Bonaventure 3D Marine Seismic Survey Environment Plan: Public Summary

Coordinates of the Petroleum Activity

Table 1
Survey Area Coordinates

Easting	Northing
625893	7793882
628660	7812075
631804	7820425
640172	7817274
642384	7823150
661410	7835387
666241	7848232
678193	7843739
688298	7855933
703736	7850131
706984	7858775
726612	7851400
720639	7835510
711293	7839025
706724	7826877
717937	7822658
710376	7802575
703836	7805037
698204	7790091
665948	7802163
664117	7802928
659911	7791767
657456	7789183
643789	7787137
625893	7793882

Description of the Receiving Environment

The seabed in the survey area comprise loose, silty carbonate sands. Approximately 95% of the seabed surface is fine sand (<1 mm diameter). Biological productivity in the environment is expected to be limited due to low light attenuation at depth, low nutrient availability and the absence of hard substrates. ROV surveys undertaken at shallower locations on the North West Shelf have indicated that sediments are variously bioturbated, supporting a diverse burrowing infauna and sparse epifauna mainly sea pens (*Virgularia* spp). However, benthic communities are generally sparse with low densities of molluscs, crustaceans and worms (polychaete, sipunculid and platyhelminth) encountered.

A number of sharks and pelagic finfish, including mackerels, tunas and billfishes, occur in the waters of the North West Shelf and would be expected in the survey area. The deep offshore environment of the proposed survey area is typical of broad expanses of the continental slope and is not expected to represent habitat of particular significance to sharks and finfish.

Six species of sea turtle occur in northwestern Australian waters including the green, hawksbill, leatherback, flatback, loggerhead and olive ridley turtles. The nearest areas known to support turtle nesting are the beaches of island in the Barrow-Montebello Island complex, over 200 km east of the proposed survey area. The deep waters and distance offshore indicate the survey area is unlikely to represent critical habitat for these species.

Several species of whales and dolphins are known to frequent the waters of the North West Shelf. The humpback is the most common whale species in the Pilbara region. Humpbacks migrate between Antarctic waters and the Kimberley each winter to mate and breed. The main migration path is centred along the 200 m bathymetric contour. Migrating humpbacks pass the Montebello Islands between late July and early September. The survey area is over 100 km west of the main humpback whale migration pathway. The survey area is outside the blue whale migration period, migratory routes and aggregation areas.

Whales with widespread or tropical deep water distributions that may occur in the region, including Antarctic minke, Bryde's, killer, sperm, fin, sei and false killer whales are not expected to occur in significant numbers in the survey area. The survey area does not represent any recognised breeding, feeding or migratory areas for any cetacean species.

Description of the Action

Chevron Australia Pty Ltd (Chevron) proposes to undertake a 3D marine seismic survey of the WA-346-P, WA-364-P and WA-365-P permits in deep (1000 to 1600 m) Commonwealth marine waters, approximately 200 km west of the Barrow-Montebello Island Complex and 250 km northwest of North West Cape (Table 1). The survey will take approximately 100 days and is anticipated to occur between January 2006 and December 2006. Seismic data will be acquired using a purpose built seismic survey vessel towing a conventional array of airguns and hydrophones.

Details of Major Hazards and Controls

Risk analysis has been undertaken for all aspects of the proposed seismic acquisition program, in accordance with the procedures outlined in the Australian and New Zealand Standard AS/NZS 4360:1999 (Risk Management). The analysis indicates that the risk of significant adverse environmental effects from the survey is low. A summary of the environmental hazards, potential effects and management approaches adopted during the proposed programme are indicated in Table 2.

Summary of the Management Approach

Chevron's operations are conducted within a comprehensive corporate HES management framework, supporting the corporate commitment to 'Protecting People and the Environment' (Policy 530). This framework ensures a systematic approach to environmental management, with the environmental aspects of each project addressed from project conception, throughout project planning and as an integral component of implementation. All Chevron operations are managed in accordance with the Chevron Operational Excellence Management System (OEMS), which describes performance standards for each element of operations.

Consultation Details

Consultations with government and industry groups regarding seismic surveys at the proposed location have included:

- Department of Fisheries Western Australia (DoF)
- Australian Fisheries Management Authority (AFMA)
- Department of Environment and Heritage (DEH)
- Western Australian Fishing Industry Council (WAFIC)
- Western Australian Game Fishing Association (WAGFA)
- Northwest Game Fishing Association (NWGFA)
- Mackerel Island Fishing Charters
- Ashburton Fisheries (Onslow)

These consultations have indicated that: the proposed seismic program will not conflict with commercial or recreational fishing; no tourism or game fishing operators utilise the area of the proposed seismic program; and that there are no significant environmental sensitivities known for the area. Whilst key stakeholders will be advised of the start date of the survey prior to commencement, there are no plans for further consultations due to the short duration of the program.

Contact Details

Further information may be obtained by writing to:
Mr Peter Vaughan
Seismic Operations Team Leader
Chevron Australia Pty Ltd
QV1
250 St Georges Terrace
PERTH WA 6000.

Table 2
Summary of Environmental Hazards, Potential Effects and Management Approach

Environmental Aspect and Incident	Potential Environmental Effect	Management Approach	Risk
Acoustic impulse from air-guns.	Potential physiological effects or disruption to behaviour patterns of marine fauna.	Survey area is over 100 km west of the humpback migration pathway. Comply with DEH guidelines for minimising possible disturbance to cetaceans, including: • Visual observations during prestart procedures and during survey • Use of soft start procedures • Delay start up procedures/ shut down any operating acoustic source if whales are within 3km of survey vessel.	Moderate risk
Grey water/ sewage disposal.	Potential localised reduction in water quality - nutrient enrichment.	Treat in accordance with P(SL)A clause 222 and MARPOL 73/78 prior to discharge. Offshore discharge (>12 nm from land) only. High dispersal/dilution factor. Approved onboard sewage treatment plant. Biodegradable detergents only.	Low risk.
Discharge of oily water from bilges.	Potential localised and temporary acute toxic effects.	All bilge water passes through an oil/water separator prior to discharge. All bilge discharges treated to <15 ppm hydrocarbons; MARPOL 73/78 standard for oily water discharge. Discharge quality automatically monitored with alarm. Low volumes and rapid dilution/dispersal.	Low risk.
Putrescible galley wastes disposal.	Potential localised reduction in water quality - nutrient enrichment.	Low volumes and rapid dispersal/dilution. Maceration to <25 mm prior to discharge. Discharge only when >12nm from shore. Discharges in accordance with MARPOL 73/78 and P(SL)A Schedule Clause 222.	Low risk.
Solid wastes disposal.	Potential environmental degradation from incorrect disposal.	Onshore disposal of solid wastes in accordance with EP, WMP and MARPOL 73/78.	Low risk.
Waste oil disposal.	Potential localised chronic/acute toxic effects.	No waste oil disposed at sea. All waste oils collected and returned to shore for recycling/disposal in accordance with EP, WMP and MARPOL 73/78.	Low risk.
Atmospheric emissions.	Potential increase in greenhouse effect.	Engines maintained to operate at optimum efficiency to minimise emissions.	Low risk.
Artificial lighting.	Potential attractant/ disturbance to marine life.	Lighting minimum required for navigation and safety requirements. Extent of lightspill limited. Survey in remote location.	Low risk.

Anchoring activity.	Potential localised disturbance to benthos.	No anchoring on location except in emergency. No sensitive benthos.	Low risk.
Vessel collision.	Potential acute toxic effect on marine organisms from oil spill.	Vessel equipped with sophisticated navigation aids and competent crew maintaining 24 hour visual, radio and radar watch for other vessels. Other vessels made aware of seismic vessel's restricted ability to manoeuvre. Survey vessel carries navigation lighting. OSCP in place. Adhere to maritime standards requiring notification of vessel presence via notice to mariners. Seagoing movements of vessel will comply with maritime standards and AMSA standards.	Low risk.
Loss of streamer buoyancy fluid.	Potential acute toxic effect on marine organisms.	Strict adherence to streamer handling procedures. OSCP in place. Small volume. Very rapid evaporation.	Low risk.
Fuel loss during transfer	Potential acute toxic effect on marine organisms.	Strict adherence to refuelling procedures. OSCP in place. Small volume. Very rapid evaporation. Use of reinforced hoses with dry break couplings and fail-safe fittings. Absorbent materials kept on board vessels for immediate spill response.	Low risk.
Displacement of other users of marine environment.	Potential disruption to commercial fishing/vessel operations	Liaise with relevant authorities. Fishermen and other commercial mariners alerted of vessel presence. Notice to Mariners posted.	Low risk.