Summary Environment Plan

for

Proposed Rottnest South Electric and Magnetic Marine Survey

Permit Area

WA-381-P and WA-382-P

Westralian Petroleum Pty Ltd

Introduction

This Environment plan (EP) has been prepared for the Rottnest South Electric and Magnetic Marine Survey, as part of the Year 1 commitment for WA-381-P and WA-382-P. The permits are located offshore from the southern part of the city of Perth and south of Rottnest Island (see Figure 1).

Location

The geophysical survey will be undertaken with the permits in Commonwealth waters at a distance greater than 25 km from Rottnest Island and greater than 25 km from the Western Australian mainland. Water depths vary in the range from 40 m to 120 m in the locality of the planned traverses (see Figure 1).

The location of the start of the initial traverse line is as follows:
Lat: -32º 13’ 36.13” Long: 115º 25’ 21.24”

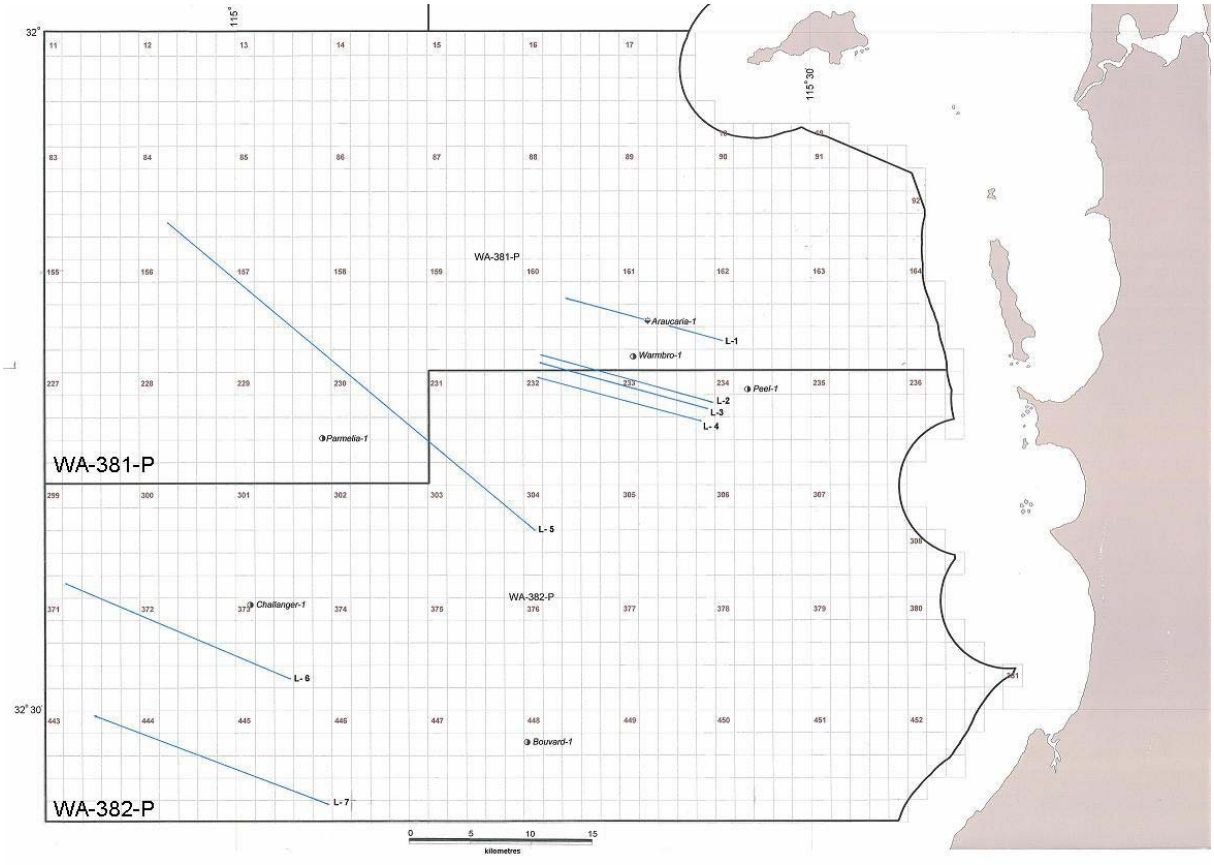

Figure 1: Location of permits WA-381-P and WA-382-P, and the proposed traverse lines.

Description of Action

The geophysical survey to be undertaken in WA-381-P and WA-382-P aims to:

- Collect a suite of shallow geologic data to identify a geophysical signature that may be associated with a “gas chimney” detected on seismic lines near the boundary of the two permits (identified as Lines 1 to 4 in Figure 1;.
- Depending on the quality and interpretability of the data gathered from Lines 1 to 4, collect further data from deeper water locations in WA-382-P (identified as Lines 5 to 7 in Figure 1).

The proposed survey will be carried out in two phases. The initial phase will acquire data in the vicinity of Lines 1 to 4, and the latter phase (dependent on the outcome of the initial-phase data) will commence immediately with the acquisition of Lines 5 to 7.

A charter vessel, based in Fremantle, will be used for the survey. It is expected that the geophysical survey will commence in the first week of November 2007, and the vessel will be on location during daylight hours for approximately 3 days (excluding any weather or equipment delays).

The following systems/services will be used for the purpose of acquiring the data:

- Towfish with three non-polarizing reference electrodes to measure electric potential;
- Conventional sonar system to measure water depth;
- Combined voltmeter-data logger to record natural voltage measurements during the traverse. Measurements will be taken every 10 seconds during each traverse.

Description of Receiving Environment

Physical

WA-381-P and WA-382-P lie on the western continental margin of Australia. The geophysical survey will occur offshore from the city of Perth, and the nearest shore line is about 25 km away. The survey is also located south of Rottnest Island, and the closest survey location is about 25 km from the island.

Key environmental features of the survey are:

- Perth is regarded as having a Mediterranean type climate, characterised by hot, dry summers and cool, wet winters due to its proximity to the sub-humid belt of Western Australia;
- The mean maximum temperature of Rottnest Island ranges from around 17 ^{o}C in winter to 27 ^{o}C in summer;
- The relative humidity on the island is reasonably constant year round, ranging from 61% to 73% on average;

- Average wind speeds near Rottnest Island are relatively constant at approximately 26 km/hr throughout the year, but during storm events, wind gusts have been recorded at speeds in excess of 100 km/hr;
- The average annual rainfall recorded at the Rottnest Island site is approximately 590mm per annum;
- Marine conditions are influenced by the interaction of warm water sourced from the Pacific Ocean flowing through the Indonesian Archipelago into the northern Indian Ocean, which is the feeder zone for the Leeuwin Current which creates a net flow of water (current velocities are in the order of 1 knot or more) from the north to the south along the western margin of Australia.
- Water depths range from approximately 30m in the very near-shore environment at the eastern extremities of the permits to 200m at the continental shelf break, and beyond this, water depths increase to over 1000m at the western extent of the permit areas.

Threatened Species

No fishes are known to occur in the planned survey area that are extinct, critically endangered or endangered. Three fishes are considered vulnerable, namely (1) the: Carcharias taurus, Grey Nurse Shark (west coast population), (2) Carcharodon carcharias, Great White Shark, and (3) Rhincodon typus, Whale Shark. One species is identified that is conservation dependent, which is the Hoplostethus atlaticus, Orange Roughy, Deep-Sea Perch or Red Roughy.

Whale Migration

A range of whale species, including the humpback and southern right whale, are known to migrate north and south in the vicinity of the Western Australian coast in waters of up to 500 m in depth. The permit areas coincide with the Geographe Bay to Jurien Bay migration area. The peak period for the north bound movement in the Geographe Bay to Jurien Bay area is around the end June – start of July each year. The south bound peak migration around the end of September to mid October, followed by a south bound cow/calf peak occurring in November each year.

Socio-Economic

Fishing is a major economic and recreational activity off the coast of Western Australia. The permit areas do not coincide with gazetted or declared marine parks, fish habitat protection areas, reef observation areas, or similar, but they do coincide with locations used for fishing activities. The majority of recreational fishing activities occur close into shore in depths of 20 m and less, and are unlikely to be impacted from the geophysical survey activities because of the distance from shore. However, recreational boat owners are known to undertake line fishing activities for a range of fish species within the permit areas. Whale watching forms the basis of an established eco-tourism activity around various locations around the Western Australian Coast, including within the vicinity of the permit area.

Details of major Environmental Hazards & Controls

A risk assessment has been undertaken for all the environmental aspects associated with the geophysical survey activities (aspects) planned within WA-381-P and WA-382-P. The analysis indicates that, with the identified management and mitigation measures implemented, no significant environmental impacts are expected. Further details of key environmental aspects of the survey are provided in Table 1. After consideration of the proposed survey activities and possible negative environmental impacts, a number of performance objectives have been developed and are shown in Table 2.

Management Approach

Westralian Petroleum Limited has engaged Technical and Administrative Services Pty Ltd (TAS) to project manage the proposed survey. All activities are conducted in accordance with the TAS environmental policy, and safety and environment audit system (checklist forms). Key features of the TAS safety and environment policy are:

- Responsibly managing impacts to the environment in all activities;
- Ensuring compliance with legislative requirements;
- Implementation of an effective safety and environment management and audit system

Consultation

Consultation has been undertaken with State and Federal Government agencies, and other potential or actual stakeholders to inform them of the proposed survey activities and potential impacts. Table 3 contains a list of organisations contacted and contact persons.

Key points raised during consultation with AFMA are detailed:

- Area is a significant fishing area;
- AFMA requested that various industry representatives (list provided) are consulted prior to the survey. This was duly undertaken.
- AFMA considered that a scientific permit was not required, due to the nature of the survey activities.

Contact Details

Further information may be obtained by writing to:

Dr Mike F Middleton
Technical & Administrative Services Pty Ltd
Level 1, 16 Ord Street
West Perth WA 6005

Table 1: Risks and Management Strategies

Environmental Effect	Raw Risk			Management Strategies	Residual Risk		
	Likelihood	Consequence	Risk Level		Likelihood	Consequence	Risk Level
Effects of antifouling paint on flora and fauna	2	1	Low	• Vessel based out of Fremantle, unlikely to be an issue • Documentation in relation to antifouling paint will be required by the vessel owner and operator • Equipment will be decontaminated prior to deployment • Equipment will be stowed appropriate during transport to/from Fremantle • Duration of survey approx. 3 days	1	1	Low
Effects of survey on flora and fauna	4	1	Low	• Speed of vessel travel will be 1.5 – 3 knots • Short duration of survey	2	1	Low
Conflicts with tourism, recreational and/or commercial fishing boats	3	1	Low	• Communication prior to survey being carried out • Communication with other vessels during survey activities • Towed array confined to 100 m length	2	1	Low
Array being tangled in rock lobster pot markers	3	1	Low	• Survey will be completed outside the rock lobster season • DoIR guidelines in relation to rock lobster fisheries will be followed • Communication prior to survey being carried out	2	1	Low

Interruptions to whale migration activities, such as collisions with whales	3	2	Mod.	• A whale spotter will be used to ensure minimal impact with whales • Speed of vessel will be sufficiently low to allow maximum manoeuvrability in the presence of whales • Compliance with relevant sections of EPBC Act policy statement 2.1 – note limited application as the survey technique will be an MES, rather than seismic (Department of Environment and Water Resources, 2007 a and b) • In the event whale are spotted, the survey will be suspended and the array retracted until they leave the vicinity	2	2	Low
Presence vulnerable species, particularly sharks, in permit area	3	2	Mod.	• As per whales above • Sharks are likely to leave the vicinity of the vessel and the towed array	2	2	Low
Loss of hydrocarbons from survey vessel	2	1	Low	• Survey location within operational capacity of the vessel, hence no need to carry more than immediate fuel requirements • In the event a spill does occur, a record will be kept and reported of spill content, volume and duration • Spill management plan activated (as per vessel standard operating procedures) • Incident will be reported to TAS	1	1	Low

Collision with another vessel	1	5	Low	• Slow survey speed will allow evasive action to be taken • Presence of floats on towed array for visibility • Ease of recovery of towed array in the event it becomes separated from the vessel • Communication with other boat users and operators • Probable presence of spotter vessel for whales will also alert operators to presence of other boats in the vicinity • Short duration of survey activities	1	5	Med
Disposal of wastes from vessel	2	1	Low	• All waste materials will be stored onboard for appropriate disposal in Fremantle, as per normal vessel operation	1	1	Low

Generation of underwater noise	3	1	Low	• Noise is unlikely to be greater than typical background noise associated with boating activities • Short duration of survey	3	1	Low
Generation of electric fields	0	0	Nil	• None generated • Duration of survey short	0	0	Low
Generation of magnetic fields	3	1	Low	• None generated • Duration of survey short	2	1	Low

Table 2: Performance Objectives and Associated Standards & Criteria

Objective		Standard	Criteria
1	Maintain adequate distance to large marine animals including whales and sharks	• EPBC Act Policy 2.1 Guidelines (relevant sections given that an electric survey is being undertaken rather than a seismic survey) • Organisational commitments, procedures and guidelines	• Use of spotter on board • Checklist • Recording of recordable/reportable incidents
2	Minimise effects of pollution associated with hydrocarbon spill	• Initiate vessel hydrocarbon spill procedure • Organisational commitments, procedures and guidelines	• Checklist • Recording of recordable/reportable incidents • Audit activities
3	Minimise effects of pollution from wastes	• Vessel standard operating procedures • Organisational commitments, procedures and guidelines	• Checklist • Recording of recordable/reportable incidents • Audit activities
4	Minimise potential effects from the use of antifouling paint	• Organisational commitments	• Audit activities
5	Minimise interference with other users because of survey activities	• Organisational commitments, procedures, guidelines	• Checklist • Recording of recordable/reportable incidents • Audit activities
6	Ensure personnel on vessel are aware of environmental and safety requirements associated with survey activities	• Organisational induction process	• Record of inductions completed • Audit activities

Table 3: List of organisations consulted and contact persons.

ORGANISATION	DATE*	DATE#	PERSON	METHOD
Commonwealth Department of Environment & Water Resources	12 October 2007	23 October 2007	Matthew Johnston Bernadette Oakes	Email
Commonwealth Department of Defence; RAN Hydrographic Office	12 October 2007	19 October 2007 (Hydrographic); 23 october 2007 (Defence); 8 November 2007 (Defence)	Peter Vinnic-Clark (Defence); Mark Bolger (Hydrographic)	Email
Australian Marine Safety Authority	12 October 2007	16 October 2007 17 October 2007 18 October 2007	Reza Vind James Bond	Email Phone
WA Department of Planning and Infrastructure -Marine Safety	16 October 2007	18 October 2007 19 October 2007	Head Office Mark Johnson Sunil Perera	Email
Rottnest Island Authority	12 October 2007	15 October 2007	Emma Jackson	Email Phone Surface mail
WA Department of Fisheries	12 October 2007	23 October 2007	Head Office Rob Tregonning	Email
Australian Fisheri es Management Authority	12 October 2007		Malcolm Southwell	Email
WA Department of Conservation and Environment	12 October 2007		Head Office	Email
Fremantle Port Authority	12 October 2007		Head Office	Email
WA Fishing Industry Council	12 October 2007		Head Office	Email
Conservation Council of WA	12 October 2007		Chris Tallentire	Email
Fremantle Sailing Club	12 October 2007		Head Office	Email
Recfishwest	12 October 2007		Head Office	Email
Northern Fishing Companies Association	23 October 2007		Steven Valentine	Email
Western Australian Northern Trawl Owners Association	23 October 2007		Norm Peovitis	Email
A Aptis ans Sons	23 October 2007		Mike O'Brien	Email
WA Department of Industry & Resources	6 Sept 2007	13 Sept 2007; 19 October 2007	Alicia Lim	In person Email Phone

NOTES: DATE* is date of initial contact and DATE# is date/s of subsequent contact (if appropriate)