



**MOBIL AUSTRALIA RESOURCES COMPANY PTY LIMITED**

**JANSZ-IO DRILLING**

**ENVIRONMENT PLAN SUMMARY**

*For and on behalf of the Proponent*

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**CONTENTS**

<b>1</b>	<b>INTRODUCTION</b>	<b>3</b>
1.1	Operator	3
<b>2</b>	<b>PROJECT DESCRIPTION</b>	<b>4</b>
2.1	Location	4
2.2	Project Timing	4
2.3	Well Locations	4
<b>3</b>	<b>DESCRIPTION OF ACTIVITIES</b>	<b>6</b>
3.1	Unplanned Events and Identification of Credible Worst-case Spill Scenarios	7
<b>4</b>	<b>EXISTING ENVIRONMENT</b>	<b>8</b>
4.1	Physical Environment	8
4.2	Biological Environment	8
4.3	Species Listed Under the EPBC Act	9
4.4	Marine Management and Protected Areas in the ZPI	10
4.5	Socio - Economic Environment	10
<b>5</b>	<b>ENVIRONMENTAL RISK ASSESSMENT AND MANAGEMENT</b>	<b>12</b>
5.1	Summary of Environmental Risk	12
<b>6</b>	<b>IMPLEMENTATION STRATEGY</b>	<b>20</b>
<b>7</b>	<b>CONSULTATION PROCESS</b>	<b>21</b>
7.1	Consultation Already Undertaken	21
7.2	Ongoing Consultation	21
<b>8</b>	<b>CONTACT DETAILS</b>	<b>22</b>

## 1 INTRODUCTION

This environment plan summary has been submitted to comply with Regulation 11(7)(8) of the Offshore Petroleum and Greenhouse Gas Storage (Environment) (OPGGS(E)) Regulations 1999 and summarises the Jansz-lo Drilling Environment Plan (AUJZ-EDD-07-DR-511-R01-0071) which was accepted by the National Offshore Petroleum Safety Environment Management Authority (NOPSEMA) on 15 January, 2014.

### 1.1 Operator

The Jansz-lo fields are being developed under Production Licences WA-36-L, WA-39-L and WA-40-L with the Joint Venture Participants being Chevron Australia Pty Ltd (17.75%), Chevron (TAPL) Pty Ltd (29.583%), Mobil Australia Resources Company Pty Limited (25%), Shell Development (Australia) Proprietary Limited (19.625%), BP Exploration (Alpha) Ltd (5.375%), Osaka Gas Gorgon Pty Ltd (1.25%), Tokyo Gas Gorgon Pty Ltd (1%) and Chubu Electric Power Gorgon Pty Ltd (0.417%).

Chevron Australia Pty Ltd (Chevron) is unit operator under the Jansz-lo Unitisation and Unit Operating Agreement (UUOA)<sup>1</sup> and operator under all other related Gorgon Project commercial agreements. Mobil Australia Resources Company Pty Limited (referred to in this document as "ExxonMobil"<sup>2</sup>) is delegated operator responsibility by the parties to the UUOA, including Chevron, for certain Jansz-lo work activities.

ExxonMobil is responsible for undertaking the Jansz-lo work activities which are comprised of the drilling and completion of the 10 Jansz-lo development wells and the conversion of the Jansz-4 appraisal well to a pressure monitoring well. The ten wells will be drilled and completed from the two drill centres, drill centre 1 (DC-1) and drill centre 2 (DC-2). Five wells will be located at DC-1 and five wells will be located at DC-2.

ExxonMobil is using the Transocean Deepwater Frontier (DWF), a dynamically positioned (DP) drillship to execute the Jansz-lo work activities.

Maersk and Farstad will provide the Support Vessels to support the drilling activities.

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<sup>1</sup> The parties to the UUOA are: Chevron Australia Pty Ltd, Chevron (TAPL) Pty Ltd, Mobil Australia Resources Pty Ltd, Shell Development (Australia) Pty Ltd, BP Exploration (Alpha) Pty Limited, Osaka Gas Gorgon Pty Ltd, Tokyo Gas Gorgon Pty Ltd and Chubu Electric Power Australia Pty Ltd.

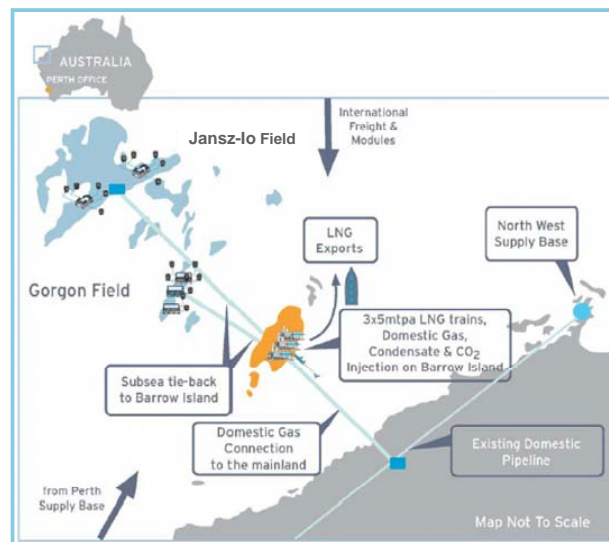
<sup>2</sup> The term "ExxonMobil" as used in this EP Summary may also refer to Exxon Mobil Corporation or to one of its affiliates, in addition to Mobil Australia Resources Company Pty Limited and is used merely for convenience and simplicity.

## 2 PROJECT DESCRIPTION

### 2.1 Location

The Jansz-IO fields are situated on the western flank of the Kangaroo Syncline, in the Carnarvon Basin on the North West Shelf of Australia. It is 70 km North West of the Gorgon Gas Field, 140 km North West of Barrow Island, 140 km east of the Scarborough Gas Field and 239 km from Dampier, which is the nearest port on the coast of Western Australia. Water depths vary from 1200 to 1400 m. Figure 2-1 shows the location of the field.

Figure 2-1 Location of Jansz-IO Area



### 2.2 Project Timing

Drilling of Jansz-IO commenced on 31st March, 2012 and the Jansz-IO work activities are expected to continue through to Q1 2015.

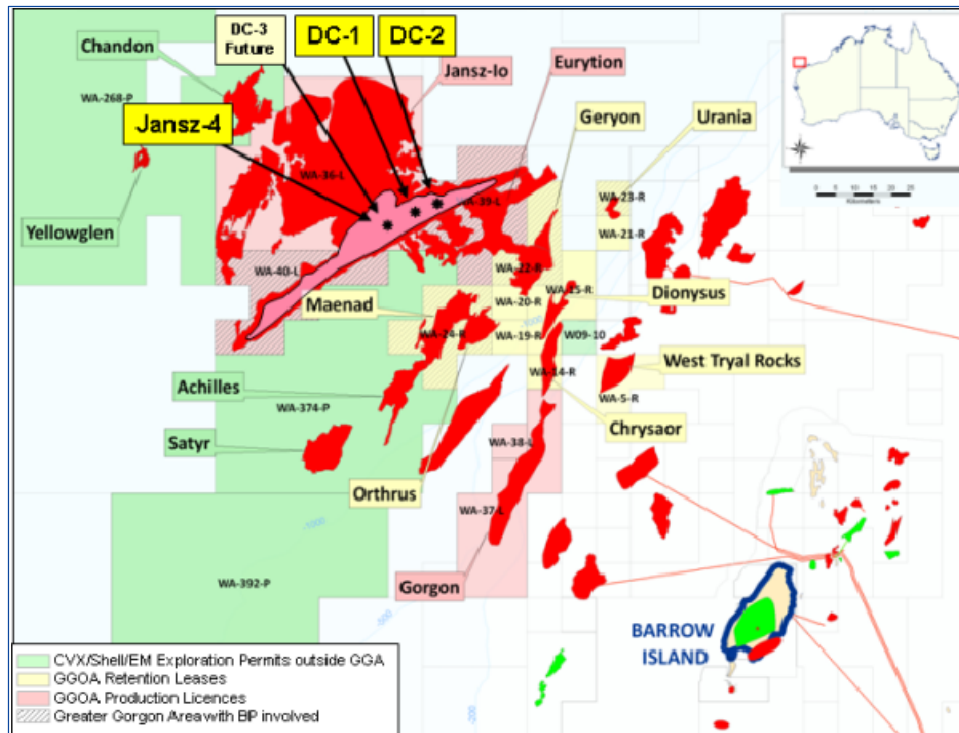
### 2.3 Well Locations

At each drill centre, five wells will be drilled out from mudline locations near the manifold to bottom-hole targets contained within a 2.5km radius circle centred on the manifolds. The approximate seafloor coordinates of the wellheads are provided in Table 2.1 below. The locations of the drill centres and Jansz 4 are shown in Figure 2.2.

Table 2.1 DC-1 and DC-2 Seafloor Coordinates

DC-1 Manifold – Water Depth 1338m			DC-2 Manifold – Water Depth 1349m		
	Seafloor Coordinates			Seafloor Coordinates	
Well	Easting	Northing	Well	Easting	Northing
<b>Manifold</b>	245 540.00	7 805 895.00	<b>Manifold</b>	253 210.00	7 809 865.00
JZ1-1B	245 529.73	7 805 853.30	JZ1-2B	253 220.23	7 809 906.28
JZ1-1C	245 501.07	7 805 856.16	JZ1-2C	253 248.55	7 809 903.87
JZ1-1D	245 486.57	7 805 885.69	JZ1-2D	253 264.53	7 809 874.55
JZ1-1E	245 500.05	7 805 911.01	JZ1-2E	253 249.67	7 809 849.31
JZ1-1F	245 499.13	7 805 930.98	JZ1-2F	253 250.67	7 809 829.28

Figure 2-2 Drill Centre Locations



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### 3 DESCRIPTION OF ACTIVITIES

The ten wells will be drilled and completed using the DWF. The ten flow line support bases and subsea trees will be installed using a crane off the Maersk Nomad which has been specifically equipped for this task. The wells may be flowed back using well test equipment on the Deepwater Frontier.

Jansz-10 well construction activities have been planned as a series of batch operations for efficiency, with the rig moving between DC-1 and DC-2 as required. Flexibility in the well construction sequence will be required to accommodate and manage simultaneous operations (SIMOPS), equipment delivery, and other operational considerations.

The Jansz-4 well, suspended in 2009, may be re-entered in order to convert this well to a reservoir monitoring well. Permanent down-hole gauges will be installed on tubing and the well then abandoned with cement plugs pumped through the tubing and hanger. The gauges will be tied into an acoustic transmission system installed on the well head, with data being retrieved through an acoustic receiver launched from a support vessel.

The activities of the project that have the potential to impact the environment are:

#### **DWF and Support Vessel presence and operation**

- Operational emissions (noise, air) of DWF and vessel
- Physical presence
- Waste Management

#### **Chemicals and Fuels**

- Chemical selection and usage
- Chemical transfer and handling
- Bulk transfer activities

#### **Drilling and Completions**

- Top hole drilling with use of Water Based Mud
- Displacement of drilling fluids (and management of interface fluids)
- Bottom Hole Drilling with use of riser and Non Aqueous Drilling Fluids (NADF)
- Slip Joint Packer
- Cementing
- Gravel pack operations
- Well bore clean up
- Upper Completions
- Subsea Tree Installation
- Logging while drilling and Wire line logging
- BOP stack operation
- Flow back (well testing)

The hazards associated with these activities were all assessed for their potential impact on the environment.

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### 3.1 Unplanned Events and Identification of Credible Worst-case Spill Scenarios

Consideration was also given to unplanned events which could lead to impacts to the environment. Based upon the proposed activities, an assessment of all potential spill scenarios (for chemicals, drilling fluids and hydrocarbons) which could occur from Jansz-IO drilling activities was conducted as part of the Jansz-IO Drilling Environmental Hazard Identification and Risk Assessment (HAZID). The HAZID identified the following credible worst-case spill scenarios (Tier 2 and Tier 3) which were carried forward to Oil Spill Trajectory Modelling undertaken by Asia-Pacific ASA Pty Ltd (APASA):

- Loss of containment of marine diesel from support vessel due to tank rupture; and
- Loss of containment of hydrocarbon due to subsea blowout

Modelling of these potential worst case scenarios determined the Zone of Potential impact (ZPI) to the environment in the unlikely occurrence of an unplanned event.

The Oil Spill Contingency Plan outlines the response activities that can be undertaken in the event of a spill. These include:

- Source Control
- Monitor and evaluate
- Natural Recovery

## 4 EXISTING ENVIRONMENT

### 4.1 Physical Environment

The offshore waters of the Jansz-lo field are located in the North West Province (NWP) of the North West Marine Region (NWMR) (DEWHA 2008). The seabeds of the region are comprised predominantly of muddy sediments (DEWHA 2008). To the south of the Jansz-lo field, the bioregion contains the steepest shelf break of the North-west Marine Region along the western side of the Cape Range Peninsula.

The North West Province (NWP) bioregion experiences climatic conditions that are transitional between the dry tropics to the south and humid tropics to the north (DEWHA, 2008). The climate is monsoonal with seasonal winds primarily from the south-southwest during the summer and transitional spring months and rarely from the north-west or north. During winter, the winds are typically strong and prevail from easterly and south-easterly directions. During the transitional autumn and spring months, the winds are reduced and more variable with swings between summer and winter patterns, with southerly winds quite common.

During the summer months (November to May), the NWP province bioregion is subject to cyclone activity with tropical cyclones originating from south of the equator in the eastern Indian Ocean and in the Timor/Arafura Seas.

Water circulation in the region is driven by the Indonesian Through Flow (ITF), which delivers warm, lower salinity, nutrient poor (oligotrophic) water to the region (Holloway and Nye, 1985). During summer when the ITF is weaker, southwest winds can cause intermittent reversals in currents leading to occasional weak shelf upwellings. Along the south-west edge of the continental shelf the ITF continues to flow steadily southwards at speeds of up to 0.3 m/s, as the Leeuwin Current (Holloway and Nye, 1985). The Leeuwin Current is strongest during winter producing a surface flow reaching 150 m down through the water column. At this time of year, the Ningaloo Current may induce upwelling of colder, nutrient rich waters along the reef front (Hanson et al., 2005). Also in summer, the seasonal Ningaloo Current develops closer to shore as an offshoot of the Leeuwin current. The Ningaloo current flows northward along the outside of the Ningaloo Reef and the inner shelf driven by southerly wind stressors (LeProvost, Dames and Moore, 2000).

Maximum non-cyclonic current speeds in upper regions (surface to 100 m) will likely range from 0.33 – 0.8 m/sec in the Jansz-lo well site. Maximum cyclone current speeds (surface to 100 m) may occasionally approach 0.5 – 1.1 m/sec under extreme storm conditions. Based on BRAN and HYDROMAP data from a location adjacent to the Jansz-lo well sites (20° S 115° E), the influence of the Leeuwin Current is evident between February and September, with dominant current directions towards the west-south-west and south-west and speeds up to 0.7 m/s. From October to January, occurrence of current flows towards the northeast increases but at generally lower speeds (APASA 2013).

### 4.2 Biological Environment

Benthic fauna in the Jansz-lo region, like other deep areas of the North West Shelf occur in low abundance with low richness and diversity. Infauna, where present also occur in low abundance with low richness and diversity communities in the region appear to be most influenced by water depth and sediment size. Generally there is lower energy in deeper water that can disturb sediments which are usually finer grained sands and silts with varying proportions of mud and shell fragments. This creates habitats suitable for burrowing organisms, particularly polychaete worms and smaller crustaceans.

Absence of hard substrate is considered a limiting factor for the recruitment of epibenthic organisms. Light penetration to the bottom at depths of 1,300m is considered insufficient for the development of plants (sea-grasses and algae) and scleractinian (reef building) corals.

Given the deep water environment (approximately 1,300 m depth) of the Jansz-lo well sites, the general lack of hard substrate and lack of light, the benthic communities associated with the unconsolidated sediment seabed habitat is considered to be of relatively low environmental sensitivity.

Phytoplankton and zooplankton abundance in the offshore waters of the Jansz-lo permit area are low due to the oligotrophic tropical waters of the region (DEWHA 2008) and the low primary productivity of the offshore area (DEWHA 2008) respectively. Sporadic periods of high productivity may occur in the



area caused by upwellings of eutrophic waters triggered by seasonal regional current variations (Brewer et al. 2007; and DEWHA 2008). Along the shelf edge at Ningaloo, there is also a period of enhanced biological productivity including coral spawning, zooplankton blooms (krill) and fish larvae summer/early autumn (MPRA 2005).

It is not anticipated that the Jansz-lo permit area contributes greatly to the regional primary productivity of the North-West Shelf.

### 4.3 Species Listed Under the EPBC Act

A search using the Environment Protection and Biodiversity Conversation Act (EPBC Act) protected matters search tool was carried out on 12 September 2013 with areal coverage defined by the Jansz-lo permit area and also extending to the Zone of Potential Impact (ZPI) in the event of a major hydrocarbon spill. The search identified a total of 86 marine species, including 23 threatened and 38 Migratory species. The Jansz-lo permit area is not a known breeding, feeding or aggregation area for any of the identified EPBC species, nor does it intersect with known whale migratory routes, with the exception of the blue whale whose migratory route between feeding areas and breeding grounds overlaps with the permit area. The EPBC search identifies that these species may temporarily transit through the permit area. The ZPI in the unlikely event of a major hydrocarbon spill may incorporate areas which are biologically significant to the identified EPBC listed species.

#### Cetaceans

Several cetacean species have been previously recorded in the region of the permit area and associated ZPI. A total of five Threatened and 11 Migratory cetacean species were identified to potentially be found in the permit area and associated ZPI. Humpback whales are likely to be encountered within the ZPI during migration periods, mainly along migration paths and within the 200 m isobath. As stated above, blue whales are also likely to be encountered within the permit area. Other whales such as Sei, Fin, Antarctic Minke, Bryde's, Killer, Sperm and Southern Right Whales have widespread distribution and may be seen in the ZPI but are likely to be transient and in low numbers.

The Spotted Bottlenose and Indo-Pacific Humpback dolphins have a preference for near shore coastal waters and may be encountered in the ZPI. Dugongs may occur in the ZPI as it is in proximity to the Exmouth Gulf, which supports a known population of dugongs.

#### Seabirds

A total of eight Threatened and 13 Migratory avifauna species were identified and may occur within the permit area but in all cases are likely to be transient and temporary visitors.

#### Reptiles

A number of marine reptiles, including sea snakes and marine turtles, occur in the waters of the North-West Shelf, and may occur within the Jansz-lo permit area but are likely to be transient. A total of six Threatened and/or Migratory marine reptiles were identified to potentially occur or have habitat within the ZPI in the unlikely event of a major hydrocarbon spill. The North West Cape is known to support regional turtle breeding and nesting beaches both on the mainland coast and the offshore islands.

Turtle species identified included: green (*Chelonia mydas*), leatherback (*Dermochelys coriacea*), hawksbill (*Eretmochelys imbricata*), flatback (*Natator depressus*) and loggerhead (*Caretta caretta*), all of which are listed as Threatened and Migratory under the EPBC Act. Additionally, the short-nosed seasnake (*Aipysurus apraefrontalis*), listed as Critically Endangered, may occur within the ZPI.

#### Elasmobranchs

Six species of shark and one coastal sawfish species were identified to potentially be present in the permit area. All are likely to be transient and temporary visitors to the area. Of these, the Whale Shark, listed as Vulnerable and Migratory is known to aggregate seasonally off the Ningaloo coast coinciding with the spawning of corals in the region. During these times of aggregation (between late March and July) Whale Sharks may occur within the ZPI.

## Fishes

The continental slope in the region of the ZPI and permit area is recognised as a key ecological feature due to the high endemism and biodiversity values shown by demersal fish communities of the region. The area of continental slope between North West Cape and the Montebello trough supports in excess of 500 fish species of which 76 are endemic, region are made up of two community types, occurring between 225 and 500 m and between 750 and 1000 m.

The Ningaloo Marine Park displays a great diversity in fishes, supporting approximately 1,400 species of fish of tropical Indo West Pacific affinity (Allen and Swainston 1988). The offshore waters of the Ningaloo Marine Park support various commercially and recreationally important species such as tuna, marlin and mackerel (LeProvst Dames and Moore 2000). Fishes of commercial importance in the inshore waters include cod, emperor, coral trout and baldchin grouper.

Fish species diversity has been shown to correlate with habitat complexity (Gratwicke and Speight 2005). Much of the seabed in the ZPI is comprised of flat, soft sediment, consequently teleost fish fauna abundance is anticipated to be lower in comparison to near shore areas in the region.

### 4.4 Marine Management and Protected Areas in the ZPI

The permit area does not overlap with any marine management or protected areas. In the case of a worst case scenario event, the ZPI may potentially overlap with marine management and protected areas.

### 4.5 Socio - Economic Environment

#### Commonwealth and State Fisheries

Australia's commercial fishing and aquaculture industry is worth over \$2 billion annually, with Commonwealth fisheries alone generating \$300 million in value (DAFF, 2013). The permit area is in the vicinity of five Commonwealth managed commercial fisheries namely, the Western Deepwater Trawl Fishery, North West Slope Trawl Fishery, Western Tuna and Billfish Fishery, Western Skipjack Tuna Fishery and Southern Bluefin Tuna Fishery (Figure 6-3). The fisheries are described in detail below.

Initial consultation with the commercial fisheries indicated that there would be no impact from the drilling activities.

#### Tourism and Recreational Fishing

A number of recreational and tourism activities occur within the marine environment off the Western Australian coast. These are primarily associated with coastal waters. Marine reserves in close proximity of the permit area are Montebello/Barrow Islands Marine Conservation Reserve (approximately 140 km from the permit area) and Ningaloo Marine Commonwealth Reserve (approximately 220 km from the permit area). These reserves provide for numerous activities including nature-based tourism, vessel charters, diving, snorkelling and recreational fishing (DEC 2007 2011).

The main recreation activities at Ningaloo Marine Park are snorkelling and diving, recreational fishing, beach recreation and camping, coral and wildlife viewing and wildlife interaction tours (Commonwealth of Australia 2002).

The main recreation activities at Montebello/Barrow Islands Marine Conservation Reserve are snorkelling, diving, beach recreation, recreational fishing, and island exploring (DEC 2007).

No marine reserves overlap the locations of the drilling activities; however the ZPI will overlap with the Ningaloo Commonwealth Reserve.

#### Oil and Gas Exploration and Production

The NWP bioregion supports extensive petroleum exploration and production activities. The nearest oil and gas facilities from the Jansz-IO well area are the Gorgon Gas field (70 km away) and the Barrow Island facilities (140 km away) operated by Chevron. The drilling program will not impinge on any restricted area associated with any other oil and gas production facilities. Other operators in the ZPI area include Apache Ltd, BHP Billiton Petroleum Pty Ltd and Woodside Burrup Pty Ltd who are all

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operating FPSO's approximately 180km South East of the Jansz-IO, 40 km North of the Ningaloo Coast. A spill event is unlikely to have any impact on their operations.

### **Shipping and Ports**

There are no major ports in or near the Jansz-IO well area. The nearest ports are Dampier (LNG, bulk iron ore) and Port Hedland (bulk iron ore), which are located 240 km and 430 km east northeast of the drilling area respectively.

Minor ports are located at Onslow and Exmouth, approximately 210 km southeast and 235 km south from the Jansz-IO well area respectively. The main users of these minor ports are commercial fishing and charter vessels.

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## 5 ENVIRONMENTAL RISK ASSESSMENT AND MANAGEMENT

An analysis of environmental hazard and risk has been conducted for the Jansz-IO drilling program. Its purpose was to:

- Identify and assess potential hazards to the environment during the drilling programme
- Undertake a scenario-based risk assessment
- Identify and rank hazards and determine appropriate risk reduction measures
- Identify controls to reduce the risk to as low as reasonably practicable

### 5.1 Summary of Environmental Risk

The campaign will have a limited localised and temporary impact over the marine area due to the nature of drilling activities. The activities are considered typical of those undertaken by the rig. No extraordinary aspects, hazards or risks were identified during planning for the campaign. The activities associated with the project are considered unlikely to have a significant effect on the environment for the following reasons:

- Threatened species listed under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and other marine species may pass through the project area but the operations will not give rise to impacts on habitat, migratory patterns or routes that are critical for their survival
- The physical footprint of the drilling activities is relatively small and any disturbance that occurs around this footprint is likely to be temporary and localised.
- Environmental management processes and procedures have been formulated in accordance with industry and company standards and will be adhered to throughout the drilling activities
- Control measures have been put in place to prevent or reduce the risks of environmental harm to a level that is As Low As Reasonably Practicable

A summary of the environmental hazards, potential impacts and controls is provided in Table 5-1.

**JANSZ-IO DRILLING  
ENVIRONMENT PLAN SUMMARY**



**Table 5-1 Summary of Hazards, Impacts and Controls**

Hazard	Potential Impact	Key Controls
<b>DWF &amp; Support Vessel Presence and operation</b>		
Translocation of non-indigenous species through ballast water discharge or hull fouling	<ul style="list-style-type: none"> <li>Displacement of local marine species through predation or interference with ecosystems</li> </ul>	<ul style="list-style-type: none"> <li>Ballast water was changed out en-route before entering Australian waters</li> <li>No ballast water discharged from internationally trading vessels inside Australian territorial seas (12 NM)</li> <li>Marine pest inspection and hull anti-fouling undertaken within 7 days prior to entering Australian Waters</li> <li>Blasting and painting of the DWF hull whilst in the shipyard preparing for Jansz-IO Campaign, prior to entering Australian Waters Hull anti-fouling undertaken prior to entering Australian Waters within 7 days of arrival</li> </ul>
Noise and air emissions	<ul style="list-style-type: none"> <li>Underwater noise causing displacement of marine fauna, temporary or permanent reduction in fauna hearing sensitivity, or masking of biologically important sounds</li> <li>DWF can cause a reduction in air quality and contribution to global levels of greenhouse gases</li> </ul>	<ul style="list-style-type: none"> <li>Support vessels will maintain a 300 m standoff distance (where possible and safe to do so) as they move into and out of the 500 m exclusion zone</li> <li>Avoidance measures such as altering speed or course will be implemented within the 500 m exclusion zone (where possible and safe to do so) should listed marine species be sighted.</li> <li>Helicopters to maintain a 500 m standoff distance upon sighting of a cetacean where safe to do so</li> <li>Preventive Maintenance programmes in place for fuel combustion equipment and energy usage equipment to maximise efficiency.</li> <li>Low sulphur diesel fuel used as fuel source</li> </ul>
Physical presence	<ul style="list-style-type: none"> <li>Disruption or interference with commercial fishing or shipping activities</li> </ul>	<ul style="list-style-type: none"> <li>Consultation with fishing and shipping groups</li> <li>500 m exclusion zone in place around DWF</li> </ul>
Discharge of contaminated deck run-off or machinery drainage fluids	<ul style="list-style-type: none"> <li>Reduction in water quality which may impact on marine species</li> </ul>	<ul style="list-style-type: none"> <li>Discharge of rainwater is a permitted process (PTW)</li> <li>Ability to direct contaminated deck drainage to holding tanks for treatment prior to discharge</li> <li>Inspection programme is in place to ensure that drains and deck areas are clean of spillages and accumulations of oil/grease and chemicals</li> <li>Bunds / drip pans allow containment of minor spills/ leaks</li> <li>Machinery/equipment spaces are fully contained and have dedicated drains leading to the oily water treatment system via bilge water tank</li> </ul>

**JANSZ-IO DRILLING  
ENVIRONMENT PLAN SUMMARY**



Hazard	Potential Impact	Key Controls
Overboard discharge of general waste, putrescible waste, grey water and sewage	<ul style="list-style-type: none"> <li>Reduction in water quality, visual amenity and attraction of fauna leading to injury or death through ingestion, entanglement or suffocation</li> </ul>	<ul style="list-style-type: none"> <li>A Jansz-IO specific Waste Management Plan has been developed and describes how personnel on the DWF must manage all waste. Licensed waste management organisation contracted to handle waste once delivered onshore</li> <li>Putrescible wastes to be macerated (&lt;25 mm) prior to discharge or will be double bagged and taken ashore for disposal.</li> <li>No discharge of macerated food waste (or any waste) when &lt;3 NM from shore</li> <li>Sewage is treated through a certified sewage treatment system prior to discharge. Preventative maintenance is conducted on the sewage treatment system.</li> </ul>
Setting of transponders and array frames	<ul style="list-style-type: none"> <li>Disturbance of seabed sediments. Smothering / loss of benthic organisms</li> </ul>	<ul style="list-style-type: none"> <li>Controlled process required for deployment of array frames</li> </ul>
<b>Chemicals and Fuels</b>		
Uncontrolled release of packaged chemicals to sea during transfer, use or storage	<ul style="list-style-type: none"> <li>Reduction in water quality</li> <li>Chemical or hazardous substances may cause localised toxicity to marine fauna</li> </ul>	<ul style="list-style-type: none"> <li>Use of certified and tested, suitably rated crane and lifting equipment</li> <li>Permit required for lifting operations</li> <li>Licensed Crane Operator</li> <li>Lifting gear is appropriately maintained</li> <li>Hazardous substances are kept in storage containers (packages) that are suitable for their contents to prevent loss of primary containment, including self bunded bulk containers.</li> <li>Chemicals and oil drums are kept in dedicated, bunded chemical storage areas. Spills in bunded storage areas are directed to the oil water settling system for further treatment</li> <li>Spill kits/clean-up equipment to contain spills on deck</li> <li>Personnel are trained in Storage and handling of Chemical substance</li> </ul>

**JANSZ-IO DRILLING  
ENVIRONMENT PLAN SUMMARY**



Hazard	Potential Impact	Key Controls
Uncontrolled release of Chemicals during transfers via hose	<ul style="list-style-type: none"> <li>• Reduction in water quality</li> <li>• Chemical or hazardous substances may cause localised toxicity to marine fauna</li> </ul>	<ul style="list-style-type: none"> <li>• Permit required for bulk transfer activities</li> <li>• Bulk transfer activities only occur during suitable weather conditions and sea states</li> <li>• Hose inspections prior to transfer</li> <li>• Hoses are pressure tested before fuel or chemical transfer to check for leaks or hose failures</li> <li>• Use transfer hoses with dry break couplings.</li> <li>• Hose maintenance process (hoses replaced and hydro tested at least annually)</li> <li>• The shutdown mechanism on the transfer pump in use (either on supply vessel or DWF when back loading) is tested each time a bulk transfer occurs to confirm the ability to shutdown if required.</li> <li>• Project specific Oil Spill Contingency Plans and Emergency Response Plans have been developed</li> </ul>
<b>Drilling and Completions</b>		
Discharge of WBM to sea from drill cuttings or uncontrolled releases	<ul style="list-style-type: none"> <li>• Deposition of cuttings to seabed may smother sessile benthic organisms. WBM may cause reduction on water quality and causing toxicity to marine species</li> </ul>	<ul style="list-style-type: none"> <li>• Use of low toxicity constituents to make up WBM</li> </ul>
Discharges from Tank Cleaning and interface fluids	<ul style="list-style-type: none"> <li>• Discharge of interface fluids overboard has the potential to change water quality causing toxicity to marine species</li> </ul>	<ul style="list-style-type: none"> <li>• Use of low toxicity constituents to make up all drilling fluids and use of low toxicity chemicals for tank washing</li> <li>• Transfer out as much of the tank residue before starting washing procedure</li> <li>• Washings are tested to confirm oil in water concentration is less than 10% by volume before discharging</li> <li>• Permit required for mud tank cleaning and discharge of washings.</li> <li>• Overboard drains from mud tanks are have blind valves installed which are classified as critical valves and are therefore locked and tagged, requiring PTW authority for use</li> </ul>

**JANSZ-IO DRILLING  
ENVIRONMENT PLAN SUMMARY**



Hazard	Potential Impact	Key Controls
<p>Discharge of NADF through adherence to drill cuttings</p>	<ul style="list-style-type: none"> <li>NADF adhered to drill cuttings discharged at sea has the potential to change water quality causing toxicity to marine species or smother sessile benthic organisms</li> </ul>	<ul style="list-style-type: none"> <li>All components of the drilling fluid (base oil and additives) have been ranked under the CHARM/OCNS system and provided with either a Gold/Silver or D/E ranking</li> <li>Cuttings processing system and NADF recovery system is used to reduce NADF ROC to &lt;10% by volume (shale shakers and 2 x cuttings dryer and centrifuge system)</li> <li>Routine maintenance of cuttings processing and NADF recovery system</li> <li>PTW required for NADF drilling and cuttings discharge</li> <li>Sampling points at both cuttings discharge lines to measure ROC</li> <li>Minimise volume disposed by: retention of base drilling mud for the duration of the well; optimisation of the solids control equipment; application of sound drilling mud engineering practices; and good supervision and communication</li> <li>Recover bulk NADF for reuse</li> <li>An automatic and independent power supply system for energizing the secondary (lower) packer if the primary (upper) packer loses air/fluid supply pressure</li> <li>An audible and visual alarm indicating primary system pressure loss located and monitored in a continuously manned space (Driller's cabin)</li> <li>A pressure transducer in the closing circuit that engages the back up pressure supply system with no more than a 20% loss of the required closing pressure of the primary system</li> <li>Pressure gauges are installed on the closing lines of both the primary and secondary slip joint packers</li> <li>The system is tested with seawater after every BOP/riser run to check that the packers are functioning correctly</li> </ul>



**JANSZ-IO DRILLING  
ENVIRONMENT PLAN SUMMARY**



Hazard	Potential Impact	Key Controls
Discharge of NADF through adherence to drill cuttings or through uncontrolled release from slip joint packer failure	<ul style="list-style-type: none"> <li>NADF discharged at sea has the potential to change water quality causing toxicity to marine species</li> </ul>	<ul style="list-style-type: none"> <li>All components of the drilling fluid (base oil and additives) have been ranked under the CHARM/OCNS system and provided with either a Gold/Silver or D/E ranking</li> <li>An audible and visual alarm indicating primary system pressure loss located and monitored in a continuously manned space (Driller's cabin)</li> <li>A pressure transducer in the closing circuit that engages the back up pressure supply system with no more than a 20% loss of the required closing pressure of the primary system</li> <li>Pressure gauges are installed on the closing lines of both the primary and secondary slip joint packers</li> <li>The system is tested with seawater after every BOP/riser run to check that the packers are functioning correctly</li> </ul>
Discharge of NADF through loss of positioning requiring riser to be disconnected	<ul style="list-style-type: none"> <li>NADF discharged at sea has the potential to change water quality causing toxicity to marine species</li> </ul>	<ul style="list-style-type: none"> <li>All components of the drilling fluid (base oil and additives) have been ranked under the CHARM/OCNS system and provided with either a Gold/Silver or D/E ranking</li> <li>Redundancy in all active components (generators, thrusters, switchboards, remote controlled valves etc.)</li> <li>3 x Independent position referencing systems in place</li> <li>Annual DP FMEA trials</li> <li>Continuous station keeping verification system</li> <li>DP ALARM in the event of system fault detection</li> <li>Preventative maintenance on power generation system, thrusters and DP control systems</li> <li>Nautical Institute certified DP operators</li> <li>Use of low toxicity constituents in NADF</li> <li>Jansz Drilling specific oil spill response plan</li> </ul>
Discharge to sea of cement, chemicals associated with gravel pack operations, wellbore cleanup fluids and fluids from flowback operations	<ul style="list-style-type: none"> <li>Discharges of cements and chemicals have the potential to reduce water quality with potential toxic effects on marine species</li> </ul>	<ul style="list-style-type: none"> <li>All components to make fluids for cement, gravel pack operations, wellbore clean-up and flowback operations have been ranked under the CHARM/OCNS system and provided with either a Gold/Silver or D/E ranking</li> <li>Limiting volume of all chemicals used to that which is required to meet operational requirement</li> </ul>

**JANSZ-IO DRILLING  
ENVIRONMENT PLAN SUMMARY**



Hazard	Potential Impact	Key Controls
Flaring from well testing and discharge of heated water	<ul style="list-style-type: none"> <li>Reduction in air quality and contribution to global levels of greenhouse gas in the atmosphere. Heated water has potential to impact water quality with potential impacts to marine organisms</li> </ul>	<ul style="list-style-type: none"> <li>Monitor flare performance to maximise efficiency of flaring operation.</li> <li>Flare modelling is conducted ahead of the activities to calculate the compressed air requirement for the oil burner to maintain efficient flaring</li> <li>Fuel combustion equipment appropriately maintained</li> <li>The Fuel Combustion Equipment is designed and built to appropriate codes and standards and certified</li> <li>Efficiency of heat transfer process is monitored via data acquisition system upon these results steam generation and hence hot water discharge is controlled</li> </ul>
<b>Unplanned Events</b>		
Uncontrolled release of diesel from vessel to vessel collision or vessel to MODU collision causing rupture of vessel fuel tank	<ul style="list-style-type: none"> <li>Discharge of diesel to sea causing reduction in water quality and toxicity to marine species</li> </ul>	<ul style="list-style-type: none"> <li>Support vessels have radar watch</li> <li>500 m exclusion zone for other vessels</li> <li>Trained and qualified Vessel Masters on Support vessels</li> <li>Maintain radar watch when in the area</li> <li>DWF and supply vessels use DP to maintain position</li> <li>All vessel to DWF transfers (or vice versa) require a permit to work</li> <li>DWF and supply vessels are double hulled</li> <li>Project specific Oil Spill Contingency Plans and Emergency Response Plans have been developed</li> </ul>

**JANSZ-IO DRILLING  
ENVIRONMENT PLAN SUMMARY**



Hazard	Potential Impact	Key Controls
Well Control event leading to subsea well blowout	<ul style="list-style-type: none"> <li>• Discharge of hydrocarbon causing reduction in water quality and toxicity to marine species</li> <li>• Physical impacts to marine fauna</li> <li>• Disruption to other activities</li> </ul>	<ul style="list-style-type: none"> <li>• Minimum of 2 physical barriers in each potential flow path (each physical barrier shall be pressure tested, preferably in the direction of flow. If testing in the direction of flow is not possible, a pressure test from above shall be performed. If pressure testing is not possible, the integrity of the barrier shall be verified through diagnostics and/or analysis of the operation by which the barrier was installed).</li> <li>• Well Operations Management Plan(WOMP)</li> <li>• Procedures to be used to regain well control, should they be required, have been agreed between DWF operator Transocean and ExxonMobil</li> <li>• Well control equipment is maintained and tested per EMDC OIMS requirements</li> <li>• Selection of competent drilling contractor</li> <li>• Utilising personnel who are trained and competent in well control</li> <li>• Wellbore stability is maintained through use of correctly weighted wellbore fluids</li> <li>• Pressure testing of casing strings</li> <li>• Continuous monitoring of abnormal pressure parameters during drilling.</li> <li>• Ensuring the drill crew is fully trained in emergency well control procedures.</li> <li>• Project specific Oil Spill Contingency Plans and Emergency Response Plans have been developed</li> </ul>

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## 6 IMPLEMENTATION STRATEGY

This project is being implemented under the umbrella of the ExxonMobil Environmental Policy. Transocean as the drill ship operator will use its Company Management System to implement the strategy on the Deepwater Frontier. The implementation strategy includes the following elements:

- Systems, practices and procedures which incorporate the management actions listed above
- Management of third party contractor services and equipment
- Clear definition of roles and responsibilities
- Training, communications and awareness of environmental commitments and performance standards
- Performance measurement and reporting, including regulatory reporting and incident reporting
- Management of change procedures, including associated updates and approvals of the Environment Plan
- Emergency preparedness and response
- Compliance assessments and audits

## 7 CONSULTATION PROCESS

ExxonMobil has undertaken consultation with all relevant stakeholders regarding the revision of the Jansz-lo Environment Plan. Consultation is categorised by tiers depending on the role of the stakeholder:

- Primary stakeholders include statutory and regulatory authorities and government organisations which are identified as potential responders to a spill incident
- Secondary stakeholders are users of the area which may be affected by the normal operations (e.g. fisheries) or those which may be affected through impacts of environmental incidents
- Thirdly, the tertiary stakeholders include parties which won't be directly impacted by the activities but may have an interest in the event of environmental incidents (e.g. coastal shires, other petroleum operators in the region)

### 7.1 Consultation Already Undertaken

Consultation specific to this Jansz-lo drilling activity was undertaken by ExxonMobil prior to the start of the Jansz-lo Drilling activities with the Primary stakeholders at the time. There were no issues identified or concerns raised through the process at the time. During the revision of the EP ExxonMobil reviewed and revised the list of stakeholders in the categories noted above and consulted with the Primary stakeholders who would potentially be affected by the revision to the EP. A consultation matrix is maintained to reflect the categories of stakeholders and details the method and level of consultation that has taken place and would be required in the event of an incident.

### 7.2 Ongoing Consultation

The ongoing consultation process will involve:

- Keeping a log of any communication with stakeholders as they pertain to the drilling activities
- Keeping the identified stakeholders up to date if any significant changes are made to the program that are likely to impact on them
- Keeping stakeholders informed in the event of an emergency or a spill situation that has the potential to impact them

## 8 CONTACT DETAILS

ExxonMobil maintains an active community consultation programme that includes regular contact with regulators, stakeholders, businesses, community leaders and interested groups. Project-related stakeholder consultation activities completed to date have indicated that the Jansz-IO activities are not expected to have an impact on any known recreational or commercial activities.

All queries related to the Jansz-IO drilling activities should be directed to:

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