environment
resource group

Summary Environment Plan

Perenco 2011 T/32P

3-D Seismic Acquisition Survey Program

(Offshore NW Tasmania)

SUMMARY

Introduction

Perenco (SE Australia) Pty Ltd ('Perenco') is proposing to undertake a 3-dimensional (3D) seismic acquisition survey in Permit T/32P which is located in Commonwealth waters 125km offshore from north-west of Tasmania. This document has been prepared to facilitate the seismic approval process as required under the *Offshore Petroleum & Greenhouse Gas Storage Act 2006* and the subordinate *Offshore Petroleum & Greenhouse Gas Storage (Environment) Regulations 2009*.

It is expected that the planned seismic activities will occur in the period between February and April 2011 for a period of approximately 44 days subject to weather conditions and vessel availability. The actual commencement date within this period is dependent on contract arrangements being finalised.

Location

Exploration Permit T/32P is located in Commonwealth waters as shown in Figure 1.1. The permit location points are listed in Table 1.1 below with the area of acquisition highlighted in the red box. The survey is expected to take approximately 44 days with the objective of acquiring 3D seismic over an area of 1000 sq km.

Figure 1.1: Location Map

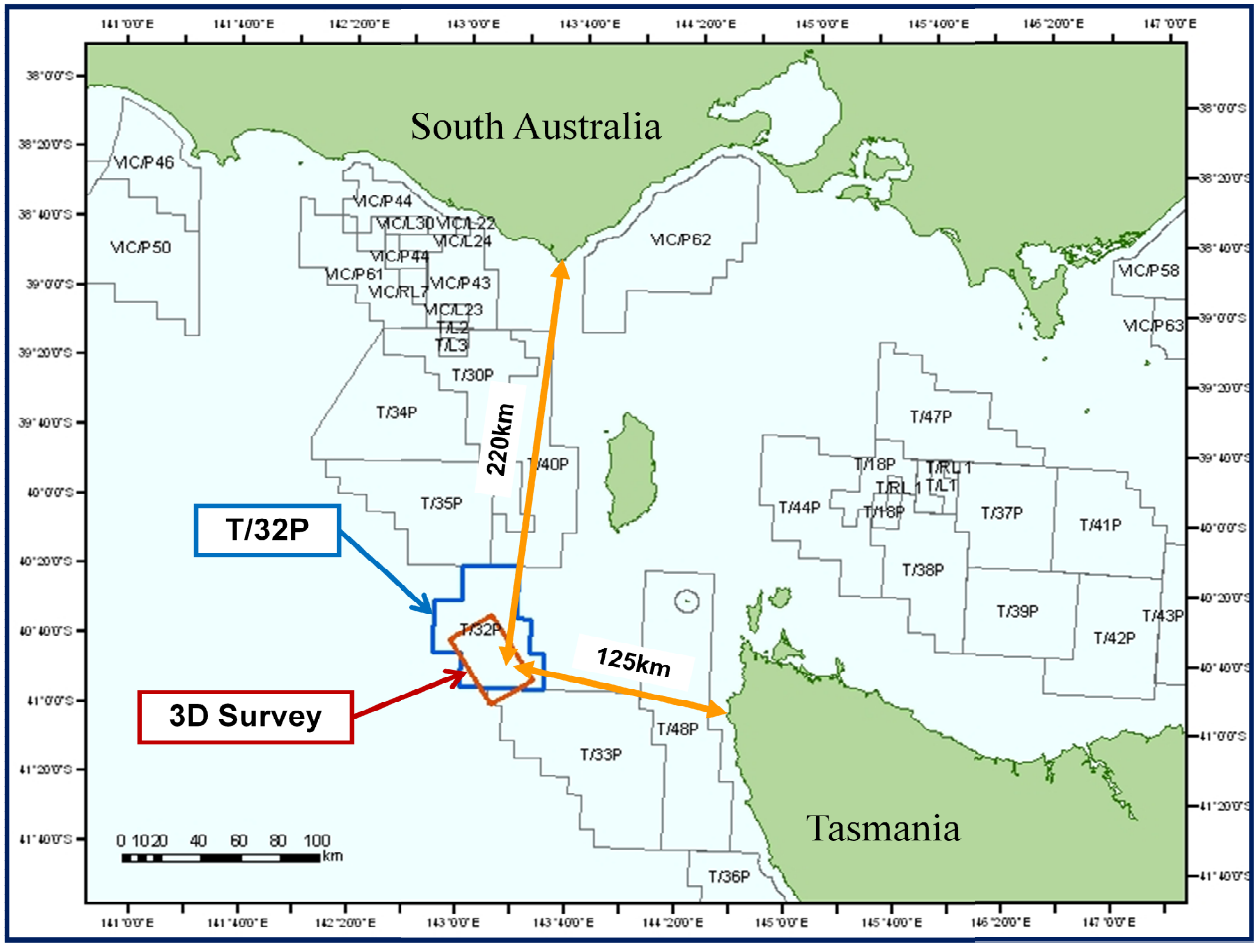

Table 1.1: Permit & Seismic Survey Area Co-ordinates

	Latitude			Longitude		
location point	degrees	minutes	seconds	degrees	minutes	seconds
T/32P Permit	40	44	54.72	142	50	2.11
	40	44	54.72	143	0	2.10
	40	54	54.72	143	0	5.11
	40	54	54.70	143	30	5.09
	40	44	54.69	143	30	5.07
	40	44	54.07	143	25	5.08
	40	34	54.69	143	25	5.07
	40	34	54.70	143	20	5.07
	40	19	54.69	143	20	5.05
	40	19	54.71	143	0	5.07
	40	29	54.71	143	0	5.08
	40	29	54.72	142	50	5.09
Seismic Survey Area within T/32P	40	41	16.8	142	56	03.78
	40	34	07.10	143	10	55.73
	40	52	29.90	143	26	18.10
	40	59	41.60	143	11	23.88

Description of Action

The *Western Patriot* is a specialist seismic acquisition vessel operated by WesternGeco and has been contracted for the survey. The vessel is flagged in Panama and was built in 1993; and upgraded between 2005 and 2007.

The vessel will utilise 8 streamers each up to of 6 km (max) in length. The streamer separation distance will be 100 m with a streamer depth of 7 m. The individual source volume will be 3147 cubic inch. The seismic signals reflected back are recorded by hydrophones towed behind the vessel located in the various streamers.

The vessel will cruise at speed of about 4.5 knots with the vessel and its passive trailing gear transiting over any one spot in about 43 minutes. The seismic vessel can accommodate up to 56 persons. Crew changes are done every five weeks, so there are likely to be one or two crew changes during the project duration

The seismic vessel will be accompanied by a support vessel that will assist with in-water streamer maintenance, ward away any shipping which may encroach on the operations, provide assistance in the unlikely event of the *Western Patriot* losing all power, and transfer stores in accordance with safe HSE procedures and maritime regulations.

Description of Receiving Environment

Physical Environment

Water depths in the seismic survey area within the permit vary from 2000m to approximately 3000m. The major ocean current in the seismic acquisition area is the Zeehan Current.

As part of the interim marine and coastal regionalisation for Australia, the IMCRA Technical Group (1998) has classified the area where the survey is located as part of the meso-scale region defined as 'Franklin'. The details of this region are provided in Table 1.2 below.

Table 1.2 : Mesoscale Region and Description

Mesoscale Region	Data Description	Description
Franklin	Location	Svenor Point to Cape Grim, west coast Tasmania
	Climate	Cold temperate, meso-thermal climate with cold winters, cool summers and extremely high rainfall.
	Oceanography	Mean water temperature 17°C in summer, 12°C in winter. Maximal wave exposure. Microtidal (1 m range).
	Geology & Geomorphology	Diverse geological coastal strata with turbidites predominating in south and sandstones/mudstones and granites in northern section. Rocky headlands separated by very long sandy beaches.

Fauna and Flora

Marine mammals are a feature of the region's fauna. Twenty-seven species of cetacean are listed as potentially occurring in the vicinity of the proposed seismic acquisition area.

Both the New Zealand Fur Seal (*Arctocephalus forster*) and Australian Fur Seal (*Arctocephalus pusillus doriferus*) breed within the region. Both species breed ashore (mostly on remote islands) and in the main feed at sea on fish and squid. The nearest breeding colony is 38.4km away from the nearest permit boundary at Reid Island.

IMCRA (1998) found that the biota of the region differed from other regions primarily by low species-richness. Fish diversity was extremely low; algal diversity was moderately low; and that there were no plants or animals recognised to be characteristic.

There are no islands or seabird colonies within the immediate vicinity of the proposed seismic acquisition area. A search of the EPBC database, documents that 19 bird species are listed as threatened species which includes 17 species of albatross, and 2 species of petrel. Of the nineteen migratory marine birds listed, 17 are albatross species, and two are Giant-petrels. Albatrosses and Petrels breed at only six locations within Australian jurisdictions (EA, 2001). None of these are located in the region of the permit area. Bird species are considered to not have a high likelihood of impact due to the nature of the seismic activities, and temporary activities in any one area.

Conservation Areas

The seismic survey does not impact upon World/National Heritage properties, RAMSAR wetlands, threatened ecological communities, Commonwealth conservation reserves/parks or critical habitats.

Socio-Economic

The commercial fisheries operating in the region include (AFMA, 2010):

- the Southern and Eastern Scalefish and Shark fishery (Commonwealth Trawl Fishery and the Gillnet, Hook & Trap Fishery);
- Bass Strait Central Zone Scallop Fishery;
- Southern Squid Jig Fishery;
- Southern Bluefin Tuna Fishery;
- Eastern Skip Jack (Tuna) Fishery
- Eastern Tuna and Billfish; and
- Small Pelagic Fishery.

Consultation with the fishing industry has commenced on this petroleum activity.

Note that trawl fishing closures are present for areas of water depth greater than 700m to protect certain fish species which have been 'over-fished'.

There are a number of petroleum exploration permits in the area. However, there are no production fields. Permit T/32P is located in a low shipping traffic area.

Details on Major Environmental Hazards and Control

An 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 ISO31000:2009 Risk Management and HB 203:2006 Environmental risk management- Principles and process.

Potential environment aspects/activities associated with seismic acquisition offshore which have the potential for environmental impact include:

- The physical presence of the vessel (socioeconomic impacts, quarantine, lighting, anchoring);
- Refuelling/chemical use and storage activities;
- Solid and liquid waste management (containment/discharge);
- Routine marine discharges (oily water, sewage, food-scraps)
- Atmospheric emissions;
- Use of the seismic air gun array (and hence acoustic disturbance to marine fauna); and
- Oil spills.

The management practices identified are industry standard to keep risks as low as reasonably practicable (ALARP) while maintaining economical viability for the proposed petroleum activity. These management practices are taken into consideration in calculating the residual risk. These are summarised in Appendix 1.

Management System Approach

The CEO of the Perenco Group is responsible and accountable to the Perenco Board for ensuring that appropriate resources are allocated to meet Perenco HSE Management Systems and Policy requirements; and establishing and regularly reviewing the HSE Policy.

- The Exploration Manager is responsible and accountable for implementing the HSE Policy within the operational area, through application of this Environment Plan;

- All Project personnel including Perenco personnel and third party contractors are responsible and accountable to adhering to the Environmental Policy and this Plan in all tasks that they undertake.
- The *Western Patriot* Party Chief and Perenco Onboard Representative is responsible for implementing the EP;
- The *Western Patriot* Party Chief, and the Perenco Onboard Representative are responsible for implementing the Cetacean Guidelines.

Environment Plan commitments together with the relevant persons responsible for implementing the requirements are captured in the Perenco Seismic Program Environmental Commitments Register, which forms the basis of an implementation checklist for the seismic activities and ensures appropriate implementation of environmental management measures.

An environmental monitoring program has been identified in the EP for the Seismic Program to verify environmental performance objectives.

All shipboard personnel, including contractors, will be required to attend an environmental induction prior to mobilization. This will be conducted by the company representative. This induction and awareness at all levels will aim to outline:

- The importance of conforming with the Perenco Environmental 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; and
- An understanding of the relevant objectives and performance standards of the EP.

Emergency response drills (SOPEP) and exercises are conducted every 12 months. The last SOPEP exercise was held in 2nd September 2010.

Stakeholder Consultation

Perenco has commenced consultation with the commercial fishing industry which includes the following groups:

- Australian Fisheries Management Authority (AFMA);
- Tasmanian Department of Primary Industries, Parks, Water & Environment (Wild Fisheries Management Branch);
- Lakes Entrance Fishing Cooperative Ltd (LEFCOL);
- South-east Trawl Fishing Industry Association (SETFIA);
- South East Fishing Association (SEFA);
- Tasmanian Scallop Fishermen's Association;
- Commonwealth Fisheries Association (CFA);
- Scalllop Fishermans Association Inc;
- Tasmanian Seafood Industry Council;
- Seafood Industry Victoria; and
- Sustainable Shark Fishing Association

Preliminary consultation/communication has already been initiated with fishing groups to determine any issues and locational conflicts. Feedback from all fishing groups consulted, indicate that due to the depth of the seismic (i.e. 1000m+) and closures on fisheries (i.e. trawl), very little fishing activity occurs in the nominated seismic areas.

Prior to seismic commencement, a notice of mobilisation will be sent to all fishing groups (5-7days prior) to advise of the activity, its location, duration, its relevant seismic/escort vessel call-signs and provide radio frequencies on which the vessels can be contacted.

Other agencies that will be consulted include the following:

- Australian Maritime Safety Authority (Impacts on shipping routes and navigation warnings);
- Australian Hydrographic Service (Details of infrastructure or seismic programs);
- Border Protection Control (Integrated Defence/Customs organisation which provides security for offshore maritime areas); and
- Geoscience Australia (General survey details).

Contact Details

Further information may be obtained from Perenco by writing to:

Mr Roland Fox

Director

Perenco (SE Australia) Pty Ltd

Postal Address:

Perenco Holdings

10 Duke of York Square

London, UK, SW3 4LY

Email: rfox@uk.perenco.com

Phone: 44(0)20 7901 8200

Appendix 1: Risk Assessment

Aspects (Activities/ Emissions)	Description of Potential Impacts on the Environment	Proposed Management Measures	Consequence Severity Rating	Likelihood/ Frequency	Residual Risk
Physical presence of vessel- interference with other user activities	Potential social impact on other users e.g. collision, damage to fishing gear etc.	Advise fishing industry of expected timing, and location Conduct on-going consultation with relevant fishing groups Recover lost streamer if practicable Issue Notice to Mariners for Survey Duration	1	D	Low

Aspects (Activities/ Emissions)	Description of Potential Impacts on the Environment	Proposed Management Measures	Consequence Severity Rating	Likelihood/ Frequency	Residual Risk
Physical presence of vessel- collision or grounding leading to oil spill	Potential oiling of sea birds, fish tainting, shoreline pollution, disruption of fishing activities.	Low density of shipping traffic as survey area outside main shipping channels Issue Notice to Mariners for Survey Duration Survey area outside main shipping channels Ship Collision Avoidance/Grounding Procedures in Place and some >50km km offshore Navigation lighting SOPEP and Emergency Response Procedures in place Crew awareness and exercises in Oil Spill and Emergency response Regulator reporting of spills >80L Incident investigation & corrective action monitoring requirements Functioning navigation lights, radar and radio communication	3	C	Moderate

Aspects (Activities/ Emissions)	Description of Potential Impacts on the Environment	Proposed Management Measures	Consequence Severity Rating	Likelihood/ Frequency	Residual Risk
Storage/handling of chemicals and oil and potential for spillage or liquid discharge	Toxic effects on marine life including fish, plankton, benthos, marine mammals and turtles.	Secure containment areas for oils and chemicals Availability and use of appropriate materials, eg absorbents, for cleanup Use of drip trays whilst decanting Cleanup of spills as soon as practicable MSDSs available Training of personnel in safe handling procedures Refuelling Guidelines	2	B	Low
Seismic acquisition	Acoustic disturbance to marine fauna	Comply with DEWHA EPBC Act Policy Statement 2.1- Interaction between offshore seismic exploration and whales, 2008 Marine Mammal Observer On-Board Marine crew supplied with APPEA CD as part of Induction Consultation with fishing industry Distance of permit from sensitive habitat (see Section 4). MMO to record presence and behaviour of seals	2	B	Low

Aspects (Activities/ Emissions)	Description of Potential Impacts on the Environment	Proposed Management Measures	Consequence Severity Rating	Likelihood/ Frequency	Residual Risk
Ballast Water and Bio-fouling	Introduction of exotic pests	Initial mobilisation into Australia will be subject to AQIS requirements Current Anti-foulant Paint Certification Biofouling Risk Assessment prior to entry to Australian Waters with resultant corrective actions undertaken	2	B	Low