



NT/P 48 DRILLING ENVIRONMENT PLAN SUMMARY

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1. INTRODUCTION

Eni Australia Limited (Eni) proposes to drill the Evans Shoal North-1 exploration well (ESN-1) in permit area NT/P 48 off the Northern Territory (NT) coast. The permit area is located in the Eastern Bonaparte Basin, Arafura Sea, approximately 303km northwest of Darwin (Figure 1-1). Water depth at ESN-1 is up to 117m. Other nearby discoveries in the area include Heron, Blackwood, Caldita, Barossa, Abadi and Sunrise. Drilling is scheduled to commence in March-May 2013, subject to rig availability and other operational constraints.

An Environment Plan (EP) for this drilling program was prepared in accordance with the requirements of the Offshore Petroleum & Greenhouse Gas (Environment) Regulations 2009 (OPGGS(E) Regulations). The EP was reviewed and accepted by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in December 2012. This EP summary document has been prepared and submitted to NOPSEMA in accordance with Regulation 11(7) of the OPGGS(E) Regulations.

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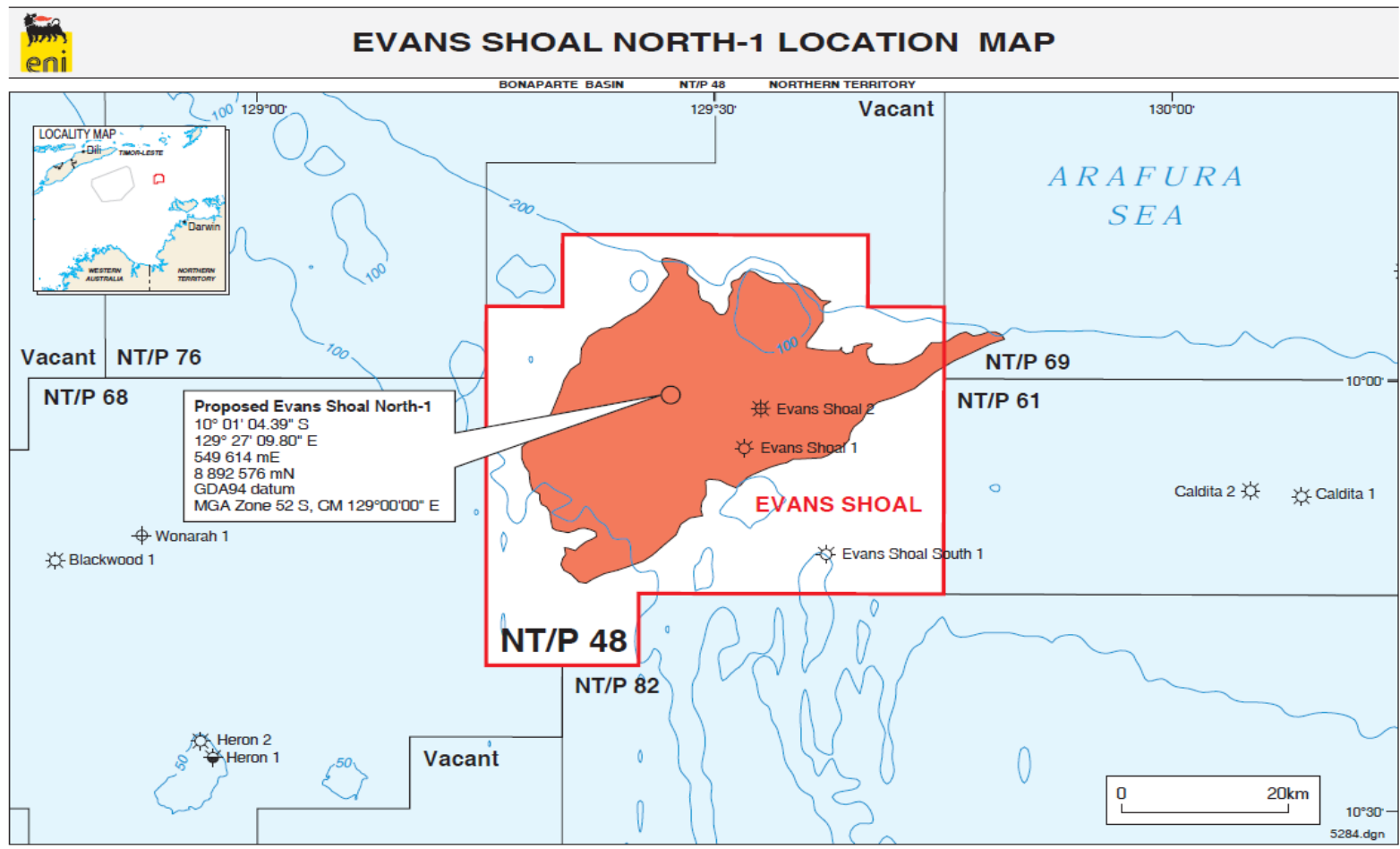



Figure 1-1: Location of the Evans Shoal structure in NT/P 48 permit area

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2. DESCRIPTION OF THE ACTIVITY


Evans Shoal North-1 will be drilled using a mobile offshore drilling unit. Drilling is expected to take 45 days (including plug and abandonment) and 20 days testing if commercial quantities of hydrocarbon are intersected.

The drilling activity includes:

1. Mobilising rig to permit area, positioning and anchor.
2. Installation and cementing of the well conductor pipe
3. Drilling of the top-hole sections using seawater and pre-hydrated bentonite sweeps
4. Installation and cementing of the drill casing string
5. Testing and installation of the blow out protector on the conductor pipe
6. Drilling to total depth with water based mud.
7. Undertaking logging and testing activities
8. Plugging and abandoning the well.

The following supporting activities are also planned:

- drill rig crew rotations by helicopter flying out of Darwin.
- rig support vessels (OSVs), operating out of Darwin, NT.

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3. DESCRIPTION OF RECEIVING ENVIRONMENT

3.1 Physical Environment

The region has a tropical monsoonal climate with two distinct seasons known as wet season (November-March) and dry season (April-September). Air temperatures are warm year-round, with maximums ranging from 31.1°C in July to 33.4°C in November (BOM 2011). Average annual rainfall is around 1999 mm (BOM 2011)¹, most of which is recorded during the wet season and often influenced by tropical cyclone activity. Wind directions are predominantly westerly from December to March (wet season) and easterly from March to November (dry season).

The NT/P 48 permit area (within which the ESN-1 well is located) lies on the Van Dieman Rise, a region of complex geomorphology, characterised by carbonate banks dissected by extensive palaeo-river channels, some up to 150km long and 5km wide. Much of the seabed in the permit area is relatively flat and featureless with depths ranging from 80 to 320,m before dropping sharply to 3000m in the Timor Trough, which runs parallel to the Island of Timor.

Currents in the Timor Sea region are influenced by the Pacific-Indian Ocean Through-flow which transfers warm, low salinity waters from the western Pacific into the Indian Ocean. Surface currents reflect seasonal wind regimes, with easterly to north-easterly currents in wet season, and westerly to south-westerly currents in dry season.

Seawater temperatures in the permit area are warm, ranging from 27°C to 30°C.


3.2 Biological Environment

The Timor Sea has a highly diverse array of invertebrate groups, with polychaetes and crustaceans being the most prolific species (Heyward et al 1997, CEE 2002). Surveys indicate that at depths between 50 and 200 m the benthos consists of predominantly soft, easily resuspended sediments. The diversity and coverage of epibenthos is low and organisms present are predominantly sponges, gorgonians and soft corals.

A number of EPBC Act listed threatened and migratory species could occur in the offshore waters surrounding the permit area, including:

- six marine mammals (including 4 whales, a dolphin and a dugong);
- six turtles;
- three fish (including two sharks and a sawfish); and
- one migratory bird.

¹ Based on data from Melville Island (Pirlangimpi weather station) (BOM 2011)

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All species listed above are widely distributed in the offshore marine environment, and the NT/P48 permit area does not contain particular habitat utilised for breeding, feeding or aggregation by these animals.

A number of other marine species that are protected under international agreements (and therefore the EPBC Act), but are not considered to be threatened with extinction, could also occur in the vicinity of NT/P48. These include dolphins, pipefish and seasnakes.

The permit area is located within the area referred to as the “Carbonate bank and terrace system of the Van Diemen Rise.” This key regional ecological feature is recognised for its ecological role in enhancing biodiversity and local productivity, relative to its surrounds (mainly due to the upwelling of cooler nutrient rich waters and the inflow of warmer oligotrophic waters of lower salinity from the Indonesian Throughflow).

There are currently no marine conservation areas in the vicinity of the permit area.

A number of new Commonwealth Multiple Use Zone² marine reserves have recently been proposed by the Australian Government as part of a marine bioregional planning process, under the EPBC Act. One of these proposed marine reserves, the Oceanic Shoals Commonwealth Marine Reserve, is located to the south of the NT/P48 permit area.


3.3 Socio-economic Environment

3.3.1 Commercial Fisheries

The Timor Sea (including the permit area) is an active commercial fishing area used by both Australian and Indonesian fishermen. There are six main Australian commercial fisheries operating in the region of the permit area including:

- Timor Reef Fishery (Goldband Snapper Fishery);
- Northern Territory Demersal Fishery;
- Northern Territory Spanish Mackerel Fishery;
- Northern Territory Finfish Trawl Fishery;
- Northern Territory Shark Fishery; and
- Northern Prawn Fishery.

² The Oceanic Shoals Commonwealth Marine Reserve is to be established as a Multiple Use Zone (IUCN VI), in which a range of existing activities (including petroleum exploration and production, and commercial fishing) may continue but some types of fishing are not permitted (e.g. pelagic gillnets, set mesh nets, demersal longlines, bottom trawling), based on the high risk that they pose to the conservation values of the reserves (SEWPAC 2011a).

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3.3.2 Commercial Shipping

Some commercial shipping can be expected to pass through the permit area, although it does not coincide with a major shipping route (National Oceans Office, 2004). Vessels travelling between Darwin and the major Timor Sea petroleum fields tend to pass west of the survey area.


3.3.3 Oil and Gas Facilities

The Timor Sea is a highly prospective petroleum region and contains a number of known oil and gas fields. Operating facilities in the area include the Bayu-Undan Gas platform and the *Glas Dowl* FPSO (Kitan field, operated by Eni), both in the JPDA, and the *Northern Endeavour* FPSO at the Laminaria–Corallina fields west of the JPDA.

The NT/P 48 permit area contains several defined hydrocarbon structures, and at least three wells have been drilled in the permit area between 1988 and 2006. The Evans Shoal structure is one of these, and is the area of interest in this drilling campaign.

3.3.4 Heritage


There are no shipwrecks in the vicinity of the NT/P48 permit area, according to the Australian National Shipwreck Database (SEWPAC 2011b).

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4. ENVIRONMENTAL RISK ASSESSMENT

All risks were assessed using Eni's using *Risk Management and Hazard Identification* procedure (ENI-HSE-PR-001) and associated environmental risk matrix. With controls in place, all risks were ranked as Low and therefore deemed acceptable. The following table summarises key aspects associated with the proposed drilling program and the control measures that will be implemented to prevent or reduce impacts to as low as reasonably practicable (ALARP).


Source of Risk	Risk Control
<i>Disturbance to marine fauna</i>	
Noise/ vibration	<ul style="list-style-type: none"> • Induction of all personnel to include the requirement to report cetacean sightings. • Cetacean interaction guidelines for vessels (DEH 2006), i.e. avoid travelling within 300 m of a whale. • Cetacean interaction guidelines for aircraft (DEH 2006) as it refers helicopters, i.e. no flying lower than 500 m within a 500 m radius of a whale or dolphin.
Seabed disturbance	<ul style="list-style-type: none"> • Geotechnical, geophysical and ROV data will be used to choose a stable spud location free of unusual seabed features.
Light	<ul style="list-style-type: none"> • The rig will be lit using fluorescent lights that meet required safety standards.
Introduction of marine pests	<ul style="list-style-type: none"> • The rig has been operating in Australian waters for 3 years prior to drilling in the NT/P48 permit area. • The rig and support vessels will remain within Australian waters during the drilling program, with travel only between Darwin and the permit area. • Ballast water from a foreign port will not be discharged into Australian waters less than 200 m deep. • Ballast water records will be maintained onboard.
<i>Discharges</i>	
Discharge of WBM	<ul style="list-style-type: none"> • Drilling fluids are reviewed and selected based on technical suitability and by having an acceptably low effect on the environment (including ecotoxicity and dosing requirement characteristics).

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Source of Risk	Risk Control
Overboard discharge of potentially oil-contaminated deck drainage	<ul style="list-style-type: none"> Absorbents and containers available on the drill rig and all support vessels to clean up small accumulations of oil and grease around work areas and decks. Use of environmentally friendly rig wash detergent. Deck drains on all vessels will be routed to an oil-water separator and monitored for oil in water (OIW) content prior to discharge. Oily water from machinery space bilges would be captured and directed to a sludge tank, which in turn drains into a slops tank. Process and utility equipment will also be connected to a closed drainage system to allow draining and appropriate treatment of fluids prior to appropriate disposal or re-use. No wastes will be routinely discharged via deck wash-down. Anchor Handling Supply Vessels (AHSV) have chemical transfer and usage procedures for use of chemicals on board and on deck which isolate and contain the risk of unintentional discharges to the marine environment.
Cement (disposal of excess to the seabed)	<ul style="list-style-type: none"> Eni have selected cement and associated chemicals which are benign and do not pose a risk the environment. Eni will minimise the volume discharged to the sea during the conductor cementing operations by ceasing pumping on detecting returns to seabed by ROV.
Sewage, grey water and putrescible wastes	<ul style="list-style-type: none"> All sewage to be treated by an extended aeration system and discharged in accordance with MARPOL Annex IV (Regulation 11). All food scraps and putrescible wastes to be comminuted (ground) to <25 mm and discharged in accordance with MARPOL Annex V (Regulation 3).
Disposal of BOP fluids	<ul style="list-style-type: none"> BOP fluids are reviewed and selected based on technical suitability and low toxicity in the marine environment

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Source of Risk	Risk Control
<i>Solid and hazardous waste</i>	
General rubbish	<ul style="list-style-type: none"> All solid wastes will be returned to the Australian mainland for appropriate onshore disposal. All bins on deck will be covered to prevent rubbish blowing away Induction of all personnel includes information on waste management procedures. Good housekeeping practices, including segregation of wastes.
Waste oils and chemicals	<ul style="list-style-type: none"> All hazardous wastes will be returned to the Australian mainland for appropriate onshore disposal. Hazardous wastes stored in appropriate containers, segregated from non-hazardous wastes. Hazardous wastes will be labelled and transferred, in accordance with Material Safety Data Sheet (MSDS) instructions. Induction of all personnel includes information on waste management procedures. Good housekeeping practices, including segregation of wastes.
<i>Atmospheric emissions</i>	
Emissions from power generation	<ul style="list-style-type: none"> Drilling rig surveyed and issued with International Air Pollution Prevention Certificate Planned maintenance program in place for the drilling rig. Equipment will be maintained to manufacturer's specifications. Selection of low sulphur diesel in line with MARPOL requirements to minimise SOx emissions.
Flared hydrocarbons	<ul style="list-style-type: none"> Relatively low volumes of gas will be flared.
Ozone depleting substances	<ul style="list-style-type: none"> An ODS inventory shall be maintained and reviewed to ensure compliance with MARPOL Annex VI (Regulation 12). There will be no discharge of ODS except in the case of a helicopter emergency. Any release of ODS will be reported as an environmental incident and investigated.
<i>Socio-economics</i>	

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Source of Risk	Risk Control
Interference with commercial fishing	<ul style="list-style-type: none"> Fishing industry representatives informed prior to drilling program via consultation letters and meetings. An exclusion zone of 500-m radius will apply around the drilling rig. A supply vessel will always be at the rig site. Navigation lighting and permanent watch aboard the rig and support vessels. Regular communications bulletins prior to and throughout the drilling program.
Interference with shipping	<ul style="list-style-type: none"> Notification to Regulatory Authority and AMSA and establishment of 500 m exclusion zone around drilling rig. Navigation lighting and permanent watch aboard the rig and support vessels. Regular communications bulletins prior to and throughout the drilling program.
<i>Uncontrolled events</i>	
Loss of well control and blow-out (Condensate spill)	<ul style="list-style-type: none"> Gas wells with minimum condensate The Well Control Response Plan (Bridging document) for well control procedures to clarify Eni and rig owners responsibilities, with respect to: <ul style="list-style-type: none"> testing the BOP prior to commencement of operations and regularly during operations; pressure testing casing strings; continuously monitoring for abnormal pressure parameters during drilling; ensuring the drill crew is fully trained in emergency and well control procedures Include description of OSCP in inductions for all crew. Hydrocarbon detection systems in place. BOP in place for drilling lower hole sections. Overbalanced drilling. Notification to NOPSEMA and AMSA. Establishment of 500 m exclusion zone around drill rig.
Leak from fittings and connections (Condensate or diesel spill)	<ul style="list-style-type: none"> Pressure tested equipment. Planned maintenance programme. Onboard spill response procedures detailed in SOPEP

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Source of Risk	Risk Control
Flare during well testing (Condensate and well-test effluent spill)	<ul style="list-style-type: none"> • Manual ESD system around rig. • Well test equipment validation by 3rd party. • All equipment function tested prior to start. • Continually manned operation. • Flare watchers posted. • 2 pilots at each burner. • Filters on propane supply. • High efficiency burners. • Back-up compressor. • Surge tank available.
Refuelling incident (Diesel spill)	<ul style="list-style-type: none"> • Refuelling will be carried out under the Permit-To-Work system. • Refuelling will be undertaken only during periods of calm weather and preferably in daylight hours. • Low refuelling frequency due to large onboard storage capacity • Transfer hoses will be fitted with 'dry break' couplings and pressure tested prior to transfer commencing. • Refuelling operations will be overseen by the rig's OIM.
Vessel collision (Condensate or diesel spill)	<ul style="list-style-type: none"> • Rig fuel tanks are located internally, protected by double-skinned hull. • Oil spill response equipment (e.g. dispersant) available through AMOSC. • A supply vessel will always be at the rig site. • Notification to Regulatory Authority and AMSA, and establishment of 500 m exclusion zone around drill rig. • Automatic Radar Plotting Aids (ARPA).
Leaks of hydraulic fluids	<ul style="list-style-type: none"> • Preventative maintenance. • Low toxicity hydraulic fluids used. • Manned operation (visual detection of release). • Drip pans/bunds.
Chemical spills, e.g. during bulk transfer	<ul style="list-style-type: none"> • Transfers will be carried out under the Permit-To-Work system. • Transfers will be undertaken only during periods of calm weather and preferably in daylight hours. • Transfer operations will be overseen by the rig's OIM. • All crane operators licensed and competencies are assessed.

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5. OVERALL MANAGEMENT APPROACH

Eni is committed to achieving the highest practicable standard of environmental protection and this commitment is documented in the Eni Health, Safety and Environment (HSE) Policy. This policy is supported by Eni's ISO14001:2004 certified HSE Integrated Management System (IMS) which provides audited assurance of a best practice environmental management system based on continual improvement.

Eni conducts operations in accordance with the above internal policies and management systems along with relevant publicly available policies. In addition to implementing risk controls, the operation will comply with key requirements and legislation, including (but not limited to):


- NT/P48 Environment Plan (ESN1_HSE_W_WE.0004) and associated Eni NT/P48 Drilling Oil Spill Contingency Plan (ESN1_HSE_C_CS.0010);
- Drill rig Emergency Response;
- Offshore Petroleum and Greenhouse Gas Storage Act 2006 and the associated OPGGS(E) Regulations;
- Australian Quarantine & Inspection Service (AQIS) Regulations
- MARPOL 73/78, as enacted under *Protection of the Sea (Prevention of Pollution from Ships) Act 1983*; and
- APPEA Code of Environmental Practice.

Specific responsibilities identified with respect to environmental management arrangements (i.e. control implementation) are assigned in the accepted EP's implementation strategy. This will help ensure that the environmental risks associated with the drilling program are maintained at a level which is ALARP.

Environmental performance objectives are defined for each environmental aspect. These objectives are monitored and reviewed against key performance standards to ensure environmental outcomes are achieved drilling program.


Monitoring of environment performance will be undertaken in a number of ways, including the use of the following tools and systems:

- Internal reporting, including daily (e.g. fuel inspection logs) and as required (e.g. waste manifest, incident reports etc.);
- External reporting, such as regulatory reporting (e.g. Well Environmental Report);
- Scheduled inspections; and
- Auditing and assurance of operating facilities.

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Environment incidents will be investigated to identify prevention measures. Incidents will be reviewed to promote on-going environmental awareness. The relevant Regulator (i.e. NOPSEMA or AMSA) will be notified of all reportable incidents.

All Eni and contractor personnel will receive training on their environmental responsibilities in connection with the drilling campaign. The environmental induction will instruct personnel on the issues and management actions identified in the EP.

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6. CONSULTATION

Stakeholder assessment was undertaken to identify potentially affected and interested stakeholders based on the well location, proposed activities and timing.

A consultation fact sheet was sent electronically to all identified stakeholders prior to lodgement of the EP to NOPSEMA for assessment and approval. This was supported by engagement with potentially affected stakeholders, relevant regulators and industry associations.

The stakeholder group identified to be potentially most affected was the Northern Territory Demersal, Timor Reef (Goldband Snapper Fishery), Spanish Mackerel and Shark Fishery. Consultation was undertaken with the group representing these fisheries, the NT Seafood Council, as well as individual licence holders. The NTSC and individual licence holders stated that they had no major concerns with the drilling program. The parties agreed to stay in close communication up to and throughout the drilling program.

Eni has not received any material concerns from stakeholders prior to or after lodgement of the NT/P48 Environment Plan for assessment and acceptance. Eni will continue to accept feedback from stakeholders during the drilling program. During drilling, regular Communications Bulletin will be issued to all stakeholders.

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7. CONTACT DETAILS

The nominated contact person for this proposal is:

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