

# PTTEP Australasia Montara Production Drilling

## Fact Sheet



June 2017\*



PTTEP Australasia (PTTEP AA) is the operator of production licences AC/L7 and AC/L8, located in the Commonwealth waters of the Timor Sea, approximately 690 kilometres or 373 nautical miles west of Darwin.

## Overview

As part of the Montara Development Project (MDP), oil is currently extracted from production wells and transported in flow lines via the Montara Wellhead Platform to the Montara Venture Floating Production Storage and Offloading (FPSO) vessel.

PTTEP AA proposes to undertake production drilling of one well (H5) at the Well Head Platform commencing in September 2017. The drilling program is expected to last approximately 60 days. The exact timing for completion is subject to weather conditions and operational efficiencies.

A permanent 500m Prescribed Safety Zone (PSZ) for vessels is currently established at the Well Head Platform and will be in place during the drilling activity. In addition, a Cautionary Area has been established around the Montara Venture, Montara Wellhead Platform and associated subsea infrastructure by Australian Maritime Safety Authority (AMSA) and notated on the Admiralty Chart covering



Montara is in Commonwealth waters in the Timor Sea.

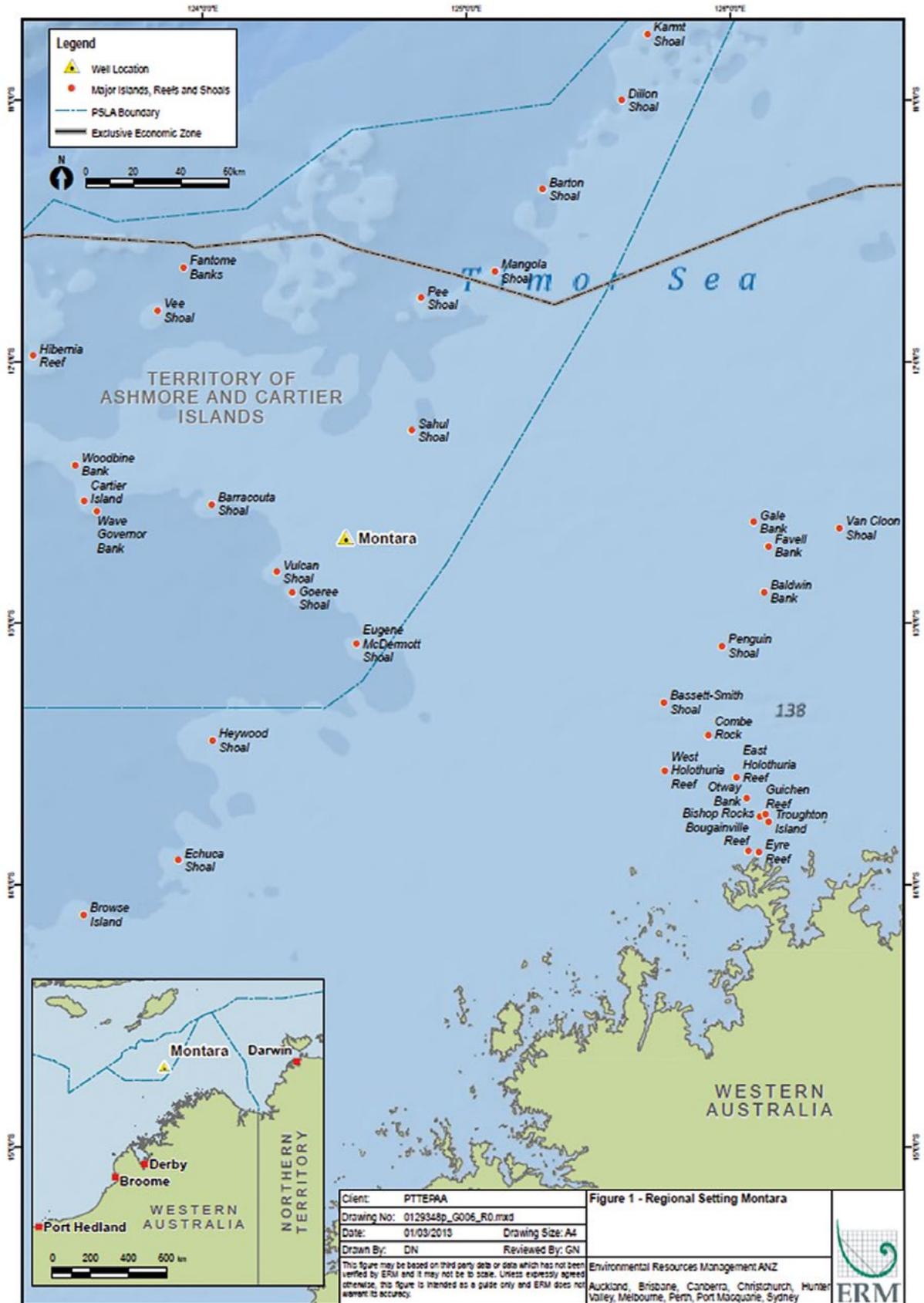
the region by the Australian Hydrographic Service. This area extends out 2.5nm from the Wellhead Platform in all directions, with the exception of north where it extends out 1nm due to the presence of a shipping lane. Cautionary Areas are designed to provide an area where mariners should exercise extra caution and only navigate, anchor or fish within the zone if it is safe to do so.

\*Replaces previous version March 2017.

# Regional Location Map

The coordinates for the drilling location are as follows:

Drilling Location	Latitude	Longitude
Montara Well Head Platform	12° 40' 20.5" S	124° 32' 22.2" E



Water depth within the drilling area is approximately 77m. The well will be drilled to a depth of approximately 2600m true vertical depth below sea level using a jack up Mobile Offshore Drilling Unit (MODU). Support vessels assist the MODU to move between drilling locations, and supply vessels and helicopters transport equipment, supplies and personnel from shore locations throughout the drilling campaign.

## Environmental Approvals

Drilling at the Well Head Platform last occurred in March 2014 and the Environment Plan (EP) for that activity was accepted by the Commonwealth Regulator, National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) on 16 October 2013. This EP is currently being revised and updated in accordance with relevant legislation and NOPSEMA guidance documents for submission to NOPSEMA for assessment within the coming weeks.

The purpose of the EP is to demonstrate;

- Detailed understanding of the existing marine environment within the activity area, particularly the key environmental features and sensitivities,
- All potential environmental impacts and risks have been identified and assessed, both for planned and unplanned events,
- Appropriate management controls, including relevant regulatory requirements, will be implemented to manage the environmental effects,
- Environmental performance outcomes, standards and measurement criteria have been defined to monitor, audit and manage the activity. These will be used to minimise the environmental effects, and
- Appropriate management controls are in place to manage the potential risks from the activity.

The purpose of this Fact Sheet is to provide information on this proposed drilling activity and provide contact details should you wish to receive additional information or provide feedback. Consultation is being conducted with all relevant stakeholders, including those whose operational interests may be

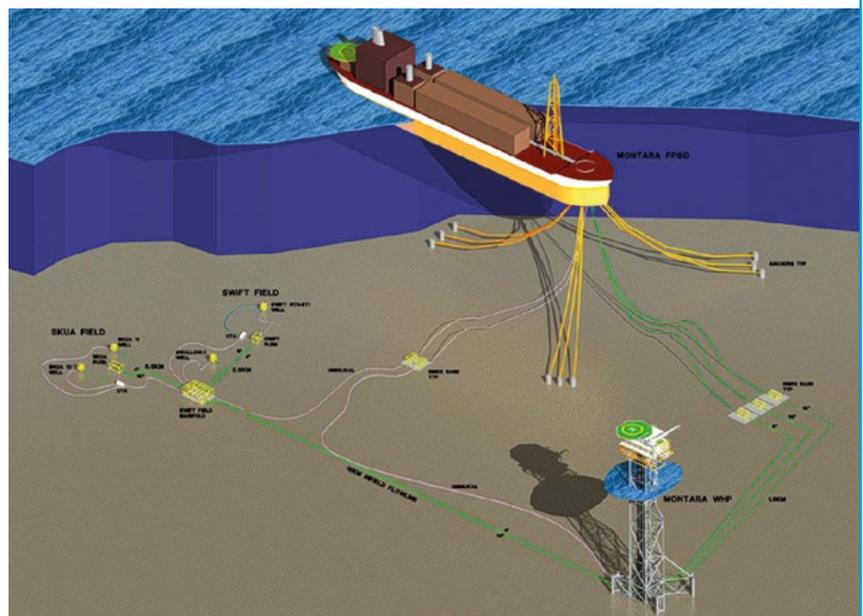
affected or those with an interest in the potential environmental, social or economic impacts.

All feedback received is considered as part of the environmental risk assessment and management process to assist in the preparation of the EP. A summary of all feedback and communication received and given on behalf of PTTEP AA will be provided to NOPSEMA as required under legislation. PTTEP AA will continue to communicate with relevant stakeholders during the assessment process and the planned activity.

## Risk Assessment

PTTEP AA implements a health, safety and environmental management system which provides the framework for the company and our contractors to identify, assess and manage environmental risks and impacts from all of our activities. This system, including the policies, standards, plans and procedures, is applied during all drilling activities to manage the environmental risks and impacts.

PTTEP AA has undertaken an environmental risk assessment of the impacts and risks that may arise from all aspects of the proposed drilling activity. The risk assessment has identified a range of controls that will be implemented to manage the environmental risks. Details of each identified risk, potential impacts and the management controls to be applied are detailed in Appendix A – Risk Assessment and Management Controls.



Montara Field development plan

## Environmental Studies

PTTEP AA has undertaken extensive environmental studies of the Montara area as part of the Company's commitment to understand and protect the environment to support potential future development.

These environmental studies include;

- Comprehensive 5-year environmental monitoring program following the 2009 Montara incident,
- Marine baseline study of a number of PTTEP AA permits including the Southern fields (Montara), and
- Field studies of shoals near Montara by the Australian Institute of Marine Science (AIMS).

The studies were undertaken in conjunction with a range of expert research partners and consultancies. The data collected has enhanced understanding of water and sediment quality, benthic habitats, fauna and fish communities and underwater noise.

AIMS recently completed a survey to investigate seabed biodiversity and fish communities of offshore shoals near Montara. It provides a better understanding of the existing environment in the development area and will be used to inform future environmental plans.

As part of PTTEP AA commitment to making the data publically available, the majority of these studies are currently available on the federal Department of Environment website as well as the North West Atlas website.

With co-funding from PTTEP AA, AIMS established the North West Atlas (<http://northwestatlas.org>) in late 2014. The purpose is to deliver a user-friendly tool to communicate scientific and relevant social data from the findings of the Montara Environmental Monitoring Program. This in particular highlighted the ecological significance of nine shoals which were virtually unknown prior to these studies.

## Further Information and Feedback

Should you want any further information or have any queries on the planned production drilling activities at Montara, please contact PTTEP AA as soon as possible and by no later than **Monday 26 June 2017**.

You can communicate to PTTEP AA in any manner convenient to you (post, email or phone). All input is carefully considered, formally recorded and a response provided.

Please direct comments to Tim Larcombe, Stakeholder Engagement Adviser at **[tim.larcombe@ppr.com.au](mailto:tim.larcombe@ppr.com.au)**

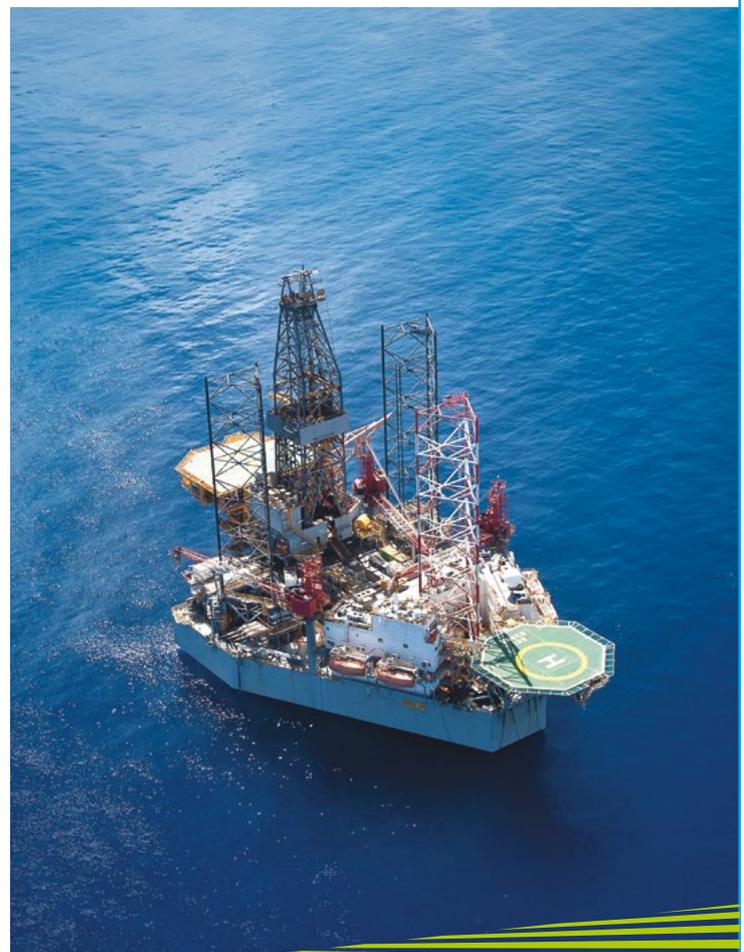
Yours sincerely,

**Paul McCormick**

Safety, Security, Health and Environment Manager

PTTEP Australasia

A Mobile Offshore Drilling Unit (MODU) at the Montara Wellhead Platform.



APPENDIX A

# Risk Assessment and Management Controls

Risk	Potential Impacts
<p><b>Proximity of the Mobile Offshore Drilling Unit (MODU) (and associated exclusion zone) and supply vessels to other marine users</b></p>	<p>Interference with and/or exclusion of commercial fishing or shipping vessels</p>
<p><b>Controls</b></p> <p>Stakeholder consultation program that includes ongoing consultation with commercial fisheries, shipping and other relevant stakeholders operating in the permits and surrounds to inform them of the proposed drilling campaign.</p> <p>A permanent 500m Prescribed Safety Zone (PSZ) for vessels is currently established at the Well Head Platform and will be in place during the drilling activity. In addition, a Cautionary Area has been established around the Montara Venture, Montara Wellhead Platform and associated subsea infrastructure by AMSA and notated on the Admiralty Chart covering the region by the Australian Hydrographic Service. This area extends out 2.5nm from the Wellhead Platform in all directions with the exception of north where it extends out 1nm due to the presence of a shipping lane.</p> <p>The drilling campaign will comply with all relevant legislation, eg. <i>Offshore Petroleum and Greenhouse Gas Storage Act 2006</i> (OPGGs) and will be carried out in accordance with applicable</p>	<p>international maritime conventions such as MARPOL (Marine Pollution Conventions), COLREGS (International Regulations for Preventing Collisions at Sea) and SOLAS (International Convention for the Safety of Life at Sea) and relevant Australian Marine Orders (as appropriate to vessel class).</p> <p>Vessels will have Automatic Identification System (AIS) and approved electronic navigation systems and radar on support vessels and marine radio will be used to communicate with other vessels in the area.</p> <p>The Australian Hydrographic Service (AHS) will be notified to generate Maritime Safety Information Notifications (MSIN) and AMSA Rescue Coordination Centre for rig movements.</p> <p>Support vessel entry and movements within the 500m PSZ will be undertaken in accordance with MODU procedures.</p>

Risk	Potential Impacts
<p><b>Routine discharge of drilling cuttings and drilling fluids</b></p>	<p>Low levels of chemicals released; increased localised turbidity; potential depletion of oxygen in surface sediments; possible loss of seafloor habitat. Potential cumulative increase to background contaminant levels and loss of biodiversity</p>
<p><b>Controls</b></p> <p>If Synthetic Based Muds (SBM) are used, a closed loop mud system will be used and the use of Solids Control Equipment (SCE) in accordance with the MODU drilling procedures will reduce the residual amount of synthetic fluid on SBM cuttings discharged overboard (&lt;10% synthetic fluid on cutting weight per weight averaged over the section).</p> <p>Third party inspection and monitoring of SBM handling equipment and management.</p>	<p>All drilling fluid chemicals discharged to the marine environment will have an Offshore Chemical Notification Scheme (OCNS) grouping of D or E or a Chemical Hazard and Risk Management (CHARM) Hazard Quotient colour banding of Silver or Gold. If other rated or non-rated chemicals are required to be risk assessed for environmental acceptability before use.</p>

Risk	Potential Impacts
<p><b>Potential for support vessels to interact with marine fauna</b></p>	<p>Injury and/or mortality to marine mammals or marine reptiles from vessel collision.</p> <p>Behavioural disruption to cetaceans</p>
<p><b>Controls</b></p> <p>Vessels will adhere to EPBC Regulations 2000 - Part 8 Division 8.1 Interacting with Cetaceans</p>	

Risk	Potential Impacts
<b>Introduction of invasive marine species via biofouling and/or ballast water from MODU and support vessels</b>	<p>Displacement of native marine species (e.g. marine mammals, marine reptiles, sharks/rays and fish)</p> <p>Reduction in species biodiversity and decline in ecosystem integrity of the surrounding marine environment</p>
<p><b>Controls</b></p> <p>MODU and support vessels will have Department of Agriculture and Water Resources (DoAWR) quarantine clearance to enter Australian waters.</p> <p>Ballast water discharges from the MODU and support vessels must comply with the requirements of the Australian Ballast Water Management Requirements (as enforced under the <i>Quarantine Act 1908</i> [Section 27A]; Quarantine Regulations 2000; and <i>Biosecurity Act 2015</i> [Chapter 5]).</p>	<p>Completion of DoAWR Ballast Water Management Summary (BWMS) forms for any ballast water discharge in Australian waters.</p> <p>MODU and support vessels will be in possession of current antifouling certificates to verify compliance with the International Convention on the Control of Harmful Anti-Fouling Systems on Ships (as appropriate to vessel class).</p>
Risk	Potential Impacts
<b>Disturbance to marine fauna from light emissions (night-time operations) from MODU and support vessels</b>	<p>Light spill on to ocean attracting fish, turtles and other sea life - causes disruption to natural behaviour (e.g. foraging) leading to decline of local population.</p>
<p><b>Controls</b></p> <p>Lighting is the minimum required for navigation and safety requirements</p>	
Risk	Potential Impacts
<b>Seabed disturbance from lowering of the legs of the MODU</b>	<p>Seabed impacts from the lowering of legs to seabed - Disturbance to seabed or epifauna causing damage or loss of habitat, localised loss, disturbance and/or smothering of seabed features and benthic habitat.</p>
<p><b>Controls</b></p> <p>Adherence to MODU contractor rig move procedures to minimise potential impacts on the seabed</p> <p>MODU to be located on Montara Wellhead Platform location, which is a pre-existing disturbed site with Remotely Operated</p>	<p>Vehicle (ROV) surveys available which have identified no objects on the seabed.</p>
Risk	Potential Impacts
<b>Underwater Noise Emissions from MODU and support vessels</b>	<p>Disturbance to marine fauna, mammals and fish and potential behavioural changes; possible physical damage to immobile plankton such as fish eggs and larvae in immediate proximity to MODU and support vessels.</p>
<p><b>Controls</b></p> <p>Maintenance procedures on the MODU will optimise the efficiency of equipment (ie. engines, thrusters, generators) to reduce excess noise as per manufacturers' specifications in compliance with the MODU contractor Preventative Maintenance System.</p>	<p>Support vessels adherence to EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans</p>

Risk	Potential Impacts
<p><b>Power generation from MODU and support vessels producing atmospheric emissions</b></p>	<p>Power generation for drilling operations by the MODU, fuel use for support/supply vessels and helicopters releases combustion products to the atmosphere.</p> <p>These emissions may contribute to global warming (CH<sub>4</sub>, CO<sub>2</sub>), acid effects (SO<sub>x</sub>, NO<sub>x</sub>). There may be the potential for localised smog formation.</p>
<p><b>Controls</b> All power generation equipment will be maintained in accordance with manufacturer's specifications as part of MODU contractor Preventative Maintenance System.</p>	<p>MODU and supply vessels to have valid International Air Pollution Prevention Certificate (as appropriate to vessel class).</p>

Risk	Potential Impacts
<p><b>Routine discharge of putrescible wastes, treated sewage, grey water, deck drainage and bilge water</b></p>	<p>Localised and temporary reduction in water quality leading to toxic effects on marine fauna</p>
<p><b>Controls</b> The MODU and support vessels must have a valid International Sewage Pollution Prevention Certificate applicable to vessel class and any sewage or waste discharge will be done in accordance with applicable international maritime conventions e.g. MARPOL, and relevant Australian Marine Orders.</p> <p>Vessels must have a valid International Oil Pollution Prevention Certificate applicable to vessel class and any bilge water</p>	<p>discharges (machinery space bilges) from the MODU and support vessels must comply with MARPOL.</p> <p>Food waste discharges from the MODU and support vessels must comply with the requirements of MARPOL Annex V – Garbage. MARPOL is an International Maritime Organisation (IMO) convention and will be adhered to by all vessels regardless of their Flag or Class.</p>

Risk	Potential Impacts
<p><b>Routine discharge of cooling water and brine</b></p>	<p>Temporary and localised increases in sea water temperatures and salinity resulting in physical effects to marine biota.</p>
<p><b>Controls</b> Cooling water system maintained in accordance with manufacturer's specifications as part of MODU contractor Preventative Maintenance System.</p> <p>The cooling water system is a segregated system, with no hydrocarbons or chemical content.</p>	<p>Desalination system to be operated in accordance with the manufacturer's specification to ensure brine is diluted in cooling water system prior to discharge.</p>

Risk	Potential Impacts
<p><b>Routine discharge of cement, cementing fluids</b></p>	<p>Possible smothering of seabed around the well site by discharged cement slurry. Potential depletion of oxygen in surface sediments; possible loss of seafloor habitat.</p> <p>Low levels of chemicals released resulting in potential toxic effects on marine biota.</p>
<p><b>Controls</b> Cementing fluids will have an Offshore Chemical Notification Scheme (OCNS) grouping of D or E or a Chemical Hazard and Risk Management (CHARM) Hazard Quotient colour banding of Silver or Gold. If other rated or non-rated chemicals are required to be risk assessed for environmental acceptability before use.</p>	<p>Volume of cement to be used will be planned as per the drilling well plan to minimise volumes.</p>

Risk	Potential Impacts
<p><b>Accidental release of Ozone Depleting Substances (ODS)</b></p> <p><b>Controls</b> The MODU and support vessels will comply with all relevant legislation, e.g. <i>Ozone Protection and Synthetic Greenhouse Gas Management Act 1989</i> to prevent loss of ODS.</p>	<p>Contribution to the incremental buildup of ODS in the atmosphere</p>
Risk	Potential Impacts
<p><b>A release of hydrocarbons to the marine environment as a result of:</b></p> <ul style="list-style-type: none"> <li>• <b>Release of aviation fuel as a result of hose break or coupling failure during helicopter refueling on MODU</b></li> <li>• <b>Release of marine diesel as a result of hose break or coupling failure during refuelling of the MODU or support vessel</b></li> <li>• <b>Support vessel collision resulting in loss of marine diesel</b></li> <li>• <b>Loss of well integrity leading to a surface well blowout from the well head platform (WHP)</b></li> </ul>	<p>Localised and temporary reduction in water quality resulting in toxic effects on marine fauna.</p> <p>Direct toxic or physiological effects on marine fauna and flora, in particular marine mammals</p> <p>Accumulation of oil and chemicals in the food chain and in sediments. Loss of biodiversity.</p> <p>Socio economic effects on fishing, commercial shipping and defence activities</p> <p>Indirect impacts could include: habitat loss, impact on tourism and fisheries, issue of waste disposal</p> <p>Accumulation of oil and chemicals in the food chain and in sediments. Loss of biodiversity.</p>
<p><b>Controls</b></p> <p>The MODU and support vessels will comply with all relevant legislation, e.g. OPGGS Act and will operate in accordance with applicable international maritime conventions such as MARPOL, COLREGS and SOLAS and relevant Australian Marine Orders (as appropriate to vessel class).</p> <p>Support vessel entry and movements within the 500m PSZ will be undertaken in accordance with MODU procedures.</p> <p>Any vessel to vessel bunkering of fuel or SBM will use hoses with dry break couplings, break away connections, floats and transfer pump emergency shutdown.</p> <p>Undertake drilling in accordance with NOPSEMA accepted Well Operations Management Plan, MODU Safety Case and titleholder Environment Plan documents.</p> <p>Completion of emergency response and testing and exercises.</p> <p>Blowout Contingency Plan prepared that incorporates requirements and considerations for delivering a source control and containment response for a loss of well control.</p>	<p>Memorandum of Understanding between PTTEP AA and other operators in the vicinity of the Montara Development Project (MDP) area for assistance including rig for a relief well in place prior to drilling.</p> <p>Implementation of the PTTEP AA Montara Production Drilling Oil Pollution Emergency Plan (OPEP) which includes notifications, appropriate response arrangements and strategies, and triggering of operational and scientific monitoring plans.</p> <p>MODU helicopter refuelling procedure includes the use of non-return valves installed on fuel transfer hoses, constant surveillance and communication protocols, bunding of aviation fuel tanks.</p> <p>MODU and support vessel SOPEP that includes procedures for minimising losses to sea and material to respond to a spill.</p>
Risk	Potential Impacts
<p><b>Accidental loss of chemicals, equipment or wastes from MODU or support vessels during general operations and bulk transfers</b></p>	<p>Pollution or contamination of the marine environment</p> <p>Localised and temporary reduction in water quality resulting in toxic effects on marine fauna</p> <p>Injury or mortality of marine fauna through ingestion or entanglement</p>
<p><b>Controls</b></p> <p>The MODU and support vessels will comply with all relevant legislation and will be carried out in accordance with applicable international maritime conventions, including MARPOL and with relevant Australian Marine Orders (as appropriate to vessel class).</p> <p>The MODU and support vessels will have a valid International Pollution Prevention Certificate and an International Maritime Dangerous Goods Code (as appropriate to vessel class) and have provision for appropriate segregation facilities for storage of hazardous wastes</p>	<p>PTTEP AA will verify that the MODU/support vessel operational procedures include appropriate storage and transport of bulk hydrocarbons and chemicals, up to date Safety Data Sheets available on board for all hazardous substances, stocks of Shipboard Oil Pollution Emergency Plan (SOPEP) spill response kits readily available and a preventative maintenance system.</p> <p>MODU procedures for lifting operations - including use of appropriate and certified lifting equipment, lifting undertaken by competent personnel, preventative maintenance, consideration of weather conditions.</p>