BLACKTIP OFFSHORE ENVIRONMENT PLAN SUMMARY

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	Plant Area	Plant Unit

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1. ACRONYMS

ACRONYM	DEFINITION
ALARP	As Low As Reasonably Practicable
CEP	Condensate Export Pipeline
DAFF	Department of Agriculture, Fisheries and Forestry
DotE	Department of the Environment
Eni	Eni Australia Limited
EP	Environment Plan
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999*
ESD	Emergency Shutdown
GEP	Gas Export Pipeline
GHG	Greenhouse Gas
HSE	Health, Safety and Environment
IAPP	International Air Pollution Prevention
IMS	Integrated Management System
IMO	International Marine Organisation
IOPP	International Oil Pollution Prevention Certificate
ISPP	International Sewage Pollution Prevention
MARPOL	International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto
MSDS	Material Safety Data Sheet
NEBA	Net Environmental Benefit Assessment
NIMS	Non-Indigenous Marine Species
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority
NPF	Northern Prawn Fishery
NT	Northern Territory
OPGGS Act	*Offshore Petroleum (and Greenhouse Gas Storage) Act 2006*
OPGGS (E) Regulations	Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009
OSCP	Oil Spill Contingency Plan
OWS	Oily Water Separator
QPAR	Quarantine Pre-arrival Report
SOPEP	Shipboard Oil Pollution Emergency Plan
SPM	Single Point Mooring
SSIV	Subsea Isolation Valve
WHP	Wellhead Platform
YGP	Yelcherr Gas Plant
ZPI	Zone of Potential Impact

2. INTRODUCTION

2.1 Project Background and Location

Eni Australia Limited (Eni) operates the Blacktip Gas Field, approximately 300 km west-south-west of Darwin, located in Lease Area WA-33-L in the Joseph Bonaparte Gulf (Figure 2.1). The field consists of a small unmanned offshore Wellhead Platform (WHP), a subsea pipeline bringing whole well stream fluid (i.e. gas, condensate and produced water) to the Yelcherr Gas Plant (YGP) near Wadeye in the Northern Territory (NT) (Figure 2.2). The YGP has been operational since August 2009.

2.2 Purpose and Scope of this Document

An Environment Plan (EP) for this drilling campaign 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 March 2014. This EP summary document has been prepared and submitted to NOPSEMA in accordance with Regulation 11(7) of the OPGGS (E) Regulations.

2.3 Operator Contact Details

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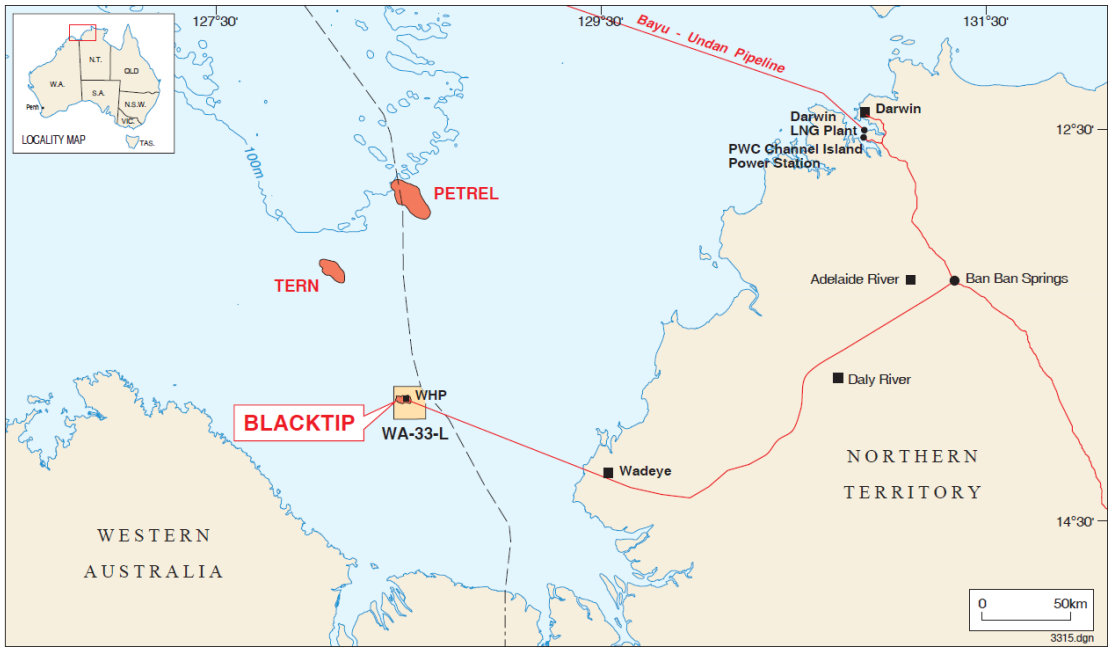

Figure 2.1: Blacktip field location and WA-33-L Permit Area

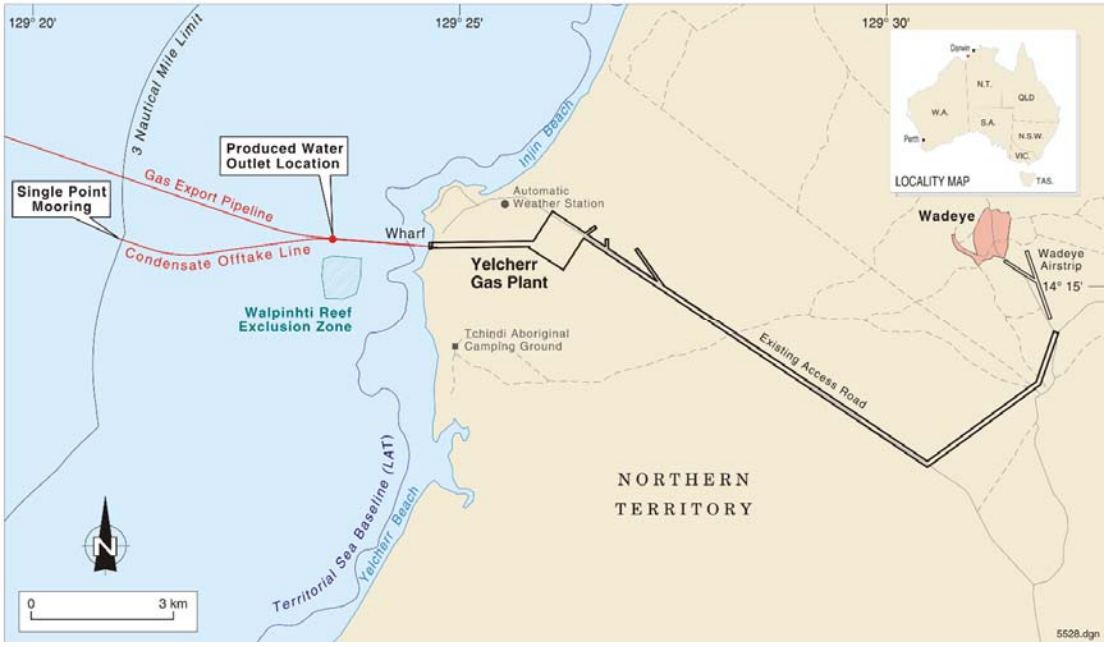

Figure 2.2: Yelcherr Gas Plant

3. DESCRIPTION OF THE ACTIVITY

3.1 Infrastructure

Infrastructure consists of:

- the WHP, normally unattended, of fixed steel jacket structure;
- an 18“ carbon steel, multi-phase subsea export pipeline bringing produced fluids to shore;
- an onshore gas plant, consisting of separation, gas dehydration, compression, condensate storage and produced water treatment facilities; and
- a condensate export system comprising of an export pipeline and a single point mooring (SPM) and offloading system.

Gas is drawn from the Blacktip field via the unmanned WHP and piped to the YGP via the gas export pipeline (GEP) where it is processed. Processed and non-odorised natural gas is piped by Australian Pipeline Trust to the customer, NT Power and Water Corporation, for use within NT.

Stabilised condensate is stored on site at the YGP before being exported via sub-sea pipeline to a SPM, located approximately 7 km offshore, for loading to tankers and transport to market.

The production life of the field is planned to be 25 years based on the initial gas sales contract. The design life of the Blacktip facilities is 30 years.

3.2 Routine Operations

The WHP has minimal facilities and production operations are limited to the operation of the Xmas Tree valves, which are done remotely from the YGP. The GEP is operated with control of flow of hydrocarbons from the WHP and isolations from the well, riser, Subsea Isolation Valve (SSIV) and plant inlet valve all controlled from the YGP. Activities in the field are limited to:

- periodic tanker vessel off-takes from the SPM; and
- inspection, maintenance and repair activities (including surveys such as side-scan sonar and remotely operated vehicles).

Helicopter is the preferred method of transporting personnel to the WHP. Helicopter trips to the WHP occur on average once or twice a month and are mostly less than a day in duration. Vessels are used to access the SPM (and WHP when helicopters are not an option as mentioned above). Typically this involves the use of a single vessel, with visits to the WHP and SPM occurring on average once or twice a month. Duration of campaigns can vary from a single day up to a

week, with personnel accommodated on the vessel. Additionally, surveys of the offshore pipelines can occur approximately twice per year.

3.3 Well Operations - Rigless Well Intervention Activities

Rigless well intervention activities (e.g. using slick line) are likely to consist of a five-day duration visit every four years for eight personnel using marine access. As with campaign maintenance described above, work on the WHP would be restricted to daylight and personnel would be accommodated on the workboat.

3.4 Diving Activities

Diving operations associated with the subsea infrastructure can be conducted from an associated facility, such as a diving support vessel or construction vessel. Activities that may take place on the subsea components of the WHP and SPM/Pipeline End Manifold, and pipelines include:

- welding, inspection, cleaning, repair, installation and disconnection activities;
- visual inspections for example gross and close visual inspection, marine growth surveys;
- cleaning of marine growth;
- various forms of non-destructive testing for example magnetic particle inspection, alternating current field measurement, ultrasonic testing, cathodic potential measurements;
- repair works for example anode replacement, clamp maintenance;
- light construction activities for example riser support or structural member reinforcement, removal of redundant ancillary structures using oxy-arc cutting or cold cutting techniques;
- rigging and lifting to support the above activities; and
- general survey and measurements including the use of video and still photography.

3.5 Pigging Operations

A vertical GEP pig launcher is installed on the WHP with a pig receiver located at the YGP. The Condensate Export Pipeline (CEP) has provision for installation of temporary pig launchers and receivers. The pigging operations are typically managed by a specialist pigging contractor with support from Blacktip operations personnel.

Pigging is primarily carried out for asset integrity purposes, which may include pipeline monitoring and corrosion inhibitor batching. The pigging campaign to achieve this will also include line-sweep and cleaning.

4. DESCRIPTION OF THE ENVIRONMENT

4.1 Physical Environment

Joseph Bonaparte Gulf is a large embayment on the north-western continental margin of Australia. It is approximately 300 km east-west and 120 km north-south with a broad continental shelf to seaward. Maximum width from the southern-most shore of Joseph Bonaparte Gulf to the edge of the continental shelf is 560 km. Several large rivers enter the gulf along its shoreline.

The region has a tropical monsoon climate with two distinct seasons, a wet summer season from October to March, followed by a dry winter season from April to September. Mean daily maximum temperatures for Port Keats range from about 30°C to 34°C, and minima from 14.5°C to 25°C.

Annual rainfall is 1,521 mm. Almost all rainfall occurs between November and April, with the greatest falls being in January and February. The frequency and severity of the thunderstorms produce a large variation in the monthly rainfall. Rainfall during the dry months is sporadic and light.

Winds during the wet summer season are predominantly from the north-west and during the dry winter season from the south-east. The region is affected by cyclones at an average annual rate of 0.6 cyclones per year.

Lease Area WA-33-L is located in the upper (outer) reaches of the Joseph Bonaparte Gulf, in an area of relatively flat seabed. The seabed is flat and featureless and contains very soft, grey-green, gravelly sand clays.

The Joseph Bonaparte Gulf experiences a semidiurnal tide with a large range and correspondingly strong tidal currents. Due to the large tidal range and high currents, the water column is expected to be well mixed all year round with respect to temperature.

4.2 Biological Environment

The marine fauna of northern Australia is part of the Indo-West Pacific biogeographical province. The majority of species are widely distributed in this region, with the northern part of the Australian continent being a small part of the wider ranges of most species.

The lower part of Joseph Bonaparte Gulf, to the south of the Blacktip field, is relatively shallow with a coastline dominated by sand banks, extensive mudflats, mangrove systems, tidal creeks and the estuaries of the Victoria River system and Cambridge Gulf. Waters are extremely turbid in this part of the Gulf due to

the large tides and periodic flow of sediment-laden water from the Victoria River system and Cambridge Gulf.

The following pelagic species have been identified as potentially occurring in the Zone of Potential Impact (ZPI):

- plankton;
- fish;
- cetaceans;
- dugongs;
- marine turtles;
- sea snakes;
- sharks; and
- avifauna.

4.2.1 Matters of National Environmental Significance

A review of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) database (Protected Matters Search Tool) (October 2013) identified a number of listed threatened and migratory species could occur in the offshore waters surrounding the Permit Area, including:

- seven birds, with one listed as vulnerable (Australian Lesser Noddy);
- ten marine mammals, including six whale, three dolphin species and the dugong, with one listed as endangered (Blue Whale) and one vulnerable (Humpback Whale);
- six turtles, with three listed as endangered (Loggerhead, Leatherback, Olive Ridley) and three listed as vulnerable (Hawksbill, Flatback, Green Turtle); and
- five fish, with one listed as vulnerable (Whale Shark).

A number of other matters protected under the EPBC Act, but not considered to be threatened, may also occur in the offshore Permit Area. These include listed species of fish (predominantly pipefish and seahorses), reptiles (sea snakes) and species of whales and dolphins.

4.3 Socio-Economic Environment

4.3.1 Commercial Fishing

A number of commercial fisheries exist within or adjacent to the Blacktip Project area. Of those identified, it appears that fishing effort is limited in all fisheries except for the Northern Prawn Fishery (NPF).

Traditional and subsistence fishing is generally limited to shorelines, creeks and nearshore reefs. There is not expected to be any non-Indigenous recreational boating or fishing activity in the immediate vicinity of the nearshore Project. Given the distance offshore, recreational fishing in the vicinity of the WHP is unlikely.

4.3.2 Commercial Shipping

There is no major commercial shipping in the vicinity of the well site. Traffic is limited to infrequent visits by NPF and other fisheries whose boats are typically 13-25 m in length. Supply vessels for the operations will travel to and from Darwin to the site.

4.3.3 Oil and Gas Activities

The North-west Marine Region and North Marine Region are highly prospective petroleum regions and contain a number of known oil and gas fields.

4.3.4 Marine-Based Tourism

Apart from the possibility of an occasional passing private motor vessels or yachts, there are no known tourism interests in the area.

4.3.5 Defence Activities

Boarder Protection Command patrols the waters for illegal fishing, prohibited imports and exports, quarantine threats and illegal activity in the Marine reserves. An ‘all military operation training area’ is situated south-west of the Darwin port down past Wadeye and just over the Western Australian border.

4.4 Conservation Interests

4.4.1 Indigenous and non-Indigenous Heritage

There are no known Aboriginal or European heritage or archaeological sites of significance or heritage sites in the vicinity of Permit Area WA-33-L.

4.4.2 Marine Reserves

The North Commonwealth Marine Reserves Network includes eight Commonwealth Marine Reserves, including Joseph Bonaparte Gulf, Oceanic Shoals and the Kimberly.

5. 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).

The environmental hazards and control measures to be applied are summarised in Table 5.1.

Table 5.1: Summary of environmental hazards and control measures to be applied

Source of Risk	Potential Impact	Control Measure
Planned Activities		
R1 - Exhaust gas emissions from power generation at the WHP.	Localised effect on air quality. Contribution to global atmospheric concentrations of greenhouse gas (GHGs).	• Equipment maintained to manufacturer's specifications. • Gas consumption monitored and reported.
R2 - Vessel combustion engine emissions.	Localised effect on air quality. Contribution to global atmospheric concentrations of GHGs.	• Comply with the MARPOL 73/78 Annex VI which sets limits on NO_X and SO_X emissions from ship exhausts and prohibits deliberate emissions of ozone depleting substances. • Use low sulphur fuel (to minimise SO_X emissions). • Hold a current International Air Pollution Prevention (IAPP) Certificate. Have a routine inspection/maintenance schedule of combustion equipment, and keep records of fuel type used and quantities. • Keep records of fuel type used and quantities.
R3 - Airborne noise generated from helicopters.	Potential physiological effects or disruption to behaviour patterns of cetaceans, turtles, seabirds. Behavioural change in marine fauna (localised avoidance/attraction). Hearing impartment and pathological damage to marine fauna.	• Cetacean interaction guidelines for aircraft as it refers helicopters, i.e. no flying lower than 500 m within a 500 m radius of a whale or dolphin.
R4 - Underwater noise generated during vessel movements.	Potential physiological effects or disruption to behaviour patterns cetaceans, turtles, seabirds. Behavioural change in marine fauna (localised avoidance/attraction). Hearing impartment and pathological damage to marine fauna.	• Vessels will not approach within 300 m of a cetacean, in accordance with the EPBC Act Regulations 2000 and the Australian National Guidelines for Whale and Dolphin Watching. • All opportunistic sightings of whales will be recorded and forwarded to Department of the Environment (DotE).

Source of Risk	Potential Impact	Control Measure
R5 - Vessel movements causing injury to marine megafauna.	Collision resulting in death to turtles or cetaceans, or disruption to behaviour patterns by increased activity in the area.	• Comply with the EPBC Regulations 2000 (Regulation 8.05) and the Australian National Guidelines for Whale and Dolphin Watching (DEH 2005). • Should any cetaceans or relevant megafauna be observed in the vicinity of operational vessels, all necessary care to avoid collisions will be taken.
R6 - Leaching of anti-fouling paints from hull surface into the marine environment.	Localised toxicity to marine life and accumulation in marine sediments.	• All vessels to comply with the MARPOL 73/78 Annex I, which states that all ships shall not apply or re-apply organotins compounds which act as biocides in anti-fouling systems.
R7 - Discharge of ballast water from vessels potentially containing Non-Indigenous Marine Species (NIMS) into the surrounding marine environment.	Establishment of NIMS causing displacement and/or loss of native species and reduction in biodiversity.	• All vessels will comply with Department of Agriculture, Fisheries and Forestry (DAFF) Ballast Water Requirements (2009). • Ballast water from a foreign port will not be discharged into Australian waters less than 200 m deep or within 12 nm from land. • Ballast water records will be maintained onboard all vessels.
R8 - Biofouled vessels entering the field.	Establishment of NIMS causing displacement and/or loss of native species and reduction in biodiversity.	• Vessel contractor adheres to the International Marine Organisation (IMO) 'Guidelines for the Control and Management of Ships' Biofouling' 2012. • Biofouling records will be maintained on-board all vessels. • DAFF inspection prior to entering Australian waters, and records of Quarantine Pre-arrival Report (QPAR) submitted to DAFF prior to entry into Australian waters on-board vessels.
R9 - Discharge of black water, grey water and putrescible wastes from vessels into the marine environment.	Localised reduction in water quality. Localised nutrient enrichment of the receiving water.	• All sewage will 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). • International Sewage Pollution Prevention (ISPP) certificates are valid for each vessel. The ISPP certificate verifies the sewage systems on board comply with MARPOL requirements.
R10 - Overboard release of contaminated deck drainage into marine environment.	Toxicity or physical effects on marine biota. Adverse effects on water quality.	• Any spill onboard vessel will be managed in accordance with the Shipboard Oil Pollution Emergency Plan (SOPEP). • Spill response kits are available onboard all vessels and are kept fully stocked. • All vessels hold a current International Oil Pollution Prevention Certificate (IOPP) Certificate. • Deck drains on all vessels routed to a holding tank for onshore disposal or an oily water separator (OWS) and monitored for oil-in-water content prior to discharge. • Discharge oil-in-water content of <15 mg/l or less in accordance with MARPOL 73/78 Annex I and vessel Waste Management Procedures. • OWS alarmed and discharge ceases if this limit is breached. • Vessel Chemical Handling Procedures and Material Safety Data Sheet (MSDS) adhered to and chemicals stored in bunded areas.

Source of Risk	Potential Impact	Control Measure
R11 - Disposal of non-hazardous and hazardous solid waste.	Toxicity effects on marine fauna through ingestion or physical contact. Physical effects on fauna through entanglement or ingestion. Adverse effects on water quality.	• Wastes designated as hazardous or dangerous goods will be identified, packaged, segregated, handled, stored, transported and tracked in accordance with MARPOL 73/78 and applicable International Maritime Dangerous Goods requirements. • All solid and hazardous wastes will be returned to the Australian mainland for appropriate onshore disposal. • Induction of all personnel includes information on waste management procedures. • Good housekeeping practices, including segregation of wastes, will be in place. • Effective containment of wastes using segregated containers. Netting and/or covers for open waste containers. • Waste to be managed in accordance with the Blacktip Operations Waste Management Plan.
Non-routine Activities		
N1 - Interference with other marine users (commercial fishing, shipping and recreational users) through physical presence.	Disturbance to commercial shipping vessel routes. Disruption to commercial and recreational fishing vessel activities. Entanglement of trawling equipment on seabed infrastructure. Dropped objects.	• The designation of a 500 m Petroleum Safety Zone around the WHP and SPM. • Appropriate navigation lights and markers are displayed. • Checking and rectification of pipeline spans. • Ongoing consultation with relevant stakeholders. • Dropped objects are reported to DotE, and retrieved, unless dispensation is granted from DotE.
N2 - Release of Blacktip condensate from gas export system.	Acute and chronic toxic effects to pelagic marine biota. Release of hydrocarbon gasses to the atmosphere contributing to GHG load and associated impacts. Loss of natural resource.	• Safety critical elements identified in the safety case which include the emergency shutdown (ESD) and isolation system. • Integrity management systems (maintenance and inspection, corrosion management). • 500 m Petroleum Safety Zone around the WHP. • Crane operation and lifting procedures: o Trained and qualified crane operators. o Crane and load exceedence alarms. o No alloy chain fittings. o Routine inspection and maintenance of lifting equipment. o Tag lines to prevent swinging loads. • Procedures (i.e. Permit To Work system). • Relief Well Plan. • Oil Spill Contingency Plan (OSCP).
N3 - Release of Blacktip condensate from condensate export system.	Acute and chronic toxic effects to pelagic marine biota.	• Safety critical elements identified in the Safety Case which include the ESD and isolation system. • Integrity management systems (maintenance and inspection, corrosion management). • Terminal handbook. • Permit To Work system. • OSCP.

Source of Risk	Potential Impact	Control Measure
N4.1 - Vessel collision resulting in fuel tank rupture and release of diesel.	Toxic effects to marine biota. Disruption to other activities. Decline in sediment and water quality.	• Vessels shall be vetted by Eni prior to engagement. • Vessels must seek approval from the POS to enter the 500 m Petroleum Safety Zone. • Vessels >400 gross tonne must have an approved SOPEP and associated resources. • Vessels within the 500 m Petroleum Safety Zone must operate under the Blacktip Safety Management System. • IMO International Regulations for Preventing Collisions at Sea (COLREGS). • Issuance of Notice to Mariners. • Vessels navigation aids and competent crew maintaining 24 hour visual, radio and radar watch for other vessels. • Radio warnings to mariners as required. • The distress channel shall be communicated to mariners prior to the commencement of operations. • All vessels will have suitably qualified vessel operators and crew.
N4.2 - Refuelling (bunkering) incident (e.g. fuel line/coupling failure, leaks from hoses etc. resulting in diesel spill – maximum 5 m^3).	Localised toxic effects to marine biota. Disruption to other activities. Decline in sediment and water quality.	• Transfer hoses will be fitted with 'dry break' couplings. • Bunkering carried out in accordance with vessel specifications for bunkering and the relevant fuel storage and handling plan, with all transactions recorded in bunker note. • Refuelling will be undertaken only during periods of calm weather and in daylight hours. • Refuelling operations will be overseen by the vessel's Master or First Officer.
N5 - Hydraulic fluid leaks into the marine environment.	Localised toxic effects to marine biota.	• Routine inspection/maintenance of the hydraulic systems will be undertaken and the records of such inspection/maintenance will be kept on board vessels. For the Blacktip WHP and SPM, records will be recorded in the computerised maintenance system. • Spill kits to be present on the WHP and vessels. • To minimise the risk of a spill, only vessel personnel that are competent to operate the hydraulic system will do so. • Decks/designated areas of the WHP are bunded. • Closed drain system directed to OWS. • Low toxicity hydraulic fluids.

Source of Risk	Potential Impact	Control Measure
N6 - Chemical spills during bulk transfers.	Toxic effects to marine biota.	• Transfer operations will be overseen by the vessel's Master or First Officer to ensure transfer of material to the WHP from the supply vessels is undertaken in accordance with Marine Operations Manual and Chemical Storage Tank Filling Procedure (000036_DV_EX.OPS.0541.000). • Chemicals are stored in tote tanks on board the WHP. The tanks are defined as Safety Critical Elements so are subject to rigorous inspection and maintenance routines. • Valves are kept open during normal operation to prevent the build-up of a flammable inventory in the bunds on the WHP should there be a leak from either tank. • Tank levels for Monoethylene Glycol and corrosion inhibitor can be monitored remotely from the YGP. • Bunding and drip pans provided under all hazardous liquid inventories and potential leak sources (sampling points and pumps) to contain leaks.
N7.1 - Failure to report incidents.	Increased incident severity. Lack of appropriate response. Breach of environmental legislation.	• Eni will internally report all accidental releases as per the Eni Hazard, Near Miss and Incident Reporting (ENI-HSE-PR-003) and detailed in the Eni Incident Report. • All external reporting will be provided to regulators within defined timeframes.
N7.2 Lack of environmental awareness.	Breach of environmental legislation. Increased number of incidents.	• Induction records shows attendance of all crew. • Training records show environmental competency of crew.
N7.3 - Failure to undertake scheduled audits.	Breach of environmental legislation. Poor environmental performance goes on unchecked.	• Environmental audits planned, undertaken and documented.
N7.4 - Lack of review of environmental performance.	Incidents undetected. Environmental performance does not improve.	• Environmental performance data recorded and reported. • Evidence of non-conformances entered and managed through the auditing database.
N7.5 - Failure to comply with EPBC Approval Decision 2003/1180 (Condition 7).	Non-compliance with legal requirements.	• On 1 July of each year Eni shall provide a certificate stating the level of compliance with the conditions of the EPBC Approval. • Eni shall implement the NOPSEMA accepted OSCP. • Eni shall submit a decommissioning EP to the relevant authority addressing the removal of all structures and components above the seafloor.
N8 - Lack of preparedness leading to delayed response to an oil spill.	Increased incident severity. Lack of appropriate response.	• OSCP prepared and tested in accordance with the OPGGS (E) Regulations. • Spill response training for key response personnel to ensure they have the required experience and competency for their role. • Training and oil spill response exercises. • Maintenance of associate membership with oil spill response agencies.

Source of Risk	Potential Impact	Control Measure
N9 - Disturbance to natural habitat from oil spill shoreline response.	Shorelines and nearshore habitat disturbed from: • booms; • trampling of habitat from response personnel; • shoreline and nearshore habitat disturbance from landing vessels; • removal of vegetation; • mechanical tillering of stranded shorelines; • alteration of beach profiles leading to erosion; and • waste storage and decontamination.	• Defined waste areas established. • Trained operators undertaking assessments and overseeing activities. • Appropriate equipment available to undertake clean-up. • Natural collection points targeted during shoreline clean-up. • Foot traffic from the access points to response sites will be managed to minimise disturbance to sensitive areas.
N10 - Interaction with marine fauna during vessel containment and recovery operations protection and deflection and shoreline clean-up operations.	Range from minor behavioural changes to injury or fatality of marine fauna.	• Comply with the EPBC Regulations 2000 (Regulation 8.05) and the Australian National Guidelines for Whale and Dolphin Watching (DEH 2005). • Should any cetaceans or relevant megafauna be observed in the vicinity of operational vessels, all necessary care to avoid collisions will be taken. • Treatment of oiled fauna will involve teams, with at least one familiar with the behaviour of the animal and oiled wildlife response techniques. • No additional impact to fauna whilst hazing.

6. OIL SPILL RESPONSE STRATEGIES

6.1 Properties of Hydrocarbon

A loss of containment would result in well fluids (mostly methane gas) leaving the hole under considerable pressure. For an above sea release from the WHP, gas would be vented to the atmosphere and associated condensate would spray into the air before dropping out onto the sea surface potentially over a wide area.

A subsea release would form a jet consisting of high velocity fluid confined to a narrow cone. The initial momentum of the jet phase would dissipate rapidly within about 1 m from the release point. By this time distinct droplets and bubbles form and the hydrocarbons start to rise as a plume—a collection of bubbles and droplets act in concert to drag significant volumes of the adjacent seawater upwards in the water column. The gas will reach the surface in a matter of minutes driven by the large buoyancy of the gas bubbles and the resulting surface slick will spread into a thin film due to the radial outflow of entrained water near the surface. Gas and volatile hydrocarbon components will then be lost to the atmosphere through evaporation.

Blacktip condensate is a light crude oil (API 40.4, density 0.82 kg/L @ 15°C) with low viscosity (2.18 cSt @ 20°C) and pour point (-33°C). Based on these characteristics, if spilled onto the sea, the liquid would spread rapidly on the sea surface at all times of year. The boiling point range calculated for the oil is narrow, hence, rapid evaporation can be expected. The release of volatile organic compounds into the atmosphere could create a fire and explosion risk to personnel. Blacktip condensate boiling points are all below the 370°C threshold so Blacktip condensate is defined as non-persistent.

6.2 Spill Scenarios and Response Strategies

Hydrocarbon spill scenarios are categorised into three tiers, as defined in Table 6.1.

Table 6.1: Definition of spill tiers

Tier	Approximate Volumes	Tier Definition	Applicable Spill Scenarios
Tier 1	0-10 tonnes *0 – 70 bbl* *0 – 10 m^3*	A small spill requiring a local response: The Combat Agency will generally be able to respond to and clean up a spill utilising local resources.	General operations e.g. hydrocarbon transfers. Oily water discharges. Fuel spill – bunkering/refuelling. (crude/diesel – maximum volume 5 m^3).
Tier 2	10-1,000 tonnes *71 – 7,000 bbl* *10 – 1,000 m^3*	A medium spill requiring a regional response and/or national assistance: The resources of the Combat Agency will need to be supplemented by other resources from intrastate and possibly interstate.	Loss of containment from the condensate export pipeline Vessel collision and fuel tank rupture (diesel - max volume 80 m^3).
Tier 3	>1,000 tonnes *>7,000 bbl* *>1,000 m^3*	A large spill requiring national assistance. The Combat Agency will require local, regional, national and possibly international assistance.	Loss of well control – blow out.

There are eight potential response strategies that may be implemented in the event of a spill depending on the volume of hydrocarbon spilled, location of the spill event, environmental conditions at the time of the spill, and sensitivities in the zone of potential impact. The response strategies are outlined in Table 6.2.

Table 6.2: Summary of oil response strategies

Strategy	Description
Monitor and evaluate	Applicable to all spill scenarios. This is supported by an Oil Scientific Monitoring Program.
Containment and recovery	Recovery of persistent weathered residues floating on the sea surface to prevent them from reaching shore.
Protection and deflection	To be considered when surface hydrocarbons threaten sensitive receptors after dispersant application and/or containment and recovery techniques have been considered and/or deployed and failed. A NEBA will determine whether this strategy will be deployed.
Shoreline clean-up	'Last resort' and only to be deployed in the event of surface hydrocarbons impact shorelines. A NEBA will determine whether this strategy will be deployed.
Oiled wildlife response	To be considered for deployment where surveillance activities identify marine fauna that may be impacted by the spill

All potential hazards that may arise through implementation of response strategies are summarised below in Table 6.3.

Table 6.3: Summary of impacts associated with implementation of response strategy

	Hazard Ref.	Monitor and Evaluate	Contain and Recover	Protect and Deflect	Shoreline Clean-up	Oiled Wildlife
Increased vessel movements	R5, R6, R7, R8, R9, R10, N1, N4	X	X	X	X	-
Hazardous waste management	R11	-	X	X	X	-
Atmospheric emissions	R1, R2	X	X	X	-	-
Noise	R3, R4	X	X	X	-	X
Disturbance to natural habitat	N9	-	-	X	X	X
Oiled fauna displacement and handling	N10	-	-	-	-	X

7. 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. The following plans have been developed to manage the risks described in this summary:

- Blacktip Offshore Operations Environment Plan (000036_DV_PR.HSE.0677.000);
- Blacktip Operations Oil Spill Contingency Plan (000036_DV_PR.HSE.0388.000); and
- Blacktip Emergency Response Plan (000036_DV_EX.OPS.0675.000).

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

- *Offshore Petroleum and Greenhouse Gas Storage Act 2006* and the associated OPGGS (E) Regulations;
- IMO Guidelines for the Control and Management of Ships' Biofouling 2012;
- MARPOL 73/78, as enacted under *Protection of the Sea (Prevention of Pollution from Ships) Act 1983*; and
- Australian Petroleum Production and Exploration Association 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 are maintained at a level which is ALARP.

Environmental performance objectives and standards are defined for each environmental aspect. These objectives are monitored and reviewed against specific measurement criteria to ensure environmental aspects are managed effectively.

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 (Annual Environmental Report);
- scheduled inspections; and
- auditing and assurance of operating facilities.

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 Australian Maritime Safety Authority) will be notified of all reportable incidents.

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

8. CONSULTATION

During the preparation of the Blacktip Gas Project Environmental Impact Statement, extensive consultation was undertaken with a variety of stakeholders to identify potential environmental issues and management requirements. Consultation continued during the development (construction) phase and has continued throughout the operations (production) phase since 2009.

In preparation of the EP, Eni reviewed its existing Blacktip stakeholder register and in March 2013, determined that as this was a revised EP and that as the Blacktip Project has been in operations since 2009, that preliminary consultations would be undertaken alongside the consultations for the Penguin Deep-1 drilling program in neighbouring Permit Area WA-313-P.

Subsequent to and with the benefit of these consultations, Eni determined that in order to manage the consultation burden on stakeholders formal invitations to further consultation would be sent only to those with a direct and current interest. Eni has not received any material concerns from stakeholders prior to or after lodgement of the Environment Plan for assessment and approval. Eni will continue its consultation and accept feedback from stakeholders.

9. REFERENCES

DEPARTMENT OF AGRICULTURE, FISHERIES AND FORESTRY (DAFF) 2009. NATIONAL BIOFOULING MANAGEMENT GUIDANCE FOR THE PETROLEUM PRODUCTION AND EXPLORATION INDUSTRY.

DEPARTMENT OF THE ENVIRONMENT AND HERITAGE (DEH) 2005. AUSTRALIAN NATIONAL GUIDELINES FOR WHALE AND DOLPHIN WATCHING 2005. AUSTRALIAN GOVERNMENT, CANBERRA. PREPARED BY THE AUSTRALIAN GOVERNMENT.