


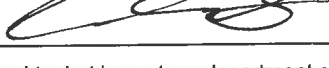


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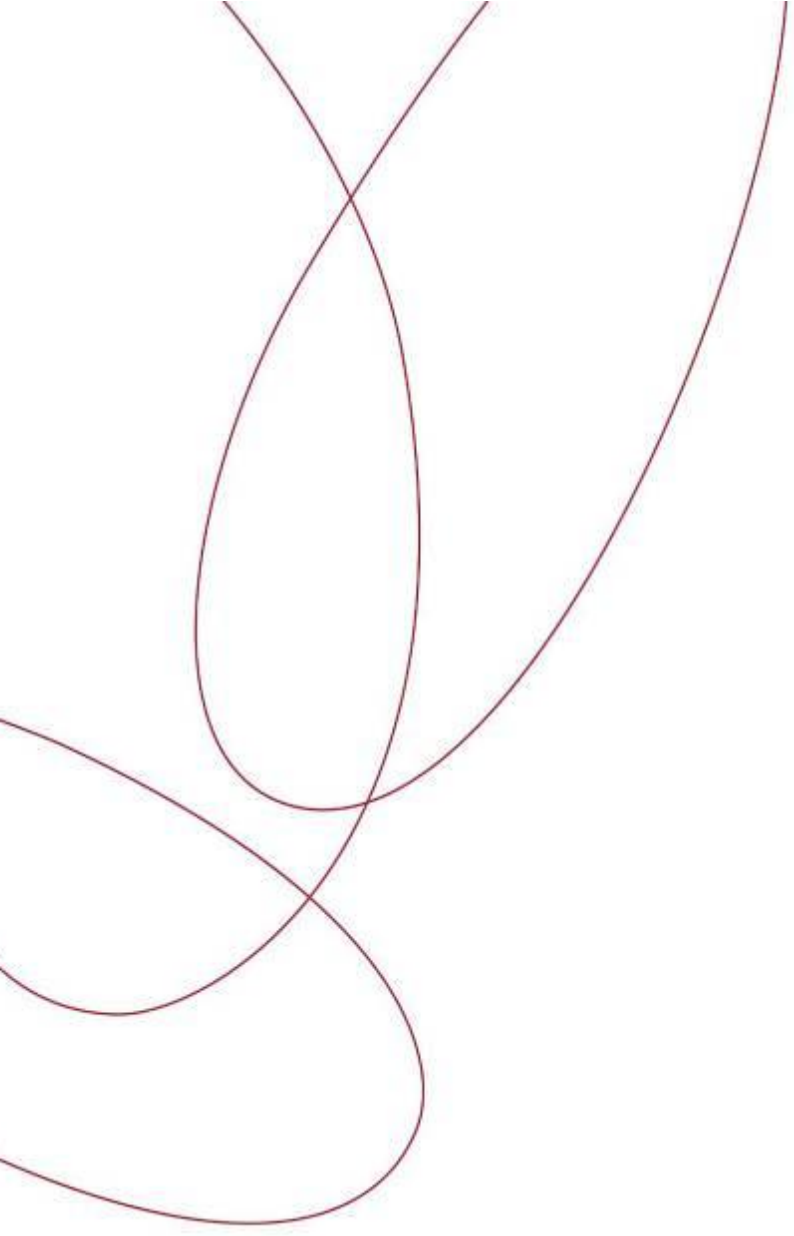
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## **WA-34-L Infill Drilling and Activities Environment Plan Summary**

**Development Division**

Revision 0

April, 2015

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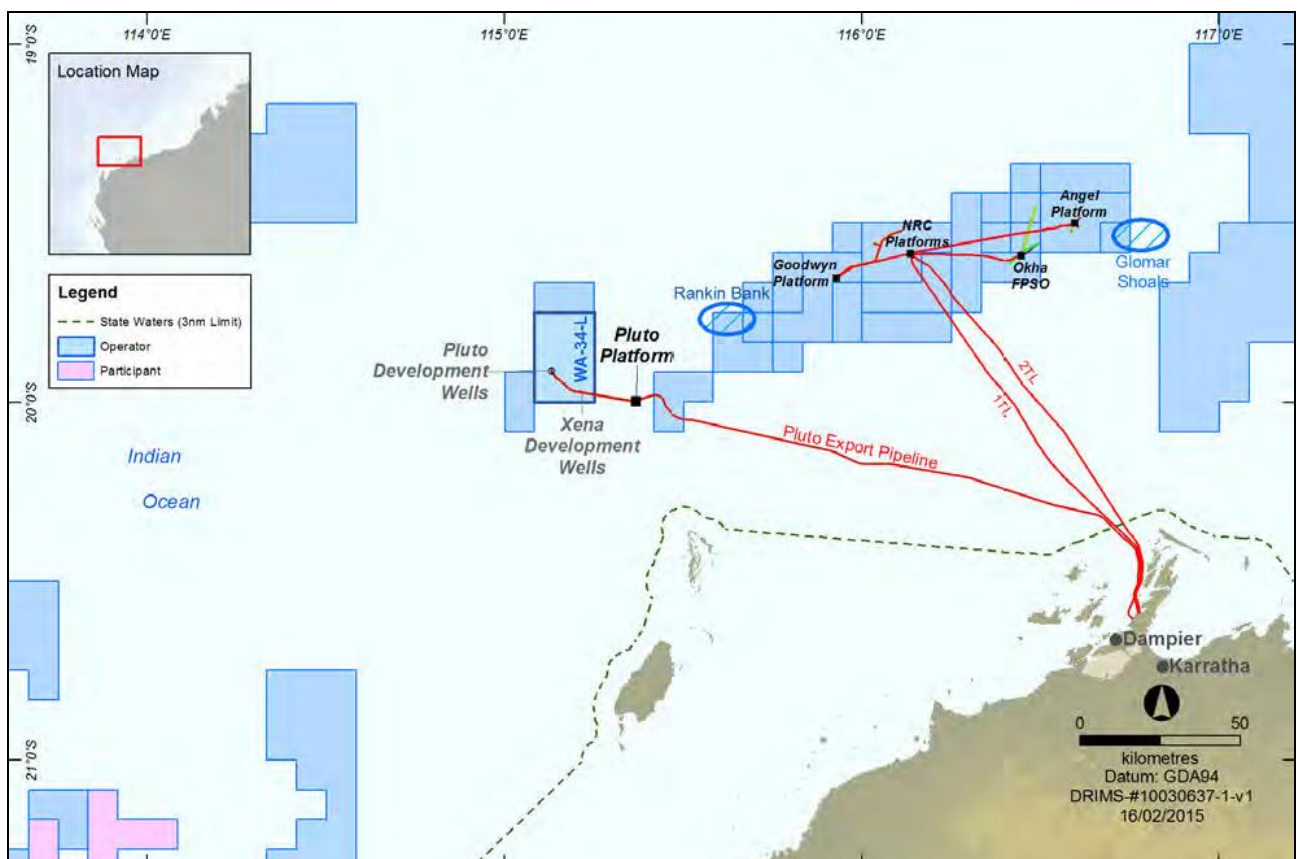
## 1. INTRODUCTION

Woodside Burrup Pty Ltd (Woodside), as nominated Titleholder (on behalf of a Joint Venture comprising Woodside Burrup Pty Ltd, Tokyo Gas Pluto Pty Ltd and Kansai Electric Power Australia Pty Ltd), under the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth)* (referred to as the Environment Regulations), proposes to undertake drilling of development wells and associated subsea installation and commissioning, enabling hydrocarbons to be produced through the existing nearby Pluto field flowlines. This project is known as the Pluto and Xena Field Development, and hereafter referred to as the Petroleum Activities Program.

This Environment Plan (EP) Summary has been prepared to meet the requirements of Regulation 11(3) and 11(4) under the Environment Regulations, as administered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). This document summarises the WA-34-L Infill Drilling and Activities Environment Plan, accepted by NOPSEMA under Regulation 10A of the Environment Regulations.

## 2. LOCATION OF THE ACTIVITY

The Petroleum Activities Program is located in production licence WA-34-L in Commonwealth waters approximately 175 km north west of Dampier (**Figure 2-1**). The coordinates of the proposed wells and approximate water depth are shown in **Table 2.1**.



**Figure 2-1: Location of Petroleum Activities Program**

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**Table 2.1: Preliminary coordinates and water depth for the Petroleum Activities Program within WA-34-L**

| Well Name                                                             | Water Depth (~m) | Latitude Longitude                 |                                      |
|-----------------------------------------------------------------------|------------------|------------------------------------|--------------------------------------|
|                                                                       |                  | GDA 94 MGA Zone 50                 |                                      |
| PLA01 well                                                            | 830 m            | 304 443.91 m E                     | 7 796 985.50 m N                     |
| PLA02 well                                                            | 830 m            | 304 433.50 m E                     | 7 797 015.97 m N                     |
| PLA03 well                                                            | 830 m            | 304 451.34 m E                     | 7 797 016.96 m N                     |
| PLA04 well                                                            | 830 m            | 304 481.52 m E                     | 7 797 006.04 m N                     |
| XNA01 well                                                            | 180 m            | 312 994 m E                        | 7 790 794 m N                        |
| PLA06 well                                                            | 830 m            | 304 475.12 m E                     | 7 797 002.28 m N                     |
| PLA07 well                                                            | 830 m            | Within 250 m of<br>304 475.12 m E  | Within 250 m of<br>7 797 002.28 m N  |
| PLA08 well                                                            | 830 m            | Within 250 m of<br>304 475.12 m E  | Within 250 m of<br>7 797 002.28 m N  |
| XNA02 well                                                            | 180 m            | Within 250 m of<br>312 994 m E     | Within 250 m of<br>7 790 794 m N     |
| Installation and pre-commissioning of new Pluto Subsea Infrastructure | 830 m            | Within 1.5 km of<br>304 475.12 m E | Within 1.5 km of<br>7 797 002.28 m N |
| Installation and pre-commissioning of new Xena subsea infrastructure  | 180 m            | Within 1.5 km of<br>312 994 m E    | Within 1.5 km of<br>7 790 794 m N    |

An Operational Area will be implemented around the well locations. The Operational Area defines the spatial boundary of the Petroleum Activities Program that will be managed under the EP. For a dynamically positioned (DP) drill rig/drillship, the Operational Area encompasses a radius of 500 m from the well centre. If a moored drill rig/drillship undertakes the drilling program, the Operational Area comprises a radius of 2500 m from the well centre, to allow for the installation of moorings. A radius of 1500 m around subsea installation locations has been defined as the area in which subsea installation and pre-commissioning petroleum activities will take place, allowing for the movement and positioning of large vessels and the management of lifting activities at a safe distance from existing subsea infrastructure.

Transit to and from the Operational Area by support vessels and drill rig/drillship; and port activities associated with the support vessels, is not within the scope of the EP.

### 3. DESCRIPTION OF THE ACTIVITY

Woodside intends to further develop and produce hydrocarbons from the Pluto and the Xena gas fields in permit area WA-34-L as part of the Pluto and Xena Field Development Plan. To achieve this, Woodside plans to undertake the following key activities.

Key activities are as follows:

- Development drilling, completions and testing (unloading) of four new wells (PLA06, PLA07, PLA08 and XNA02);
- Tie-in to existing subsea infrastructure;
- Pre-commissioning of the new subsea infrastructure; and

- Contingent intervention, workover, sidetrack or re-drill of existing wells (PLA01, PLA02, PLA03, PLA04 and XNA01) and new wells (PLA06, PLA07, PLA08 and XNA02). Formation evaluation may include cores, wireline logging and vertical seismic profiling (VSP) as required.

Development wells will be drilled by either a semi-submersible drill rig/drillship that is moored or operates under DP, or a DP drillship, with associated support vessels. Drill cuttings generated during drilling of the top hole sections will be discharged at the seabed. For the bottom hole sections, once the marine riser has been installed, drill cuttings will be returned to the drill rig and discharged at the sea surface below the water line.

Both water based muds (WBM) and non-water based muds (NWBM) will be used during the drilling activities associated with the Petroleum Activities Program. A drilling fluids system for the intervention, workover, sidetrack or re-drill of existing Pluto and Xena wells (PLA01, PLA02, PLA03, PLA04 and XNA01) is yet to be confirmed.

### 3.1 Timing of the Activities

The proposed Petroleum Activities Program is scheduled to commence in 2015 with the drilling of PLA06 well taking approximately 60 days. A further three wells (PLA07, PLA08 and XNA02) will be drilled within the 5 year period<sup>1</sup> of the EP. Each of these wells will also take approximately 60 days. Installation of subsea hardware and flowlines, and pre-commissioning will commence on completion of the drilling of PLA07 and PLA08 wells, and is expected to take a total of approximately 100 days. The schedule and timeframe may be subject to change due to operational requirements and external influences such as drill rig/drillship availability, weather conditions and oceanic conditions. The EP has risk assessed the drilling of the wells throughout the year (all seasons) to provide operational flexibility for the drill rig/drillship schedule changes and availability.

## 4. DESCRIPTION OF THE RECEIVING ENVIRONMENT

### 4.1 Physical

The Operational Areas are located in Commonwealth waters of the North West Shelf (NWS) province, approximately 175 km north-west of Dampier and in water depths of approximately 180 to 830 m.

The NWS province is part of the wider North West Marine Region (NWMR) as defined under the Integrated Marine and Coastal Regionalisation of Australia (IMCRA v4.0). The NWS province encompasses the continental shelf between North West Cape and Cape Bougainville, and varies in width from approximately 50 km at Exmouth Gulf to greater than 250 km off Cape Leveque.

The climate in the region of the NWMR is dry tropical, exhibiting a hot summer season from October to April and a milder winter season between May and September. The climate within the NWS province is characterised by dry tropics to the south and humid tropics to the north. Strong seasonal winds and moderate off-shore tropical cyclone activity are prevalent.

Water circulation in the NWS province and permit area is dominated by the Indonesian Throughflow (ITF) via the Eastern Gyre. During the summer when the ITF is weaker, south-west winds cause intermittent reversals in currents. These events may be associated with occasional weak, shelf upwellings. Tides in the NWS province are semi-diurnal and have a pronounced spring-neap cycle, with tidal currents flooding towards the south-east and ebbing towards then north-west

The bathymetry of the NWMR is characterised by four distinct zones: the inner continental shelf (0 – 30 m), the middle continental shelf (30 – 120 m), the outer shelf/continental slope (occurs at approximately 120 m) and the abyssal plain (occurs beyond the shelf break). The Petroleum Activities Program is located on the continental shelf where the seabed slopes steeply in a north-west south-east direction. The planned XNA02 development well and existing Xena well (XNA01) are located within the Xena field, adjacent to the Pluto field in waters approximately 180 m deep. The planned Pluto development wells (PLA06, PLA07 and PLA08) and existing Pluto wells (PLA01, PLA02, PLA03, PLA04) are located within the Pluto field, in waters approximately 830 m deep.

<sup>1</sup> Subject to Joint Venture Partner approval



There are a number of geomorphic features of note in the deeper water, offshore environment including the Exmouth Plateau, a regionally and nationally unique deep-sea plateau listed as one of the Key Ecological Features (KEFs) from the *Environment Protection and Biodiversity Conservation Act 1999 (Cth)* (EPBC Act) Protected Matters Search Report. The deepwater plateau feature is thought to modify water flow at depth and contribute to upwelling events, which in turn are important in the ecological activity and functionality of this offshore environment.

Seabed composition features of the Petroleum Activities Program area consist of soft sand and silt sediments on the continental slope, hard substrate areas at 1000m depth where the continental slope meets the abyssal plain, mudstone outcrops at 900 to 1000 m, and a field of rock pinnacles at 200 to 500 m depth on the continental slope within the Pluto Gas Field.

## 4.2 Biological

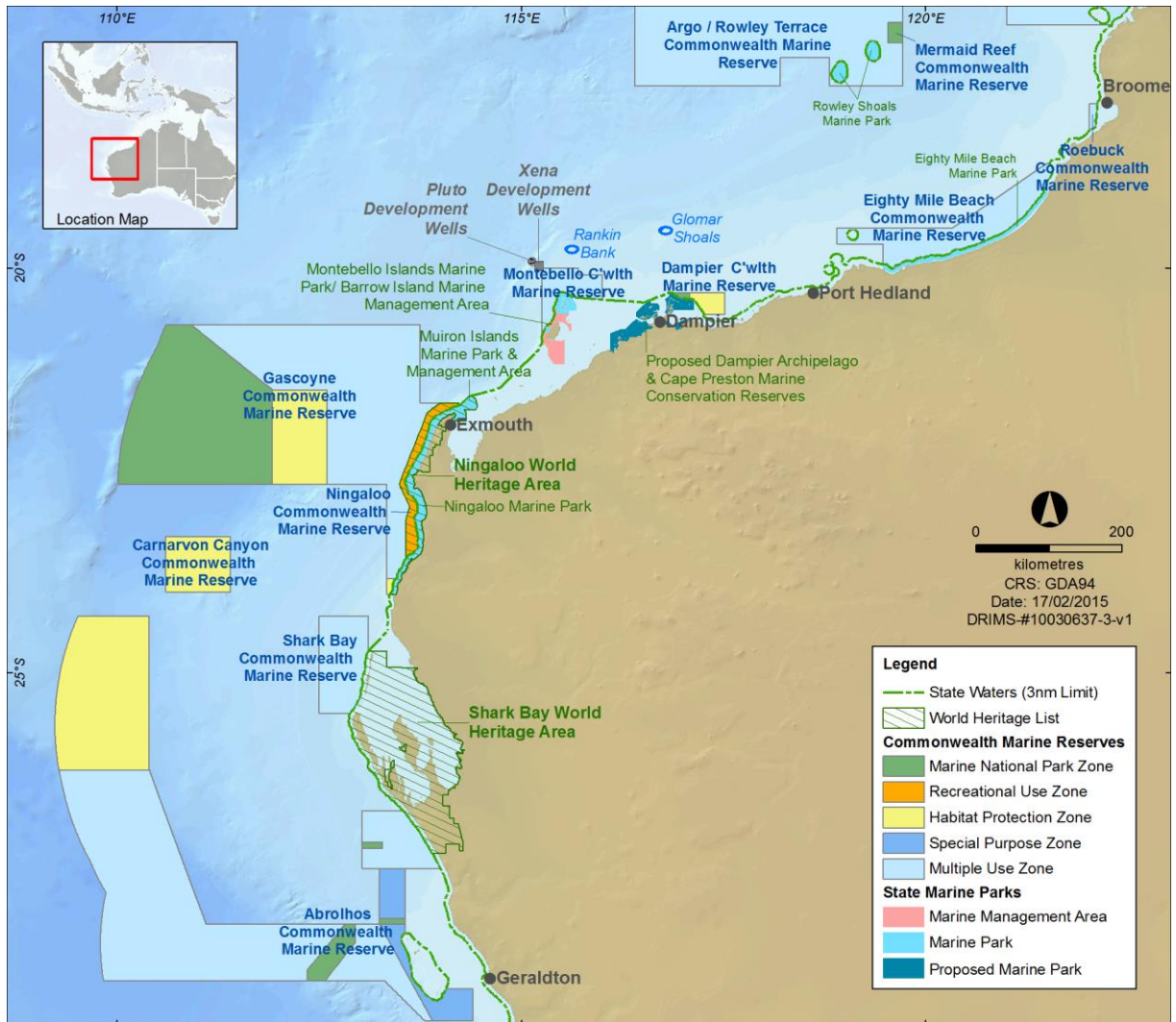
The offshore environment of the NWS Province contains environmental assets/receptors of high value or sensitivity, including habitats and species within Commonwealth offshore waters and coastal waters such as the Montebello/Barrow Island group. Furthermore, the region is noted for its resident, temporary or migratory marine fauna, including EPBC Act listed species such as marine mammals, turtles and birds. The marine environment of these offshore locations is pristine and many sensitive receptor locations are protected as part of Commonwealth and State managed areas.

The Petroleum Activities Program is located 5 km from the Montebello Commonwealth Marine Reserve (CMR) and 47 km from the Montebello Islands Marine Park / Barrow Island Marine Management Area (**Figure 4-1**). Two KEFs (the Ancient coastline at 125 m depth contour, and Continental Slope Demersal Fish Communities) were identified within the WA-34-L licence area. The locations of the proposed new and existing wells do not directly interact with the Ancient coastline or Continental Slope demersal fish habitat. Additionally, four KEFs occur within the nearfield and wider region (Commonwealth waters adjacent to Ningaloo Reef, Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula; Exmouth Plateau; and Glomar Shoals). Values and sensitivities of the established and proposed marine protected areas and other sensitive areas in the wider regional setting (potentially affected by the loss of hydrocarbons) are listed in **Table 4.1**.

**Table 4.1: Summary of Established and Proposed Marine Protected Areas (MPAs) and other Sensitive Locations**

|                                                                                         | <b>Distance from Petroleum Activities Program to MPA boundaries (km)</b> | <b>IUCN Protected Area Category</b>                                                     |
|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <b>Commonwealth Marine Reserves (CMR)</b>                                               |                                                                          |                                                                                         |
| Montebello Commonwealth Marine Reserve                                                  | 5 km                                                                     | VI – Multiple Use Zone                                                                  |
| Gascoyne Commonwealth Marine Reserve                                                    | 173km                                                                    | II – Marine National Park Zone<br>IV – Habitat Protection Zone<br>VI- Multiple use Zone |
| Dampier Commonwealth Marine Reserve                                                     | 180 km                                                                   | II – Marine National Park Zone<br>VI –Special Purpose Zone (ports)                      |
| Ningaloo Reef – World Heritage Area and Commonwealth Marine Reserve                     | 214 km                                                                   | IV – Recreational Zone<br>*refer to Ningaloo Marine Park                                |
| Shark Bay Commonwealth Marine Reserve                                                   | 526 km                                                                   | VI – Multiple Use Zone                                                                  |
| Shark Bay World Heritage Area                                                           | 562 km                                                                   | Zoning within State Marine Park (II- Marine National Park Zone and Ia – Sanctuary Zone) |
| <b>State Marine Parks, Nature Reserves and Marine Management Areas</b>                  |                                                                          |                                                                                         |
| <b>Established</b>                                                                      |                                                                          |                                                                                         |
| Montebello Islands Marine Park / Barrow Island Marine Management Area (jointly managed) | 47 km                                                                    | IA – Sanctuary Zone                                                                     |
| Lowendal Islands Nature Reserve                                                         | 75 km                                                                    | IA – Sanctuary Zone                                                                     |
| Muiron Islands Marine Management Area*                                                  | 198 km                                                                   | IA – Sanctuary Zone (islands)<br>II – Marine National Park Zone                         |
| Ningaloo Marine Park*                                                                   | 198 km                                                                   | IA – Sanctuary Zone<br>II – Marine National Park                                        |
| <b>Proposed</b>                                                                         |                                                                          |                                                                                         |
| Dampier Archipelago Marine Park                                                         | 180 km                                                                   | N/A                                                                                     |
| <b>Other</b>                                                                            |                                                                          |                                                                                         |
| Rankin Bank                                                                             | 49.5 km                                                                  | N/A                                                                                     |
| Northern, Middle and Southern Islands Group                                             | 125 – 142.5 km                                                           | Island Nature Reserves – Ia Sanctuary Zones                                             |
| Glomar Shoals                                                                           | 173 km                                                                   | N/A                                                                                     |
| Exmouth Gulf                                                                            | Gulf SE – 220km<br>Gulf W – 235km                                        | N/A                                                                                     |

\* Muiron Islands (Marine Management Area) is managed under the same management plan as the State Reserve of Ningaloo (MPRA 2005)



**Figure 4-1: Established and Proposed Commonwealth and State Marine Protected Areas in relation to the Petroleum Activities Program**

**Habitats**

No Critical Habitats or Threatened Ecological Communities, as listed under the EPBC Act, are known to occur within the permit area.

*Benthic Habitats in the Permit Area*

Sea floor communities in deeper shelf waters receive insufficient light to sustain ecologically sensitive primary producers such as seagrasses, macroalgae or *zooxanthellate scleractinian* (reef building) corals. Given the depth of water of the permit area (ranging from approximately 180 to 830 m), these benthic primary producer groups are unlikely to occur. Infauna associated with soft unconsolidated sediments of the WA-34-L licence area is widespread and well represented along the continental shelf and upper slopes in the NWS region. Given that habitat is known to be contiguous across the region, the benthic habitat within the Operational Areas is considered to be of relatively low environmental sensitivity.

Epifaunal sled surveys carried out in the vicinity of the Pluto Platform, in water depths of up to 800 m, most commonly identified deep-water cnidarians, crustaceans (mostly decapods), bony fish and sponges. Urchins, seastars and brittlestars were also frequently recorded and it was noted that some epifaunal groups showed variation in abundance with depth.

Additional deep water benthic habitats observed in the vicinity of the WA-34-L licence area include rock pinnacles that provide habitat for fish, shrimp, hydroids and anemones. Anemones and fish were

observed in deep sloping areas (approximately 1000 m deep) among the cliff-like features where sediment had accumulated, but no epifauna was observed on exposed rock. At approximately 900 to 1000 m, mudstone outcrops were dominated by glass sponges.

#### *Habitats in the Wider Region*

The wider region, including the Montebello Islands, Barrow Island, Dampier Coast, Ningaloo Reef, Shark Bay and other sensitive areas such as Rankin Bank and Glomar Shoals, comprise important benthic primary producer habitats such as coral reefs, seagrass beds and macroalgae communities, and mangroves. Coral reefs habitats have a high diversity of corals and associated species of both commercial and conservational importance, and are an integral part of the marine environment. Seagrass beds represent a key food source for many species and provide key habitats and nursery grounds, and mangrove habitats provide complex structural habitats as well as nurseries and feeding sites for many marine species.

#### *Resident/Demersal fish populations*

Fish communities in the region comprise small and large pelagic fish as well as demersal species. Large pelagic fish include commercially targeted species such as skipjack tuna, blue marlin and broadbill swordfish. The WA-34-L licence area Protected Matters Search Report identified the Continental Slope Demersal Fish Communities as a KEF in the region. Diversity of demersal fish assemblages on the continental slope between North West Cape and the Montebello Trough is the highest in Australia (>500 species of which 76 are endemic). Demersal fish species occupy two distinct demersal community types (biomes) associated with the upper continental slope (water depth of 225 to 500 m) and the mid continental slope (750 to 1000 m). A total of 500 finfish species from 234 genera and 86 families have been recorded within the Ningaloo Marine Park and 393 species at study sites of the Muiron Islands.

#### **Species**

A total of 54 EPBC Act listed marine species were identified as potentially occurring within the permit area. Of those listed, 11 are considered threatened marine species and 18 migratory species under the EPBC.

#### *Permit Area*

In the permit area, pygmy blue whales (*Balaenoptera musculus brevicauda*) are likely to occur during their migration north and south. Additionally transitory humpback whales (*Megaptera novaeangliae*) may traverse the permit area between June and October. The presence of humpback whales is likely to be a remote occurrence and limited to a few individuals transiting WA-34-L during June, July and August for the northern migration. The permit area may be visited by other cetacean species, but it is likely to be infrequent and of a transitory nature.

There are five species of marine turtle listed as endangered or vulnerable and migratory. These are the loggerhead turtle (*Caretta caretta*), green turtle (*Chelonia mydas*), leatherback turtle (*Dermochelys coriacea*), hawksbill turtle (*Eretmochelys imbricata*) and the flatback turtle (*Natator depressus*). With consideration of the distance offshore (approximately 50 km north-west of the Montebello Islands at its closest point), depth range of the offshore waters of the Operational Area (approximately 180 – 830 m), and absence of potential nesting or foraging sites (i.e. no emergent islands, reef habitat or shallow shoals) the Operational Areas are not considered an important habitat for marine turtles.

The protected matters search highlighted 13 species of sea snake listed under the EPBC Act may occur within the Operational Areas. It is considered that sea snake sightings will be infrequent and likely comprise a few individuals within the Operational Areas.

Six shark/ ray species (three listed as vulnerable and/or migratory) are identified as potentially occurring within the permit area. These are the whale shark (*Rhincodon typus*), grey nurse shark (*Carcharias taurus*), great white shark (*Carcharodon carcharias*), shortfin mako (*Isurus oxyrinchus*), longfin mako (*Isurus paucus*) and giant manta ray (*Manta birostris*). Whale sharks may traverse the vicinity of the Operational Areas during their migrations to and from Ningaloo Reef, however, it is expected that whale shark presence within the area would be of a relatively short duration and not of significant numbers.

The permit area may be occasionally visited by migratory and oceanic birds, including the Endangered Southern Giant-Petrel (*Macronectes giganteus*), but does not contain critical habitats (roosting, nesting or feeding) for any species.

#### Wider Region

The Antarctic Minke whale (*Balaenoptera bonaerensis*), Bryde's whale (*Balaenoptera edeni*) and Sperm whale (*Physeter macrocephalus*) migrate up the West Australian coast, however their frequency within the Operational Areas is likely to be a remote occurrence and limited to a few individuals transiting the area. Dugong populations have been identified in Ningaloo Marine Park and Exmouth Gulf, however the occurrence of dugongs in the Operational Area is considered unlikely due to lack of seagrass habitat and the water depth.

Four of the EPBC listed turtle species (green, loggerhead, flatback and hawksbill) have significant nesting beaches along the mainland coast and islands in the region including the Montebello Islands, Barrow Island Dampier Archipelago, Muiron Islands, the North West Cape and Ningaloo Reef. With consideration of the distance offshore (approximately 50 km north-west of the Montebello Islands at its closest point), depth range of the offshore waters of the Operational Areas (approximately 180 – 830 m), and absence of potential nesting or foraging sites (i.e. no emergent islands, reef habitat or shallow shoals) the Operational Areas are not considered an important habitat for marine turtles.

Whale sharks are known to aggregate annually (from March to July) in areas off Ningaloo and North West Cape and these areas are also important for manta rays in autumn and winter.

The Montebello Islands (approximately 50 km south-west of the closest point of the Operational Areas) and the islands of the Dampier Archipelago (approximately 135 km to the closest point of the Operational Areas) are important seabird and shorebird nesting and foraging habitats. The Operational Areas may be occasionally visited by migratory shorebirds, but it does not contain critical habitats for any species.

### 4.3 Socio-Economic and Cultural

There are no known sites of Indigenous or European cultural or heritage significance, or historic shipwrecks, within the vicinity of WA-34-L.

A search of the Department of Aboriginal Affairs (DAA) Heritage Inquiry System (<http://maps.dia.wa.gov.au/AHIS2/>) indicated that there are numerous registered sites, including middens, burial, ceremonial, mythological and engraving sites recorded along the coastal area, including Dampier Archipelago, Ningaloo Reef and the Montebello Islands.

A search of the National Shipwreck Database (Department of Environment 2014i) indicated that there are no known historic shipwrecks within or immediately adjacent to the WA-34-L licence area.

A number of Commonwealth and State fisheries are located within, adjacent to, or in the region of the permit area. None of these fisheries have significant catches within or adjacent to the permit area except the North West Slope Trawl Fishery; however the Operational Areas are located in a 'closed to fishing' area of the fishery.

Commonwealth fisheries operating within the permit area include the North West Slope Trawl Fishery, Western Tuna and Billfish Fishery, Southern Bluefin Tuna Fishery and the Western Skipjack Tuna Fishery. The majority of fishing effort for these fisheries occurs outside of the permit area. The Western Deepwater Trawl Fishery operates in the region, however no fishing effort was recorded in the permit area between 2000 and 2008 (Department of Agriculture, Fisheries and Forestry 2010), with most of the effort south of North West Cape.

The West Australian Mackerel Fishery, North Coast Demersal Scalefish Fisheries (comprised of the Pilbara Trawl, Trap and Line Fisheries) and the Onslow Prawn Managed Fishery are the only State fisheries operating within the permit area. The Onslow Prawn Managed Fishery, Exmouth Gulf Prawn Managed Fishery, Pearl Oyster Managed Fishery, Gascoyne Demersal Scalefish Fishery, Shark Bay Scallop Managed Fisheries, and West Coast Rock Lobster Fishery operate in the region. There are no aquaculture activities within or adjacent to the permit area.

There are no designated traditional, or customary, fisheries recorded within or adjacent to the permit area as these are typically restricted to shallow coastal waters and/or areas with structure such as reef. However, it is recognised that Ningaloo Reef and the adjacent foreshore have a long history of

occupancy by Indigenous communities. Areas that are covered by registered native title claims are likely to practice indigenous fishing techniques at various sections of the Western Australian coast line.

No known tourism activities take place specifically within or adjacent to the permit area, however, the wider regional context includes recreational beaches and tourist spots. The Montebello Islands are the closest location for tourism to the WA-34-L licence area with some charter boat operators taking visitors to these remote islands. Many areas along the coast are popular and support recreational activities such as boating, diving, sightseeing, swimming, fishing and wildlife viewing. Tourism is one of the major industries of the North West Cape area and contributes significantly to the local economy, in terms of both income and employment. The Ningaloo World Heritage Area (WHA) represents the focus of much of the tourism activity in this region. Visitors to the WHAs are drawn to these areas for their natural beauty, aesthetic importance and conservation areas for biological habitats. The Ningaloo Coast WHA is recognised as being of outstanding conservation value, supporting a rich array of habitats and marine life. The dominant feature of the Ningaloo Coast WHA is Ningaloo Reef, the largest fringing reef in Australia. Ningaloo Reef supports both tropical and temperate species of marine fauna and flora and more than 300 species of coral.

The region supports significant commercial shipping activity, the majority of which is associated with the oil and gas industry. Major shipping routes in the area are associated with entry to the ports of Dampier and Barrow Island.

The vicinity of the Operational Areas contains the Pluto gas field, from which Woodside is currently producing gas at the Pluto Platform (approximately 20 km east of the Xena Operational Area). As such, there is significant subsea infrastructure in the area, including subsea wellheads, subsea umbilicals and flowlines.

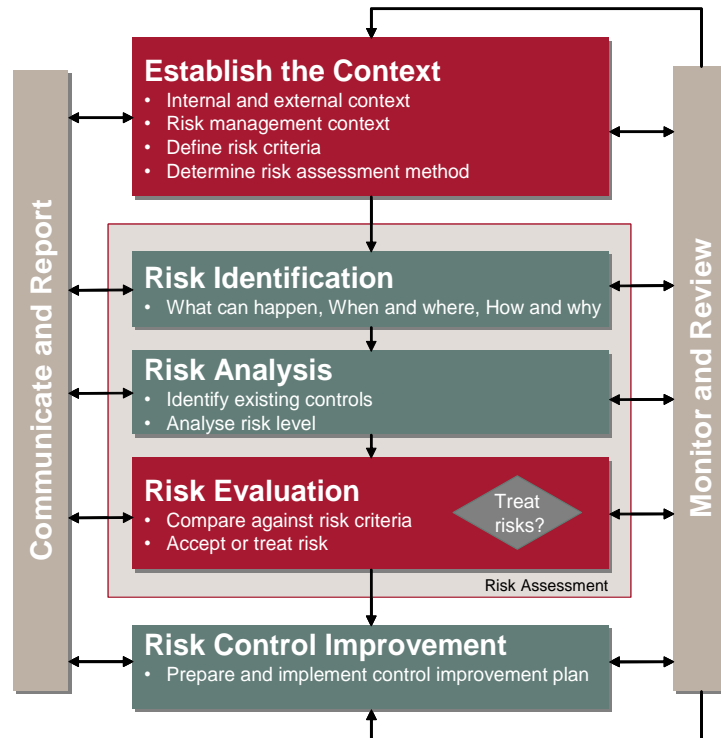
There are designated defence practice areas in the offshore marine waters off Ningaloo and the North West Cape. The Operational Areas overlap with the northern tip of one of the defence practice areas. Consultation with Defence confirmed that there was no objection to the proposed activities.

## 5. ENVIRONMENTAL IMPACTS AND RISKS

### 5.1 Risk Identification and Evaluation

Woodside undertook an environmental risk assessment to identify the potential environmental impacts and risks associated with the Petroleum Activities Program and identification of the control measures to manage the identified environmental impacts and risks to as low as reasonably practicable (ALARP) and an acceptable level. This risk assessment and evaluation was undertaken using Woodside's Risk Management Framework.

The key steps of Woodside's Risk Management Framework are shown in **Figure 5-1**. A summary of each step, and how it is applied to the Petroleum Activities Program is provided below.



**Figure 5-1: Key steps in Woodside's Risk Management Framework**

**1. Establish the Context**

The objective of a risk assessment is to identify risks and associated impacts of an activity, so that they can be assessed and appropriate control measures applied (see Step 3) to eliminate, control or mitigate the risk to ALARP and to determine if the risk is acceptable.

Environmental Hazard identification (ENVID) workshops aligned with NOPSEMA's Hazard Identification Guidance Note (N-04300-GN0107) were undertaken by multidisciplinary teams made up of relevant personnel with sufficient breadth of knowledge, training and experience to reasonably assure that risks and associated impacts were identified and assessed.

**2. Risk Identification**

The purpose of an ENVID workshop for the Petroleum Activities Program is to understand the level of risk exposure a given activity presents to the environment. The ENVID was used to identify risks with the potential to harm the environment. Risks were identified for both planned (routine and non-routine) and unplanned (accidents/incidents) activities. Potential environmental impacts are then determined based on the stressor type.

**3. Risk Analysis (Decision Support Framework)**

Risk analysis further develops the understanding of a risk. Risk analysis for the Petroleum Activities Program considered previous risk assessments for the facility, review of relevant studies, review of past performance, external stakeholder consultation feedback and review of the existing environment.

To support the risk assessment process, Woodside applied the UKOOA (1999) Industry Guidelines on a Framework for Risk Related Decision Support (HS006) during the ENVID workshops to determine the level of supporting evidence that may be required to draw sound conclusions regarding risk level and whether the risk is acceptable and ALARP.

This is to confirm:

- Activities do not pose an unacceptable environmental risk

- Appropriate focus is placed on activities where the risk is anticipated to be tolerable and demonstrated to be ALARP
- Appropriate effort is applied to the management of risks based on the uncertainty of the risk, the complexity and risk rating.

#### **Identification of Control Measures**

Woodside applies a hierarchy of control measures when considering Good Practice and Professional Judgement. The hierarchy of control is applied in order of importance as follows; elimination, substitution, engineering control measures, administrative control measures and mitigation of consequences/impacts.

#### **Risk Rating Process**

The risk rating process is undertaken to assign a level of risk to each impact measured in terms of consequence and likelihood. The assigned risk level is the residual risk (i.e. risk with controls in place) and is therefore, determined following the identification of the decision type and appropriate control measures.

The Consequence Level is selected by determining the worst case credible outcomes associated with the selected event assuming some controls (prevention and mitigation) have failed. Where more than one impact applies (e.g. environmental and legal/compliance), the consequence level for the highest severity impact is selected. The Likelihood Level is selected by determining the description that best fits the chance of the selected consequence actually occurring, assuming reasonable effectiveness of the prevention and mitigation controls.

The ENVID for the Petroleum Activities Program identified 26 sources of environmental risk. These risks are divided into two broad categories: planned (routine and non-routine); and unplanned (accidents/incidents) activities. The 27 sources of environmental risk comprised 13 planned and 13 unplanned sources of risk.

Generally, the sources of risk from planned activities present a lower environmental impact compared to the potential impact from unplanned accident or incident events. The risk analysis and evaluation for the Petroleum Activities Program indicate that all of the residual environmental risks and impacts associated with the activity are reduced to ALARP and are of an acceptable level. A summary of the key environmental risks and control measures have been presented in **Appendix A**.

#### **4. Risk Evaluation**

Environmental risks, as opposed to safety risks, cover a wider range of issues, differing species, persistence, reversibility, resilience, cumulative effects and variability in severity. The degree of environmental risk and the corresponding threshold for whether a risk/impact has been reduced to ALARP and is acceptable has been adapted to include principles of ecological sustainability (given as an objective in the Environment Regulations and defined in the EPBC Act), the Precautionary Principle and the corresponding environmental risk threshold decision-making principles are used to determine acceptability.

#### **Demonstration of ALARP**

In accordance with Regulation 10A(b) of the Environment Regulations, Woodside demonstrates risks are reduced to ALARP where:

The residual risk is low:

- Good industry practice or comparable standards have been applied to control the risk, because any further effort towards risk reduction is not reasonably practicable without sacrifices grossly disproportionate to the benefit gained.

The residual risk is medium or high:

- Good industry practice is applied for the situation/risk
- Alternatives have been identified and the control measures selected reduce the risks and impacts to ALARP. This may require assessment of Woodside and industry benchmarking, review of local and international codes and standards, consultation with stakeholders etc.



### **Demonstration of Acceptability**

In accordance with Regulation 10A(c) of the Environmental Regulations, Woodside applies the following process to demonstrate acceptability:

- Low residual risks are 'Broadly Acceptable', if they meet legislative requirements, industry codes and standards, regulator expectations, Woodside Standards and industry guidelines
- Medium and High residual risks are 'Acceptable' if ALARP can be demonstrated using good industry practice and risk based analysis, if legislative requirements are met and societal concerns are accounted for and the alternative control measures are grossly disproportionate to the benefit gained

In undertaking this process for medium and high residual risks, Woodside evaluates the following criteria:

- Principles of Ecological Sustainable Development (ESD) as defined under the EPBC Act
  - Internal context - the proposed controls and residual risk level are consistent with Woodside policies, procedures and standards
  - External context – consideration of the environment consequence and stakeholder expectations
  - Other requirements – the proposed controls and residual risk level are consistent with national and international standards, laws and policies.
- Severe residual risks are 'Intolerable' and therefore unacceptable. These risks require further investigation and mitigation to reduce the risk to a lower and more acceptable level. If after further investigation the risk remains in the severe category, the risk requires appropriate business sign-off to accept the risk.

## **5.2 Planned (Routine and Non-routine) Activities**

The sources of risk identified for planned activities (either undertaken on a routine or non-routine basis) include:

- Proximity of drill rig/drillship, PIV and support vessels to third party vessels (commercial shipping and fishing)
- Drill rig/drillship anchoring, DP station holding (transponders), installation of subsea infrastructure, wet storage and ROV use near the seabed
- Generation of noise from drill rig/drillship, vessels and ROV during normal operations (excluding VSP)
- Internal combustion engines on drill rig/drillship and support vessels
- Planned flaring of gas and base oil during well unloading
- Discharge of sewage, grey water and putrescible wastes to the marine environment
- Discharge of deck and bilge water to marine environment
- Routine discharge of cooling water or brine to the marine environment
- Non-routine discharge of wash water from mud pits
- Routine discharge of drilling fluids (WBM), cement, cementing fluids and sub-sea control fluids to the seabed and the marine environment
- Routine discharge of drill cuttings (WBM/NWBM) to the seabed and the marine environment
- Routine discharge of completion fluids and well bore clean out fluids, to marine environment
- Routine discharge of subsea preservation and pre-commissioning fluids and chemicals to the marine environment.

### 5.3 Unplanned (Accidents/Incidents) Activities

During the risk assessment process a number of potential environmental impacts which may occur from unplanned activities were also identified. These sources of risk range from small scale chemical spills with a low environmental consequence to large scale hydrocarbon (oil) spill events with high environmental consequence. These sources of risk include:

- Loss of hydrocarbons to marine environment due to loss of well control
- Loss of hydrocarbons to marine environment due to a vessel collision (e.g. support vessels or other marine users)
- Loss of hydrocarbons to marine environment during bunkering activities
- Loss of hydrocarbons to marine environment as a result of an object dropped onto subsea infrastructure
- Loss of hydrocarbons to marine environment as a result of anchor drag onto subsea infrastructure
- Loss of hydrocarbons to marine environment due to isolation failure during subsea installation
- Accidental discharge of other hydrocarbons / chemicals from drill rig/drillship or support vessel deck activities and equipment (e.g. cranes) including ROV hydraulic leaks
- Accidental discharge of hydrocarbons/ chemicals during drilling contingent activities (e.g. wire line and coil tubing activities)
- Accidental discharge of NWBM or base oil to marine environment from MODU during bulk transfer, failure of slip joint packers or emergency disconnect system
- Accidental loss of hazardous or non-hazardous wastes to the marine environment (excludes sewage, grey water, putrescible waste and bilge water)
- Unplanned venting of gas during drilling (well kick)
- Accidental collision between support vessels and threatened, migratory whale species
- Dropped objects overboard.

## 6. ONGOING MONITORING OF ENVIRONMENTAL PERFORMANCE

The Petroleum Activities Program will be managed in compliance with the WA-34-L Infill Drilling and Activities Environment Plan, accepted by NOPSEMA under the Environment Regulations, other relevant environmental legislation and Woodside's Management System (e.g. Woodside Health Safety and Environment Policy).

The objective of the EP is to identify, mitigate and manage potentially adverse environmental impacts associated with the Petroleum Activities Program, during both planned and unplanned operations, to ALARP and an acceptable level.

For each environmental aspect (risk), and associated environmental impacts (identified and assessed in the Environmental Risk Assessment of the EP) a specific environmental performance outcome, environmental performance standards and measurement criteria have been developed. The performance standards are control measures (available in **Appendix A**) that will be implemented (consistent with the performance standards) to achieve the environmental performance outcomes. The specific measurement criteria provide the evidence base to demonstrate that the performance standards (control measures) and outcomes are achieved.

The implementation strategy detailed in the WA-34-L Infill Drilling and Activities EP identifies the roles/responsibilities and training/competency requirements for all personnel (Woodside and its contractors) in relation to implementing controls, managing non-conformance, emergency response and meeting monitoring, auditing, and reporting requirements during the activity.

Woodside and its contractors undertake a program of periodic monitoring during the Petroleum Activities Program, starting at mobilisation of each activity and continuing through the duration of each activity until activity completion. This information is collected using appropriate tools and systems, developed based on the environmental performance outcomes, performance standards and

measurement criteria in the EP. The tools and systems collect, as a minimum, the data (evidence) referred to in the measurement criteria. The collection of this data (and assessment against the measurement criteria) forms part of the permanent record of compliance maintained by Woodside and the basis for demonstrating that the environmental performance outcomes and standards are met, which is then summarised in a series of routine reporting documents.

Monitoring of environmental performance is undertaken as part of the following:

- Annual Environmental Compliance and Performance Reports which are submitted to NOPSEMA to assess and confirm compliance with the accepted environmental performance objectives, standards and measurement criteria outlined in the EP
- Activity based inspections undertaken by Woodside's environment function to review compliance against the WA-34-L Infill Drilling and Activities EP, verify effectiveness of the EP implementation strategy and to review environmental performance
- Environmental performance is also monitored daily via daily progress reports during the proposed Program
- Senior management regularly monitors and reviews environmental performance via a monthly report which detail environmental performance and compliance with Woodside standards.

Woodside employees and contractors are required to report all environmental incidents and non-conformance with the EP environmental performance outcomes and standards. Incidents will be reported using an Incident and Hazard Report Form, which includes details of the event, immediate action taken to control the situation, and corrective actions to prevent reoccurrence. An internal computerised database is used for the recording and reporting of these incidents. Incident corrective actions are monitored to ensure they are closed out in a timely manner.

The EP is supported by an assessment of the environmental impacts and risks associated with potential oil spill scenarios and oil spill preparedness and response measures in relation to the risk assessment and the identified oil spill scenarios. A summary of Woodside's response arrangements in the oil pollution emergency plan is provided in **Appendix B**.

## 6.1 Environment Plan Revisions

If required, revision of the WA-34-L Infill Drilling and Activities EP will be undertaken in accordance with the requirements outlined in Regulations 17, Regulation 18 and Regulation 19 of the Environment Regulations. Woodside will submit a proposed revision of the WA-34-L Infill Drilling and Activities EP to NOPSEMA, as a result of the following:

- When any significant modification or new stage of the activity that is not provided for in the EP is proposed
- Before, or as soon as practicable after, the occurrence or identification of any significant new or significant increase in environmental risk(s) or impact(s) not provided for in the original documents
- At least 14 days before the end of each period of five years commencing on the day in which the original and subsequent revisions of the EP is accepted under Regulation 11 of the Environment Regulations
- Change in titleholder
- As requested by NOPSEMA.

## 7. CONSULTATION

### 7.1 Engagement Activities

Woodside conducted a stakeholder assessment based on the proposed activity location, timing and potential impacts, and engaged with relevant stakeholders to inform decision-making and planning for the Petroleum Activities Program.

For the purposes of this Plan and consistent with Section 11A of the Environment Regulations, Woodside considers relevant stakeholders for routine operations as those that undertake normal

business or lifestyle activities in the vicinity of the existing facility (or their nominated representative) or have a State or Commonwealth regulatory role.

Woodside also made available advice about the Petroleum Activities Program to other stakeholders who have previously expressed an interest in being kept informed about Woodside’s activities in the region.

Woodside provided information about the Petroleum Activities Program to the following stakeholders:

| Stakeholder                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Department of Industry                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Department of Mines and Petroleum                                                                                                                                                                                                                                                                                                                                                                                                               |
| Australian Maritime Safety Authority (maritime safety)                                                                                                                                                                                                                                                                                                                                                                                          |
| Australian Hydrographic Service                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Department of Fisheries (Western Australia)                                                                                                                                                                                                                                                                                                                                                                                                     |
| Commonwealth fisheries <ul style="list-style-type: none"> <li>• Western Tuna and Billfish Fishery</li> <li>• North West Slope Trawl Fishery</li> <li>• Western Skipjack Fishery</li> <li>• Southern Bluefin Tuna</li> </ul> Western Australian Fisheries <ul style="list-style-type: none"> <li>• Mackerel Fishery</li> <li>• Onslow Prawn Fishery</li> <li>• Northern Demersal (including Pilbara Trap and Trawl, and Pilbara Line)</li> </ul> |
| Department of Defence – Defence Property Services Group                                                                                                                                                                                                                                                                                                                                                                                         |
| Australian Maritime Safety Authority (marine pollution)                                                                                                                                                                                                                                                                                                                                                                                         |
| Department of Transport (marine pollution)                                                                                                                                                                                                                                                                                                                                                                                                      |
| Department of Parks and Wildlife                                                                                                                                                                                                                                                                                                                                                                                                                |
| Australian Customs Service – Border Protection Command                                                                                                                                                                                                                                                                                                                                                                                          |
| Department of Broadband, Communication and the Digital Economy                                                                                                                                                                                                                                                                                                                                                                                  |
| Department of Agriculture, Fisheries and Forestry                                                                                                                                                                                                                                                                                                                                                                                               |
| Australian Fishing Management Authority                                                                                                                                                                                                                                                                                                                                                                                                         |
| Commonwealth Fisheries Association                                                                                                                                                                                                                                                                                                                                                                                                              |
| Western Australian Fishing Industry Council                                                                                                                                                                                                                                                                                                                                                                                                     |
| Pearl Producers Association                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Recfishwest                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| WWF                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Australian Conservation Foundation                                                                                                                                                                                                                                                                                                                                                                                                              |
| Wilderness Society                                                                                                                                                                                                                                                                                                                                                                                                                              |
| International Fund for Animal Welfare                                                                                                                                                                                                                                                                                                                                                                                                           |
| APPEA                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| AMOSC                                                                                                                                                                                                                                                                                                                                                                                                                                           |

Woodside received feedback on the proposed activity across a number of topic areas. Woodside has considered feedback from these stakeholders and addressed relevant feedback where appropriate. This feedback and Woodside's consideration of this feedback is summarised in **Appendix C**.

## 7.2 Ongoing consultation

The listed stakeholders will be notified prior to the commencement and following completion of drilling activities as outlined in the Environment Plan at the request of stakeholders and as part of Woodside's ongoing consultation program for the region.

Woodside will continue to accept feedback from all stakeholders throughout the duration of the accepted EP.

## 8. TITLEHOLDER NOMINATED LIAISON PERSON

For further information about this activity, please contact:

Kate McCallum

Corporate Affairs Adviser

Woodside Energy Ltd

Toll free: 1800 442 997

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Email: [Kate.McCallum@woodside.com.au](mailto:Kate.McCallum@woodside.com.au)

## APPENDIX A: ENVIRONMENTAL IMPACTS AND RISKS

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| Source of Risk (Hazard)                                                                                   | Potential Environmental Impact                                                                                                                                                                   | Residual Risk | Control Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Planned (routine and non-routine) Activities</b>                                                       |                                                                                                                                                                                                  |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Proximity of drill rig, PIV and support vessels to third party vessels (commercial shipping and fishing). | Short-term, localised interference with or displacement of other sea users (e.g. fishing and shipping).                                                                                          | Low           | <p>Compliance with Marine Orders 30 (prevention of Collisions)</p> <p>Compliance with Marine Orders 21 (Safety of Navigational and Emergency Procedures)</p> <p>Notify Australian Hydrographic Service (AHS) of activities and movements and consultation fact sheets</p> <p>Notify AMSA Rescue Coordination Centre (RCC) of activity prior to commencement and on completion of activity</p> <p>Notify AHS to generate Maritime Safety Information Notifications and Notice to Mariners</p> <p>Send consultation Factsheet to State and Commonwealth fisheries</p> <p>Maintain (actively enforce) 500m safety/exclusion zone around drill rig/drillship.</p> |
| Drill rig anchoring, DP station holding (transponders), ROV use near the seabed.                          | Temporary and localised disturbance of soft seabed sediments and sedimentation from anchoring, location of transponders, ROV activities, and placement of subsea infrastructure and wet storage. | Low           | <p>Woodside Well Location and Site Appraisal Data Sheet (WLSADS) completed for well locations to summarise the likelihood of potential well specific hazards and drilling constraints</p> <p>Mooring Analysis Design Report completed and implemented during anchor deployment as per Woodside Anchor Handling and Marine Operations Standard and Woodside Engineering Standard – Rig Equipment and Woodside Engineering Standard Mobile Offshore Drilling Unit Mooring Design</p> <p>Wet stored items are logged and retrieved.</p>                                                                                                                          |
| Generation of noise from drill rig/drillship, vessels and ROV during normal operations (excluding VSP).   | Temporary and minor behavioural disturbance (e.g. avoidance or attraction) to fauna, including protected species.                                                                                | Low           | Compliance with EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Internal combustion engines on drill rig/drillship and support vessels.                                   | Reduced local air quality from atmospheric emissions.                                                                                                                                            | Low           | Compliance with Marine Order 97 (marine pollution prevention – air pollution)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

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| Source of Risk (Hazard)                                                                  | Potential Environmental Impact                                                                                                                                                              | Residual Risk | Control Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Planned flaring of gas and base oil during well unloading.                               | Reduced local air quality from atmospheric emissions.<br>Reduced local water quality (surface sheen).                                                                                       | Low           | Compliance with Marine Order 97 (marine pollution prevention – air pollution)<br>Well unloading package \ set-up & principally designed with mechanisms to minimise potential impacts during well unloading operations<br>Review the contractor operational procedure to ensure it maximises flare efficiency & includes the requirements for a flare watcher<br>Verify relevant contractor's procedures for well unloading align with the well unloading process developed from the <i>Woodside Engineering Manual – Well Control Manual</i> (DC0000PD101151).                     |
| Routine and non-routine discharges: drill rig/drillship and vessels.                     | Localised and temporary eutrophication of the water column and localised and temporary adverse effect to marine biota<br>Localised and temporary effects to water quality and marine biota. | Low           | Compliance with Marine Orders 95 (pollution prevention – Garbage)<br>Compliance with Marine Orders 96 (pollution prevention – Sewage)<br>Vessel sewerage system capacity suitable for full crew as per <i>Woodside's Engineering Standard – Rig Equipment</i><br>Management of bilge water – if bilge is contaminated with hydrocarbons it must be contained and disposed of onshore unless oil content is less than 15 ppm (without dilution) or an approved oil/water separator is used for treatment<br>Discharge of mud pit wash residue is less than 1% by volume oil content. |
| Routine discharge of drill cuttings (WBM/NWBM) to the seabed and the marine environment. | Localised burial and smothering of benthic habitats. Localised and temporary minor effects to water quality (e.g. turbidity increase) and marine biota in offshore waters.                  | Low           | Maintain <i>Woodside Operating Standard – Environmental Performance Standards</i> (Doc No. WM1050SH5099397): NWBM cuttings will be treated and processed to contain on average less than 10% oil by weight prior to discharge<br>Use of solids control equipment (SCE): Shale shakers and centrifuges prior to discharge<br>Discharge cuttings below the water line (to reduce carriage by surface currents to keep impacts localised) as per <i>Woodside Engineering Standard – Rig Equipment</i> .                                                                                |

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| Source of Risk (Hazard)                                                                                                                         | Potential Environmental Impact                                                                            | Residual Risk | Control Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Routine discharge of drilling fluids (WBM), cement, cementing fluids and subsea control fluids to the seabed and the marine environment.</p> | <p>Localised and temporary effects to water quality and marine biota within 200 m of discharge point.</p> | <p>Low</p>    | <p>Selection and approval of chemicals is as per Woodside's <i>Environment Procedure - Drilling and Completions Chemical Approval, Review and Improvement</i> using the assessment principles set out in Woodside's <i>Environment Procedure Offshore Chemical Assessment</i></p> <p>Maintain <i>Woodside Environmental Performance Standards – Operating Standard</i> (Doc No. WM1050SH5099397) and <i>Woodside Drilling and Completions Operations Manual: Drilling and Completions Fluids Procedure</i> (Doc No. DC0000MD126077)</p> <p>Bulk operational discharges conducted under drill rig/drillships Permit to Work (PTW) system (to operate discharge valves/pumps) or risk assessed using the drill rig/drillship contractors risk assessment prompt cards</p> <p>WBM to be used as the first preference in all cases; and where WBM cannot meet required specifications, NWBM may be used following a formal written technical NWBM justification process</p> <p>NWBM system set up as per the following checklists and audited Woodside NWBM Start-up Checklist Part 1 – Rig (focus areas include mud tanks, mud tank room, transfer hoses, NWBM base fluid transfer lines, NWBM base fluid transfer station, base fluid storage, pit cleaning on completion of use of NWBM and health and safety</p> <p>NWBM drill cuttings returned to the drill rig/drillship will be processed using SCE equipment (auger and cuttings dryer) prior to discharge.</p> <p>No overboard disposal of NWBM.</p> |
| <p>Routine discharge of preservation and pre-commissioning fluids and chemicals to the marine environment.</p>                                  | <p>Localised and temporary effects to water quality and marine biota in offshore waters.</p>              | <p>Low</p>    | <p>Selection and approval of chemicals is as per Woodside's <i>Environment Procedure - Drilling and Completions Chemical Approval, Review and Improvement</i> using the assessment principles set out in Woodside's <i>Environment Procedure Offshore Chemical Assessment</i></p> <p>Compliance with <i>Woodside's Engineering Operating Standard – Subsea and Pipelines Pre-commissioning / Commissioning</i> (Woodside Doc. W1000AX0006)</p> <p>Procedure for pre-commissioning work shall include environmental considerations, and monitoring and recording of fluids injected, displaced and discharged MSDS for all chemicals used</p> <p>Procedure for hydrotesting work shall include ROC inspection during test to identify leakage and trigger activity to stop.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

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| Source of Risk (Hazard)                                                                                            | Potential Environmental Impact                                                                                                                                                                                                                                                                                                                                                                                                                                             | Residual Risk | Control Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Unplanned (accidents or incidents) Activities</b>                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Loss of hydrocarbons to the marine environment due to loss of well control.                                        | Contamination of water leading to toxic effects to marine biota, particularly sessile benthos in the shallow sub-tidal and intertidal zone of the coral reefs<br>Oiling of marine mammals, reptiles and seabirds<br>Reduction in marine sediment quality<br>Potential medium-term interference with or displacement of other sea users (e.g. fishing and shipping)<br>Potential interference with activities of other regional petroleum Operators and tourism activities. | High          | Accepted Well Operations Management Plan (WOMP) and application to drill as per <i>Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011</i><br>Prevention: Control as per <i>Woodside's Engineering Standards: Well Barriers, Well Control Manual, Well Cementation</i> and international standards<br>Subsea BOP specification and function/pressure testing in accordance with internal Woodside Standards and international requirements<br>Mitigation: Subsea first response toolkit and capping stack available via global service provider<br>Mitigation: Mutual Aid MoU is in place<br>Oil spill response arrangements are outlined in Appendix B of this EP Summary. |
| Loss of hydrocarbons to marine environment due to a vessel collision (e.g. support vessels or other marine users). | Minor and temporary disruption to protected species such as oiling of marine mammals, reptiles and seabirds<br>Minor and temporary contamination of water which may lead to toxic effects on marine biota.                                                                                                                                                                                                                                                                 | Low           | Compliance with Marine Order 30 (Prevention of Collisions) and Marine Order 21 (Safety of navigation and emergency procedures)<br>Notify AHS of activities and movements and consultation fact sheets<br>Notify AMSA RCC of activities and movements<br>Maintain (actively enforce) 500 m safety/exclusion zone around drill rig/drillship<br>Implement <i>Woodside Marine – Charters Instructions</i> which define the role of support vessels<br>Oil spill response arrangements are outlined in Appendix B of this EP Summary.                                                                                                                                                                                               |

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| Source of Risk (Hazard)                                                                                                | Potential Environmental Impact                                                                                                                                                                                                                                                                                                                                                                          | Residual Risk | Control Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Loss of hydrocarbons to marine environment during bunkering activities.                                                | Minor and temporary disruption to protected species such as oiling of marine mammals, reptiles and seabirds<br>Localised minor and/or temporary contamination of water which may lead to toxic effects to marine biota in offshore waters.                                                                                                                                                              | Low           | Compliance with Marine Order 91 (Marine pollution prevention – oil) 2006 and MARPOL 73/78 Annex I, as applied in Australia under the Commonwealth Protection of the Sea (Prevention of Pollution from Ships) Act 1983 (Part II Prevention of pollution from oil)<br>Implement <i>Woodside Engineering Standard – Rig Equipment</i> for bunkering hoses, spill kits, etc.<br>Implement <i>Woodside Engineering Standard – Standard for Construction Vessels</i><br>Contractor bunkering procedure to be implemented during all bunkering activities<br>Oil spill response arrangements are outlined in Appendix B of this EP Summary. |
| Loss of hydrocarbons to marine environment as a result of an object dropped or anchor drag onto subsea infrastructure. | Contamination of water leading to toxic effects to marine biota, particularly sessile benthos in the shallow sub-tidal and intertidal zone of coral reefs<br>Oiling of marine mammals, reptiles and seabirds<br>Potential medium-term interference with or displacement of other sea users (e.g. fishing and shipping)<br>Potential interference with activities of other regional petroleum Operators. | High          | MODU and PIV Safe Work Procedures developed and followed for bulk transfer to prevent objects being dropped<br><i>Woodside Engineering Standard Mobile Offshore Drilling Unit Mooring Design</i> (WEL Doc No. W1000SD8700579) Calibrated real time positioning system to be installed on the drill rig/drillship and each of the AHVs<br>Mooring Analysis Report completed & implemented during anchor deployment<br>Pre-laid mooring system deployed for anchoring a drill rig/drillship (if DP MODU not used) in the Operational Areas<br>Oil spill response arrangements are outlined in Appendix B of this EP Summary.           |
| Loss of hydrocarbons to marine environment due to isolation failure during subsea installation.                        | Minor and temporary disruption to protected species such as oiling of marine mammals, reptiles and seabirds<br>Minor and/or temporary contamination of water which may lead to toxic effects on marine biota in offshore waters.                                                                                                                                                                        | Low           | Adhere to <i>Woodside Engineering Operating Standard – Subsea Isolation</i> (WEL Doc No. W1000SG0100)<br>'Dummy' spool termination head on stand-by in the field to restore double isolation in the event that a spool cannot be connected<br>Oil spill response arrangements are outlined in Appendix B of this EP Summary.                                                                                                                                                                                                                                                                                                         |

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| Source of Risk (Hazard)                                                                                                                                                      | Potential Environmental Impact                                                                                                                                                                                                     | Residual Risk | Control Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Accidental discharge of other hydrocarbons / chemicals from drill rig/drillship or support vessel deck activities and equipment (e.g. cranes) including ROV hydraulic leaks. | Localised and minor temporary effects to water quality and marine biota in offshore waters.                                                                                                                                        | Medium        | <p>Discharge of mud pit wash residue is less than 1% by volume oil content</p> <p>Compliance with Marine Order 91 (Marine pollution prevention – oil) 2006 and Marine Order 94 (Marine pollution prevention – packaged harmful substances) and MARPOL 73/78 Annex III, (<i>Part IIIA Prevention of pollution by packaged harmful substances</i>)</p> <p>Compliance with Woodside <i>Environment Procedure - Drilling and Completions Chemical Approval, Review and Improvement</i> using the assessment principles set out in Woodside <i>Environment Procedure Offshore Chemical Assessment</i></p> <p>Implement Woodside's <i>Environmental Performance Operating Standard: Storage</i></p> <p>Equipment located on vessel decks utilising hydrocarbons (e.g. cranes, winches or other hydraulic equipment) will have as a minimum primary bunding (i.e. deck edge lips or up-stands/save-alls) to prevent loss of hydrocarbons to the marine environment</p> <p>Deck bunding and spill response kits maintained and stocked.</p> |
| Accidental discharge of hydrocarbons/ chemicals during drilling contingent activities (e.g. wire line and coil tubing activities).                                           | Localised and minor temporary effects to water quality and marine biota in offshore waters.                                                                                                                                        | Low           | <p>Reviewed coil tubing equipment, set up and procedures</p> <p>Wireline equipment designed to enable lubricators to be bled through a controlled system and the gas to be vented, and so block and bleed valves can be isolated on all flexible lines &amp; hoses.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Accidental discharge of NWBM or base oil to marine environment from MODU during bulk transfer, failure of slip joint packers or emergency disconnect system.                 | <p>Minor and temporary disruption to protected species such as oiling of marine mammals, reptiles and seabirds</p> <p>Localised minor and/or temporary contamination of water which may lead to toxic effects to marine biota.</p> | Low           | <p>Compliance with <i>Woodside Engineering Standard – Rig Equipment</i> (WEL Doc No. W1000SD7188648)</p> <p>The drill rig/drillship NWBM handling systems audited and the NWBM Start-up Checklist Part 1 – Rig completed prior to transferring NWBM or Base Fluid from supply vessel to drilling unit mud tanks</p> <p>Compliance with North West European Area (NWEA) Guidelines</p> <p>Deck areas on the drill rig/drillship to be bunded</p> <p>Mud pits dump valve will be locked closed &amp; operated through the drill rig/drillship's PTW</p> <p>Drill rig/drillship personnel will 'walk the line' &amp; ensure the valve line-up for the use of NWBM is correct prior to the re-commencement of drilling.</p>                                                                                                                                                                                                                                                                                                             |

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| Source of Risk (Hazard)                                                                                                                          | Potential Environmental Impact                                                                                                          | Residual Risk | Control Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Accidental loss of hazardous or non-hazardous wastes to the marine environment (excludes sewage, grey water, putrescible waste and bilge water). | Pollution and contamination of the environment and secondary impacts on marine fauna (e.g. ingestion or entanglement, toxicity).        | Low           | Compliance with <i>Woodside's Engineering Standard for Construction Vessels</i><br>Compliance with Marine Orders 94 (packaged harmful substances)<br>Implement <i>Woodside's D&amp;C Waste Management Plan Dampier, Broome &amp; Darwin</i> or relevant equivalent<br>Recovery of solid wastes lost overboard where safe to do so.                                                                                  |
| Unplanned venting of gas during drilling (well kick).                                                                                            | Localised and temporary reduction in air quality as the gas vents to the atmosphere<br>Contribution to global greenhouse gas emissions. | Low           | Prevention: Control as per <i>Woodside's Engineering Standards: Well Barriers, Well Control Manual, Well Cementation</i> and international standards<br>Prevention: <i>Control as per Well Acceptance Criteria Procedure</i><br>If calculation of kick tolerance is less than specified well design then Hazard Assessment undertaken in accordance with <i>Woodside Engineering Manual – Well Control Manual</i> . |
| Accidental collision between support vessels and threatened and migratory whale species.                                                         | Potential injury or fatality of an individual or a number of fauna (including listed threatened to cetaceans due to vessel strike).     | Low           | Compliance with <i>EPBC Regulations 2000 – Part 8 Division 8.1</i><br>Interacting with cetaceans.                                                                                                                                                                                                                                                                                                                   |
| Dropped objects overboard.                                                                                                                       | Localised short-term disturbance of benthic habitat in the immediate location of the dropped object.                                    | Low           | Drill rig/drillship Safe Work Procedures developed and followed to prevent dropped objects<br>Recovery of dropped objects where safe and possible and associated procedures<br>Dropped object training for personnel.                                                                                                                                                                                               |

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## **APPENDIX B: SUMMARY OF RESPONSE ARRANGEMENTS FROM OIL POLLUTION EMERGENCY PLAN**

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### **Woodside's Oil Spill Planning Arrangements**

Woodside's Oil Pollution Emergency Plan (OPEP) for the proposed Petroleum Activities Program consists of the following documents:

#### **Woodside Oil Pollution Emergency Arrangements (Australia)**

This document outlines the emergency and crisis management incident command structure (ICS) and Woodside's response arrangements to competently respond to and escalate an oil spill event. The document interfaces externally with Commonwealth, State and industry response plans and internally with Woodside's ICS.

Woodside's Oil Pollution Emergency Arrangements (Australia) describes Woodside's role as a Control Agency and details the following support arrangements:

- Master services agreement with Australian Marine Oil Spill Centre (AMOSC) for the supply of experienced personnel and equipment, including a subsea first response toolkit and national dispersant stockpiles;
- Access to Wild Well Control's capping stack, SFRT equipment and experienced personnel for the rapid deployment and installation of a capping stack, where feasible;
- Participating membership with Oil Spill Resources Limited (OSRL), which allows access to OSRL's international holding of response equipment and response capabilities, incident management expertise and specialist personnel;
- The Woodside and Australian Maritime Safety Authority (AMSA) Memorandum of Understanding (MoU) whereby AMSA, as managers of the National Plan for Maritime Environmental Emergencies, will provide support to Woodside such as response equipment from national stockpiles. The equipment stockpiles are located around Australia in strategic locations such as the ports of Dampier, Darwin and Fremantle;
- Other support services such as 24/7 oil spill trajectory modelling and satellite monitoring services as well as 'on-call' aerial, marine, logistics and waste management support; and
- Mutual Aid Agreements with other oil and gas operators in the region for the provision of assistance in an oil spill response.

#### **WA-34-L Infill Drilling and Activities Oil Pollution First Strike Plan**

The WA-34-L Infill Drilling and Activities Oil Pollution First Strike Plan is an activity specific document providing details on the tasks required to mobilise a first strike response for the first 24 hours of a hydrocarbon (oil) spill event. These tasks include key response actions and regulatory notifications. The intent of the document is to provide immediate oil spill response guidance to the Incident Management Team until a full Incident Action Plan specific to the oil spill event is developed.

Woodside's oil spill arrangements are tested on the drill rig within 2 weeks of commencement of drilling each well and within two weeks of mobilisation for installation of subsea infrastructure. Woodside's broader ICS is tested at least every year, whilst exercises involving the various statutory authorities are conducted at least every five years.

#### **Oil Spill Preparedness and Response Mitigation for WA-34-L Infill Drilling and Activities**

Woodside has developed an oil spill preparedness and response position in order to demonstrate that risks and impacts associated with the potential loss of hydrocarbons from the proposed Petroleum Activities Program would be mitigated and managed to as low as reasonably practicable (ALARP) and would be of an acceptable level.

The following oil spill response strategies were evaluated and subsequently pre-selected for a significant oil spill event (level 2 or 3 under the National Plan) from the proposed Petroleum Activities Program. The potential environmental risks and impacts of these strategies include:

- Air emissions causing a temporary reduction in air quality
- Physical presence of vessels and equipment causing disturbance to fauna from light, noise emissions or equipment blocking movement of fauna

- Seabed disturbance impacting any benthic habitats or species when equipment, such as the capping stack, is deployed
- Physical damage and loss of shoreline habitats from clean-up operations
- Pollution of the marine environment from waste generated during a spill response
- Physical injury and stress to wildlife if captured for treatment

The environmental risks and impacts of these strategies are identified and assessed during a pre-operational Net Environmental Benefit Analysis (NEBA) and considered as part of the ALARP and acceptability assessment. Appropriate response strategies are determined where the environmental benefit of implementing the response outweighs the potential risks and impacts of not undertaking the response. Implementation of these response strategies would be re-assessed during a spill event, on an ongoing basis, with continued use of the NEBA process and consideration of the size of spill, weather conditions and other constraints:

1. Monitor and Evaluate - To gain an understanding of the spill event, its movement and to direct mitigation activities to the optimal locations, the following operational monitoring programs are available for implementation:
  - Predictive modelling of hydrocarbons to assess resources at risk
  - Surveillance and reconnaissance to detect hydrocarbons and resources at risk
  - Monitoring of hydrocarbon presence, properties, behaviour and weathering in water
  - Pre-emptive assessment of sensitive receptors at risk; and
  - Monitoring of contaminated resources and the effectiveness of response and clean-up operations.
2. Well Control and Intervention – Woodside’s strategy is to minimise the volume of hydrocarbons released from an oil spill event. Woodside plans to deploy the following controls specific to well loss of containment scenarios, if required for the proposed Petroleum Activities Program:
  - Subsea first response toolkit (SFRT) deployment to clear debris, assess the well at the sea bed and, if practicable, attempt to close the BoP
  - Subsea source control (deployment of a Capping Stack); and
  - Well intervention (relief well drilling).
3. Containment and Recovery – Involves the physical containment and mechanical removal of hydrocarbons from the marine environment. Suitable vessels would be drawn from Woodside’s integrated fleet, other operators in the region and from the charter market. Open water containment and recovery equipment (e.g. booms and skimmers) would be sourced from Woodside’s own equipment, AMSA, AMOSC and OSRL stockpiles.
4. Shoreline Protection – Shoreline protection equipment would be deployed either from a vessel or from the shore, depending on the prevailing conditions, shoreline type and access. Additional resources would be mobilised depending on the scale of the event to increase the number of shorelines being protected.
5. Shoreline Cleanup – Woodside has access to equipment stockpiles to support initial response requirements at priority receptors and would supplement resources, depending on the type of cleanup required, through contractors. Some equipment may be procured locally on the day with additional equipment being sourced within Western Australia, interstate and internationally, commensurate with the scale and progressive nature of shoreline impact.
6. Oiled Wildlife Response – Staging sites will be established for shoreline or vessel based oiled wildlife response teams. Once recovered to a staging site, wildlife will be transported to the designated oiled wildlife facility for stabilisation and treatment.
7. Waste Management – The objectives of Woodside’s waste management response are:



- To mobilise waste storage and transport resources on day one of a potential oil spill event to support containment and recovery and shoreline protection responses; and
- Arrange for sufficient waste storage, handling, transport and disposal capability to support continuous response operations.

To achieve these objectives, Woodside has access to waste storage in Exmouth and Karratha as well as waste storage equipment from AMOSC, AMSA and OSRL.

#### Scientific Monitoring

In addition to the above response strategies, a scientific monitoring program (SMP) will be activated following a significant oil spill (defined as a level 2 or 3 spill). The nature and scale of the spill event would dictate the implementation and operational timing of the SMP. Ten targeted scientific monitoring programs may be implemented to address a range of physical-chemical (water and sediment) and biological receptors (species and habitats) including EPBC Act listed species, environmental values associated with Protected Areas and socio-economic values such as fisheries. The SMPs to be activated are as follows:

- Desk-based review and assessment of hydrocarbons in marine waters;
- Assessment of the presence, quantity and character of hydrocarbons in marine sediments;
- Assessment of impacts and recovery of subtidal and intertidal benthos;
- Assessment of impacts and recovery of mangroves / saltmarsh;
- Assessment of impacts and recovery of seabird and shorebird populations;
- Assessment of impacts and recovery of nesting marine turtle populations;
- Assessment of impacts to pinniped (seal and sea lion) colonies including haul-out site populations;
- Desk-based assessment of impacts to other non-avian marine megafauna;
- Assessment of impacts and recovery of marine fish associated with various habitats; and
- Assessment of physiological impacts to commercially important fish and shellfish species (fish health and seafood quality/safety) and recovery.

## **APPENDIX C: SUMMARY OF STAKEHOLDER FEEDBACK AND WOODSIDE'S RESPONSE**

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| Topic                                       | Summary of Stakeholder Feedback                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Woodside assessment of feedback                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Woodside Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Maritime safety                             | <p>The Authority advised by email on 23 February 2015 that it had received advice about Woodside’s proposed petroleum activities.</p> <p>The Authority noted that Woodside had not shown the North West Shipping Fairways on its location map.</p> <p>AMSA provided a vessel traffic plot showing PLA06 between two shipping fairways and support vessel traffic in the south eastern section of the Licence.</p> <p>The Authority noted that additional caution should be exercised with respect to marine traffic in the vicinity of the proposed well location.</p> <p>AMSA requested that the RCC be contacted for Auscoast warning broadcasts before any operations commence, at the start of drilling and when drilling ends.</p> <p>Additionally, AMSA advised that the Australian Hydrographic Service must be contacted no less than 2 working weeks before coring commences to support Notices To Mariners.</p> <p>AMSA requested feedback following drilling activity and interaction with commercial shipping.</p> | <p>Woodside acknowledges the email received from the Authority.</p> <p>AMSA data is consistent with Woodside’s assessment of commercial shipping in the region.</p> <p>Section 5.6.1 of the EP details the risk assessment for the physical presence of the MODU and support vessels and interactions with other users in the area including shipping, and also outlines the performance standards and measurement criteria including all notification requirements identified by AMSA.</p> <p>Woodside notes AHS communications advice and timing, which has been included in the appropriate performance standard and measurement criteria.</p> | <p>Requests identified have been included within performance standards and measurement criteria in the EP as follows:</p> <p>Woodside to contact RCC at <a href="mailto:rccaus@amsa.gov.au">rccaus@amsa.gov.au</a> any operations commence, at the start of drilling and when drilling ends, performance standard PS1.4 <b>Section 5.6.1</b>.</p> <p>Woodside to contact AHS at <a href="mailto:hydro.ntm@defence.gov.au">hydro.ntm@defence.gov.au</a> no less than 2 working weeks before coring commences, performance standard PS 1.2, <b>Section 5.6.1</b></p> <p>Woodside to provide feedback following drilling, performance standard PS IS 4.7, <b>Table 6-5</b>.</p> |
| Department of Fisheries (Western Australia) | No response at the time of submission. Woodside notes advice provided on three                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Woodside notes the Department’s previous advice                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Advice in the DoF letter has been acknowledged in the EP as follows:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

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| Topic                                                                                                                                      | Summary of Stakeholder Feedback                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Woodside assessment of feedback                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Woodside Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                            | <p>occasions for this Licence, most recently for the Pyxis exploration well, which is outlined below.</p> <ul style="list-style-type: none"> <li>• Data validity</li> <li>• State fisheries information</li> <li>• Recommended engagements with other stakeholders</li> <li>• Requested contact in the event of an oil spill</li> <li>• Collect baseline marine data</li> <li>• Strategies to prevent impact to fish spawn in an oil spill</li> <li>• Minimise pest translocation to WA waters</li> <li>• All potential impacts to fisheries are documented in EP</li> <li>• Re-consult three months prior to activity</li> </ul> <p>This advice is consistent with that previously provided by Fisheries for petroleum activities in WA-34-L.</p> | <p>and will include the Department on its stakeholder distribution list for ongoing advice during the life of the EP.</p> <p>Woodside will re-engage the Department in the event that drilling does not commence within six months of its advice.</p> <p><b>Section 5.6.1</b> of the EP assesses the impacts of the planned and unplanned activities including impacts on commercial fishing.</p> <p>Woodside provided advice to the licence holders in the Mackerel, Onslow Prawn and Northern Demersal Scalefish Fisheries, WAFIC and Recfishwest.</p> <p>Woodside notes in <b>Section 7.1.2</b> the need to advise fishing authorities, operators and relevant representative associations in the event of an incident that affects fishing interests.</p> | <ul style="list-style-type: none"> <li>• Updated information is provided to fishing operators and agencies prior to the commencement of activities</li> <li>• The active State fisheries within or in close proximity to the Operational Area are identified</li> <li>• Ongoing consultation will continue with fishing representatives and organisations</li> <li>• Appropriate spill response plans are in place</li> <li>• Known baseline information related to fish species (including spawning and nursery seasons) and relevant nature and scale of the activities is described in <b>Section 4.6.2</b> of the EP.</li> <li>• Woodside notes the Fish Resources Management Regulations 1995, and assesses and manages invasive marine species risk for all vessels</li> </ul> |
| <p>Western Australian Fisheries<br/>Mackerel<br/>Onslow Prawn<br/>Pilbara Demersal, including Pilbara Trap and Trawl, and Pilbara Line</p> | <p>A stakeholder emailed Woodside on 23 February 2015 expressing concern about the proposed drilling location and its impact on fish productivity, stating:</p> <ul style="list-style-type: none"> <li>• Drilling would deny the company fishing access to the area.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>Woodside recognises that an exclusion zone will exist during drilling activities.</p> <p>Woodside considers potential impacts on demersal fish populations to be limited.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <p>Woodside on 9 March 2015 responded to the stakeholder, providing details of the proposed drilling location relevant to State fisheries. Woodside sought additional information from the stakeholder to understand potential impacts on line</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

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| Topic                                                                                                                                      | Summary of Stakeholder Feedback                                                                                                                                                                                                                                                                                                              | Woodside assessment of feedback                                                                                                                   | Woodside Response                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                            | <ul style="list-style-type: none"> <li>• Concern about seabed disturbance and negative impacts on fish and surrounding ecosystem.</li> <li>• Research near the Montebello Islands was allegedly abandoned due to impacts on fish health.</li> <li>• Woodside has not addressed the effects to the stakeholder's fishing business.</li> </ul> |                                                                                                                                                   | <p>fishing.</p> <p>Whilst not relevant to this Plan, Woodside provided a response on previous research near the Montebello Islands, which focused on fish distribution, not toxicity.</p> <p>Woodside has considered both emails from the stakeholder and do not believe there are any additional mitigations or controls for the proposed activity based on information provided by the stakeholder.</p> |
| <p>Western Australian Fisheries<br/>Mackerel<br/>Onslow Prawn<br/>Pilbara Demersal, including Pilbara Trap and Trawl, and Pilbara Line</p> | <p>The stakeholder emailed Woodside on 16 March stating that he would get back to Woodside after speaking to his skippers.</p>                                                                                                                                                                                                               | <p>Woodside acknowledged receipt of the email on 16 March and provided another Woodside contact in absence of the Woodside nominated contact.</p> | <p>Woodside acknowledged receipt of the email on 16 March and provided another Woodside contact in absence of the Woodside nominated contact.</p> <p>Woodside also attempted to call the stakeholder but was unsuccessful.</p>                                                                                                                                                                            |

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