Gippsland Basin
Marie (VIC/P42) and Elver (VIC/P59) 3D Seismic Programs

Environment Plan Summary

February 2007

INTRODUCTION

Apache Energy Limited (Apache) is proposing to undertake two 3 dimensional (3-D) seismic programs known as Marie and Elver within its exploration permits VIC/P42 and VIC/P59. These permits are situated within Commonwealth waters in the Gippsland Basin of Victoria and the survey areas are shown on Figure 1.

Apache submitted an Environmental Plan (EP) to the Department of Primary Industries (DPI) for the project in compliance with the Petroleum Submerged Lands Management of Environment (P(SL)(MoE)) Regulations 1999. The EP has been approved by the DPI on the 6th February 2007. Under the P(SL)(MoE) Regulation 11(7), a summary of the EP is to be submitted to the Designated Authority (DPI). This document is a summary EP for public disclosure of the Marie and Elver 3D seismic surveys to be undertaken in the Gippsland Basin of Victoria.

TIMING

The 3D seismic surveys are scheduled to commence from early March 2007. It is anticipated that the surveys will be undertaken consecutively commencing with the Marie survey and taking approximately a combined 44 days to complete them both. The surveys duration will be dependent on the prevailing weather conditions and logistical constraints. Seismic operations would be undertaken 24 hours a day for this period.

LOCATION

The survey areas are located in the offshore Gippsland Basin covering Exploration Permits VIC/P42 and VIC/P59 (Figure 1). The proposed seismic programs cover a total area of 1,152 km^2. Further information about these survey areas is given in Table 1. The coordinates for the survey area are detailed in Table 2.

Table 1. Information on individual survey areas

Permit Block	VIC/P42	VIC/P59
Survey Name	Marie	Elver
Probable sequence	1st	2nd
Approx. length of survey (days)	19	25
Maximum area of survey (km^2)	503	649
Orientation of survey run lines	North/South	NNE/SSW
Range of water depths (approx. in m)	50-70	150-2,000
Distance to shore (km)	~ 31	~ 107
Distance to 90 Mile Beach MNP (km)	~ 27	~ 110
Distance to Point Hicks MNP (km)	~ 145	~ 92

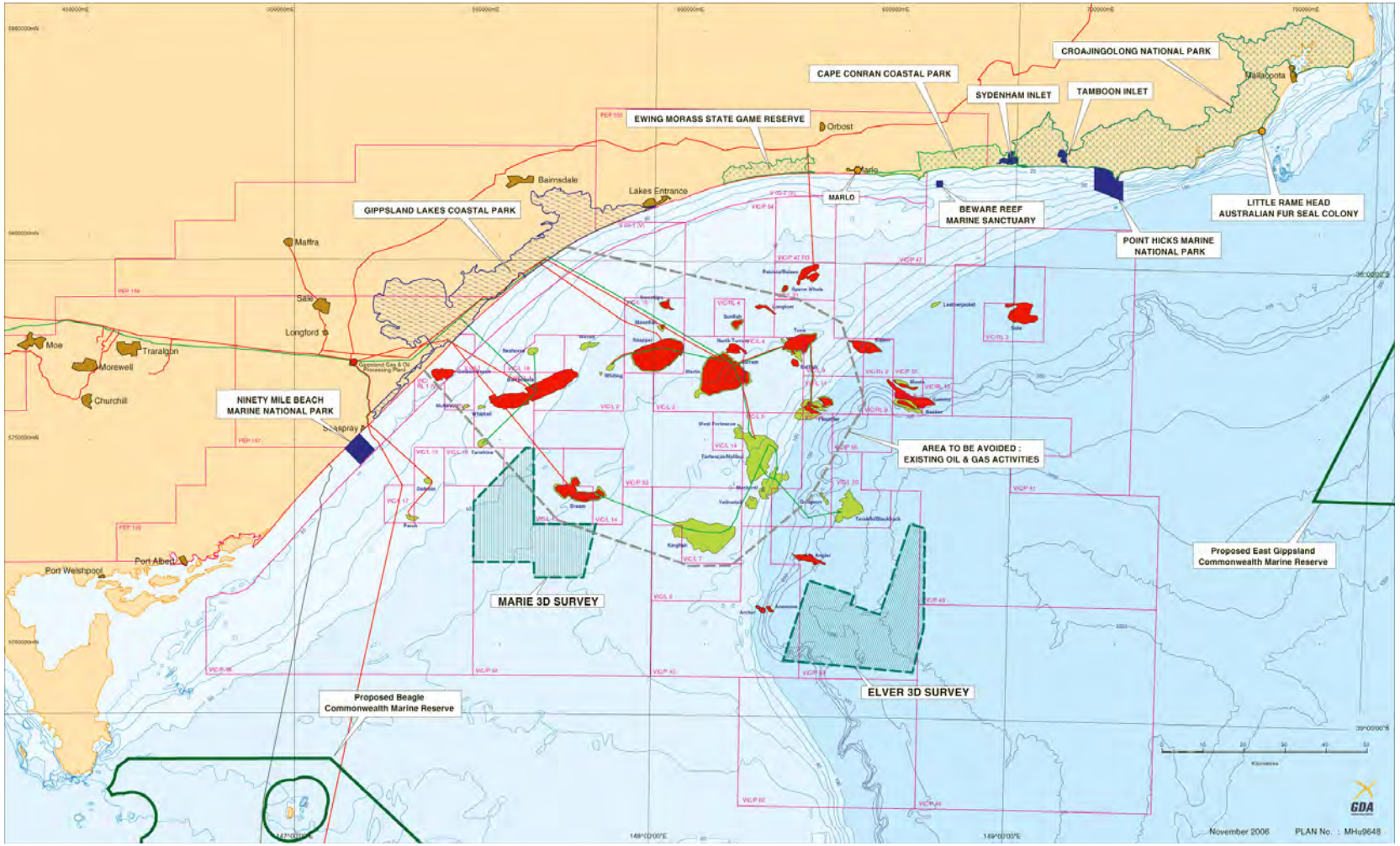

Figure 1: Map showing the locations of the proposed seismic programs & environmental resources in the Gippsland Basin region

Table 2: Survey Coordinates for the Marie and Elver 3D Seismic Surveys

Survey Area	Latitude	Longitude
Marie survey in Vic/P42	38°40'01.56"S	147°30'01.95"E
	38°32'01.21"S	147°30'04.21"E
	38°24'51.75"S	147°38'47.33"E
	38°24'54.20"S	147°40'04.35"E
	38°34'55.58"S	147°40'11.13"E
	38°34'54.41"S	147°50'34.58"E
	38°41'55.41"S	147°48'34.43"E
	38°41'57.33"S	147°40'17.24"E
	38°39'58.50"S	147°40'14.13"E
Elver survey in Vic/P59	38°52'35.35"S	148°22'24.24"E
	38°41'59.77"S	148°26'32.76"E
	38°43'51.08"S	148°34'10.99"E
	38°45'04.88"S	148°33'39.92"E
	38°46'21.06"S	148°38'33.70"E
	38°34'15.04"S	148°43'23.64"E
	38°34'50.37"S	148°45'52.33"E
	38°48'05.48"S	148°45'58.81"E
	38°53'55.17"S	148°44'13.91"E

Datum: GDA94

PROJECT DESCRIPTION

The Western Trident, operated by Western Geco, is the seismic vessel to be used throughout the seismic programs. A supply vessel, the OMS Pioneer, and a chase vessel (fishing vessel the Lady Roula) will also accompany the Western Trident during the survey.

The Western Trident will tow 8 streamers; each one is 4,000 metres long and is trailed behind the vessel. The vessel navigates along the pre-selected survey lines within each survey area. An array of hydrophones or acoustic receivers is attached within the streamer. Two seismic source arrays about 50 m apart are also towed approximately 75 m astern of the vessel, and will release alternately on average every 8-10 seconds, acoustic pulses into the water column.

These acoustic pulses are directed downward through the water column and into the underlying seabed and sedimentary strata. The reflected signals from the changes in subsurface geological structures are then recorded by the hydrophone arrays within the towed streamers. The hydrophones collect the returning signal which is stored in the vessels onboard computers for subsequent processing and analysis. The return times and character of the signals are used to plot the underlying geological strata in order to define possible hydrocarbon reservoirs for subsequent exploration drilling.

The seismic vessel speed will be set at approximately 4.5 to 5 knots resulting in a release from the seismic source array every 18.75 m. In a normal 24 hour working day approximately 40 km^2 of data acquisition can be achieved.

As the survey is estimated to take 44 days, the vessel may require some refuelling at sea. This will be undertaken using the OMS Pioneer (supply vessel). Subsequent crew changes will take place via helicopter most likely out of Essendon. The Lady Roula chase vessel will be used to manage the interface with any fishing vessels that may be located within or adjacent to the survey areas whilst the Trident is acquiring seismic data.

RECEIVING ENVIRONMENT

A general overview of the receiving environment in terms of its physical and biological aspects is provided in the following sections.

Physical Environment

Climate

The climate of the Gippsland Basin can be described as moist cool temperatures with warm summers, with a regular winter-spring rainfall. The region is located on the northern edge of the westerly wind belt known as the roaring forties. Winds often freshen to gale force from the north and north-west, ahead of approaching fronts during all seasons. Once the fronts have passed they then swing abruptly south-west behind the front at similar speeds and abate until they again freshen ahead of the next front. Additionally, low pressure systems can generate wind systems known as the “East Coast Lows”, which consist of strong south easterly winds.

Oceanography

Regionally, Bass Strait has a unique geometry consisting of a broad shallow region, which descends abruptly to very deep water on each side. The Gippsland Basin is the broad shallow region on the eastern side of Bass Strait. The flux of water through the strait and its variations are key components of many physical and biological processes in the region.

The currents within the Gippsland Basin region include components due to tides and wind stress. The East Australian current brings warmer waters into Bass Strait and influences water temperatures. Sea surface temperatures for Bass Strait range from 16 to 18^{o}C in February and 12 to 14^{o}C in August.

Wave energy is relatively low, particularly in the broader shelf area in the Gippsland Basin. However, stalled low-pressure systems in the Tasman Sea during the summer can generate higher wave energy at this time. Intermittent upwellings occur along parts of the east Gippsland coast.

Bathymetry

The water depth range for each survey varies and is given in Table 1. The Marie survey in VIC/P42 is located in relatively shallower water depths compared to the VIC/P59, that range from 50 m in the north western area of the survey and gradually increase to 70 m water depth in the south western section. In the Elver VIC/P59, water depths range from approximately 150 m in the south west corner of the survey area to over 2,000 m towards the eastern section of the survey.

Biological Environment

Marine Habitats

Over the years, seabed surveys have been undertaken by other oil and gas companies in Bass Strait providing the following general information regarding the nature of the seabed and associated fauna within Bass Strait:

- dominated by soft seabed habitats with sediments ranging from fine to coarse sand and areas of shell accumulations and aggregations of the introduced New Zealand screw shell
- sandstone or calcarenite reefs are distributed intermittently along the east Gippsland coast and may be periodically covered by sand or shell
- soft-sediment infauna are dominated by polychaetes, molluscs and crustaceans with substantial spatial and temporal variation
- epibiota of the region is sparse and characterised by scallops and other large bivalve molluscs, crabs, seasquirts, seapens, sponges and bryozoans.

Marine Biota

A review of the Commonwealth Department of Environment and Heritage database indicates that there are a number of listed species identified as potentially occurring within the seismic survey areas.

A brief overview of these listed species and other biota is given under faunal groupings in the following sections: marine mammals, seabirds, fish and sharks.

Marine Mammals

Forty three species of whales and dolphins occur in Australian waters, with approximately 50% of these reported in Victorian waters.

Humpback whales and southern right whales are unlikely to be encountered during the seismic surveys as timing of their migration through the Gippsland Basin region is broadly between May and October each year.

Blue whales migrate to their feeding grounds in October to December, however, the closest feeding grounds are to the west of the survey areas in the Otway Basin (feeding between December and May) and to the north off Eden in New South Wales (feeding between October to December). Due to the location and timing of the proposed seismic programs, Blue whales are highly unlikely to be in the vicinity of the surveys.

Little is known of the distribution of feeding grounds, migration paths and calving areas of the other species of whales and dolphins found in Bass Strait. Minke whales occur worldwide and are oceanic, they are thought to mate from August to September and calve from June to July each year.

Five species of dolphins with differing migration and habitat preferences are known to occur within the proposed survey areas.

The Australian fur-seal (*Artocephalus pusillus*) occurs throughout Bass Strait. There are numerous breeding colonies near Wilson Promontory, Philip Island and King Island. There are no breeding grounds within the seismic survey areas or in the immediate surrounding waters.

The seals moult, breed and rest on land, and tend to come ashore on rock platforms, reefs or rocky beaches. They utilise artificial structures including Bass Strait oil and gas infrastructure and mooring buoys, as resting locations.

Seabirds
Migratory seabirds such as albatross and petrels, which are protected by international agreements (Bonn Convention, JAMBA, CAMBA), may pass through or near to the survey areas on their way to islands in Bass Strait and/or Tasmania. Foraging groups of seabirds are also sighted sporadically in the eastern Bass Strait area.

Fish and Sharks
Great white sharks are uncommon but are generally known to frequent waters around seal colonies, particularly during seal pupping season (October to December). The known Australian Fur Seal colonies closest to the survey areas are at Wilson's Promontory to the west and the Skerries to the north east.

Many pelagic and demersal fish species are found in the waters of Bass Strait and deeper waters to the east, such as orange roughy, flathead, school whiting, john dory, silver trevally, snapper, ocean perch and several shark species are some that are of commercial significance.

Areas of Environmental Significance

There are no known areas of regional environmental significance within the proposed seismic survey areas. There are, however, areas along the Victorian coastline of environmental significance (Figure 1). These include:

- 90 Mile Beach Marine Park, located in state waters to the north west of the survey areas (27 km NNW from the Marie survey);
- Point Hicks Marine Park, located in state waters to the north east of the survey areas (115 km NNE from the Elver survey);
- Gippsland Lakes Coast Park;
- Lakes Entrance is listed as a Ramsar wetland;
- Ewing Morass State Game Reserve;
- Cape Conran Coastal Park;
- Croajingolong National Park;
- Little Tern rookeries at Tamboon and Sydenham Inlets; and
- Australian Fur Seal colony near Little Rame Head and a haul out site at Beware Reef (102 km N from the Elver survey).

Two Commonwealth Marine Reserves have been proposed within the vicinity of the Gippsland Basin (Figure 1). The Marine Protected Areas (MPAs) are Commonwealth Reserves under the Environmental Protection and Biodiversity Conservation Act, 1999 (EPBC Act). Public comment is being sought on the proposed 13 new Commonwealth Marine Reserves (CMRs) that form the South-east Region MPA. The two reserves closest to the proposed survey areas are the Beagle (located 74 km SW of the Marie survey area) and East Gippsland (located 92 km NE of the Elver survey area) CMRs.

Both these CMR are multiple use zones with an IUCN Category VI, which allows for exploration subject to conditions set under existing regulations. The seismic vessel will not traverse anywhere near the above sites during the surveys.

Population Centres

The closest population centres to the seismic programs are the East Gippsland coastal towns of Lakes Entrance and Marlo. Lakes Entrance is one of the largest fishing ports of the region, with a population of 5,300 residents. Between 10 to 15 % of the population of Lakes Entrance are employed in the commercial fishing industry, with 2 to 5% employed by the industry on a broader regional scale.

Mallacoota, Marlo and Seaspray are much smaller towns on the coastline with fewer permanent residents. All of these coastal towns are a tourist destination during school holidays and their populations increase substantially during these periods.

Commercial Fisheries

There are three main commercial fishing ports of landing in the Gippsland Basin area; Mallacoota, Lakes Entrance and Port Albert (Figure 1). These ports support a diverse range of fisheries and fleets.

Abalone diving is the major fishery in Mallacoota. There are 21 abalone licence holders based at Mallacoota with 18 selling their catch to the local Abalone Fishermen's Co-operative. Other smaller, relevant ocean fisheries operating from Mallacoota include prawn trawling and rock lobster fisheries.

Lakes Entrance is the major eastern Victorian commercial fishing port. Current ocean fishing operations in the area include:

- The last Danish seine trawl fleet in Australian (17 boats);
- Deep water board trawlers (5 boats);
- A shark fishing fleet (6 boats);
- A scallop harvesting fleet that also catch squid when in season (30 boats);
- Rock lobster (3 boats);
- A fleet of inshore vessels (6 boats) who ply their trade in diverse forms of fishing close to the coast including prawn fishing; and
- Bait fishers who supply recreational anglers (9 boats).

The majority of the fisheries in the Port Albert Area operate inside the sheltered waters of an embayment. A small shark fishery, however, also operates out of Port Albert using gillnets and demersal longlines outside of Victorian waters (5.5 km).

The following lists the various commercial fisheries operating in Victoria:

State Jurisdiction

- Abalone Fishery - is the state's most valuable commercial fishery valued at an estimated $55 million annually. Abalone grounds in the Gippsland Basin are restricted to nearshore reefs east of Lakes Entrance. As such there would be no overlap between the proposed seismic survey areas.
- Rock Lobster and Giant Crab Fishery - The species caught in Victorian waters is the southern rock lobster (*Jasus edwardsii*). Giant crabs (*Pseudocarcinus gigas*) are caught as incidental and occasionally targeted bycatch of the rock lobster fishery. Pots are deployed on or next to rocky reefs at depths of between 2 m and 130 m. The nearest ports of landing to the proposed survey areas for the Rock Lobster Fishery are the Inverloch to Port Albert ports and the Tamboon to Eden ports.
- Wrasse Fishery - the commercial Wrasse Fishery is a relatively new fishery in Victorian waters since the increase in restaurant demand for live wrasse in

the 1990s. The majority of catch in the Gippsland region occurs within nearshore areas and as such none of the proposed survey areas would overlap with the fishery.

- Scallop Fishery - the Victorian scallop fishery is limited to oceanic waters to 20 nm off the coast in eastern Bass Strait since the closure of the Port Phillip Bay fishery in 1996. Beyond 20 nm the fishery is managed by the Commonwealth. The scallop fishery normally operates between July and September and the fishery is opened and closed each year by fisheries notice. A closed season exists during the summer and autumn months so that the scallops can spawn and reproduce. Changes to the timing of the scallop season for 2007 will see it opening in March overlapping with the timing for the survey programs. The survey areas include known scallop grounds that have low catch rates.
- Ocean General Fishery - A wide variety of gears are used in the fishery including handline, troll, gillnet, beach seine and octopus pot. The main species caught are snapper (*Pagrus auratus*), gummy shark (*Mustelus antarcticus*), Australian salmon (*Arripis* spp.) and octopus (*Octopus* spp.). Fishing is focused on near-shore areas, from Portland in the west through to Wilsons Promontory in the east, but there is some fishing effort in the Gippsland Basin.

Commonwealth Jurisdiction

- Eastern Tuna and Billfish Fishery (ETBF) - this fishery extends around the east Australian coast from the high water mark (3 nm line in NSW) to 200 nm seaward from the Victorian – South Australian Border to Cape York. The fishery uses mainly pelagic longlines; however minor lines, poling and purse-seining are also used. The major species caught being skipjack tuna, yellowfin tuna, bigeye tuna and swordfish. The majority of the ETBF operates at the edge or seaward of the continental shelf using pelagic longlines and as such would not overlap with the seismic survey areas. The purse seining and the pole and line components of the fishery occur closer to the mainland in the eastern section of the Gippsland, however these areas are also outside of the proposed survey areas.
- Southern and Eastern Scalefish and Shark Fishery - is a new arrangement that has brought together some existing fisheries in the southern regions of Australia in both State and Commonwealth waters. These are the Great Australian Bight Trawl Fishery, South East Trawl Fishery and the Gillnet Hook and Trap Fishery (formerly the South East Non-trawl and Southern Shark Fisheries). This has been done to provide an overarching management framework to manage these fisheries which have overlapping areas of waters and species. Only the South East Trawl Fishery and the Gillnet Hook and Trap Fishery are relevant to the proposal. There is overlap between SETF fishing grounds and the Elver seismic survey.
- Southern Squid Jig Fishery - the main area fished is in western Bass Strait and off western Victoria. The SSJF operates at night. Squid are attracted to powerful lights on vessels and caught using automatic jigging machines. Almost all of the squid jig catch is taken between January and July each year, with the highest catches occurring between February and June. The proposed survey areas do not overlap with the location of this fishery.

ENVIRONMENTAL HAZARDS, MANAGEMENT APPROACH AND CONTROLS

The main aspects or activities associated with the operations of the seismic programs that have the potential to result in environmental risks and effects are:

- releases from the seismic source;
- discharge of grey water, sewage, oily water, putrescible galley wastes, solid wastes and waste oil;
- hydrocarbon spills from vessel collisions or groundings, streamer damage or refuelling operations;
- introduction of marine pests; and
- displacement of other users of the marine environment (ie commercial fishing vessels).

A qualitative risk assessment has been carried out using a risk assessment matrix based on managing risks to as low as reasonably practical.

Releases from Seismic Source

Marine seismic surveying involves the discharge of compressed air to create sound impulses that are reflected differentially from various geological layers under the sea floor and recorded by receivers towed behind the seismic vessel.

There are a range of potential impacts to marine animals from sounds emanating from a seismic source. These impacts vary with seismic release intensity, distance from the source, species and mitigation measures. Potential impacts range from mortality or pathological damage from close exposure to high sound levels to avoidance and temporary or permanent shifts in hearing thresholds and associated interference with acoustic signals.

A review of the marine impacts from seismic surveys, as part of an independent scientific review commissioned by the Australian Petroleum Production and Exploration Association (APPEA), concluded the following:

- the response of Australian marine animals to marine seismic survey sounds will range from no effect to various behavioural changes;
- except for plankton and larvae at close range, few species are likely to be killed outright;
- the sound intensities required to produce pathological changes in marine mammals probably occur at <100 m and at < 200 m for fish;
- most invertebrates, dugong and small toothed whales have poor hearing at low frequencies (e.g. the range of seismic discharges);
- some fishes, baleen whales and possibly sea turtles may hear seismic sounds well and behavioural changes may occur at greater distances;
- it is possible that animals will habituate to sound;
- behavioural impacts can include flight response, displacement, dispersal, and disruption of feeding or breeding activity;
- operating seismic vessels for protracted periods across narrow, restricted migratory paths may hinder the passage of migrating animals;
- the greatest risk from marine seismic surveys to marine animals appears to be during breeding or spawning periods;
- provided that seismic surveys are avoided at locations and times of particular sensitivity, and given the relatively small scale of seismic activity, the often large scales over which biological events occur, the low probability of

encounter between seismic surveys and 'at risk' populations at an appropriate time and place, then the wider implications of disruption by seismic surveys appear to be small for most species.

Cetaceans

Baleen whales such as blue, southern right and humpback whales, communicate by low frequency sounds and are therefore considered to be the most sensitive of the marine mammals to specific low frequency sounds. The hearing of baleen whales is thought to overlap with the energy output of seismic related noise. The proposed timing of the seismic surveys in March, is outside of the migration period for southern right and humpback whales.

Because of the good swimming abilities of marine mammals and their avoidance of either the vessel or the seismic source, it is highly unlikely that any marine mammals will be exposed to levels likely to cause pathological damage.

"Specified Manner" conditions assigned by the Commonwealth government (The Department of the Environment & Water Resources - DEWR) for the proposed seismic survey activity will be adhered to throughout the entire surveys.

Some of the protection measures included in the DEWR "Specified Manner" conditions include:

- Visual observations during daylight hours within a 3 km radius around the survey vessel for the presence of whales 90 minutes before the commencement of any high-energy acoustic source,
- Discharge of the acoustic source will not commence unless there are no whales within a minimum distance of 3 kilometres from the survey vessel,
- If whales are detected within this zone the start up of acoustic sources will be delayed until they have been observed to move outside the 3 km radius or, if they are no longer observable, 30 minutes after the last sighting within 3 km,
- Soft start procedures *i.e*. a sequential build up of "warning" pulses over a 20 minute period will be activated prior to the commencement of operations to deter fauna from entering the zone of influence,
- If whales are sighted during this soft start procedure within the 3 km zone, the seismic source will be powered down to the minimum audible source. Re-commencement of soft start procedures will take place after 30 minutes has lapsed since the last whale sighting within the 3 km zone,
- cetacean sightings will be recorded and reported to DEWR.

A dedicated Marine Mammal Observer (MMO) will be stationed on the survey vessel throughout the duration of the surveys, in order to implement the DEWR "Specified Manner" conditions and record cetacean sightings.

Given the timing and location of the seismic programs and the adherence to DEWR "Specified Manner" conditions, the risk of effects to cetaceans from the proposed seismic programs is considered negligible.

Commercial Fisheries

The view held by commercial fisherman is that seismic activities are disruptive to their fishing operations. The potential impacts on commercial fisheries in the Gippsland Basin is summarised as follows (V = Victoria managed fishery, C = Commonwealth managed fishery):

- no overlap with seismic programs, no potential impacts – Abalone[v], Wrasse[v], Ocean General[v], Southern Squid Jig[c], Eastern Tuna and Billfish[c], Jack Mackeral (Small Pelagics)[c]
- slight overlap with seismic programs, small potential for gear entanglement – Rock Lobster (low yield areas) and Giant Crab[v]
- slight overlap with seismic programs, small potential for disruption to deployment of fishing gear, no evidence of impacts to target species – Bass Strait Central Zone Scallop[c] (low yield areas)
- some overlap, potential for disruption to deployment of fishing gear, potential impact likely to be transient as fish disperse within large fishing grounds –, South East Trawl[c], Gillnet, Hook and Trap[c],.

Potential impacts on commercial fisheries are largely due to navigational conflicts, given that seismic vessels tow long arrays and fishers often deploy trawl nets or long lines over the same areas. Effective communication and up to date notification of the location of the seismic vessel to commercial fishermen in the region along with a dedicated chase vessel to manage the interaction with any possible fishing vessels will alleviate this.

Disposal of Wastes

All wastes generated on the survey vessel will be managed in accordance with the P(SL)A clause 222 (Housekeeping) and MARPOL 73/78 regulations.

The risk of adversely affecting water quality within any of the survey areas is considered negligible based on the short duration that the vessel is at any one location, the highly dynamic and extensive receiving water and the small quantity and concentration of pollutants within waste-waters discharged from the survey vessel.

Potential Effects from Oil Spills

The hydrophone pockets of the streamers nominated for the survey, whilst predominantly solid streamers, contain a very small quantity of Isopear (kerosene) in order to maintain neutral buoyancy. This quantity of hydrocarbons is contained within individual partitions of the streamer that are baffled so if the streamer is punctured only a small section of fluid is lost and not the entire streamer contents.

The Western Trident has a draft of 7.5 metres. The shallowest area is the Marie survey with a depth range of 50 to 70 m. Due to the depth of water of the survey areas and the detailed bathymetry for the shallower section of the Marie survey, grounding of the vessel or streamers is considered a highly unlikely event.

The majority of the shipping activity occurs in the vicinity of the Elver survey area. The potential for a hydrocarbon spill resulting from the collision of the seismic vessel with another ocean going vessel is considered negligible for the following reasons:

- radio communication will be maintained with any vessels observed transiting the area;
- information on the location and timing of the seismic programs will be communicated to vessels via AMSA through a ‘Notice to Mariners’;

- notification of the position of the seismic vessel and the area proposed to be working in will be communicated to fishing industry representatives and forwarded to the vessel fleet. This will ensure no fishing vessels are operating within the nominated daily run line of the survey, and
- a chase vessel will help monitor the activities of other vessels in the area.

Introduced Marine Pests

The introduction of marine pests may occur through the discharge in Australian waters of ballast water taken up overseas. Australia has mandatory ballast water requirements to reduce the risk of introducing harmful aquatic organisms into Australia's marine environment through ship's ballast water. Australia's new ballast water management requirements have legislative backing and are enforced under the *Quarantine Act 1908.* These requirements are consistent with International Maritime Organisation (IMO) Guidelines for minimising the translocation of harmful aquatic species in ship's ballast water.

In order to comply with the Australian Ballast Water Management Requirements a full ballast water exchange at sea (Option 4 of the Requirements) will be conducted during the transit of the Western Trident from Singapore to Australian waters.

The seismic source arrays will be cleaned onboard the vessel when they are retrieved. The streamers will be inspected when retrieved and if there is substantial marine growth, a cleaning program may be implemented.

Management Controls

The following table summarises the key environmental risks associated with the surveys and the control measures to be implemented to reduce the risk to as low as practicable.

Activity & Potential Impact	Management Controls
Adverse effect to marine biota and the marine environment from noise from the airgun.	Environmental audit verifies adherence to EP. Compliance with DEWR "Specified Manner" conditions for avoiding interference with cetaceans.
Wastes disposed from the survey vessels.	Environmental audit verifies adherence to EP, such that these standards are being met. Environmental audit verifies that Western Geco procedures comply with requirements of MARPOL, for sewage & other waste disposal
Minimise risk of adverse effect to environment from hydrocarbons.	Environmental audit verifies adherence to EP, such that these standards are being met, e.g. designated containment areas for storage of oils, chemicals and streamer fluids. Environmental audit verifies that Western Geco procedures comply with requirements of MARPOL, e.g. oil record book sighted and kept up to date Any spills >80 L reported to DPI Manager Petroleum Regulation Consultation with AMSA and commercial fisheries Chase vessel
Minimise disturbance to other users.	Advice given to stakeholders with regard to location and timing of seismic surveys. AMSA Notice to Mariners Ongoing consultation process with Fishing Industry

Activity & Potential Impact	Management Controls
Minimise risk of introducing marine pests into Australian waters	Compliance to Australian Ballast Water Management Requirements (AQIS) Vessel log book records a full ballast water exchange at sea prior to entry into Australian waters.

CONSULTATION

Consultation with stakeholder groups, primarily commercial fishermen and their representative associations, concerning the proposed seismic programs was undertaken in the second week of January 2007.

The following organisations Apache has previously contacted associated with past seismic surveys undertaken in the Gippsland Basin, were contacted and informed of the proposed seismic programs:

- Seafood Industry Victoria;
- South East Trawl Fishing Industry Association;
- Lakes Entrance Fishermens Co-operative Ltd;
- South-east Fishery Association;
- Victorian Scallop Association;
- SeaNet Victoria;
- Australian Fisheries Management Authority;
- Department of Primary Industry Tasmania;
- Department of Primary Industry – Lakes Entrance Fisheries Officers;
- NSW Fisheries (Eden);
- Parks Victoria (Marine Parks Section);
- Australian Maritime Safety Authority;
- Esso;
- Anzon Australia; and,
- Santos.

These organisations were contacted by phone and followed up with an email notifying them of the details of the seismic survey and offering them an opportunity to obtain further information. Relevant fishing groups were sent additional poster information (hard and electronic copy) to advertise the proposed survey details on their public notice boards.

Apache plans to carry out further consultation with commercial fishing interests to ensure effective communication pathways with respect to the timing and location of the seismic vessel throughout the seismic programs.

FURTHER DETAILS

For further information on the Seismic Surveys please contact:

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