WA-34-L Drilling and Subsea Installation Activities Environment Plan Summary

March 2014

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

Woodside Burrup Pty Ltd (Woodside) as operator, proposes to undertake a combination of drilling and subsea installation and commissioning activities, in offshore Commonwealth waters.

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* (Commonwealth) (Environment Regulations). This document summarises the WA-34-L Drilling and Subsea Installation Activities Environment Plan (EP), accepted under Regulation 10(1)(a) of the Environment Regulations by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Woodside intends to develop and produce hydrocarbons from the Xena gas field as part of the Pluto Field Development Plan. To achieve this, Woodside plans to procure the drilling of the XNA01 development well, and undertake subsea installation and commissioning enabling hydrocarbons from this well to be produced through the existing nearby Pluto field flowlines. Woodside also intends to intervene, workover, sidetrack or re-drill the existing PLA05 production well located in the Pluto field.

2. DESCRIPTION OF THE ACTIVITY

2.1 Location of the Activities

The activities will take place in production licence WA-34-L in Commonwealth waters approximately 175 km north west of Dampier (**Figure 2-1**). The south east corner of WA-34-L is near the Montebello Commonwealth Marine Reserve. The closest landfall to the Petroleum Activities Program (XNA01 well, XNA01 subsea hardware installation and commissioning and PLA05 well) is the Montebello Islands, approximately 50 km south east at their closest point.

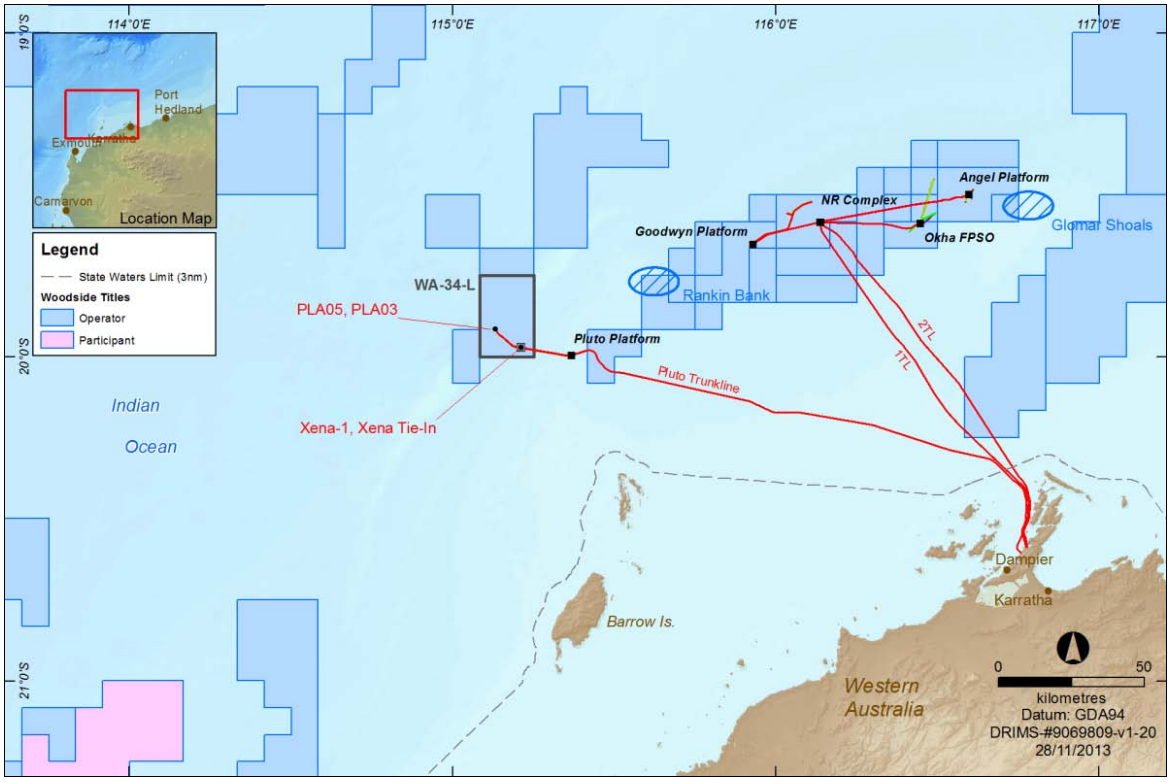

Figure 2-1 Location of the Activities in WA-34-L ('Xena-1' = XNA01)

Table 2-1 provides location details for the Petroleum Activities Program.

Table 2-1: Location Details for the Petroleum Activities Program

Activity	Water Depth (Approx. m LAT)	Easting[1]	Northing	Production Licence
XNA01 well	180 m	312 994 m E	7 790 794 m N	WA-34-L
XNA01 subsea hardware installation and commissioning	180 m	312 974 m E	7 790 742 m N	WA-34-L
PLA05 well	830 m	304 397.7 m E	7 797 002.28 m N	WA-34-L

An Operational Area will be implemented around each well location (2,500m radius) and the subsea installation and commissioning location (1,500m radius) when drilling or installing and commissioning subsea infrastructure. The Operational Area defines the petroleum activities that will be managed under the EP. Transit to and from an Operational Area by support vessels, installation vessels and drill rigs/ships, and port activities associated with the support vessels, is not within the scope of the EP.

2.2 Timing of the Activities

It is proposed to commence drilling of the XNA01 development well in Mid-2014. Drilling is expected to take approximately 80-100 days to complete.

Subsea installation and commissioning is planned for the first half of 2015. Subsea installation and commissioning of the tieback infrastructure is expected to take a total of approximately 70-100 days (including mobilisation, demobilisation and contingency) over two phases.

PLA05 is likely to be intervened, worked over, sidetracked or re-drilled within the next 2-3 years (currently not planned for 2014), dependent on scheduling commitments and vessel availability. This activity is expected to take approximately 80-100 days to complete.

Exact timing and duration of all activities is subject to change due to MODU/vessel availability, unforeseen circumstances and weather.

2.3 Project Vessels

Project vessels will include:

- The *Atwood Eagle* semi-submersible moored drill rig is currently scheduled to undertake the drilling of XNA01. A specific rig for PLA05 is yet to be selected or contracted but options include a semi-submersible moored drill rig, Dynamic Positioned (DP) drill ship or DP drill rig, depending on availability and suitability for the well location (e.g. water depth). All MODU options are assessed and managed under the EP.
- A primary installation vessel (PIV) (to be confirmed) for the installation of the subsea infrastructure for the tieback of the XNA01 development well. Installation will employ the use of remotely operated underwater vehicles (ROV).
- Support vessels

2.4 Drilling

The XNA01 well will be drilled using water based mud (WBM) and non-water based mud (NWBM) systems. Once the well has been drilled, well completion activities will be undertaken including installation of the production tubing and subsea tree followed by well unloading, cleanup and suspension. During well unloading, reservoir hydrocarbons and base oil will be flared off into the atmosphere.

[1] GDA94 MGA Zone 50

PLA05 well bore investigations will be conducted via coil tubing. Depending on the outcomes of the coil tubing intervention, PLA05 may be worked over, sidetracked or re-drilled. If PLA05 is redrilled, the process would be similar to that described above for the XNA01.

2.5 Xena Subsea Installation

The installation scope of work will be undertaken in two different phases. The first phase, planned for Q1 2015, will execute installation of all hardware required to connect the XNA01 well to the existing nearby Pluto field flowlines (flexible flowline, chemical, hydraulic and electrical lines, and connection systems) except the final connecting spools. The second phase, planned for Q2 2015, will involve installation of the spools between the new infrastructure and the existing Pluto flowlines.

Following completion of Xena subsea installation and pre-commissioning activities the pre-commissioning fluids will be flushed into the Pluto production system and start-up the XNA01 well. Operation of the Xena field will be managed as per the Pluto Offshore Facility Operations EP.

3. DESCRIPTION OF THE ENVIRONMENT

3.1 Physical Environment

The WA-34-L Production License is located on the North West Shelf (NWS), within the North-West Marine Region. The North West Shelf experiences a tropical monsoon climate, with distinct wet and dry seasons and the presence of tropical cyclones between November and April. Large scale circulation is primarily influenced by the Indonesian Throughflow which feeds into the Leeuwin Current, which flows to the South-West through the area. In summer, tidal disturbance to the highly stratified water column can generate internal waves along the thermocline which induce strong currents on the sea bed.

3.2 Biological Environment

No Critical Habitats or Threatened Ecological Communities, as listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), occur within the WA-34-L Drilling and Subsea Installation Activities Operational Areas. It is acknowledged that critical life stage activities for a number of EPBC Act (for example turtle nesting) occur in the wider region, outside of the Operational Areas.

A number of targeted surveys to investigate epibenthos and infauna of offshore NWS shelf and slope environments have been carried out by Woodside. These surveys indicated that infauna is of low abundance with high variability and diversity. Polychaetes and crustaceans dominated the infauna composition.

Twenty-two cetacean species may occur within WA-34-L, including two threatened and seven migratory species. The endangered pygmy blue whale and the vulnerable humpback whale are two whale species that seasonally migrate through the NWS province as they travel between northern breeding grounds and southern feeding grounds. Other cetacean species are likely to occur at low densities and may transverse the vicinity of the Operational Areas infrequently throughout the year.

With consideration of the distance offshore (approximately 50 km north west of the Montebello Islands), depth range of the offshore waters of the Operational Areas (180-1000m), and absence of potential nesting or foraging sites (i.e. no emergent islands, reef habitat or shallow shoals) the vicinity of the Operational Areas are not considered an important habitat for marine turtles. Sea snakes of the families Hydrophidae and Laticaudidae are widespread in the region, and are protected under the EPBC Act.

Whale sharks may traverse the vicinity of the Operational Areas during their migrations to and from Ningaloo Reef. However, it is expected that whale shark presence within the area would be of a relatively short duration and not of significant numbers given the main aggregations are recorded in coastal waters, particularly, the Ningaloo Reef edge (MPRA, 2005).

3.3 Socio-Economic Environment

There are no known sites of Indigenous or European cultural or heritage significance within the vicinity of the Operational Areas.

No tourism activities take place specifically within the vicinity of the Operational Areas.

The Operational Areas are located within an area of established oil and gas operations, however the closest, The Goodwyn Facility operated by Woodside, is 85km to the North East.

The Operational Areas are located within three Commonwealth and three State fisheries.

The region supports significant commercial shipping activity, mostly associated with the mining and oil and gas industries. Major shipping routes in the area are utilised for entry to the Port of Dampier and Barrow Island.

The Operational Areas overlap with the northern tip of one of the designated Defence practice areas.

There are no sensitive marine environments within the Operational Areas. The closest sensitivity is the boundary of the multiple use zone of the Montebello Commonwealth Marine Reserve (**Figure 3-1**).

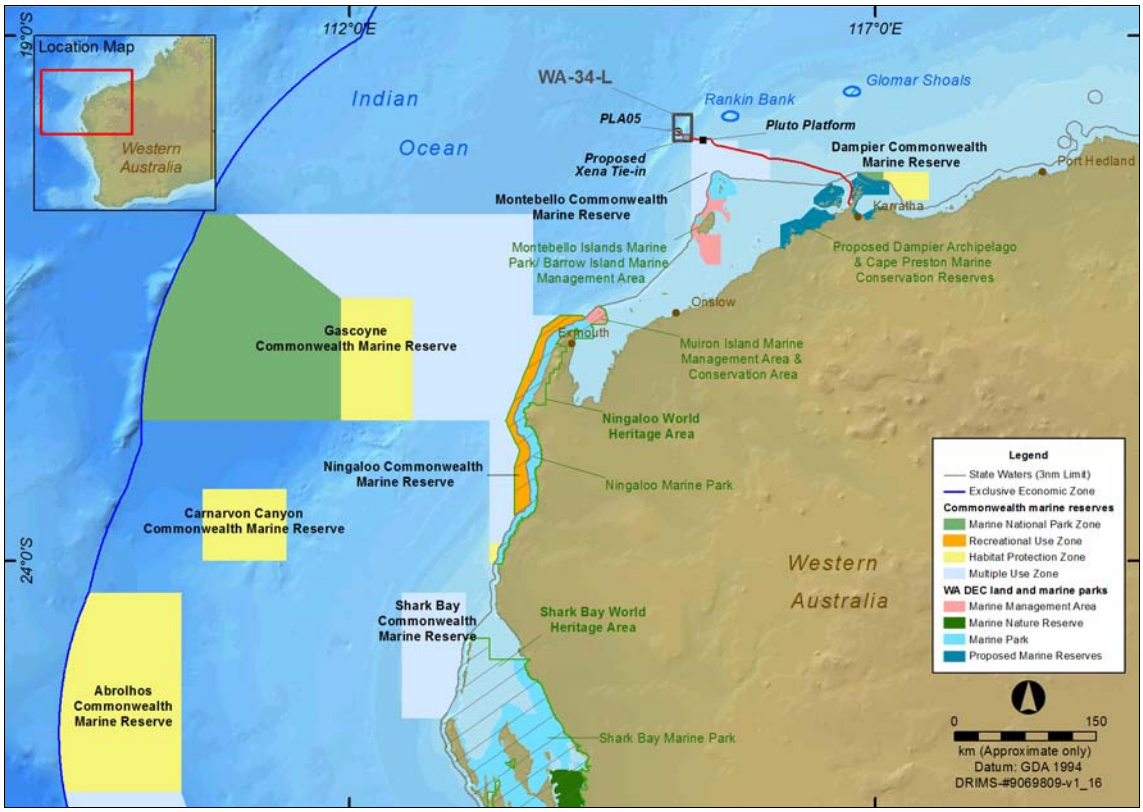

Figure 3-1: Established and Proposed Commonwealth and State Marine Protected Areas in relation to the Operational Areas.

4. MAJOR ENVIRONMENTAL HAZARDS AND CONTROLS

Woodside undertook an environmental risk assessment to understand the potential environmental risks associated with the WA-34-L Drilling and Subsea Installation Activities to ensure they are reduced to As Low As Reasonably Practicable (ALARP) and will be of an acceptable level using a method consistent with Woodside standards.

A summary of key environmental hazards and control measures to be applied to the activities are shown in **Appendix A**. These are consistent with Woodside corporate and project-specific objectives, standards and criteria. All control measures associated with the hazards will be used to reduce environmental risk to ALARP and will be of an acceptable level.

5. MANAGEMENT APPROACH

The WA-34-L Drilling and Subsea Installation Activities will be managed in compliance with the *WA-34-L Drilling and Subsea Installation Activities Environment Plan* accepted by NOPSEMA under the Environment Regulations, other relevant environmental legislation and Woodside's Management System (e.g. Woodside Environment Policy).

The objective of the EP is to ensure that potential adverse impacts on the environment associated with the WA-34-L Drilling and Subsea Installation Activities, during both routine and non-routine operations, are identified, and will be reduced to ALARP and will be of an acceptable level.

The WA-34-L Drilling and Subsea Installation Activities EP details for each environmental aspect (identified and assessed in the Environmental Risk Assessment – *Section 5 of the EP*) specific performance objectives and standards and control/mitigation measures (controls available in **Appendix A** of this summary) to be implemented and measurement criteria to demonstrate performance objectives are achieved.

The implementation strategy detailed in the WA-34-L Drilling and Subsea Installation Activities EP identifies the roles/responsibilities and training/competency requirements for all personnel (Woodside and its contractors) in relation to implementing controls, managing non-conformance, emergency response and meeting monitoring, auditing, and reporting requirements during the activity. The EP details the types of monitoring and auditing that will be undertaken, the reporting requirements for environmental incidents and reporting on overall compliance of the activities with the EP.

6. CONSULTATION

Woodside conducted a stakeholder assessment for the proposed activity to identify relevant and interested stakeholders based on the locations, proposed activities and timing.

A consultation fact sheet was sent electronically to all identified stakeholders prior to lodgement of the EP with NOPSEMA for assessment and acceptance. This advice was supported by engagement with potentially affected stakeholders.

Woodside received feedback on the proposed activity from a range of stakeholders, including government agencies and commercial fishing organisations. Issues of interest or concern included the location of the proposed activities across commercial fishing areas.

Woodside considered this feedback in its development of management measures specific to the activities.

Woodside will continue to accept feedback from stakeholders during the activities.

7. CONTACT DETAILS

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APPENDIX A: Summary of Major Environmental Hazards and Control Measure to be applied to the WA-34-L Drilling and Subsea Installation Activities

Source of Risk (Hazard)	Potential Environmental Impact	Control/ Mitigation Measures
PLANNED (ROUTINE AND NON-ROUTINE) ACTIVITIES		
Generation of noise from MODU, PIV & support vessel operations	Will not result in a potential impact greater than minor and temporary disruption to a small proportion of the population and no impact on critical habitat or activity.	Compliance with EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans: Support vessels will not travel greater than 6 knots within 300 m of a whale (caution zone) & approach closer than 100 m from a whale; & a vessel will not approach closer than 50 m for a dolphin &/or 100 m for a whale (with the exception of animals bow riding).
Generation of acoustic signals during vertical seismic profiling of the wells	Will not result in a potential impact greater than minor and temporary disruption to a small proportion of the population and no impact on critical habitat or activity.	Contractor's VSP procedure is assessed by Woodside and meets the following minimum requirements (controls) in line with the EPBC Act policy Statement 2.1: • Pre-start visual observations • Soft start procedures • Operating procedures Contractor's Woodside-approved VSP procedure is implemented to manage potential interactions between VSP & threatened & migratory cetacean species listed under the EPBC Act.
Atmospheric emissions from fuel combustion, well unloading (flaring of gas and base oil, including hydrocarbon dropout to marine environment) or well kick (unplanned gas venting)	Will not result in a potential impact greater than a minor & temporary exceedence over air and/or water quality standards.	Compliance with MARPOL 73/78 Annex VI, & Marine Order 97 (marine pollution prevention – air pollution), as required by vessel class A Woodside approved well unloading package will be set-up & principally designed with mechanisms to minimise potential impacts during well unloading operations. Woodside will review the contractor operational procedure to ensure it maximises flare efficiency & includes the requirements for a flare watcher. Woodside will verify relevant contractor's procedures for well unloading align with the well unloading process which covers all aspects of primary and secondary well control for floating drilling operations (including venting).

Source of Risk (Hazard)	Potential Environmental Impact	Control/ Mitigation Measures
Physical presence MODUs & project vessels	Will not result in a potential impact greater than isolated & short term local concern to shipping & commercial fishing.	Vessels compliant with Marine Order 30 (Prevention of Collisions) 2009 & Marine Order 21 (Safety of navigation & emergency procedures) 2012: Use of standard maritime safety procedures (including radio contact, display of navigational beacons & lights). Maritime Safety Information Notifications (MSIN) & Notice to Mariners (NTM) – navigation warning – Australian Hydrographic Service (AHS) Send consultation Fact Sheet to state & commonwealth fisheries Establishment & enforcement of a 500 m safety/ exclusion zone around the MODU & PIV, in which only vessels authorised by the MODU/PIV are permitted to enter & operate
Well site, MODU anchoring, ROV operation, wet storage, placement of subsea infrastructure & sediment relocation	Seabed disturbance will not result in a potential impact greater than localised and short-medium term effect on community/habitat structure. Full recovery is expected.	*Woodside Well Location & Site Appraisal Data Sheet* will be completed for each drilling scope that requires MODU anchoring (i.e. DP MODU not available) which informs the MODU mooring locations selection Mooring Analysis Report completed & implemented during anchor deployment (consistent with industry best practice - American Petroleum Institute RP 2SK) as per Woodside Standards Wet stored items are logged & retrieved
Routine discharge of sewage, grey water & putrescible wastes, deck & bilge water, and accidental loss of solid wastes to marine environment from MODU & vessels	Will not result in a potential impact greater than minor and/or temporary contamination above background levels, water quality standards, or known effect concentrations.	Compliance with MARPOL 73/78 Annex I (oil pollution), IV (sewage), and V (garbage), as required by vessel/MODU class Vessel/MODU sewerage system shall be capable of servicing the full complement of crew on board the vessel & holding tanks shall be sized appropriately to contain all generated waste (black & grey water) for the necessary duration prior to planned & acceptable discharge operations. The Contractor Waste Management Plan is consistent with Woodside waste management plans Bilge water contaminated with hydrocarbons must be contained & disposed of onshore, except if the oil content of the effluent without dilution does not exceed 15 ppm or an IMO approved oil/water separator (as required by vessel class) is used to treat the bilge water. Woodside Standard for Rig Equipment: Appropriate storage, bunding and drainage to prevent overboard discharges. Engineered barriers will be given priority over procedural barriers on the MODU. Any accidental loss of significant wastes to the marine environment will be recovered where safe and practicable to do so.

Source of Risk (Hazard)	Potential Environmental Impact	Control/ Mitigation Measures
Routine discharge of drilling and completion fluids to marine environment from the MODU	Will not result in a potential impact greater than minor and/or temporary contamination above background levels, water quality standards, or known effect concentrations.	Woodside procedure used to assess chemicals (in standard discharge scenarios) which can fall into the following assessment types: no further assessment (good OCNS environmental performance); further assessment required (lower OCNS environmental performance or not OCNS registered); or ALARP justification required (if an environmentally sound alternative cannot be found). As per Woodside Standards WBM shall be used as the first preference in all cases; & where WBM cannot meet required specifications, NWBM may be used following a formal written commercial and/or technical NWBM justification process. Overboard disposal of NWBM is not permitted. Bulk operational discharges conducted under MODU's PTW system (to operate discharge valves/pumps) or risk assessed using the MODU contractors risk assessment prompt cards. Discharge of mud pit wash residue is less than 1% by volume (10,000 ppm) oil content. Samples of NWBM mud pit wash residue will be measured and recorded.
Routine discharge of drill cuttings (WBM and NWBM) to the marine environment	Will not result in a potential impact greater than minor and/or temporary contamination above background levels, quality standards, or known effect concentrations.	Woodside procedure used to assess chemicals (as above) Riser-in-place cuttings will be processed using solids control equipment prior to discharge Cuttings must be discharged below the water line as per Woodside Standards. NWBM cuttings will be treated & processed to contain on average less than 10% oil by weight prior to discharge as per Woodside Standards. NWBM system set up as per Woodside checklists to ensure appropriate containment and controls in place & audited
Discharge of preservation and pre-commissioning fluids to the marine environment	Will not result in a potential impact greater than minor and/or temporary contamination above background levels, water quality standards, or known effect concentrations.	Woodside procedure used to assess chemicals (as above) Requirements to identify and mitigate risks that pose a potential hazard to the environment as per Woodside subsea and pipelines commissioning standards A procedure for pre-commissioning work shall include environmental considerations, monitoring and recording of fluids injected, displaced and discharged, and MSDS for all chemicals used A procedure for hydrotesting work shall include ROV inspection during test to identify leakage & trigger activity to stop

Source of Risk (Hazard)	Potential Environmental Impact	Control/ Mitigation Measures
UNPLANNED ACTIVITIES (ACCIDENTS OR INCIDENTS		
Hydrocarbon release to the marine environment due to a loss of well integrity	Disruption of a significant portion of the population of protected species. Impacts on critical habitats or activities. No threat to overall population viability. Large scale and long-term effects to marine primary producers. Recovery >10 years or permanent. Localised but long term effect on community/habitat structure. Community maintains ecological integrity though an unacceptable change in species composition may occur. Minor long term or significant short term contamination above background and/or national/international standards and/or known biological effect concentrations on scale >2 km for water quality and marine sediment quality. In relation to air quality: slight and temporary (<1 year) localised effect to ecosystems, species and/or habitats in the area. Significant long term effect on one or more of protected area values.	*Preventative:* *Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011*: Accepted Well Operations Management Plan (WOMP) & application to drill As per Woodside Standards: • all permeable zones penetrated by the well bore, containing hydrocarbons or over-pressured water, shall be isolated from the surface environment by a minimum of two barriers (a single fluid barrier may be implemented during the initial stages of well construction if appropriateness is confirmed by a shallow hazard study) • discrete hydrocarbon zones shall be isolated from each other (to prevent cross flow) by a minimum of one barrier • all normally pressured permeable water-bearing formations shall be isolated from the surface by a minimum of one barrier • barriers shall be effective over the lifetime of well construction or production • effectiveness of primary & secondary barriers shall be verified (physical evidence of the correct placement & performance) • Cement minimum specifications for cementing conductor, casings & liners to maintain well integrity As per Woodside procedures: Fluid barrier comprising of drilling fluid of a suitable weight, composition & volume to counter pore pressure & over pressure zones when drilling Subsea BOP specification & function/pressure testing in accordance with: • Original Equipment Management (OEM) Standards • Woodside Standards and procedures • API Standard 53 4th Edition (API RP53) *Spill Response:* • Spills to sea will be managed as per the WA-34-L Oil Spill Preparedness and Response Strategy Selection and Evaluation, Woodside's Corporate Oil Spill Response Plan and the Dampier and Exmouth Regional Oil Spill Response Plans. • Monitoring/observation of the spill will be undertaken to inform the spill response strategies, which may include:

Source of Risk (Hazard)	Potential Environmental Impact	Control/ Mitigation Measures
		o Ongoing monitoring and evaluation o Containment and recovery o Shoreline assessment o Shoreline protection o Shoreline cleanup • Subsea first response toolkit & capping stack available for use. • Mutual Aid MoU (for relief well drilling) is in place.
Hydrocarbon spill to the marine environment due to loss of vessel structural integrity	Localised and short-medium term effect on protected species and/or marine primary producer's community/habitat structure. Full recovery expected. Minor and/or temporary contamination above background water quality levels and/or national/international quality standards Short term contamination above background marine sediment quality levels and/or national/international quality standards Minor and short term effect on one or more of the protected areas values. Full recovery expected.	Compliance with Marine Order 30 (Prevention of Collisions) 2009 and Marine Order 21(Safety of navigation and emergency procedures) 2012 AMSA Rescue Coordination Centre (RCC) and Australian Hydrographic Service (AHS) are notified of planned activities. As per Woodside requirements: • support vessel becomes designated as standby vessel for over the side and moon pool operations within the MODU/PIV area and is under the control of the OIM • maintains safety/exclusion zones by maintaining continuous surveillance through visual, radar, and radio watches, providing warning to approaching vessels, intercepting vessels that enter within the safety/exclusion zone and documenting incursions. Establishment and enforcement of a 500 m safety zone Woodside oil spill preparedness, response and monitoring arrangements

Source of Risk (Hazard)	Potential Environmental Impact	Control/ Mitigation Measures
Hydrocarbon spill to the marine environment during bunkering activities	Will not result in a potential impact greater than localised, minor and temporary contamination above background levels and/or standards with localised, minor and temporary impacts to habitats or populations	Compliance with MARPOL 73/78 Annex I (oil pollution) As per Woodside Standards: • all hoses that have a potential to cause an environmental risk due to damage or failure shall be placed on a hose register that is linked to the MODU's preventative maintenance system • there shall be dry-break couplings and floatation on fuel hoses and procedures to ensure that hose integrity is checked • save-alls shall be installed around loading stations • adequate/appropriate spill kits • all bulk transfer hoses shall be tested for integrity before use
Hydrocarbon release to the marine environment as a result of an object dropped (including anchors) onto subsea infrastructure or loss of isolation during subsea installation	Localised but long term effect on protected species and on habitats and communities. Recovery 5-10 years (moderate to large scale effect recovery within 10 years) Large scale and long term effects on marine primary producers (recovery greater than 10 years) Minor long term or significant short term contamination above background and/or national/international water/marine sediment quality standards and/or known biological effect concentrations on scale >2 km. Moderate but long term or permanent effect on one or more of protected area values.	MODU and PIV Safe Work Procedures developed and followed for bulk transfer to prevent objects being dropped: • Subsea project items will be lifted over the side of the PIV in a "clear zone" away from live subsea infrastructure, and lowered to within ~10 m of the seafloor. Items will then be moved into place using ROV and PIV movement. • Standards for lifted equipment, lifting/ winching gear and devices. • Pre-use inspections on lifting/ winching gear and devices • Equipment maintained in accordance with lifting equipment register. As per Woodside Standards: Calibrated real time positioning system to be installed on the MODU and each of the AHVs, which displays the relative positions of the MODU and AHVs, mooring legs, anchors and positions of all subsea infrastructure via electronic charts supplied by Woodside. Mooring Analysis Report completed & implemented during anchor deployment (consistent with industry best practice - American Petroleum Institute RP 2SK) as per Woodside Standards Pre-laid mooring system deployed for anchoring a MODU in (if DP MODU not used) in the Operational Areas. As per Woodside isolation Standards: • To conduct installation work after the removal of the HP cap Woodside will conduct an internal formal risk assessment and ALARP demonstration for a single isolation specific for this scope of work.

Source of Risk (Hazard)	Potential Environmental Impact	Control/ Mitigation Measures
		• A risk assessment is required to be performed for any subsea isolation to determine whether the proposed isolation is appropriate with respect to environmental impacts. • Isolations must be tested (proven) prior to the commencement of any subsea installation activities. A detailed set of procedures for putting isolations in place will be developed prior to commencing subsea installation activities. • Effectiveness of the isolation will be confirmed/proven via field testing. 'Dummy' spool termination head on stand-by in the field to restore double isolation in the event that a spool cannot be connected following removal of a HP cap from a Xena tee on a Pluto flowline. Woodside oil spill preparedness, response and monitoring arrangements
Accidental discharge of NWBM or base oil to marine environment from MODU during bulk transfer, emergency disconnect system or failure of slip joint packers	Accidental discharge of NWBM will not result in a potential impact to water quality greater than minor and/or temporary contamination above background levels and/or national/international quality standards and/or known biological effect concentrations outside a 200m mixing zone. NWBM cuttings discharge from an emergency disconnect will not result in a potential impact greater than minor and/or temporary contamination above background levels, water quality standards, or known effect concentrations.	As per Woodside Standards: • all hoses that have a potential to cause an environmental risk due to damage or failure shall be placed on a hose register that is linked to the MODU's preventative maintenance system • there shall be dry-break couplings and floatation on fuel hoses and procedures to ensure that hose integrity is checked • save-alls shall be installed around loading stations • adequate/appropriate spill kits • all bulk transfer hoses shall be tested for integrity before use NWBM system set up as per Woodside checklists to ensure appropriate containment and controls in place & audited North West European Area (NWEA) Guidelines: • Emergency shutdown systems for stopping losses of containment (e.g. burst hoses) • Break-away dry-break couplings for oil based mud hoses • Constant monitoring of the offloading process • Direct radio communications

Source of Risk (Hazard)	Potential Environmental Impact	Control/ Mitigation Measures
		• Managed under Permit to Work system • Additional operator will be used to monitor & manage NWBM operations & volumes (with suitable communication equipment). Deck areas on the MODU are bunded. Mud pits dump valve will be locked closed & operated through the MODU's PTW. At the transition of WBM to the use of NWBM, MODU personnel will 'walk the line' & ensure the valve line-up for the use of NWBM is correct prior to the re-commencement of drilling.
Unplanned minor spills to the marine environment from deck, subsea or drilling contingent activities	Will not result in a potential impact to water quality greater than minor and/or temporary contamination above background levels, quality standards or known effect concentrations and will not result in a potential impact greater than minor and temporary disruption to a small proportion of the population with no impact on critical habitat or activity.	Compliance with MARPOL 73/78 Annex I (oil pollution) as required by vessel/MODU class Woodside procedure used to assess chemicals (as above) Compliance with MARPOL 73/78 Annex III, *(Part IIIA Prevention of pollution by packaged harmful substances*) and Marine Order 94 (Marine pollution prevention – packaged harmful substances) 2009: No disposal of harmful substances overboard As per Woodside Standards, chemicals will be stored safely and handled to prevent the release to the marine environment Equipment located on vessel decks utilising hydrocarbons (e.g. cranes, winches or other hydraulic equipment) will have as a minimum primary bunding (i.e. deck edge lips or up-stands/save-alls) to prevent loss of hydrocarbons to the marine environment. Adequate/appropriate spill kits Coil tubing equipment, set up and procedures will be reviewed by Woodside to include as a minimum: • a coil tubing design (rated/certified) to operating parameters, that is pressure tested before running the hole. • the use of a remote operated dual BOP • process for and frequency of the BOP ram and body pressure tests. In addition to coil tubing controls, wireline equipment will be designed to enable: • lubricators bled through a controlled system and the gas is vented • block and bleed valves that can be isolated on all flexible lines & hoses.

Source of Risk (Hazard)	Potential Environmental Impact	Control/ Mitigation Measures
Collision between support vessels and protected marine fauna in an Operational Area	Will not result in a potential impact greater than minor and temporary disruption to a small proportion of the population and no impact on critical habitat or activity.	Compliance with EPBC Regulations 2000 – Part 8 Division 8.1) Compliance with required notifications of activities affecting cetaceans under the EPBC Regulations.
Dropped object to the marine environment (impacting benthic environments)	Will not result in a potential impact greater than minor and temporary disruption to a small area of the seabed, a small proportion of the benthic population and no impact on critical habitat or activity.	Equipment and material dropped to the marine environment is recovered where safe and practicable to do so. Operational procedures will be in place on-board the MODU, PIV and supporting vessels for the retrieval of dropped objects. Personnel will be trained with regard to the prevention of dropped objects during relevant meetings and the MODU/PIV induction.