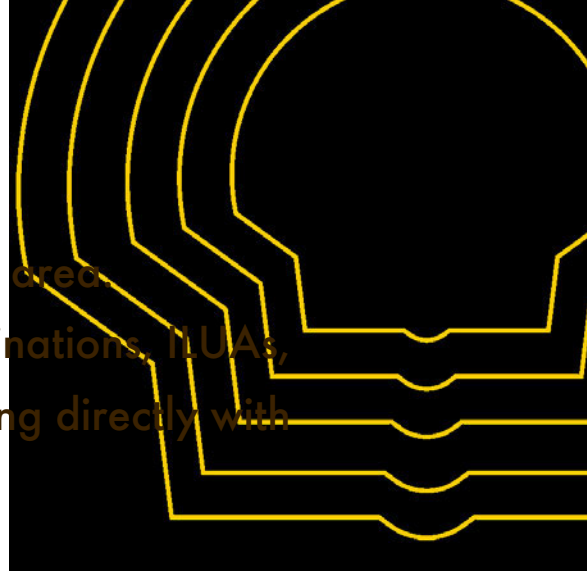
Accidents could include:

- Diesel spill as a result of a vessel collision.
- Hydrocarbon spill as a result of loss of well control.
- Introduction of invasive species from the vessels that will be entering Australian waters.

Such accidents are very rare. Shell has to be prepared for them, to ensure they have adequate controls. For each key stage of Crux, Shell develops an Environmental Plan which looks at the key risks of that stage, and the size and scale of any impacts – planned or accidental.

The Environmental Planning Areas are the outside limit of hundreds of individual, mapped accidents

Crux Operations Protecting land and sea Country.



Shell has done a lot of research into what is important to Aboriginal people in the Crux Planning area. This has been done using online information, such as Healthy Country plans, Native Title Determinations, ILUAs, IPAs, Cultural Heritage Surveys and Assessments and heritage site registration. Shell is also talking directly with Aboriginal groups.

Underwater Cultural Heritage

- We've looked at WA and NT databases for registered sites. There are no sites currently registered within the operational areas.
- The Crux operating area is below the historical seabed levels (below 130m sea level). Its very unlikely there is any cultural heritage that far out to sea – the area was never above sea levels when human occupation existed.
- Further work mapping is being done on what tangible underwater cultural heritage could remain in the larger planning area

What we don't know

- Any concerns for particular areas and sites that may exist for each different TO groups
- What you think of our current management methods

Environmental Panel

A panel of subject matter experts has been established, who you can go to with questions, concerns and complaints

You have access to the panel, with the costs incurred by Shell. It is anonymous.

You can ask whatever you like from the Panel.

They are independent of Shell (although some have previously worked for Shell)

- Shell will not see any of the information shared.
- Any conversation is between you and the panel member.

Redacted names

Redacted phone numbers

Redacted emails

Now what

Shell is keen to stay in touch and develop stronger relationships.

- **Talk to your communities**
- **Ask questions of the Panel**
- **Ask questions of Shell what you want to know more about or have concerns**
- **Info on the web**
- **Others we should speak to?**
- **Cultural values to protect?**

Web:

- **www.shell.com.au/about-us**
- **Google “Shell Crux”**

Appendix A - 8.01 NOPSEMA Consultation on Offshore Petroleum Environment Plan Brochure

NOPSEMA | Australia's offshore energy regulator

Consultation on offshore petroleum environment plans

Information for the community

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) is Australia's independent expert regulator for health and safety, structural and well integrity, and environmental management for offshore petroleum and greenhouse gas storage activities in Commonwealth waters.

The protection and preservation of the marine environment is best achieved when there are opportunities for the community to participate in the environmental approvals process through consultation.

Who can participate?

Under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (the regulations) there are several ways the community can participate in the environmental approvals process for offshore petroleum activities in Commonwealth waters.

Public comment for new projects and exploration activities

Offshore project proposals (OPPs) for new offshore petroleum projects and environment plans for offshore petroleum exploration activities are subject to a mandatory public comment period. Public comment must be done before the OPP or environment plan is submitted to NOPSEMA for assessment. Further information about public comment can be found at nopsema.gov.au.

Relevant persons consultation

Titleholders must consult with a specific category of people or organisations referred to as 'relevant persons' while preparing an environment plan for any offshore petroleum activity. This consultation must be done before the environment plan is submitted to NOPSEMA.

Some categories of relevant persons are specified in the regulations, such as government departments, however the information in this brochure is for the category of relevant persons who are not specified but who have 'functions, interests or activities' that may be affected by the offshore activity.

Correspondence directly to the regulator (NOPSEMA)

You can send correspondence directly to NOPSEMA; however, this generally cannot be considered until after the environment plan has been submitted. It is always better to use the public comment and relevant persons consultation processes in the first instance.

What is 'relevant persons' consultation?

Consultation on offshore petroleum activities is a two-way process where information is shared between titleholders and relevant persons. It is a requirement for titleholders when preparing an environment plan and is an important part of good environmental management.

Consultation provides an opportunity for people or organisations who may be affected by an offshore petroleum activity to raise concerns, including objections or claims, about the potential impacts of the activity, to seek information about how they may be affected, and how the titleholder intends to manage the activity to ensure the associated impacts are as low as reasonably practicable and are acceptable.

Information provided by relevant persons in consultation may also help titleholders better understand the values and sensitivities of the environment and inform the evaluation of the potential impacts and risks associated with the activity and how to manage them appropriately.

Am I a relevant person?

You may be a relevant person if you or your organisation have functions, interests, or activities that may be affected by an offshore petroleum activity proposed under an environment plan being prepared or already underway under an environment plan being revised.

The terms 'functions' 'interests' and 'activities' should be read broadly. You do not have to have a legal or financial interest that may be affected by an offshore petroleum activity to be a relevant person.

Interests that may be affected can include things like cultural and spiritual connections to the sea or interests in the protection of specific marine species. However, to be a relevant person your interests should be more than a general interest in the environment and/or offshore petroleum activities.

If I am a representative body, can I consult on behalf of all my members?

The law recognises that interests may be held communally. In some cases, all members of a community may agree that their representative body can consult on their behalf. However, this may not always be the case. Representative bodies should inform titleholders whether or not they have the authority to consult with titleholders on behalf of all their members.

Representative bodies, such as peak bodies and prescribed body corporates, may be relevant persons in their own right. They may also be an initial point of contact for titleholders to seek information about who else they should approach for consultation.

It is the titleholder's responsibility to provide all members of a community who have a shared interest opportunities to participate in consultation. In some circumstances, representative bodies may offer to assist titleholders with this.

Do I have to participate?

If you are a relevant person, you have the right to be consulted by titleholders of offshore petroleum activities when they are preparing an environment plan to submit to NOPSEMA.

Titleholders have a duty to provide you an opportunity to be consulted, however there is no obligation on you to participate in consultation. If you do not wish to be consulted, you should advise titleholders of this when they first contact you.

Titleholders must make reasonable efforts to consult with relevant persons, but the regulations do not require them to get a response to their requests. If you want to participate in consultation but need more information or time then it is best to communicate this to titleholders when they contact you. If you do not respond, they might assume you do not wish to be consulted.

If you are an organisation or representative body that is regularly approached for consultation you may consider developing guidance outlining how and when you want to be consulted. You could also consider documenting your functions, interests and activities. Both measures may help with managing regular requests for consultation.

In some instances, the likelihood of you being affected by an activity is very low and/or the impact on your functions, interests or activities may be minor. For example, if you are only going to be affected by the activity in the very unlikely event of an oil spill you may wish to inform titleholders you only want to be consulted if a spill occurs as part of the requirement for ongoing consultation set out in the regulations.

What if I want to be consulted but the titleholder hasn't contacted me?

Titleholders have a duty to identify who may be a relevant person and provide them opportunities to participate in consultation. However, even with best endeavors, titleholders may miss people or organisations who may be relevant.

If you believe you are a relevant person and you want to be consulted on offshore petroleum activities, then you should contact titleholders directly and identify yourself as a relevant person.

If a titleholder refuses to consult with you, and you believe you are a relevant person, you can write to NOPSEMA. Once an environment plan is submitted to NOPSEMA, this information can be considered in the assessment of whether or not the titleholder has met the requirements for consultation.

It is always better to attempt to resolve issues with the titleholder in the first instance. Relevant persons consultation is carried out before an environment plan is submitted, so NOPSEMA is limited in its ability to require titleholders to consult with a particular person or organisation.

What is the process for consultation?

There is no detailed process set out for how consultation should be carried out, however there are requirements that must be met under the regulations. These include:

- That you are given sufficient information to make an informed assessment about whether you are likely to be affected by the activity, how you may be affected, and to raise any concerns, including objections or claims, about the potential impacts of the activity.
- That you are given a reasonable period of time to consider the information provided to you and give feedback to the titleholder on the potential impacts of the activity on your functions, interests or activities.

What constitutes sufficient information and a reasonable period of time depends on several factors including the nature of your functions, interests and activities. You should communicate as early as possible in consultation with titleholders about what information and how much time you may need so that they can consider, respond and address these in their planning.

The information provided to you should be in a form that is appropriate and readily accessible to you. Consultation is generally a two-way process where information is shared between titleholders and relevant persons rather than a one-way process of seeking feedback to a fact sheet or high-level information.

What if I don't have the resources to participate?

If you are a relevant person and you believe you have information that is important to the understanding of the potential impacts of an offshore petroleum activity or you want to raise concerns, including objections or claims, then you should discuss with the titleholder how you can participate in consultation.

This might include requesting information in a different format, asking for more time to consider information or help to understand the information to provide an informed response.

There is no requirement in the law for titleholders to pay the costs incurred by relevant persons to be consulted, however they may choose to provide assistance to relevant persons to ensure consultation is carried out efficiently and is robust. This is a matter between the titleholder and relevant persons.

How do I make sure my views are considered?

It is important to communicate clearly when participating in consultation with titleholders. You may provide information to titleholders that helps them understand the environment and raise specific concerns, objections or claims about the potential impacts of the activity or the way the titleholder proposes to manage the activity to ensure the associated impacts are as low as reasonably practicable and are acceptable.

The information you provide to a titleholder during consultation must be considered by that titleholder and addressed in their environment plan for NOPSEMA to consider in its assessment and decision-making.

NOPSEMA publishes environment plans on its website when they are submitted for public comment, for assessment and when they are approved. Relevant persons have the right to request that the information they have provided in consultation is not published and titleholders must ensure they communicate this right to relevant persons.

Relevant persons should be aware that while you are free to respond on any matter and raise any concern, this may not be able to be considered if it is outside the scope or purpose of the environment plan and approval process. Examples of issues that may not be considered under the regulations include statements of fundamental objection to offshore petroleum activities or information containing personal threats or profanities.

Do titleholders need my consent?

Titleholders are not required by law to obtain agreement or consent from relevant persons for their offshore petroleum activities to proceed; however, they are required to demonstrate in their environment plan how the concerns, objections or claims raised by relevant persons were considered and demonstrate that their response to that information was appropriate.

NOPSEMA's assessment and decision-making will consider if titleholders have adequately demonstrated in the environment plan that genuine consultation has taken place with relevant persons in accordance with regulations.

Do I need to respond to a request for consultation?

There is no obligation for relevant persons to respond to a request for consultation from a titleholder. However, if you are provided an opportunity to participate in consultation and you do not want to be consulted, or you only want to be consulted on specific offshore petroleum activities or environmental matters, then it is best that you communicate this to titleholders as soon as they contact you. If you do not respond to requests for consultation, titleholders may make many repeated attempts to contact you.

NOPSEMA can help you understand the requirements for consultation and how to effectively participate in the process. Please contact communications@nopsema.gov.au for assistance.

NOPSEMA | Australia's offshore energy regulator

Further information

For further information visit nopsema.gov.au or contact communications@nopsema.gov.au.

Key legislation

Offshore Petroleum and Greenhouse Gas Storage Act 2006
Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009
Environment Protection and Biodiversity Conservation Act 1999.

Contact details

p: +61 (08) 6188 8700
e: communications@nopsema.gov.au

Head office: Level 10, Alluvion Building
58 Mounts Bay Road, Perth WA 6000

Postal: GPO Box 2568 - Level 10 58 Mounts Bay Road, Perth WA 6000

nopsema.gov.au

National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA)

ABN 22 385 178 289

Published May 2023

Appendix B Oil Spill Modelling RPS Technical Note

This Appendix contains the Technical Note prepared by RPS on behalf of INPEX. It explains the limitation of the oil spill modelling and is directly relevant to the modelling presented in this Environment Plan. Shell has received permission from INPEX and RPS to include this document in this Environment Plan.

Appendix B.7 a) Technical note - RPS

Response to Inpex questions on Oil Spill Modelling

The following technical guidance has been prepared by me, Scott Langtry, as a subject matter expert in oil spill modelling as applied to environmental management of oil field operations within the offshore waters of Australia. The details provided constitute my opinions based on specialised knowledge developed through my education, training, study, and experience, including working experience carrying out oil spill modelling for risk assessment and response to real spill incidents over 26 years.

This report has been compiled in response to a request by Inpex Australia to provide answers to the following questions:

1.0 Base Scope

Question	Answer
a) Describe generally the purpose of oil spill modelling.	See addendum, Section 1.0.
b) Develop a report which describes the model conservatism, and how the conservatisms affect model outputs and results, as related to the thresholds presented in (c) and (d) below.	See addendum, Section 2.0 and details below.
c) 10 ppb entrained oil threshold:	
(i) Can you confirm that the 10 ppb entrained threshold, when evaluated through the model, is based on 'instantaneous exposure", when the 10 ppb threshold is actually derived from dissolved oil exposure over a time-weighted average?	Yes. The model calculations are analysed for distributions of oil mass in different states (floating, entrained, dissolved, stranded, evaporated) at each model time step. Typically, 15-minute time steps (or less) are used to maximise accuracy of the weathering and transport calculations. Consequently, entrained oil >10 ppb (parts per billion) calculated for durations as short as 15 minutes during any replicate simulation would flag a location as 'affected'. This flag would only need to occur during 1 of 300 simulations (=0.3% probability of occurrence) for that location to be enclosed by a polygon defining the

	Environment that May Be Affected (EMBA) as defined in the NOPSEMA guideline (2019). A 10 ppb entrained threshold is not based on evidence that 10 ppb of entrained oil droplets (alone) is harmful for either short term (e.g., 15 minutes or for any longer duration (e.g., 48-96 hrs). The NOPSEMA guideline has applied the same threshold for both dissolved and entrained hydrocarbon concentrations as instantaneous exposures. The dissolved threshold concentration was calculated by toxicity studies applying long-term exposures (48-96 hrs of exposure) to the components of oil that can dissolve into water from oil mixtures and no correction for shorter exposure durations has been applied in the NOPSEMA guidelines (see below; part ii). At the outer bounds of the EMBA calculated for a blowout simulation spanning 70 or more days, entrained oil would be present as widely dispersed and insoluble droplets with small diameter (10-50 µm). No insoluble compounds will remain to dissolve into the water to trigger the toxic effects demonstrated by toxicity testing on marine organisms. Direct contact with droplets or consumption of droplets may have influence but risks of influence would depend upon encounter rates, which would depend on the concentration of droplets and the duration that they are present. As an indication of the meaning of the 10 ppb concentration threshold that the NOPSEMA guidelines recommend for entrained oil, this would represent one insoluble droplet suspended in 40,000 L of water for a droplet of 25 µm diameter. It would be necessary to have one million droplets of this size to form a standard drop of oil from an oil dropper (0.05 ml). Consequently, the potential for direct contact by marine biota with a droplet at this threshold concentration when triggered by durations as short as 15 minutes is highly conservative for any consequence through direct contact with droplets.
(ii) Can you describe how the use of instantaneous thresholds in the model may affect the model outputs/geographical areas exposed above threshold?	Instantaneous thresholds have a very large influence upon the geographic extent that is mapped as the EMBA, an influence larger than all other conservative measures applied. Hydrocarbons impose a narcotic effect on organisms through absorption of soluble hydrocarbons from water into their tissue, and it takes longer than 15 minutes for

	harmful soluble compounds to accumulate to levels that impose effect when the concentration of harmful, soluble, hydrocarbons in the water is higher than 10 ppb. Species vary by sensitivity and different oils vary in terms of the toxic components present. The lowest toxic threshold for soluble hydrocarbons (~10 ppb) has been derived as a generic trigger value for potential sublethal influence from a large body of laboratory toxicity testing where exposure has been maintained for 48-96 hrs to ensure saturation of body tissues. A value of ~10 ppb is the lowest value reported for the most sensitive marine species using the water solutions generated from the most toxic oil mixtures. Exponentially higher concentrations are required to achieve equivalent effects over shorter durations. At least 100 times higher concentrations would remain conservative for durations of <1 hr. Instantaneous thresholds treat all areas exposed for a time as short as 15 minutes as if they were exposed constantly for 2 to 4 days (following evidence from toxicity studies). This is very conservative, and reliance on the extent of the EMBA alone obscures information that would be available to show those locations that may be more at risk, such as those locations where longer exposures may occur. Further clarification can be provided.
(iii) Can you comment on how the probability maps/contours generated by the model using instantaneous oil exposure thresholds would be affected, compared to what would occur using time-weighted exposure thresholds?	Comparisons of model calculations for areas that might experience instantaneous exposures (e.g., >10 ppb of entrained oil for 15 minutes) versus time-weighted exposures (e.g., >10 ppb on average over 24, 48 or 96 hours) indicates that the difference depends on the scenario, oil type and component (floating, entrained, dissolved). The outer extent of the EMBA may be reduced to as small as 20% of the surface area (i.e., the surface area enclosed by the EMBA may be reduced by up to 80%) when based on time-weighted exposures. The shape of the EMBA will also typically change to highlight locations where environmental forcing is more likely to direct higher concentrations of spilled material repeatedly or to retain spilled material for longer during a long duration release (e.g., a blowout) – detail that should be relevant to risk assessment, planning and consultation purposes.

	Allowing for as little as 2 subsequent time steps or for 2 records of exceedance at any time during any spill simulation, will result in marked reduction of the geographic area and alter the shape calculated for the EMBA, showing that large parts of the existing EMBA calculations can be due to single, 15-minute, records. Further clarification can be provided.
c) 10 g/m^2 shoreline contact threshold:	
(i) Can you describe how the model calculates oil accumulation volumes on shorelines, in consideration of the modelled shoreline grid-cell/lineal shoreline lengths vs actual/realistic shoreline lengths and the effect this may have on volumes of oil ashore calculated by the model?	Accumulation of oil onto shorelines is calculated as the mass of oil per unit of shoreline area. The coastline at mean sea level is subdivided into fixed, rectangular, grid cells of a defined area described by fixed length and width. For example: • 1 km long x 10 m wide (10,000 m^2 area per cell) for blowouts. • 400 m long x 10 m wide (4,000 m^2 area per cell) for diesel spills. Owing to the grid scale applied, the coastline shape must be simplified in areas of small-scale complexity. Very complex and convoluted shorelines will be represented by a smaller area than reality, adding conservatism by lowering the area used when calculating the mass of oil per unit area. The more complex the coastline the larger the degree of conservatism. If the model calculates that any part of a patch of floating oil contacts any part of a coastline cell, the total mass of oil in that patch is transferred to the coastline cell as a conservative calculation for oil stranding. Any subsequent oil patches that contact that coastline cell will add to the tally in that coastline cell over time. The maximum possible load at any time will be capped at the carrying capacity set for shoreline cells (40 m^3 over 10,000 m^2 for low viscosity oils (condensates and diesel, etc.). Any excess oil will be re-floated and may then accumulate on other coastline cells. Evaporation and degradation are calculated for stranded oil to reduce the tally of oil in a coastline cell over time.

	When all simulations are complete, the highest mass recorded at any time due to inputs versus losses is found for each coastline cell in each simulation. The highest mass from any simulation is divided by the shoreline area of the cell to determine the peak concentration (grams of oil/area in m^2) as the most conservative calculation for the amount of oil that might be present, for clean-up and other considerations. The peak concentration calculated for each shoreline cell among all replicate simulations is compared to thresholds of relevance. Any shoreline cell with peak mass per area > minimum threshold (e.g., 10 g/m^2) during any replicate simulation will be included in the EMBA polygon. Note that: 1. The peak concentration that is calculated will be higher if the surface area available for accumulation is under-represented in the model compared to reality. 2. The peak concentration that is calculated may be, and typically is, higher than the concentration that would be calculated at the end of the simulation, after further weathering is allowed for. 3. No differential is made between oil on the surface and oil that has entered the substrate. Further clarification can be provided.
(ii) Can you describe if the model includes consideration of tidal movements or wetting and drying of intertidal areas, and how this may affect modelled oil concentration outputs, vs what might occur in reality?	The model does not account for wetting and drying of the intertidal zone. Both the coastline position and water level are treated as fixed, and calculations assume a fixed average width of the shoreline interface (10 m wide) is always available for accumulation. One outcome at a very local scale is that the model cannot differentiate between the happenstance of oil arriving when the shoreline extends further seaward (at lower tide, exposing a wider zone) or when it might have shrunk back to a narrower zone (at higher tide). Although the intertidal width will vary over time, in reality, and oil might be spread over varying area, the area allowance is assumed fixed to an average of 10 m wide when calculating the mass accumulated per area. In reality, concentrations of oil would likely vary with the tide in areas with very large tidal ranges and low slope,

	and we have applied a fixed width as an assumed average. One conservatism is that shorelines are assumed to be "sticky" – binding the oil to the shorelines with no re-floating due to subsequent tidal flooding. This assumes oil accumulations would migrate up and down, occupying the same width of the shoreline as the tide varied. The exception is if the carrying capacity of the shoreline is exceeded. For condensates and diesel this would only be allowed in the model if the thickness exceeded 4 mm, allowing for high accumulation capacity (e.g., 32 tons per shoreline cell for a 1 km long x 10 m wide shoreline if the density averaged 800 kg/m^3). Noting that the model domain must cover areas of hundreds of thousands of km^2 for a blowout scenario, the fixed coastline assumptions represent necessary simplifications requiring a conservative approach. Further clarification can be provided.
(iii) Can you confirm if the model continues to calculate oil weathering of stranded oil on a shoreline, specifically evaporation and melting point?	Yes. As stated above (part i), oil weathering continues to apply to oil classed as stranded. Loss of oil mass from coastline cells can occur through three processes: 1. Evaporation. 2. Degradation (representing microbial action and photo-oxidation). 3. Re-floating (if the carrying capacity of the coastline cell is exceeded). The composition of the oil when freshly released at source is represented by the proportion of the whole oil contributed by groups of hydrocarbons, varying by volatility. Composition change is calculated over time through evaporation and dissolution when the oil is floating, and the composition of oil patches is known by the model at the time of stranding. Calculations for variable rates of evaporation, by sub-components, continues for stranded oil until only the non-evaporating residues (boiling point >380 °C) remain. Calculations for evaporation rates are based on wind speed and average ambient temperature (30 °C for the Inpex studies), not elevated temperatures that might occur during daytime on heat-retaining surfaces.

	Calculations for evaporation are, therefore, conservative if evaporating components remain in the stranded oil. If only residues strand, no loss of oil through evaporation will be calculated on shorelines. Degradation is applied to the total mass (regardless of composition) at a fixed rate. A conservative rate of 3% of the mass per day is applied. This rate has been derived from published tests on more complex oil types than diesel or condensate and is considered conservative for condensates in lieu of further research to confirm rates of degradation of both oil types. The model does not calculate for melting point to decide whether the oil is on the substrate (e.g., as solid wax) or in the substrate (e.g., as a melted wax).
(iv) Can you describe if the model takes into consideration the effect of exposed intertidal shoreline temperature (i.e., sand/rock temperature) and the effect this may have on stranded oil including effect on oil melting point and subsequent behaviour of the stranded oil?	Degradation rates do not account for substrate temperature. This will be conservative in settings with high average substrate temperatures because degradation rates do increase at higher temperatures. The same ambient temperature and prevailing wind speeds are used for both floating and stranded oil for calculating evaporation rates. This will be conservative if the oil arrives with volatile content and the real temperatures are higher than assumed (30°C for the Inpex study locations) on average. This would not be conservative if only residues arrive at coastline cells. No calculations are made by the model for the physical state (solid/liquid) of hydrocarbons, or of uptake by sediments. Such considerations would need to be made outside of the model calculations. Further clarification can be provided.

1.1 Supplementary Scope

(a) Can you confirm if there are any other factors which may affect conservatisms within the model?	See addendum.
(b) if Yes, can you please explain these additional factors.	See addendum.

Addendum

1.0 (a) Describe generally the purpose of oil spill modelling.

Modelling of oil fate and transport is useful, and has been applied to multiple purposes:

- Calculating risks of exposure to facilities, personnel, interests of other parties and environmental resources if a spill scenario were to eventuate.
- Guiding preparations for response, including identifying those resources that may need to be defended and what responses may be practical given factors such as the nature of the place at risk and the evolution through weathering of the oil type(s) that might be spilled.
- Forecasting the drift and behaviour of oil slicks ahead of real time to guide response to real spills.
- Forecasting the efficacy of alternative response measures.
- Guidance of environmental monitoring efforts to sense influence or impact.
- Post-spill assessment to inform and quantify social, environmental, or commercial impacts.

The first general application is the basis of EMBA calculations at present, but with the results simplified to calculating the area enclosing all locations where greater than low threshold concentrations might occur instantaneously at very low probabilities.

Other calculations from modelling are available and may be applied as contextual measures. These include:

- Mapping locations at higher probability of contact > instantaneous thresholds.
- Mapping locations at risk of longer durations of contact > instantaneous thresholds.
- Mapping locations at higher probability of contact at > time-integrated thresholds.
- Mapping locations based on potential concentrations (maximums and statistical distributions such as mean and higher percentiles).

1.0 (b) Develop a report which describes the model conservatism, and how the conservatisms affect model outputs and results, as related to the thresholds presented in (c) and (d) below.

General background

In general, oil spill models are a collection of interacting formulae and calculations that have been compiled to best represent current knowledge of processes that affect oil when released into the marine environment.

These processes are complex and interacting, requiring organised formulation to avoid errors and bias.

The formulations are numerical tools that allow comparative testing for different outcomes depending upon the scenario and prevailing conditions, subject to errors and uncertainties in both the inputs and the formulae.

Key processes have been studied to varying degrees over several decades through empirical studies, observations, and laboratory experiments. Some processes and their dependencies are well understood, while others have larger uncertainties and are the subject of ongoing testing and development.

The model formulations allow management of uncertainties through sensitivity allowances and/or conservative calculations or inputs (i.e., arrangements that are more likely to overstate and not understate risks).

Potential sources of conservatism

As a general principle, the ongoing calculation of concentrations over a large number of sequential time steps (e.g., 7,680 contiguous time-steps in an 80-day blowout simulation), with calculations at each time step dependent upon a previous calculation of state, can be expected to lead to magnification of any model errors at the outer distances and durations.

The current NOPSEMA guidance for calculating the EMBA has changed the focus of modelling assessment efforts from identifying locations that are most at risk (typically closer to the source and at risk of contact over shorter elapsed times) to map out only an outer bound of possibilities. One consequence of this is that the EMBA definition is now highly dependent on model capabilities, uncertainties, and compounding of errors in calculations for defining when concentrations will fall below very low concentrations.

The modelling software that I will detail to address model calculations and conservatism is the Spill Impact Model Application Package (SIMAP) that has been applied to most oil spill risk assessments in Australia, including those carried out for INPEX, but considerations will be common to other oil spill models of similar capability.

SIMAP is three-dimensional and is structured as a series of interacting algorithms that consider all known key processes that may affect the transport and weathering of hydrocarbon mixtures:

- Buoyancy (upward vertical transport from subsea).
- Initial spreading due to gravity and surface tension.
- Horizontal transport due to wind and current.
- Spreading (transport in the vertical and horizontal) due to dispersive forces.
- Wave-induced entrainment into the water column (as oil droplets).
- Dissolution (of soluble hydrocarbons) into the water column.
- Vertical dispersion of dissolved hydrocarbons (vertical spreading due to dispersive forces).
- Evaporation to the atmosphere.
- Emulsification (uptake of water into floating oil films).
- Change in viscosity due to change in composition and emulsification.
- Sedimentation (through binding with suspended sediment).
- Shoreline stranding – shoreline specific.
- Re-floating from shorelines (if capacity exceeded).
- Degradation (to component molecules).

The model uses oil composition and physical properties as input, and calculates changes in the mass distribution of the spilled oil over time among six states in response to the release scenario (e.g., onto the water, from subsea blowouts, etc.) and a sequence of environmental conditions:

1. Floating as a film on the water surface.

2. Entrained (at some depth) as oil droplets suspended in the water column.
3. Dissolved (at some depth) in the water column from films or suspended droplets.
4. Evaporated (to the atmosphere).
5. Stranded on a shoreline.
6. Degraded to simpler chemical components (hydrogen, carbons, etc.).

The NOPSEMA guidelines require that the worst-case (or worst plausible case) spill scenario is modelled for a given oilfield operation. For drilling operations into reservoirs where gas/condensates are targeted, that will involve a long-term (>70-day) release of gas and condensate at the highest rate possible through a fully open reservoir.

This scenario will generate the highest potential initial concentrations, both in reality and in the model, and is a conservative starting point.

Key considerations for conservatisms in the modelling are calculations for initial concentrations, the initial distribution of oil mass among the states, and processes that affect reductions in the concentrations of oil in each state over time.

Calculations for gas-condensate releases, more so than for heavier oil types, are very sensitive to model calculations of entrainment rates because these oil mixtures have both very low viscosity (hence will be susceptible to entrainment) and are mostly composed of volatile hydrocarbons (hence will be susceptible to evaporation, if exposed to the atmosphere). Entrainment and dissolution are competing fate pathway to floating and evaporation.

Over-prediction of entrainment rates will reduce the evaporation rate that is calculated (a general loss term for calculation of oil mass that would otherwise be on or in the water, or on shorelines) and leads to higher concentrations of entrained oil being calculated further from the source.

Entrainment is calculated for two processes by the model:

- As droplets released subsea (for blowouts).
- Generated by waves breaking up slicks into droplets and mixing the droplets into the surface layer, or keeping droplets that were entrained by the process above mixed into that layer.

Considerable care is required to calculate the initial droplet-size distributions accurately for subsea blowout scenarios involving highly volatile condensates (as opposed to less volatile mixtures) due to the large influence of droplet-size calculations upon entrainment rates versus evaporation rates. Calculations for oil droplet sizes have been an active area of model development and the modelling currently incorporates the most recent calculations from authoritative sources (SINTEF, TAMOC, etc.) but understatement of droplet sizes remains a risk for overstatement of entrainment rates because most research has involved heavier oil types.

Calculations for entrainment due to wave action in the SIMAP model were updated ~5 years ago to new formulations following a large volume of research conducted for the Deepwater Horizon blowout. The updated formulations increased the sensitivity to wave action, lowering thresholds for wind speed required to generate or maintain entrainment for low viscosity oils.

Sensitivity testing suggests that the allowances may be overly conservative for entrainment rates when applied to highly volatile condensates. In turn, calculations

would likely be conservative for dissolution rates and dissolved hydrocarbon concentrations for these products because faster dissolution is calculated for entrained oil than for slicks.

The model will calculate reduction of oil concentrations for surface and subsurface oil concentrations (entrained and dissolved) due to dispersion, representing the spreading and thinning of patches and plumes over time due to the mixing forces in the ocean.

Contemporary calculations for dispersion are typically set for moderate sea conditions for the scenario setting and not for more energetic conditions that can occur. On average, it is expected that this approach will result in maintenance of higher concentrations over longer distances than might occur in reality. The level of conservatism would vary depending on the frequency of occurrence of windy conditions that would trigger breaking sea waves.

A further level of conservatism for calculation of entrainment (increasing dissolution) versus floating (increasing evaporation) for surface releases of highly volatile condensates is the model time step. Highly volatile condensates with a low residue content will flash off rapidly, in reality, when spread thinly onto the water surface. However, calculation at 15-minute steps, which is a practical rate for long term blowout modelling, may underestimate the evaporation rate that is calculated for such condensates and overestimate the calculation for maintenance of entrained oil concentrations above low thresholds. Evaporation rates are calculated to occur at a slower rate for soluble hydrocarbons that are dissolved in surface-waters than at the surface, which could lead to overstatement of dissolved hydrocarbon concentrations exceeding low thresholds.

Some loss of mass is calculated for entrained oil over time due to dissolution of the soluble compounds. These compounds will typically represent a small proportion of the mass of an oil initially (typically 6-12% for condensates) so there would be only a relatively small influence on reduction of entrained oil concentrations.

It is also noteworthy that the model can calculate when entrained oil droplets have lost all soluble components. However, the NOPSEMA guidelines are applied equally to entrained oil that has remaining soluble components and those that have migrated long distances over long time periods and would have weathered to lose all soluble components. Because the EMBA line defines the widest boundaries, it will be the concentrations of weathered entrained oil that are tested against the NOPSEMA guideline threshold.

Degradation rates are applied to allow for reduction of oil concentrations over time. These rates are derived from literature accounts, and different rates are applied to floating, entrained, dissolved, and stranded oil. All rates are assumed to be conservative for condensates, in particular, because they tend to be composed of simpler hydrocarbons than those oils used to measure degradation rates, which could lead to concentrations being maintained for longer distances and durations than might occur, in reality, in warm tropical and sub-tropical settings. The rate currently applied to the insoluble components of entrained oil is a constant rate of ~8% of the mass per day.

Collectively for these uncertainties, calculations for entrainment mass concentrations and dissolved hydrocarbons will tend to be increasingly conservative over many sequential calculations.

The extremely low threshold set by the NOPSEMA guidelines for entrained oil is interacting with the conservative allowances for entrained concentrations for gas

condensates to dominate calculations for the EMBA for both blowout and surface release scenarios for this oil type. In other words, the extent of the entrained oil contour applied to the EMBA calculation is always larger than for any other component.

A further, potential, consequence of maintaining entrained concentrations for longer, in combination with the low threshold set by the NOPSEMA guidelines for oil contact with shorelines (as opposed to accumulation), is that model calculations for re-floating of oil from an entrained state become more critical. The model only needs to calculate that re-floating has led to a small patch of oil at the surface that is equal to or marginally higher than the low threshold (10 g/m^2 on the surface) from an overstated entrained oil concentration to flag a once-off calculation for shoreline exposure at a location that can be isolated by a long distance from the extent calculated for surface slicks to decrease below threshold concentrations when remaining at surface. One such occurrence among 300 simulations will flag a shoreline location for inclusion in the EMBA at a further distance than is indicated for the persistence of surface slicks above the low threshold. Although entrainment and re-floating are real processes that can occur, it is plausible that model errors are responsible for triggering the flagging of some stranding events judged by the low instantaneous threshold at the outer bounds of the EMBA.

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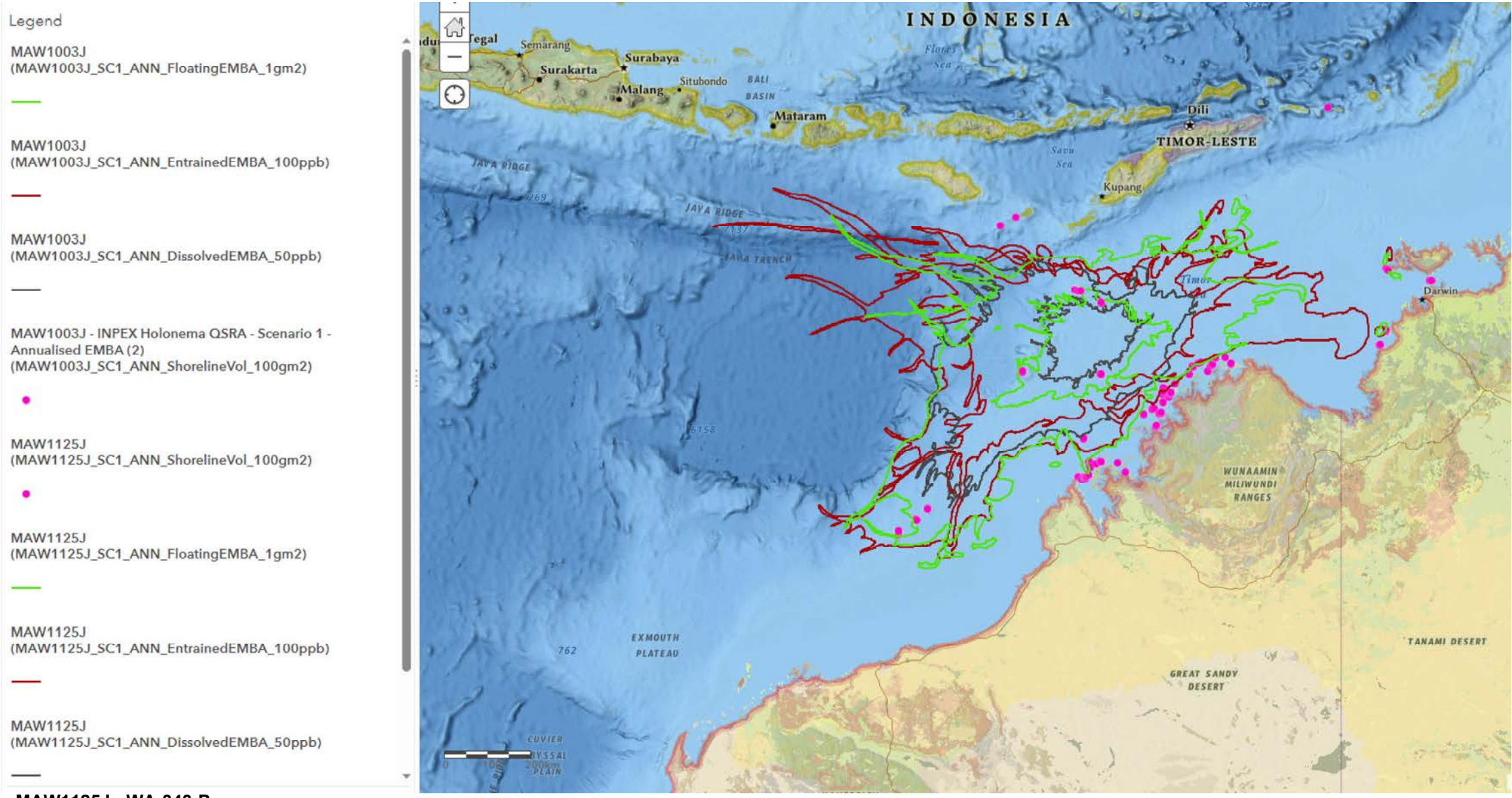
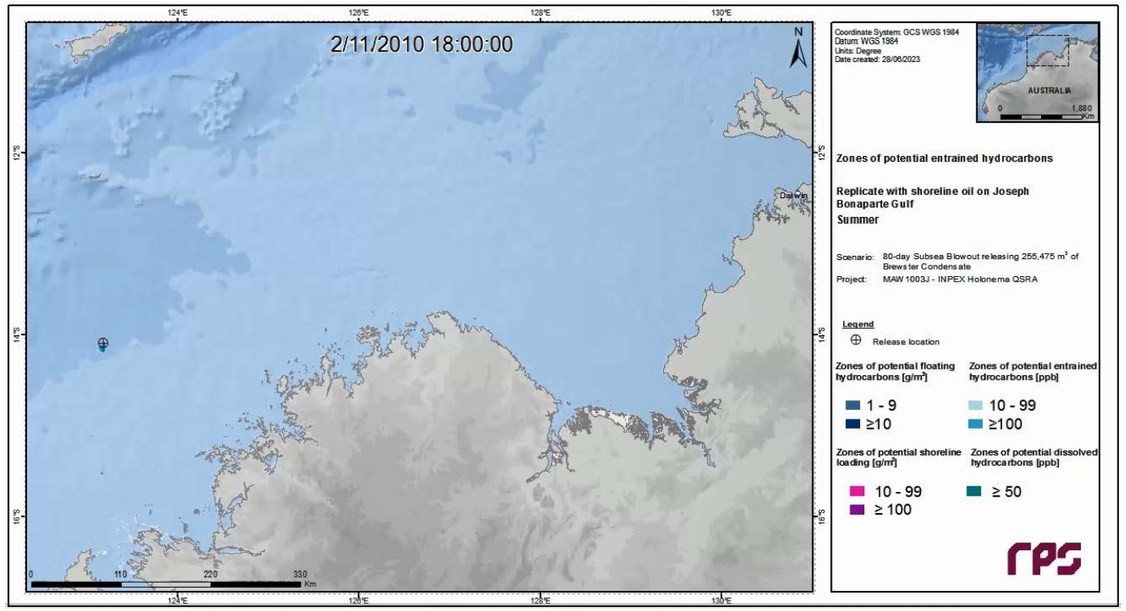
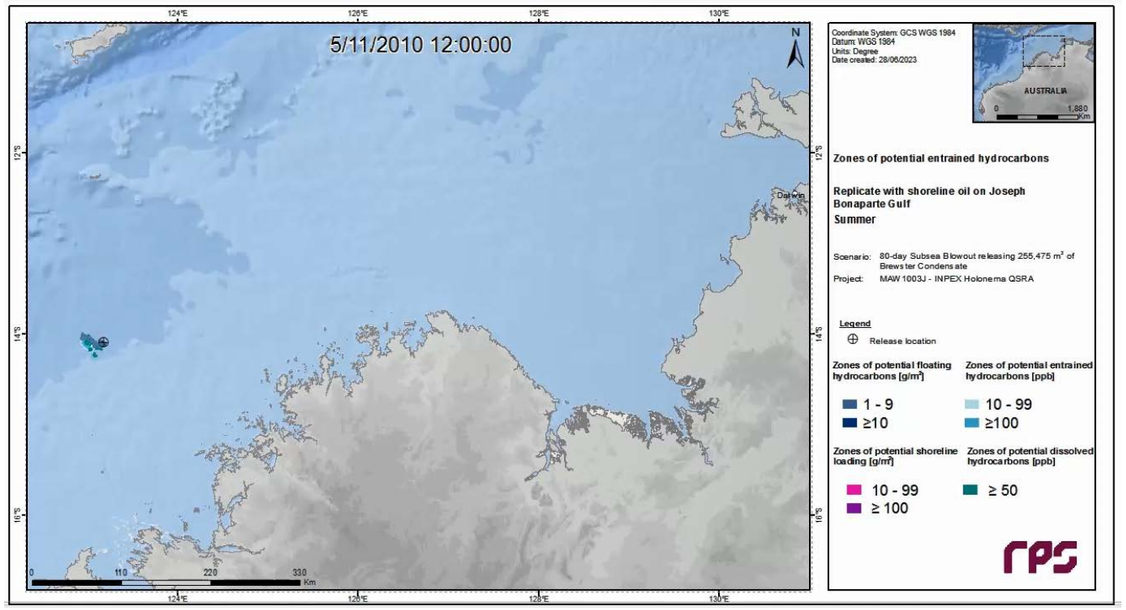


MAW1125J - WA-343-P
MAW1003J - WA-285-P

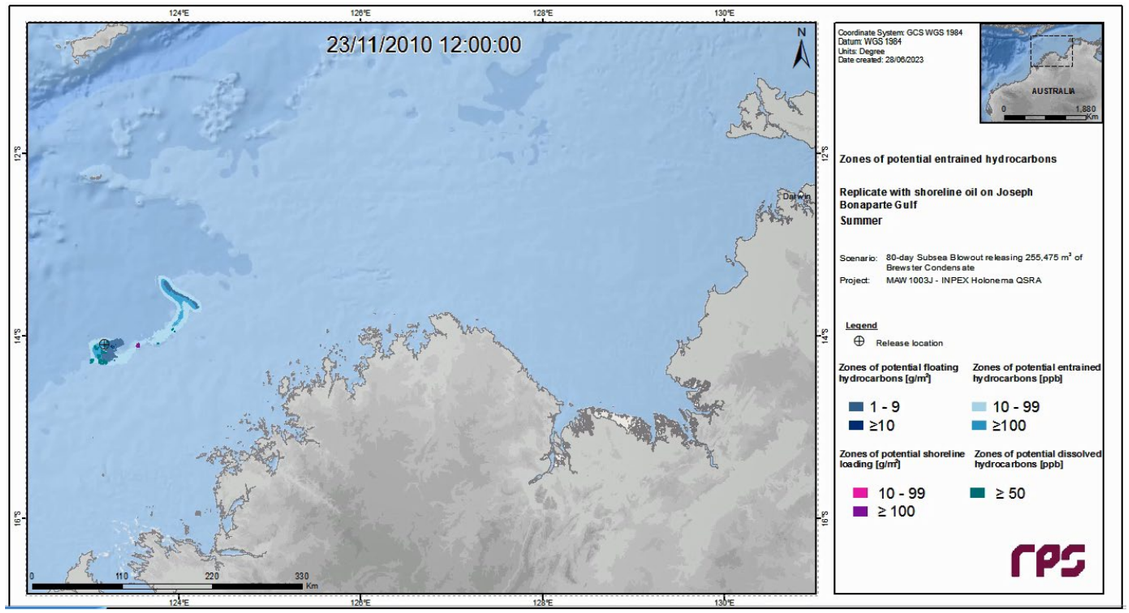
6 hours: Activation of BOP (approx. 4 hours)



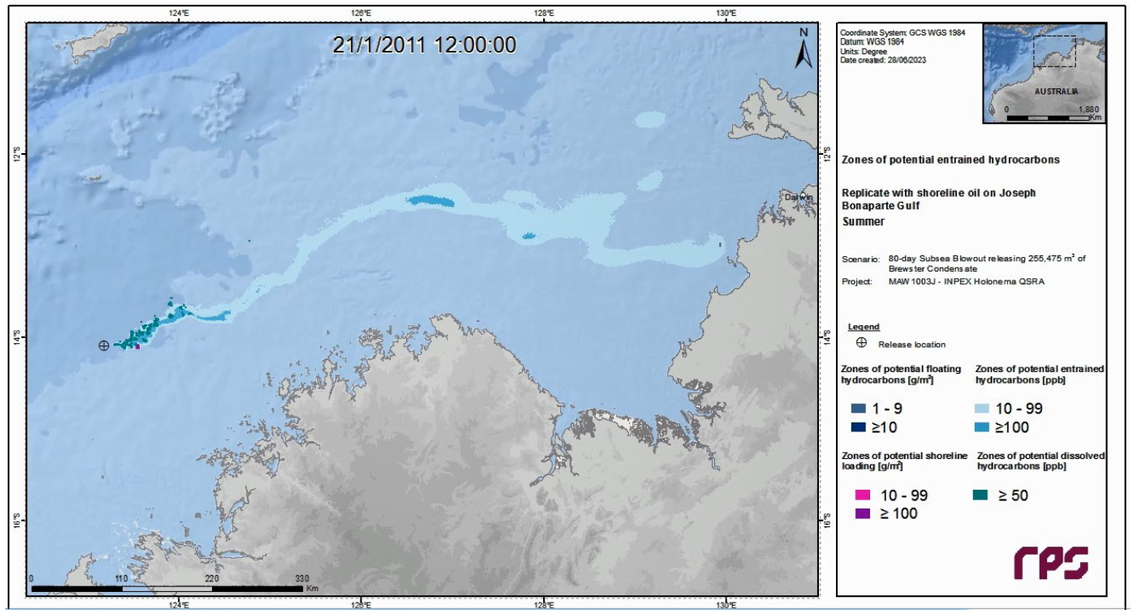
3 days: BOP intervention



21 days: Deployment of capping stack



80 days: Relief well drilling complete



Appendix C Protected Matters Search Tool Results

This appendix consists of two reports obtained from the EPBC Protected Matters Search Tool:

- EPBC Act Protected Matters Report (Crux Development Drilling Operational Area, Report created: 30/06/23 (21 pages) – PMST input data shown in Figure A-1
- EPBC Act Protected Matters Report, Crux Development Drilling Planning Area, Report created: 30/06/23 (31 pages) – PMST input data shown in Figure A-2.

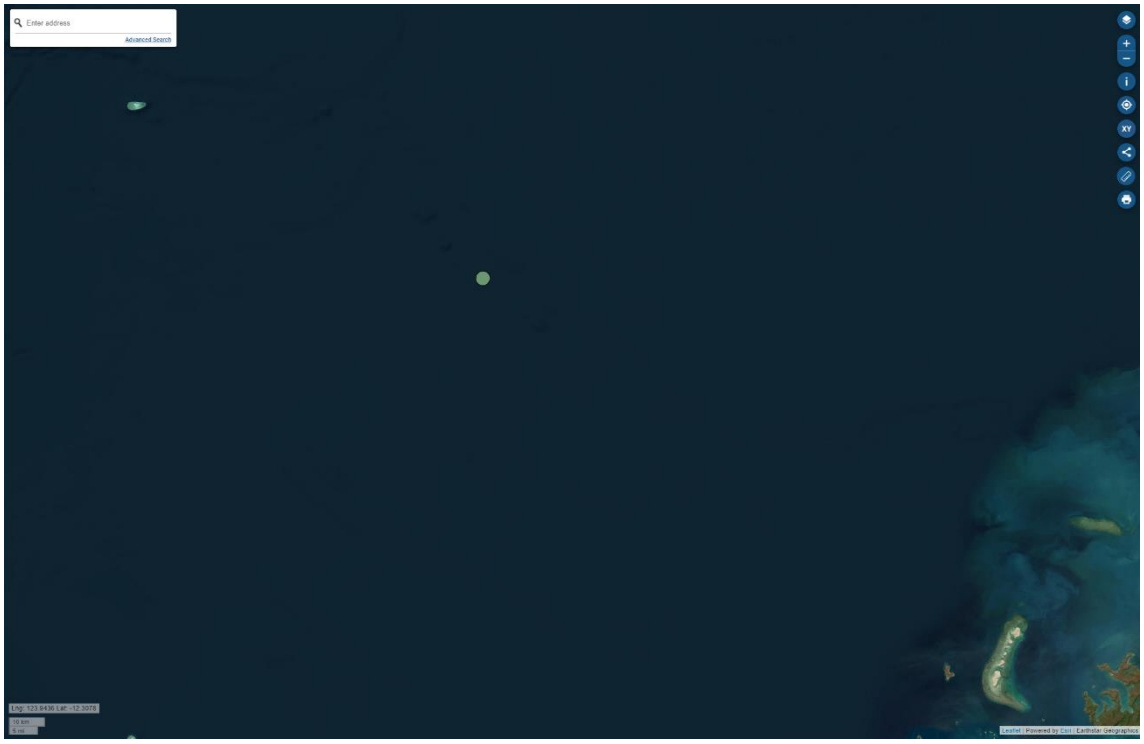


Figure A-1: GIS data layer of the Crux Drilling Template Installation Operational Area used in the PMST.

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: 30-Jun-2023

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	1
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	22
Listed Migratory Species:	35

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:	63
Whales and Other Cetaceans:	23
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	16
Key Ecological Features (Marine):	None
Biologically Important Areas:	1
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		
Anous tenuirostris melanops		
Australian Lesser Noddy [26000]	Vulnerable	Foraging, feeding or related behaviour likely to 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
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Papasula abbotti		
Abbott's Booby [59297]	Endangered	Species or species habitat may occur within area
FISH		
Thunnus maccoyii		
Southern Bluefin Tuna [69402]	Conservation Dependent	Breeding known to occur within area
MAMMAL		

Scientific Name	Threatened Category	Presence Text
[Balaenoptera borealis](#) Sei Whale [34]	Vulnerable	Species or species habitat likely to occur within area
[Balaenoptera musculus](#) Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
[Balaenoptera physalus](#) Fin Whale [37]	Vulnerable	Species or species habitat likely to occur within area
REPTILE		
[Aipysurus foliosquama](#) Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat may occur within area
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour likely to occur within area
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour likely to occur within area
[Eretmochelys imbricata](#) Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
[Lepidochelys olivacea](#) Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Foraging, feeding or related behaviour likely to occur within area
[Natator depressus](#) Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area
SHARK		

Scientific Name	Threatened Category	Presence Text
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
Glyphis garricki Northern River Shark, New Guinea River Shark [82454]	Endangered	Species or species habitat may 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 likely to occur within area

Listed Migratory Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Anous stolidus Common Noddy [825]		Species or species habitat may occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat likely to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Phaethon lepturus		
White-tailed Tropicbird [1014]		Species or species habitat likely to 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	Species or species habitat likely 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 may 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	Foraging, feeding or related behaviour likely to occur within area
Chelonia mydas		
Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area

Scientific Name	Threatened Category	Presence Text
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour 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
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat likely 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	Species or species habitat known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area

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
Tursiops aduncus (Arafura/Timor Sea populations)		
Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat may 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
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Foraging, feeding or related behaviour likely to 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

Scientific Name	Threatened Category	Presence Text
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		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
Papasula abbotti Abbott's Booby [59297]	Endangered	Species or species habitat may occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat likely to occur within area
Fish		
Bhanotia fasciolata Corrugated Pipefish, Barbed Pipefish [66188]		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 suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Corythoichthys amplexus Fijian Banded Pipefish, Brown-banded Pipefish [66199]		Species or species habitat may occur within area
Corythoichthys flavofasciatus Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200]		Species or species habitat may occur within area
Corythoichthys intestinalis Australian Messmate Pipefish, Banded Pipefish [66202]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Corythoichthys schultzi Schultz's Pipefish [66205]		Species or species habitat may occur within area
Cosmocampus banneri Roughridge Pipefish [66206]		Species or species habitat may occur within area
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
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Halicampus dunckeri Red-hair Pipefish, Duncker's Pipefish [66220]		Species or species habitat may occur within area
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
Halicampus 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

Scientific Name	Threatened Category	Presence Text
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		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
Micrognathus micronotopterus Tidepool Pipefish [66255]		Species or species habitat may occur within area
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
[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 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 may occur within area
[Aipysurus laevis](#) Olive Seasnake [1120]		Species or species habitat may occur within area
[Astrotia stokesii](#) Stokes' Seasnake [1122]		Species or species habitat may occur within area
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour likely to occur within area
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
[Chitulia ornata as Hydrophis ornatus](#) Spotted Seasnake, Ornate Reef Seasnake [87377]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour 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
Enhydrina schistosa Beaked Seasnake [1126]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Hydrophis elegans Elegant Seasnake [1104]		Species or species habitat may occur within area
Lapemis curtus as Lapemis hardwickii Spine-bellied Seasnake [83554]		Species or species habitat may occur within area
Leioselasma coggeri as Hydrophis coggeri Black-headed Sea Snake, Slender-necked Seasnake [87373]		Species or species habitat may occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat 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 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	Species or species habitat likely 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
[Kogia breviceps](#) Pygmy Sperm Whale [57]		Species or species habitat may occur within area
[Kogia sima](#) Dwarf Sperm Whale [85043]		Species or species habitat may occur within area
[Megaptera novaeangliae](#) Humpback Whale [38]		Species or species habitat likely to occur within area

Current Scientific Name	Status	Type of Presence
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
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 may occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Ziphius cavirostris Cuvier's Beaked Whale, Goose-beaked Whale [56]		Species or species habitat may occur within area

Extra Information

EPBC Act Referrals			[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status
Project Crux Cable Lay and Operation	2022/09441		Completed
Not controlled action			
Crux-A and Crux-B appraisal wells, Petroleum Permit Area AC/P23	2006/2748	Not Controlled Action	Completed
Crux gas-liquids development in permit AC/P23	2006/3154	Not Controlled Action	Completed
Exploration Well AC/P23	2001/234	Not Controlled Action	Completed
Project Highclere Geophysical Survey	2021/9023	Not Controlled Action	Completed
Not controlled action (particular manner)			
2D Marine Seismic Survey	2009/4728	Not Controlled Action (Particular Manner)	Post-Approval
2D Seismic Marine Survey	2001/363	Not Controlled Action (Particular Manner)	Post-Approval
2D Seismic survey	2009/5076	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey, Permit AC/P 23	2005/2364	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Canis 3D Marine Seismic Survey	2008/4492	Not Controlled Action (Particular Manner)	Post-Approval
Cartier East and Cartier West 3D Marine Seismic Surveys	2009/5230	Not Controlled Action (Particular Manner)	Post-Approval
Kingtree & Ironstone-1 Exploration Wells	2011/5935	Not Controlled Action (Particular Manner)	Post-Approval
Octantis 3D Marine Seismic Survey, Permit Area AC/P41 off northern Western Australia	2007/3369	Not Controlled Action (Particular Manner)	Post-Approval
Vampire 2D Non Exclusive Seismic Survey, WA	2010/5543	Not Controlled Action (Particular Manner)	Post-Approval
Westralia SPAN Marine Seismic Survey, WA & NT	2012/6463	Not Controlled Action (Particular Manner)	Post-Approval
Referral decision			
2D Marine Seismic Survey	2008/4623	Referral Decision	Completed

Biologically Important Areas

Scientific Name	Behaviour	Presence
Sharks		
Rhincodon typus		
Whale Shark [66680]	Foraging	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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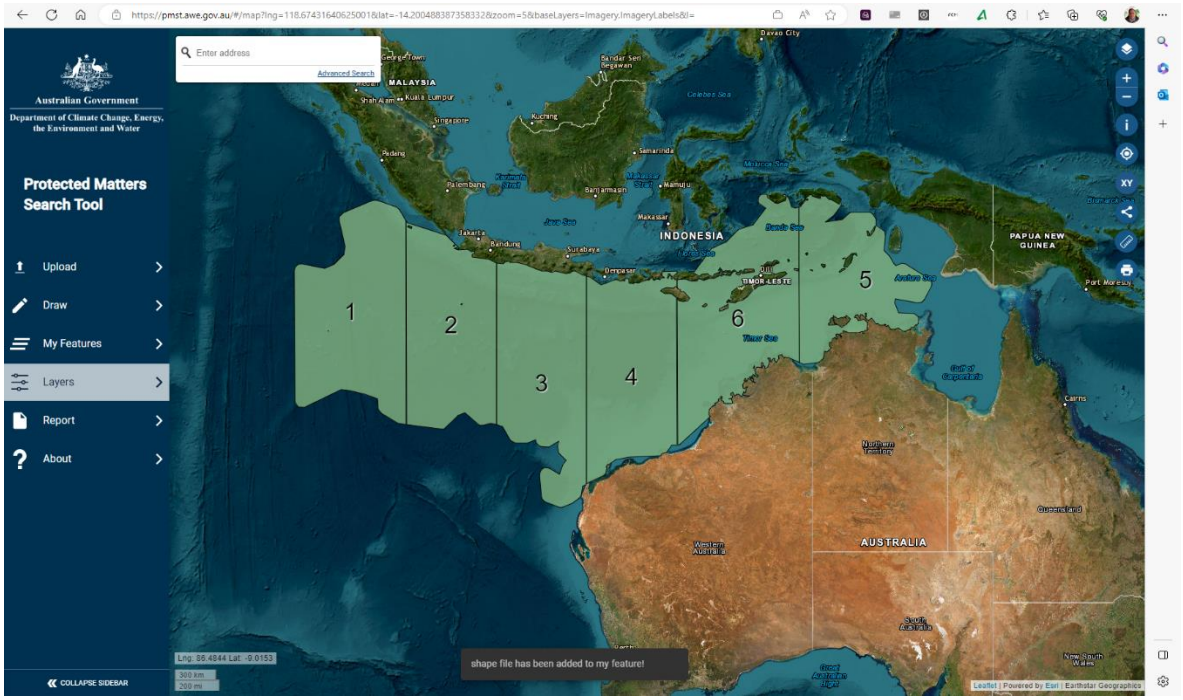

Figure A-2: GIS data layer of the Crux Development Drilling Planning Area used in the PMST.

Australian Government

Department of Climate Change, Energy, the Environment and Water

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 20-Jul-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:	4
Wetlands of International Importance (Ramsar	8
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	13
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	115
Listed Migratory Species:	95

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:	377
Commonwealth Heritage Places:	45
Listed Marine Species:	169
Whales and Other Cetaceans:	32
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	3
Australian Marine Parks:	42
Habitat Critical to the Survival of Marine Turtles:	6

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	99
Regional Forest Agreements:	None
Nationally Important Wetlands:	30
EPBC Act Referrals:	586
Key Ecological Features (Marine):	16
Biologically Important Areas:	106
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

World Heritage Properties		[Resource Information]
Name	State	Legal Status
Kakadu National Park	NT	Declared property
The Ningaloo Coast	WA	Declared property

National Heritage Places		[Resource Information]
Name	State	Legal Status
Indigenous		
Dampier Archipelago (including Burrup Peninsula)	WA	Listed place
Natural		
Kakadu National Park	NT	Listed place
The Ningaloo Coast	WA	Listed place
The West Kimberley	WA	Listed place

Wetlands of International Importance (Ramsar Wetlands)	[Resource Information]
Ramsar Site Name	Proximity
Ashmore reef national nature reserve	Within Ramsar site
Cobourg peninsula	Within Ramsar site
Eighty-mile beach	Within 10km of Ramsar site
Hosnies spring	Within Ramsar site
Kakadu national park	Within Ramsar site
Pulu keeling national park	Within Ramsar site
Roebuck bay	Within Ramsar site
The dales	Within Ramsar site

Commonwealth Marine Area	[Resource Information]

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.

Feature Name
EEZ and Territorial Sea

Feature Name
EEZ and Territorial Sea
EEZ and Territorial Sea
Extended Continental Shelf
Extended Continental Shelf
Extended Continental Shelf
Extended Continental Shelf
Extended Continental Shelf
Extended Continental Shelf
Extended Continental Shelf
Extended Continental Shelf
Extended Continental Shelf
Extended Continental Shelf
Extended Continental Shelf

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text
Monsoon vine thickets on the coastal sand dunes of Dampier Peninsula	Endangered	Community likely to occur within area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text
BIRD		
Accipiter hiogaster natalis		
Christmas Island Goshawk [82408]	Endangered	Species or species habitat known to occur within area
Amytornis woodwardi		
White-throated Grasswren, Yirlinkirrkirr [564]	Vulnerable	Species or species habitat likely to occur within area
Anous tenuirostris melanops		
Australian Lesser Noddy [26000]	Vulnerable	Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
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 tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area
Chalcophaps indica natalis Christmas Island Emerald Dove, Emerald Dove (Christmas Island) [67030]	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
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Epthianura crocea tunneyi Alligator Rivers Yellow Chat, Yellow Chat (Alligator Rivers) [67089]	Endangered	Species or species habitat known to occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat known to occur within area
Erythrura gouldiae Gouldian Finch [413]	Endangered	Species or species habitat known to occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat known to occur within area
Falcunculus frontatus whitei Crested Shrike-tit (northern), Northern Shrike-tit [26013]	Vulnerable	Species or species habitat known to occur within area
Fregata andrewsi Christmas Island Frigatebird, Andrew's Frigatebird [1011]	Endangered	Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Geophaps smithii blaauwi Partridge Pigeon (western) [66501]	Vulnerable	Species or species habitat likely to occur within area
Geophaps smithii smithii Partridge Pigeon (eastern) [64441]	Vulnerable	Species or species habitat known to occur within area
Hypotaenidia philippensis andrewsi Buff-banded Rail (Cocos (Keeling) Islands), Ayam Hutan [88994]	Endangered	Species or species habitat known to occur within area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	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 coronatus coronatus Purple-crowned Fairy-wren (western) [64442]	Endangered	Species or species habitat known to 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
Melanodryas cucullata melvillensis Tiwi Islands Hooded Robin, Hooded Robin (Tiwi Islands) [67092]	Critically Endangered	Species or species habitat known to occur within area
Mirafra javanica melvillensis Horsfield's Bushlark (Tiwi Islands) [81011]	Vulnerable	Species or species habitat known to occur within area
Ninox natalis Christmas Island Hawk-Owl, Christmas Boobook [66671]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
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 known to 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 known to occur within area
Polytelis alexandrae		
Princess Parrot, Alexandra's Parrot [758]	Vulnerable	Species or species habitat may occur within area
Pterodroma mollis		
Soft-plumaged Petrel [1036]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Rostratula australis		
Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area
Sternula nereis nereis		
Australian Fairy Tern [82950]	Vulnerable	Breeding known to occur within area
Thalassarche carteri		
Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
Thalassarche impavida		
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Turdus poliocephalus erythropleurus		
Christmas Island Thrush [67122]	Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Tyto novaehollandiae kimberli		
Masked Owl (northern) [26048]	Vulnerable	Species or species habitat known to occur within area
Tyto novaehollandiae melvillensis		
Tiwi Masked Owl, Tiwi Islands Masked Owl [26049]	Endangered	Species or species habitat known to occur within area
CRUSTACEAN		
Kumonga exleyi		
Cape Range Remipede [86875]	Vulnerable	Species or species habitat known to occur within area
FISH		
Milyeringa veritas		
Cape Range Cave Gudgeon, Blind Gudgeon [66676]	Vulnerable	Species or species habitat known to occur within area
Ophisternon candidum		
Blind Cave Eel [66678]	Vulnerable	Species or species habitat known to occur within area
Thunnus maccoyii		
Southern Bluefin Tuna [69402]	Conservation Dependent	Breeding known to occur within area
FROG		
Uperoleia daviesae		
Howard River Toadlet, Davies's Toadlet [85375]	Vulnerable	Species or species habitat known to occur within area
MAMMAL		
Antechinus bellus		
Fawn Antechinus [344]	Vulnerable	Species or species habitat known to occur within area
Balaenoptera borealis		
Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Balaenoptera musculus		
Blue Whale [36]	Endangered	Migration route known to occur within area

Scientific Name	Threatened Category	Presence Text
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
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
Conilurus penicillatus Brush-tailed Rabbit-rat, Brush-tailed Tree-rat, Pakooma [132]	Vulnerable	Species or species habitat known to occur within area
Crocidura trichura Christmas Island Shrew [86568]	Critically Endangered	Species or species habitat likely to occur within area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat known to occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Isoodon auratus auratus Golden Bandicoot (mainland) [66665]	Vulnerable	Translocated population known 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 known to occur within area

Scientific Name	Threatened Category	Presence Text
Macrotis lagotis Greater Bilby [282]	Vulnerable	Species or species habitat known to occur within area
Mesembriomys gouldii gouldii Black-footed Tree-rat (Kimberley and mainland Northern Territory), Djintamoonga, Manbul [87618]	Endangered	Species or species habitat known to occur within area
Mesembriomys gouldii melvillensis Black-footed Tree-rat (Melville Island) [87619]	Vulnerable	Species or species habitat known 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 concinna canescens Nabarlek (Top End) [87606]	Endangered	Species or species habitat known to occur within area
Petrogale concinna monastria Nabarlek (Kimberley) [87607]	Endangered	Species or species habitat known to occur within area
Petrogale lateralis lateralis Black-flanked Rock-wallaby, Mororong, Black-footed Rock Wallaby [66647]	Endangered	Species or species habitat known to occur within area
Phascogale pirata Northern Brush-tailed Phascogale [82954]	Vulnerable	Species or species habitat known to occur within area
Phascogale tapoatafa kimberleyensis Kimberley brush-tailed phascogale, Brush-tailed Phascogale (Kimberley) [88453]	Vulnerable	Species or species habitat known to occur within area
Pteropus natalis Christmas Island Flying-fox, Christmas Island Fruit-bat [87611]	Critically Endangered	Species or species habitat known to occur within area
Rhinonicteris aurantia (Pilbara form) Pilbara Leaf-nosed Bat [82790]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Saccolaimus saccolaimus nudicluniatus		
Bare-rumped Sheath-tailed Bat, Bare-rumped Sheathtail Bat [66889]	Vulnerable	Species or species habitat known to occur within area
Sminthopsis butleri		
Butler's Dunnart [302]	Vulnerable	Species or species habitat known to occur within area
Trichosurus vulpecula arnhemensis		
Northern Brushtail Possum [83091]	Vulnerable	Species or species habitat known to occur within area
Xeromys myoides		
Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat known to occur within area
Zyzomys maini		
Arnhem Rock-rat, Arnhem Land Rock-rat, Kodjperr [25906]	Vulnerable	Species or species habitat may occur within area
PLANT		
Asplenium listeri		
Christmas Island Spleenwort [65865]	Critically Endangered	Species or species habitat known to occur within area
Atalaya brevialata		
[86125]	Critically Endangered	Species or species habitat known to occur within area
Burmannia sp. Bathurst Island (R.Fensham 1021)		
[82017]	Endangered	Species or species habitat likely to occur within area
Elaeocarpus miegei		
[65147]	Endangered	Species or species habitat known to occur within area
Hoya australis subsp. oramicola		
a vine [55436]	Vulnerable	Species or species habitat known to occur within area
Mitrella tiwiensis		
a vine [82029]	Vulnerable	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Pneumatopteris truncata fern [68812]	Critically Endangered	Species or species habitat known to occur within area
Seringia exastia Fringed Fire-bush [88920]	Critically Endangered	Species or species habitat known to occur within area
Stylidium ensatum a triggerplant [86366]	Endangered	Species or species habitat known to occur within area
Tarennoidea wallichii [65173]	Endangered	Species or species habitat known to occur within area
Tectaria devexa Cave Fern [14767]	Endangered	Species or species habitat likely to occur within area
Typhonium jonesii a herb [62412]	Endangered	Species or species habitat known to occur within area
Typhonium mirabile a herb [79227]	Endangered	Species or species habitat known to occur within area
Typhonium taylori a herb [65904]	Endangered	Species or species habitat likely to occur within area
Xylopia monosperma a shrub [82030]	Endangered	Species or species habitat known to occur within area
REPTILE		
Acanthophis hawkei Plains Death Adder [83821]	Vulnerable	Species or species habitat known to occur within area
Aipysurus apraefrontalis Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
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
Cryptoblepharus egeriae Christmas Island Blue-tailed Skink, Blue-tailed Snake-eyed Skink [1526]	Critically Endangered	Species or species habitat likely to occur within area
Cryptoblepharus gurrmul Arafura Snake-eyed Skink [83106]	Endangered	Species or species habitat known to occur within area
Ctenotus zastictus Hamelin Ctenotus [25570]	Vulnerable	Species or species habitat known to occur within area
Cyrtodactylus sadleiri Christmas Island Giant Gecko [86865]	Endangered	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Breeding known to occur within area
Lepidodactylus listeri Christmas Island Gecko, Lister's Gecko [1711]	Critically Endangered	Species or species habitat known to occur within area
Liasis olivaceus barroni Olive Python (Pilbara subspecies) [66699]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
[Lucasium occultum](#)		
Yellow-snouted Gecko, Yellow-snouted Ground Gecko [82993]	Endangered	Species or species habitat likely to occur within area
[Natator depressus](#)		
Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
[Ramphotyphlops exocoeti](#)		
Christmas Island Blind Snake, Christmas Island Pink Blind Snake [1262]	Vulnerable	Species or species habitat likely 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
[Glyphis garricki](#)		
Northern River Shark, New Guinea River Shark [82454]	Endangered	Breeding known to occur within area
[Glyphis glyphis](#)		
Speartooth Shark [82453]	Critically Endangered	Species or species habitat known to occur within area
[Pristis clavata](#)		
Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Breeding known to occur within area
[Pristis pristis](#)		
Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat known to occur within area
[Pristis zijsron](#)		
Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding known to occur within area
[Rhincodon typus](#)		
Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
[Sphyrna lewini](#)		
Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat known to occur within area

Listed Migratory Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Anous stolidus Common Noddy [825]		Breeding known 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 known to occur within area
Fregata andrewsi Christmas Island Frigatebird, Andrew's Frigatebird [1011]	Endangered	Breeding known to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Breeding known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Breeding known to 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]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Phaethon rubricauda Red-tailed Tropicbird [994]		Breeding known to occur within area
Sterna dougallii Roseate Tern [817]		Breeding known to occur within area
Sternula albifrons Little Tern [82849]		Breeding known to occur within area
Sula dactylatra Masked Booby [1021]		Breeding known to occur within area
Sula leucogaster Brown Booby [1022]		Breeding known to occur within area
Sula sula Red-footed Booby [1023]		Breeding known to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	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
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

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
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
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area
Dugong dugon Dugong [28]		Breeding known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Eubalaena australis as Balaena glacialis australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Isurus oxyrinchus Shortfin Mako, Mako Shark [79073]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
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
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Breeding known 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 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]		Breeding known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Breeding known to occur within area
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Pristis zijsron		
Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding known to occur within area
Rhincodon typus		
Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Sousa sahulensis as Sousa chinensis		
Australian Humpback Dolphin [87942]		Breeding 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		
Cecropis daurica		
Red-rumped Swallow [80610]		Species or species habitat known to occur within area
Cuculus optatus		
Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat known to occur within area
Hirundo rustica		
Barn Swallow [662]		Species or species habitat known to occur within area
Motacilla cinerea		
Grey Wagtail [642]		Species or species habitat known to occur within area
Motacilla flava		
Yellow Wagtail [644]		Species or species habitat known to occur within area
Rhipidura rufifrons		
Rufous Fantail [592]		Species or species habitat known to occur within area
Migratory Wetlands Species		
Acrocephalus orientalis		
Oriental Reed-Warbler [59570]		Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Arenaria interpres Ruddy Turnstone [872]		Roosting known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Roosting known to occur within area
Calidris alba Sanderling [875]		Roosting known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area
Calidris subminuta Long-toed Stint [861]		Roosting known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area
Charadrius dubius Little Ringed Plover [896]		Roosting known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Roosting known to occur within area
Gallinago megala Swinhoe's Snipe [864]		Roosting known to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area
Glareola maldivarum Oriental Pratincole [840]		Roosting known to occur within area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to 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
Limosa limosa Black-tailed Godwit [845]		Roosting known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting known to occur within area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area
Pluvialis squatarola Grey Plover [865]		Roosting known to occur within area
Thalasseus bergii Greater Crested Tern [83000]		Breeding known to occur within area
Tringa brevipes Grey-tailed Tattler [851]		Roosting known to occur within area
Tringa glareola Wood Sandpiper [829]		Roosting known to occur within area
Tringa incana Wandering Tattler [831]		Roosting known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area
Tringa totanus Common Redshank, Redshank [835]		Roosting known to occur within area
Xenus cinereus Terek Sandpiper [59300]		Roosting known 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
Attorney-General - Australian Customs Service	
Commonwealth Land - Australian Customs Service [70998]	NT
Attorney-General - Australian Government Solicitor	

Commonwealth Land Name	State
Commonwealth Land - Australian Government Solicitor [70450]	NT
Commonwealth Land - Australian Government Solicitor [70996]	NT
Commonwealth Land - Australian Government Solicitor [70208]	NT
Commonwealth Land - Australian Government Solicitor [71135]	NT
Commonwealth Land - Australian Government Solicitor [70089]	NT
Commonwealth Land - Australian Government Solicitor [70092]	NT
Commonwealth Land - Australian Government Solicitor [70093]	NT
Commonwealth Land - Australian Government Solicitor [70332]	NT
Commonwealth Land - Australian Government Solicitor [70444]	NT
Commonwealth Land - Deputy Crown Solicitor [70333]	NT
Commonwealth Land - Deputy Crown Solicitor [70334]	NT
Commonwealth Land - Deputy Crown Solicitor [70994]	NT
Defence	
Defence - AUSTRALIAN ARMY BAND - DARWIN [70042]	NT
Defence - BERRIMAH ONE [70053]	NT
Defence - BROOME TRAINING DEPOT [50141]	WA
Defence - DARWIN - AP10 RADAR SITE - LEE POINT [70021]	NT
Defence - DARWIN - AP3 RECEIVING STATION - LEE POINT [70044]	NT
Defence - DARWIN RELOCATIONS CENTRE [70045]	NT
Defence - DARWIN - TRANSMITTING STATION '11 MILE' [70027]	NT
Defence - DEFENCE FORCE CAREERS REFERENCE CENTRE [70046]	NT
Defence - Esanda Builidng [70048]	NT
Defence - EXMOUTH ADMIN & HF TRANSMITTING [50127]	WA
Defence - EXMOUTH ADMIN & HF TRANSMITTING [50126]	WA
Defence - EXMOUTH ADMIN & HF TRANSMITTING [50125]	WA
Defence - EXMOUTH ADMIN & HF TRANSMITTING [50128]	WA
Defence - EXMOUTH ADMIN & HF TRANSMITTING [50129]	WA

Commonwealth Land Name	State
Defence - EXMOUTH ADMIN & HF TRANSMITTING [50124]	WA
Defence - EXMOUTH VLF TRANSMITTER STATION [50122]	WA
Defence - EXMOUTH VLF TRANSMITTER STATION [50123]	WA
Defence - HMAS COONAWARRA (Berrimah) [70049]	NT
Defence - HMAS COONAWARRA (Berrimah) [70051]	NT
Defence - HMAS COONAWARRA (Berrimah) [70050]	NT
Defence - KANGAROO FLATS TRAINING AREA [70057]	NT
Defence - KANGAROO FLATS TRAINING AREA [70054]	NT
Defence - KOWANDI NORTH COMMUNICATION STATION [70060]	NT
Defence - KOWANDI NORTH COMMUNICATION STATION [70059]	NT
Defence - KOWANDI SOUTH REPEATING STATION [70079]	NT
Defence - KOWANDI SOUTH REPEATING STATION [70082]	NT
Defence - KOWANDI SOUTH REPEATING STATION [70081]	NT
Defence - KOWANDI SOUTH REPEATING STATION [70080]	NT
Defence - LARRAKEYAH BARRACKS [70061]	NT
Defence - LEANYER BOMBING RANGE [70023]	NT
Defence - LEANYER BOMBING RANGE [70022]	NT
Defence - LEANYER BOMBING RANGE [70024]	NT
Defence - LEARMONTH - AIR WEAPONS RANGE [50193]	WA
Defence - LEARMONTH RADAR SITE - TWIN TANKS EXMOUTH [50002]	WA
Defence - LEARMONTH RADAR SITE - VLAMING HEAD EXMOUTH [50001]	WA
Defence - MT GOODWIN RADAR SITE [70063]	NT
Defence - Patrol Boat Base (DARWIN NAVAL BASE) [70041]	NT
Defence - QUAIL ISLAND BOMBING RANGE [70003]	NT
Defence - RAAF BASE DARWIN [70073]	NT
Defence - RAAF BASE DARWIN [70072]	NT

Commonwealth Land Name	State
Defence - ROBERTSON BARRACKS (Waler Barracks) [70030]	NT
Defence - SHOAL BAY RECEIVING STATION [70038]	NT
Defence - SHOAL BAY RECEIVING STATION [70036]	NT
Defence - SHOAL BAY RECEIVING STATION [70037]	NT
Defence - STOKES HILL OIL FUEL INSTALLATION [70035]	NT
Defence - WINNELLIE ONE [70076]	NT
Defence - WINNELLIE TWO [70077]	NT
Defence - YAMPI SOUND TRAINING AREA [50145]	WA
Defence - Defence Housing Authority	
Commonwealth Land - Director of Property Services Defence Estate [70856]	NT
Commonwealth Land - Director of Property Services Defence Estate [70715]	NT
Commonwealth Land - Director of Property Services Defence Estate [70714]	NT
Commonwealth Land - Director of Property Services Defence Estate [70858]	NT
Commonwealth Land - Director of Property Services Defence Estate [70855]	NT
Commonwealth Land - Director of Property Services Defence Estate [71000]	NT
Commonwealth Land - Director of Property Services Defence Estate [70722]	NT
Environment and Heritage	
Commonwealth Land - Christmas Island National Park [94103]	CI
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Commonwealth Land - Christmas Island National Park [94101]	CI
Commonwealth Land - Christmas Island National Park [94105]	CI
Commonwealth Land - Christmas Island National Park [94104]	CI
Commonwealth Land - Kakadu National Park [70835]	NT
Commonwealth Land - Kakadu National Park [70850]	NT
Commonwealth Land - Kakadu National Park [71139]	NT

Commonwealth Land Name	State
Commonwealth Land - Kakadu National Park [71099]	NT
Commonwealth Land - Pulu Keeling National Park [95001]	CKI
Commonwealth Land - Pulu Keeling National Park [95002]	CKI
Family and Community Services - Department of Community Services & Health	
Commonwealth Land - Department of Community Services & Health [70720]	NT
Finance and Administration	
Commonwealth Land - Department of Administrative Services [70091]	NT
Commonwealth Land - Department of Administrative Services [70210]	NT
Commonwealth Land - Department of Administrative Services [70590]	NT
Immigration and Multicultural and Indigenous Affairs - Department of Immigration Local Government and Ethnic Affairs	
Commonwealth Land - Department of Immigration Local Government & Ethnic Affairs [70336]	NT
Transport and Regional Services	
Commonwealth Land - Department of Transport & Regional Development [70207]	NT
Unknown	
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Commonwealth Land Name	State
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Commonwealth Land Name	State
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Commonwealth Land Name	State
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Commonwealth Land - [70204]	NT

Commonwealth Heritage Places		[Resource Information]
Name	State	Status
Historic		
Administration Building Forecourt	EXT	Listed place
Administrators House Precinct	EXT	Listed place
Bungalow 702	EXT	Listed place
Captain Ballards Grave	EXT	Listed place
Direction Island (DI) Houses	EXT	Listed place
Drumsite Industrial Area	EXT	Listed place
Early Settlers Graves	EXT	Listed place
Government House	EXT	Listed place
Home Island Cemetery	EXT	Listed place
Home Island Foreshore	EXT	Listed place
Home Island Industrial Precinct	EXT	Listed place
Industrial and Administrative Group	EXT	Listed place
Larrakeyah Barracks Headquarters Building	NT	Listed place
Larrakeyah Barracks Precinct	NT	Listed place
Larrakeyah Barracks Sergeants Mess	NT	Listed place

Name	State	Status
Malay Kampong Group	EXT	Listed place
Malay Kampong Precinct	EXT	Listed place
Oceania House and Surrounds	EXT	Listed place
Old Co-op Shop (Canteen)	EXT	Listed place
Phosphate Hill Historic Area	EXT	Listed place
Poon Saan Group	EXT	Listed place
Qantas Huts (former)	EXT	Listed place
RAAF Base Commanding Officers Residence	NT	Listed place
RAAF Base Precinct	NT	Listed place
RAAF Base Tropical Housing Type 2	NT	Listed place
RAAF Base Tropical Housing Type 3	NT	Listed place
RAAF Memorial	EXT	Listed place
Settlement Christmas Island	EXT	Listed place
Six Inch Guns	EXT	Listed place
Slipway and Tank	EXT	Listed place
South Point Settlement Remains	EXT	Listed place
Type 2 Residences	EXT	Listed place
Type T Houses Precinct	EXT	Listed place
West Island Elevated Houses	EXT	Listed place
West Island Housing Precinct	EXT	Listed place
West Island Mosque	EXT	Listed place
Indigenous		
Oombalai Area	WA	Within listed place
Natural		
Ashmore Reef National Nature Reserve	EXT	Listed place
Christmas Island Natural Areas	EXT	Listed place
Learmonth Air Weapons Range Facility	WA	Listed place
Mermaid Reef - Rowley Shoals	WA	Listed place

Name	State	Status
Ningaloo Marine Area - Commonwealth Waters	WA	Listed place
North Keeling Island	EXT	Listed place
Scott Reef and Surrounds - Commonwealth Area	EXT	Listed place
Yampi Defence Area	WA	Listed place

Listed Marine Species

[Resource Information]

Scientific Name	Threatened Category	Presence Text
Bird		
Acrocephalus orientalis Oriental Reed-Warbler [59570]		Species or species habitat known to occur within area overfly marine area
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Anous minutus Black Noddy [824]		Breeding known to occur within area
Anous stolidus Common Noddy [825]		Breeding known to occur within area
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Breeding known to occur within area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area overfly marine 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

Scientific Name	Threatened Category	Presence Text
Arenaria interpres Ruddy Turnstone [872]		Roosting known to occur within area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Breeding likely to occur within area overfly marine area
Calidris acuminata Sharp-tailed Sandpiper [874]		Roosting known to occur within area
Calidris alba Sanderling [875]		Roosting known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area overfly marine area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area overfly marine area
Calidris subminuta Long-toed Stint [861]		Roosting known to occur within area overfly marine area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area overfly marine area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Cecropis daurica as Hirundo daurica		
Red-rumped Swallow [80610]		Species or species habitat known to occur within area overfly marine area
Chalcites osculans as Chrysococcyx osculans		
Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area
Charadrius bicinctus		
Double-banded Plover [895]		Roosting known to occur within area overfly marine area
Charadrius dubius		
Little Ringed Plover [896]		Roosting 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 mongolus		
Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Charadrius ruficapillus		
Red-capped Plover [881]		Roosting known to occur within area overfly marine area
Charadrius veredus		
Oriental Plover, Oriental Dotterel [882]		Roosting known to occur within area overfly marine area
Chroicocephalus novaehollandiae as Larus novaehollandiae		
Silver Gull [82326]		Breeding known to occur within area
Fregata andrewsi		
Christmas Island Frigatebird, Andrew's Frigatebird [1011]	Endangered	Breeding known to occur within area
Fregata ariel		
Lesser Frigatebird, Least Frigatebird [1012]		Breeding known to occur within area
Fregata minor		
Great Frigatebird, Greater Frigatebird [1013]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Gallinago megala Swinhoe's Snipe [864]		Roosting known to occur within area overfly marine area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area overfly marine area
Glareola maldivarum Oriental Pratincole [840]		Roosting known to occur within area overfly marine area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Breeding known to occur within area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Roosting known to occur within area overfly marine 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
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area overfly marine area
Limnodromus semipalmatus Asian Dowitcher [843]		Species or species habitat known to occur within area overfly marine area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Limosa limosa Black-tailed Godwit [845]		Roosting known to occur within area overfly marine 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 known to occur within area overfly marine area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to occur within area overfly marine area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting known to occur within area overfly marine area
Numenius phaeopus Whimbrel [849]		Roosting 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

Scientific Name	Threatened Category	Presence Text
Papasula abbotti Abbott's Booby [59297]	Endangered	Species or species habitat known to occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Breeding known to occur within area
Phaethon lepturus fulvus Christmas Island White-tailed Tropicbird, Golden Bosunbird [26021]	Endangered	Species or species habitat known to occur within area
Phaethon rubricauda Red-tailed Tropicbird [994]		Breeding known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area
Pluvialis squatarola Grey Plover [865]		Roosting known to occur within area overfly marine area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Recurvirostra novaehollandiae Red-necked Avocet [871]		Roosting known to occur within area overfly marine area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat known 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]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Sternula nereis as Sterna nereis Fairy Tern [82949]		Breeding known to occur within area
Stiltia isabella Australian Pratincole [818]		Roosting known to occur within area overfly marine area
Sula dactylatra Masked Booby [1021]		Breeding known to occur within area
Sula leucogaster Brown Booby [1022]		Breeding known to occur within area
Sula sula Red-footed Booby [1023]		Breeding known to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	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
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 brevipes as Heteroscelus brevipes Grey-tailed Tattler [851]		Roosting known to occur within area
Tringa glareola Wood Sandpiper [829]		Roosting known to occur within area overfly marine area
Tringa incana as Heteroscelus incanus Wandering Tattler [831]		Roosting known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area overfly marine area
Tringa totanus Common Redshank, Redshank [835]		Roosting known to occur within area overfly marine area
Xenus cinereus Terek Sandpiper [59300]		Roosting known to occur within area overfly marine area
Fish		
Acentronura larsonae Helen's Pygmy Pipehorse [66186]		Species or species habitat may occur within area
Bhanotia fasciolata Corrugated Pipefish, Barbed Pipefish [66188]		Species or species habitat may occur within area
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 sculptus Sculptured Pipefish [66197]		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 amplexus Fijian Banded Pipefish, Brown-banded Pipefish [66199]		Species or species habitat may occur within area
Corythoichthys flavofasciatus Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200]		Species or species habitat may occur within area
Corythoichthys haematopterus Reef-top Pipefish [66201]		Species or species habitat may occur within area
Corythoichthys intestinalis Australian Messmate Pipefish, Banded Pipefish [66202]		Species or species habitat may occur within area
Corythoichthys schultzi Schultz's Pipefish [66205]		Species or species habitat may occur within area
Cosmocampus banneri Roughridge Pipefish [66206]		Species or species habitat may occur within area
Cosmocampus maxweberi Maxweber's Pipefish [66209]		Species or species habitat may occur within area
Doryrhamphus baldwini Redstripe Pipefish [66718]		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

Scientific Name	Threatened Category	Presence Text
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 cinctus Girdled Pipefish [66214]		Species or species habitat may occur within area
Festucalex scalaris Ladder Pipefish [66216]		Species or species habitat may occur within area
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Halicampus dunckeri Red-hair Pipefish, Duncker's Pipefish [66220]		Species or species habitat may occur within area
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
Halicampus macrorhynchus Whiskered Pipefish, Ornate Pipefish [66222]		Species or species habitat may occur within area
Halicampus mataafae Samoan Pipefish [66223]		Species or species habitat may occur within area
Halicampus nitidus Glittering Pipefish [66224]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Halicampus spinirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
Haliichthys taeniophorus Ribboned Pipehorse, Ribboned Seadragon [66226]		Species or species habitat may occur within area
Hippichthys cyanospilos Blue-speckled Pipefish, Blue-spotted Pipefish [66228]		Species or species habitat may occur within area
Hippichthys heptagonus Madura Pipefish, Reticulated Freshwater Pipefish [66229]		Species or species habitat may occur within area
Hippichthys parvicarinatus Short-keel Pipefish, Short-keeled Pipefish [66230]		Species or species habitat may occur within area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area
Hippichthys spicifer Belly-barred Pipefish, Banded Freshwater Pipefish [66232]		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

Scientific Name	Threatened Category	Presence Text
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 brevirostris thorntail Pipefish, Thorn-tailed Pipefish [66254]		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
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
Mammal		

Scientific Name	Threatened Category	Presence Text
Dugong dugon Dugong [28]		Breeding known to 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 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 fuscus Dusky Seasnake [1119]		Species or species habitat known to occur within area
Aipysurus laevis Olive Seasnake [1120]		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

Scientific Name	Threatened Category	Presence Text
Chitulia inornata as Hydrophis inornatus Plain Seasnake [87379]		Species or species habitat may occur within area
Chitulia ornata as Hydrophis ornatus Spotted Seasnake, Ornate Reef Seasnake [87377]		Species or species habitat may occur within area
Crocodylus johnstoni Freshwater Crocodile, Johnston's Crocodile, Johnstone's Crocodile [1773]		Species or species habitat may occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area
Disteira kingii Spectacled Seasnake [1123]		Species or species habitat may occur within area
Disteira major Olive-headed Seasnake [1124]		Species or species habitat may occur within area
Emydocephalus annulatus Turtle-headed Seasnake [1125]		Species or species habitat may occur within area
Enhydrina schistosa Beaked Seasnake [1126]		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

Scientific Name	Threatened Category	Presence Text
Hydrelaps darwiniensis Black-ringed Seasnake [1100]		Species or species habitat may occur within area
Hydrophis atriceps Black-headed Seasnake [1101]		Species or species habitat may occur within area
Hydrophis elegans Elegant Seasnake [1104]		Species or species habitat may occur within area
Hydrophis macdowelli as Hydrophis mcdowelli Small-headed Seasnake [75601]		Species or species habitat may occur within area
Lapemis curtus as Lapemis hardwickii Spine-bellied Seasnake [83554]		Species or species habitat may occur within area
Leioselasma coggeri as Hydrophis coggeri Black-headed Sea Snake, Slender-necked Seasnake [87373]		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
Leioselasma pacifica as Hydrophis pacificus Large-headed Seasnake, Pacific Seasnake [87378]		Species or species habitat may occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Breeding known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Parahydrophis mertoni Northern Mangrove Seasnake [1090]		Species or species habitat may 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 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 Australian Snubfin Dolphin [81322]		Breeding known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Peponocephala electra Melon-headed Whale [47]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Pseudorca crassidens False Killer Whale [48]		Species or species habitat likely to occur within area
Sousa sahulensis Australian Humpback Dolphin [87942]		Breeding 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

Commonwealth Reserves Terrestrial		[Resource Information]
Name	State	Type
Christmas Island	EXT	National Park (Commonwealth)
Kakadu	NT	National Park (Commonwealth)

Name	State	Type
Pulu Keeling	EXT	National Park (Commonwealth)

Australian Marine Parks

[Resource Information]

Park Name	Zone & IUCN Categories
Carnarvon Canyon	Habitat Protection Zone (IUCN IV)
Christmas Island	Habitat Protection Zone (IUCN IV)
Cocos (Keeling) Islands	Habitat Protection Zone (IUCN IV)
Dampier	Habitat Protection Zone (IUCN IV)
Gascoyne	Habitat Protection Zone (IUCN IV)
Kimberley	Habitat Protection Zone (IUCN IV)
Kimberley	Habitat Protection Zone (IUCN IV)
Oceanic Shoals	Habitat Protection Zone (IUCN IV)
Arafura	Multiple Use Zone (IUCN VI)
Argo-Rowley Terrace	Multiple Use Zone (IUCN VI)
Argo-Rowley Terrace	Multiple Use Zone (IUCN VI)
Dampier	Multiple Use Zone (IUCN VI)
Eighty Mile Beach	Multiple Use Zone (IUCN VI)
Gascoyne	Multiple Use Zone (IUCN VI)
Joseph Bonaparte Gulf	Multiple Use Zone (IUCN VI)
Kimberley	Multiple Use Zone (IUCN VI)
Montebello	Multiple Use Zone (IUCN VI)
Oceanic Shoals	Multiple Use Zone (IUCN VI)
Oceanic Shoals	Multiple Use Zone (IUCN VI)
Roebuck	Multiple Use Zone (IUCN VI)
Argo-Rowley Terrace	National Park Zone (IUCN II)

Park Name	Zone & IUCN Categories
Christmas Island	National Park Zone (IUCN II)
Cocos (Keeling) Islands	National Park Zone (IUCN II)
Cocos (Keeling) Islands	National Park Zone (IUCN II)
Cocos (Keeling) Islands	National Park Zone (IUCN II)
Dampier	National Park Zone (IUCN II)
Gascoyne	National Park Zone (IUCN II)
Kimberley	National Park Zone (IUCN II)
Mermaid Reef	National Park Zone (IUCN II)
Ningaloo	National Park Zone (IUCN II)
Oceanic Shoals	National Park Zone (IUCN II)
Ashmore Reef	Recreational Use Zone (IUCN IV)
Ningaloo	Recreational Use Zone (IUCN IV)
Ningaloo	Recreational Use Zone (IUCN IV)
Ashmore Reef	Sanctuary Zone (IUCN Ia)
Cartier Island	Sanctuary Zone (IUCN Ia)
Arafura	Special Purpose Zone (IUCN VI)
Arnhem	Special Purpose Zone (IUCN VI)
Joseph Bonaparte Gulf	Special Purpose Zone (IUCN VI)
Arafura	Special Purpose Zone (Trawl) (IUCN VI)
Argo-Rowley Terrace	Special Purpose Zone (Trawl) (IUCN VI)
Oceanic Shoals	Special Purpose Zone (Trawl) (IUCN VI)

Habitat Critical to the Survival of Marine Turtles		
Scientific Name	Behaviour	Presence
Aug - Sep		

Scientific Name	Behaviour	Presence
Natator depressus		
Flatback Turtle [59257]	Nesting	Known to occur
Dec - Jan		
Chelonia mydas		
Green Turtle [1765]	Nesting	Known to occur
Dermochelys coriacea		
Leatherback Turtle [1768]	Nesting	Known to occur
May - Jul		
Lepidochelys olivacea		
Olive Ridley Turtle [1767]	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
Adele Island	Nature Reserve	WA
Airlie Island	Nature Reserve	WA
Balanggarra	Indigenous Protected Area	WA
Bardi Jawi	Indigenous Protected Area	WA
Barrow Island	Nature Reserve	WA
Barrow Island	Marine Management Area	WA
Barrow Island	Marine Park	WA
Bedout Island	Nature Reserve	WA
Bessieres Island	Nature Reserve	WA

Protected Area Name	Reserve Type	State
Black Jungle / Lambells Lagoon Conservation Reserve	Other Conservation Area	NT
Blackmore River	Conservation Reserve	NT
Boodie, Double Middle Islands	Nature Reserve	WA
Broome Wildlife Centre	5(1)(h) Reserve	WA
Browse Island	Nature Reserve	WA
Bundegi Coastal Park	5(1)(h) Reserve	WA
Cape Range	National Park	WA
Cape Range	Conservation Park	WA
Cape Range (South)	National Park	WA
Casuarina	Coastal Reserve	NT
Charles Darwin	National Park	NT
Charnley River	Private Nature Reserve	WA
Coulomb Point	Nature Reserve	WA
Crocodile Islands Maringa	Indigenous Protected Area	NT
Crocodile Islands Maringa	Indigenous Protected Area	NT
Dambimangari	Indigenous Protected Area	WA
Djelk	Indigenous Protected Area	NT
Djelk - Stage 2	Indigenous Protected Area	NT
Djukbinj	National Park	NT
Eighty Mile Beach	Marine Park	WA
Garig Gunak Barlu	National Park	NT
Garig Gunak Barlu	Marine Park	NT
Gnandaroo Island	Nature Reserve	WA
Great Sandy Island	Nature Reserve	WA

Protected Area Name	Reserve Type	State
Holmes Jungle	Nature Park	NT
Howard Springs	Hunting Reserve	NT
Howard Springs	Nature Park	NT
Jurabi Coastal Park	5(1)(h) Reserve	WA
Knuckey Lagoons	Conservation Reserve	NT
Lacepede Islands	Nature Reserve	WA
Lalang-garram / Camden Sound	Marine Park	WA
Lalang-garram / Horizontal Falls	Marine Park	WA
Lawley River	National Park	WA
Lesueur Island	Nature Reserve	WA
Little Rocky Island	Nature Reserve	WA
Locker Island	Nature Reserve	WA
Lowendal Islands	Nature Reserve	WA
Low Rocks	Nature Reserve	WA
Marri-Jabin (Thamurrurr - Stage 1)	Indigenous Protected Area	NT
Marthakal	Indigenous Protected Area	NT
Mary River	National Park	NT
Melacca Swamp	Conservation Area	NT
Mitchell River	National Park	WA
Montebello Islands	Conservation Park	WA
Montebello Islands	Marine Park	WA
Montebello Islands	Conservation Park	WA
Muiron Islands	Nature Reserve	WA
Muiron Islands	Marine Management Area	WA
Niiwalarra Islands	National Park	WA

Protected Area Name	Reserve Type	State
Ningaloo	Marine Park	WA
North Kimberley	Marine Park	WA
North Lalang-garram	Marine Park	WA
North Turtle Island	Nature Reserve	WA
Prince Regent	National Park	WA
R 46235	Conservation Park	WA
Round Island	Nature Reserve	WA
Rowley Shoals	Marine Park	WA
Scott Reef	Nature Reserve	WA
Serrurier Island	Nature Reserve	WA
Swan Island	Nature Reserve	WA
Tanner Island	Nature Reserve	WA
Tent Island	Nature Reserve	WA
Territory Wildlife Park / Berry Springs	Other Conservation Area	NT
Territory Wildlife Park / Berry Springs	Other Conservation Area or Nature Park	NT
Thevenard Island	Nature Reserve	WA
Unnamed WA28968	5(1)(h) Reserve	WA
Unnamed WA36913	Nature Reserve	WA
Unnamed WA36915	Nature Reserve	WA
Unnamed WA37168	5(1)(h) Reserve	WA
Unnamed WA40322	5(1)(h) Reserve	WA
Unnamed WA40828	5(1)(h) Reserve	WA
Unnamed WA40877	5(1)(h) Reserve	WA
Unnamed WA41080	5(1)(h) Reserve	WA
Unnamed WA41775	5(1)(h) Reserve	WA
Unnamed WA44665	5(1)(h) Reserve	WA

Protected Area Name	Reserve Type	State
Unnamed WA44669	5(1)(h) Reserve	WA
Unnamed WA44672	5(1)(h) Reserve	WA
Unnamed WA44673	5(1)(h) Reserve	WA
Unnamed WA44677	5(1)(h) Reserve	WA
Unnamed WA51046	5(1)(h) Reserve	WA
Unnamed WA51162	5(1)(h) Reserve	WA
Unnamed WA51932	5(1)(h) Reserve	WA
Unnamed WA52354	5(1)(h) Reserve	WA
Uunguu	Indigenous Protected Area	WA
Victor Island	Nature Reserve	WA
Wilinggin	Indigenous Protected Area	WA
Yawuru	Indigenous Protected Area	WA
Yawuru	Indigenous Protected Area	WA
Yawuru Nagulagun / Roebuck Bay	Marine Park	WA
Y Island	Nature Reserve	WA

Nationally Important Wetlands	[Resource Information]
Wetland Name	State
"The Dales", Christmas Island	EXT
Adelaide River Floodplain System	NT
Arafura Swamp	NT
Ashmore Reef	EXT
Blyth-Cadell Floodplain & Boucaut Bay System	NT
Bunda-Bunda Mound Springs	WA
Bundera Sinkhole	WA
Cape Range Subterranean Waterways	WA

Wetland Name	State
Cobourg Peninsula System	NT
Daly-Reynolds Floodplain-Estuary System	NT
De Grey River	WA
Eighty Mile Beach System	WA
Exmouth Gulf East	WA
Finniss Floodplain and Fog Bay Systems	NT
Hosine's Spring, Christmas Island	EXT
Kakadu National Park	NT
Learmonth Air Weapons Range - Saline Coastal Flats	WA
Leslie (Port Hedland) Saltfields System	WA
Mary Floodplain System	NT
Mermaid Reef	EXT
Mitchell River System	WA
Moyle Floodplain and Hyland Bay System	NT
Murgenella-Cooper Floodplain System	NT
Port Darwin	NT
Prince Regent River System	WA
Pulu Keeling National Park	EXT
Roebuck Bay	WA
Shoal Bay - Micket Creek	NT
Willie Creek Wetlands	WA
Yampi Sound Training Area	WA

EPBC Act Referrals			[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status
Ashburton Infrastructure Project	2021/9064		Completed
Browse to North West Shelf Development, Indian Ocean, WA	2018/8319		Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Clarence Strait Offshore Tidal Energy Project	2008/4660		Assessment
Cockatoo Island Multi-User Supply Base, WA	2017/7986		Assessment
Cocos West Island Seawater Desalination Plant	2022/09409		Completed
Darwin Pipeline Duplication (DPD) Project	2022/09372		Assessment
Darwin Pipeline Duplication DPD Project	2022/9166		Completed
Darwin Ship Lift Project	2021/9068		Assessment
Establishment and operation of a refinery at Darwin, NT	2015/7604		Assessment
Gorgon Gas Development	2003/1294		Assessment
Koolan Island Operations	2022/09392		Assessment
Northern Endeavour Phase 1 Decommissioning	2022/09327		Approval
North West Shelf Project Extension, Carnarvon Basin, WA	2018/8335		Approval
Ocean Barramundi Expansion Project	2022/09272		Assessment
Port Hedland Solar Project	2022/09241		Post-Approval
Project Crux Cable Lay and Operation	2022/09441		Completed
Project Highclere Cable Lay and Operation	2022/09203		Completed
Proposed City of Weddell	2011/6090		Assessment
Ridley Magnetite Project	2023/09477		Referral Decision
Single Jetty Deep Water Port Renewable Hub, WA	2021/8942		Assessment
Tiwi H2 Project	2022/09347		Assessment
Action clearly unacceptable			
Highlands 3D Marine Seismic Survey	2012/6680	Action Clearly Unacceptable	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Action clearly unacceptable Controlled action			
'Van Gogh' Petroleum Field Development	2007/3213	Controlled Action	Post-Approval
275 km gas pipeline from Wadeye to existing Darwin gas pipeline	2006/2930	Controlled Action	Post-Approval
2-D seismic survey Scott Reef	2000/125	Controlled Action	Post-Approval
Additional Rail Infrastructure between Herb Elliott Port Facility and Cloudbreak Mine Site	2010/5513	Controlled Action	Post-Approval
Andranangoo Creek & Lethbridge Bay mineral sand mining	2005/2155	Controlled Action	Completed
Anketell Point Iron Ore Processing & Export Port	2009/5120	Controlled Action	Post-Approval
Audacious Oil Field Standalone Development	2001/407	Controlled Action	Completed
Augmentation of the East Point Effluent Rising Main and Extension of East Point Outfall	2009/5113	Controlled Action	Post-Approval
Barramundi Nursery Farm	2005/2378	Controlled Action	Completed
Bayview, The Boulevarde, Darwin, NT	2015/7466	Controlled Action	Assessment Approach
Blacktip Project - Wharf Construction	2007/3293	Controlled Action	Completed
Bonaparte Liquified Natural Gas Project	2011/6141	Controlled Action	Post-Approval
Breeding, husbandry, slaughter and sale of goats	2004/1895	Controlled Action	Completed
Broome Boating Facility	2021/9098	Controlled Action	Referral Decision
Browse FLNG Development, Commonwealth Waters	2013/7079	Controlled Action	Post-Approval
Cape Leveque Road upgrade, Stage 3, Shire of Broome, WA	2013/6984	Controlled Action	Post-Approval
Christmas Island Airport Expansion	2001/434	Controlled Action	Post-Approval
Christmas Island Port Facility	2001/435	Controlled Action	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Condensate Processing Facility, East Arm	2006/2734	Controlled Action	Proposed Decision
Conduct an exploration drilling campaign	2010/5718	Controlled Action	Completed
Construct and operate LNG & domestic gas plant including onshore and offshore facilities - Wheatston	2008/4469	Controlled Action	Post-Approval
Construction and operation of a Solar Salt Project, SW Onslow, WA	2016/7793	Controlled Action	Assessment Approach
Construction of mobile phone tower	2002/694	Controlled Action	Completed
Cultural Appearance Upgrade of the Chinese Literary Association Building	2007/3568	Controlled Action	Completed
Darwin to Moomba Gas Pipeline	2001/213	Controlled Action	Completed
Decommissioning of Buffalo Oil Field	2003/984	Controlled Action	Post-Approval
Decommissioning of Challis Oilfield	2003/942	Controlled Action	Post-Approval
Derby Tidal Power Project	2010/5544	Controlled Action	Final PER Or EIS
Develop Ichthys gas-condensate field permit area W	2006/2767	Controlled Action	Completed
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 Blacktip Gas Field	2003/1180	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

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
East Arm Marine Industry Park, Darwin, NT	2014/7318	Controlled Action	Completed
East Arm Wharf Expansion Works	2010/5304	Controlled Action	Post-Approval
East Christmas Island Phosphate Mines (9 sites)	2001/487	Controlled Action	Completed
Echo-Yodel Production Wells	2000/11	Controlled Action	Post-Approval
Eco quad tours for West Island visitors and tourists	2010/5749	Controlled Action	Completed
Enfield full field development	2001/257	Controlled Action	Post-Approval
Equus Gas Fields Development Project, Carnarvon Basin	2012/6301	Controlled Action	Completed
Exploration for Mineable Phosphate, Christmas Island	2000/43	Controlled Action	Completed
Floating Liquefied Natural Gas facility	2001/533	Controlled Action	Completed
Glyde Point and Middle Arm Peninsula Infrastructure Support	2001/334	Controlled Action	Completed
Glyde Point Industrial Estate	2001/336	Controlled Action	Completed
Glyde Point Industrial Estate and Associated Infrastructure	2004/1506	Controlled Action	Completed
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
Great Northern Pipeline - 630 km buried gas pipeline	2009/5257	Controlled Action	Completed
Hardwood Plantation	2001/229	Controlled Action	Post-Approval
Home Island slipway & access channel from Home Island Port Facility to Directio	2009/4969	Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Howard Springs Sand Extraction Expansion, NT	2016/7699	Controlled Action	Completed
Ichthys Gas Field, Offshore and onshore processing facilities and subsea pipeline	2008/4208	Controlled Action	Post-Approval
Iron ore mine	2006/2522	Controlled Action	Post-Approval
Kilimiraka Mineral Sands and Associated Infrastructure (Bathurst Island), NT	2012/6587	Controlled Action	Assessment Approach
Lee Point Master-planned urban development, Darwin, NT	2015/7591	Controlled Action	Post-Approval
Light Crude Oil Production	2001/365	Controlled Action	Post-Approval
Lily Beach Recreational Facilities	2001/395	Controlled Action	Post-Approval
Lily Beach Rock Pool Development	2001/400	Controlled Action	Completed
Methanol Plant	2001/195	Controlled Action	Completed
Middle Arm Peninsula Industrial Area Development	2001/339	Controlled Action	Completed
Montara 4, 5, and 6 Oil Production Wells, and Montara 3 Gas Re-Injection Well	2002/755	Controlled Action	Post-Approval
Mt Peake iron, vanadium and titanium mining project & assoc infrastructure, 280kms NNW Alice Springs	2013/7027	Controlled Action	Post-Approval
Muirhead Subdivision	2010/5525	Controlled Action	Post-Approval
Nava-1 Cable System	2001/510	Controlled Action	Completed
Ningaloo Lighthouse Development, 17km north west Exmouth, Western Australia	2020/8693	Controlled Action	Assessment Approach
Noonamah Ridge Residential Estate, Lloyd Creek, NT	2014/7269	Controlled Action	Further Information Request
North Star Magnetite Project	2012/6689	Controlled Action	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Operation of 17 Tiger Helicopters at Robertson Barracks	2004/1459	Controlled Action	Post-Approval
Phosphate Mining in South Point Christmas Island	2012/6653	Controlled Action	Post-Approval
Pluto Gas Project	2005/2258	Controlled Action	Completed
Pluto Gas Project Including Site B	2006/2968	Controlled Action	Post-Approval
Pluton Irvine Island Iron Ore Project	2011/6064	Controlled Action	Proposed Decision
Port Hedland Outer Harbour Development and associated marine and terrestrial in	2008/4159	Controlled Action	Post-Approval
Port Hedland Spoilbank Marina, WA	2019/8520	Controlled Action	Post-Approval
Port Patterson Barramundi Sea Cage Farm	2005/2149	Controlled Action	Completed
Prelude Floating Liquefied Natural Gas Facility and Gas Field Development	2008/4146	Controlled Action	Post-Approval
Proposed exploration drilling programme for Christmas Island	2016/7779	Controlled Action	Completed
Proposed West Pilbara Iron Ore Project	2009/4706	Controlled Action	Post-Approval
PTTEP AA Floating LNG Facility	2011/6025	Controlled Action	Completed
Public Ferry Hovercraft Operation	2003/1239	Controlled Action	Post-Approval
Pyrenees Oil Fields Development	2005/2034	Controlled Action	Post-Approval
Red-footed booby bird harvest	2002/844	Controlled Action	Referral Decision
Replacement of the East Point Outfall	2011/6099	Controlled Action	Assessment Approach
Residential subdivision of Lot 9793 (formerly Lots 9774 and 9779) Lee Point Road	2005/2108	Controlled Action	Post-Approval
Road Upgrade/Construction between Lily Beach Road and Port Faci	2001/436	Controlled Action	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Roy Hill to Port Hedland Rail Line and Associated Infrastructure	2010/5424	Controlled Action	Post-Approval
Salvage, transport and processing of phosphate resource with extended airport si	2003/1217	Controlled Action	Post-Approval
Shipping Channel Enhancement	2010/5431	Controlled Action	Completed
Simpson Development	2000/59	Controlled Action	Completed
Simpson Oil Field Development	2001/227	Controlled Action	Post-Approval
Snake Bay Barramundi Sea Cage Farm	2005/2150	Controlled Action	Completed
Talisman Saber 2005 Military Exercise	2004/1819	Controlled Action	Post-Approval
Tassie Shoal Gas Reforming and Methanol Production Plants - NT/P48	2000/108	Controlled Action	Post-Approval
Tassie Shoal LNG Project	2003/1067	Controlled Action	Post-Approval
The Scarborough Project - FLNG & assoc subsea infrastructure, Carnarvon Basin	2013/6811	Controlled Action	Post-Approval
Torosa South Initial Appraisal Drilling	2007/3500	Controlled Action	Completed
Trans-territory Gas Pipeline	2003/1186	Controlled Action	Completed
Tropical Tidal Testing Centre, Clarence Strait, 50km NE Darwin	2014/7299	Controlled Action	Guidelines Issued
Vincent Appraisal Well	2000/22	Controlled Action	Post-Approval
Wuudagu Bauxite Project	2019/8606	Controlled Action	Assessment Approach
Yardie Creek Road Realignment Project	2021/8967	Controlled Action	Assessment Approach
Yellow Crazy Ant Biological Control	2013/6836	Controlled Action	Post-Approval
Not controlled action			
'Goodwyn A' Low Pressure Train Project	2003/914	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
'Van Gogh' Oil Appraisal Drilling Program, Exploration Permit Area WA-155-P(1)	2006/3148	Not Controlled Action	Completed
150m Boodarie Gas Lateral Pipeline	2014/7116	Not Controlled Action	Completed
2D seismic survey, exploration permit NT/P67	2004/1587	Not Controlled Action	Completed
2D Seismic Survey in Permit Areas WA-318-P & WA-319-P, near Cape Londonderry	2004/1687	Not Controlled Action	Completed
3D marine seismic survey in WA 314P and WA 315P	2004/1927	Not Controlled Action	Completed
96-108 Gaze Road - Residential upgrade	2006/2632	Not Controlled Action	Completed
Adele Trend TQ3D Seismic Survey	2001/252	Not Controlled Action	Completed
AEC International Hydrocarbon Well Puffin 6	2000/36	Not Controlled Action	Completed
Aerial Baiting, Yellow Crazy Ant Supercolonies, Christmas Island, WA	2019/8492	Not Controlled Action	Completed
Airlie Island soil and groundwater investigations, Exmouth Gulf, offshore Pilbara coast	2014/7250	Not Controlled Action	Completed
Andranangoo Mine Site Aircraft Landing Area	2007/3743	Not Controlled Action	Completed
APX-West Fibre-optic telecommunications cable system, WA to Singapore	2013/7102	Not Controlled Action	Completed
Aquaculture - Barramundi grow out, Yampi Sound	2005/2476	Not Controlled Action	Completed
Aquaculture farm	2002/737	Not Controlled Action	Completed
Audacious-3 oil drilling well	2003/1042	Not Controlled Action	Completed
Backpacker-1 Offshore Hydrocarbon Exploration Well	2001/300	Not Controlled Action	Completed
Baniyas-1 Exploration Well, EP-424, near Onslow	2007/3282	Not Controlled Action	Completed
Barossa-1 (NT/P69), Caldita-2 (NT/P61) exploration wells	2006/2793	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Barrow Island 2D Seismic survey	2006/2667	Not Controlled Action	Completed
Boat Ramp Construction	2001/237	Not Controlled Action	Completed
Bollinger 2D Seismic Survey 200km North of North West Cape WA	2004/1868	Not Controlled Action	Completed
Buffalo In-Fill Production Wells	2001/475	Not Controlled Action	Completed
Buffett Close Residential Development	2004/1887	Not Controlled Action	Completed
Building of a carport adjacent to residential house	2004/1538	Not Controlled Action	Completed
Bulgarene Borefield	2006/2507	Not Controlled Action	Completed
Bultaco-2, Laverda-2, Laverda-3 and Montesa-2 Appraisal Wells	2000/103	Not Controlled Action	Completed
Caldita-1 Hydrocarbon Exploration Well, NT/P61	2004/1854	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
Channel Island Bridge Pipeline Replacement Project	2020/8672	Not Controlled Action	Completed
Christmas Island/Construction of a double storey shed/carport at MQ387 Gaze Road	2004/1561	Not Controlled Action	Completed
Christmas Island Fuel Consolidation Project, Christmas Island	2012/6454	Not Controlled Action	Completed
Cocos (Keeling) Islands Maintenance Dredging Home Island Slipway Redevelopment, Cocos (Keeling) Isla	2014/7140	Not Controlled Action	Completed
Community Recreation Centre	2003/1279	Not Controlled Action	Completed
Construct 110km buried natural gas pipeline from Onslow, connecting to Dampier/Bunbury natural gas p	2013/7039	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Construction and operation of an unmanned sea platform and connecting pipeline to Varanus Island for	2004/1703	Not Controlled Action	Completed
Construction and operation of Radar Infrastructure	2004/1406	Not Controlled Action	Completed
Construction of a Commodities Berth, Wharf and Associated Infrastructure	2008/4129	Not Controlled Action	Completed
Controlled Source Electromagnetic 2D Survey	2009/4980	Not Controlled Action	Completed
Controlled Source Electromagnetic Survey	2010/5434	Not Controlled Action	Completed
Controlled Source Electromagnetic Survey	2007/3262	Not Controlled Action	Completed
Coot-1 hydrocarbon exploration well, Permit Area AC/L2 or AC/L3	2001/296	Not Controlled Action	Completed
Core Breeding and Broodstock Maturation Centre development, Point Ceylon, NT	2016/7713	Not Controlled Action	Completed
courtyard shower & handbasin facilities	2006/2803	Not Controlled Action	Completed
Cox Peninsular Remediation Project, NT	2015/7587	Not Controlled Action	Completed
Crowley Government Services Inc Bulk Fuel Storage Facility	2021/9015	Not Controlled Action	Completed
Crux-A and Crux-B appraisal wells, Petroleum Permit Area AC/P23	2006/2748	Not Controlled Action	Completed
Crux gas-liquids development in permit AC/P23	2006/3154	Not Controlled Action	Completed
Darwin Port Maintenance Dredging, Darwin Harbour, NT	2017/8122	Not Controlled Action	Completed
Darwin ship lift facility and marine industries project, Darwin Harbour NT	2018/8195	Not Controlled Action	Completed
Development of Halyard Field off the west coast of WA	2010/5611	Not Controlled Action	Completed
Development of iron ore facilities	2013/7013	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Development of iron ore resources in eastern Pilbara region, including port at P	2004/1562	Not Controlled Action	Completed
Development of Mutineer and Exeter petroleum fields for oil production, Permit	2003/1033	Not Controlled Action	Completed
Differential Global Positioning System (DGPS)	2001/445	Not Controlled Action	Completed
Drilling of 12 Hydrocarbon Exploration Wells, Permit Area WA-371-P	2006/3005	Not Controlled Action	Completed
Drilling of an exploration well Gats-1 in Permit Area WA-261-P	2004/1701	Not Controlled Action	Completed
Drilling of exploration well Audacious-1 in AC/P17	2000/5	Not Controlled Action	Completed
Drilling of exploration wells, Permit areas WA-301-P to WA-305-P	2002/769	Not Controlled Action	Completed
Drilling of Marina-1 Exploration Well	2007/3586	Not Controlled Action	Completed
Dwelling demolition, maintenance and carpark/carport/storage shed works	2004/1837	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
Echuca Shoals-2 Exploration of Appraisal Well	2006/3020	Not Controlled Action	Completed
Establish a 4m wide trace line along the road allignment for James Price Point	2010/5682	Not Controlled Action	Completed
Exploration Drilling in AC/P17, AC/P18 and AC/P24	2001/359	Not Controlled Action	Completed
Exploration drilling well WA-155-P(1)	2003/971	Not Controlled Action	Completed
Exploration of appraisal wells	2006/3065	Not Controlled Action	Completed
Exploration Well (Taunton-2)	2002/731	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Exploration Well AC/P23	2001/234	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 a Masonary Brick Wall adjacent to the Poon Saan Club by 500 mm	2004/1564	Not Controlled Action	Completed
Extension of Simpson Oil Platforms & Wells	2002/685	Not Controlled Action	Completed
External Upgrade of House	2010/5387	Not Controlled Action	Completed
Field trials for cultivation of microalga (Botryococcus braunii) to produce hydr	2007/3277	Not Controlled Action	Completed
Flying Fish Cove Christmas Island Boat Ramp Maintenance	2021/8924	Not Controlled Action	Completed
Flying Fish Cove Landslide Mitigation Project	2020/8616	Not Controlled Action	Completed
Garage and Office Facilities	2004/1919	Not Controlled Action	Completed
Geo-scientific survey	2005/2004	Not Controlled Action	Completed
HCA05X Macedon Experimental Survey	2004/1926	Not Controlled Action	Completed
Hess Exploration Drilling Programme	2007/3566	Not Controlled Action	Completed
Horizon Power South Hedland Transmission Line, WA	2012/6551	Not Controlled Action	Completed
Housing and Garden Maintenance Works	2004/1487	Not Controlled Action	Completed
Huascaran-1 exploration well (WA-292-P)	2001/539	Not Controlled Action	Completed
Hydroponics Research Program	2007/3338	Not Controlled Action	Completed
Identification of unmarked grave, exhumation/identification of remains which may belong to a sailor	2006/2992	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
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
industrial park and a Defence support hub	2006/3177	Not Controlled Action	Completed
Infill Production Well (Griffin-9)	2001/417	Not Controlled Action	Completed
Infrasound Monitoring Station	2007/3390	Not Controlled Action	Completed
Installation of a desalination plant and associated infrastructure	2013/6833	Not Controlled Action	Completed
Internal and external modifications Lot 1014 Gaze Road	2004/1807	Not Controlled Action	Completed
Iron Bridge Port Facility, Port Hedland, WA	2015/7565	Not Controlled Action	Completed
Jansz-2 and 3 Appraisal Wells	2002/754	Not Controlled Action	Completed
Kaleidoscope exploration well	2001/182	Not Controlled Action	Completed
Kimberley Marine Offloading Facility	2020/8736	Not Controlled Action	Completed
Kimberley Multi-commodity Exploration Programme, WA	2013/6839	Not Controlled Action	Completed
Klammer 2D Seismic Survey	2002/868	Not Controlled Action	Completed
Koolan Island Mine - Reconstruction of seawall and capital dewatering of mine pit,130km northwest of	2016/7848	Not Controlled Action	Completed
Light Industrial Subdivision Development	2004/1799	Not Controlled Action	Completed
Lot 1056 Extensions and Alterations	2004/1801	Not Controlled Action	Completed
Mahimahi Aquaculture Facility	2002/891	Not Controlled Action	Completed
Maia-Gaea Exploration wells	2000/17	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Maintenance of Tai Jin House, Smith Point	2009/4933	Not Controlled Action	Completed
Manaslu - 1 and Huascaran - 1 Offshore Exploration Wells	2001/235	Not Controlled Action	Completed
Marine Seismic Survey in WA-239-P	2000/24	Not Controlled Action	Completed
Marine Survey for the Australia-ASEAN Power Link AAPL	2020/8714	Not Controlled Action	Completed
Mobile Radio Communications System Upgrade	2002/718	Not Controlled Action	Completed
Montara-3 Offshore Hydrocarbon Exploration Well Permit Area AC/RL3	2001/489	Not Controlled Action	Completed
Montesa-1 and Bultaco-1 Exploration Wells	2000/102	Not Controlled Action	Completed
Murujuga archaeological excavation, collection and sampling, Dampier Archipelago, WA	2014/7160	Not Controlled Action	Completed
Nexus Drilling Program NT-P66	2007/3745	Not Controlled Action	Completed
North Rankin B gas compression facility	2005/2500	Not Controlled Action	Completed
NT/P68 2007 Two Well Drilling Program	2007/3569	Not Controlled Action	Completed
Oman Australia Cable Installation, WA	2021/8922	Not Controlled Action	Completed
Oman Australia Cable - Marine Route Survey	2020/8731	Not Controlled Action	Completed
Onslow Power Infrastructure Upgrade Project, Onslow, WA	2014/7314	Not Controlled Action	Completed
Onslow Water Supply Infrastructure Upgrade Project, Onslow, WA	2014/7329	Not Controlled Action	Completed
P30 Hydrocarbon Exploration Well	2001/293	Not Controlled Action	Completed
Pilbara Bulk Ore Transport System Project, WA	2016/7637	Not Controlled Action	Completed
Pilbara Transmission Project, Pilbara, WA	2018/8349	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Pipeline System Modifications Project	2000/3	Not Controlled Action	Completed
Placement of bitumen/ concrete on rail sections of heritage listed incline, Christmas Island	2013/7009	Not Controlled Action	Completed
Port Hedland Channel Risk and Optimisation Project, WA	2017/7915	Not Controlled Action	Completed
Port Hedland Power Station Conversion Project	2011/6080	Not Controlled Action	Completed
Port of Broome Channel Optimisation Project, West Roebuck Bay, WA	2018/8162	Not Controlled Action	Completed
Power Station Diesel Generator Replacement	2009/4685	Not Controlled Action	Completed
Power Station Upgrade	2001/357	Not Controlled Action	Completed
Power Station Upgrade (South Port Site)	2001/414	Not Controlled Action	Completed
Project Highclere Geophysical Survey	2021/9023	Not Controlled Action	Completed
Project Sea Dragon Stage 1 Hatchery - Gunn Point, NT	2017/8092	Not Controlled Action	Completed
Proposed Community Centre	2010/5306	Not Controlled Action	Completed
Proposed sale or lease of Crown land, 11 lots, Christmas Island	2018/8220	Not Controlled Action	Completed
Puffin Oil wells 7, 8 & 9 development	2005/2336	Not Controlled Action	Completed
Rail and Port Facilities	2001/474	Not Controlled Action	Completed
Realignment of Gaze Road Service Road and Gaze Road Junction	2004/1735	Not Controlled Action	Completed
Refurbishment and Extension of Seaview Lodge	2012/6353	Not Controlled Action	Completed
Relocation of approx. 670m of the Pilbara Energy Pipeline	2013/6756	Not Controlled Action	Completed
renovate free-standing servant's quarters	2006/2811	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Replacement of deteriorating flat roof at rear of Mosque and extending side verandahs, Christmas Is	2013/6851	Not Controlled Action	Completed
Residential Complex - Lots 6575 and 6576	2001/163	Not Controlled Action	Completed
Residential Secondary College	2007/3276	Not Controlled Action	Completed
Residential upgrade, 2 Coconut Grove	2007/3295	Not Controlled Action	Completed
Saucepan 1 Exploration Well ACP23	2000/2	Not Controlled Action	Completed
Searipple gas and condensate field development	2000/89	Not Controlled Action	Completed
Skua and Swift Oilfields	2006/3195	Not Controlled Action	Completed
South Hedland Power Station WA	2011/5929	Not Controlled Action	Completed
Spool Base Facility	2001/263	Not Controlled Action	Completed
Stormwater Remediation Project, Christmas Island	2019/8467	Not Controlled Action	Completed
Strumbo-1 Gas Exploration Well Permit Area WA-288-P	2002/884	Not Controlled Action	Completed
Subdivision of Lot 571 on DP 26701	2008/4230	Not Controlled Action	Completed
Subdivision of Part 7 of Lot 1014	2009/4851	Not Controlled Action	Completed
Subdivision of Two Sites (1712 and 1713) into four Portions	2006/2755	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
Supermarket Extensions	2006/2515	Not Controlled Action	Completed
Telfer Gold Mine Project - Mine and Borefield Extensions and Upgrade of Storage	2002/787	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Telfer Gold Mine Project - Power Supply and Infrastructure Corridor	2002/786	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
upgrade of House 11, William Keeling Crescent	2005/2447	Not Controlled Action	Completed
Upgrade of House 16 on William Keeling Crescent, a Cwlth owned house in Type T H	2006/2903	Not Controlled Action	Completed
Upgrade of Residence, Coconut Grove	2006/2728	Not Controlled Action	Completed
Verandah Extension to Existing Breezeway Unit, Gaze Road	2005/1970	Not Controlled Action	Completed
WA-295-P Kerr-McGee Exploration Wells	2001/152	Not Controlled Action	Completed
Walkway Lighting Upgrade	2009/4965	Not Controlled Action	Completed
Wanda Offshore Research Project, 80 km north-east of Exmouth, WA	2018/8293	Not Controlled Action	Completed
Wastewater Treatment Plant	2008/4545	Not Controlled Action	Completed
Waterfront Redevelopment	2003/1256	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
Wickham Point Interconnect Gas Pipeline	2008/4309	Not Controlled Action	Completed
Woodside Geotechnical Investigation Sunrise Bank	2000/13	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

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
'Tourmaline' 2D marine seismic survey, permit areas WA-323-P, WA-330-P and WA-32	2005/2282	Not Controlled Action (Particular Manner)	Post-Approval
"Leanne" offshore 3D seismic exploration, WA-356-P	2005/1938	Not Controlled Action (Particular Manner)	Post-Approval
2 (3D) Marine Seismic Surveys	2009/4994	Not Controlled Action (Particular Manner)	Completed
2D and 3D Seismic Survey	2011/6197	Not Controlled Action (Particular Manner)	Post-Approval
2D and 3D seismic surveys	2005/2151	Not Controlled Action (Particular Manner)	Post-Approval
2D and 3D Seismic Survey WA-405-P	2008/4133	Not Controlled Action (Particular Manner)	Post-Approval
2D and 3D Seismic Survey WA-405-P	2009/5104	Not Controlled Action (Particular Manner)	Post-Approval
2D marine seismic survey	2012/6296	Not Controlled Action (Particular Manner)	Post-Approval
2D Marine Seismic Survey	2009/4728	Not Controlled Action (Particular Manner)	Post-Approval
2D marine seismic survey of Braveheart,Kurrajong,Sunshine and Crocodile	2006/2917	Not Controlled Action (Particular Manner)	Post-Approval
2D marine seismic survey within permit area WA-318-P	2007/3879	Not Controlled Action (Particular Manner)	Post-Approval
2D or 3D Marine Seismic Survey in Petroleum Permit Area AC/P35	2009/4864	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
2D Seismic Marine Survey	2001/363	Not Controlled Action (Particular Manner)	Post-Approval
2D seismic survey	2008/4493	Not Controlled Action (Particular Manner)	Post-Approval
2D Seismic survey	2009/5076	Not Controlled Action (Particular Manner)	Post-Approval
2D Seismic Survey	2005/2146	Not Controlled Action (Particular Manner)	Post-Approval
2D seismic survey in permit areas WA-274P and WA-281P	2004/1521	Not Controlled Action (Particular Manner)	Post-Approval
2D Seismic Survey in WA Permit Area TP/22 and Commonwealth Permit Area WA-280-P	2005/2100	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 - Petroleum Exploration Area NT/P68, Eastern Bonaparte Basin	2006/2922	Not Controlled Action (Particular Manner)	Post-Approval
2D seismic survey within permit WA-291	2007/3265	Not Controlled Action (Particular Manner)	Post-Approval
2 geotechnical surveys - preliminary and final	2006/2886	Not Controlled Action (Particular Manner)	Post-Approval
3D marine seismic survey	2008/4281	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
3D Marine Seismic Survey	2009/4681	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey	2008/4437	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey, Permit AC/P 23	2005/2364	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 - Maxima 3D MSS	2006/2945	Not Controlled Action (Particular Manner)	Post-Approval
3D marine seismic survey over petroleum title WA-268-P	2007/3458	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Surveys - Contos CT-13 & Supertubes CT-13, offshore WA	2013/6901	Not Controlled Action (Particular Manner)	Post-Approval
3D seismic survey	2006/2715	Not Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey	2006/2729	Not Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey, Browse Basin, WA	2009/5048	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
3D Seismic Survey, near Scott Reef, Browse Basin	2005/2126	Not Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey, petroleum exploration permit AC/P33	2006/2918	Not Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey, WA	2008/4428	Not Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey (NT/P68)	2006/2980	Not Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey (NT/P68)	2008/4121	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 seismic survey of AC/P4, AC/P17 and AC/P24	2006/2857	Not Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey WA-406-P Bonaparte Basin	2007/3904	Not Controlled Action (Particular Manner)	Post-Approval
3D sesmic survey	2006/2781	Not Controlled Action (Particular Manner)	Post-Approval
AC/P37 3D Seismic Survey Ashmore Cartier	2007/3774	Not Controlled Action (Particular Manner)	Post-Approval
Acacia East Pit Cutback Mining Project,northern Kimberley, WA	2013/6752	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
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
Additional Rail Infrastructure	2012/6314	Not Controlled Action (Particular Manner)	Post-Approval
Addition of Verandah to Block of Four Units	2005/2315	Not Controlled Action (Particular Manner)	Post-Approval
Aerial Baiting of Yellow Crazy Ants	2012/6438	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
Asbestos Removal from Commonwealth Owned Assests including Commonwealth Heritage	2009/4873	Not Controlled Action (Particular Manner)	Post-Approval
Asbestos Removal from Various Buildings and Sites	2009/4887	Not Controlled Action (Particular Manner)	Post-Approval
Auralandia 3D marine seismic survey	2011/5961	Not Controlled Action (Particular Manner)	Post-Approval
Aurora MC3D Marine Seismic Survey	2010/5510	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
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
Baiting Efficacy Trial of Feral Cat Bait and PAPP Toxicant	2008/4383	Not Controlled Action (Particular Manner)	Post-Approval
Balnaves Condensate Field Development	2011/6188	Not Controlled Action (Particular Manner)	Post-Approval
Bassett 3D Marine Seismic Survey	2010/5538	Not Controlled Action (Particular Manner)	Post-Approval
Blacktip Gas Project Yelcherr Beach Wharf Construction	2007/3537	Not Controlled Action (Particular Manner)	Post-Approval
Bonaparte 2D & 3D marine seismic survey	2011/5962	Not Controlled Action (Particular Manner)	Post-Approval
Bonaparte 3D & 2D Seismic Survey, in NT/P82, Timor Sea	2012/6398	Not Controlled Action (Particular Manner)	Post-Approval
Bonaparte Basin Barossa Appraisal Drilling Campaign, NT	2012/6481	Not Controlled Action (Particular Manner)	Post-Approval
Bonaparte Basin Seabed Mapping Survey	2009/4951	Not Controlled Action (Particular Manner)	Post-Approval
Bonaparte Seismic and Bathymetric Survey	2012/6295	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Bonaventure 3D seismic survey	2006/2514	Not Controlled Action (Particular Manner)	Post-Approval
Braveheart 2D Infill Marine Seismic Survey 100km offshore	2008/4442	Not Controlled Action (Particular Manner)	Post-Approval
Braveheart 2D Marine Seismic Survey	2005/2322	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
Caldita 3D Marine Seismic Survey - NT/P61, NT/P69, and acreage release area NT06-5	2006/3142	Not Controlled Action (Particular Manner)	Post-Approval
Canis 3D Marine Seismic Survey	2008/4492	Not Controlled Action (Particular Manner)	Post-Approval
Cartier East and Cartier West 3D Marine Seismic Surveys	2009/5230	Not Controlled Action (Particular Manner)	Post-Approval
Caswell MC3D Marine Seismic Survey	2012/6594	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
Commonwealth Marine/Flying Fish Cove Jetty Extension	2012/6675	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Conduct an exploration drilling campaign	2011/5964	Not Controlled Action (Particular Manner)	Post-Approval
Construction of a 43km long sealed access road to the Browse LNG precinct	2011/5852	Not Controlled Action (Particular Manner)	Post-Approval
Construction of a Power Station	2003/1177	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
Crazy Ant Aerial Baiting Control Program	2002/722	Not Controlled Action (Particular Manner)	Post-Approval
Cue Seismic Survey within WA-359-P, WA-361-P and WA-360-P	2007/3647	Not Controlled Action (Particular Manner)	Post-Approval
CVG 3D Marine Seismic Survey	2012/6654	Not Controlled Action (Particular Manner)	Post-Approval
DAVROS MC 3D marine seismic survey northwaet of Dampier, WA	2013/7092	Not Controlled Action (Particular Manner)	Post-Approval
Decommissioning of the Legendre facilities	2010/5681	Not Controlled Action (Particular Manner)	Post-Approval
Deep Water Drilling Program	2010/5532	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
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
Development of a small 25 bed, tented Eco Resort	2012/6284	Not Controlled Action (Particular Manner)	Post-Approval
Dillon South-1 Exploration Well Drilling - AC/P4, Territory of Ashmore/Cartier	2013/6849	Not Controlled Action (Particular Manner)	Post-Approval
Draeck 3D Marine Seismic Survey, WA-205-P	2006/3067	Not Controlled Action (Particular Manner)	Post-Approval
Dredging of marine sediment to enable construction of eight berths and a turnin	2010/5678	Not Controlled Action (Particular Manner)	Post-Approval
Dredging the outer shipping channels of Darwin Harbour	2013/6988	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
Drilling of Audacious-5 appraisal well	2008/4327	Not Controlled Action (Particular Manner)	Post-Approval
Drilling of Exploration & Appraisal Wells Braveheart-1 & Cornea-3	2009/5160	Not Controlled Action (Particular Manner)	Post-Approval
Drilling of two appraisal wells	2011/5840	Not Controlled Action (Particular Manner)	Post-Approval
Earthworks for kitchen/mess, cyclone refuge building & Compression Plant, Varanus Island	2013/6900	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Eendracht Multi-Client 3D Marine Seismic Survey	2009/4749	Not Controlled Action (Particular Manner)	Post-Approval
Effect of marine seismic sounds to demersal fish and pearl oysters, north-west WA	2018/8169	Not Controlled Action (Particular Manner)	Post-Approval
Endurance 3D Marine Seismic Data Acquisition Survey	2007/3667	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
Eni Bathurst 3D Seismic Survey	2011/6118	Not Controlled Action (Particular Manner)	Post-Approval
Establishment of AQIS washdown facility, logistics support base and ancillary businesses	2012/6364	Not Controlled Action (Particular Manner)	Post-Approval
Exmouth West 2D Marine Seismic Survey	2008/4132	Not Controlled Action (Particular Manner)	Post-Approval
Exploration Drilling Campaign	2011/6047	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Exploration Drilling Campaign, Browse Basin, WA-341-P, AC-P36 and WA-343-P	2013/6898	Not Controlled Action (Particular Manner)	Post-Approval
Exploration Drilling in Permit Areas WA-402-P & WA-403-P	2010/5297	Not Controlled Action (Particular Manner)	Post-Approval
Exploration drilling of Zeus-1 well	2008/4351	Not Controlled Action (Particular Manner)	Post-Approval
Exploration Drilling Program - Permit areas - WA-314-P, WA-315-P, WA-398-P.	2008/4064	Not Controlled Action (Particular Manner)	Post-Approval
Fishburn2D Marine Seismic Survey	2012/6659	Not Controlled Action (Particular Manner)	Post-Approval
Fletcher-Finucane Development, WA26-L and WA191-P	2011/6123	Not Controlled Action (Particular Manner)	Post-Approval
Floyd 3D and Chisel 3D Seismic Surveys	2011/6220	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
Geoscience Australia - Marine survey in Browse Basin to acquire data to assist assessment of CO2 sto	2013/6747	Not Controlled Action (Particular Manner)	Post-Approval
Gicea 3D Marine Seismic Survey	2008/4389	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Gigas 2D Pilot Ocean Bottom Cable Marine Seismic Survey	2007/3839	Not Controlled Action (Particular Manner)	Post-Approval
Glencoe 3D Marine Seismic Survey WA-390-P	2007/3684	Not Controlled Action (Particular Manner)	Post-Approval
Gold 2D Marine Seismic Survey Permit Areas WA375P and WA376P	2009/4698	Not Controlled Action (Particular Manner)	Post-Approval
Greater Western Flank Phase 1 gas Development	2011/5980	Not Controlled Action (Particular Manner)	Post-Approval
Grimalkin 3D Seismic Survey	2008/4523	Not Controlled Action (Particular Manner)	Post-Approval
Guacamole 2D Marine Seismic Survey	2008/4381	Not Controlled Action (Particular Manner)	Post-Approval
Harmony 3D Marine Seismic Survey	2012/6699	Not Controlled Action (Particular Manner)	Post-Approval
Harpy 1 exploration well	2001/183	Not Controlled Action (Particular Manner)	Post-Approval
Helicopter baiting of exotic yellow crazy ant supercolonies, Christmas Island, Indian Ocean	2009/5016	Not Controlled Action (Particular Manner)	Post-Approval
Home Island Slipway Redevelopment	2010/5511	Not Controlled Action (Particular Manner)	Post-Approval
Honeycombs MC3D Marine Seismic Survey	2012/6368	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
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
Ichthys 3D Marine Seismic Survey	2010/5550	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
Joseph Bonaparte Gulf Seabed mapping survey	2010/5517	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
Koolama 2D Seismic Survey Dampier Basin	2010/5420	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Kraken, Lusca & Asperus 3D Marine Seismic Survey	2013/6730	Not Controlled Action (Particular Manner)	Post-Approval
Laverda 3D Marine Seismic Survey and Vincent M1 4D Marine Seismic Survey	2010/5415	Not Controlled Action (Particular Manner)	Post-Approval
Laying a submarine optical fibre telecommunications cable, Perth to Singapore and Jakarta	2014/7332	Not Controlled Action (Particular Manner)	Post-Approval
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
Malita West 3D Seismic Survey WA-402-P and WA-403-P	2007/3936	Not Controlled Action (Particular Manner)	Post-Approval
Marine Environmental Survey 2012	2012/6310	Not Controlled Action (Particular Manner)	Post-Approval
Marine Geotechnical Drilling Program	2008/4012	Not Controlled Action (Particular Manner)	Post-Approval
Marine reconnaissance survey	2008/4466	Not Controlled Action (Particular Manner)	Post-Approval
Mariner Non-Exclusive 2D Seismic Survey	2011/6172	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
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
Nelson Point Dredging	2009/4920	Not Controlled Action (Particular Manner)	Post-Approval
New Housing Program	2011/6056	Not Controlled Action (Particular Manner)	Post-Approval
Nova 3D Seismic Survey	2013/6825	Not Controlled Action (Particular Manner)	Post-Approval
NT/P74 & NT/P75 - 2D marine seismic survey	2008/4316	Not Controlled Action (Particular Manner)	Post-Approval
NT/P77 3D Marine Seismic Survey	2009/4683	Not Controlled Action (Particular Manner)	Post-Approval
NT/P80 2010 2D Marine Seismic Survey	2010/5487	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
Octantis 3D Marine Seismic Survey, Permit Area AC/P41 off northern Western Australia	2007/3369	Not Controlled Action (Particular Manner)	Post-Approval
Offshore Canning Multi Client 2D Marine Seismic Survey	2010/5393	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Offshore Drilling Campaign	2011/5830	Not Controlled Action (Particular Manner)	Post-Approval
Offshore Exploration Drilling Campaign	2011/6222	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
Offshore Gas Exploration Drilling Campaign	2012/6384	Not Controlled Action (Particular Manner)	Post-Approval
Onslow Seawater Desalination Plant Marine Geophysical Investigation	2020/8794	Not Controlled Action (Particular Manner)	Post-Approval
Orcus 3D Marine Seismic Survey in WA-450-P	2010/5723	Not Controlled Action (Particular Manner)	Post-Approval
Osprey and Dionysus Marine Seismic Survey	2011/6215	Not Controlled Action (Particular Manner)	Post-Approval
Outer Canning exploration drilling program off NW coast of WA	2012/6618	Not Controlled Action (Particular Manner)	Post-Approval
Palta-1 exploration well in Petroleum Permit Area WA-384-P	2011/5871	Not Controlled Action (Particular Manner)	Post-Approval
Panda NT/P76 3D Seismic Acquisition Survey Program	2009/4992	Not Controlled Action (Particular Manner)	Post-Approval
Petrel MC2D Marine Seismic Survey	2010/5368	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Phoenix 3D Seismic Survey, Bedout Sub-Basin	2010/5360	Not Controlled Action (Particular Manner)	Post-Approval
Pilot Appraisal Well - Torosa South 1	2008/3991	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
Port Headland Outer Harbour Pre-construction Pilling program	2012/6341	Not Controlled Action (Particular Manner)	Post-Approval
Port Melville marine supply base, Melville Island	2015/7510	Not Controlled Action (Particular Manner)	Post-Approval
Port of Port Hedland channel marker replacement project, WA	2017/8010	Not Controlled Action (Particular Manner)	Post-Approval
Port Walcott upgrade, dredging & spoil disposal, & channel realignment	2006/2806	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
Realignment of the Great Northern Highway	2010/5793	Not Controlled Action (Particular Manner)	Post-Approval
Reindeer gas reservior development, Devil Creek, Carnarvon Basin - WA	2007/3917	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Removal of Potential Unexploded Ordnance within NAXA	2012/6503	Not Controlled Action (Particular Manner)	Post-Approval
Repsol 3d & 2D Marine Seismic Survey	2012/6658	Not Controlled Action (Particular Manner)	Post-Approval
Residential Development, Lot 101 Cocos (Keeling) Island	2011/5856	Not Controlled Action (Particular Manner)	Post-Approval
Rose 3D Seismic Program	2008/4239	Not Controlled Action (Particular Manner)	Post-Approval
Rosebud 3D Marine Seismic Survey in WA-30-R and TR/5	2012/6493	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
Sandalford 3D Seismic Survey	2012/6261	Not Controlled Action (Particular Manner)	Post-Approval
Santos Petrel-7 Offshore Appraisal Drilling Programme (Bonaparte Basin)	2011/5934	Not Controlled Action (Particular Manner)	Post-Approval
Santos Winchester three dimensional seismic survey - WA-323-P & WA-330-P	2011/6107	Not Controlled Action (Particular Manner)	Post-Approval
Scarborough Development nearshore component, NWS, WA	2018/8362	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Schild MC3D Marine Seismic Survey	2012/6373	Not Controlled Action (Particular Manner)	Post-Approval
Schild Phase 11 MC3D Marine Seismic Survey, Browse Basin	2013/6894	Not Controlled Action (Particular Manner)	Post-Approval
Scott Reef Seismic Research	2006/2647	Not Controlled Action (Particular Manner)	Post-Approval
Searcher bathymetry & geochemical seismic survey, Brawse Basin,Timor Sea,WA	2013/6980	Not Controlled Action (Particular Manner)	Post-Approval
Skorpion Marine Seismic Survey WA	2001/416	Not Controlled Action (Particular Manner)	Post-Approval
Sonar and Acoustic Trials	2001/345	Not Controlled Action (Particular Manner)	Post-Approval
Songa Venus Drilling and Testing Operations	2009/5122	Not Controlled Action (Particular Manner)	Post-Approval
Songa Venus Drilling Programme, Bonaparte Basin	2009/4990	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	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Stybarrow Baseline 4D marine seismic survey	2008/4530	Not Controlled Action (Particular Manner)	Post-Approval
Sunshine Infill 2D and Mimosa 2D Marine Seismic Surveys	2009/4699	Not Controlled Action (Particular Manner)	Post-Approval
Swimming Pool modification	2007/3312	Not Controlled Action (Particular Manner)	Post-Approval
Tantabiddi Boat Ramp Sand Bypassing	2015/7411	Not Controlled Action (Particular Manner)	Post-Approval
Thoar 3D Marine Seismic Survey	2010/5668	Not Controlled Action (Particular Manner)	Post-Approval
Tidepole Maz 3D Seismic Survey Campaign	2007/3706	Not Controlled Action (Particular Manner)	Post-Approval
Tiffany 3D Seismic Survey	2010/5339	Not Controlled Action (Particular Manner)	Post-Approval
Torosa-5 Apraisal Well, WA-30-R	2008/4430	Not Controlled Action (Particular Manner)	Post-Approval
Tortilla 2D Seismic Survey, WA	2011/6110	Not Controlled Action (Particular Manner)	Post-Approval
Tow West Atlas wreck from present location to boundary of EEZ	2010/5652	Not Controlled Action (Particular Manner)	Post-Approval
Translocation of T.gigas for breeding and release	2005/1958	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Trials of a bait delivery system for the control of Yellow Crazy Ants	2009/4763	Not Controlled Action (Particular Manner)	Post-Approval
Tridacna 3D Ocean Bottom Cable Marine Seismic Survey	2011/5959	Not Controlled Action (Particular Manner)	Post-Approval
Triton 3D Marine Seismic Survey, WA-2-R and WA-3-R	2006/2609	Not Controlled Action (Particular Manner)	Post-Approval
Undertake a 3D marine seismic survey	2010/5695	Not Controlled Action (Particular Manner)	Post-Approval
Undertake a three dimensional marine seismic survey	2010/5679	Not Controlled Action (Particular Manner)	Post-Approval
Undertake a three dimensional marine seismic survey	2010/5715	Not Controlled Action (Particular Manner)	Post-Approval
upgrade of 3 community recreation sites	2005/2349	Not Controlled Action (Particular Manner)	Post-Approval
Ursa 3D Marine Seismic Survey	2008/4634	Not Controlled Action (Particular Manner)	Post-Approval
Vampire 2D Non Exclusive Seismic Survey, WA	2010/5543	Not Controlled Action (Particular Manner)	Post-Approval
Veritas Voyager 2D Marine Seismic Survey	2009/5151	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	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Water supply upgrade	2005/2269	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	2007/3941	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone Iago Appraisal Well Drilling	2008/4134	Not Controlled Action (Particular Manner)	Post-Approval
Woodside Southern Browse 3D Seismic Survey, WA	2007/3534	Not Controlled Action (Particular Manner)	Post-Approval
Zeemeermin MC3D seismic survey, Browse Basin, Offshore WA	2009/5023	Not Controlled Action (Particular Manner)	Post-Approval
Zeppelin 3D Seismic Survey	2011/6148	Not Controlled Action (Particular Manner)	Post-Approval
Referral decision			
2D Marine Seismic Survey	2008/4623	Referral Decision	Completed
3D Marine Seismic Survey in the offshore northwest Carnarvon	2011/6175	Referral Decision	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Referral decision			
Basin			
3D Seismic Survey	2008/4219	Referral Decision	Completed
3D Seismic Survey (NT/P68)	2006/2949	Referral Decision	Completed
Alterations and Improvements to existing residence at Lot 3015 Gaze Rd, Christmas Island	2009/5039	Referral Decision	Completed
Aurora extension MC3D Marine Seismic Survey	2011/5887	Referral Decision	Completed
Bianchi 3D Marine Seismic Survey, Carnavon Basin, WA	2013/7078	Referral Decision	Completed
BRSN08 3D Marine Seismic Survey	2008/4582	Referral Decision	Completed
Cocos West Island Seawater Desalination Plant	2022/9153	Referral Decision	Referral Publication
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
Experimental Study of Behavioural and Physiological Impact on Fish of Seismic Ex	2006/2625	Referral Decision	Completed
Field efficacy trial of the Hisstory bait for feral cats, at Yampi Sound Defence Training Area, Kimb	2017/7977	Referral Decision	Completed
Howard East Borefield Second Stage	2002/828	Referral Decision	Completed
Installation of Telecommunication Facilities	2001/254	Referral Decision	Completed
Kimberley Multi-commodity Exploration Program	2013/6780	Referral Decision	Completed
Nova 3D Seismic Survey, WA 442-NT/P81, Joseph Bonaparte Gulf	2013/6820	Referral Decision	Completed
Outer Harbour Development and associated marine and terrestial infrastructure	2008/4148	Referral Decision	Completed
Phillips Petroleum Wickham Point LNG facility	2001/391	Referral Decision	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Referral decision			
Pilot Appraisal Well - Torosa South-1	2008/3985	Referral Decision	Completed
Puffin South-West Development of Oil Reserves	2007/3834	Referral Decision	Completed
Rocky Point Dwelling Redevelopment	2005/2203	Referral Decision	Referral Decision
Rose 3D Seismic acquisition survey	2008/4220	Referral Decision	Completed
Seismic Data Acquisition, Browse Basin	2010/5475	Referral Decision	Completed
Stybarrow Baseline 4D Marine Seismic Survey (Permit Areas WA-255-P, WA-32-L, WA-	2008/4165	Referral Decision	Completed
Tidal Power Generation Turbine	2009/5235	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
Ashmore Reef and Cartier Island and surrounding Commonwealth waters	North-west
Canyons linking the Argo Abyssal Plain with the Scott Plateau	North-west
Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula	North-west
Carbonate bank and terrace system of the Sahul Shelf	North-west
Carbonate bank and terrace system of the Van Diemen Rise	North
Commonwealth waters adjacent to Ningaloo Reef	North-west
Continental Slope Demersal Fish Communities	North-west

Name	Region
Exmouth Plateau	North-west
Glomar Shoals	North-west
Mermaid Reef and Commonwealth waters surrounding Rowley Shoals	North-west
Pinnacles of the Bonaparte Basin	North
Pinnacles of the Bonaparte Basin	North-west
Seringapatam Reef and Commonwealth waters in the Scott Reef Complex	North-west
Shelf break and slope of the Arafura Shelf	North
Tributary Canyons of the Arafura Depression	North

Biologically Important Areas		
Scientific Name	Behaviour	Presence
Dolphins		
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Breeding	Known to occur
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Breeding likely	Known to occur
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Calving	Known to occur
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Foraging	Known to occur
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Foraging (high density prey)	Known to occur
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Foraging likely	Known to occur
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Resting	Known to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Breeding	Known to occur

Scientific Name	Behaviour	Presence
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Breeding	Likely to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Breeding likely	Known to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Calving	Known to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Calving	Likely to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Foraging	Known to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Foraging	Likely to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Foraging (high density prey)	Known to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Foraging (high density prey)	Likely to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Significant habitat	Known to occur
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Significant habitat - unknown behaviour	Likely to occur
Tursiops aduncus Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Breeding	Known to occur
Tursiops aduncus Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Calving	Known to occur
Tursiops aduncus Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Foraging	Known to occur
Tursiops aduncus Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Foraging likely	Known to occur

Scientific Name	Behaviour	Presence
Tursiops aduncus Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Migration likely	Known to occur
Dugong		
Dugong dugon Dugong [28]	Breeding	Known to occur
Dugong dugon Dugong [28]	Calving	Known to occur
Dugong dugon Dugong [28]	Foraging	Likely to occur
Dugong dugon Dugong [28]	Foraging	Known to occur
Dugong dugon Dugong [28]	Foraging (high density seagrass beds)	Known to occur
Dugong dugon Dugong [28]	Migration likely	Known to occur
Dugong dugon Dugong [28]	Nursing	Known to occur
Marine Turtles		
Caretta caretta Loggerhead Turtle [1763]	Foraging	Known to occur
Caretta caretta Loggerhead Turtle [1763]	Internesting buffer	Known to occur
Caretta caretta Loggerhead Turtle [1763]	Nesting	Known to occur
Chelonia mydas Green Turtle [1765]	Aggregation	Known to occur
Chelonia mydas Green Turtle [1765]	Basking	Known to occur

Scientific Name	Behaviour	Presence
Chelonia mydas Green Turtle [1765]	Foraging	Known to occur
Chelonia mydas Green Turtle [1765]	Foraging	Likely to occur
Chelonia mydas Green Turtle [1765]	Internesting	Likely 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]	Internesting buffer	Likely to occur
Chelonia mydas Green Turtle [1765]	Mating	Known to occur
Chelonia mydas Green Turtle [1765]	Mating	Likely to occur
Chelonia mydas Green Turtle [1765]	Migration corridor	Known to occur
Chelonia mydas Green Turtle [1765]	Nesting	Likely to occur
Chelonia mydas Green Turtle [1765]	Nesting	Known to occur
Dermochelys coriacea Leatherback Turtle [1768]	Internesting	Likely to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Foraging	Likely to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Foraging	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Internesting	Known to occur

Scientific Name	Behaviour	Presence
Eretmochelys imbricata Hawksbill Turtle [1766]	Internesting	Likely to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Internesting buffer	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Internesting buffer	Likely to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Mating	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Migration corridor	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Nesting	Likely to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Nesting	Known to occur
Lepidochelys olivacea Olive Ridley Turtle [1767]	Foraging	Known to occur
Lepidochelys olivacea Olive Ridley Turtle [1767]	Foraging	Likely to occur
Lepidochelys olivacea Olive Ridley Turtle [1767]	Internesting	Likely 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	Likely to occur
Natator depressus Flatback Turtle [59257]	Internesting	Known to occur
Natator depressus Flatback Turtle [59257]	Internesting buffer	Known to occur

Scientific Name	Behaviour	Presence
Natator depressus Flatback Turtle [59257]	Mating	Known to occur
Natator depressus Flatback Turtle [59257]	Migration corridor	Known to occur
Natator depressus Flatback Turtle [59257]	Nesting	Known to occur
River shark		
Pristis clavata Dwarf Sawfish [68447]	Foraging	Known to occur
Pristis clavata Dwarf Sawfish [68447]	Juvenile	Known to occur
Pristis clavata Dwarf Sawfish [68447]	Nursing	Known to occur
Pristis clavata Dwarf Sawfish [68447]	Pupping	Known to occur
Pristis pristis Freshwater Sawfish [60756]	Foraging	Known to occur
Pristis pristis Freshwater Sawfish [60756]	Juvenile	Known to occur
Pristis pristis Freshwater Sawfish [60756]	Nursing	Likely to occur
Pristis pristis Freshwater Sawfish [60756]	Nursing	Known to occur
Pristis pristis Freshwater Sawfish [60756]	Pupping	Known to occur
Pristis zijsron Green Sawfish [68442]	Foraging	Known to occur
Pristis zijsron Green Sawfish [68442]	Nursing	Known to occur

Scientific Name	Behaviour	Presence
Pristis zijsron Green Sawfish [68442]	Pupping	Known to occur
Seabirds		
Ardenna pacifica Wedge-tailed Shearwater [84292]	Breeding	Known to occur
Fregata ariel Lesser Frigatebird [1012]	Breeding	Known to occur
Fregata minor Greater Frigatebird [1013]	Breeding	Known to occur
Onychoprion anaethetus Bridled Tern [82845]	Breeding	Known to occur
Phaethon lepturus White-tailed Tropicbird [1014]	Breeding	Known to occur
Sterna dougallii Roseate Tern [817]	Breeding	Known to occur
Sterna dougallii Roseate Tern [817]	Breeding (high numbers)	Known to occur
Sterna dougallii Roseate Tern [817]	Resting	Known to occur
Sternula albifrons sinensis Little Tern [82850]	Breeding	Known to occur
Sternula albifrons sinensis Little Tern [82850]	Resting	Known to occur
Sternula nereis Fairy Tern [82949]	Breeding	Known to occur
Sula leucogaster Brown Booby [1022]	Breeding	Known to occur
Sula sula Red-footed Booby [1023]	Breeding	Known to occur

Scientific Name	Behaviour	Presence
Thalasseus bengalensis Lesser Crested Tern [66546]	Breeding	Known to occur
Thalasseus bergii Crested Tern [83000]	Breeding	Known to occur
Thalasseus bergii Crested Tern [83000]	Breeding (high numbers)	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]	Calving	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Migration	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Migration (north and south)	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Nursing	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Resting	Known to occur

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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Appendix D Native Title Rights and Interests

The table below provides a summary of the rights and interests held by Indigenous groups with Native Title determinations located within the Planning Area. It is not exhaustive of the relevant Indigenous groups or their rights, rather it is designed to provide an indication of the different rights and interests within the Planning Area.

Summary of Native Title Rights and Interests

Native Title Holder	Rights
Bardi and Jawi Native Title Determination (WCD2005/003)	The right of possession, occupation, use and enjoyment, including the following rights: • the right to live on the land; • the right to access, move about on and use the land and waters; • the right to hunt and gather on the land and waters; • the right to engage in spiritual and cultural activities on the land and waters; • the right to access, use and take any of the resources of the land and waters (including ochre) for food, shelter, medicine, fishing and trapping fish, weapons for hunting, cultural, religious, spiritual, ceremonial, artistic and communal purposes; • the right to refuse, regulate and control the use and enjoyment by others of the land and its resources; • the right to have access to and use the water of the land for personal, domestic, social, cultural, religious, spiritual, ceremonial and communal purposes. • In relation to areas seaward of mean high watermark (being areas other than the features known as Lalariny and Alarm Shoals): • the right to access, move about in and on and use and enjoy those areas; • the right to hunt and gather including for dugong and turtle; • the right to access, use and take any of the resources thereof (including water and ochre) for food, trapping fish, religious, spiritual, ceremonial and communal purposes. Within the Bardi Jawi Gaarra Marine Park, the Bardi and Jawi people have possession of over 3,047km^2 of land and sea including Sunday Island and some adjacent islands. Native title rights also extend to 2m below the mean LWM (DBCA, 2022a).
Mayala People (WCD2018/009)	The non-exclusive native title rights granted encompass the land and waters within the Determination Area, specifically those located beyond the HWM. The applicants have consistently exercised their rights and interests over these territories in accordance with their traditional laws and customs. These activities involve: • accessing and using the land and waters; • controlling the access and use of the claim area by others; • accessing and taking the resources of the land and waters; and • protecting places, areas and things of traditional significance on the land and waters
Dambimangari (WCD2011/002)	Determination: Native title exists in parts of the determination area. It consists of exclusive rights and interests over some portions of the determination area and non-exclusive native title rights and interests over others. Native title is held by members of the Wanjina-Wunggurr Community. The parties have exclusive native title rights to possession, occupation, use and enjoyment of land to the exclusion of all others over land described in

Native Title Holder	Rights
	Schedules 2, 3 and 4 of the judgment (Barunga v State of WA [2011] FCA 518). Non-exclusive native title rights and interests that exist over land in the determination area include: • the right to enter, travel over and remain on the land; • the right to live and camp on the land (including erecting shelters and other structures for those purposes); • the right to hunt, fish, gather and use the resources of the land; • the right to light fires for domestic purposes; • the right to take and use water from the land; and • the right to engage in cultural activities on the land including (i) visiting places of cultural significance and protecting those places; (ii) conducting ceremonies and rituals; (iii) holding meetings; (iv) participating in cultural practices relating to birth and death; (v) passing on knowledge about the physical and spiritual attributes of the Determination Area; and (vi) maintaining places and areas of importance. Non-exclusive native title rights and interests that exist over intertidal areas in the determination area include: • all of the rights described in relation to land; and • the right to take and use water from the Intertidal Area. Non-exclusive native title rights and interests that exist over waters in the determination area include: • the right to enter, travel over and remain on the area; • the right to hunt, fish, gather and use the resources of the land; and • the right to take and use water These rights do not confer exclusive rights of possession, use and enjoyment of the land or waters. They also do not confer a right to control access to the determination area. They also do not allow for commercial use of the determination area.

Appendix E WA Indigenous Cultural Heritage Places

This table presents the list of recorded Indigenous heritage sites located within the Planning Area. This information is sourced from the WA Department of Planning, Lands and Heritage from the Aboriginal Heritage Inquiry System, access in February 2023.

Summary of WA Indigenous Cultural Heritage Sites Within the Planning Area

Place ID	Name	Status	Type	Region	Restriction
508	POINT MURAT 03	Registered Site	Artefacts / Scatter, Midden / Scatter	Gascoyne/Murchison	No Gender Restrictions
509	POINT MURAT 04	Registered Site	Artefacts / Scatter	Gascoyne/Murchison	No Gender Restrictions
563	POINT MURAT 01	Registered Site	Artefacts / Scatter, Midden / Scatter	Gascoyne/Murchison	No Gender Restrictions
564	POINT MURAT 02	Registered Site	Artefacts / Scatter, Midden / Scatter	Gascoyne/Murchison	No Gender Restrictions
873	MONTEBELLO IS: NOALA CAVE.	Registered Site	Artefacts / Scatter, Midden / Scatter, Rockshelter, BP Dating: 27,220 +/- 640	Pilbara	No Gender Restrictions
885	BARROW ISLAND 03	Lodged	Artefacts / Scatter	Pilbara	No Gender Restrictions
887	BARROW ISLAND 05	Lodged	Artefacts / Scatter	Pilbara	No Gender Restrictions
891	BARROW ISLAND 09	Lodged	Artefacts / Scatter	Pilbara	No Gender Restrictions
892	BARROW ISLAND 10	Lodged	Artefacts / Scatter	Pilbara	No Gender Restrictions
926	MONTEBELLO IS: HAYNES CAVE.	Registered Site	Artefacts / Scatter, Midden / Scatter, Rockshelter, Arch Deposit	Pilbara	No Gender Restrictions
6311	POINT MURAT.	Registered Site	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial, Camp, Other: ?	Gascoyne/Murchison	No Gender Restrictions
8951	BARROW ISLAND	Stored Data / Not a Site	Artefacts / Scatter	Pilbara	No Gender Restrictions
10381	VLAMING HEAD	Registered Site	Ceremonial, Mythological	Pilbara	No Gender Restrictions

Place ID	Name	Status	Type	Region	Restriction
11801	COASTAL MIDDEN, 5 MILE	Lodged	Artefacts / Scatter, Midden / Scatter	Pilbara	No Gender Restrictions
12135	YEEDIWOODU.	Registered Site	Camp	West Kimberley	No Gender Restrictions
12160	IRON ISLANDS, TALBOT BAY.	Lodged	Camp	West Kimberley	No Gender Restrictions
12161	KAIKALUOMA, TALBOT BAY	Registered Site	Engraving, Painting	West Kimberley	No Gender Restrictions
12162	YALULPA-KULANU, KOOLAN IS.	Registered Site	Artefacts / Scatter, Mythological, Painting, Rockshelter, Arch Deposit, Camp	West Kimberley	No Gender Restrictions
12163	NARES POINT.	Lodged	Camp	West Kimberley	No Gender Restrictions
12164	KOOLAN ISLAND.	Lodged	Midden / Scatter, Rockshelter, Arch Deposit, Camp	West Kimberley	No Gender Restrictions
12174	MARGARET ISLAND.	Lodged	Camp	West Kimberley	No Gender Restrictions
12175	WOODHOUSE POINT.	Lodged	Camp	West Kimberley	No Gender Restrictions
12176	IRVINE ISLAND.	Registered Site	Camp	West Kimberley	No Gender Restrictions
12177	IRVINE ISLAND.	Lodged	Camp	West Kimberley	No Gender Restrictions
12178	BATHURST ISLAND.	Lodged	Camp	West Kimberley	No Gender Restrictions
12179	BATHURST ISLAND.	Registered Site	Rockshelter, Camp	West Kimberley	No Gender Restrictions
12180	IRVINE ISLAND.	Stored Data / Not a Site	Artefacts / Scatter, Camp	West Kimberley	No Gender Restrictions
12181	UNNAMED ISLAND	Registered Site	Mythological	West Kimberley	No Gender Restrictions
12194	NEEDLE ROCK	Lodged	Mythological	West Kimberley	No Gender Restrictions
12195	WAILALKUNYA, SLATE ISLANDS	Registered Site	Artefacts / Scatter, Quarry	West Kimberley	No Gender Restrictions
12196	LANGAWARRU	Lodged	Mythological	West Kimberley	No Gender Restrictions

Place ID	Name	Status	Type	Region	Restriction
12199	WODANGU	Registered Site	Artefacts / Scatter, Ceremonial, Painting, Skeletal Material / Burial	West Kimberley	No Gender Restrictions
12200	NGUMBURI, DOUBTFUL BAY	Registered Site	Artefacts / Scatter, Mythological, Painting	West Kimberley	No Gender Restrictions
12201	STEEP ISLAND, FOAM PASSAGE	Registered Site	Mythological	West Kimberley	No Gender Restrictions
12202	RAFT POINT, FOAM PASSAGE.	Lodged	Artefacts / Scatter, Man-Made Structure, Camp	West Kimberley	No Gender Restrictions
12203	KNDJAL.	Registered Site	Mythological, Painting, Water Source	West Kimberley	No Gender Restrictions
12206	MUNJALIAMA IS, SHOAL BAY.	Registered Site	Artefacts / Scatter, Quarry, Camp	West Kimberley	No Gender Restrictions
12208	TALBOT BAY.	Registered Site	Artefacts / Scatter, Man-Made Structure, Midden / Scatter, Camp	West Kimberley	No Gender Restrictions
12210	UBERNARU, TALBOT BAY.	Registered Site	Artefacts / Scatter, Rockshelter, Camp	West Kimberley	No Gender Restrictions
12211	TALBOT BAY.	Lodged	Camp	West Kimberley	No Gender Restrictions
12219	GIRRIWAI	Registered Site	Man-Made Structure, Mythological, Painting	West Kimberley	No Gender Restrictions
12230	BARINBAR, SWAN POINT	Registered Site	Ceremonial	West Kimberley	No Gender Restrictions
12231	CYGNET HILL/ONE ARM POINT	Registered Site	Ceremonial, Repository / Cache	West Kimberley	No Gender Restrictions
12232	STORRY HILL	Registered Site	Artefacts / Scatter, Quarry	West Kimberley	No Gender Restrictions
12234	CAPE LEVEQUE	Registered Site	Artefacts / Scatter, Quarry	East Kimberley	No Gender Restrictions
12263	PUNUWANDANGGA	Registered Site	Artefacts / Scatter, Midden / Scatter,	West Kimberley	No Gender Restrictions

Place ID	Name	Status	Type	Region	Restriction
			Mythological, Other: Part of Failed PA 167		
12265	WUNARO.	Lodged	Named Place	West Kimberley	No Gender Restrictions
12278	PORT WARRENDER CIRCLE	Registered Site	Man-Made Structure, Midden / Scatter	West Kimberley	No Gender Restrictions
12316	WUNGARINGI.	Registered Site	Artefacts / Scatter, Man-Made Structure, Rockshelter, Hunting Place, Water Source	West Kimberley	No Gender Restrictions
12345	BUNOWANDANGA.	Lodged	Artefacts / Scatter, Midden / Scatter, Mythological, Camp, Hunting Place, Water Source	West Kimberley	No Gender Restrictions
12387	BOONGINJ-GOON	Registered Site	Ceremonial, Mythological	West Kimberley	No Gender Restrictions
12388	CULENUGOON BEACH	Registered Site	Ceremonial	West Kimberley	No Gender Restrictions
12389	SWAN POINT ULLULONG GROUND	Registered Site	Artefacts / Scatter, Ceremonial	West Kimberley	No Gender Restrictions
12442	LAW GROUND-YINJALLAN BURU	Registered Site	Ceremonial	West Kimberley	No Gender Restrictions
12443	ULLULLONG GROUND-MALAMBUBUR	Registered Site	Ceremonial	West Kimberley	No Gender Restrictions
12517	SOUTH WEST OSBORNE ISLAND.	Registered Site	Mythological, Painting, Rockshelter, Camp, Shell, Other: ?	West Kimberley	No Gender Restrictions
12521	SAVAGE HILL	Registered Site	Man-Made Structure	West Kimberley	No Gender Restrictions
12550	CONDINI LANDING WEST	Registered Site	Skeletal Material / Burial	Pilbara	No Gender Restrictions
12644	ISDELL RIVER.	Lodged	Named Place	West Kimberley	No Gender Restrictions
12657	GALE ISLAND SOUTH WEST	Lodged	Man-Made Structure	West Kimberley	No Gender Restrictions
12658	BRECKNOCK ISLAND	Registered Site	Man-Made Structure	West Kimberley	No Gender Restrictions

Place ID	Name	Status	Type	Region	Restriction
12659	BERNOUILLI ISLAND NORTH	Lodged	Man-Made Structure	West Kimberley	No Gender Restrictions
12660	BERNOUILLI ISLAND NORTHEAST	Lodged	Man-Made Structure	West Kimberley	No Gender Restrictions
12661	DESFONTAINES ISLAND WEST	Registered Site	Man-Made Structure	West Kimberley	No Gender Restrictions
12662	DESFONTAINES ISLAND	Lodged	Man-Made Structure	West Kimberley	No Gender Restrictions
12663	CORONATION ISLAND	Registered Site	Man-Made Structure	West Kimberley	No Gender Restrictions
12664	ROTHSAY WATER	Registered Site	Man-Made Structure	West Kimberley	No Gender Restrictions
12665	CORONATION ISLAND	Lodged	Man-Made Structure	West Kimberley	No Gender Restrictions
12666	CORONATION ISLAND SOUTH	Lodged	Man-Made Structure	West Kimberley	No Gender Restrictions
12667	MACLEAY ISLANDS 3	Lodged	Man-Made Structure	West Kimberley	No Gender Restrictions
12668	KING ISLAND	Lodged	Man-Made Structure	West Kimberley	No Gender Restrictions
12669	CONE BAY	Registered Site	Man-Made Structure	West Kimberley	No Gender Restrictions
12672	SALE RIVER	Registered Site	Man-Made Structure	West Kimberley	No Gender Restrictions
12673	DESAIX ISLANDS NORTH	Lodged	Man-Made Structure	West Kimberley	No Gender Restrictions
12677	HEYWOOD ISLAND	Registered Site	Man-Made Structure	West Kimberley	No Gender Restrictions
12685	BUNGARUGUN.	Registered Site	Artefacts / Scatter, Fish Trap, Midden / Scatter, Skeletal Material / Burial, Camp, Water Source	West Kimberley	No Gender Restrictions
12686	ENTRANCE ISLAND.	Registered Site	Painting, Skeletal Material / Burial, Camp	West Kimberley	No Gender Restrictions
12702	BUFFON ISLAND	Lodged	Man-Made Structure	West Kimberley	No Gender Restrictions
12703	DESFONTAINES ISLAND NORTH	Lodged	Man-Made Structure	West Kimberley	No Gender Restrictions
12704	FONTANES ISLAND	Lodged	Man-Made Structure	West Kimberley	No Gender Restrictions

Place ID	Name	Status	Type	Region	Restriction
12706	BIGGE ISLAND	Lodged	Man-Made Structure	West Kimberley	No Gender Restrictions
12707	EAST MONTALIVET ISLAND	Lodged	Man-Made Structure	West Kimberley	No Gender Restrictions
12708	KERAUDREN ISLAND	Lodged	Man-Made Structure	West Kimberley	No Gender Restrictions
12709	MALBY ISLAND	Lodged	Man-Made Structure	West Kimberley	No Gender Restrictions
12718	CASSINI ISLAND.	Stored Data / Not a Site	Camp, Hunting Place, Named Place, Plant Resource	West Kimberley	No Gender Restrictions
12719	DULI COVE CAVES.	Lodged	Artefacts / Scatter, Arch Deposit, Other: ?	West Kimberley	No Gender Restrictions
12720	DULI CAVE.	Registered Site	Ceremonial, Mythological, Rockshelter, Camp	West Kimberley	No Gender Restrictions
12721	DULI BAY.	Stored Data / Not a Site	Named Place	West Kimberley	No Gender Restrictions
12722	DIDJI POINT.	Registered Site	Man-Made Structure, Mythological, Named Place	West Kimberley	No Gender Restrictions
12723	KARENA BAY.	Stored Data / Not a Site	Named Place	West Kimberley	No Gender Restrictions
12724	BELELE.	Stored Data / Not a Site	Named Place	West Kimberley	No Gender Restrictions
12725	DIDJI WELLS.	Registered Site	Mythological, Water Source	West Kimberley	No Gender Restrictions
12726	CASSINI STONE LINE	Registered Site	Man-Made Structure, Mythological	West Kimberley	No Gender Restrictions
12727	CASSINI STONE CIRCLES	Registered Site	Man-Made Structure, Mythological	West Kimberley	No Gender Restrictions
12790	BATHURST ISLAND ARRANGEMENT	Lodged	Man-Made Structure	West Kimberley	No Gender Restrictions
12792	GEORGE WATER RINGS	Lodged	Fish Trap, Man-Made Structure	West Kimberley	No Gender Restrictions
12903	MURRJAL.	Registered Site	Artefacts / Scatter, Midden / Scatter, Mythological, Camp, Water Source, Other:	West Kimberley	Female Access Only

Place ID	Name	Status	Type	Region	Restriction
			Part of failed PA 139. ACMC Res11/89		
13014	BARGAJOC SOAK.	Registered Site	Artefacts / Scatter, Water Source	West Kimberley	No Gender Restrictions
13015	BARGAJOC DUNES.	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp	West Kimberley	No Gender Restrictions
13016	BARGAJOC BURIAL	Registered Site	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial	West Kimberley	No Gender Restrictions
13017	BARGAJOC FISHTRAPS	Registered Site	Fish Trap	West Kimberley	No Gender Restrictions
13023	RANKIN ISLAND.	Lodged	Artefacts / Scatter, Man-Made Structure, Rockshelter, Water Source	West Kimberley	No Gender Restrictions
13032	HIGH CLIFFY IS: SHELTER 1.	Registered Site	Painting, Arch Deposit, Camp	West Kimberley	No Gender Restrictions
13033	HIGH CLIFFY IS: STRUCTURE.	Registered Site	Artefacts / Scatter, Man-Made Structure, Arch Deposit, Camp	West Kimberley	No Gender Restrictions
13034	HIGH CLIFFY IS: OPEN CAMP.	Registered Site	Artefacts / Scatter, Camp	West Kimberley	No Gender Restrictions
13035	HIGH CLIFFY IS: SHELTER 2	Registered Site	Painting, Skeletal Material / Burial	West Kimberley	No Gender Restrictions
13036	HIGH CLIFFY IS: SHELTER 3	Registered Site	Painting	West Kimberley	No Gender Restrictions
13053	ONE ARM POINT CEMETERY	Registered Site	Man-Made Structure, Skeletal Material / Burial	West Kimberley	No Gender Restrictions
13054	BARGAJOC NEW SOAK.	Lodged	Water Source	West Kimberley	No Gender Restrictions
13302	DOUBTFUL BAY	Registered Site	Mythological	West Kimberley	No Gender Restrictions
13306	DJADJUG.	Registered Site	Camp	West Kimberley	No Gender Restrictions
13307	IRVINE ISLAND: ROCKSHELTER	Registered Site	Mythological, Painting	West Kimberley	Male Access Only

Place ID	Name	Status	Type	Region	Restriction
13308	IRVINE ISLAND: WATERHOLE.	Lodged	Water Source	West Kimberley	Male Access Only
13309	IRVINE ISLAND: BURIAL 1	Registered Site	Skeletal Material / Burial	West Kimberley	Male Access Only
13310	IRVINE ISLAND: BURIAL 2	Registered Site	Skeletal Material / Burial	West Kimberley	Male Access Only
13311	WINDJIMIR.	Registered Site	Skeletal Material / Burial, Camp, Water Source	West Kimberley	Male Access Only
13312	IRVINE ISLAND: STONEMOUND 1	Registered Site	Man-Made Structure	West Kimberley	Male Access Only
13313	IRVINE ISLAND: STONEMOUND 2	Registered Site	Man-Made Structure, Skeletal Material / Burial	West Kimberley	Male Access Only
13314	IRVINE ISLAND: CAMP 1.	Registered Site	Camp, Hunting Place	West Kimberley	Male Access Only
13315	IRVINE ISLAND: CAMP 2.	Registered Site	Camp	West Kimberley	Male Access Only
13316	MAROLORR.	Registered Site	Camp	West Kimberley	Male Access Only
13317	IRVINE ISLAND: MYTH	Registered Site	Mythological	West Kimberley	Male Access Only
13318	IRVINE ISLAND: DEPRESSIONS	Lodged	Ceremonial, Mythological	West Kimberley	Male Access Only
13337	DORNEY ISLAND	Registered Site	Skeletal Material / Burial	West Kimberley	No Gender Restrictions
13341	SLATE ISLAND	Lodged	Skeletal Material / Burial	West Kimberley	No Gender Restrictions
13373	SUCCESS STRAIT	Registered Site	Ceremonial, Man-Made Structure	West Kimberley	Male Access Only
13384	KOOLAN ISLAND.	Registered Site	Artefacts / Scatter, Midden / Scatter, Mythological, Painting, Skeletal Material / Burial, Arch Deposit	West Kimberley	No Gender Restrictions
13385	KOOLAN ISLAND.	Registered Site	Artefacts / Scatter, Midden / Scatter, Rockshelter, Arch Deposit	West Kimberley	No Gender Restrictions
13386	KOOLAN ISLAND.	Registered Site	Artefacts / Scatter, Midden / Scatter,	West Kimberley	No Gender Restrictions

Place ID	Name	Status	Type	Region	Restriction
			Rockshelter, Arch Deposit		
13387	KOOLAN ISLAND.	Registered Site	Artefacts / Scatter, Midden / Scatter, Rockshelter, Arch Deposit, BP Dating: 26,500+/- 1050BP, Camp	West Kimberley	No Gender Restrictions
13389	IRVINE ISLAND: MIDDEN	Registered Site	Midden / Scatter, Other: 1 Artefact	West Kimberley	No Gender Restrictions
13390	IRVINE ISLAND: BARK BURIAL	Registered Site	Rockshelter, Skeletal Material / Burial	West Kimberley	No Gender Restrictions
13392	IRON ISLAND.	Registered Site	Rockshelter, Skeletal Material / Burial, Other: NE(REJ	West Kimberley	No Gender Restrictions
13393	IRON ISLAND	Lodged	Artefacts / Scatter, Midden / Scatter	West Kimberley	No Gender Restrictions
13394	MACLEAY ISLANDS 2.	Registered Site	Artefacts / Scatter, Man-Made Structure, Quarry, Arch Deposit, Other: ?	West Kimberley	No Gender Restrictions
13397	WALAMAN CREEK	Registered Site	Midden / Scatter, Mythological	West Kimberley	No Gender Restrictions
13398	TOOKER POINT DUNES 1.	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp	West Kimberley	No Gender Restrictions
13399	TOOKER POINT DUNES 2.	Lodged	Camp	West Kimberley	No Gender Restrictions
13400	BORE	Lodged	Midden / Scatter	West Kimberley	No Gender Restrictions
13462	DESAIX ISLANDS SOUTH	Lodged	Man-Made Structure	West Kimberley	No Gender Restrictions
13466	WONGANIN/BATHURST & IRVINE.	Registered Site	Man-Made Structure, Mythological, Skeletal Material / Burial, Hunting Place, Named Place, Plant Resource, Other:	West Kimberley	Male Access Only

Place ID	Name	Status	Type	Region	Restriction
			LOCAL GP. Failed PA 133		
13490	KAN/BADBA A & B.	Registered Site	Artefacts / Scatter, Rockshelter, Camp, Water Source	West Kimberley	No Gender Restrictions
13491	MAGARIM.	Registered Site	Artefacts / Scatter, Hunting Place, Water Source	West Kimberley	No Gender Restrictions
13492	GUDJUMA.	Registered Site	Artefacts / Scatter, Quarry, Camp, Meeting Place	West Kimberley	No Gender Restrictions
13493	ARAIRMA.	Registered Site	Artefacts / Scatter, Man-Made Structure, Midden / Scatter, Camp	West Kimberley	No Gender Restrictions
13494	NOLDJON.	Lodged	Midden / Scatter, Camp	West Kimberley	No Gender Restrictions
13495	DJENGANAN.	Lodged	Midden / Scatter, Camp	West Kimberley	No Gender Restrictions
13496	BIRGELAN	Lodged	Mythological	West Kimberley	No Gender Restrictions
13497	MALAGUN	Registered Site	Fish Trap, Mythological	West Kimberley	No Gender Restrictions
13498	DJULNAM.	Lodged	Water Source	West Kimberley	No Gender Restrictions
13499	MAYON MAYON.	Lodged	Water Source	West Kimberley	No Gender Restrictions
13500	LALANAN	Registered Site	Fish Trap	West Kimberley	No Gender Restrictions
13501	NGALANGURU	Registered Site	Artefacts / Scatter, Man-Made Structure, Quarry	West Kimberley	No Gender Restrictions
13502	VINEY ISLAND	Registered Site	Artefacts / Scatter, Painting, Skeletal Material / Burial	West Kimberley	No Gender Restrictions
13503	WIRRAR.	Registered Site	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial, Camp, Water Source	West Kimberley	No Gender Restrictions

Place ID	Name	Status	Type	Region	Restriction
13504	KARDILAKAN - JAJAL.	Registered Site	Artefacts / Scatter, Ceremonial, Fish Trap, Midden / Scatter, Mythological, Camp, Water Source, Other: Part of Failed PA 139. ACMC Res 11/89	West Kimberley	No Gender Restrictions
13524	MARDUNGU	Registered Site	Artefacts / Scatter, Quarry	West Kimberley	No Gender Restrictions
13560	LONG ISLAND 1 & 2	Registered Site	Artefacts / Scatter	West Kimberley	No Gender Restrictions
13561	BOWUD.	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp, Hunting Place, Water Source	West Kimberley	No Gender Restrictions
13589	MACLEAY ISLANDS 1	Registered Site	Man-Made Structure	West Kimberley	No Gender Restrictions
13595	GALE ISLAND EAST	Lodged	Man-Made Structure	West Kimberley	No Gender Restrictions
13596	DAVIDSONS POINT	Registered Site	Man-Made Structure	West Kimberley	No Gender Restrictions
13626	WATJELUM.	Registered Site	Midden / Scatter, Quarry, Camp, Other: ?	West Kimberley	No Gender Restrictions
13888	MWARNGUN	Lodged		West Kimberley	No Gender Restrictions
13889	DJUGOGUN	Lodged		West Kimberley	No Gender Restrictions
13890	GALLEN WELL	Lodged		West Kimberley	No Gender Restrictions
13891	ANDON	Lodged		West Kimberley	No Gender Restrictions
13892	BANAMBAN	Lodged		West Kimberley	No Gender Restrictions
13893	GULMAN	Lodged		West Kimberley	No Gender Restrictions
13895	RALALAN	Lodged		West Kimberley	No Gender Restrictions
13896	DJULBARRDA	Lodged		West Kimberley	No Gender Restrictions

Place ID	Name	Status	Type	Region	Restriction
13897	DUDUD	Lodged		West Kimberley	No Gender Restrictions
13918	DJEBUNDUN.	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp	West Kimberley	No Gender Restrictions
13923	NORON.	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp, Water Source	West Kimberley	No Gender Restrictions
13924	NARIGUN.	Lodged	Hunting Place	West Kimberley	No Gender Restrictions
13925	ILAN.	Registered Site	Artefacts / Scatter, Man-Made Structure, Midden / Scatter, Camp	West Kimberley	No Gender Restrictions
13926	ARMANDA.	Registered Site	Artefacts / Scatter, Man-Made Structure, Midden / Scatter, Camp	West Kimberley	No Gender Restrictions
13927	ANBARMAN.	Registered Site	Artefacts / Scatter, Man-Made Structure, Midden / Scatter, Camp	West Kimberley	No Gender Restrictions
13928	RANGARD.	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp	West Kimberley	No Gender Restrictions
13929	LARBUNDUN.	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp, Water Source	West Kimberley	No Gender Restrictions
13932	MIDALUN.	Registered Site	Artefacts / Scatter, Man-Made Structure, Midden / Scatter, Skeletal Material / Burial, Camp	West Kimberley	No Gender Restrictions
13934	MILIMILAN	Lodged		West Kimberley	No Gender Restrictions
13935	BALBIRRON	Lodged		West Kimberley	No Gender Restrictions
13936	BIWDAGUN	Lodged		West Kimberley	No Gender Restrictions
13937	DJAMBULLON	Lodged		West Kimberley	No Gender Restrictions

Place ID	Name	Status	Type	Region	Restriction
13938	NIMAMARA	Lodged		West Kimberley	No Gender Restrictions
13939	GUNDALMARA	Lodged		West Kimberley	No Gender Restrictions
13941	DJARRAMARRON	Lodged		West Kimberley	No Gender Restrictions
13958	GUMBADAL.	Registered Site	Artefacts / Scatter, Engraving, Midden / Scatter, Camp	West Kimberley	No Gender Restrictions
13959	NUMBULMARA.	Registered Site	Artefacts / Scatter, Grinding Patches / Grooves, Midden / Scatter, Camp	West Kimberley	No Gender Restrictions
13960	DJUWINO.	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp	West Kimberley	No Gender Restrictions
13961	MILBANAN.	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp	West Kimberley	No Gender Restrictions
13962	KAYERUN.	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp	West Kimberley	No Gender Restrictions
13963	DUMBULGUN.	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp	West Kimberley	No Gender Restrictions
13964	LAYUD.	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp	West Kimberley	No Gender Restrictions
13965	NIMANBIGUN.	Lodged	Camp	West Kimberley	No Gender Restrictions
13966	KARLANUN.	Lodged	Hunting Place	West Kimberley	No Gender Restrictions
13967	MALINGUN.	Registered Site	Artefacts / Scatter, Camp	West Kimberley	No Gender Restrictions
13968	GULDJIMAN.	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp, Water Source, Other: LOCAL GROUP	West Kimberley	No Gender Restrictions
13969	GULAMANGUN.	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp	West Kimberley	No Gender Restrictions

Place ID	Name	Status	Type	Region	Restriction
14148	MIDDLE OSBORNE ISLAND.	Lodged	Man-Made Structure, Midden / Scatter, Water Source	East Kimberley	No Gender Restrictions
14273	EMERIAU POINT 1	Lodged	Artefacts / Scatter, Midden / Scatter	West Kimberley	No Gender Restrictions
14274	EMERIAU POINT 2	Registered Site	Artefacts / Scatter, Midden / Scatter	West Kimberley	No Gender Restrictions
14275	EMERIAU POINT 3	Registered Site	Artefacts / Scatter, Midden / Scatter	West Kimberley	No Gender Restrictions
14278	WEEDONG/ BELL POINT 3	Registered Site	Artefacts / Scatter, Midden / Scatter	West Kimberley	No Gender Restrictions
14279	WAPET GRAVITY LINE.	Registered Site	Artefacts / Scatter, Water Source	West Kimberley	No Gender Restrictions
14287	FISHING HUTS MIDDEN 1	Registered Site	Artefacts / Scatter, Midden / Scatter	West Kimberley	No Gender Restrictions
14288	FISHING HUTS MIDDEN 2	Registered Site	Artefacts / Scatter, Midden / Scatter	West Kimberley	No Gender Restrictions
14289	EMERIAU POINT FISH TRAP	Registered Site	Fish Trap	West Kimberley	No Gender Restrictions
14307	HELPMAN ISLAND	Registered Site	Ceremonial, Man-Made Structure	West Kimberley	Male Access Only
14454	CORNEILLE ISLAND 13	Registered Site	Man-Made Structure	West Kimberley	No Gender Restrictions
14455	CORNEILLE ISLAND 14	Registered Site	Man-Made Structure, Other: Part of Failed PA 168	West Kimberley	No Gender Restrictions
14504	CONDILLAC MIDDEN.	Lodged	Midden / Scatter, Camp	West Kimberley	No Gender Restrictions
14505	CORNEILLE ISLAND 1	Registered Site	Man-Made Structure, Other: Part of Failed PA 168	West Kimberley	No Gender Restrictions
14506	CORNEILLE ISLAND 2	Registered Site	Man-Made Structure, Other: Part of Failed PA 168	West Kimberley	No Gender Restrictions

Place ID	Name	Status	Type	Region	Restriction
14507	CORNEILLE ISLAND 3	Registered Site	Man-Made Structure, Other: Part of Failed PA 168	West Kimberley	No Gender Restrictions
14508	CORNEILLE ISLAND 4	Registered Site	Man-Made Structure, Midden / Scatter, Modified Tree, Other: Part of Failed PA 168	West Kimberley	No Gender Restrictions
14509	CORNEILLE ISLAND 5	Registered Site	Man-Made Structure, Midden / Scatter, Modified Tree, Other: Part of Failed PA 168	West Kimberley	No Gender Restrictions
14510	CORNEILLE ISLAND 6	Registered Site	Engraving, Man-Made Structure, Modified Tree, Other: Part of Failed PA 168	West Kimberley	No Gender Restrictions
14511	CORNEILLE ISLAND 7	Registered Site	Man-Made Structure, Other: Part of Failed PA 168	West Kimberley	No Gender Restrictions
14512	CORNEILLE ISLAND 8	Registered Site	Man-Made Structure, Other: Part of Failed PA 168	West Kimberley	No Gender Restrictions
14513	CORNEILLE ISLAND 9	Registered Site	Man-Made Structure, Midden / Scatter, Other: Part of Failed PA 168	West Kimberley	No Gender Restrictions
14514	CORNEILLE ISLAND 10	Registered Site	Engraving	West Kimberley	No Gender Restrictions
14515	CORNEILLE ISLAND 11/KUMBURR	Registered Site	Mythological	West Kimberley	No Gender Restrictions
14516	CORNEILLE ISLAND 12	Registered Site	Engraving, Man-Made Structure	West Kimberley	No Gender Restrictions
14551	PARRY ISLAND	Stored Data / Not a Site		West Kimberley	No Gender Restrictions
14552	PARRY ISLAND CROCODILE.	Registered Site	Mythological, Painting, Arch Deposit	West Kimberley	No Gender Restrictions
14553	PARRY ISLAND	Registered Site	Man-Made Structure	West Kimberley	No Gender Restrictions

Place ID	Name	Status	Type	Region	Restriction
14556	NGAMILI, CONDILLAC ISLAND	Registered Site	Mythological	West Kimberley	No Gender Restrictions
14569	MULINYAN KAILNGAWARA	Registered Site	Mythological, Painting	East Kimberley	No Gender Restrictions
14570	WANDAWARR DJINGAL.	Registered Site	Man-Made Structure, Midden / Scatter, Quarry, Plant Resource	East Kimberley	No Gender Restrictions
14573	KALINGNU ISLAND 1.	Registered Site	Camp, Water Source	East Kimberley	No Gender Restrictions
14574	KALINGNU ISLAND 2.	Registered Site	Plant Resource	East Kimberley	No Gender Restrictions
14576	KALINGNU ISLAND 3.	Stored Data / Not a Site	Plant Resource	East Kimberley	No Gender Restrictions
14608	SALE RIVER	Registered Site	Painting	West Kimberley	No Gender Restrictions
14610	NILAGUN, SUNDAY ISLAND.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14611	NGOLORON, BUCCANEER ARCHIP.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14612	GAWURGUN, SUNDAY ISLAND.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14613	BILINJBILINJ,SUNDAY ISLAND.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14614	NGALUN, SUNDAY ISLAND.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14615	UMBINAR, SUNDAY ISLAND.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14616	ULALA, BUCCANEER ARCHIP.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14618	UNGGALAIJAN.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14619	KING SOUND	Registered Site	Modified Tree	West Kimberley	No Gender Restrictions
14620	PORTER HILL	Lodged	Skeletal Material / Burial	West Kimberley	No Gender Restrictions
14621	WALCOTT INLET	Registered Site	Painting	West Kimberley	No Gender Restrictions
14622	FROBENIUS SHELTER	Registered Site	Mythological, Painting	West Kimberley	No Gender Restrictions
14636	LIRIMARA, DAMPIERLAND.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions

Place ID	Name	Status	Type	Region	Restriction
14637	DJUWAN, DAMPIERLAND.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14638	NGILILNGA, DAMPIERLAND.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14640	GAMBANAN, DAMPIERLAND.	Lodged	Fish Trap, Ochre, Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14641	NGARINARA, DAMPIERLAND.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14642	GADIMAN, DAMPIERLAND.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14643	GUNJADLIN, DAMPIERLAND.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14644	LAMBILAMBON, DAMPIERLAND.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14645	MALDJIN, DAMPIERLAND.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14647	DJAMBONNGINJ, DAMPIERLAND.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14648	CYGNET HILL.	Lodged	Water Source	West Kimberley	No Gender Restrictions
14650	GULBUN, DEEP WATER POINT.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14651	ADIULUN, MIDDLE ISLAND.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14652	NULURUD, DAMPIERLAND.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14653	DJAIJIRI, BUCCANEER ARCHIP.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14654	WA:RA, CUNNINGHAM POINT.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14655	BIDJINGAN, DAMPIERLAND.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14656	DJALAN, BUCCANEER ARCHIP.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14657	GARAMAL, DAMPIERLAND.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14658	BULNGINJI,BUCCANEER ARCHIP.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14661	DJILIR.	Stored Data / Not a Site	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14662	BULDINARA.	Stored Data / Not a Site	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions

Place ID	Name	Status	Type	Region	Restriction
14665	LOMBADINA MISSION	Registered Site	Artefacts / Scatter, Ceremonial	West Kimberley	No Gender Restrictions
14668	GARAMBANJ.	Stored Data / Not a Site	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14669	MADNAN.	Stored Data / Not a Site	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14671	MIDALUN.	Stored Data / Not a Site	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14672	DJANALAR.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14673	MIRGULGUN.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14675	MILIGUN.	Lodged	Other: LOCAL GROUP SITE	West Kimberley	No Gender Restrictions
14676	STRICKLAND BAY	Registered Site	Painting	West Kimberley	No Gender Restrictions
14679	WOOD ISLAND 1	Lodged	Man-Made Structure	West Kimberley	No Gender Restrictions
14680	WOOD ISLAND 2.	Lodged	Camp	West Kimberley	No Gender Restrictions
14696	BEAGLE BAY 1	Registered Site	Fish Trap	West Kimberley	No Gender Restrictions
14700	IMBALGUN, TAPPERS INLET.	Registered Site	Artefacts / Scatter, Fish Trap, Midden / Scatter, Camp	West Kimberley	No Gender Restrictions
14701	MIDHREGUN	Registered Site	Fish Trap	West Kimberley	No Gender Restrictions
14704	PENDER.	Lodged	Artefacts / Scatter, Camp	West Kimberley	No Gender Restrictions
14738	LARMI GUDANGAI.	Lodged	Camp, Plant Resource	East Kimberley	No Gender Restrictions
14739	UNGUD, FRESHWATER BAY	Registered Site	Man-Made Structure, Mythological	East Kimberley	No Gender Restrictions
14755	TAMARINDA.	Stored Data / Not a Site	Artefacts / Scatter, Midden / Scatter, Camp	East Kimberley	No Gender Restrictions
14764	LEWA BARA MENGARI.	Registered Site	Man-Made Structure, Midden / Scatter, Mythological, Camp	East Kimberley	No Gender Restrictions

Place ID	Name	Status	Type	Region	Restriction
14765	TJARA KARI, ADMIRALTY GULF.	Lodged	Camp	East Kimberley	No Gender Restrictions
14766	PALINDJI, PARRY HARBOUR.	Lodged	Camp	East Kimberley	No Gender Restrictions
14767	ANILU, ADMIRALTY GULF.	Lodged	Camp	East Kimberley	No Gender Restrictions
14768	BALGA MEJANGEI	Registered Site	Mythological	East Kimberley	No Gender Restrictions
14771	KULINDJI GUDANGAI.	Lodged	Camp	East Kimberley	No Gender Restrictions
14772	ADJUWARR.	Registered Site	Artefacts / Scatter, Man-Made Structure, Camp, Meeting Place, Plant Resource	East Kimberley	No Gender Restrictions
14776	DJORNARA NDANDALU.	Lodged	Camp	East Kimberley	No Gender Restrictions
14777	ARU BULAI, FRESHWATER BAY	Lodged		East Kimberley	No Gender Restrictions
14779	UNGUNU, SEAFLOWER BAY.	Lodged	Camp	East Kimberley	No Gender Restrictions
14781	YITA GUDANGAI.	Lodged	Camp	West Kimberley	No Gender Restrictions
14787	BURRGU, ENCOUNTER COVE	Registered Site	Mythological, Painting	East Kimberley	No Gender Restrictions
14791	WOGU WOGU ISLAND 1.	Registered Site	Man-Made Structure, Camp	East Kimberley	No Gender Restrictions
14792	AWADA.	Lodged	Camp	East Kimberley	No Gender Restrictions
14793	VANSITTART BAY 1-3	Registered Site	Mythological, Painting	East Kimberley	No Gender Restrictions
14794	CHALANGDAL, VANSITTART BAY	Registered Site	Mythological, Painting	East Kimberley	No Gender Restrictions
14796	ECLIPSE ISLANDS	Registered Site	Quarry	East Kimberley	No Gender Restrictions
14797	SIR GRAHAM MOORE ISLANDS	Registered Site	Ceremonial, Man-Made Structure, Mythological	East Kimberley	No Gender Restrictions
14798	SIR GRAHAM MOORE ISLANDS	Registered Site	Man-Made Structure, Skeletal Material / Burial	East Kimberley	No Gender Restrictions

Place ID	Name	Status	Type	Region	Restriction
14799	ANJO PENNINSULA	Registered Site	Skeletal Material / Burial	East Kimberley	No Gender Restrictions
14800	GALNGAURU	Registered Site	Mythological, Painting, Skeletal Material / Burial	East Kimberley	No Gender Restrictions
14802	KAREN, ADMIRALTY GULF	Registered Site	Mythological, Painting	East Kimberley	No Gender Restrictions
14803	BORDA ISLAND	Registered Site	Mythological, Painting	East Kimberley	No Gender Restrictions
14804	YAURU, PARRY HARBOUR	Stored Data / Not a Site		East Kimberley	No Gender Restrictions
14807	WUNBARA, PARRY HARBOUR	Registered Site	Artefacts / Scatter, Midden / Scatter	East Kimberley	No Gender Restrictions
14808	UNGGALU IS., PARRY HARBOUR	Registered Site	Mythological	East Kimberley	No Gender Restrictions
14809	PARRY HARBOUR	Lodged	Artefacts / Scatter, Midden / Scatter	East Kimberley	No Gender Restrictions
14810	BADAMAI.	Lodged	Camp	East Kimberley	No Gender Restrictions
14811	DJIMI BADA BENDINGAI	Stored Data / Not a Site		East Kimberley	No Gender Restrictions
14813	TILIRR GUDANGAI.	Lodged	Camp	East Kimberley	No Gender Restrictions
14814	NANGIRITJI, PARRY HARBOUR.	Registered Site	Artefacts / Scatter, Engraving, Man-Made Structure, Camp	East Kimberley	No Gender Restrictions
14815	TJALA UNU, ADMIRALTY GULF.	Lodged	Camp	East Kimberley	No Gender Restrictions
14816	GURARINGAI.	Lodged	Camp	East Kimberley	No Gender Restrictions
14817	PARRY HARBOUR	Registered Site	Engraving	East Kimberley	No Gender Restrictions
14818	PARRY ISLAND,ADMIRLTY GULF.	Registered Site	Artefacts / Scatter, Painting, Camp	West Kimberley	No Gender Restrictions
14820	KANAMBAI, PARRY HARBOUR.	Lodged	Camp	East Kimberley	No Gender Restrictions
14822	WUNARAI, PARRY HARBOUR.	Lodged	Camp	East Kimberley	No Gender Restrictions

Place ID	Name	Status	Type	Region	Restriction
14823	NGALUMAL GUDANGARI.	Registered Site	Ceremonial, Mythological, Camp	East Kimberley	No Gender Restrictions
14824	YUMANGGU, PARRY HARBOUR.	Lodged	Camp	East Kimberley	No Gender Restrictions
14827	YALALARA.	Lodged	Camp	East Kimberley	No Gender Restrictions
14830	WADAI/ RED ISLAND.	Registered Site	Mythological, Camp	East Kimberley	No Gender Restrictions
14831	RED ISLAND.	Lodged	Camp	East Kimberley	No Gender Restrictions
14839	TROUGHTON ISLAND.	Lodged	Camp	East Kimberley	No Gender Restrictions
14841	WARAMALANI.	Lodged	Camp	East Kimberley	No Gender Restrictions
14842	WALI PUANINGAI.	Lodged	Water Source	East Kimberley	No Gender Restrictions
14843	DJILGU, ST GEORGE BASIN	Registered Site	Ceremonial, Engraving, Mythological, Painting	West Kimberley	No Gender Restrictions
14847	PUNNINJARRI	Registered Site	Painting	West Kimberley	No Gender Restrictions
14851	GREYS PLATEAU	Registered Site	Painting	West Kimberley	No Gender Restrictions
14856	PRINCE FREDERICK HARBOUR	Registered Site	Mythological, Painting	West Kimberley	No Gender Restrictions
14867	MALAPURU, PARRY HARBOUR.	Lodged	Camp	Not Recorded	No Gender Restrictions
14869	DAIBI, PARRY HARBOUR.	Lodged	Camp	East Kimberley	No Gender Restrictions
14870	THE GRAVEYARD 2.	Lodged	Camp	Not Recorded	No Gender Restrictions
14871	AVELING ISLAND.	Lodged	Camp	Not Recorded	No Gender Restrictions
14874	THE GRAVEYARD 5.	Lodged	Camp	Not Recorded	No Gender Restrictions
14875	KARRAKUTUTU, MARY ISLAND.	Lodged	Camp	Not Recorded	No Gender Restrictions
14876	MARY ISLAND.	Lodged	Camp	Not Recorded	No Gender Restrictions
14877	TJALEJALUPA, GERALD ISLAND.	Registered Site	Quarry, Camp	Not Recorded	No Gender Restrictions

Place ID	Name	Status	Type	Region	Restriction
14878	GERALD ISLAND.	Lodged	Camp	Not Recorded	No Gender Restrictions
14879	STRICKLAND BAY.	Stored Data / Not a Site	Camp	Not Recorded	No Gender Restrictions
14880	EUORAPA, STRICKLAND BAY.	Stored Data / Not a Site	Camp	Not Recorded	No Gender Restrictions
14881	TJUKUNJMA, CONE BAY.	Lodged	Camp	Not Recorded	No Gender Restrictions
14882	MALALPA, CONE BAY.	Lodged	Camp	Not Recorded	No Gender Restrictions
14883	MANEKALEMA, PORTER HILL.	Lodged	Camp	Not Recorded	No Gender Restrictions
14884	CONE BAY.	Registered Site	Artefacts / Scatter, Camp	Not Recorded	No Gender Restrictions
14885	YAMOY.	Lodged	Camp	Not Recorded	No Gender Restrictions
14886	FAINT POINT, CASCADE BAY.	Lodged	Camp	Not Recorded	No Gender Restrictions
14889	UNGGALAIJAN, LONG ISLAND.	Lodged	Artefacts / Scatter, Camp, Other: LOCAL GROUP SITE	Not Recorded	No Gender Restrictions
14890	GARA, MERMAID IS.	Registered Site	Painting, Other: LOCAL GROUP SITE	Not Recorded	No Gender Restrictions
14891	SWAN POINT.	Registered Site	Artefacts / Scatter, Man-Made Structure, Midden / Scatter, Mythological, Camp, Hunting Place	Not Recorded	No Gender Restrictions
14893	LINBINGUN.	Registered Site	Engraving, Mythological, Named Place	Not Recorded	No Gender Restrictions
14928	CORONATION ISLANDS	Registered Site	Artefacts / Scatter, Man-Made Structure	Not Recorded	No Gender Restrictions
14929	ALBERT ISLAND	Registered Site	Engraving	Not Recorded	No Gender Restrictions
14930	SOUTH MARET ISLAND	Registered Site	Man-Made Structure	Not Recorded	No Gender Restrictions
14934	WEST MONTALIVET ISLAND	Registered Site	Man-Made Structure,	Not Recorded	No Gender Restrictions

Place ID	Name	Status	Type	Region	Restriction
			Mythological, Painting		
14935	PRUDHOE ISLAND.	Registered Site	Ceremonial, Engraving, Mythological, Hunting Place	Not Recorded	No Gender Restrictions
14936	EAST MONTALIVET ISLAND	Registered Site	Man-Made Structure	Not Recorded	No Gender Restrictions
14937	EAST MONTALIVET ISLAND	Registered Site	Man-Made Structure	Not Recorded	No Gender Restrictions
14938	WOLLASTON ISLAND.	Registered Site	Mythological, Painting, Arch Deposit	Not Recorded	No Gender Restrictions
14939	KATERS ISLAND	Registered Site	Skeletal Material / Burial	Not Recorded	No Gender Restrictions
14940	CAPE VOLTAIRE	Registered Site	Mythological, Painting	Not Recorded	No Gender Restrictions
14952	CASSINI ISLAND	Lodged	Man-Made Structure	Not Recorded	No Gender Restrictions
14957	MITCHELL PLATEAU 4	Lodged	Midden / Scatter, Skeletal Material / Burial	East Kimberley	No Gender Restrictions
14959	PORT WARRENDER 1	Lodged	Man-Made Structure, Midden / Scatter, Other: Part of Failed PA 167	Not Recorded	No Gender Restrictions
14960	PORT WARRENDER 2	Registered Site	Modified Tree	Not Recorded	No Gender Restrictions
14961	CRYSTAL HEAD	Registered Site	Painting	Not Recorded	No Gender Restrictions
14962	CRYSTAL CREEK	Registered Site	Man-Made Structure, Midden / Scatter, Other: Part of Failed PA 157	Not Recorded	No Gender Restrictions
14963	LANGADUNGUR (LAWLEY R. 1)	Registered Site	Artefacts / Scatter, Grinding Patches / Grooves, Man-Made Structure, Midden / Scatter, Mythological, Painting	Not Recorded	No Gender Restrictions

Place ID	Name	Status	Type	Region	Restriction
14964	YARDIMALO (LAWLEY R. 2)	Registered Site	Artefacts / Scatter, Grinding Patches / Grooves, Man-Made Structure, Midden / Scatter, Mythological, Painting, Quarry, Other: Part of Failed PA 169	Not Recorded	No Gender Restrictions
14965	LAWLEY POINT (LAWLEY R. 5).	Registered Site	Artefacts / Scatter, Midden / Scatter, Mythological, Painting, Arch Deposit, Other: Part of Failed PA 169	Not Recorded	No Gender Restrictions
14971	BADANBIRI CLIFFS	Registered Site	Mythological	Not Recorded	No Gender Restrictions
14973	DIDJINA	Registered Site	Ceremonial, Engraving, Man-Made Structure, Mythological	Not Recorded	No Gender Restrictions
14974	KULU ISLAND/ HECLA ISLAND.	Lodged	Camp	Not Recorded	No Gender Restrictions
14975	GUBARO REEF	Registered Site	Ceremonial, Mythological	Not Recorded	No Gender Restrictions
14976	MONTGOMERY ISLANDS	Registered Site	Artefacts / Scatter, Man-Made Structure, Mythological, Painting, Skeletal Material / Burial	Not Recorded	No Gender Restrictions
14977	CHAMPAGNY ISLANDS	Registered Site	Man-Made Structure, Painting	Not Recorded	No Gender Restrictions
14978	CHAMPAGNY ISLAND	Lodged	Man-Made Structure	Not Recorded	No Gender Restrictions
14979	BYAM MARTIN ISLAND	Registered Site	Fish Trap	Not Recorded	No Gender Restrictions
14980	DECEPTION BAY	Registered Site	Painting	Not Recorded	No Gender Restrictions
14981	KURI BAY	Registered Site	Mythological, Painting	Not Recorded	No Gender Restrictions
14985	MANGANU	Registered Site	Mythological, Painting	Not Recorded	No Gender Restrictions

Place ID	Name	Status	Type	Region	Restriction
14986	PIRIALLU, ROGERS STRAIT	Registered Site	Engraving, Grinding Patches / Grooves, Painting	Not Recorded	No Gender Restrictions
14989	JACKSON ISLAND	Registered Site	Man-Made Structure, Painting	Not Recorded	No Gender Restrictions
14995	HANOVER BAY 1	Registered Site	Painting	Not Recorded	No Gender Restrictions
14996	HANOVER BAY 2	Registered Site	Painting	Not Recorded	No Gender Restrictions
15000	MARIGUI PROMONTORY	Registered Site	Painting	Not Recorded	No Gender Restrictions
15001	ST PATRICK ISLAND	Registered Site	Painting	Not Recorded	No Gender Restrictions
15322	POINT MURAT/WHITE OPAL	Registered Site	Artefacts / Scatter, Midden / Scatter	Not Recorded	No Gender Restrictions
16709	Hidden Island Burial Site	Registered Site	Skeletal Material / Burial	Not Recorded	No Gender Restrictions
17043	Limbingoon	Registered Site	Engraving, Named Place	Not Recorded	Male Access Only
17759	ORLG (CHILE CREEK)	Lodged	Fish Trap	Not Recorded	No Gender Restrictions
17761	NIIMANAN (SKELETON POINT)	Lodged	Fish Trap	Not Recorded	No Gender Restrictions
17762	JALALANGA AYIN	Lodged	Fish Trap	Not Recorded	No Gender Restrictions
17851	BALDWIN CREEK	Registered Site	Fish Trap	Not Recorded	No Gender Restrictions
17853	JOOMONYOON / EASTON POINT	Registered Site	Fish Trap	Not Recorded	No Gender Restrictions
17855	ARDNOGOON / SHENTON BLUFF	Registered Site	Fish Trap	Not Recorded	No Gender Restrictions
17857	MANGINGOOR / ELEPHANT POINT	Registered Site	Fish Trap	Not Recorded	No Gender Restrictions
17859	NILIL / RUMBLE BAY	Registered Site	Fish Trap	Not Recorded	No Gender Restrictions
17989	WOOLGOODDING / MIDLAGUN	Lodged	Mythological	Not Recorded	No Gender Restrictions
17990	MIDDLE LAGOON WELL	Lodged	Historical	Not Recorded	No Gender Restrictions
20247	Maddarr Site 1	Lodged	Fish Trap	West Kimberley	No Gender Restrictions

Place ID	Name	Status	Type	Region	Restriction
20248	Maddarr Site 2	Lodged	Fish Trap	West Kimberley	No Gender Restrictions
20250	Norman Creek Luggers Camp	Lodged	Historical	West Kimberley	No Gender Restrictions
20251	Norman Creek Midden (Luggers Camp)	Lodged	Midden / Scatter	West Kimberley	No Gender Restrictions
20252	SPB27 - Sandy Point Burial	Lodged	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial	West Kimberley	No Gender Restrictions
20253	SPB26 - Sandy Point Burial	Lodged	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial	West Kimberley	No Gender Restrictions
20254	SPB25 - Sandy Point Burial	Lodged	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial	West Kimberley	No Gender Restrictions
20255	SPB24 - Sandy Point Burial	Lodged	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial	West Kimberley	No Gender Restrictions
20256	SPB23 - Sandy Point Burial	Lodged	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial	West Kimberley	No Gender Restrictions
20257	SPB21 - Sandy Point Burial	Lodged	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial	West Kimberley	No Gender Restrictions
20258	SPB20 - Sandy Point Burial	Lodged	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial	West Kimberley	No Gender Restrictions
20259	SPB17 - Sandy Point Burial	Lodged	Historical, Skeletal Material / Burial	Pilbara	No Gender Restrictions
20260	SPB18 - Sandy Point Burial	Lodged	Midden / Scatter, Skeletal Material / Burial	Pilbara	No Gender Restrictions

Place ID	Name	Status	Type	Region	Restriction
20288	Sunday Island Mission Cemeteries	Registered Site	Historical, Skeletal Material / Burial	West Kimberley	No Gender Restrictions
20621	Bedout Island	Lodged	Mythological, Natural Feature, Other: Island	Pilbara	No Gender Restrictions
22059	K04-01 Goats Head Bluff	Lodged	Artefacts / Scatter, Rockshelter, Camp	West Kimberley	No Gender Restrictions
24152	Saltwater Country - reef sites and fish traps (Maret Island)	Lodged	Ceremonial, Fish Trap, Historical, Mythological, Rockshelter, Arch Deposit, Camp, Hunting Place, Meeting Place, Named Place, Natural Feature, Ochre, Plant Resource, Shell, Water Source	West Kimberley	No Gender Restrictions
24153	Jaradanyingga - Jaajaal	Lodged	Ceremonial, Historical, Quarry, Rockshelter, Arch Deposit, Camp, Hunting Place, Meeting Place, Named Place, Natural Feature, Ochre, Plant Resource, Shell, Water Source	West Kimberley	Other Restrictions
24575	Irvine Island Ledge Burial	Registered Site	Rockshelter, Skeletal Material / Burial	West Kimberley	Male Access Only
24759	Striated Stone (Stone in the valley)	Registered Site	Engraving	West Kimberley	No Gender Restrictions
24760	Irvine Island Rockshelter	Lodged	Artefacts / Scatter, Rockshelter, Arch Deposit	West Kimberley	No Gender Restrictions
24787	Lombadina 1	Lodged	Artefacts / Scatter, Man-Made Structure, Midden / Scatter, Camp, Shell	West Kimberley	No Gender Restrictions

Place ID	Name	Status	Type	Region	Restriction
24788	Gooljiman 2	Lodged	Artefacts / Scatter, Midden / Scatter, Camp, Shell	West Kimberley	No Gender Restrictions
30274	LSC11	Stored Data / Not a Site	Artefacts / Scatter, Ceremonial, Fish Trap, Midden / Scatter, Mythological, Quarry, Repository / Cache, Skeletal Material / Burial, Arch Deposit, Camp, Meeting Place, Named Place, Natural Feature, Ochre, Plant Resource, Shell, Water Source	West Kimberley	No Gender Restrictions
32446	Gardarlagun	Contact DPLH		West Kimberley	No Gender Restrictions
33491	One Tree Beach 01	Lodged	Artefacts / Scatter, Grinding Patches / Grooves, Midden / Scatter, Painting, Rockshelter, Arch Deposit, Shell	West Kimberley	No Gender Restrictions
33492	One Tree Beach 02	Lodged	Midden / Scatter, Painting, Rockshelter, Arch Deposit, Shell	West Kimberley	No Gender Restrictions
33495	One Tree Beach 05	Lodged	Artefacts / Scatter, Midden / Scatter, Painting, Rockshelter, Arch Deposit, Shell	West Kimberley	No Gender Restrictions
33503	Stone Bone Yard 01	Lodged	Artefacts / Scatter, Grinding Patches / Grooves, Painting, Rockshelter,	West Kimberley	No Gender Restrictions

Place ID	Name	Status	Type	Region	Restriction
			Arch Deposit, Shell		
33526	Kimberley Coastal Camp 01	Lodged	Artefacts / Scatter, Grinding Patches / Grooves, Painting, Rockshelter, Arch Deposit, Shell	West Kimberley	No Gender Restrictions
36234	South End structures, Barrow Island.	Lodged	Historical, Man-Made Structure	Not Recorded	
36532	Djarindjin Law Ground	Registered Site	Ceremonial, Mythological	West Kimberley	Male Access Only
38304	Lunganana Trepanging Site	Registered Site	Artefacts / Scatter, Man-Made Structure, Midden / Scatter	East Kimberley	
38305	Klembei	Registered Site	Artefacts / Scatter, Man-Made Structure, Midden / Scatter	East Kimberley	
39191	Warnangura (Cape Range) Cultural Precinct	Lodged	Artefacts / Scatter, Ceremonial, Engraving, Midden / Scatter, Mythological, Rockshelter, Named Place, Water Source	Pilbara	No Gender Restrictions

Appendix F Consideration of the Indirect Consequences under Section 527E of the EPBC Act

In accordance with subsection 75(2) of the EPBC Act, the Minister (or delegate) responsible for administering the EPBC Act considers 'all adverse impacts (if any)' the action has, will have, or is likely to have on protected matters when deciding whether an action is a controlled action.

Consistent with the provisions outlined in section 527E(1) of the EPBC Act, an event or circumstance is an 'impact' of an action taken by a person if it meets these criteria:

- (a) the event or circumstance is a direct consequence of the action; or
- (b) for an event or circumstance that is an indirect consequence of the action—subject to subsection 527E(2), the action is a substantial cause of that event or circumstance.

In respect to section 527E(1)(b), events/circumstances that are a result of actions taken by a third party (called a 'secondary action'), such as those arising in the context of scope 3 greenhouse gas emissions, will only be an indirect consequence of the action (called the 'primary action') where:

- The action is a substantial cause of the event or circumstance; and
- The primary action facilitates the secondary action to a major extent; and
- Both the secondary action and event/circumstance are either within the contemplation of the proponent of the primary action or are a reasonably foreseeable consequence of the primary action.

Shell has considered the potential for 'indirect consequences' to arise in relation to the development and specifically the petroleum activity that is the subject of this EP.

For an event or circumstance to be an indirect consequence of a petroleum activity, the petroleum activity must be demonstrated as:

- A substantial cause of that event or circumstance (section 527E(1)(b)); and
- Facilitating, to a major extent, the action taken by the third party (as further explained in section 527E(2)).

In the context of this EP, the scope of relevant petroleum activity is limited to the Crux Development drilling activities, excluding the construction, commissioning and operation of other facilities necessary for hydrocarbon production and transportation. Therefore, sections 527E(1)(b) and (2) do not apply for these reasons:

- Gas or condensate recovery does not occur as a direct result of the installation activities under this EP. Subsequent petroleum activities, subject to authorisation under the OPGGS(E) Regulations, are necessary before any gas or condensate is capable of being recovered.
- The petroleum activities (installation and cold commissioning) under this EP do not reasonably facilitate gas consumption/combustion. Even if some kind of facilitation could be observed, installation activities cannot reasonably be characterised as an important or majority facilitator of that action. These activities are multiple steps removed from being characterised as primary actions in relation to a secondary action involving gas consumption/combustion.
- A chain of events must precede and follow the recovery of resources (i.e. gas and condensate) before any consumption or combustion by a third party occurs.

In this context, Shell has concluded that development drilling activities do not facilitate, to a major extent, gas/condensate consumption or combustion and this petroleum activity is not a substantial cause of any associated scope 3 greenhouse gas emissions.

At a later stage, Shell will submit an EP to extract, produce and transport the gas and condensate. Shell cannot extract natural gas from the development wells until these petroleum activities have been assessed, have met the criteria in Regulation 10A of the OPGGS(E) Regulations and NOPSEMA has accepted the EP.

The causal relationship between production operations petroleum activities and consumption or combustion of gas by a third party is different in those circumstances. Shell will consider indirect consequences when developing the future production operations EP.