



Shell Australia Pty Ltd
(ACN 14 009 663 576)

Environment Plan Prelude Subsea Installation

Summary

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1. Introduction

Shell Australia Pty Ltd (Shell) proposes to install and pre-commission subsea facilities in the Petroleum Permit Area WA-44-L as part of the Prelude Floating Liquefied Natural Gas (FLNG) Project (EPBC 2008/4146) (Figure 1). Prelude will be located in Commonwealth marine waters in the northern Browse Basin, 200 km offshore northwest Australia and 475 km north-north east of Broome (Figure 2). The subsea facilities that are within the scope of this Environmental Plan include:

- Two production manifolds
- One riser base manifold
- Four production flowlines
- One subsea umbilical and associated subsea distribution hardware
- Jumpers, steel flying leads, umbilical termination assemblies
- 16 mooring lines and 16 piles
- Associated temporary equipment (initiation anchors and parking frames) necessary for the installation activities

This Environment Plan summary has been prepared as per the requirements of Regulation 11 of the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations (2009)*.

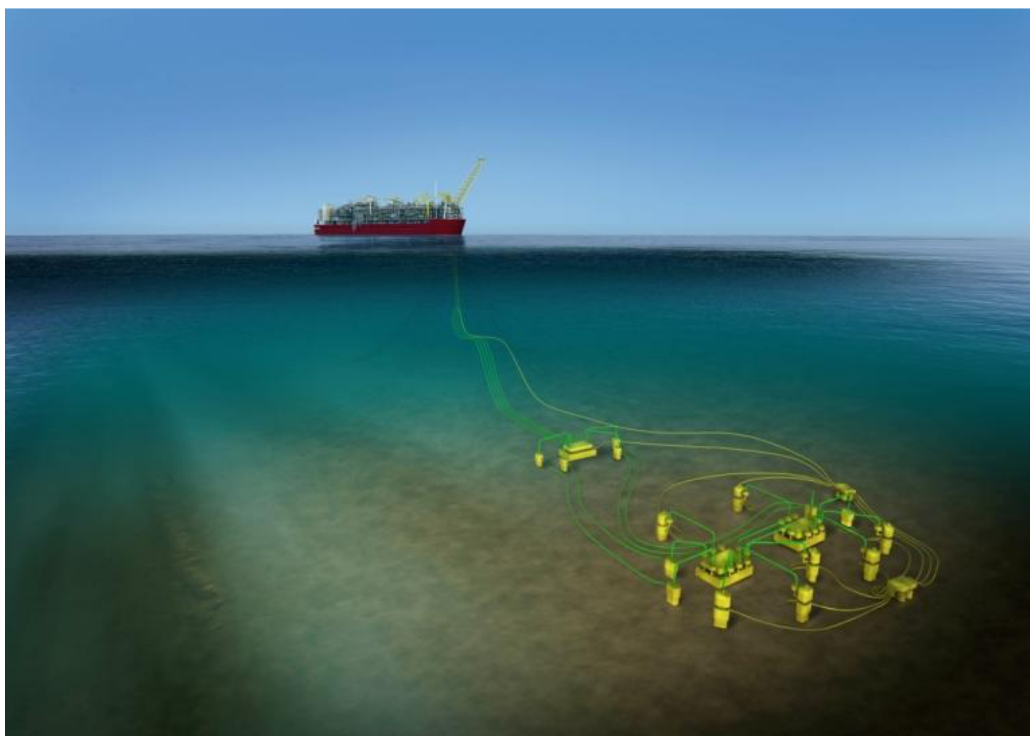


Figure 1: Prelude FLNG Project

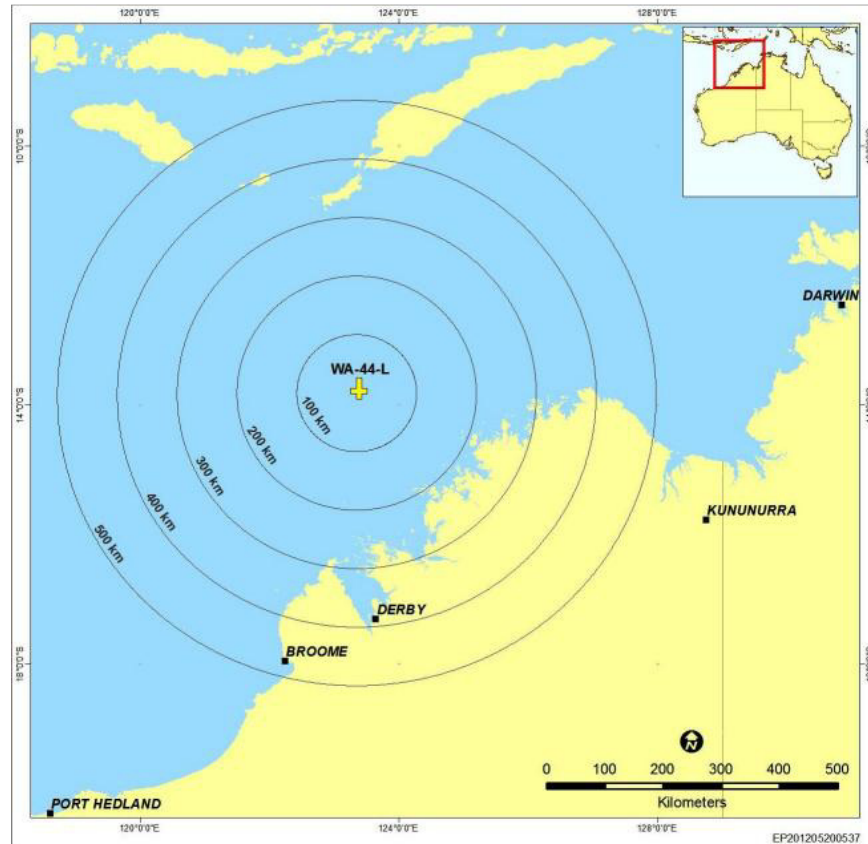


Figure 2: Location of Prelude (Permit Area WA-44-L)

2. Description of the Activity

This section describes the activities, which includes the following scopes of work:

- Installation of subsea facilities;
- Pre-commissioning of subsea facilities;
- Installation of piles and mooring lines; and
- Preservation activities.

Shell has awarded Technip Oceania Pty Ltd (TPO/Technip) the offshore installation contract. The installation campaign will commence in mid-2015 to mid-2016 with one to six vessels in the Prelude field at any one time executing the installation activities.

Upon arriving in the field, the installation vessel will set up a seabed survey array to accurately position the structures. The vessel will then install the facilities on the seabed guided by Remotely Operated Vehicles (ROVs). A post-installation visual ROV survey will also be done to record as-built and as-laid conditions of the installed facilities.

Following offshore installation of the subsea facilities, there shall be pre-commissioning work conducted by a pre-commissioning vessel. The pre-commissioning activities include strength

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testing of the flowlines after installation, and leak testing of the flowlines and connectors. The subsea facilities will be installed filled with primarily MEG/water mixture.

Piles installation and mooring system pre-lay will be carried out by a DP Heavy Lift Installation Vessel. The piles will be hammer-driven.

The subsea facilities will have a significant duration (for some equipment around 18 months) between equipment installation at site and hook-up to and start-up of the Prelude FLNG facility. In order to ensure that equipment is able to perform safely as intended during future operations, preservation activities are planned such as surveillance inspections and assessment through measurements. These preservation activities will typically comprise of general visual non-intrusive inspections using ROVs.

3. Description of the Environment

3.1. Physical

The permit area, WA-44-L, is located in waters on the continental slope between 200 and 300 m depth. There are no significant topographical features in the region of the Prelude project area. No reefs or extensive areas of rocky substrate have been observed. A number of small (up to 6 m diameter) anomalies have been detected. However, none of these occur within the vicinity of the Prelude field and they will not be affected by the activity. Sediments at Prelude are described as very soft siliceous carbonate silts to a depth of about 10 m below the seabed were siliceous carbonate sands are found.

The most sensitive seabed features in the broader Browse Basin are the coral reefs and islands that occur in the region. The closest of these features, Browse Island, is located some 40 km south-southeast of the Prelude location. Due to the distance of Prelude from these features, planned activities are not expected to impact any of these features.

Significant land masses north (> 200 km) of WA-44-L includes Timor Island and the Southern Indonesian Archipelago. Areas of coastal ecosystems within the Indonesian and Timor Island region are characteristic of coastal tropical environments and show similar features to that of Australia's North West coast.

WA-44-L is situated in the tropics and experiences a monsoonal climate with two predominant seasons. The Australian Northern monsoon generally occurs between December and March. It is associated with the inflow of moist west to north-westerly winds into the monsoon trough, producing convective cloud and heavy rainfall over northern Australia. During the cooler months, the subtropical ridge that lies over continental Australia drives stable and persistent easterly quadrant winds over the region. The Australian cyclone season officially runs from November to April, although very few storms have occurred in November. The chance of experiencing an intense category 4 or 5 cyclone is highest in March and April. At the start of the cyclone season, the most likely area to be affected is the Kimberley and Pilbara coastline and offshore areas including WA-44-L, with the area threatened later in the season, extending further south.

The large-scale ocean circulation on the Northwest shelf is linked with major Southeast Indian Ocean and Indo-Pacific current regimes, such as the Indonesian Pacific Through Flow, which contributes to the westward flowing South Equatorial Current (between 8° and 15°S latitude)

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and floods the Northwest shelf with relatively warm, low-salinity water. Wind-induced currents occur due to local wind forcing at the surface and are most pronounced during tropical cyclones.

3.2. Biological

3.2.1. Benthic and Pelagic Communities

In the general region of WA-44-L, at ~237 m depth, there is little evidence of hard substrates and extensive epibenthic communities. Thus, with little sea floor topography, such areas offered minimal habitat diversity or niches to occupy. Specifically, the absence of hard substrate is considered a limiting factor for the recruitment of epibenthic organisms.

3.2.2. Endangered and Vulnerable Species

The Environment Protection Biodiversity Conservation (EPBC) Protected Matters Database does not list any Threatened Ecological Communities occurring in the marine environment. The database lists nine Threatened Species that potentially transverse WA-44-L, which does not contain any recognised feeding, breeding or aggregation areas. Threatened species listed include two cetacean species, six reptile species and one shark species.

Table 1: Threatened Species that may transit through WA-44-L

Scientific Name	Common Name	EPBC Act Status
Cetaceans		
<i>Megaptera novaeangliae</i>	Humpback Whale	Threatened (Vulnerable)*
<i>Balaenoptera musculus</i>	Blue Whale	Threatened (Endangered)*
Reptiles		
<i>Natator depressus</i>	Flatback Turtle	Threatened (Vulnerable)*
<i>Chelonia mydas</i>	Green turtle	Threatened (Vulnerable)*
<i>Dermochelys coriacea</i>	Leatherback Turtle	Threatened (Endangered)*
<i>Eretmochelys imbricata</i>	Hawksbill Turtle	Threatened (Vulnerable)*
<i>Lepidochelys olivacea</i>	Olive Ridley Turtle	Threatened (Endangered)*
<i>Caretta caretta</i>	Loggerhead Turtle	Threatened (Endangered)*
Fish and Sharks		
<i>Rhincodon typus</i>	Whale Shark	Threatened (Vulnerable)*

*Also listed as Migratory

The EPBC Protected Matters Database also lists sixteen species covered by the migratory provisions of the EPBC Act 1999 that may occur within the WA-44-L. Migratory species that may occur within the WA-44-L permit area include six cetacean species, one species of bird, six reptile species and three fish / shark species.

Table 2: Migratory species that may occur within WA-44-L

Scientific name	Common name
Birds	
<i>Calonectris leucomelas, Puffinus leucomelas</i>	Streaked Shearwater
Mammals	
<i>Balaenoptera bonaerensis</i>	Antarctic minke whale
<i>Balaenoptera edeni</i>	Bryde's whale
<i>Balaenoptera musculus*</i>	Blue whale*
<i>Megaptera novaeangliae*</i>	Humpback whale*

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Scientific name	Common name
<i>Orcinus orca</i>	Killer whale
<i>Physeter macrocephalus</i>	Sperm whale
Reptiles	
<i>Caretta caretta</i> *	Loggerhead turtle*
<i>Chelonia mydas</i> *	Green turtle*
<i>Dermochelys coriacea</i> *	Leatherback turtle*
<i>Natator depressus</i> *	Flatback turtle*
<i>Lepidochelys olivacea</i> *	Olive ridley*
<i>Eretmochelys imbricate</i> *	Hawksbill turtle*
Fish and Sharks	
<i>Isurus oxyrinchus</i>	Shortfin mako
<i>Isurus paucus</i>	Longfin mako
<i>Rhincodon typus</i> *	Whale shark*

* Also identified as a Threatened Species

3.3. Marine Reserves

A search of the EPBC Protected Matters Database identified that WA-44-L is not located in any Marine Protected Areas. In the worst-case spill scenario of a hydrocarbon release from the wellhead, there are a number of Marine Reserves lie within the zone of potential impact. These include: Ashmore Reef, Cartier Island, Argo-Rowley Terrace, Oceanic Shoals, Mermaid Reef, Eighty Mile Beach, Roebuck, Montebello, Kimberley Commonwealth Marine Reserve areas and parts of the Southern coastline of the Indonesian Archipelago and Timor Island.

3.4. Socio-Economic Environment

The project area overlaps with a variety of commercial fishing management areas. Commercial fisheries include tuna and tropical finfish, particularly emperor, snapper and cod. Within the northwest region there are also significant commercial fisheries for Spanish mackerel, barramundi, threadfin salmon and shark. WA State managed commercial fisheries permitted to operate within WA-44-L include Northern Demersal Scale Fishery, North Coast Prawn Managed Fishery, Beche-de-mer Fishery, Mackerel Fishery, North Coast Nearshore and Estuarine Fishery, Northern Shark Fisheries, Pearl Oyster Fishery, Specimen Shell Managed Fishery, Marine Aquarium Fish Managed Fishery, West Coast Deep Sea Crustacean (Interim) Fishery, Roe's Abalone Fishery, North Coast Prawn Managed Fishery and North Coast Nearshore and Estuarine Fishery.

Commonwealth managed commercial fisheries, which are permitted to operate within the Permit area include Southern Blue Fin Tuna Fishery, Western Skipjack Fishery, Western Tuna and Billfish Fishery, North West Slope Trawl Fishery and Northern Prawn.

Commercial fishing is concentrated mostly in coastal waters and minimum fishing occurs within the vicinity of the permit area, however should there be a spill resulting from a wellhead release, some fisheries may fall within the zone of potential impact.

In 1974, Australia recognised access rights for traditional Indonesian fishers in shared waters to the north of Australia, granting long-term fishing rights in recognition of the long history of traditional Indonesian fishing in the area. A Memorandum of Understanding (MOU) between the Governments of Australia and Indonesia enables Indonesian traditional fishers to continue their customary practices. This area is known as the 'MOU Box' and WA-44-L lies within this area.

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Given the shallow water target species, these traditional Indonesian fishermen are likely to be found in deepwater areas only during transit to and from the reef locations; therefore, they are unlikely to be unaffected by the activity.

Currently, there are no known recreational fishing activities in the project area as the site is too far from shore to be accessed by recreational fishermen in small boats. Even at relatively high speed (30 km/hour), it would take at least fifteen hours for a recreational boat to reach the project area from the nearest port of Broome.

Oil exploration activities in the Timor Sea commenced in the late 1960s. Since this time numerous wells have been drilled throughout the region. Specifically, petroleum exploration has been active in the Browse Basin since the 1980s, with several commercial discoveries since that time. The Ichthys gas field in Exploration Permit Area WA-285-P is immediately to the south of WA-44-L and is the closest known field approximately 20 km away but is yet to go into production.

None of the major commercial shipping routes through the Timor Sea passes through WA-44-L. The nearest major shipping lane to the west of the project area is over 200 km away. The nearest shipping lane to the north of the project area is approximately 100 km. Given the distances between the proposed project area and shipping lanes, the subsea installation activities for the Prelude FLNG will likely pose a minimal navigational risk to commercial shipping.

There are no known sites of Aboriginal cultural significance within WA-44-L. Given that the location of WA-44-L is approximately 200 km from the mainland, it is highly unlikely that the area is used for hunting or fishing by Australian Aboriginal people. There are no islands or land within the Prelude field and therefore there are no land based Aboriginal heritage sites.

Information on historic shipwrecks is maintained in the National Shipwrecks database, a searchable database of Australian shipwrecks containing shipwreck records provided by the Australian State and Territory governments. A search of the database revealed no known shipwrecks within the permit area.

4. Environmental Hazards and Controls

A risk analysis has been undertaken for all aspects of operations, in accordance with the Shell HSSE and SP Control Framework and in line with the principles outlined in the Australian Standard AS/NZS ISO 31000:2009 Risk Management and HB 203:2006 Environmental Risk Management.

The risks for each planned and unplanned event have been determined using a qualitative assessment process. The level of risk has been determined by assessing risk likelihood and consequence using the Shell Risk Assessment Matrix (RAM).

The RAM is a 6 by 5 matrix that is used for qualitative assessments of Risk and assists determination of appropriate controls and mitigation measures:

- The vertical axis represents increasing Consequences (Severity levels 0 to 5) in terms of harm to people, damage to assets, effect on the environment and impact on reputation (PAER categories), with 5 having the greatest severity; and

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- The horizontal axis represents increasing Likelihood (levels A to E) of the Consequence under consideration, with E having the greatest likelihood.

To demonstrate that risks are as low as reasonably practicable and at an acceptable level, all mitigation measures have been considered and where these measures are practical, they have been included.

Incidents with a consequence severity equal to or greater than level 3 (i.e. moderate to massive) are considered 'Reportable Incidents' in line with Regulation 26 of the *OPGGS (E) Regulations*. Based on the risk assessment, though the probability of occurrence is low, three possible events are considered to have a moderate or greater consequence, if they occur:

- Death or injury of a member of a threatened or migratory or cetacean species as a result of a collision with a vessel;
- Diesel spill resulting from a collision with another vessel; and
- A hydrocarbon release from the wellhead due to dropped object.

Recordable incidents in the OPGGS (E) Regulation are defined as 'an incident arising from the activity that breaches a performance objective or standard in the Environment Plan that applies to the activity and is not a reportable incident'.

A summary of the key environmental hazards and control measures to be applied to the activities are shown in Table 3. All control measures associated with the hazards will be used to reduce environmental risk to as low as reasonably practicable and will be of an acceptable level.

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Table 3: Summary of key environmental hazards and control measures

Hazard / Event	Potential Environmental Impact	Controls – Mitigation Measures
<i>Planned Activities</i>		
Physical presence of the vessels	Disruption of commercial or recreational fishing or shipping activity.	A 'Notice to Mariners' advising of the activity will be issued through the Australian Maritime Safety Authority. The vessels will be equipped with suitable navigation aids and regulatory equipment. Communication with the Australian Fisheries Management Authority and WA Fisheries.
Lighting of vessels	Localised attraction and temporary disorientation of fauna	Modelling of light sources from the Prelude field indicated that lighting will not be visible in Browse Island and will not impact any bird or marine fauna migration corridor. Location of the vessels in open ocean that lacks environmental sensitivities.
Noise generated by vessels	Disruption to behaviour patterns of sensitive marine fauna from the vessel operations and/ or movements.	Activity location in open ocean, well away from coastal environments and fauna migration routes. Routine vessel noise thoroughly studied and documented - below levels likely to cause physiological damage to marine fauna. Adherence to EPBC Regulations 2000 Part 8 as required.
Discharge of deck drainage waste from vessels.	Localised and temporary acute toxic effects caused by contaminants in waste stream.	Designated storage areas for oil products which will be contained to prevent discharge of oil to the sea. Deck spills cleaned up using adsorbents (spill kits) and/ or diverted to through the vessels' oil/ water separator prior to discharge at <15 ppm or stored for onshore disposal (MARPOL 73/78 Annex I – Regulation for the Prevention of Pollution by Oil from Ships under the Commonwealth Protection of the Sea (Prevention of Pollution from Ships) Act 1983). Discharge quality of oil/ water separator automatically monitored with diversion.
Discharge of sewage, food scraps and grey water from vessels	Localised and temporary acute toxic effects caused by contaminants in waste stream.	Food wastes, grey water, sewage treated in accordance with <i>MARPOL 73/78 Annex V – Regulation for the Prevention of Pollution by Garbage from Ships under the Commonwealth Protection of the Sea (Prevention of Pollution from Ships) Act 1983</i> . Sewage treated in accordance with <i>MARPOL 73/78 Annex IV – Regulation for the Prevention of Pollution by Sewage from Ships under the Commonwealth Protection of the Sea (Prevention of Pollution from Ships) Act 1983</i> .



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Atmospheric emissions from fuel combustion on vessels	Reduction in air quality through combustion of liquid fuel in the energy units of vessels.	Engines (including exhaust systems, generators and incinerators) maintained to operate efficiently. Emissions (including the use of low sulphur diesel) will be compliant with <i>MARPOL 73/78 Annex VI – Regulation for the Prevention of Air Pollution from Ships</i> , enforced under the <i>Commonwealth Protection of the Sea (Prevention of Pollution from Ships) Act 1983</i> .
Disturbance to seabed from the installation activities	Disturbance to benthic communities as a result of physical disturbance.	Post and as-laid surveys to confirm that the subsea facilities will be laid according to planned locations. Reporting of significant seabed disturbance when ROV is being utilised.
Noise emitted by acoustic-positioning devices	Disruption to behaviour patterns of sensitive marine fauna from noise emitted by the devices.	Use of low frequency acoustic signals - below levels likely to cause physiological damage to marine fauna.
Noise emitted by the piles installation	Disruption to behaviour patterns of sensitive marine fauna from noise emitted by the piling.	Activity to be done outside the whale calving season (piling to start in November 2015). Implementation of pre-start and soft start-up procedures, observation and shut-down zones according to the South Australia's Underwater Piling Noise Guidelines (DPTI, 2012).
Discharge of pre-commissioning fluids	Localised and temporary acute toxic effects caused by chemicals.	Utilise the most environmentally acceptable fluids that meet technical requirements. Small volumes of releases expected.



Hazard / Event	Potential Environmental Impact	Controls – Mitigation Measures
Unplanned Impacts		
Vessel collision with marine life	Injury and/ or death of a cetacean or other protected fauna.	Installation and support vessels during transit will adhere to the requirements of the EPBC Regulations 2000 Part 8, Australian National Guidelines for Whale and Dolphin Watching (Commonwealth Government of Australia 2005). The project area is not nearby to known cetacean feeding or breeding areas and is distant to humpback whale migration routes. Animals are expected to alter course away from slow-moving or stationary vessels.
Sourcing of the vessels with overseas last port of call that may be carrying non-native marine species	Introduction of exotic marine species via ballast water exchange or biofouling causing alteration to community composition and function, competition with indigenous species.	Invasive Marine Species (IMS) risk assessment will be done per vessel per campaign. All vessels compliant with Australian biosecurity and quarantine requirements. Vessels sourced with an overseas last port of call will have had an anti-foul treatment within 12 months or their hulls inspected and cleaned, if required, before arrival in Australia. Vessels may either 1/ not need to discharge ballast in Australian Water or 2/ will undertake exchange of high risk ballast outside Australia’s territorial sea prior to arrival, satisfying Australian Ballast Water Management Requirements (DAFF 2006).
Accidental discharge of hazardous / non-hazardous solid wastes into the ocean	Reduction in habitat/ water quality, acute/ chronic toxic effect on marine organisms.	Waste managed in accordance with <i>MARPOL 73/78 Annex V – Regulation for the Prevention of Pollution by Garbage from Ships</i> and <i>Annex II – Regulation for the Prevention of Pollution by Noxious Liquid Substances in Bulk from Ships</i> and <i>Annex III – Regulation for the Prevention of Pollution by Harmful Substances Carried by Sea from Ships</i> under the <i>Commonwealth Protection of the Sea (Prevention of Pollution from Ships) Act 1983</i> , and local requirements including: <ul style="list-style-type: none"> • A list of all hazardous substances planned to be used including MSDS, storage requirements, details of provider, Australian regulatory requirements for disposal and procedures for managing accidental discharges/ spills; • Vessels have dedicated storage area for wastes that contain segregated wastes. • Proper labelling and recording of wastes sent to shore for disposal. Shipboard Oil Pollution Emergency Plans. Regulator accepted Oil Pollution Emergency Plan. Technip’s cyclone response plan highlights securing operations prior to cyclone arrival which will reduce the possibility of dislodgement of materials from the vessels.



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Hazard / Event	Potential Environmental Impact	Controls – Mitigation Measures
Fuel spill during refuelling at sea	Potential loss of diesel or fuel to the marine environment causing localised and temporary acute toxic effects and direct physical smothering of marine organisms.	<p>At sea refuelling will occur with strict adherence to refuelling procedures, reinforced hoses with dry break couplings and fail-safe fittings; Operation will commence in daylight under normal conditions; Favourable wind and sea conditions as determined by the Vessel Master; Fuel hoses changed annually and refuelling constantly observed by crew member in radio contact with Vessel Master.</p> <p>Shipboard Oil Pollution Emergency Plans.</p> <p>Regulator accepted Oil Pollution Emergency Plan.</p> <p>Oil Spill Modelling indicates surface spilt hydrocarbons from a refuelling incident have no probability of reaching environmental sensitivities at levels above thresholds that may impact sensitivities in the area.</p>
Diesel spill resulting from a collision with another vessel	Potential acute/ chronic toxic effects and direct physical smothering of marine organisms.	<p>A 'Notice to Mariners' advising of the presence of the installation vessels will be issued through AMSA prior to the commencement of the activity. Ongoing communication with AFMA, and other commercial mariners such that that presence of vessels is widely communicated.</p> <p>All vessels routes are pre-determined and risk assessed.</p> <p>Vessels equipped with suitable navigation systems.</p> <p>A support vessel will monitor for approaching vessels during the installation activities.</p> <p>Regulator accepted Oil Pollution Emergency Plan.</p>
Hydrocarbon Release from Formation due to dropped object	Potential loss of gas and condensate to the marine environment causing acute/chronic toxic and physical effect on marine organisms and habitats.	<p>Regulator accepted Installation Safety Case and installation program meeting Shell's requirements:</p> <ul style="list-style-type: none"> • Training; • Global Standards for Well Design Integrity; • Risk identification and mitigation through Safety Cases; and • Robust barriers to protect against release prevention. <p>Rigorous lifting procedure has been developed by Shell and Technip to prevent the risk of dropped objects.</p> <p>A worst case scenario of hydrocarbon release from the wellhead may result in entrained and dissolved concentrations that are above thresholds that may impact sensitivities in the area.</p> <p>Regulator accepted Oil Pollution Emergency Plan outlines response activities to reduce the environmental impact and links to the worst-case scenario contingency plan.</p>

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5. Management Approach

The Shell Commitment and Policy on Health, Safety, Security, Environment and Social Performance (HSSE and SP) applies across Shell globally and is designed to protect people and the environment.

Key features of the policy are:

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

All of Shell's operations comply with the Shell HSSE and SP Control Framework, a comprehensive corporate management framework, comprising a simplified set of mandatory standards applicable to every Shell Company, contractor and joint venture under Shell's operational control.

Within Shell, the HSSE and SP Control Framework requires people in HSSE Critical Positions to have their HSSE-MS competence assured. These people have to attain a set proficiency level in three competences: HSSE Lead; HSSE Prepare; and HSSE Apply. People in HSSE Critical Positions are responsible for the development and maintenance of effective barriers to prevent incidents. For Technip, project training will be conducted in accordance with the project's HSSE Training Programme and the Competence Assurance Procedure.

The Prelude Subsea Installation activities will be managed in compliance with relevant State and Commonwealth Acts and Regulations, industry standards and applicable international agreements.

The Company Site Representative (CSR) is Shell's representatives aboard the installation vessels. The CSRs are responsible for ensuring the operational requirements of the EP are communicated to the vessel crew and implemented on a daily basis.

Shell has a program of audits that take place at pre-mobilisation and during the activities. All marine vessels which are planned to be used on the Prelude FLNG Project shall be required to achieve "Positive Vetting" in accordance with the requirements specified in the HSSE & SP Control Framework – Transport Manual - Maritime Safety and the Marine Vessel Assurance Plan. Interim reviews of the EP will be done after the completion of each campaign. The review will assess and report against the established environmental objectives, standards and measurement criteria. The results of this interim review will be used as opportunity for improvement in the succeeding campaigns.

If any new or increased risks are identified during the activities, an assessment of the risk will be undertaken. If the risk is determined to be significant new or significantly increased risk, the associated activities will not continue until acceptance of the management approach to the new/changed risks has been provided and accepted by NOPSEMA and the Department of Environment.

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All Environmental incidents and non-conformances are managed in accordance with the Shell's HSSE Incident Reporting, Investigation and Follow Up Procedure that describes the process of reporting, classification, investigation, follow-up and close out.

Shell's overall environmental objective for the activities is to avoid or reduce environmental risks to as low as reasonably practicable. Specific objectives, standards and measurement criteria for each aspect of these activities that have the potential to cause adverse environmental impacts have been identified with controls in place. Environmental performance will be measured and reported against these standards and criteria as part of Shell's commitment to continuous improvement of environmental, health and safety performance.

Environmental Performance report will be submitted to NOPSEMA as required by *OPGGS (E) Regulations 2009*. This report will be submitted to NOPSEMA within 12 months of the activities commencement and every 12 months thereafter.

As required by the OPGGS (E) Regulations, Shell will store and maintain environmental documents and records for these activities for the period of 5 years.

The Prelude Subsea Installation Oil Pollution Emergency Plan (OPEP) will be tested prior to activity commencement and periodically during the activity, to make all personnel aware of their personal responsibilities in these plans. Exercises are critical to ensure there is appropriate level of response readiness should there be an incident and is an important part of continually managing the risks associated with an oil spill to ALARP from a response readiness perspective. A summary of Shell's response strategies in the Oil Pollution Emergency Plan is provided in Appendix A.

An Implementation Strategy has been incorporated into the Environment Plan per the *OPGGS (E) Regulations 2009*. This includes:

- Measures, systems, practices to ensure environmental performance objectives and standards are met;
- Roles and responsibilities;
- Measures to ensure workers are aware of their responsibilities;
- Monitoring and management;
- Records and reporting;
- Oil Pollution Emergency Plan; and
- Consultation.

6. Consultation

Shell has been undertaking wide-ranging consultation with key stakeholders who have an interest in Prelude FLNG Project in the Browse basin for several years. The specific consultation around Prelude's subsea installation activity is following on from the regular updates that stakeholders and interested parties receive periodically on Prelude.

In the process of initially identifying and engaging with relevant persons, Shell considered relevant government agencies and persons or organisations whose functions, interests or activities may be affected by the activity. Stakeholders consulted include the following and are detailed in Figure 3:

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- Commonwealth government departments (Department of Industry, Department of Foreign Affairs and Trade, NOPSEMA, NOPTA, AMOSC, AIMS, AMSA);
- Western Australia government departments (Department of Mines and Petroleum, Department of Transport, Department of Parks and Wildlife, Department of Environment Regulation);
- Northern Territory government departments (Darwin Port Corporation, Department of Mines and Energy, Department of Business, Department of the Chief Minister);
- Industry bodies (APPEA, CME);
- Broome community stakeholders (Broome Chamber of Commerce, Djarindjin Aboriginal Corporation, Lombadina Council, Kimberley Marine Tourism Associations) ;
- Broome local government agencies (Shire of Broome, Broome Port Authority);
- Fishing industry associations (WAFIC, CommFish, AusTuna, RecFish, NT Seafood Council, Kimberley Professional Fishermans Association, Pearl Producers Association);
- Individual commercial fishing licence holders (Southern Bluefin Tuna Fishery, Western Skipjack Tuna Fishery, Western Tuna and Billfish Fishery, North West Slope Trawling, Northern Prawn Fishery, Northern Demersal Scalefish Fishery, Mackerel Managed Fishery, North Coast Shark Fishery, West Coast Deep Sea Fishery); and
- Environmental NGOs (Environs Kimberley, Save the Kimberley, WWF, Conservation Council)

Prior to the submission of the Environment Plan, stakeholders were notified of our intent to undertake the activity and submit environmental approval from NOPSEMA. Engagement on the activity will continue throughout the project leading up to and post the completion of the activity as appropriate. Shell has a communications plan in place to ensure stakeholders are kept informed of project progress and outcomes. Shell has developed a Community Feedback Mechanism to the Prelude project. The mechanism consists of an email address and 24 hr, 7 day a week free-call hotline. All calls and emails are answered by Shell staff with experience in community engagement. Both the email address and hotline are listed on the Shell website.

Stakeholders are able to raise questions/concerns at any time via the following email address, which is posted on the Shell website: sda-preludeflng@shell.com and through the Community Feedback Mechanism.

No major issues were raised by stakeholders during the engagement process. Environs Kimberley had queries about the impacts of the vessels, however, they were satisfied with Shell's response that all vessels will be operated in accordance with all regulations. AMSA and AMOSC have requested a copy for the approved OPEP, which Shell has agreed to provide. Agencies like DFAT, DoT and DER have asked to be notified of significant oil spills. This notification requirements have been included in the OPEP.

7. Contact Details

For further information about this activity, please contact:

Lauren Gorton

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Tel: +61 (0) 8 9338 6000

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APPENDIX A: Summary of response strategies in the oil pollution emergency plan

The Prelude Subsea Installation Oil Pollution Emergency Plan (OPEP) supports the Prelude subsea installation activities in the Permit Area WA-44-L and sets out Shell and Contractor responsibilities and response actions in the unlikely event of an oil spill during these operations.

For offshore petroleum exploration and production activities, NOPSEMA is the statutory authority in Commonwealth waters. Shell is the Combat Agency for all spills emanating from petroleum facilities in Commonwealth waters, including from the Prelude subsea installation activities. The scope of the OPEP is to respond to spills originating directly from the subsea installation activities at the Prelude location.

Marine pollution response is based on a graduated or tiered scale of response whereby the amount of resources mobilised for a response and the agency in control may vary according to the scale and location of the incident, allowing escalation and de-escalation of the response.

Shell has a number of formal arrangements in place to access external assistance if required. These include:

- Australian Marine Oil Spill Centre (AMOSC) resources;
- Australian Maritime Safety Authority (AMSA) has access to resources under the National Plan;
- Shell's AMOSC managed shared Broome Stockpile;
- Mutual Aid arrangements (industry support from other participating petroleum companies);
- Oil Spill Response Ltd (OSRL); and
- Shell Global Response Support Network (GRSN).

Response Actions

Should an oil spill incident occur, Shell will immediately follow the vessel's procedures to protect human life, equipment and reduce the risk of fire or explosion. This may involve cutting off supply to the spillage, containing spill on deck if safe to do so and implementing vessel's Shipboard Oil Pollution Emergency Plan (SOPEP). NOPSEMA and other relevant authorities such as AMSA, Department of Fisheries, Department of Transport and Department of the Environment will be notified, if required.

For spills extending beyond the initial actions, an Incident Action Plan (IAP) will be developed at the time of a spill, appropriate to the nature, size and scale of the activity and utilising the appropriate response strategies. The pre-spill planning assessment of the applicability of each response strategy, including the Net Environmental Benefit Assessment (NEBA), will be revisited and updated if required based on the actual characteristics of the spill at hand.

Primary response strategies that may be employed in parallel with monitor and evaluate in worst case oil spill scenarios include oiled wildlife response and operational and scientific monitoring program (OSMP).

Monitor and Evaluate

The monitor and evaluate strategy will be conducted for all spills including the worst case spill scenario to inform response decision making, maintain situational awareness and keep the IAP current. The available tools to support the monitor and evaluate strategy include:

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- Satellite imagery;
- Observation from vessels;
- Modelling;
- Metocean Data; and
- Aerial Surveillance.

Oiled Wildlife Response

The oiled wildlife response strategy may be implemented, if there is a potential for oiling of fauna, to reduce damage to fauna threatened by a spill. Trained personnel and necessary equipment would be mobilized to ensure fauna are appropriately assessed and treated.

Operational and Scientific Monitoring Program

The operational and scientific monitoring program may be implemented, if a spill is deemed significant to trigger this response. Shell has developed the Prelude Operational and Scientific Monitoring Program to determine the fate and ecological consequences of a spill to enable environmental impacts and recovery to be measured.