



Gorgon Operations

Gorgon and Jansz Feed Gas Pipelines Operations
(State) - Environment Plan Summary

Document ID: GOR-COP-01488
Revision Date: 13 August 2015
Information Sensitivity: Public

Revision ID: 1.0
Next Revision Due:

This page has been left blank intentionally

© 2015 by Chevron Corporation

This document contains proprietary information of Chevron Corporation. Any use of this document without express, prior, written permission from Chevron Corporation and/or its affiliates is prohibited.

Contents

1.0	Introduction	4
1.1	Purpose.....	4
1.2	Scope	4
1.3	Location	4
1.4	Timeframes	5
1.5	Nominated Titleholder Details	5
2.0	Description of the Petroleum Activity.....	7
2.1.1	Commissioning and Start-up	7
2.1.2	Operations	7
2.1.3	Inspections, Maintenance and Repair (IMR) Activities	7
2.1.4	Vessel Operations	8
2.1.5	Onshore Vehicles and Equipment	8
3.0	Description of the Environment.....	9
4.0	Environmental Impacts and Risks	13
5.0	Management Approach	18
5.1	Operational Excellence Management System.....	18
5.2	Environment Plan Review	18
6.0	Oil Pollution Emergency Plan (OPEP)	19
7.0	Stakeholder Consultation Plan	20
7.1	Consultation Undertaken	20
7.2	Ongoing Consultation.....	21
8.0	Acronyms and Abbreviations	22

Tables

Table 1-1: Gorgon and Jansz Feed Gas Pipeline Licence Coordinates	4
Table 1-2: Nominated Titleholder Contact Details	5
Table 3-1: Particular marine and shoreline values and sensitivities that occur within the EMBA10	
Table 3-2: Particular terrestrial values and sensitivities that may be affected by the petroleum activity on Barrow Island.....	12
Table 4-1: Potential Environmental Impacts, Risks and Control Measures	14
Table 7-1 Stakeholders Engaged for the Gorgon and Jansz Feed Gas Pipelines Operations activities (in State Waters and on Barrow Island)	20
Table 8-1: Acronyms and Abbreviations	22

Figures

Figure 1-1: Overview of Petroleum Activity Location	6
---	---

This page is intentionally blank.

1.0 Introduction

1.1 Purpose

The Gorgon and Jansz Feed Gas Pipelines Operations (State) – Environment Plan Summary (this Summary) summarises the Gorgon and Jansz Feed Gas Pipelines Operations Environment Plan (the Plan) accepted by the Western Australia Department of Mines and Petroleum (DMP) on 28th July 2015. This Summary has been prepared in accordance with Regulation 11(7) and 11(8) of the Petroleum Pipelines (Environment) Regulations 2012 and the Petroleum (Submerged Lands) (Environment) Regulations 2012, referred to collectively as the Petroleum (Environment) Regulations.

1.2 Scope

The scope of the Plan, and this Summary, includes activities in State Waters and onshore Barrow Island associated with the operation of the Gorgon and Jansz Feed Gas Pipelines (the petroleum activity). This includes the following primary activities:

- Commissioning and Start-up (not including pre-commissioning activities)
- Operations
- Inspection, Maintenance and Repairs (IMR)
- Vessels (offshore) and vehicle and equipment operations (onshore) within the Operational Area (defined in Section 2.0).

Activities occurring in Commonwealth Waters are not included in the Plan.

1.3 Location

The Gorgon gas fields (WA-37-L and WA-38-L) and the Jansz–Io gas fields (WA-36-L, WA-39-L, and WA-40-L) are located approximately 130 km and 200 km respectively off the north-west coast of Western Australia (Figure 1-1) in Commonwealth Waters. The Gorgon and Jansz Feed Gas Pipelines run from the gas fields to the north-west coast of Barrow Island (at North Whites Beach) and then approximately 12 km overland along the pipeline Right of Way (ROW) to the Gorgon Gas Treatment Plant (GGTP). The information in this EP summary relates to infrastructure located in State Waters and on Barrow Island only, as outlined in Table 1-1.

Table 1-1: Gorgon and Jansz Feed Gas Pipeline Licence Coordinates

Pipeline Section	Licence	Start Point	End Point
State Waters	TPL/21 Jansz–Io to Barrow Island (State Waters) Pipeline	7 713 159.20 mN 329 463.32 mE	7 711 319.57 mN 334 961.94 mE
	TPL/22 Gorgon to Barrow Island (State Waters) Pipeline	7 713 048.95 mN 329 359.25 mE	7 711 285.39 mN 334 947.54 mE
Barrow Island	PL 84 Jansz to Barrow Island (Onshore) Pipeline	7 711 319.57 mN 334 961.94 mE	7 700 475.00 mN 337 994.28 mE
	PL 85 Gorgon to Barrow Island (Onshore) Pipeline	7 711 319.57 mN 334 961.94 mE	7 700 475.00 mN 337 956.78 mE

Source: Annexure 'C' of TPL/21, TPL/22, PL84, and PL85
Datum: GDA 1994

1.4 Timeframes

Commissioning and start-up activities are planned to commence in 2015. Following start-up, operations are expected to continue for the nominal operational design life of 50 years. Inspection, maintenance and repair activities may occur at any time during commissioning, start-up and operation. The timing of activities is indicative, and subject to potential delays caused by weather events, vessel availability and other unforeseen factors.

1.5 Nominated Titleholder Details

Chevron Australia Pty Ltd (Chevron Australia) is the nominated titleholder and operator on behalf of the titleholders for the Gorgon and Jansz Feed Gas Pipelines in State Waters. Contact details for Chevron Australia are as follows:

Table 1-2: Nominated Titleholder Contact Details

Company Name	Chevron Australia Pty Ltd
Contact Person	Graeme Harman
Business Address	GPO Box S1580, Perth, WA, 6845
Telephone Number	08 9216 4000
Email Address	ask@chevron.com

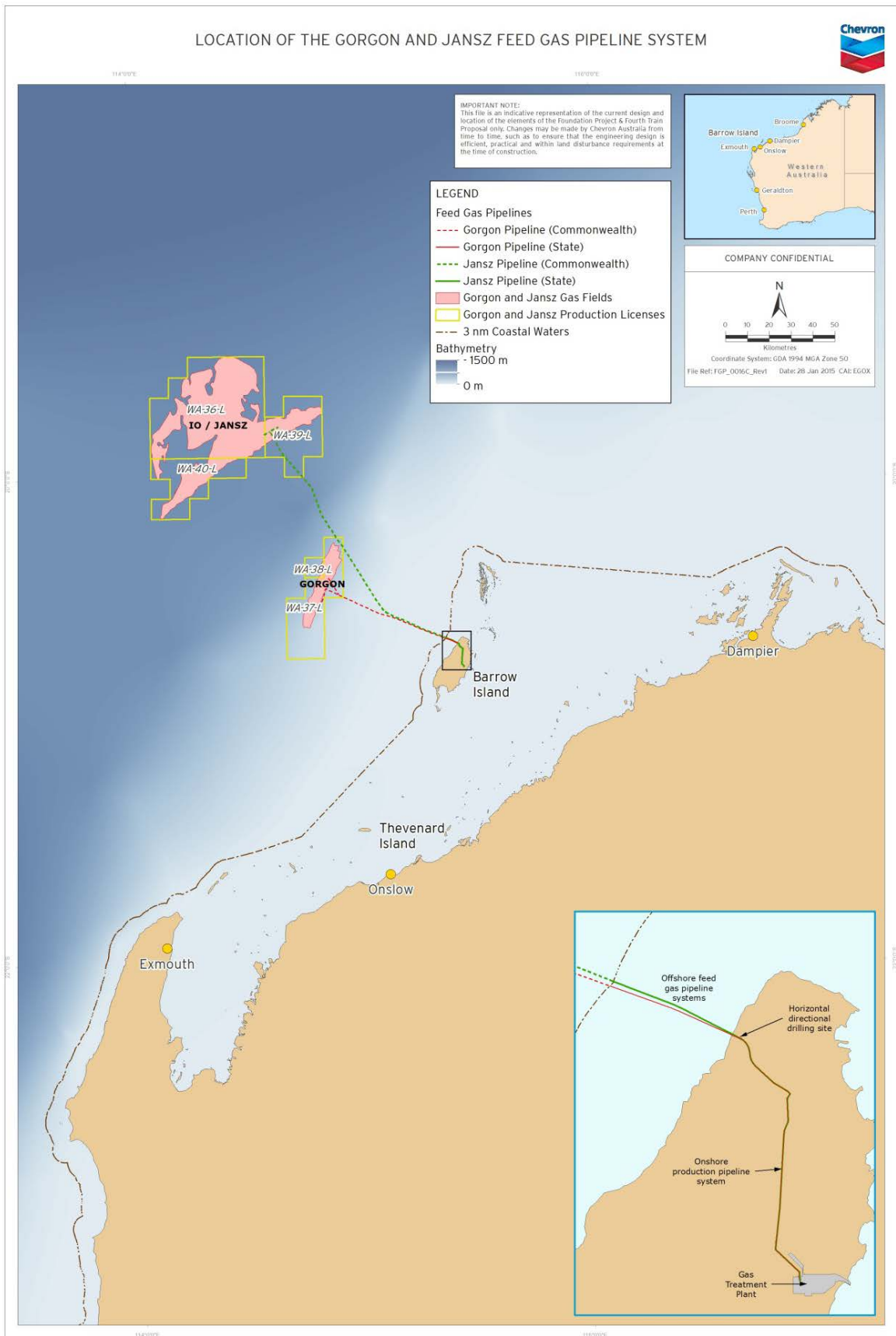


Figure 1-1: Overview of Petroleum Activity Location

2.0 Description of the Petroleum Activity

In State Waters, the system comprises the Gorgon and Jansz production pipelines, mono ethylene glycol (MEG) flowlines, utility flowlines and umbilicals, which run in parallel from the boundary of State Waters to Barrow Island. The pipelines, flowlines and umbilicals are protected by a rock berm commencing in Commonwealth Waters at approximately 50 m water depth to 13 m water depth, approximately 500 m from shore, where they enter horizontal directionally drilled (HDD) conduits that pass beneath North Whites Beach on the north-west coast of Barrow Island.

On Barrow Island, the HDD shore crossing terminates approximately 100 m behind North Whites Beach. From here, the pipelines, flowlines and umbilicals remain underground, buried in a backfilled trench located within the pipeline easement, approximately 12 km long and 31 m wide, to the GGTP. This easement is referred to as the ROW. The Gorgon and Jansz Feed Gas Pipelines come above ground inside the pig receiver compound within the boundary of the GGTP. The pipeline licences include the permanent pig receiver station and up to the production off-take connection.

The production pipelines, flowlines and umbilicals in State Waters and the onshore ROW have no pathways for planned emissions or discharges to the marine or terrestrial environment during commissioning, start-up, or normal operations. Within the State jurisdiction, fluid from the production pipelines are received and managed within the GGTP.

The Operational Area (where the petroleum activities described in the Plan will take place) is defined as an area extending 100 m either side of the outermost Gorgon and Jansz Feed Gas Pipeline routes in State Waters and the approximately 31 m wide, 12 km long pipeline ROW on Barrow Island.

2.1.1 Commissioning and Start-up

The purpose of commissioning activities described in this plan are to ensure that the components of the system are installed, tested, and function as per the project design documentation and specifications prior to start-up. Discharges associated with commissioning and start-up occur in Commonwealth Waters and are not assessed in the Plan. There are no planned discharges associated with the commissioning activity in State Waters or the ROW.

2.1.2 Operations

The principal activity during operations will be the steady-state flow of gas-condensate through the production pipelines to the GGTP, which is monitored and controlled from Barrow Island. As with commissioning and start-up, there are no planned emissions or discharges to the marine or terrestrial environment in State Waters or the ROW during normal operating conditions.

2.1.3 Inspections, Maintenance and Repair (IMR) Activities

IMR activities are to be undertaken on the Gorgon and Jansz Feed Gas Pipelines to ensure the integrity of the hydrocarbon system is maintained. IMR activities may occur at any time during commissioning, start-up, or operations.

Inspections in State Waters may include the following:

- visual inspections
- marine acoustic surveys
- non-destructive testing
- cathodic protection measurements
- pigging.

Maintenance and repair activities may be required during the operational life of the project to prevent deterioration and/or failure of infrastructure; and maintain reliability and performance of infrastructure. Where required, maintenance and repair could include activities such as:

- span correction for stabilisation of the subsea pipeline
- maintenance of pipeline markers and management of vegetation encroachment along the onshore access track
- general maintenance of cathodic protection systems and other working components
- excavation to gain access to, or enable minor repairs of, infrastructure
- repair of minor pipeline defects.

Maintenance and repair activities are expected to be infrequent, and the exact frequency of maintenance activities will depend on the results of inspections.

2.1.4 Vessel Operations

Vessel operations for the petroleum activities associated with this Plan are expected to be of low intensity. It is anticipated that a vessel may be used for routine inspection activities along the pipelines in State Waters for approximately one to two weeks per year. The precise frequency and timing is informed by monitoring and previous inspections.

Maintenance and repair activities may result in additional vessel time, but such activities are expected to be infrequent and the time a vessel is required on site will depend on the scale and complexity of the maintenance or repair work required.

Vessels will operate using dynamic positioning (DP), however under some circumstances vessels may need to be anchored depending on the activity being undertaken and the associated vessel requirements.

2.1.5 Onshore Vehicles and Equipment

IMR activities on Barrow Island will generally comprise a vehicle driving along the pipeline route for one day each month, however, there may be occasions (for example repairs) when additional vehicles or equipment such as excavators, generators or other equipment may be required.

3.0 Description of the Environment

Barrow Island is a Class A Nature Reserve located within the Montebello Islands/Barrow Island Marine Conservation Reserves. The geology and soils of Barrow Island generally consist of calcarenite and limestone overlain by alluvium, colluvium and aeolian sand. The onshore ROW traverses seasonal drainage lines, which are all ephemeral and typically only flow for short periods following high intensity rainfall, such as that associated with severe storms or cyclones. There are two aquifers below Barrow Island: a deep, brackish aquifer found at depths below 900 m, and a shallow unconfined aquifer (the water table) that contains a fresher water lens at depths typically between 9 m and 53 m floating upon denser, saline groundwater.

From the HDD shore crossing to the limit of State Waters, water depths range from approximately 13-25 m. At water depths less than 5 m, shallow limestone pavement reef is present which supports macroalgal communities. In deeper waters, a patchy and thin veneer of sand and fine gravel overlies rock in deeper waters, becoming increasingly patchy in high-energy nearshore waters.

Table 3-1 summarises particular marine and shoreline environmental values and sensitivities associated with the Operational Area, as well as the broader environment that may be affected (EMBA). Table 3-2 summarises the particular values and sensitivities on Barrow Island that may be affected by the petroleum activity.

It should be noted that no cultural heritage values or sensitivities occur within or adjacent to the Operational Area (on Barrow Island or in State Waters).

Table 3-1: Particular marine and shoreline values and sensitivities that occur within the EMBA

Values	Operational Area	Broader EMBA	Description of Particular Values and Sensitivities
Marine Values			
Migratory route for marine mammals	X	X	<ul style="list-style-type: none"> • Humpback Whale migration Biologically Important Area (BIA) traverses the Operational Area and EMBA. • The Pygmy Blue Whale migration BIA also traverses the EMBA.
Resident dolphin populations	X	X	<ul style="list-style-type: none"> • Bottlenose Dolphins and Indo-Pacific Humpback Dolphins have resident populations within the Barrow and Montebello Islands area.
Foraging and inter-nesting marine turtles	X	X	<ul style="list-style-type: none"> • BIA for year-round foraging and inter-nesting marine turtle species.
Foraging marine avifauna	X	X	<ul style="list-style-type: none"> • Several BIAs and Important Bird Areas (IBAs) for foraging seabirds, including Fairy Tern, Lesser Crested tern, Roseate Tern, Wedge-tailed shearwater, overlap the EMBA.
Whale shark aggregation		X	<ul style="list-style-type: none"> • An identified BIA for the foraging of migrating Whale Sharks traverses the EMBA. • Ningaloo Marine Park is noted internationally for the annual aggregation of Whale Sharks.
Subtidal Values			
Coral and reef communities		X	<ul style="list-style-type: none"> • Coral reefs of significance located within the EMBA around Barrow Island are Biggada Reef on the west coast, and Dugong Reef and Batman Reef on the east coast. • The Ningaloo reef is one of the largest and structurally complex fringing reefs in the world and is located within the EMBA.
Seagrass and macroalgal communities	X	X	<ul style="list-style-type: none"> • Macroalgal communities are present on shallow limestone pavement in the Operational Area and the wider EMBA. • No significant seagrass assemblages have been observed in the vicinity of the Operational Area, but occur within the EMBA in sanctuary zones and conservation areas of the Montebello/Barrow Islands Marine Conservation Reserves, Pilbara Coast, Exmouth Gulf and the Ningaloo Coast.
Key Ecological Features (KEFs)		X	<ul style="list-style-type: none"> • Exmouth Plateau • Glomar Shoals • Continental slope demersal fish communities • Ancient coastline at 125 m depth contour

Values	Operational Area	Broader EMBA	Description of Particular Values and Sensitivities
			<ul style="list-style-type: none"> • Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula • Commonwealth Waters adjacent to Ningaloo Reef
Shoreline Values			
Nesting marine turtles	X	X	<ul style="list-style-type: none"> • The Operational Area overlaps a Green Turtle nesting BIA on the west coast of Barrow Island. • Green, Hawksbill, Loggerhead and Flatback Turtles use the sandy beaches in the region for breeding and nesting, including the Barrow and Montebello Islands, Pilbara Coast islands, the Ningaloo Coast and the Muiron Islands.
Staging and nesting marine avifauna		X	<ul style="list-style-type: none"> • Important rookeries for a diverse number of marine and migratory bird species and other suitable avifauna nesting habitat are present within the EMBA. • Several BIAs for breeding seabirds, including Fairy Tern, Lesser Crested Tern, Roseate Tern, and Wedge-tailed Shearwater overlap the Area.
Mangroves		X	<ul style="list-style-type: none"> • Mangroves in the Montebello Islands, are recognised as 'regionally significant' and globally unique due to their location in lagoonal systems on oceanic islands. • Regionally significant mangrove communities occur along the Pilbara coastline. • Mangrove communities represent a unique community within the Ningaloo reef system.
Intertidal mudflats		X	<ul style="list-style-type: none"> • Provides important foraging grounds for resident and migratory shorebirds. • Significant intertidal mudflats are present in the Montebello Islands and Exmouth Gulf. • Small areas of mudflat are present on the eastern and southern shores of Barrow Island.
Socio-economic Values			
Commercial and recreational fishing	X	X	<ul style="list-style-type: none"> • Permits for several State and Commonwealth fisheries, and recreational fishing activities, overlap the Operational Area and EMBA.
Commercial shipping		X	<ul style="list-style-type: none"> • Shipping lanes for local and international vessels traverse the EMBA.
Marine-based tourism and recreation		X	<ul style="list-style-type: none"> • The Pilbara coast and islands are used for tourism and recreational activities such as fishing and boating. • Ningaloo reef and Exmouth Gulf offer nature-based tourism, wildlife interaction tours, beach recreation, snorkelling, diving and fishing.
Aquaculture		X	<ul style="list-style-type: none"> • Pearl hatcheries in Exmouth supply spat to pearl farms in WA.

Table 3-2: Particular terrestrial values and sensitivities that may be affected by the petroleum activity on Barrow Island

Values	Description of Particular Values and Sensitivities
Terrestrial Values	
Flora and vegetation	<ul style="list-style-type: none"> • The habitat adjacent to the ROW potentially supports a single Priority 3 flora species, <i>Corchorus congener</i>, but this species is relatively abundant and widespread on Barrow Island. • Priority Ecological Communities (PECs) listed by the Western Australian Department of Parks and Wildlife (DPaW) include <i>Triodia angusta</i> dominated creekline vegetation PEC and coastal dune soft spinifex grassland, both of which have the potential to occur in areas adjacent to the ROW.
Subterranean fauna	<ul style="list-style-type: none"> • Subterranean fauna communities, including stygofauna and troglafauna, occurs widely across Barrow Island and has the potential to occur beneath the Operational Area. • Subterranean fauna communities are listed by DPaW as a PEC.
Areas of significant fauna habitat	<ul style="list-style-type: none"> • Boodie warrens and termite mounds are known to occur on land adjacent to the ROW. These habitats are considered important for high biodiversity, protected or rare and endangered fauna on Barrow Island. • Nesting habitat for the White-winged Fairy-wren (Barrow Island) may also occur adjacent to the ROW.
Socio-economic Values	
Petroleum Activities	<ul style="list-style-type: none"> • Barrow Island is the location of the Gorgon Gas Development and GGTP and the WA Oil – oilfield.

4.0 Environmental Impacts and Risks

Aspects associated with the petroleum activity have been subjected to an impact and risk assessment to understand the potential environmental risks associated with the activity and reduce impacts and risks to as low as reasonably practicable (ALARP) and an acceptable level.

An Environmental Risk Assessment Workshop was undertaken to evaluate impacts and risks arising from the petroleum activities described in Section 2.0. The risk assessment also considered emergency events related to spills and spill response activities.

The environmental impact identification and risk assessment process comprised the following components:

- Identification of petroleum activities and emergency conditions (including spill response activities)
- Identification of particular environmental values and sensitivities within the EMBA
- Identification of relevant aspects with the potential to pose a hazard to identified particular values within the EMBA
- Evaluation of the potential consequences to the identified values and sensitivities without controls
- Identification of control measures to reduce the potential likelihood of the consequence occurring
- Evaluation of the likelihood of the consequence occurring with planned and confirmed control measures in place
- Quantification of the risk ranking with control measures in place
- Determination of whether the potential environmental impacts and risks are ALARP after considering the effectiveness of the identified controls
- Determination of whether the potential environmental impacts and risks are acceptable

Control measures were identified during the environmental risk workshop to ensure identified risks were reduced to ALARP and of an acceptable level. Control measures were considered in terms of both preventing the impact occurring, and mitigating the severity of the consequence, drawing on the hierarchy of controls, identified as Elimination, Substitution, Isolation, Engineering, and Administration and Procedures.

The risk assessment was undertaken in accordance with the Chevron Australia Health, Environment, and Safety (HES) Risk Management Process and the processes outlined in ISO 31000:2009 Risk Management – Principles and Guidelines and Handbook 203:2012 Managing Environment-related Risk.

A summary of the environmental impacts, risks and control measures in place to manage the activity is detailed in Table 4-1.

Table 4-1: Potential Environmental Impacts, Risks and Control Measures

Source of Environmental Impact or Risk (Hazards)	Potential Environmental Impacts and Risks (Consequences)	Control Measures
Commissioning and Start-up		
Aspects associated with Commissioning and Start-up activities are included in Operations below.		
Operations		
Offshore leak of hydrocarbons from a minor pipeline defect resulting from pipeline corrosion or damage by natural events	<ul style="list-style-type: none"> Localised changes to water quality and impacts to habitats or marine fauna present in the vicinity of the leak 	<ul style="list-style-type: none"> Hydrotesting of the pipeline to confirm pipeline integrity prior to start-up Regular inspections and monitoring of the pipeline and subsea infrastructure to check integrity Flow Management Tool (FMT) to detect potential leaks Critical spares available to repair minor defects in the unlikely event that they should occur
Onshore leak of hydrocarbons from a minor pipeline defect resulting from pipeline corrosion, external interference or damage by natural events	<ul style="list-style-type: none"> Localised contamination of the surrounding soil and groundwater, with subsequent toxicological effects to subterranean fauna 	<ul style="list-style-type: none"> Hydrotesting of the pipeline to confirm pipeline integrity prior to start-up Regular inspections and monitoring of the pipeline and subsea infrastructure to check integrity Flow Management Tool (FMT) to detect potential leaks Excavation procedures to prevent excavation works on Barrow Island from damaging the pipeline Critical spares available to repair minor defects in the unlikely event that they should occur
Inspection, Maintenance and Repairs		
Infrequent excavation works left open overnight on Barrow Island, if required for an activity such as a repair	<ul style="list-style-type: none"> Potential entrapment, injury or mortality of terrestrial fauna 	<ul style="list-style-type: none"> Procedures for implementing fauna egress or exclusion controls, and undertaking inspections for trapped fauna

Source of Environmental Impact or Risk (Hazards)	Potential Environmental Impacts and Risks (Consequences)	Control Measures
Vessel Operations		
Discharges of vessel bilge water and sewage	<ul style="list-style-type: none"> Localised changes in water quality with the potential for impacts to individual migrating cetaceans, resident dolphins, marine turtles or foraging avifauna within close proximity of the vessel at the time of discharge 	<ul style="list-style-type: none"> MARPOL-compliant sewage treatment plant present on vessels greater than 400T involved in the petroleum activity MARPOL-compliant oil-water separator present on vessels greater than 400T involved in the petroleum activity Discharge of bilge water and sewage in accordance with MARPOL or sufficient storage on board vessel to allow disposal onshore Chevron vessel inspections to confirm vessels are compliant with requirements
Seabed disturbance from anchor drag	<ul style="list-style-type: none"> Localised disturbance to previously undisturbed subtidal macroalgal habitats and communities 	<ul style="list-style-type: none"> Mooring procedures to reduce the risk of anchor drag from vessels involved in the petroleum activity
Introduction of invasive marine pests (IMPs) from ballast water exchange and/or biofouling on vessel	<ul style="list-style-type: none"> Changes to the structure of sub-tidal habitats and communities (macroalgal and coral reef communities) by predation or out-competing native species 	<ul style="list-style-type: none"> Vessels involved in the petroleum activity will have Australian Government quarantine clearance to operate in Australian Waters Vessels involved in the petroleum activity will comply with Australian Ballast Water Management Requirements Vessels involved in the petroleum activity and operating within the Barrow Island Marine Quarantine Zones will have a pre-arrival risk assessment, a Vessel Quarantine Management Plan, and will be wetside compliant (including anti-fouling coating, and inspections and/or cleaning/treatment if hulls and seawater systems, if required).
Spill on board vessel leading to the release of small volumes of hydrocarbons or chemicals into the marine environment	<ul style="list-style-type: none"> Localised changes in water quality with the potential for impacts to individual migrating cetaceans, resident dolphins, marine turtles or foraging avifauna exposed for a short period within close proximity of the vessel 	<ul style="list-style-type: none"> Shipboard Oil Pollution Emergency Plan (SOPEP) Spill kits on board, as per SOPEP Chevron vessel inspections to confirm vessels are compliant with requirements
Onshore Vehicles and Equipment		
Vehicles driving along the onshore ROW	<ul style="list-style-type: none"> Vehicle strike resulting in potential injury or mortality of small numbers of terrestrial fauna 	<ul style="list-style-type: none"> In-vehicle Monitoring Systems to manage vehicle speeds Trained fauna handlers available to manage injured fauna

Source of Environmental Impact or Risk (Hazards)	Potential Environmental Impacts and Risks (Consequences)	Control Measures
Use of temporary lighting towers (for unlikely/highly infrequent night time repair works) within 500 m of the beach during turtle nesting season	<ul style="list-style-type: none"> Potential misorientation of a small number of marine turtle hatchlings leading to mortality by predation or dehydration 	<ul style="list-style-type: none"> Where practicable, onshore IMR will be scheduled during daylight hours If scheduling of onshore IMR activities are required to be undertaken at night, within 500 m of the beach, and during turtle nesting season (November to March), an activity-specific risk assessment will consider appropriate lighting controls, taking into account light orientation and shielding.
Emergency Conditions		
Release of hydrocarbons from a major defect of the pipeline system caused by anchoring, dropped objects from vessels, or damage by natural events	<ul style="list-style-type: none"> Impacts to migrating cetaceans, resident dolphins, marine turtles and foraging seabirds from widespread, but short-term exposures of hydrocarbons on the sea's surface Localised and short-term effects on fish communities, fisheries and coral reef communities from exposure to entrained and dissolved hydrocarbons in the water column Impacts to local populations of nesting marine turtles, seabirds and mangrove communities at the shoreline 	<ul style="list-style-type: none"> Regular inspections and monitoring of the pipeline and subsea infrastructure to check integrity Identify pipelines on marine charts Anchoring procedures for vessels involved in the petroleum activity to minimise risk damage to the pipeline Risks of dropped objects from vessels managed by a Vessel Safety Case Flow Management Tool (FMT) to detect potential leaks Source control (emergency shutdown) procedures Emergency response activities will be implemented in accordance with Chevron's Oil Pollution Emergency Plan (OPEP) Emergency response preparedness and training
Vessel collision or spill on board vessel leading to the release of hydrocarbons into the marine environment	<ul style="list-style-type: none"> Impacts to migrating cetaceans, resident dolphins, marine turtles, seabirds and intertidal coral reef communities from widespread, but short-term exposures of hydrocarbons on the sea's surface Localised and short-term effects on fish communities, fisheries and sub-tidal coral reef communities from exposure to entrained and dissolved hydrocarbons in the water column Impacts to local populations of nesting marine turtles, seabirds and mangrove communities at the shoreline 	<ul style="list-style-type: none"> Vessel Simultaneous Operations (SIMOPS) Plan and procedures Shipboard Oil Pollution Emergency Plan (SOPEP) Emergency response activities will be implemented in accordance with Chevron's Oil Pollution Emergency Plan (OPEP) Emergency response preparedness and training

Source of Environmental Impact or Risk (Hazards)	Potential Environmental Impacts and Risks (Consequences)	Control Measures
Emergency Response Activities		
Shoreline clean-up and oiled wildlife response activities	<ul style="list-style-type: none"> Disturbance of marine turtle and bird nesting habitats 	<ul style="list-style-type: none"> Net Environmental Benefit Analysis (NEBA) to determine if implementing response activities will have a net environmental benefit (will outweigh the environmental risks of not implementing them). Relocation of fauna and/or nests, where directed by NEBA Where practicable, previously established access tracks will be used to access impacted shorelines
	<ul style="list-style-type: none"> Fauna casualties through incorrect handling 	<ul style="list-style-type: none"> Trained oiled wildlife response personnel and supervision Net Environmental Benefit Analysis (NEBA) to determine if fauna handling activities will have a net environmental benefit (will outweigh the environmental risks of not implementing them).
Physical presence of shoreline protection and deflection equipment	<ul style="list-style-type: none"> Localised disturbance of sensitive nearshore and shoreline habitats, including mangrove and coral reef communities 	<ul style="list-style-type: none"> Net Environmental Benefit Analysis (NEBA) to determine if implementing response activities will have a net environmental benefit (will outweigh the risks of not implementing them).
Noise disturbance caused by hazing activities during oiled wildlife response (hazing is a wildlife deterrent tactic intended to prevent wildlife encountering spilled hydrocarbons)	<ul style="list-style-type: none"> Disturbance and/or harm to nesting seabirds 	<ul style="list-style-type: none"> Inspection of hazing activities to ensure direct impacts do not occur
Secondary contamination due to inadequate waste management	<ul style="list-style-type: none"> Localised secondary contamination and impacts to marine and shoreline habitats and fauna 	<ul style="list-style-type: none"> Waste management and disposal procedures Licensed waste disposal facility

5.0 Management Approach

The implementation strategy in the Plan identifies the systems, practices, and procedures used to ensure the environmental impacts and risks of the activities are continuously reduced to ALARP and the environmental performance outcomes and standards are met.

5.1 Operational Excellence Management System

The implementation strategy of the Plan has been developed in line with Chevron Australia's Operational Excellence Management System. Chevron's Operational Excellence Management System is aligned to ISO 14001:2004 and key components of the management system are described in the table below.

OEMS Element	Description of Processes/Procedures
Safe Operations	Operate and maintain facilities to prevent injuries, illness, and incidents (risk management)
Management of Change	Manage both permanent and temporary changes to prevent incidents
Environmental Stewardship	Strive to continually improve environmental performance and reduce impacts from our operations
Incident Investigation	Investigate and identify root causes of incidents to reduce or eliminate systemic causes to prevent future incidents
Community and Stakeholder Engagement	Reach out to the community and engage in open dialogue to build trust
Emergency Management	Prevention is the first priority, but be prepared to respond immediately and effectively to all emergencies involving wholly owned or operated Chevron assets
Compliance Assurance	Verify conformance with OE requirements in applicable company policy and government laws and regulations, including demonstration of compliance with environmental performance objectives and standards provided in the Plan.

5.2 Environment Plan Review

Chevron's Management of Change process will be followed to document and assess the impact of changes to the petroleum activities described in the Plan. These changes will be addressed to determine if there is potential for any new or increased environmental impact or risk not already provided for in the Plan. Where required, the Plan will be re-submitted to DMP for approval in accordance with Regulation 18 of the of the Petroleum Pipelines (Environment) Regulations 2012 and the Petroleum (Submerged Lands) (Environment) Regulations 2012.

In accordance with the Regulations, Chevron will also submit a proposed revision of the Plan every five years from the date the Plan is accepted.

6.0 Oil Pollution Emergency Plan (OPEP)

An Oil Pollution Emergency Plan (OPEP) has been developed to address the specific response measures and procedures that would be implemented to minimise the impact of an oil spill from a petroleum activity associated with the Plan. The OPEP interfaces with Chevron's broader emergency response framework and management systems.

The OPEP adopts a tiered response philosophy to emergency response, which is consistent with that adopted by the National Marine Oil Spill Contingency Plan (2005).

The OPEP contains the necessary operational information and details the response capability required to respond to the worst-case credible spill scenarios identified from petroleum activities associated with the operation of the Gorgon and Jansz Feed Gas Pipelines in State Waters. Modelling of these scenarios provided the basis of the environment that may be affected (EMBA) which is described in Section 3.0.

The OPEP is designed to be an operational document to ensure a rapid and appropriate response in the unlikely event of an oil spill and provides guidance on:

- Response activation
- Specific response options to be adopted for scenarios specific to the petroleum activity
- Practical information required to undertake a rapid and effective response
- External notification and reporting
- Co-ordination of external resources.

The following spill response strategies have been assessed as applicable for potential hydrocarbon spill events related to the operation of the Gorgon and Jansz Feed Gas Pipelines in State Waters:

- Monitor, Evaluate and Surveillance (MES)
- Natural Recovery and Assisted Natural Dispersion (AND)
- Containment and Recovery (if feasible)
- Shoreline Protection
- Shoreline Clean up
- Oiled Wildlife Response (OWR)
- Waste Management.

Chevron undertakes emergency response exercises to ensure emergency response preparedness. The OPEP will be tested at least annually.

A review of the OPEP will be undertaken in the event of any of the following:

- an emergency condition
- the identification of additional response strategies to emergency conditions
- the identification of necessary improvements to the OPEP following the review of emergency response exercises.

Chevron Australia will submit a proposed revision of the OPEP every two and a half-years from the date the OPEP is accepted by DMP.

7.0 Stakeholder Consultation Plan

Chevron prepared a Stakeholder Consultation Plan specific for this petroleum activity. The Stakeholder Consultation Plan describes:

- stakeholder identification and analysis
- stakeholder engagement log, including information provided to stakeholders and Chevron responses as well as ongoing consultation requirements
- full text of consultation.

7.1 Consultation Undertaken

Relevant stakeholders were identified through a stakeholder analysis process to ensure persons or organisations that may potentially be affected by the operation of the Gorgon and Jansz Feed Gas Pipelines in State Waters and on Barrow Island were consulted (Table 7-1).

No objections or claims about adverse impacts relating directly to the petroleum activity (Gorgon and Jansz Feed Gas Pipelines Operations in State Waters or on Barrow Island) were raised by stakeholders.

Table 7-1 Stakeholders Engaged for the Gorgon and Jansz Feed Gas Pipelines Operations activities (in State Waters and on Barrow Island)

Stakeholder	Stakeholder Type
Buurabalayji Thalanyji Aboriginal Corporation (BTAC)	Potentially affected party
Kuruma Marthudhunera (KMAC)	Potentially affected party
Yaburara and Coastal Mardudhunera Aboriginal Corporation (YACMAC)	Potentially affected party
AECOM	Response organisation (monitoring)
Apache Energy Ltd	Response organisation
Australian Marine Oil Spill Response Centre (AMOSC)	Response organisation
Barrow Island Emergency Management Coordinator	Internal stakeholder – Emergency response
WA Department of Transport - OSRC Unit	Response organisation
Environmental Resources Management (ERM)	Response organisation (monitoring)
Intertek Geotech	Response organisation
Jacobs (Australia) Pty Ltd	Response organisation (monitoring)
Oil Spill Response Limited (OSRL)	Response organisation
ToxFree	Response organisation (waste management)
URS	Response organisation (monitoring)
Apache Energy Ltd	Interested party
KUFPEC	Interested party
Vermilion Energy	Interested party
Woodside Burrup Pty Ltd	Interested party
Australian Fisheries Management Authority (AFMA)	Government agency
Aquarium Specimen Collectors Association of WA	Interested party
Australian Southern Bluefin Tuna Industry Association	Interested party
Commonwealth Fisheries Association	Interested party
WA Department of Fisheries	Government agency
Pearl Producers Association (PPA)	Potentially affected party
Professional Specimen Shell Fishermen's Association	Interested party
Western Australian Fishing Industry Council (WAFIC)	Interested party
North West Slope Trawl Fishery (State)	Potentially affected parties
Onslow Prawn Fishery (State)	Potentially affected parties
Mackerel Managed Fishery (State)	Potentially affected parties

Marine Aquarium Fish (State)	Potentially affected parties
Pilbara Line Fishery (State)	Potentially affected parties
Pilbara Trap Managed Fishery (State)	Potentially affected parties
Pilbara Trawl Fishery (State)	Potentially affected parties
Professional Specimen Shell Fishermen Association	Interested and potentially affected parties
Western Skipjack Tuna Fishery (Commonwealth)	Interested and potentially affected parties
Western Tuna & Billfishery (Commonwealth)	Interested and potentially affected parties
Charter Boat Owners & Operators Association	Interested and potentially affected parties
RecFishWest	Interested party
Exmouth Game Fishing Club	Potentially affected party
Nickol Bay Sport Fishing Club	Potentially affected party
Onslow Visitor Centre	Interested party
Port Hedland Game Fishing Club	Potentially affected party
Australian Hydrographic Service (AHS)	Government agency
Australian Maritime Safety Authority (AMSA)	Government agency
Department of Broadband, Communication and the Digital Economy (DBCDE)	Government agency
Department of Defence	Government agency
WA Department of Parks and Wildlife (DPAW)	Government agency
WA Department of Transport - Harbour Master	Government agency
WA Department of Transport - Navigational Safety	Government agency
WA Department of Transport - Pilbara Office	Government agency
Pilbara Ports Authority	Government agency

7.2 Ongoing Consultation

In accordance with the Stakeholder Consultation Plan, Chevron Australia will maintain communications with identified stakeholders as required ensuring they are informed of any aspects associated with the operation of the Gorgon and Jansz Feed Gas Pipelines that may potentially affect their respective interests within the area. Specifically, Chevron Australia will:

- provide response organisations with a copy of the OPEP
- notify the Australian Hydrographic Service of activities and infrastructure for inclusion in Marine Notices
- engage with the WA Department of Fisheries, AFMA, WAFIC, RecFishWest, and the Charter Boat Owners and Operators Association on a regular basis.

Additionally, Chevron Australia can continue to be contacted about the petroleum activities described in this Summary via the contact details provided in Section 1.5.

8.0 Acronyms and Abbreviations

Table 8-1 defines the acronyms and abbreviations used in this document.

Table 8-1: Acronyms and Abbreviations

Acronym / Abbreviation	Definition
ABU	Australian Business Unit
AFMA	Australian Fisheries Management Authority
ALARP	As low as reasonably practicable
AMSA	Australian Maritime Safety Authority
AND	Assisted Natural Dispersion
AS/NZS	Australian Standard/New Zealand Standard
BIA	Biologically Important Area
DMP	Department of Mines and Petroleum
DP	Dynamic positioning
DPaW	Department of Parks and Wildlife
EMBA	Environment that may be affected
FMT	Flow Management Tool
GDA	Geodetic Datum of Australia
GGTP	Gorgon Gas Treatment Plant
HES	Health, Environment, and Safety
IBA	Important Bird Area
IMR	Inspection, maintenance and repairs
ISO	International Organization for Standardization
KEF	Key Ecological Feature
km	Kilometres
m	Metres
MARPOL	International Convention for the Prevention of Pollution from Ships
MEG	Monoethylene glycol
MES	Monitoring, evaluation and surveillance
NEBA	Net Environmental Benefit Analysis
OE	Operational Excellence
OEMS	Operational Excellence Management System
OPEP	Oil Pollution Emergency Plan
OWR	Oiled Wildlife Response
PEC	Priority Ecological Community
PGPA	Policy Government and Public Affairs
ROV	Remotely Operated Vehicles
ROW	Right of Way

Acronym / Abbreviation	Definition
SIMOPS	Simultaneous Operations
SOPEP	Shipboard Oil Pollution Emergency Plan
WA	Western Australia
WAFIC	Western Australian Fishing Industry Council