# PROPOSED PETREL DEVELOPMENT

## POTENTIAL ENVIRONMENTAL IMPACTS AND PROPOSED MITIGATIONS

| Aspect | Potential Environmental Impact | Risk | Proposed Mitigations |
|---|---|---|---|
| **Planned** | | | |
| Physical Presence - Interaction with Other Marine Users: presence of vessels, mobile offshore drilling unit (MODU), and subsea infrastructure, which may interact with or displace other marine users. | Change to the functions, interests and activities of other marine users | L | • Marine Assurance Process<br>• Activity-based exclusion/cautionary zones including:<br>○ Petroleum Safety Zone (PSZ) (500m) around the riser platform and sub wells<br>○ Exclusion zone (500m) around the vessels within the Operational Area<br>○ Exclusion zone (2.5km) around the MODU while on station<br>• Stakeholder consultation (including notification requirements)<br>• Marked on navigation charts |
| Physical presence - Seabed Disturbance: seabed disturbance will occur mainly during the drilling, installation and commissioning and decommissioning phases from activities, including sampling, excavation/trenching and installation and retrieval of equipment on the seabed. Additional seabed disturbance may occur during operations. Impact will be limited to the Operational Area. | Change in water quality | L | • Benthic habitat and seabed surveys<br>• Exclusion Zones<br>• MODU move and anchoring procedure (including mooring analysis)<br>• Lifting Operations Standard<br>• Stakeholder consultation (including notification requirements)<br>• Underwater cultural heritage assessment |
| | Change in habitat | M | |
| | Injury / mortality to marine fauna | M | |
| | Change in cultural heritage values | L | |
| Discharges - drilling: drill cuttings, fluids, cement, and controls and completion fluids produced during drilling may be discharged to the marine environment, at either the sea surface or the seabed. | Change in water quality | L | • Benthic habitat and seabed surveys<br>• Hazardous chemical management procedure<br>• Bulk product management<br>• Solids control equipment<br>• Non-Aqueous Drilling Fluid (NADF) Management |
| | Change in sediment quality | L | |
| | Change in habitat | L | |
| | Injury / mortality to marine fauna | L | |
| Discharges - Subsea Equipment: discharges may be released from subsea equipment during installation and commissioning, operations, and decommissioning activities; and include hydrotest water, mono-ethylene glycol (MEG), nitrogen gas and hydraulic fluid. | Change in water quality | L | • Hazardous chemical management procedure<br>• Hydrotest procedure |
| | Injury / mortality to marine fauna | L | |
| | Change to the functions, interests and activities of other marine users | L | |

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| Discharges - Support Operations: routine discharges from support operations may be released to the marine environment from MODU, vessel, and platform support operations; and include treated sewage, greywater, putrescible wastes and bilge water. | Change in water quality | L | • Hazardous Chemical Management Procedure<br>• Discharge standards (International Convention for the Prevention of Pollution from Ships (MARPOL) and Australian Maritime Safety Authority (AMSA))<br>• Marine Assurance Process |
| | Injury / mortality to marine fauna | L | |
| Emission – Artificial Light: Emissions of artificial light from necessary operational and navigational lighting will occur during drilling, operations, and platform, vessel and MODU support operations; and short-term non-routine flaring. | Change in fauna behaviour | L | • Marine Assurance Process<br>• Platform, MODU and the vessels will implement light management measures |
| | Change in ecosystem dynamics and conservation values. | L | |
| Emission – Atmospheric: non- Greenhouse Gas (GHG) emissions will be generated during flaring, which involves burning fluids like gas, condensate, base oil, and completion fluids. Non-GHG Emissions are also expected from diesel use during commissioning, operation, decommissioning and support activities. | Change in air quality | L | • Marine Assurance Process<br>• National Pollution Inventory (NPI) reporting requirements |
| Emission – GHG: Direct GHG emissions (including carbon dioxide and methane) are produced during power generation, diesel use, venting during installation and operating activities, flaring during decommissioning, and MODU, vessel, and helicopter support activities. Indirect Greenhouse Gas emissions are also produced from the manufacturing of materials and equipment, transportation and eventual use of the Liquified Natural Gas (LNG) and condensate. | Increase in GHG concentrations | L | • GHG Management Practices<br>• Asset Integrity Systems<br>• Leak, Detection and Repair (LDAR) Campaigns to Reduce Gas Leaks<br>• Power Generation Turbines fuelled by gas<br>• Requirement to report emissions under the National Greenhouse and Energy Reporting (NGER) Act and compliance with Safeguard Mechanism (SGM)<br>• Marine Assurance Process<br>• Natural gas produced will only be sold to customers who are signatories of the Paris Agreement |
| | Change in climate systems | L | |
| | Change in ecosystem dynamics and conservation values | L | |
| | Changes to the functions, impacts or activities of other marine users | L | |
| Emission – Impulsive Underwater Noise: short, pulsed underwater sound is generated during geophysical surveys, drilling, piling for platform installation and commissioning. | Change in fauna behaviour | L | • Regulations and measures for interacting with marine fauna (e.g., Environment Protection and Biodiversity Conservation (EPBC) Regulations 8 (Part 8))<br>• Acoustic Mitigation and Adaptive Management Measures<br>• Soft start procedures for piling activities<br>• Planned Maintenance System (PMS) |
| | Injury / mortality to marine fauna | L | |

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| Emission – Continuous Underwater Noise: continuous underwater sound is generated during drilling, decommissioning, and throughout all phases by platform, MODU, vessel, helicopter and remotely operated vehicle operations. | Change in fauna behaviour | L | • Regulations and measures for interacting with marine fauna (e.g., Environment Protection and Biodiversity Conservation (EPBC) Regulations 8 (Part 8))<br>• Acoustic mitigation and adaptive management measures<br>• Planned Maintenance System (PMS) |
| | Injury / mortality to marine fauna | L | |
| **Unplanned** | | | |
| Introduction of Marine Pest Species: marine species not native to Australian waters may be introduced by biofouling on subsea infrastructure, the MODU, vessels and submersible equipment; and discharge of ballast water. | Change in ecosystem dynamics and conservation values | L | • Marine Assurance Process<br>• Eni Vessel Introduced Marine Species (IMS) Risk Assessment<br>• Australian Ballast Water and Biofouling Management Requirements will be met |
| | Change to the functions, interests and activities of other marine users | | |
| Physical Presence - Interaction with Marine Fauna: platform, MODU, vessel, and helicopter operations have the potential to impact marine fauna via strike or collision. | Injury / mortality to marine fauna | L | • Regulations and measures for interacting with marine fauna (e.g., Environment Protection and Biodiversity Conservation (EPBC) Regulations 8 (Part 8))<br>• Seabird management |
| Loss of Solid Material: Loss of waste or equipment overboard to the marine environment. | Change in habitat | L | • Marine Assurance Process<br>• Lifting Operations Standard<br>• Dropped objects to be retrieved where possible<br>• Hazardous chemical management procedure |
| | Injury / mortality to marine fauna | L | |
| Accidental Release - Minor Loss of Containment: minor volumes of chemicals or hydrocarbons may be accidentally released to the marine environment from vessels, MODU or the platform due to mechanical, storage or equipment failures, or human error. | Change in water quality | L | • Marine Assurance Process<br>• Refuelling transfer procedures<br>• Hazardous chemical management procedure<br>• Lifting Operations Standard<br>• Discharge standards (International Convention for the Prevention of Pollution from Ships (MARPOL) and Australian Maritime Safety Authority (AMSA)) |
| Accidental Release – Condensate: accidental release of condensate hydrocarbons or other well fluids to the marine environment may be | Change in water quality | L | • Marine Assurance Process<br>• Stakeholder consultation (including notification requirements)<br>• Infrastructure marked on navigational charts<br>• Exclusion Zones |
| | Change in habitat | L | |
| | Change in fauna behaviour | L | |

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| caused by loss of well integrity or a defect in the gas export pipeline or flowline. | Injury / mortality to marine fauna | L | • National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) accepted safety case required prior to activities<br>• NOPSEMA-accepted Oil Pollution Emergency Plan (OPEP)<br>• NOPSEMA-accepted Operational and Scientific Monitoring Plan (OSMP)<br>• NOPSEMA accepted Well Operations Management Plan (WOMP)<br>• Source Control Emergency Response Plan (SCERP) |
| | Change in ecosystem dynamics and conservation values | L | |
| | Changes to the functions, interests or activities of other marine users | L | |
| | Change in cultural heritage | L | |
| Accidental Release – MDO: marine diesel oil (MDO) will be used by vessels and the MODU during support operations, which may be accidentally released due to a collision between vessels or the MODU | Change in water quality | L | • Marine Assurance Process<br>• Stakeholder Consultation<br>• NOPSEMA accepted safety case required prior to activities<br>• Exclusion zones<br>• NOPSEMA accepted Oil Pollution Emergency Plan (OPEP)<br>• NOPSEMA accepted Operational and Scientific Monitoring Plan (OSMP) |
| | Change in habitat | L | |
| | Change in fauna behaviour | L | |
| | Injury / mortality to marine fauna | L | |
| | Change in ecosystem dynamics and conservation values | L | |
| | Changes to the functions, interests or activities of other marine users | L | |
| | Change in cultural heritage | L | |