

# Browse Gas Fields Geotechnical Program

## Public Summary

This summary of the Browse Gas Fields Geotechnical Program has been developed to comply with the recently revised Regulation 11(7)(8) of the Petroleum (Submerged Lands) (Management of Environment) Regulations 1999

### 1 Coordinates of the activity

In 2006/2007, Woodside proposes to carry out up to two geotechnical surveys in Commonwealth and State (Western Australia) waters at Scott Reef (incorporating North and South Scott Reefs), ~400 km from the north-west Australian mainland at Broome, for the proposed development of the Browse Gas Fields. The survey will occur in Petroleum Permit Areas: WA-28-R, WA-29-R, WA-30-R, WA-31-R, WA-32-R, WA-275-P, WA-302-P, R2 and TR/5. State coastal waters include the 3 nautical mile (nm) boundaries encircling Sandy Islet and South Scott Reef.

### 2 Environmental description

The most sensitive environment in the survey area is Scott Reef. Scott Reef is not a World Heritage Property, Marine Park or listed as a Ramsar Wetland. The reef flat of South Scott Reef is managed by the Western Australian Department of Environment. Scott Reef is listed on the Australian Heritage Register.

In terms of the proposed activity, the most sensitive organisms at Scott Reef are scleractinian corals. A total of 258 species of scleractinian corals have been identified from Scott Reef, which is similar to that reported for Ashmore Reef (255 species), and the highest reported for any area in Western Australia. Benthic habitats at Scott Reef were extensively mapped and described in 2006 by the Australian Institute of Marine Science. Ten distinct benthic habitats were described from the lagoon at South Scott Reef and eight from North Scott Reef.

### 3 Project/work description

The geotechnical survey will be conducted by suitable vessels deploying small drilling devices to collect cores from the shallow seabed at locations in and around Scott Reef. The preliminary geotechnical survey will utilise the Portable, Remotely Operated Drilling device for medium to deep water sample sites. In shallow water sample sites, a Jack-up Barge with a small geotechnical coring rig will be utilised, supported by three vessels.

It is anticipated that future geotechnical sampling at Scott Reef will utilise similar equipment.

It is estimated that a total of 50 to 100 sites will be sampled for cores and surface sediments from nine areas. The cores will be analysed to provide information on the

strength and hardness of rock, and sediment depths. It is important to note that this is not an oil or gas exploration drilling program. Therefore, there is no risk of blow-outs nor will large volumes of drilling cuttings be generated with the need to discharge large volumes of drilling fluids. The survey is planned to start mid July 2006 (subject to vessel availability) and will last for six months, but not continuously. The first survey component is scheduled for July to October 2006 and the second component from April to June 2007.

#### 4 Major environmental hazards and controls

There are three activities which have the potential to pose a low level risk, if unmanaged, of causing highly localised impacts to corals and other sessile benthic organisms at Scott Reef. The three activities are:

- The actions of the geotechnical sampling equipment on the seabed sediment.
- The operational footprint of the deployment equipment.
- Vessel anchoring deployment and retrieval.

All represent sources of potential mechanical disturbance to corals. However, it is predicted that the spatial extent of mechanical coral damage attributable to the proposed geotechnical survey will be minor in relative terms to coral reef resources at Scott Reef because:

- 1) The survey area is very small relative to the size of Scott Reef;
- 2) Temporary moorings will be installed on sand to prevent mechanical damage caused by anchors;
- 3) From an operational point of view the drilling rigs need to be placed on horizontal substratum, such as sand or bare pavement;
- 4) The rig feet are the only parts that will contact the substratum;
- 5) Anchors and chains will not be used to stabilise the rigs; and
- 6) The drilling operators will avoid, where practicable, placing the rig feet on coral assemblages or patch reefs.

The risks associated with fuel and oil spillage during the survey (that are considered most credible) include leaking hydraulic hoses, leaking oil drums or some other unforeseen spill incident. The risks and volumes associated with fuel and oil spillage during the survey are limited as vessel-to-vessel refuelling at sea will not be undertaken in the lagoons.

All small leaks aboard the survey vessels should be directed into the bilge and oil-water separators. The sizes of these spills are typically less than 50 litres. The maximum oil volume possible would be in the order of several hundred tonnes in the event of a complete rupture of the vessel fuel tanks should it ground. For any major fuel or oil spill, Woodside will act in accordance with the company's previously submitted and approved Emergency Response Plan including Oil Spill Contingency Plan for the area .

Risks to marine environmental resources in the Browse area from routine discharges are considered to be negligible. Routine discharges from the survey vessels are restricted to disposal of grey water, food scraps and sewage (in accordance with regulatory requirements). Disposal of sewage, food scraps and grey water overboard

will be in accordance with MARPOL 73/78 and the Commonwealth *Protection of the Sea (Prevention of Pollution from Ships) Act 1983*, and may cause a small-localised temporary increase in the nutrient content in the water column.

## 5 Summary of management approach

The following table identifies the key management objectives, standards and criteria to achieve these objectives.

Objectives	Standards	Criteria
Minimise disturbance to marine life	<ul style="list-style-type: none"> <li>■ Woodside Environmental Policy</li> <li>■ DEH Guidelines for minimising disturbances to whales</li> <li>■ Maintaining Marine Mammal watches and logs.</li> <li>■ Thorough Induction agenda</li> </ul>	<ul style="list-style-type: none"> <li>■ The logs/reports/etc. will show Cetacean guidelines were followed</li> <li>■ Sighting reports completed and returned to Woodside/DEH</li> <li>■ Induction records to show briefing of all project personnel on environmental sensitivities, management procedures and commitments detailed in the EP.</li> <li>■ Ensuring that vessel lighting is appropriate and not overly intrusive in the Sandy Islet area during the peak turtle nesting period.</li> <li>■ Vessels will be instructed not to approach within 500m of Sandy islet during the peak nesting period, (December to January).</li> </ul>
Minimise disturbance to the seabed and benthic habitats	<ul style="list-style-type: none"> <li>■ This Environment Plan</li> <li>■ Woodside Environmental Policy and HSE Management System</li> <li>■ Vessel HSE Manual</li> <li>■ Standby vessel marine operations procedures (Jack-up Platform)</li> </ul>	<ul style="list-style-type: none"> <li>■ Deployment vessel successfully deployed and retrieved geotechnical sampling equipment with minimum seabed contact.</li> <li>■ Installation of temporary permanent moorings in low impact areas for the mooring of standby vessels.</li> <li>■ There is recording and reporting of all items lost overboard.</li> <li>■ Minimum disturbance to seabed by utilising vessels / Jack-up barge with minimal seabed footprint.</li> <li>■ Ensuring that vessel lighting is appropriate and not overly intrusive in the Sandy Islet area during the peak turtle nesting period, (December to January).</li> <li>■ Briefing of all project personnel on environmental sensitivities, management procedures and commitments detailed in the EP.</li> <li>■ A risk based approach to managing the transportation of invasive marine organisms by; Utilisation of Australian based vessels where possible; Review of vessel history to establish if it has visited an area contaminated by invasive marine organisms and where deemed appropriate to conduct a visual inspection of the vessel (s) for invasive marine organisms.</li> <li>■ Reviewing the site location prior to commencing vessel / Jack Up Barge move.</li> <li>■ Conducting entry / egress surveys to avoid corals.</li> <li>■ Posting vessel lookouts.</li> <li>■ Recording visual information during site demobilisation.</li> </ul>
Minimise disruption to migrating marine life.	<ul style="list-style-type: none"> <li>■ Woodside Environmental Policy</li> </ul>	<ul style="list-style-type: none"> <li>■ Briefing of all project personnel on environmental sensitivities, management procedures and commitments detailed in the EP.</li> </ul>
Minimise impact of drilling muds and cuttings on marine environment.	<ul style="list-style-type: none"> <li>■ Woodside Environmental Policy</li> <li>■ This Environment Plan</li> <li>■ P(SL)A, 1967</li> <li>■ WA DoIR Guidelines</li> <li>■ Vessel HSE Manual</li> <li>■ Vessel and Jack-up Barge Training Manual/Procedures</li> <li>■ Vessel Permit to Work (PTW) System</li> <li>■ Vessel Specific Drilling Procedures</li> </ul>	<ul style="list-style-type: none"> <li>■ Biodegradable water-based mud is used.</li> <li>■ Woodside and vessel Safety Procedures followed for handling drilling mud.</li> <li>■ Equipment inspected, maintained and operating correctly.</li> <li>■ Briefing of all project personnel on environmental sensitivities, management procedures and commitments detailed in the EP.</li> </ul>

Objectives	Standards	Criteria
Minimise impact of routine waste discharge on marine environment.	<ul style="list-style-type: none"> <li>■ Woodside Environmental Policy</li> <li>■ Woodside Environmental Standards and Aspirations - Waste</li> <li>■ MARPOL 73/78 Annex IV</li> <li>■ P(SL)Act Schedule 2005</li> <li>■ Vessel waste management procedure</li> </ul>	<ul style="list-style-type: none"> <li>■ Induction records to show briefing of all project personnel on environmental sensitivities, management procedures and commitments detailed in the EP</li> <li>■ Vessel's waste log form to be completed</li> </ul>
Minimise potential impacts of solid and hazardous wastes on the environment	<ul style="list-style-type: none"> <li>■ Woodside Environmental Policy</li> <li>■ Woodside Environmental Standards and Aspirations - Waste</li> <li>■ MARPOL 73/78 Annex IV</li> <li>■ P(SL)Act Schedule 2005</li> <li>■ Vessel waste management procedure</li> </ul>	<ul style="list-style-type: none"> <li>■ Audit to show MARPOL 73/78 and P(SL)A waste management requirements followed.</li> <li>■ Logs to show hazardous wastes documented and tracked according to requirements (Garbage Record Book).</li> <li>■ Induction records to show briefing of all project personnel on environmental sensitivities, management procedures and commitments detailed in the EP.</li> </ul>
Minimise occurrence and effects of hydrocarbon spills	<ul style="list-style-type: none"> <li>■ Woodside ERP3210</li> <li>■ Woodside Environmental Policy and HSE Management System</li> <li>■ MARPOL 73/78 Annex I</li> <li>■ P(SL)A Schedule 2005, Clause 285</li> <li>■ P(SL)A Schedule 2005, Clause 220</li> <li>■ Vessel Oil Spill Contingency Plan</li> <li>■ Vessel bunkering procedures (in port)</li> </ul>	<ul style="list-style-type: none"> <li>■ Personnel responsibilities are clearly understood and spill response procedures followed.</li> <li>■ Utilisation of offshore rated fuel containers.</li> <li>■ Vessel Operations Management Plan for Ship Jack-Up Barge Fuel Container Transfers.</li> <li>■ Permit to Transfer Fuel Containers between Vessels.</li> <li>■ Vessel Jack-up Barge Fuel Container Transfer Checklist.</li> <li>■ Potential spills volume limited.</li> <li>■ Records kept of inspections and preventative maintenance.</li> <li>■ Logs to show approval is sought and provided prior to all dispersant applications.</li> <li>■ Logs to show any spills &gt;80 litres are reported to the Designated Authority.</li> <li>■ Induction records to show briefing of all project personnel on environmental sensitivities, management procedures and commitments detailed in the EP.</li> </ul>
Minimise interference with recreational vessels, commercial fishing, and shipping	<ul style="list-style-type: none"> <li>■ P(SL)A 1967, Section 124</li> <li>■ AMSA requirements</li> </ul>	<ul style="list-style-type: none"> <li>■ Functional navigational lighting in place and in use.</li> <li>■ Consultation with local fishermen, fishing industry groups and management agencies (e.g. WAFIC) as needed. Operations carried out in a manner that does not interfere with navigation and fishing to a greater extent than is necessary. No serious complaints regarding effects of operation on commercial fishing, recreational vessels or shipping.</li> <li>■ Induction records to show briefing of all project personnel on environmental sensitivities, management procedures and commitments detailed in the EP.</li> </ul>

## 6 Details of consultation past and future

In preparing the Browse Geotechnical EP, Woodside consulted with numerous stakeholder representatives, including:

- Department of Industry & Resources (DoIR)
- Environment Protection Agency (EPA)
- Department of Environment & Heritage (DEH)
- CALM
- Fisheries WA

- WA Fishing industry Council
- Australian Maritime Safety Authority (AMSA)
- Australian Fisheries Management Authority (AFMA)

7 Contact details of the Proponent's nominated liaison person.

For further information about the survey program, please contact:

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