OMV Australia

Summary

Environment Plan

Schiele 3D Seismic Survey

WA-362-P & WA-363-P

Northern Carnarvon Basin,

Offshore WA

Revision E

March 2010

Summary

1. Introduction

OMV Australia Pty Ltd ("OMV") is proposing to acquire a 3D marine seismic survey, known as the Schiele 3D Marine Seismic Survey, in petroleum exploration permits WA-362-P and WA-363-P. The survey is most likely to be acquired in the period April to June 2010, but the exact timing is ultimately dependent on weather conditions and the schedule of the seismic vessel. The duration of the survey is expected to be between 75 and 90 days depending again largely on weather conditions.

2. Location

The permit location and latitude and longitude for the survey are shown in Figure 1 and Table 1 below.

Figure 1: Location Map for Seismic Survey Area

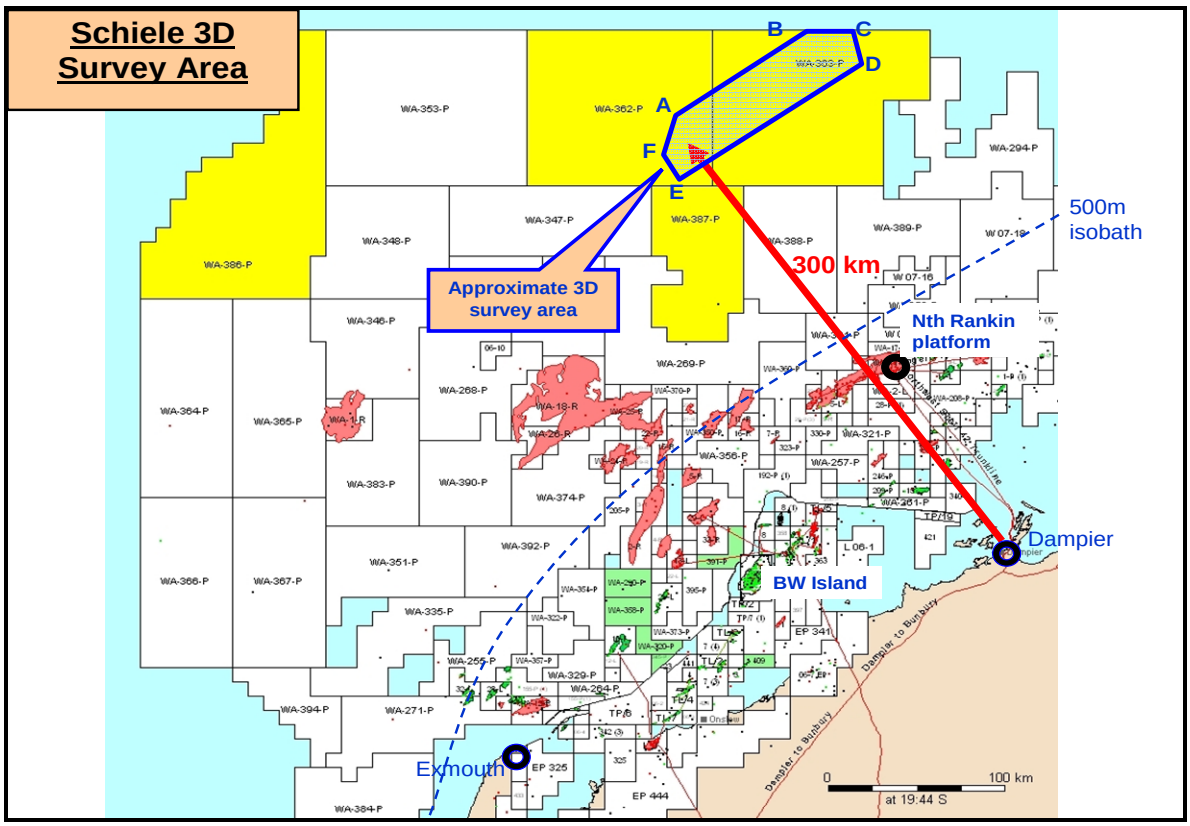

Table 1: Survey Footprint Boundaries

SCHIELE 3D SEISMIC SURVEY POLYGON CORNER POINTS GDA94 / MGA zone 50 / SPHEROID GRS 80				
Easting	**Northing**	**Point**	**Latitude**	**Longitude**
282400	7997404	A	18 06 04.34S	114 56 37.26E
358326	8055595	B	17 34 54.08S	115 39 53.74E
382047	8055706	C	17 34 55.44S	115 53 18.38E
384542	8035464	D	17 45 54.47S	115 54 39.03E
283795	7958092	E	18 27 23.15S	114 57 09.72E
275443	7969087	F	18 21 22.53S	114 52 29.55E

3. Description of Action

The seismic vessel is the Fugro GeoAtlantic which will be rigged with dual seismic source arrays, and ten 6,000m streamers.

The sources deployed on the Schiele 3D will each be airgun arrays of 3,500 cubic inch volume using compressed air at a pressure of 2,000 psi. McCauley, et al, (2000) undertook experiments using a similar array of 2,678 cubic inch and found at distances of 1km, 3km and 10km sound exposure levels would be 160 dB re 1µPa2.s, 145 dB re 1µPa2.s, and 125 dB re 1µPa2.s respectively.

The arrays will be towed at a depth of 6m below surface and each fired alternatively at 37.5m pop intervals, about every 16 seconds, whilst recording a seismic traverse (giving a total of one pop every 18.75m). Seismic data will be acquired for approximately 50% of the time the vessel is at sea, the remaining time being for line changes, weather standby, crew changes etc.

The ten passive streamers each 6,000m long detect 480 channels of acoustic reflection data, the data will be transmitted down the streamer and recorded onboard ship on magnetic tape. The streamers will be towed at about 8m depth and will record 20 subsurface tracks of reflection data for each sail line. The streamers will have a solid polymer fill providing neutral buoyancy.

The survey lines will be acquired as a set of parallel sail lines orientated at 53 degrees with an average line length of about 120km, the sail lines will be between 500m apart. The seismic reflection data recorded on magnetic tape will be processed initially on the seismic vessel and later onshore in a town based processing centre.

The boat will cruise at a speed of about 4.5 knots through the water when surveying, and therefore the vessel, seismic source, and its passive trailing gear will transit over any one spot in about 40 minutes. The total personnel on-board the seismic vessel will be about 50 persons. The vessel tonnage is about 13,000 tonnes and will comply with all relevant Australian and International regulations. In addition to the requirements of the Offshore Petroleum Act the operation of the vessel in Australia will be also be subject to approvals from Australian Maritime

Safety Authority, Australian Quarantine Inspection Service and OMV expectations and audits.

The seismic vessel will be supported by a work boat that will be stationed on site except when transiting to and from port with supplies.

4. Description of Receiving Environment

Physical Environment

The permits WA-362-P and WA-363-P are located well offshore of the Pilbara Coast, northwest Western Australia, in the Indian Ocean. The central trend of the permits and the survey area are some 300km northwest of the Pilbara Coast. The survey is wholly located in deep water ranging from 1,000m to 3,000m.

The climate of the region is arid tropical monsoonal. The area is subject to cyclonic activity primarily between December and April. Strong easterly to south easterly trade winds blow at 15 to 20 knots almost continually from May to October.

The permit areas are oceanic. The tidal range inshore is large with a maximum of 5m, the tidal ranges further offshore are not well understood but likely to be smaller. Wave energy is moderate to high with up to 8m total wave heights in winter storm conditions, cyclonic storms occur mainly in summer, and the prevailing swell height is 2 to 4m. The water is generally clear but may become turbid during periods of spring tide. Regional sea surface temperatures range from 26-31°C in summer and 19-24°C in winter decreasing southwards.

Fauna

There are no seabird breeding colonies located in the permits or survey areas. However, a number of species may transit over the survey area as they migrate between hemispheres. Turtles may traverse the area.

A number of endangered or vulnerable species may forage or transit within the survey area including turtles and a number of cetacean species. Whale sharks may also transit through the survey area between March and May.

The listed species of cetaceans that may be sighted in the survey area include those shown in Table 2 below.

Table 2: Listed Cetaceans Species that may transit in the survey area

Cetaceans	Threatened Species	Migratory Species
Mammals		
Blue Whale	Endangered	√
Humpback Whale	Vulnerable	√
Sei Whale	Vulnerable	√
Antarctic Minke Whale		√
Bryde's Whale		√
Killer Whale, Orca		√
Sperm Whale		√
Short-finned Pilot Whale		

Cetaceans	Threatened Species	Migratory Species
Common dolphin Risso's Dolphin Pygmy Sperm Whale Dwarf Sperm Whale Melon-headed Whale False Killer Whale Spotted Dolphin Stripped Dolphin Long-snouted Spinner Dolphin Rough-Toothed Dolphin Bottlenose Dolphin Curvier's Beaked Whale Pygmy Killer Whale Blainville's Beaked Whale Gingko Toothed Beaked Whale Longman's Beaked Whale Fraser's Dolphin		

The nearest coral reefs are 150km away to the southeast at the Montebello Islands at their closest point of approach to the survey. Coral reefs and coral-dominated benthic communities are common in rocky shallow water areas. The most common morphology of these reefs is a fringing formation adjacent to mainland rocky shores or emergent islands. The Ningaloo Reef tract some 300km to the south and extending further southward from the North West Cape is Australia's major fringing reef system and is managed as a Marine Reserve. Detailed taxonomic surveys on shallow water coral reefs in the region typically report high biodiversity and fine-scale habitat complexity (Berry, 1993 in Heyward, et al 2000). Coral spawning peaks between March and April and usually occurs 7–10 nights after the full moon.

The water depth within the WA-362-P and WA-363-P permits precludes any significant habitat for coral.

5. Conservation Areas

The Schiele 3D seismic survey is not in proximity to, nor does it impact World/National Heritage properties, RAMSAR wetlands, threatened ecological communities, Commonwealth conservation reserves/parks or critical habitats.

6. Socio-Economic

Commercial Fisheries

The Commonwealth fisheries include the following (AFMA, 2007):

North-west slope Trawl;
Western Deepwater Trawl;
Skipjack Tuna (Western); and
Western Tuna and Billfish Fishery.

Four commercial fisheries are found in the region, although most fishing is restricted to waters shallower than those in the subject permit areas. However there is no fishing effort found in this area.

Shipping

There are no major ports in or near the permit areas. However, the bulk iron ore export ports of Dampier (which also exports LNG) and Port Hedland are located 300km and 400km southeast of the permits respectively. A north-south shipping lane passes through permit WA-362-P as evidenced by shipping locations reported to AMSA. Minor ports are located at Onslow and Exmouth. The main users of these minor ports are commercial fishing and charter vessels.

Petroleum Resources

The broader offshore North West Shelf Region has been producing significant oil and gas resources for many decades

The nearest oil and gas facilities are all located well away from the survey area in the south-easterly direction as listed below:

Facility	Function	Export mode	Offset SE
Goodwyn	gas production platform	pipeline	75km
North Rankin	gas production platform	pipeline	100km
Angel	gas production platform	pipeline	115km
Barrow Island	oil production	tanker	140km
Varanus Island	oil and gas production	tanker & p/line	140km
Exeter-Mutineer	oil FPSO	tanker	100km

Oil exploration activities in the Indian Ocean off WA commenced in the late 1960s. Since this time many seismic surveys and well drilling operations have been conducted throughout the region, and searches for new sources of hydrocarbons are actively being pursued in the area.

7. Details on Major Environmental Hazards and Control

A formal assessment of the risk of potential environmental impacts and issues was carried out based upon a standard risk management approach consistent with the Australian/New Zealand Standard AS/NZS 4360:1999 Risk Management and HB 203:2000 Environmental risk management- Principles and process.

The management practices identified are designed to keep risks as low as reasonably practicable (ALARP) and economically achievable. Taking these management practices into consideration the residual risk is calculated. This information is contained in Appendix A. No aspects of the operation have been deemed to be of high or extreme risk.

8. Management System Approach

The primary goals of the implementation strategy are to direct, review and manage the operations so that environmental effects and risks are continually reduced to as low as reasonably practical; that performance objectives and standards are met for the duration of the activity, and no reportable incidents occur beyond those that may be due to shark bites on seismic streamers.

The key responsibilities for Environmental Management are as follows:

- The OMV Managing Director is responsible and accountable to the OMV Board for ensuring that appropriate resources are allocated to meet OMV HSE Management Systems and Policy requirements; and establishing and regularly reviewing the HSE Policy;
- The Operations Geophysicist and offshore QC Supervisor are responsible and accountable for implementing the Environmental Policy within the operational area, through application of the Environmental Plan;
- All Project personnel including OMV personnel and third party contractors are responsible and accountable to adhering to the Environmental Policy and this Environmental Plan in all tasks that they undertake;
- The Vessel Master, Project Manager and Party Chief are responsible for implementing this plan; and
- The Vessel Master, Party Chief, the QC Supervisor and Marine Mammal Observer are responsible for implementing the Cetacean Guidelines.

Responsibilities and accountabilities for each position within the Company are documented to avoid confusion over responsibilities and accountabilities.

All shipboard personnel, including contractors, will be required to attend an environmental induction prior to mobilization. Training and awareness at all levels will aim to outline:

- The importance of conforming with the OMV HSE Management System and Policy, the requirements of the Environmental Plan and regulatory requirements;
- An understanding of the significance and potential of environmental effects associated with their work requirements;
- Personnel roles and responsibilities for environmental performance;
- Reporting;
- An understanding of the relevant objectives and requirements of the EP; and
- An understanding of the emergency response system and their role.
- Any physical contact of any survey equipment with a Cetacean may be a reportable incident under the EPBC Act and is to be reported to OMV within two hours by the Party Manager and OMV Onboard Representative, and;
- A record of any complaints will be submitted to OMV both by the Party Manager and OMV Onboard Representative.

The EP is a controlled document and will be revised from time to time for each seismic acquisition survey. A distribution list ensures that all personnel who have responsibilities to ensure that EP is adhered to do in fact have access to the necessary information.

9. Consultation

The Australian Fisheries Management Authority was consulted and advised that the historical AFMA logbook data for 2007-2009 indicated that no Commonwealth fishing vessels reported operating in the above titles. On this basis AFMA did not object to the application and did not suggest any organisations the proponent should consult with. This is consistent with OMV's experience in a previous survey in Q1 and Q2 2008 where no fishing activity was encountered. Consultation was via email.

10. Contact Details

Further information may be obtained from OMV by writing to:

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Via email karen.klinger@omv.com

Appendix A: Risk Assessment & Mitigation Measures

Source of Risk	Description of Potential Impacts on the Environment	Proposed Management Measures	Risk Level
R1. Physical presence of vessel-interference with other user's activities	Potential social impact on other users eg trailing gear collision, damage to fishing gear etc.	▪ Advise fishing industry of expected timing, and location ▪ Monitor 3rd party activity in area ▪ Keep record & follow up any complaints ▪ Ensure streamer maintained ▪ Recover any lost streamer sections if practicable	Minor
-	Potential oiling of sea birds, fish tainting, shoreline pollution, disruption of fishing activities.	▪ Ship Collision Avoidance/Grounding Procedures in Place ▪ Monitor 3rd party activity in area ▪ All relevant charts onboard ▪ Oil spill contingency plan in place ▪ Oil spill response measures ▪ No port calls for main seismic vessel planned	Moderate
R3. Quarantine failure - ballast water and hull bio-fouling	Potential to Introduce exotic marine pests and/or diseases	• Check contractor aware of AQIS requirements • Check AQIS clearance obtained • Maintain ballast water records on vessel	Minor

Source of Risk	Description of Potential Impacts on the Environment	Proposed Management Measures	Risk Level
R4. hazardous material storage/usage failure leading to spill	Toxic effects on marine life including fish, plankton, benthos, marine mammals and turtles.	▪ Storage, handling and usage procedures to be in place ▪ Check storage in marine audit ▪ Follow up audit issues ▪ Personnel to receive handling instruction ▪ Segregate hazardous waste for approved disposal onshore ▪ Clean up spills as soon as possible	Minor
R5. Waste Streams – poor disposal of waste (including sewage and food scraps discharge)	Increased nutrient availability, increased BOD, potential toxic effects on marine life.	▪ Compliance with MARPOL and all laws and regulations. ▪ Ensure waste management procedures in place ▪ Minimise volume of waste ▪ Wastes will be segregated, labelled and disposed of onshore in approved manner/sites ▪ Treated effluent and food scraps to be macerated and disposed in accordance with MARPOL ▪ Bilge water discharged via oily-water separator, OWS to be checked in audit and properly maintained ▪ Check stern-tube oil consumption	Minor

Source of Risk	Description of Potential Impacts on the Environment	Proposed Management Measures	Risk Level
R6. Seismic acquisition – acoustic disturbance	Acoustic disturbance to marine fauna	▪ Ensure EPBC Referral submitted and DEWHA procedures in place in EP ▪ Employ trained crew and comply with DEWHA Cetacean Guidelines and record sightings ▪ The survey is outside main Humpback whale migration routes, and known breeding areas ▪ Maintain MMO log and report to OMV daily ▪ Investigate and soft-start timing errors ▪ Record whale sightings and submit report	Minor
R7. Handling error leading to oil or fuel spill	Toxic effects on marine life including fish, plankton, benthos, marine mammals and turtles if inadvertently released to sea.	▪ Oil Spill Contingency Plan to be in place ▪ Oil and fuel handling procedures to be in place ▪ Training of personnel in safe handling procedures ▪ Oil and fuel transfer procedures to be conducted as per procedures ▪ Drip trays used where possible ▪ Personnel trained in spill response and spills addressed as soon as possible ▪ Spill kits to be available for minor spills (▪ Report spills >80 ltr within 2 hours to WADMP duty officer ▪ Monitor and investigate any spills as per OSCP	Minor

Source of Risk	Description of Potential Impacts on the Environment	Proposed Management Measures	Risk Level
R8. Transfer of fuel to vessel leading to fuel spill	Potential oiling of sea birds, fish tainting, shoreline pollution, disruption of fishing activities.	As per section R7 plus: ▪ Particular onshore and offshore fuel transfer procedures are to be in place, approved, and used ▪ OMV to review above procedures and provide to WADMP ▪ Offshore transfer only to commence in daylight	Moderate