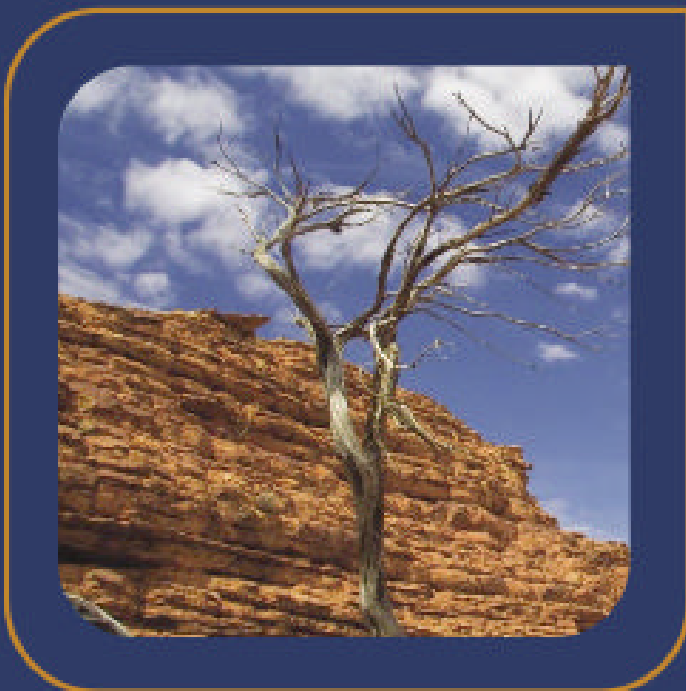


## Summary Environment Plan

Perenco 2011 T/32P & T/35P

Surface Geochemical Exploration  
Program

(Offshore NW Tasmania)



## SUMMARY

### Introduction

Perenco (SE Australia) Pty Ltd ('Perenco') is proposing to undertake a Surface Geotechnical Exploration (SGE) program in Permits T/32P & T/35P which are located in Commonwealth waters approximately 125km offshore from north-west of Tasmania. As such this document has been prepared to facilitate the 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 SGE activities will occur in February 2011 for a period of approximately 11 days subject to weather conditions and vessel availability.

### Location

Exploration Permits T/32P and T/35P are located in Commonwealth waters as shown in Figure 1.1. Coordinates of the proposed SGE areas are provided in Table 1.1. The SGE program is expected to take approximately 11 days.

Figure 1.1: Location Map

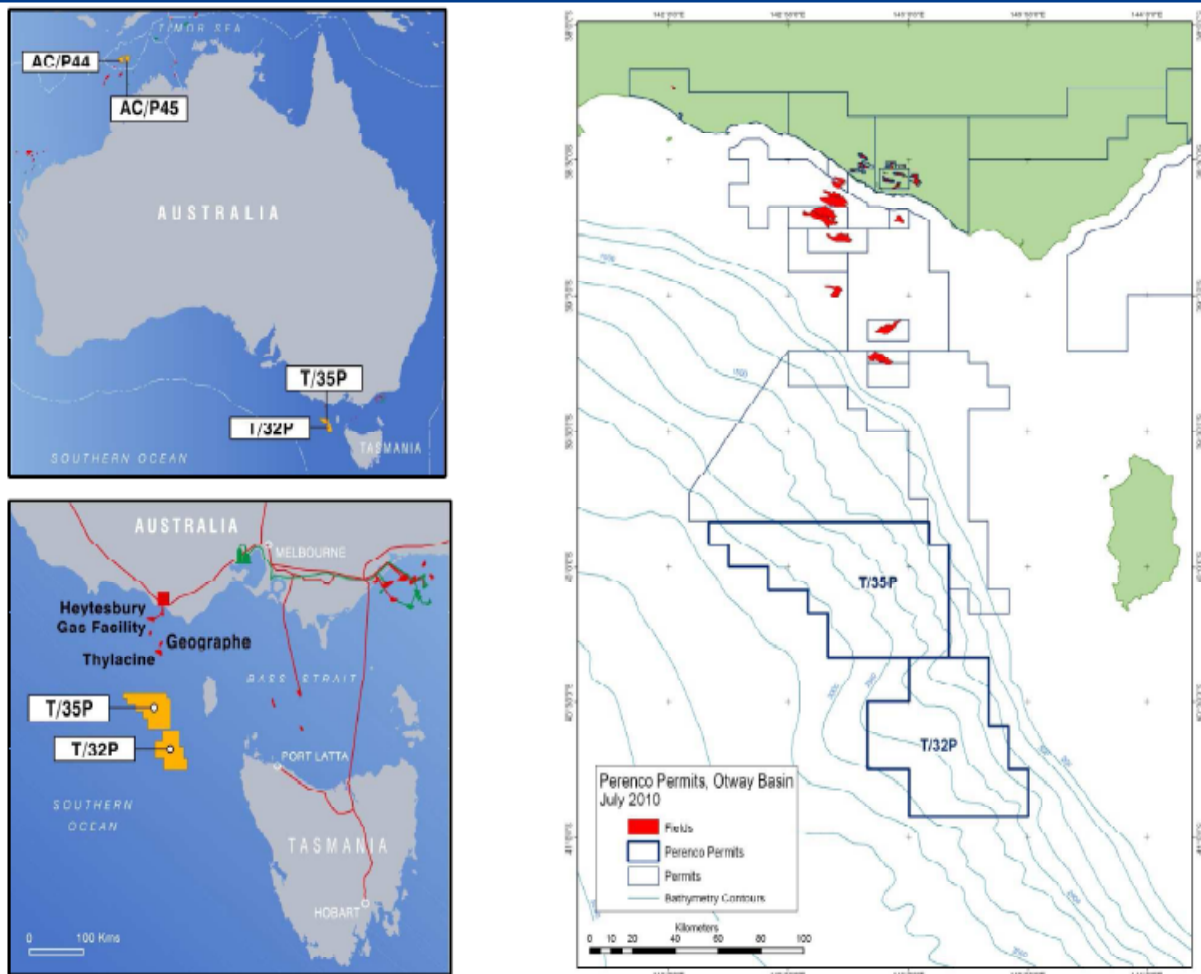


Table 1.1: Permit & Survey Area Co-ordinates

location point	Latitude			Longitude		
	degrees	minutes	seconds	degrees	minutes	seconds
T/35P Brandt Area						
1	40	7	55.85	143	2	37.36
2	39	58	7.05	142	52	58.37
3	39	51	3.05	143	5	4.96
4	39	54	54.70	143	5	4.97
5	39	54	54.70	143	10	4.96
6	40	3	28.79	143	10	4.97
T/32P Wolseley Area						
1	40	59	41.61	143	11	23.88
2	40	38	49.54	142	53	58.83
3	40	26	44.35	143	20	4.97
4	40	47	26.96	143	36	38.98

## Description of Action

The vessel MV Yarabah has been contracted for this programme in February 2011. Total survey duration is estimated to be 11 days, with 4 days transit from mobilisation/demobilisation in Victoria.

The Program will consist of two parts:

1. Acquisition of between 100 and 150 sea-bed gravity-cores in total; and
2. Geochemical analysis of the acquired piston-cores.

Seabed gravity cores will be acquired over the Brandt and Wolseley areas of interest for geochemical analysis.

The aim of the geochemical analysis is to evaluate the piston-cores for migrant, thermally sourced oils and gases. This will involve three stages:

**Stage 1:** On-site visual examination and logging;

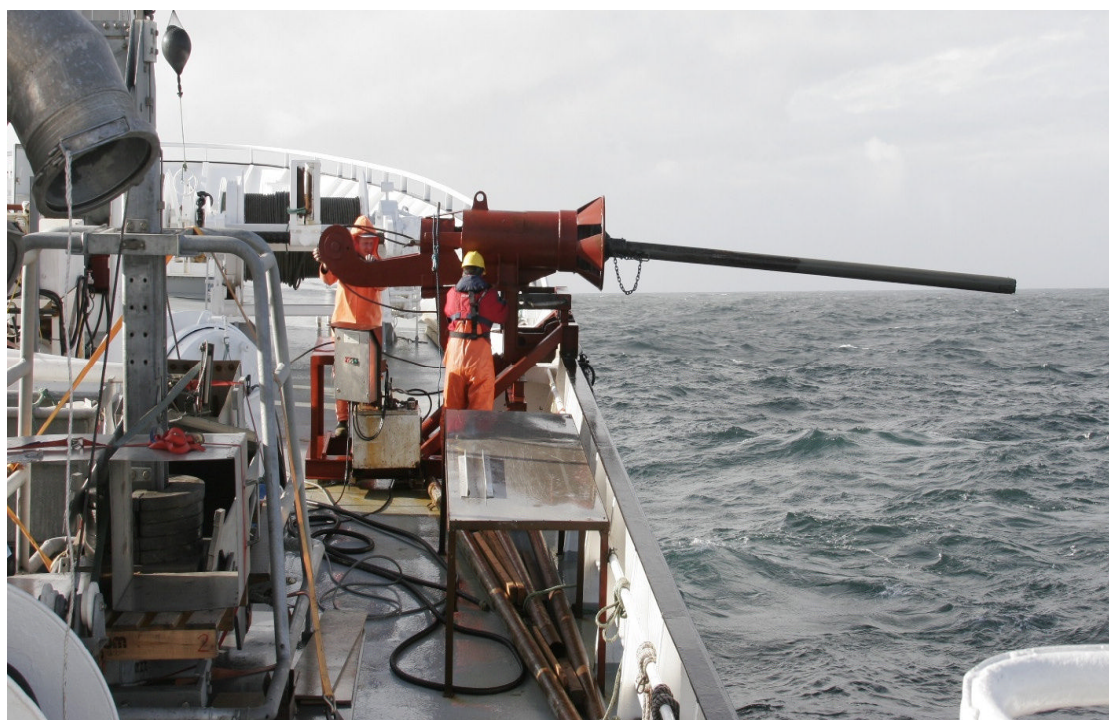
**Stage 2:** Gas Chromatography (GC), and Interstitial Gas (IG) analysis of separately stored core sections; and

**Stage 3:** Gas Chromatography-Mass Spectrometry analysis for samples that contain elevated concentrations of migrated petroleum based on the C15<sup>+</sup>GC and/or IG data.

The gravity corer operates by penetrating into cohesive seafloor sediments by its own weight and impact as it reaches the bottom (see Figure 1-2 below). A lowering speed of 1.5 - 2 m/sec. usually gives the best results. High impact speed usually cause the entire core to penetrate as a solid mass, and after the uppermost sediments have entered, the corer will penetrate further without any sample entering the corer.

As the corer enters the sediments down to a depth of a few metres, water will pass through the non-return valve. As it is pulled out, the valve closes and creates a vacuum over the sample. This, together with the core catcher, prevents the sample from sliding out of the corer as it is pulled up. No drilling fluids are used in this activity.

Figure 1-2: Gravity Corer Equipment Deployment



## Description of Receiving Environment

### Physical Environment

Water depths vary from approximately 1,000m to 1,800m over the T/35P Brandt area of interest and 1,600 to 2,600m over the T/32P Wolseley area of interest. The major ocean current in 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 SGE survey 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 SGE 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, or critical habitats. However, the Zeehan Marine Reserve lies partially within Permit T/35P and to the west of both permits. Prior Usage Rights (under the EPBC Act) apply to this to this permit as T/35P was awarded in 2003 prior to the declaration of the marine reserve which occurred in 2007.

#### 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. Permits T/32P and T/35P are 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 the SGE survey offshore which can have the potential for environmental impact include:

- Impact on water column and seabed from gravity coring;
- 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-scrap)
- Atmospheric emissions; 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 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 *M/V Yarabah* Party Chief and Perenco Onboard Representative is responsible for implementing the EP;
- The *M/V Yarabah* 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 SGE Program Environmental Commitments Register, which forms the basis of an implementation checklist for the SGE activities and ensures appropriate implementation of environmental management measures.



An environmental monitoring program has been identified in the EP for the SGE 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 on the 9<sup>th</sup> 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);
- Scallop 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 water (i.e. 1000m+) and closures on fisheries (i.e. trawl), very little fishing activity occurs in the nominated permit areas.

Prior to the SGE survey 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 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).

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## Contact Details

Further information may be obtained from Perenco by writing to:

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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 core hole equipment Issue Notice to Mariners for Program Duration	1	D	Low
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 Program Duration Ship Collision Avoidance/Grounding Procedures in Place and some > 120km 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
Ballast Water and Bio-fouling	Introduction of exotic pests Impacts from anti-fouling paint on marine species	Current Anti-foulant Paint Certification Operates only in Australian waters	2	B	Low

Aspects (Activities/ Emissions)	Description of Potential Impacts on the Environment	Proposed Management Measures	Consequence Severity Rating	Likelihood/ Frequency	Residual Risk
Waste Disposal (including sewage and food scraps discharge)	Increased nutrient availability, increased BOD, potential toxic effects on marine life.	<p>Compliance with MARPOL and all laws and regulations</p> <p>The vessel has a current International Sewage Pollution Prevention Certificate as issued under the provisions of the International Convention for the Prevention of Pollution from Ships, (1973).</p> <p>The vessel has one macerator which is in good condition, regularly maintained and part of vessel operations supervisor's daily check.</p> <p>Minimize quantities of waste generated</p> <p>Wastes will be segregated, labelled and stored in secure areas prior to removal to the shore for appropriate disposal or recycling rather than incineration.</p> <p>Personnel will be trained to ensure compliance with the waste management requirements</p> <p>Treated effluent and food scraps to be disposed in accordance with MARPOL. All food scraps will be macerated to a size of less than 25 mm before discharge over the side. The macerator is in good condition, regularly maintained and part of vessel operations supervisor's daily check</p> <p>Wastes disposed to approved sites onshore and oil collected and disposed onshore</p> <p>Oily water treatment system treats contaminated deck drainage and discharges oily water at 15 ppm</p>	2	B	Low

<b>Aspects (Activities/ Emissions)</b>	<b>Description of Potential Impacts on the Environment</b>	<b>Proposed Management Measures</b>	<b>Consequence Severity Rating</b>	<b>Likelihood/ Frequency</b>	<b>Residual Risk</b>
Air emissions	Pollution to atmosphere	Machinery to be maintained according to manufacturers requirements	2	B	Low