

WA-28 Infill Subsea Environment Plan Bridging Document Summary

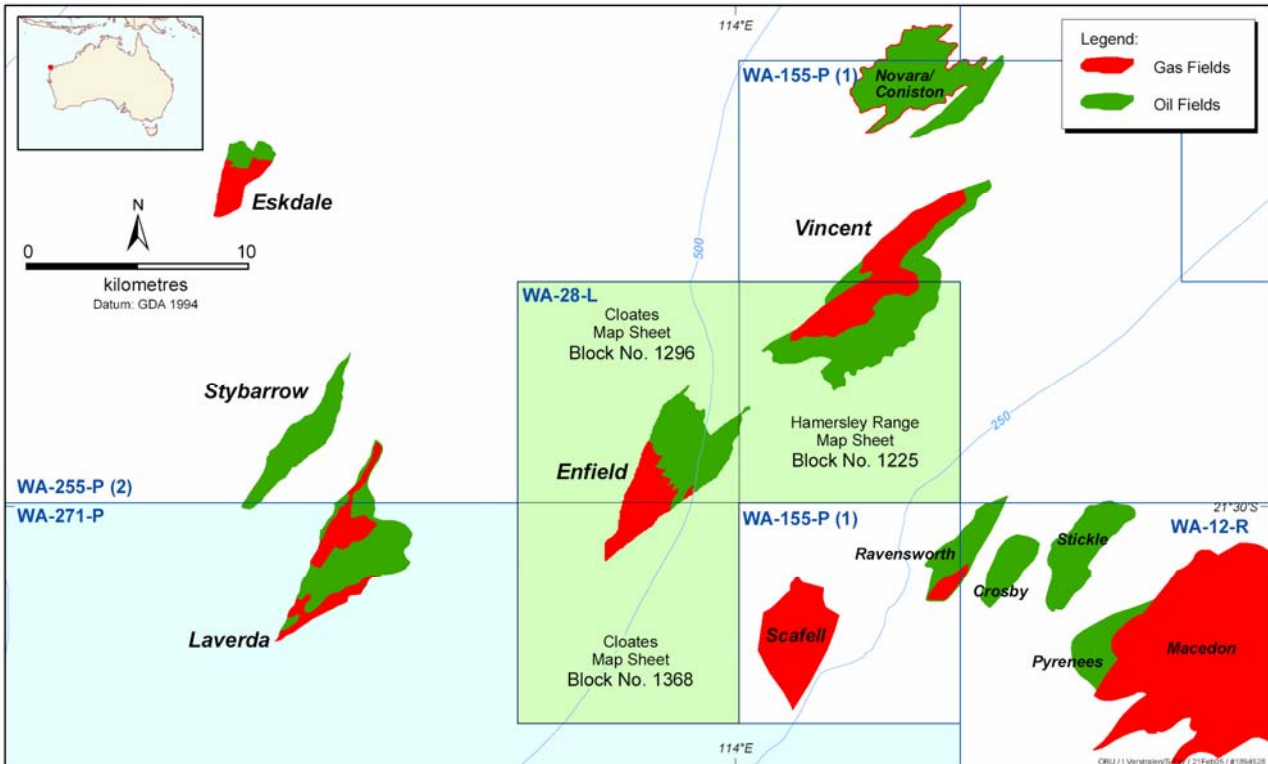
1. COORDINATES AND LOCALITY MAPS OF THE ACTIVITY

Woodside’s GEA – Greater Enfield Area is located within production licence WA-28-L, in approximately 550 m water depth, approximately 49 km North West of Exmouth in Western Australia. The licence is approximately 21 km north-west of the Ningaloo Marine Park boundary (Commonwealth Waters), approximately 35 km north-west of the North West Cape and approximately 49 km northwest of the town of Exmouth. Table 1.1 below shows the coordinates of the new wells, where the tie-ins will take place and the map in Figure 1.1 provides the location of the GEA with the two oil fields.

Table 1.1 – Wells Coordinates on Greater Enfield Area

Name	Easting	Northing	Latitude	Longitude	Type
E-DC3	186 564 mE	7 620 854 mN	21° 29' 15.361" S	113° 58' 30.823" E	Manifold
E-DC5	187 903 mE	7 621 555 mN	21° 28' 53.438" S	113° 59' 17.759" E	Manifold
ENC05	186 593 mE	7 620 847 mN	21° 29' 15.597 "S	113° 58' 31.842 "E	Injection Well
ENE01	187.882 mE	7 621 556 mN	21° 28' 53.387 "S	113° 59' 17.048 "E	Production Well

Figure 1.1: Enfield Area Development Project Location Map



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2. DESCRIPTION OF RECEIVING ENVIRONMENT

2.1 Physical Environment

The water depth in the vicinity of the development area ranges from 350 m to 900 m, with the seabed in the area consisting of fine to medium sediment (silt and sands). Cyclones in the area most frequently occur between January and March, but they have been recorded from November to May.

2.2 Biological Environment

Biological seabed surveys conducted across the north east section of the licence as part of the studies undertaken for the Environmental Impact Statement for the Full Field Development in WA-271-P have indicated that benthic communities across the shelf and slope within the permit are typical of the north western Australian region.

Resources of ecological significance in the surrounding surface waters typically include mobile species mostly occurring in low numbers and widely dispersed. There are no records of seagrasses, coral reefs or beds of seaweed in the deep waters of the licence area, however such habitats occur in shallower areas, including intertidal and shallow sub-tidal sandy to muddy shorelines supporting mangroves, seagrasses and macroalgae and coral encrusted pavements and reefs. The major identified ecological resources in the wider region are either permanent features (eg. mangroves, corals, and seagrasses) or they congregate or migrate through the area at certain times of the year.

Whale sharks and turtles congregate seasonally, particularly in the near shore zone. A number of whale species may be encountered in the region, including pygmy blue, sperm and humpback whales. Humpback whales migrate through the region during June to December, but the majority of the whales move well inshore of the Development location. Whales and dolphins are regularly observed in the waters of the North West Cape region, but less commonly in the deep offshore waters of the proposed development area. Whales are also commonly observed along the North West Shelf, including near or alongside existing oil facilities.

2.3 Socio-Economic Environment

There are no known sites of Aboriginal or European cultural significance within the development area. There are several commercial fisheries operating within the region surrounding the licence area. Recreational and game fishing is also common in the region, and is mainly concentrated in coastal and inshore areas. Tourism is one of the major industries in the region and contributes significantly to the local economy in terms of both income and employment, and generally includes nature-based activities such as snorkelling and scuba activities, whale shark encounters and whale watching.

3. DESCRIPTION OF THE ACTION

The current Enfield subsea infrastructure consists of one production and two water injection manifolds plus two gas injection wells. All manifolds are fully populated. The proposed Enfield Infill 2009 development involves the tie-in of a new production manifold E-DC5 and production well ENE01 and tie-in of a new water injection well ENC05 at the E-DC3 well centre.

The Enfield subsea control system is supplied and controlled by one main and three infield electro-hydraulic umbilicals (EHUs). Replacement infield EHUs have been procured and are to be installed in this campaign. There will be no recovery of the existing umbilicals following installation of the replacement umbilicals. The umbilicals will be removed at decommissioning along with other infrastructure as per condition 5 of the EPBC Conditions. For the time being the umbilicals will remain still on the seabed and negligible impacts are predicted for this wet storage.

The subsea trees will be installed by the semi-submersible rig Nan Hai VI, which will be already in place after the drilling activities as described in a separate Environment Plan submitted to DMP and DEWHA in February 2009, and the tie-ins and umbilicals deployment will be performed by the Installation Support Vessel Rockwater 2. Both rig and ISV have approved safety cases by NOPSA. The program scope is outside the cyclone season and weather forecast is part of routine activities. In case of a cyclone event, the rig and vessel will be directed to the Dampier Port.

4. MAJOR ENVIRONMENTAL HAZARDS AND CONTROLS

Environmental hazard events have been identified from a review of the Environment Plan and of the proposed program activities. Hazardous events have been assessed during a HAZID workshop with the participation of safety and risk engineers, environmental engineer, subsea engineer, drilling engineers, vessel representatives and project manager of Enfield Infill 2009 Development Project. The environmental risks identified for this campaign are summarised below:

- Physical presence, transit of vessels on project location;
- Subsea installation, chemicals discharge and seabed disturbance;
- Waste discharge, routine discharge from vessels;
- Spill incidents, release of diesel or oil from vessels or from dropping objects;
- Quarantine management, from ballast water; and
- Atmospheric emissions, from vessel engines and FPSO flaring at start-up.

It was concluded that there was no high or severe risks related to the activity. The ERA carried out for the "Enfield Area Development Project Subsea Installation & Construction WA-28-L Environment Plan August 2005" covers adequately this project and no new significant environmental risk will be introduced. The activity is also covered by the Carnarvon Basin (WA) Oil and other Noxious and Hazardous Substances Spill Contingency Plan, which have been reviewed in December 2008.

Some chemicals will be discharged to the sea in this campaign and given the water depth (approximately 550 m), location offshore, low toxicity and expected immediate dilution upon discharge, negligible environmental consequences are expected.

5. OVERALL DESCRIPTION OF THE MANAGEMENT APPROACH

The management approach follows the Woodside's Management System (in line with an ISO-14001 management system). A systematic approach is taken through the identification and assessment of hazards and risk, the establishment of objectives, performance standards, criteria and the development of appropriate documentation. Table 5.1 summarises the environmental management approach for this campaign.

Table 5.1 – Summary Table of Objectives, Standards and Measurement Criteria

Performance Objective	Standard	Measurement Criteria
Minimise disturbance to the seabed and benthic habitats.	<ul style="list-style-type: none"> Woodside Environment Policy and Management System. Subsea Installation Procedures: Spool Installation Equipment, Installation & retrieval Procedure – (ICP-0000021843). Rigid Spool Installation Procedure (JAOO4847). 	<ul style="list-style-type: none"> Recording and reporting of all items lost overboard. No anchoring of vessels at Project Location. Minimum disturbance to seabed outside of the subsea equipment footprint. Briefing of all project personnel on environmental sensitivities. Management procedures and commitments detailed in the EP.
Minimise disruption to transient marine life.	<ul style="list-style-type: none"> Woodside Environment Policy and Management System. Cetacean Interaction Permit E2002/0010 Conditions. EPBC Act Regulation 8 (Interacting with Cetaceans and Whale Watching). Environment Australia Whale and Dolphin Sighting Report. Vessel Environment Plan. 	<ul style="list-style-type: none"> Compliance with EPBC Act Regulation 8 – Interacting with Cetaceans and Whale Watching. Whale sighting reports completed and returned to WEL Environmental Adviser. Briefing of all project personnel on environmental sensitivities, management procedures and commitments detailed in the EP.
Minimise impact of chemically treated water discharges on the environment.	<ul style="list-style-type: none"> Woodside Environment Policy. P(SL)(MoE)R 1999. Vessel Pre-Commissioning Procedures. 	<ul style="list-style-type: none"> Compliance with pre-commissioning procedures. All equipment inspected and operating correctly. Reporting of volumes of chemically treated water discharged. Briefing of all project personnel on environmental sensitivities, management procedures and commitments detailed in the EP.
Minimise impact of routine waste discharge on marine environment.	<ul style="list-style-type: none"> Woodside Environment Policy and Management System. MARPOL 73/78 Annex IV. P(SL)(MoE)R 1999. Vessel Environment Plan. Vessel Waste Management Plan. Vessels Management Systems. 	<ul style="list-style-type: none"> Sewage treatment systems are fully operational prior to commencement of operations. MARPOL/P (SL) A waste management requirements followed. Vessel Waste Log Form completed, indicating quantities of sewage and food waste discharged overboard. Briefing of all project personnel and crew on environmental sensitivities, management procedures and commitments detailed in the

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Performance Objective	Standard	Measurement Criteria
<p>Minimise potential impacts of solid and hazardous wastes on the environment.</p>	<ul style="list-style-type: none"> • Woodside Environment Policy and Management System. • Woodside’s Environmental Standards - Waste (Hazardous and Non-Hazardous). • MARPOL 73/78 Annex IV. • P(SL)(MoE)R 1999. • Vessels Environment Plan • Vessels Waste Management Plan. • Vessels Management System. 	<p>EP.</p> <ul style="list-style-type: none"> • Segregation of solid and hazardous wastes in accordance with the Vessel Waste Management Plan (WMP). • Vessel to conduct a Compliance Audit of their WMP. • MSDS Sheets are readily available. • A vessel Waste Log Form is kept detailing quantities of wastes transported ashore. • Procedures comply with MARPOL requirements. • Briefing of all project personnel and crew on environmental sensitivities, management procedures and commitments detailed in the EP.
<p>Minimise occurrence and effects of hydrocarbon and chemical spills.</p>	<ul style="list-style-type: none"> • Woodside Environment Policy and Management System. • Woodside Environmental Standards. • MARPOL 73/78 Annex I • P(SL)(MoE)R 1999. • Woodside Carnarvon Basin Oil Spill Contingency Plan (ERP 3250). • Vessel SOPEP (Shipboard Oil Pollution Emergency Plan). • Vessel Environment Plan. 	<ul style="list-style-type: none"> • Procedures comply with MARPOL 73/78 requirements. • MARPOL Oil Record Book kept up to date. • Fuel spill contingency procedures are in place and operational. • Sufficient spill response equipment on board. • Appropriate actions are taken to avoid pollution. • Incident Reports completed for all spills >1 litre (contained and uncontained). • Approval is sought from the Designated Authority prior to dispersant applications. • Any spills >80 litres are reported to the Designated Authority within 2 hrs. • Briefing of all project personnel and crew on environmental sensitivities, management procedures and commitments detailed in the EP.
<p>Minimise interference with recreational vessels, commercial fishing, and shipping.</p>	<ul style="list-style-type: none"> • Woodside Environmental Standards. • AMSA requirements. 	<ul style="list-style-type: none"> • Consultation with WAFIC. • Notification of AMSA via the Rescue Co-ordination Centre (RCC). • Issuing of standard warnings to shipping via RCC. • Radio contact with approaching vessels. • Functional navigational beacons and lighting in place and in use. • Briefing of all project personnel and crew on environmental sensitivities, management procedures and commitments detailed in the EP.

The activities will be carried out in water depths around 550 metres and the tie-ins performed by ROVs. The ROVs are able to retrieve objects from the seafloor however, in the event the items lost overboard are too large, their retrieval will be evaluated according to the size and impact that the object would have on the seabed and/or to the marine life. The record of items lost overboard, if any, will be part of the Compliance Report to be prepared after the accomplishment of the subsea installations and submitted to the DMP and DEWHA.

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6. CONSULTATION

Woodside is undertaking a consultation program commensurate with the proposed activities outlined in this EP Bridging Document Summary, taking into consideration existing approval for the Drilling EP and the Subsea EP, low environmental sensitivity of the activity location, water depth, distance from sensitive coastlines and distance from existing communities and other industries.

Consultation activities were undertaken with the following stakeholders:

- Australian Government - Department of Defence, Australian Fisheries Management Authority and Department of Environment, Water, Heritage and the Arts.
- Western Australian Government – Department of Environment and Conservation (Exmouth & Perth), Department of Mines and Petroleum, Department of Planning and Infrastructure and Department of Fisheries.
- Local Government – Shire of Exmouth.
- Industry - Bristow Helicopters, Boeing, Kailis, Whale Sharks WA Inc, Austral Fisheries, BHP Billiton and Apache.
- Industry associations and development bodies - Gascoyne Development Corporation, Exmouth Charter Boat Operators Association, Exmouth Chamber of Commerce and Industry, APPEA, Commonwealth Fisheries Association, WA Fishing Industry Council, Northern Territory Seafood Council, Northern Fishing Companies Association, WA Northern Trawl Owners Association.
- Conservation Groups - Cape Conservation Group.
- Emergency services - WA Police (Exmouth).
- Community – Exmouth District High School, TAFE.
- Indigenous - North West Cape Exmouth Aboriginal Corporation.

Ongoing communication will be undertaken throughout the subsea program, including:

- A newsletter to stakeholders prior to the start of the campaign.
- Advice to other Operators off North West Cape.
- Provision of a toll free telephone number.

7. CONTACT DETAILS

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