BLACKTIP OFFSHORE ENVIRONMENT PLAN SUMMARY

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ACRONYMS AND DEFINITIONS USED IN THIS DOCUMENT

NOMENCLATURE	DEFINITION
°C	Degree Celsius
µ	Micro
AC	Alternating Current
AIMS	Asset Integrity Management System
ALARP	As Low As Reasonably Practicable
AMOSC	Australia Marine Oil Spill Centre
AMSA	Australian Maritime Safety Authority
Bbl	Barrel
BHP	Bottom hole pressure
BOP	Blowout Preventer
BPD	Barrels per day
CAMBA	China-Australia Migratory Bird Agreement
CCR	Central Control Room
CEP	Condensate Export Pipeline
CGR	Condensate to gas ratio
CH4	Methane
cm	Centimetres
CO2	Carbon Dioxide
CoP	Community of Practice
CVI	Close Visual Inspection
DoEE	Department of the Environment and Energy
EPA	Environmental Protection Agency
EPBC Act	Environmental Protection and Biodiversity Conservation Act 1999
Eni	Eni Australia B.V.
EP	Environmental Plan
ESD	Emergency Shutdown
g	Grams
GEP	Gas export pipeline
GVI	General Visual Inspection
H2S	Hydrogen Sulphide
HQ	Head Quarter
Hz	Hertz
IAPP	International Air Pollution Prevention Certificate
IMCA	International Marine Contractors Association
IMM	Inspection, Monitoring and Maintenance
IMO	International Maritime Organisation
IMS	Invasive Marine Species
IMS	Integrated Management System
ISPP	International Sewage Pollution Prevention
JBG	Joseph Bonaparte Gulf
JRCC	Joint Rescue Coordination Centre
kHz	Kilo Hertz
Kg	Kilogram(s)

NOMENCLATURE	DEFINITION
km	Kilometre(s)
kPag	Kilo pascal gauge
L	Litre(s)
LAT	Latitude
m	Metre(s)
MARPOL	International Convention for the Prevention of Pollution from Ships
MBES	Multi-Beam Echo Sounder
MDO	Marine Diesel Oil
MEG	Monoethylene Glycol
mg	Milligram(s)
MGO	Marine Gas Oil
min	Minute(s)
mm	Millimetre(s)
MoC	Management of Change
MODU	Mobile Offshore Drilling Unit
MP	Medium Pressure
N2	Nitrogen gas
N2O	Nitrous Oxide
NEBA	Net Environmental Benefit Analysis
nm	Nautical mile(s)
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority
NPF	Northern Prawn Fishery
NT	Northern Territory
NTM	Notice to Mariners
NWST	Northwest Shelf Transition
OCIMF	Oil Companies International Marine Forum
ODS	Ozone Depleting Substances
OGP	Oil and Gas Producers
OIW	Oil in Water
OPGGS (E) Regulations	Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009
OSPAR Convention	Protection of the Marine Environment of the North-East Atlantic
OSV	Offshore supporting vessels
OPEP	Offshore Pollution Emergency Plan
PIMS	Pipeline Integrity Management System
PLEM	Pipeline End Manifold
PMV	Production Hydraulic Master Valve
POB	Persons on board
PWV	Production Hydraulic Wing Valve
ppb	Parts per billion
psi	Pounds per square inch
PSV	Pressure Safety Valve
PTS	Permanent Threshold Shift
PWC	Northern Territory Power and Water Corporation

NOMENCLATURE	DEFINITION
PWVs	Production Wing Valves
QDMS	Computer-based document control interface
RMS	Root Mean Square
ROVs	Remotely Operated Vehicles
SBP	Sub-Bottom Profiler
SCEs	Safety Critical Elements
SCSSSV	Surface Controlled Sub Surface Safety Valve
SDV	Shut-down Valve
SEL	Sound Exposure Level
sm3	Standard cubic meters
SOx	Sulfur Oxides
SOLAS	Safety of Life at Sea
SPM	Single Point Mooring
SSIV	Subsea Isolation Valve
SSS	Side scan sonar
Tj	Terajoules
TPSD	Total Platform Shutdown
TTS	Temporary Threshold Shift
WA	Western Australia
WAFIC	Western Australian Fishing Industry Council
WBMs	Water Based Muds
WHP	Well Head Platform
WOMP	Well Operations Management Plan
YGP	Yelcherr Gas Plant
ZPI	Zone of Potential Impact

1. INTRODUCTION

Eni Australia B.V. (Eni) operates the Blacktip facilities, approximately 300 km west-south-west of Darwin, located in Lease Area WA-33-L, within Commonwealth waters in the Joseph Bonaparte Gulf (JBG). The facilities consist of a well-head platform (WHP), two producing wells, flowlines and a subsea gas export pipeline (GEP) (WA-15-PL, NT/PL2) 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). Additionally, stabilised condensate is stored on site at the YGP before being exported via subsea 12" condensate export pipeline (CEP) (NT/PL3) to a Single Point Mooring (SPM), located approximately 7 km offshore in Commonwealth waters, for loading to tankers and subsequent transport to market. The proportion of the CEP in Commonwealth waters is less than 1 km.

Blacktip Operations offshore activities are generally limited to:

- WHP normal (unmanned) production operations, which is controlled via telemetry from the YGP Central Control Room (CCR);
- Inspection, maintenance and repair activities to topsides;
- Inspection, maintenance and repair activities to subsea infrastructure, including pipelines (activities include surveys such as side-scan sonar, surveys using diving and Remotely Operated Vehicle, pigging, span rectification, pipeline section replacement and maintenance);
- Periodic tanker vessel off-takes of condensate from the SPM; and
- Rigless well intervention activities; and
- Offshore supporting vessels conducting related activities within the Operational Area.

The scope of the EP does not cover the onshore infrastructure such as the YGP and onshore pipelines.

Eni propose to drill a third development well (P3 development well) in the field using a jack-up mobile offshore drilling unit (MODU), cantilevered over the WHP and drilling through an existing slot on the WHP. The P3 development well will produce through the Blacktip WHP and export pipeline to the YGP.

An Environment Plan (EP) 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) on 14 November 2019. This EP summary document has been prepared and submitted to NOPSEMA in accordance with Regulation 11(7) of the OPGGS(E) Regulations.

2. DESCRIPTION OF ACTIVITIES

2.1 Location

The Blacktip field is located approximately 300 km west-south-west of Darwin, in permit area WA-33-L in the JBG (Figure 2.1). Gas and condensate produced from the WHP are exported via the 108 km[1] long export pipeline to YGP near Wadeye in the Northern Territory (NT) for processing. Stabilised condensate is stored on site at the YGP before being exported via sub-sea pipeline to a Single Point Mooring (SPM), located approximately 7 km offshore in Commonwealth waters, for loading to tankers and transport to market.

The coordinates of the WHP and associated infrastructure and the SPM are presented in Table 2.1. The wells are located on the WHP and similarly the proposed P3 development well will be drilled with a jack-up MODU cantilevered over the WHP, which has six slots for wells.

Table 2.1: Coordinates of the WHP and the SPM

Component	Water Depth (meters)	Latitude	Longitude
WHP	51	13° 53' 42" S	128° 29' 3" E
SPM	20	14° 14' 28.3" S	129° 21' 1.6" E

2.2 Operational Area

The Operational Area (Figure 2.2) defines the spatial boundary of the Petroleum Activities Program, as described, risk assessed and managed by the EP, including vessel related petroleum activities within the Operational Area.

The area includes:

- the Blacktip WHP and the area within 1500 m radius;
- the Gas Export Pipeline (GEP) from Blacktip WHP to the Territory water boundary and an area extending 1500 m either side of the GEP and around the pipeline infrastructure;
- the SPM and a 500 m PSZ around the mooring; and
- the Condensate Export Pipeline (CEP) from SPM to the Territory water boundary.

Offshore supporting vessels conducting related activities within the Operational Area will be required to comply with the EP. Outside the Operational Area, maritime regulations and other requirements will apply to the vessels. The EP applies to activities undertaken within the Operational Area, as described in this section.

[1] from the WHP to the shore crossing

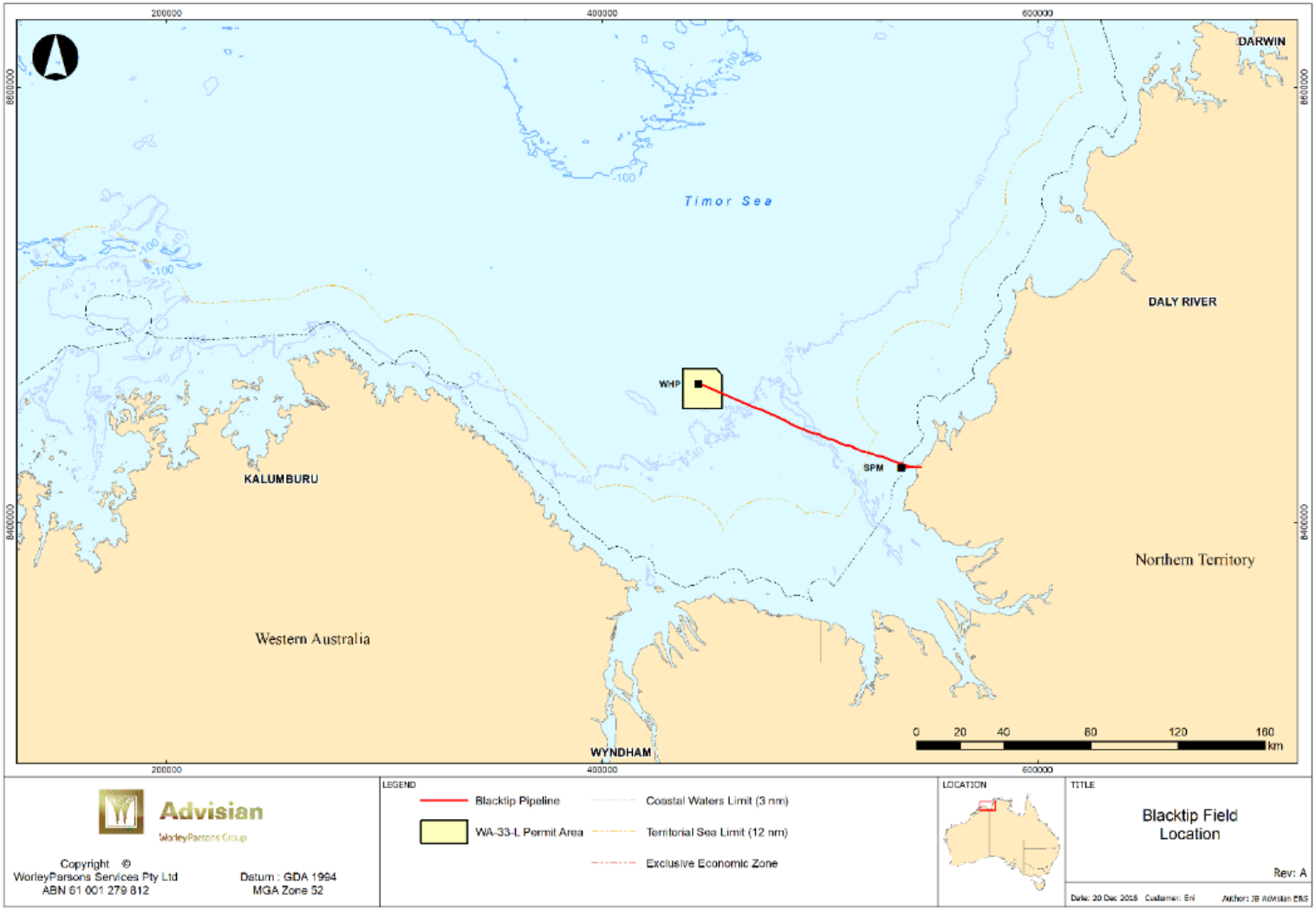

Figure 2.1: Blacktip Facilities Location

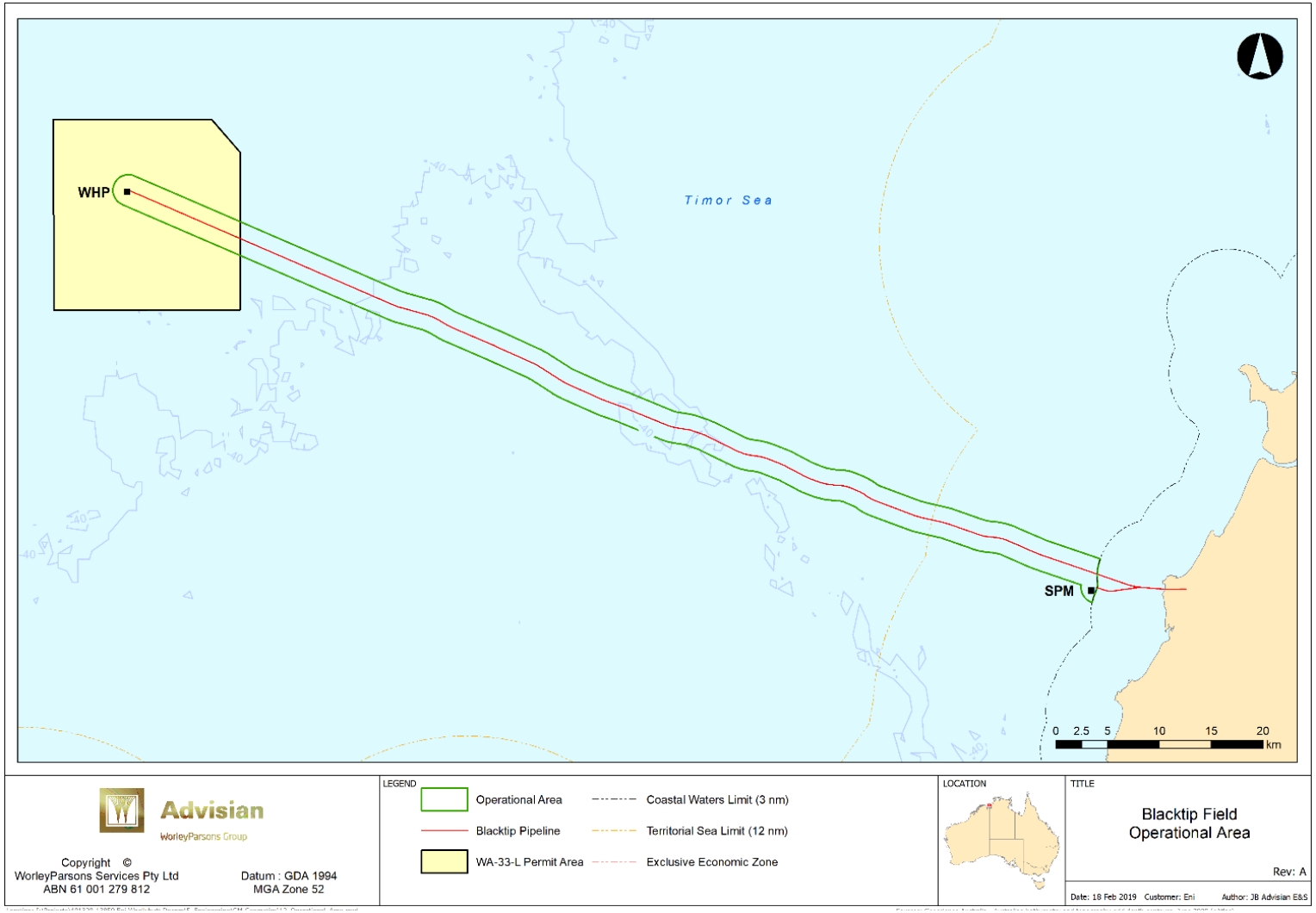

Figure 2.2: Blacktip Petroleum Activities Operational Area

2.3 Blacktip Operations

The field commenced production in 2009. The WHP operates 24 hours per day, 365 days per year, on an 'unmanned' basis.

Blacktip Operations offshore activities are generally limited to:

- WHP normal (unmanned) production operations, which is controlled via telemetry from the YGP Central Control Room (CCR);
- Inspection, maintenance and repair activities to topsides;
- Inspection, maintenance and repair activities to subsea infrastructure, including pipelines (activities include surveys such as side-scan sonar, surveys using diving and Remotely Operated Vehicle, pigging, span rectification, pipeline section replacement and maintenance);
- Periodic tanker vessel off-takes of condensate from the SPM;
- Rigless well intervention activities; and
- Offshore supporting vessels conducting related activities within the Operational Area.

2.3.1 WHP Process Utilities

The process utilities provided on the WHP are:

- communication systems;
- power generation;
- lighting;
- fuel gas system;
- cold vent and closed drains system;
- open drains system;
- corrosion Inhibitor Injection system;
- MEG injection system;
- nitrogen system;
- service water system; and
- pedestal crane.

2.3.2 Inspection, Maintenance and Repair (IMR) Activities

General maintenance and inspection activities consist of:

- Replenishment of hydraulic and diesel fuel at the WHP.
- Replenishment of consumables particularly MEG, nitrogen and corrosion inhibitor, which are supplied in tote tanks/quads and loaded using the platform crane at the WHP.

- Inspection of piping, rotating equipment, instruments, valving, sumps and drains.
- Carrying out critical function testing to demonstrate ongoing suitability and fitness-for-purpose of Safety Critical Elements (SCEs).
- Isolating process and electrical equipment in order to perform maintenance tasks or make modifications.
- Inhibiting, isolating or adjusting safety-critical functions, trips and/or instrument settings in order to perform calibration of equipment, or to inspect, test, maintain or modify equipment.
- Intervention activities on valves, rotating equipment, instrumentation and crane.
- Maintenance of safety equipment and lifesaving equipment including periodic replacement of components.
- Maintenance activities associated with gas, pneumatic, diesel, electric and hydraulic systems.

The following activities are undertaken at the SPM:

- SPM maintenance and repair;
- Hose maintenance and repair; and
- SPM and hose inspection, repair and replacement where required.

The following activities are undertaken on the pipelines:

- Subsea infrastructure inspection, utilising Side Scan Sonar (SSS), Multi Beam Echo Sounder survey (MBES), sub-bottom profiling (SBP), boomer, ROV.
- Riser and tie in spool inspection / Non-Destructive Testing (NDT);
- Pipeline repairs, including SSIV Repair, pipeline free span rectification, sectional replacement, clamp installation.
- WHP light construction activities.

2.3.3 ROV Activities

Subsea remotely operated vehicle (ROV) surveys are necessary for inspection of the WHP and associated infrastructure to detect external features, damage or signs of damage, and deterioration that could present a risk.

ROV may be used up to twice a year in conjunction with other offshore maintenance and inspection campaigns.

2.3.4 Side Scan Sonar

Side scan sonar (SSS) is typically undertaken twice every five years and following extreme cyclonic events. The purpose is to survey and log the layout and condition of sea-bed laid pipelines (or riser sections), ancillary components and the surrounding seabed.

An acoustic profile survey by ROV or equivalent method may be substituted for SSS if an equal or superior resolution can be obtained.

Where the SSS survey has identified a significant change in the pipeline trench entry/exit location in the nearshore area, a Multi Beam Echo Sounder (MBES) survey, to determine depth of burial, may be undertaken.

2.3.5 Pipeline Maintenance – Replacement and Span Rectification

The exact details and requirements for pipeline maintenance and span rectification activities are determined based on results of pipeline inspections and surveys. The following may occur:

- Pipeline freespan repair (subsea gravel/grout bags installed under the pipeline to provide support);
- Pipeline clamp installation (installed externally around the pipeline) or repair; and
- Pipeline sectional replacement (replacement of a section of the pipeline, maximum length of 100 m).

Pipeline repair activity methodology will be developed on a case by case basis in accordance with the Emergency Pipeline Repair Plan. Typical repair options are as follows:

- Bolted or Welded Sleeve
- Mechanical Clamp
- Platelet Technology
- Composite Repair
- Welded Patch
- Flange Repair
- Hot Tapping (with Bypass)

Where repair is not feasible a whole section (up to 100 metres) of pipeline will be replaced.

As part of pipeline repair or replacement, the pipeline will be flushed with potable water or sea water treated with corrosion inhibitor (using pipeline plugs) and/or purged with nitrogen. Volumes of water required are dependent on length of pipeline under repair or replacement, however typically volumes would not exceed 100 m^3. Potable water or treated sea water are routed to YGP on completion where they are treated. The pipeline would be made gas free before any cutting activities. Residual quantities of condensate may be present in the pipeline and could be released during pipeline cutting.

Pipeline freespan repair requires the placement of subsea gravel/grout bags, which are installed under the pipeline to provide support. An area of 9 m^2 may be disturbed / modified during the placement.

2.3.6 Pigging Operations

A vertical GEP pig launcher is installed on the WHP with a pig receiver located at the YGP. The CEP has provision for installation of temporary pig launchers and receivers. Pigging is primarily carried out for asset integrity purposes, which includes pipeline monitoring and corrosion inhibitor or biocide batching. Pigging also includes line-sweep and cleaning.

Pigging operations are planned activities and performed as part of the pipeline integrity management program. The pigging operations are typically managed by a specialist pigging contractor with support from Blacktip operations personnel.No pigging discharges occur offshore. Waste sludge is collected at the end of the GEP at the Pig Receiver at the onshore YGP and disposed of by a licensed waste contractor.

2.3.7 Condensate Off-Take from the SPM

The SPM is intermittently operated for condensate off-takes to a tanker under static tow. Stabilised condensate is piped from the holding tanks at the YGP to the offshore PLEM and then up to the SPM, for loading into tankers through a flexible floating hose.

2.3.8 Well Operations - Rigless Well Intervention Activities

The WHP is designed for rigless intervention for both planned and unexpected events. Well intervention/workover is a contingency activity and may be performed if, for example, the well starts producing too much water. Typically, the operation includes placing bridge plugs just above the perforation zone and re-perforating other zones of interest in the reservoir.

Rigless interventions will be performed by specialist contractors with support from Blacktip operations personnel if required. Well kill operations are not planned and are subject to operational requirements.

Wireline intervention is a contingency operation and may include:

- Slickline – Tubing Retrievable Safety Valve lock-open and insert valve installation, drift run, isolation plug installation, bottom hole pressure (BHP) survey, fishing operations, sand bailing operation, corrosion monitoring etc.; and
- E-line – production logging, re-perforation, corrosion monitoring, inflatable bridge plug installation, cement plug placement, tubing punch / tubing cutting / perforation etc.

Well intervention operations will be performed in accordance with the Blacktip Well Operations Management Plan accepted by NOPSEMA, including handover procedures via Well Handover Certificates, and maintenance of two independent well barriers at all times.

2.3.9 Vessel and Helicopter Support Operations

Helicopter is the quickest method of accessing the WHP. Although, vessels are the preferred method for accessing the SPM and WHP for planned campaign visits. Vessels operate out of Darwin or Port Keats. Vessel trips to the SPM and WHP occur for a typical duration of a few days.

All vessels are commercial vessels with a suitable survey class for activities in the Operational Area. All vessels will run on MDO / MGO; no intermediate or heavy fuel oils will be used.

Refuelling at sea is not normally required for Blacktip operations activities given offshore activities are typically less than 14 days in duration, however may occur during an emergency event.

A range of vessel are employed, depending on the activity. Specifications for the typical vessel used for Blacktip IMR activities are provided in Table 2.2.

Table 2.2: Typical vessel specifications

Parameter	Description
Draft (max)	3.25 m (max)
Gross tonnage	1475 Gt
Hull	Steel hull
Fuel type	Marine diesel
Total fuel volume	138.2 m³
Volume of largest fuel tank	30.4 m³

2.4 Development Drilling

The Blacktip WHP was developed with the space for a total of six wells. The P3 development well will be drilled through a steel conductor, in a free slot running from the WHP main deck level to below the seabed.

Drilling will be undertaken with a Mobile Offshore Drilling Unit (MODU), selected based on technical capability and in accordance with Eni's pre-qualification process. The MODU will position adjacent to the Blacktip WHP platform (derrick cantilevered over the well bay) to perform the drilling activities.

Drilling is subject to rig availability and business approvals, however is anticipated to take place in 2022. Drilling will take approximately 45-55 days, depending on weather and operational downtime.

Table 2.3: P3 Development Well Drilling Activity Overview

Item	Description
Production Area	WA-33-L
Well Site	Blacktip-P3

Coordinates	13° 53' 41" S 128° 29' 3" E
Approx. Duration (days)	45-55 Days
Water Depth	51 m
Number of Wells	1
MODU Type	Jack-up
Support Vessels	3 support vessels
Activities	Geophysical site survey Jack-up placement Top hole section drilling – WBM BOP installation Bottom hole section drilling – WBM Cementing Well cleanup (inc flaring) Hookup and commissioning

2.4.1 MODU

The jack-up MODU will typically be towed to the drilling location and placed into position by up to three support vessels. Once at the desired location and with the MODU stationary, the legs will be lowered until they engage the seafloor simultaneously, and self-elevate out of the water (jack-up) and the derrick cantilevered over the well bay on the platform. Each of the three spud can footings have a footprint of ~254 ft^2 (based on a typical jack-up MODU spud can design).

The MODU, whilst operating in Australian Commonwealth waters, and operating for Eni, will do so in accordance with a NOPSEMA accepted Vessel Safety Case (VSC) (including SIMOPs arrangements with the WHP).

2.4.2 Support Operations

Up to three vessels will support the MODU, and may conduct the following:

- Towing the MODU;
- Standing-by at close proximity to the MODU during critical operations;
- Standing-by outside the 500 m exclusion zone from the MODU;
- Delivering food, potable water, drill water, fuel, dry bulk, drilling fluids, chemicals, equipment and other supplies from shore; and
- Delivering dry bulk, chemicals, equipment and waste to shore.

All vessels will be commercial vessels with a suitable survey class for activities in the Operational Area.

Crew changes for personnel onboard the MODU and supply of some equipment will involve transfer by helicopter out of Darwin.

2.4.3 Geophysical Survey

In preparation for drilling activity, a marine debris site survey may be undertaken. The survey area would cover a 1.5 km by 1.5 km area around the WHP location, with an expected duration of 3-5 days, but may take up to a week in the location and occur within six (6) months prior to drilling commencing.

The purpose of the site survey would be to provide an accurate measurement of seabed bathymetry and confirm that previous jack-up footprints will be clear of debris or obstructions. The vessels utilised by Eni for the survey will be selected through Eni's Contractor Management and pre-selection and qualification process.

2.4.4 Casing

The drilling of the P3 development well will involve several concentric strings of steel casing to be installed inside the existing conductor. The casing string will extend from the platform deck to various depths of the well to provide the hydraulic seal necessary to safely drill and produce the well.

2.4.5 Drilling Fluids and Cuttings

Drilling fluids, commonly referred to as 'muds', consist of a mixture of base fluid, liquid and solid additives, and weighting materials. The drilling mud is essential to many aspects of the drilling process, including protection of equipment, stabilisation of the well bore and removal of drill cuttings. The most important function of the drilling mud is to maintain primary well control.

The mud is mixed, stored and maintained in tanks on the MODU.

WBMs will be used to drill the Blacktip well. WBMs are regularly used for drilling operations and considered an environmentally acceptable technology.

Processing equipment enables the mud to be recycled by recovering as much mud as is practical and removing a large proportion of the drill cuttings with vibrating screens (shale shakers). Excess WBMs will be flushed with seawater and discharged to the ocean through a direct overboard drain. The whole drilling muds will be routinely discharged to the ocean at the end of drilling, or when mud property requirements change.

2.4.6 Cement

Cementing fluids will generally consist of Portland cement with additives (such as inorganic salts, lignins, bentonite, resin and surfactants). Cement will be used to form permanent barriers and fix casings in place prior to drilling the following sections in the well. Cementing fluids are not routinely discharged to the marine environment, however, volumes of approximately 6 m^3 could be released when surplus fluids require disposal after cementing operations at the surface.

2.4.7 BOP Testing

The BOP will be routinely checked by completing pressure and function testing in line with safety case commitments.

2.4.8 Completions

Following successful drilling and casing of the reservoir, well completion will be undertaken to connect the reservoir to production facilities. After running the completion, the tubing is displaced with approximately 85 m^3 of diesel to provide an under-balanced condition in the tubing to assist in flowing hydrocarbons to the surface after perforation. The diesel will be burnt as part of the well clean-up.

2.4.9 Well Clean-up

The well clean-up process will take place post drilling and completions activities.

Well clean-up will occur via the MODU and test package. The test package will have been validated as per the NOPSEMA Safety Regulations and Safety Case requirements.

Clean-up via the MODU well test package will result in a flare emission from the MODU flare tip. Flaring will occur for a period of up to 96 hours. The same volume of diesel pumped downhole (used as a cushion) will be flared.

2.4.10 Well Control

Eni ensures control of wells through control measures incorporated into the well design, drilling procedures, mud selection, personnel training and equipment maintenance and testing. Well control requirements are detailed within the NOPSEMA approved Well Operations Management Plan (WOMP) and the MODU Safety Case and well specific Safety Case Revisions and are not restated in the EP

2.4.11 Hook-up and Commissioning – P3 Development Well

Hook-up and commissioning will occur post-drilling as a separate rigless intervention activity over approximately 3 days. This will occur on the platform, therefore hook up for production does not require the MODU. It however requires support vessel for personnel to go on the platform and perform the hook-up.

Following well-clean up, the well will be temporarily shut-in until hook-up occurs. The high level sequence for hook-up and commissioning is as follows:

1. Prepare the piping for the well
    a. Prepare required connections to the nominated well / other wells
    b. Install the required choke, etc.
    c. Hookup the control instruments
    d. Commissioning and testing
2. Flow the well through the production manifold

3. Monitor well parameters (pressures, temperatures).

2.5 Chemical Assessment Process

All chemicals used in operational and drilling activities will be considered within the scope of the chemical assessment and selection process. These include all downhole operational chemicals used during drilling (cement, Water Based Mud, Blow-Out Preventer Control Fluids). Chemicals required for maintenance activities (e.g. paints, lubricants and greases), portable water treatment chemicals, emergency response chemicals and those chemicals used for domestic purposes are considered out of scope. The scope follows the same principles as applied in the UK under the Offshore Chemical Regulations 2002 (as Amended 2011), including consideration of the following:

- Existing assessments for chemicals registered on the Centre for Environment, Fisheries and Aquaculture Science (CEFAS) Offshore Chemical Notification Scheme (OCNS) list;
- Ecotoxicity;
- Biodegradation;
- Bioaccumulation;
- Chemical Assessment to ensure the risk is as low as reasonably practicable (ALARP) and Justification for use/discharge.

3. DESCRIPTION OF THE ENVIRONMENT

The receiving environment is described in terms of the Operational Area (Section 2.1.1) and the Zone of Potential Impact. The Zone of Potential Impact (ZPI) is based on the largest credible spill scenarios identified and modelled during the risk assessment process. The spill risk assessment process and results are presented in Section 4.

The key characteristics of the existing receiving environment are outlined below.

3.1 Physical Environment

The Blacktip facilities are within the JBG, which lies over the Sahul Shelf in the Timor Sea from west of Bathurst Island to the eastern boundary of the North-west Marine Region. The climate in the region is monsoonal with a wet summer and a dry winter. The top layer of sediment in the JBG from approximately 3 to 35 km offshore are expected to be greater than 1 m in depth and consists of sands and gravels with variable proportions of clay. The WHP is located in the upper (outer) reaches of the JBG, in an area of relatively flat featureless seabed. Sediments are predominately very soft, grey-green, gravelly sand clays (Woodside, 2004a).

The Zone of Potential Impact (ZPI) is based on the largest credible spill scenarios identified during the risk assessment process. Individual ZPIs for each of the scenarios were combined to create an overall ZPI (Figure 3.1) for the Petroleum Activities Program.

3.2 Biological Environment

The lower part of JBG, to the south and east of the Operational Area 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.

Coastal habitats in the Gulf include beaches, rocky coastlines and mangroves. The JBG is not considered a significant mangrove area, although mangroves occur throughout the Gulf and there are locally important groups, mainly on the southern coast of the Gulf (Woodside, 2004a). The entrance to Wadeye, approximately, is the largest mangrove-lined tidal inlet system in the immediate vicinity of the ZPI. The nearest significant mangrove conservation area, the Ord River Floodplain, is located inside the Cambridge Gulf approximately 15 km south of the ZPI.

The Operational Area is within areas of infaunal plains identified by flat, soft substrate with occasional rocky outcrops, scattered epifauna, biota dominated by infauna. Local areas of deep valley communities, identified by soft substrate relatively deep, scattered epifauna and moderate infauna may be present along the GEP.

3.3 Values and Sensitivities

There are no World Heritage Properties, Wetlands of National Importance or Threatened Ecological Communities within the ZPI.

The closest marine parks to the Operational Area are the Kimberly Australian Marine Park (AMP) and JBG AMP. The JBG AMP is approximately 50 km to the east and 55 km to the south of the WHP. The GEP crosses through the JBG AMP and the SPM is within the eastern border of the Multiple Use Zone of the JBG AMP. The north-eastern extent of the ZPI is within the Special Purpose Zone (IUCN Category VI) of the JBG AMP. This AMP exists to protect foraging areas and habitats for EPBC listed species including whales, sharks, turtles, migratory birds and some seafloor features.

The western boundary of the ZPI is within the North Kimberly Marine National Park Zone and Kimberley Multiple Use Zone (IUCN Category VI). The Kimberley AMP is approximately 210 km to the west of the Operational Area.

The North Kimberley Marine Park overlaps with the western extent of the ZPI (Figure 3.1) and is located 80 km west of the Operational Area. There are more than 1000 islands within the boundaries of the North Kimberley Marine Park, each providing an array of intertidal and subtidal habitats. There are extensive coral reefs, large estuaries, mudflats and mangroves forests supporting many threatened, protected and culturally important species such as dugongs, turtles and sawfish

The West Kimberly National Heritage Place is located 80 km south-west of the Operational Area and the northern portion ooverlaps the western extent of the ZPI. The West Kimberly is listed as a National Heritage Place as it includes: natural landscape features; ancient geology; biological richness; Aboriginal and European heritage; historical pastoral values; and Aboriginal and European pearling values.

An EPBC Protected Matters Search shows that the ZPI contains two listed Key Ecological Features (KEFs), which have been identified in the North-West Marine Bioregional Plan. The KEFs identified are:

- Carbonate bank and terrace system of the Sahul Shelf;

The Sahul banks are the single most extensive region of banks and shoals in the Australian exclusive economic zone forming a nearly continuous chain of complex submerged algal banks on the middle and outer shelf (Heap & Harris, 2008). A survey conducted in 2012 indicates there are even more banks than previously thought with an extra 41 banks and pinnacles covering 152 km^2 identified (Nichol et al., 2013).

- Pinnacles of the Bonaparte Basin;

The Pinnacles of the Bonaparte basin provide areas of hard substrate in an otherwise soft sediment environment and so are important for sessile species. Rising steeply from depths of about 80 m some pinnacles emerge to within 30 m of the water surface, allowing light dependent organisms to thrive. Pinnacles that rise to within 45 m water depth support more biodiversity. Communities include sessile benthic invertebrates including hard and soft corals, sponges, whips, fans, bryozoans and aggregations of demersal fish species such as snappers, emperors and groupers (Brewer et al., 2007; Nichol et al., 2013). The pinnacles are also recognised as a biodiversity hotspot for sponges as they are home to more sponge species and different communities than the surrounding seafloor (NERP MBH, 2014).

Biologically important areas (BIAs) are those locations where aggregations of members of a species are known to undertake biologically important behaviours, such as breeding, resting, foraging or migration (DoEE, 2016b). BIAs have been identified using expert scientific knowledge about species abundance, distribution and behaviours (DoEE, 2018).

BIAs for the following species have been identified within the Operational Area or ZPI:

- Great frigatebird – breeding;
- Lesser frigatebird – breeding;
- Roseate tern – breeding;
- Red-footed tern – breeding;
- Osprey – breeding;
- Whale shark – foraging;
- Australian snubfin dolphin – foraging (high density prey), breeding, calving, resting;
- Indo-Pacific humpback dolphin - foraging (high density prey), significant habitat, significant habitat (unknown behaviour);
- Loggerhead turtle – foraging;
- Green turtle – foraging, nesting and interesting buffer;
- Olive Ridley turtle – foraging; and
- Flatback turtle – interesting buffer and foraging.

The ZPI also overlaps a BIA for the Lesser crested tern (breeding) which was not identified in the EPBC Protected Matters Search.

A search of the EPBC PMST was undertaken on 29 January 2019 using areas that covered the full extent of the Operational Area and ZPI respectively to identify MNES under the EPBC Act within the ZPI. Through this search 52 species listed as 'Migratory' were identified to occur in the ZPI, with 48 within the Operational Area. Thirty-seven threatened species were also identified in the ZPI, 4 of which had a critically endangered status. Of those 37 threatened species, 32 were identified within the Operational Area including two that were critically endangered. All of the species listed as 'Threatened' under the EPBC Act are also 'Protected' under State legislation under the Wildlife Conservation Act 1950.

A review of the EPBC Act 1999 database (PMST) identified a number of listed threatened and migratory species that could occur in the offshore waters surrounding the Operational Area, including:

- Eight birds, with three listed as Endangered (Red knot, Australian Painted Snipe, Abbott's Booby), three listed as Critically Endangered (Curlew Sandpiper, Northern Siberian Bar-tailed Godwit, Eastern Curlew), and two listed as Vulnerable (Bar-tailed Godwit, Bar-tailed Godwit (Baueri));
- Six fish and shark species, with one listed as Endangered (Northern River Shark), and five listed as Vulnerable (White Shark, Dwarf Sawfish, Freshwater Sawfish, Green Sawfish, Whale Shark);
- Four marine mammals, with one listed as endangered (Blue Whale) and three listed as Vulnerable (Sei Whale, Fin Whale, Humpback Whale);
- One seasnake, the Short-nosed seasnake, which is listed as Critically Endangered; and
- Six turtles, with three listed as Endangered (Loggerhead, Leatherback, Olive Ridley) and three listed as Vulnerable (Hawksbill, Flatback, Green Turtle).

Each of the species listed may occur in the ZPI at various times of the year, generally as transient visitors to the area during migration and feeding. No known breeding grounds or sensitive habitat environments critical to the species outlined are known to exist within the Operational Area. There are breeding grounds for turtles within the ZPI.

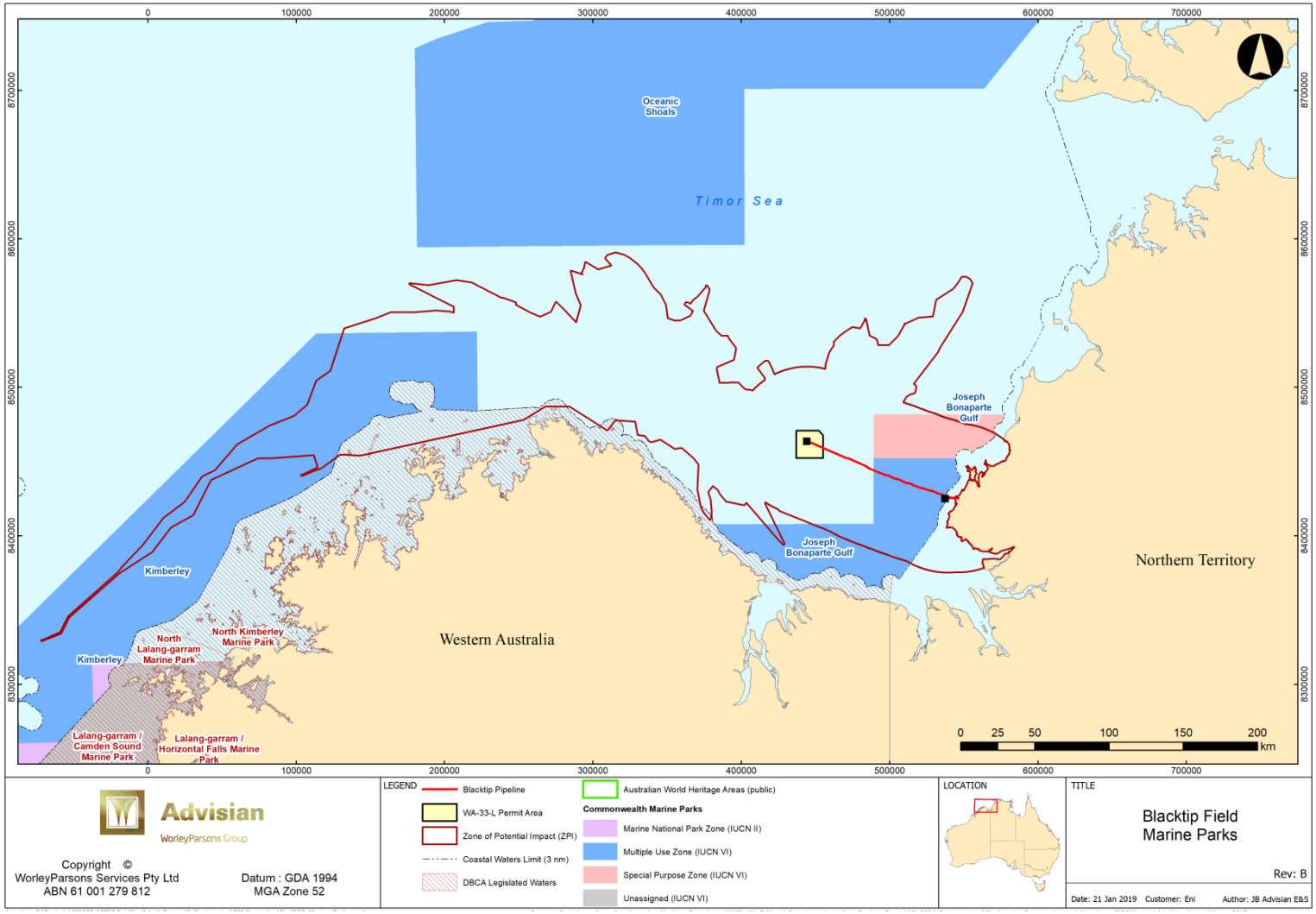

Figure 3.1: Commonwealth Marine Parks, Legislated Waters and World Heritage Areas near the ZPI

3.4 Socio-economic Environment

AMSA were consulted about Petroleum Activities Program and their coordinate searches have indicated that there is no major commercial shipping in the vicinity of the Operational Area. Supply vessels for the operations will travel to and from Darwin to the site.

There are two defence training areas in the North Marine Region. Training area R202G overlaps the operational area which includes a wide range of military exercises including live firing. A Royal Australian Air Force base located at Darwin, lies approximately 300 km to the north east of the Operational Area.

Fishing tour operators (D2 Fishing Tour Operator Fishery) may operate within the JBG waters and target barramundi; black jewfish; golden snapper; and Spanish mackerel. The Operational Area is located in waters that are not likely to be accessed for tourism activities (recreational fishing and boating and charter boats operations) that tend to be focussed around nearshore waters, islands and coastal areas.

Given that the ZPI extends towards the coastline, recreational fishing over the ZPI is possible and occasional passing private motor vessels or yachts may also occur.

There is no other oil and gas infrastructure in the vicinity of the ZPI.

Commonwealth, State and Territory Managed Fisheries that overlap the ZPI are summarised below.

Commonwealth fisheries within the ZPI include:

- Northern Prawn Fishery;
- Western Skip Jack Fishery; and
- Western Tuna and Billfish Fishery.

State managed fisheries within the ZPI include:

- Abalone Managed Fishery;
- Broome Prawn Managed Fishery;
- South-West Coast Salmon;
- Pearl Oyster Fishery;
- Specimen Shell Managed Fishery;
- Marine Aquarium Fish Managed Fishery;
- Kimberley Gillnet and Barramundi Fishery;
- Kimberley Prawn Managed Fishery;
- West Coast Deep Sea Crustacean Managed Fishery;
- Northern Shark Fishery (includes North Coast Shark Fishery);

- Northern Demersal Scalefish Managed Fishery; and
- Mackerel Managed Fishery.

Territory managed fisheries within the ZPI include:

- Barramundi Fishery;
- Coastal Line Fishery;
- Coastal Net Fishery;
- Demersal Fishery;
- Offshore Net and Line Fishery;
- The Pearl Oyster Fishery;
- Spanish Mackerel;
- Trepang Fishery;
- Aquarium Fishery; and
- Small Pelagic Fishery and Squid Fishery (SPFSF).

4. ENVIRONMENTAL IMPACTS AND RISKS

4.1 Risk Assessment Methodology

The Eni philosophy to manage environmental risks is to eliminate or mitigate the risk during the planning phase. Managing risks through design is contingent upon identifying, at an early stage in the project, the sources and pathways by which environmental impacts can occur and the sensitivities of the receiving environment in which the project is situated.

The expected or potential risks associated with the Petroleum Activities Program were assessed using the Eni procedure Risk Management and Hazard Identification (ENI-HSE-PR-001). This procedure is consistent with the Australian Standard for Risk Management: AS/NZS ISO 31000:2018 Risk management – Principles and guidelines and provides a systematic process for:

1. identifying each project activity and its associated environmental aspects.
2. identifying the environmental values within and adjacent to the area.
3. defining the potential environmental effects (impacts) of aspects identified in Step 1 above on the values identified in Step 2 above.
4. identifying the potential environmental consequences and severity of the impact (Table 4.2).
5. identifying the likelihood of occurrence of the consequence, according to a 6-level scale (Table 4.1).
6. evaluating overall environmental risk levels using the Eni environmental risk matrix (Figure 4.1).
7. identifying mitigation measures, assigning management actions and further recommended risk reduction measures according to risk levels (Table 4.3) in order to reduce the risk to as low as reasonably practical (ALARP).

Table 4.1: Likelihood scale

ID	Likelihood	Description
0	Non-credible	Theoretically possible but not known/reasonably expected to have occurred in the exploration and production industry.
(A)	Rare	Reported for exploration and production industry (Freq 10^{-6} to 10^{-4}/years)
(B)	Unlikely	Has occurred at least once in Company (Freq 10^{-4} to 10^{-3}/years)
(C)	Credible	Has occurred several times in Company (Freq 10^{-3} to 10^{-1}/years)
(D)	Probable	Happens several times per year in Company (Freq 10^{-1} to 1/years)
(E)	Almost certain/ will occur	Several times per year at one location (Freq >1/year)

Table 4.2: Environmental consequence descriptors

Descriptor	Description
(1) Slight	Aspect not subject to compliance with legal and/or regulatory prescriptions in force or with prescriptions voluntarily subscribed by the Organisation/no breach. Temporary impact on a non-sensible area. Impacted area <0.1 square mile (0.26 km²). Onshore spill <0.1 m³. Minimum and short-term impact in the interested community/no problem with stakeholders. Slight damage and no interruption of activities or business.
(2) Minor	Limits occasionally exceeded. An impact on localized areas/an impact on a reduced number of non–compromised species. Impacted area <1.0 square mile (2.6 km²). Onshore spill <10 m³. A reduced damage to the company's image in the area that has to be repairable/problems with local stakeholders. Minor damage resulting in: a brief interruption of activities or business repair cost <$200,000, and/or loss of production <1 day.
(3) Local	Possible temporary suspension of activities and/or administrative sanctions. An impact on protected natural areas/damage for some species. Impacted area <10 square mile (26 km²). Onshore spill <100 m³. A potential significant damage to the Company's reputation in the region (local impact) problems with regional stakeholders. Local damage resulting in: the unit requiring repair/replacement to resume the activity repair cost <$2,500,000, and/or loss of production <1 week.
(4) Major	Impact on permits to carry out the works. An impact on areas interested in science/damage to the biodiversity. Impacted area <100 square mile (260 km²). Onshore spill <1,000 m³. A serious and permanent damage to the Subsidiary's capacity to maintain its business position in the area with some wider implications for the subsidiary/problems with national stakeholders. Significant damage resulting in: long term/significant modifications to resume the activity repair cost <$25,000,000, and/or loss of production <3 months.

Descriptor	Description
(5) Extensive	Impact on permits/acquisitions (future). An impact on special areas of conservation/reduction of biodiversity. Impacted area >100 square mile (260 km²). Onshore spill >1,000 m³. Potential loss of future business possibilities in the area/region and/or an enduring significant damage to Eni's image in the international field/ problems with international stakeholders. Extensive damage resulting in: total loss of operations/business revamping required to resume the activity repair cost >$25,000,000, and/or loss of production >3 months.

Figure 4.1: Eni Environmental Risk matrix

Consequence					Likelihood or Annual Frequency					
Severity	Company Reputation	People (Health & Safety)	Environment	Assets / Project	0 - Non credible / Could happen in E&P industry (Freq <10-6 /y)	A - Rare / Reported for E&P industry (Freq 10-6 to 10-4 /y)	B - Unlikely / Has occurred at least once in Company (Freq 10-4 to 10-3 /y)	C - Credible / Has occurred several times in Company (Freq 10-3 to 10-1 /y)	D - Probable / Happens several times per year in Company (Freq 10-1 to 1 /y)	E - Frequent / Several times per year at one location (Freq >1 /y)
1	1-Slight impact	1-Slight health effect / injury	1-Slight effect	1-Slight damage	Low	Low	Low	Low	Low	Low
2	2-Minor impact	2-Minor health effect / injury	2-Minor effect	2-Minor damage	Low	Low	Low	Medium	Medium	Medium
3	3-Local impact	3-Major health effect / injury	3-Local effect	3-Local damage	Low	Low	Medium	Medium - High	High	High
4	4-National impact	4-PTD or single fatality	4-Major effect	4-Major damage	Low	Medium	Medium - High	High	High	High
5	5-International impact	5-Multiple fatalities	5-Extensive effect	5-Extensive damage	Medium	Medium - High	High	High	High	High

Table 4.3: Risk management actions

Risk Rating	Management Actions Required
Low (L)	Continuous improvement: The level of risk is broadly acceptable and generic control measures are required, aimed at avoiding deterioration. * Non-credible hazards require no further risk assessment.
Medium (M)	The level of risk can be tolerable only once a structured review of the risk-reduction measures has been carried out (where necessary, the relevant guidance from the local authorities should be adopted for application of ALARP).
Medium – High (orange)	
High (H)	Intolerable risk: The level of risk is not acceptable and risk control measures are required to lower the risk to another level of significance.

The environmental risk assessment process includes an analysis of inherent and residual risk levels. Inherent risk levels assume limited controls are in place. Residual risk levels are based on the application of further recommended risk reduction measures above and beyond those minimum standards, which drive the risk level down to ALARP.

For risks to be considered to be reduced to ALARP the following criteria must apply:

- there are no reasonable practicable alternatives to the activity, or
- the cost (i.e. sacrifice) for implementing further measure is disproportionate to the reduction in risk.

Table 4.4: Eni ALARP factors

ALARP Factors	Description
Eliminate	Eliminate the source of the risk.
Substitute	Substitute the source of the risk.
Engineering	Engineer out the risk.
Isolation	Isolate people or the environment from the risk.
Administrative	Provide procedures of training to people to lower the risk.

Eni considers a range of factors when evaluating the acceptability of environmental impacts associated with its activities. This evaluation is outlined in Table 4.5.

Table 4.5: Eni acceptability factors

Demonstration of Acceptability	
Compliance with Legal Requirements/Laws/ Standards	Considers the legal aspect, particularly compliance with applicable legislative prescriptions and/or regulations in force which imply specific procedures to be carried out by the Titleholder to control the environmental aspect.
Policy Compliance	The risk or impact must be compliant with the objectives of Eni policies.
Social Acceptability	Considers the 'social' aspects that can alter stakeholder perception on the Titleholder's commitment regarding the safeguard and protection of the environment and that can cause serious harm to the Titleholder's public image.

Demonstration of Acceptability	
Area Sensitivity/ Biodiversity	The proposed risk or impact controls, environmental performance outcomes and standards must be consistent with the nature of the receiving environment.
Environmentally Sustainable Development Principles	The overall activity is consistent with the APPEA Principles of Conduct.
ALARP	There is a consensus among the risk assessment team that risks or impacts are at ALARP.

4.2 Spill Risk Assessment Methodology

Spill modelling was undertaken by RPS APASA on behalf of Eni. The following spill scenarios were modelled:

- A 74-day uncontrolled surface release of 4,943 m^3 (31,090 bbl) of Blacktip Condensate from the Blacktip P3 Development Well
- A 24-hour subsurface release of 250 m^3 of Blacktip condensate at the Blacktip SPM location

Surface oil spill modelling was undertaken using a three-dimensional oil spill trajectory and weathering model, SIMAP (Spill Impact Mapping and Analysis Program), which is designed to simulate the transport, spreading and weathering of specific oil types under the influence of changing meteorological and oceanographic forces. Subsurface discharge modelling was undertaken using OILMAP, which predicts the droplet sizes that are generated by the turbulence of the discharge as well as the centreline velocity, buoyancy, width and trapping depth (if any) of the rising gas and oil plumes.

Modelling is applied to repeatedly simulate the defined credible spill scenarios using different samples of current and wind data. These data samples were selected randomly from an historic time-series of wind and current data representative of the study area.

Results of the replicate simulations were then statistically analysed and mapped to define contours of percentage probability of contact at identified thresholds around the hydrocarbon release point. The stochastic approach captures a wide range of potential weathering outcomes under varying environmental conditions, which is reflected in the aggregated spatial outcomes showing the areas that might be affected by sea surface and subsurface oil.

The modelling outcomes provide a conservative understanding of where a large-scale hydrocarbon release could travel in any condition, plotted all in one figure. The modelling does not take into consideration any of the spill prevention, mitigation and response capabilities that would be implemented in response to the spill. Therefore, the modelling results represent the maximum extent that may be influenced by the released hydrocarbons.

4.2.1 ZPI and Hydrocarbon Contact Thresholds

The outputs of the spill modelling are used as a tool to assess the environmental risk if the modelled credible hydrocarbon spill scenario occurred. It can provide an insight into the areas of the marine environment that could be exposed to hydrocarbon levels exceeding hydrocarbon threshold concentrations (Table 4.6).

A conservative approach to adopting contact thresholds that are documented to impact the marine environment are used to define the ZPI. These hydrocarbon thresholds are presented in Table 4.6 and described further below.

Table 4.6: Summary of environmental impact thresholds applied to the quantitative hydrocarbon spill risk modelling results

Surface Hydrocarbon (g/m^2)	Entrained hydrocarbon (ppb)	Dissolved aromatic hydrocarbon (ppb)
10	100	6

4.2.2 Surface Hydrocarbon Threshold Concentrations

Thresholds for registering biological impacts resulting from contact of surface slicks have been estimated by different researchers at approximately 10–25 g/m^2 (French *et al*., 1999; Koops *et al*., 2004; NOAA, 1996). Potential impacts of surface slick concentrations in this range for floating hydrocarbons may include harm to seabirds through ingestion from preening of contaminated feathers or the loss of the thermal protection of their feathers. The 10 g/m^2 threshold is the reported level of oiling to instigate impacts to seabirds and is also applied to other wildlife though it is recognised that 'unfurred' animals where hydrocarbon adherence is less, may be less vulnerable. 'Oiling' at this threshold is taken to be of a magnitude that can cause a response to the most vulnerable wildlife such as seabirds.

4.2.3 Entrained Hydrocarbon Threshold Concentrations

The 100-ppb threshold is considered conservative in terms of potential for toxic effects leading to mortality for sensitive mature individuals and early life stages of species. This threshold has been defined to indicate a potential zone of acute exposure, which is more meaningful over shorter exposure durations. Contact within this exposure zone may result in impacts to the marine environment.

4.2.4 Dissolved Aromatic Threshold Concentrations

The 6-ppb threshold value for species toxicity in the water column is based on global data from French *et al*. (1999) and French-McCay (2002, 2003), which showed that species sensitivity (fish and invertebrates) to dissolved aromatics exposure >4 days (96-hour LC50) under different environmental conditions varied from 6 ppb-400 ppb, with an average of 50 ppb. This range covered 95% of aquatic organisms tested, which included species during sensitive life stages (eggs and larvae).

Based on scientific literature, a minimum threshold of 6 ppb is used to define the low exposure zones (Engelhardt, 1983; Clark, 1984; Geraci & St. Aubin, 1988; Jenssen, 1994; Tsvetnenko, 1998).

This exposure zone is not considered to be of significant biological impact, however in the absence of any toxicology results on the Blacktip condensate the 6-ppb threshold has been applied for as conservative measure. This exposure zone represents the area contacted by the spill and conservatively defines the outer boundary of the area of influence from a hydrocarbon spill.

4.3 Summary of Risks and Control Measures

Risk identification and assessment for the Blacktip Operations was undertaken and all the credible risks from the Blacktip operations and drilling of the P3 development well were assessed and performance outcomes, standards and measurement criteria to reduce the risks to ALARP and acceptable were developed. A summary of the environmental risks, control measures and risk ranking is provided in Table 4.7.

Table 4.7: Summary of environmental risks and control measures of Blacktip activities

Hazard	Potential Impact	Control Measures	L[2]	S	RR
Planned Events					
1. Interaction with other users	During normal operations, the presence of the WHP, SPM and the 500 m PSZ has the potential to result in the exclusion of other marine users. And the presence of the GEP on the seabed has the potential to interact with trawl fisheries. Several NT, WA and Commonwealth fisheries overlap the Operational Area. A stakeholder raised concern over the establishment (including timing) of the third well and the disruption to, or displacement of commercial fishing activities. The drilling will occur at the WHP which has a 500 m gazetted Petroleum Safety Zone (PSZ), commercial fishing activities are not permitted within the PSZ. Given the continued presence of the infrastructure over the last 10 years with no issues, and the vastness of the fishery zones and the insignificant size of the exclusion zone relative to the total fishery area, displacement impact from the drilling activity is considered to be no greater than that due to the ongoing presence of the WHP and the interference is considered low risk. The nearest shipping fairway is 100 km from the Operational Area and therefore the presence of surface infrastructure (WHP and SPM), vessel and MODU is unlikely to cause any disturbance to shipping traffic. Traditional and subsistence fishing is generally limited to shorelines, creeks and nearshore reefs the Petroleum Activities Program should not cause any interference.	Navigation equipment and procedures on MODU and vessels compliant with Marine Order Part 30 2009. Navigation equipment and procedures on MODU and vessels compliant with AMSA Marine Order Part 21 2012. The Australian Hydrographic Office (AHO) is notified 4 weeks prior to commencing drilling activity. The AMSA Rescue Coordination Centre (RCC) will be notified of the drilling operations 48 hours prior to mobilisation to ensure that navigation AUSCOAST warnings can be issued and kept up to date. Consultation was undertaken with key stakeholders during the development of this EP. Consultation with relevant commercial fishing stakeholders prior to the drilling activity. Notification to DNP approximately 10 days prior to IMR in the AMP and at the end of IMR activities. A 500 m PSZ is maintained around WHP during drilling and communicated to marine users. Marine radio available and monitored.	A	1	Low

2 L = Likelihood, S = Severity, RR = Residual Risk

Hazard	Potential Impact	Control Measures	L[2]	S	RR
		Establishment of a 500 m PSZ around WHP and SPM.			
2. Atmospheric Emissions	During normal operations, atmospheric emissions will mainly result from power regeneration required for the operation of the WHP and vessels. Venting may also occur intermittently from the WHP during IMR activities. During drilling atmospheric emissions will released by the MODU as a result of combustion for power generation and transport, and emissions will also be released from the flare-tip during clean-up via the well test package on the MODU. MODU and vessels may also utilise ozone-depleting substances (ODS) in closed system rechargeable refrigeration systems.	Air pollution prevention certification in accordance with Marine Order 97 is in place on MODU and vessels. Ozone-depleting substance handling procedures are in place on MODU and vessels and in accordance with Marine Order 97. Low sulphur fuels is used when available, in accordance with Marine Order 97. Use of a test package with an efficient flare design to minimise potential impacts.	E	1	Low
3. Routine Helicopter, Vessel, WHP and MODU Noise	Vessel, WHP and MODU routine activities will generate noise both in the air and underwater. WHP and helicopters will generate airborne noise and surface vibrations that can travel underwater. Helicopter, vessel and MODU activity is not constant within the Operational Area and routine noise risk is therefore limited to periods relating to specific activities such as drilling, IMR, and geophysical surveys. Potential environmental impacts from noise from helicopters, vessels, WHP and the MODU include: • behavioural change in marine fauna (localised avoidance/attraction) • temporary hearing impairment / threshold shift (TSS) to marine fauna • inducing stress in marine fauna • disruption to marine fauna underwater acoustic cues, and	All vessels to comply with EPBC Regulations 2000-Part 8 Division 8.1 (Regulation 8.05). • A vessel will not travel greater than 6 knots within 300 m of a whale (caution zone) and not approach closer than 100 m from a whale. • A vessel will not approach closer than 50 m or a dolphin and/or 100 m from a whale (with the exception of animals bow riding) All vessels to comply with EPBC Regulations 2000-Part 8 Division 8.1 (Regulation 8.06). • vessel will not approach closer than 300 m to a calf (whale or dolphin) (the caution zone) • caution zone, then the vessel must be immediately stopped; and must either: • turn off the vessel's engines; or	A	1	Low

Hazard	Potential Impact	Control Measures	L[2]	S	RR
	• secondary ecological effects – alteration of predator prey relationship. Underwater noise generated through vessel positioning and movement and the drilling activity do not have the intensity and characteristics likely to cause physiological damage in marine fauna (Nedwell & Edwards, 2004; Hatch & Southall, 2009). In addition, the sound energy levels generated from helicopters, vessels and drilling are considered relatively low intensity when compared to natural noise sources. In the Operational Area the marine fauna most at risk from acoustic disturbance are marine mammals, as the auditory bandwidth of large whales overlap with the low frequency broadband noise produced by thrusters during vessel positioning and movement as well as active drilling. Impacts are likely to be limited to behavioural disturbance, as the noise levels likely to be produced by operations are well below proposed injury criteria for low frequency marine mammals (estimated at 230 dB re 1 µPa) (Southall et al., 2007) and injury (estimated at 179 dB re 1 µPa) (Southall et al., 2007).	• disengage the gears; or withdraw the vessel from the caution zone at a constant speed of less than 6 knots. Marine fauna observations from bridge watch undertaken during the drilling and IMR activities. All vessels to comply with EPBC Regulations 2000-Part 8 Division 8.1 (Regulation 8.07). • Helicopters shall not operate lower than 1650 feet or within horizontal radius of 500 m of a cetacean known to be present in the area, except for take-off and landing. Vessels will comply with Eni Marine Management policies and have an IMR program operating to ensure engines and equipment are kept in good working order.			
4. Underwater Survey Equipment Noise	Geophysical surveys undertaken as part of the Petroleum Activities Program have the potential to cause noise emissions which have the potential to impact marine fauna. Geophysical survey instrumentation (boomer, Sub-Bottom Profiler [SBP], Multi-Beam Echo Sounder [MBES] and Side Scan Sonar [SSS]) is designed to characterize the seabed topography, bathymetry, potential geohazards, and other seafloor features. The use of geophysical survey instrumentation is limited to the following activities and durations: • Geophysical survey prior to drilling the P3 development well	All vessels to comply with EPBC Regulations 2000-Part 8 Division 8.1 (Regulation 8.05). • vessel will not travel greater than 6 knots within 300 m of a whale (caution zone) and not approach closer than 100 m from a whale. • A vessel will not approach closer than 50 m or a dolphin and/or 100 m from a whale (with the exception of animals bow riding) All vessels to comply with EPBC Regulations 2000-Part 8 Division 8.1 (Regulation 8.06).	A	2	Low

Hazard	Potential Impact	Control Measures	L[2]	S	RR
	• Geophysical survey of the Gas Export Pipeline (GEP) (twice in five years for a period of 3-5 days) • Geophysical survey SPM (annually for a period of 3-5 days). Elevated underwater noise can affect marine fauna including cetaceans, fish, turtles, sharks and rays in three main ways (Richardson et al., 1995): • by causing direct physical effects on hearing or other organs, including: – mortality/potential mortal injury resulting from exposure to noise (not considered credible given the noise sources associated the geophysical surveys) – Permanent Threshold Shift (PTS) – permanent reduction in the ability to perceive sound after being exposed to noise – Temporary Threshold Shift (TTS) – temporary reduction in the ability to perceive sound after exposure to noise, with hearing returning to normal. • by masking or interfering with other biologically important sounds, including vocal communication, echolocation, signals and sounds produced by predators or prey • through disturbance leading to behavioural changes or displacement from important areas.	• vessel will not approach closer than 300 m to a calf (whale or dolphin) (the caution zone) • caution zone, then the vessel must be immediately stopped; and must either: • turn off the vessel's engines; or • disengage the gears; or withdraw the vessel from the caution zone at a constant speed of less than 6 knots. Marine fauna observations from bridge watch undertaken during the drilling and IMR activities. All vessels to comply with EPBC Regulations 2000-Part 8 Division 8.1 (Regulation 8.07). • Helicopters shall not operate lower than 1650 feet or within horizontal radius of 500 m of a cetacean known to be present in the area, except for take-off and landing.			
5. Light Emissions	Artificial lighting can cause a change in the behaviour of fauna, particularly nesting turtles and birds. The main implication of artificial lighting for marine turtles is the disruption of hatchling sea-finding behaviour, as hatchlings can be disoriented if lights or atmospheric glow occur away from the sea. Adult turtles are more inclined to avoid brightly lit facilities (Witherington & Martin,	Navigation lighting and aids (Communication) in accordance with Marine Order 30 and with Marine Order 21.	B	1	Low

Hazard	Potential Impact	Control Measures	L^2	S	RR
	1996). Artificial lighting may also attract seabirds or migratory shorebirds. Increased predation associated with light attraction may also result from artificial light emissions. Experiments using light traps indicate that some fish and zooplankton species are attracted to light sources. The EPA estimates light may influence marine turtles within a distance of approximately 1.5 km. Given that the closest beaches to the Operational Area is 7 km from the condensate off-stake SPM location and the closest known nesting beach is Yelcherr Beach (10 km to the east of the Operational Area), significant impacts are not expected on nesting adults or hatchlings. Given that no light sensitive nesting habitat is present within the area over which light will be visible, the most significant risk posed to marine turtles from artificial lighting (being disorientation of hatchlings following their emergence from nests) is considered unlikely. Transient individuals may be exposed to the artificial light from the activity for short periods only. Light generated during drilling (including flaring), IMR and intervention, survey and offtake activities is limited to the activity duration, and lighting on the WHP is kept to the minimum required for safety and navigation. Given the limited area over which light emissions are likely to extend, impacts to marine fauna are highly unlikely.				
6. Grey Water, Sewage and Putrescibles Discharge	Vessels and MODU will produce putrescible wastes such as greywater, sewage and food scraps during vessel and MODU activities. Grey water and sewage as well as food wastes will be generated on-board the vessels and MODU and volumes will be directly proportional to the number of persons on board (POB). The typical POB of the MODU and vessels to be used is in the order of 120 and 20-30, respectively. Typically, 30-40 L of	MODU and vessels comply with Marine Order 96 – pollution prevention – sewage (as appropriate to vessel class) which include the following requirements:	B	1	Low

Hazard	Potential Impact	Control Measures	L^2	S	RR
	sewage/greywater and approximately 1 L of food waste will be produced per person per day on the MODU / vessel. Sewage discharge may result in an increase in nutrient availability and biological oxygen demand (BOD) in the marine environment. In the open oceanic environment however, the effect of the effluent BOD on seawater oxygen concentrations is expected to be insignificant (Black et al., 1994). Discharge of putrescibles wastes may attract pelagic marine fauna, such as fish and sharks, and increased nutrient availability may result in the biostimulation of marine organisms and a slight increase in algal growth in the local environment near the outlet. The mass of nutrients to be discharged in sewage on a daily basis is likely to be small and, given the open ocean environment of the field, rapid dilution of the effluent is expected, resulting in highly localised effects (Black et al., 1994). In addition, the rapid consumption of food waste by scavenging fauna, and physical and microbial breakdown, ensures that the impacts of putrescible waste discharges are short-lived. Given the minor quantities and high dispersion in the open, offshore environment, any significant impact on the marine environment from discharge of greywater, sewage and putrescibles is highly unlikely.	• A valid International Sewage Pollution Prevention (ISPP) Certificate, as required by vessel class; • An AMSA approved sewage treatment plant; • A sewage comminuting and disinfecting system; • A sewage holding tank sized appropriately to contain all generated waste (black and grey water); • Discharge of sewage which is not comminuted or disinfected will only occur at a distance of more than 12 nm from the nearest land; • Discharge of sewage which is comminuted or disinfected using a certified approved sewage treatment plant will only occur at a distance of more than 3 nm from the nearest land; and • Discharge of sewage will occur at a moderate rate while support vessel is processing (>4 knots), to avoid discharges in environmentally sensitive areas. MODU and vessels comply with Marine Order 95 (Marine pollution prevention garbage): • Putrescible waste will only be discharged to sea if comminuted to 25 mm or less and discharged en-route when greater than 3 nautical miles from the 'territorial sea baseline'. • If putrescible waste is not comminuted to 25 mm or less, it will be discharged greater than 12 nautical miles from the territorial sea baseline while en-route.			

Hazard	Potential Impact	Control Measures	L^2	S	RR
7. Discharge of Contaminated Water	Deck drainage water on the WHP, vessels and MODU is from rainfall or wash-down operations and would be discharged to the marine environment. The deck drainage will contain particulate matter and residual chemicals such as cleaning chemicals and washes. Deck drainage will depend on the amount of rainfall, frequency and length of offshore campaigns, type of vessel and frequency of deck cleaning, and therefore the volume of deck drainage difficult to predict. Deck drainage has the potential to include small amounts of detergents, spilt chemicals, used machinery chemicals and dirt from the decks. Bilge water consists of deck drainage that has been captured in a closed-loop system (e.g. bunded areas are directed to the bilge water tank for removal of oil prior to discharge) and contains small volumes of such chemicals or hydrocarbons (oil, grease). Cooling water will remain in the surface layer, where turbulent mixing and heat transfer with surrounding waters will occur. This will cause localised increases in water temperature. The potential impacts of increased seawater temperatures downstream of the cooling water discharge are localised changes to the physiological processes of marine organisms (particularly plankton) including attraction or avoidance behaviour, stress or mortality. Given that the temperature of the discharge is only marginally higher than that of the receiving waters and the receiving environment is subject to strong currents, the impacts of cooling water discharges are considered minor and will be temporary and localised. During pipeline section replacement, the pipeline will be flushed with potable water or seawater treated with corrosion inhibitor and/or fully purged with nitrogen. Residual quantities of condensate may be present in the pipeline and up to approximately 16 m^3 of oily water could be released during	MODU and vessels comply with Marine Orders 91 – oil (as relevant to vessel class) requirements which include mandatory measures for the processing of oily water prior to discharge including: • Machinery space bilge/oily water shall have International Maritime Organisation (IMO) approved oil filtering equipment (oil/water separator) with an on-line monitoring device to measure Oil in Water (OIW) content to be less than 15 ppm prior to discharge. • IMO approved oil filtering equipment shall also have an alarm and an automatic stopping device or be capably of recirculating in the event that OIW concentration exceeds 15 ppm. • A deck drainage system shall be capable of controlling the content of discharges for areas of high risk of fuel/oil/grease or hazardous chemical contamination. • There shall be a waste oil storage tank available, to restrict oil discharges. • In the event that machinery space bilge and deck drainage discharges cannot meet the oil content standard of <15 ppm without dilution or be treated by an IMO approved oil/water separator, they will be contained on-board and disposed of onshore. Oily water prevention system in place for MODU and vessels.	B	1	Low

Hazard	Potential Impact	Control Measures	L^2	S	RR
	pipeline cutting. The selected corrosion inhibitor will be registered on the Centre for Environment, Fisheries and Aquaculture Science (CEFAS) OCNS list with assigned Hazard Quotients (HQs) Bands of gold or silver, or OCNS Groups E or D and therefore considered acceptable for use and discharge.	Prior to pipeline cutting activities, the pipeline will be flushed to remove hydrocarbons from the pipeline. Any planned discharge from pipeline cutting will have an oil in water content less than 30 mg/L.			
8. Drilling Muds and Fluid Discharge	Drilling mud and fluids discharge are associated with drilling activities. During the drilling activity the following drilling muds and fluids discharges to the marine environment are expected: • WBM drill fluids / muds (on cuttings) • Cement • Well bore clean-up fluids • Tank cleaning residue. The Operational Area is 500 km from the BIA for pygmy blue whale distribution and migration BIA and the BIA for humpback breeding and calving is BIA is 300 km south-west). There is low likelihood of encountering these cetaceans and those within the Operational Area would be transiting only. Impact to these species would be unlikely. No sensitive pelagic and demersal species habitats are within the Operational Area and therefore large numbers of these species are not expected. As such any impact from mud and fluids discharge considered unlikely. No BIA for fish species overlap the Operational Area. Given the minor quantities of planned discharges, short discharge durations and the low toxicity and high dispersion in the open, offshore environment, any impacts on the marine environment from discharge of drilling muds and fluids are expected to minor	Cement, clean-up fluids and WBM chemicals will be assessed in accordance with the Chemical Risk Assessment.	B	2	Low

Hazard	Potential Impact	Control Measures	L^2	S	RR
	and unlikely. Recovery of water quality conditions is expected within hours after the cessation of drilling.				
9. Seabed Disturbance	The following seabed disturbance is anticipated during drilling: • Drillings cuttings • Placement of MODU legs Total area of seabed disturbance during drilling is <6 km^2. During IMR activities the following is anticipated: • Use of Remotely Operated Vehicle (ROV) (4.25 m^2) • Placement of gravel bags and or concrete mattresses over localised areas of the subsea infrastructure if required (including the GEP within the JBG AMP) • Pipeline repair activities if required (2 m^2); • Pipeline section replacement if required (200 m^2 based on up to 100 m of pipeline). No sensitive receptors (KEFs, Marine Parks) are reached at impact thresholds concentrations (APASA, 2019a). Due to the localised area of disturbance, impacted benthic communities are expected to rapidly recolonise any damaged areas within 6 to 12 months of cessation of drilling (Currie & Isaacs, 2005).	Cuttings management process is undertaken on drilling cuttings to reduce impacts which includes: • Where cuttings are discharged overboard, they must be discharged below the water line; • WBM cuttings returned to the MODU will be processed using SCE allowing reuse of mud, where possible, prior to discharge.	A	1	Low
Unplanned Events					
1. Non-Hazardous and	Non-hazardous solid wastes produced on vessels include cardboard, plastic, aluminium and paper. These waste materials will be stored on board in suitable containers (segregated from	Hazardous and non-hazardous waste management process is in place on MODU and vessels in accordance with Marine Order 95 (Marine pollution prevention – garbage).	A	2	Low

Hazard	Potential Impact	Control Measures	L^2	S	RR
Hazardous Waste	hazardous waste materials) ahead of transport back to shore for disposal/recycling in accordance with local regulations. Hazardous wastes are defined as being waste materials that are harmful to health or the environment. Chemicals and other hazardous materials that may be stored on the vessels include: lubricating oils, cleaning and cooling agents, oil filters and batteries, contaminated Personal Protective Equipment (PPE) and rages, paint, aerosol cans, acids/caustics and solvents, and naturally occurring radioactive material (NORM). No discharge of non-hazardous solid or hazardous waste to sea is planned. Potential impacts of unplanned discharge of non-hazardous solid waste to sea include potential physical harm to marine fauna resulting from ingestion or entanglement with solid waste (garbage). If accidentally lost overboard, hazardous waste would result in a temporary and highly localised hazardous water quality zone. This could have a toxic effect on marine fauna that are present within this zone. The exposure and toxicity would be highly temporary due to rapid dilution and dissipation in the marine environment. The Operational Area is not within or near BIAs or migratory routes for marine mammals, there is low likelihood of these cetaceans occurring with the Operational Area. Encounters within the Operational Area is limited to individuals transiting only.	All hazardous and non-hazardous wastes generated at sea will be retained on vessel / MODU and disposed of onshore by a licensed Waste Management Contractor (excluding putrescible waste and sewage). All personnel will be notified of the correct waste management procedures through the induction process. All waste material that could reasonably be lost overboard is stored securely. All wastes including hazardous wastes and chemicals will be segregated into clearly marked containers. All hazardous wastes and chemicals will be stored in a bunded area capable of containing leakage or spillage, prior to onshore disposal.			
2. Vessel Collision with Marine Fauna	There is the potential for vessels to collide with marine fauna including cetaceans, fish, marine reptiles and seabirds during the Petroleum Activity Program. The main collision risk associated with the Petroleum Activities Program is through vessel collision with large, slow moving cetaceans; potentially resulting in severe injury or mortality.	EPBC Regulations 2000 – Part 8 for interacting with marine fauna are enforced during the activities, including Part 8 Division 8.1 (Regulation 8.05):	A	2	Low

Hazard	Potential Impact	Control Measures	L[2]	S	RR
	Vessel activity is not constant within the Operational Area and vessel collision with marine fauna risk is therefore limited for periods relating to that specific activity (e.g. drilling, IMR, geophysical surveys etc.). Vessel collision with marine fauna may result in injury or death of marine fauna. Marine fauna that are present in surface waters such as marine turtles and cetaceans are most susceptible to vessel strikes due to their proximity to the vessel (hull, propeller or equipment). Marine turtles on the sea surface or in shallow coastal waters have been observed avoiding approaching vessels by typically moving away from the vessels track (Hazel et al., 2007). Cetaceans including humpback whales demonstrate a variety of behaviours in response to approaching vessels (attributed to vessel noise), including longer dive times and moving away from the vessel's path with increased speed (Baket & Herman, 1989). These behaviours may contribute to reducing the likelihood of a vessel strike. The Operational Area is 500 km from the pygmy blue whale distribution and migration BIA and 300 km from the for-humpback breeding and calving is BIA. As the Operational Area is not within or near BIAs or migratory routes for marine mammals, there is low likelihood of these cetaceans occurring with the Operational Area.	• A vessel will not travel greater than 6 knots within 300 m of a whale (caution zone) and not approach closer than 100 m from a whale. A vessel will not approach closer than 50 m or a dolphin and/or 100 m for a whale (with the exception of animals bow riding). EPBC Regulations 2000 – Part 8 for interacting with marine fauna are enforced during the activities, including Part 8 Division 8.1 (Regulation 8.06) – Interacting with calves, which requires: • Vessel will not approach closer than 300 m to a calf (whale or dolphin) (the caution zone) • caution zone, then the vessel must be immediately stopped; and must either: • Turn off the vessel's engines; or • Disengage the gears; or • Withdraw the vessel from the caution zone at a constant speed of less than 6 knots. Marine fauna observations from bridge watch undertaken during the drilling and IMR activities.			
3. Introduction of Marine Pest Species	Marine pest species may potentially be transported to the Operational Area as a component of ballast water (and associated sediments) or as marine fouling on vessels. Ballast water is responsible for 20–30% of all marine pest incursions into Australian waters, however, research indicates that biofouling (the accumulation of aquatic micro-organisms, algae, plants and animals on vessel hulls and submerged surfaces) has been	MODU and vessels to be risk assessed prior to contracting using the DPIRD vessel tool to ensure vessels and MODU are at 'low risk' of introducing invasive marine species. Pursuant to the Biosecurity Act 2015 and Australian Ballast Water Management Requirements 2017 (DAWR), support vessels carrying ballast water and engaged in	A	3	Low

Hazard	Potential Impact	Control Measures	L^2	S	RR
	responsible for more foreign marine introductions than ballast water (DAFF, 2011). Non-endemic marine species transported into areas where they have not previously been found can displace native species, or interfere with ecosystem processes in other ways (e.g. through predation). The successful establishment of an exotic species transported via either ballast or hull-fouling depends primarily on three factors: • colonisation and establishment of the marine pest on a vector (vessel, equipment or structure) in a donor region (e.g., a home port, harbour or coastal project site where a marine pest is established) • survival of the marine pests on the vector during the voyage from the donor to the recipient region • colonisation (for example, by reproduction or dislodgement) of the recipient region by the marine pest, followed by successful establishment of a viable new local population. Water depths within the Operational Area vary between 20 m (at the SPM and along the GEP) and 50 m (at the WHP). Establishment of IMS has a higher potential in the shallower waters of the SPM and GEP as more light is able to reach the seabed, promoting marine growth. However, it should be noted that sonar images have shown featureless sandy / clay seabed along the GEP and SPM.	international voyages shall manage ballast water in accordance with a Ballast Water Management Plan so that marine pest species are not introduced. IMS Management Methods will be applied to MODU and vessels to reduce IMS risk to 'low risk' as per the DPIRD vessel check tool.			
4. Loss of Hydrocarbons, Hydraulic Fluid and	Sources of accidental hydrocarbons, hydraulic fluid and bulk chemicals / fluids minor spill/leaks include: • Hydrocarbon and hydraulic fluids (<1 m^3) from:	MODU and vessels comply with Marine Orders 91 – oil (as relevant to vessel class) requirements which include mandatory measures for the processing of oily water prior to discharge.	B	1	Low

Hazard	Potential Impact	Control Measures	L^2	S	RR
Bulk Chemicals / Fluids (minor spill/leaks)	– ROV failure (including oil seal, hydraulic system hose and quick disconnect system failures); – Structural failure of infrastructure containing diesel on WHP, vessel or MODU; and – Loss of primary containment due to dropped objects (e.g. swinging load during lifting activities). • Fluid and diesel from flaring drop-out (<1 m^3); • Hydraulics fluid from the SSIV and valves on the SPM (<1 m^3); and • Chemical loss (<1 m^3) during bulk transfer (transferred from vessels to the WHP). The types of fluids stored on the MODU, WHP and vessels range from lubricating fluids to hydraulic, fuel and cooling fluids. Leaks could occur due to a failure of a mechanical component, fitting or hose. Outside vessels, the largest credible spill would be a release of <1 m^3 of stern tube oil (non-hydrocarbon-based lube oil) from a vessel thruster/propeller stern tube. In the event of a chemical spill from the WHP or MODU during bulk transfer, impacts will be localised and temporary due to the low potential spill volume. Accidental releases of chemicals to the marine environment will not result in potential impact greater than temporary contamination above background water quality. Potential effects will be localised and short-term. For the crane, ROV, vessel and MODU hydraulic leaks, it is expected that the operator would notice and address the release quickly, therefore limiting the quantity spilt. In most cases, a large proportion of the release is likely to be contained on the surface of the equipment and/or deck bunded areas. Most hydraulic fluid leaks are small <1 m3. The small amount of hydraulic fluids	Vessel spill response plan (SOPEP) in place for MODU and vessels and contains plans in case of an oil spill to prevent spills reaching the marine environment, as appropriate to vessel class. Spill response kits located in proximity to hydrocarbon storage/bunkering areas and appropriately stocked/replenished as required. Chemical Transfers to the WHP will be undertaken in accordance with Marine Operations Manual and Chemical Storage Tank Filling Procedure which includes: • High level alarm; and • Communications with CCR.			

Hazard	Potential Impact	Control Measures	L^2	S	RR
	discharged will mix through the water column and it is envisaged that potential effects will be localised and short-term.				
5. Loss of Containment from Well Blowout	Credible spill scenario for well blowout of Blacktip condensate at the WHP are: • Loss of well control during drilling of the P3 development resulting in a long-term (74 day) uncontrolled surface release of 4,943 m^3 Blacktip condensate • Loss of well control during production operations from the P1, P2 or P3 (when online) wells resulting in a long-term (74 day) uncontrolled surface release of <4,943 m^3 Blacktip condensate • Loss of well control during drilling or production operations as a result of an explosion / fire scenario resulting in short term (3 day) surface release and a long-term (71 day) uncontrolled surface release of 4,943 m^3 Blacktip condensate A loss of well control is an uncontrolled release of reservoir hydrocarbon or other well fluids to the marine environment, resulting from an over-pressured reservoir. Eni has identified a blowout as the scenario with the worst case credible spill volume from of loss of well control. A blowout is an incident where formation fluid flows out of the well or between formation layers after all the predefined technical well barriers (e.g. the BOP) or activation of the same have failed. A surface blowout is the most credible scenario from drilling and production operation activities. The wellheads are located on the WHP and therefore a blowout of condensate would be release from the surface. A subsea loss of well control is a credible scenario in the event of an explosion scenario at the WHP or MODU. In this event the MODU or WHP is expected to sink due to an anticipated compromise in structural integrity and stability after a period of	Accepted Well Operations Management Plan (WOMP) includes control measures for well integrity that reduce the risk of an unplanned release of hydrocarbons. Well Operations Management Plan (WOMP) in place prior to drilling of the P3 development well includes control measures for well integrity that reduce the risk of an unplanned release of hydrocarbons. MODU Safety Case includes control measures for well control that reduce the risk of an unplanned release of hydrocarbons. Blacktip Facilities Safety Case includes control measures for well control that reduce the risk of an unplanned release of hydrocarbons. BOP installed during relevant drilling operations and BOP specification and function testing is undertaken in accordance with: • Eni Well Control Manual STAP-P-1-M-25007 • Original Equipment Manufacturer (OEM) Standards; • API Standard 53. Eni Source Control Response Plan (ENI-WOP-PL-001) and its addendum is in place and detail the steps to expedite the drilling of a relief well, including:	A	4	Medium

Hazard	Potential Impact	Control Measures	L^2	S	RR
	time. In this case, the Blacktip condensate would be expected to be released at surface for 36 hours before becoming a subsea release once the structure collapses.	• relief well design • simulation of the dynamic kill • high level requirement for the rig and the equipment, volumes and the pumping pressures. At least two isolation barriers are in place between the reservoir and the environment. Mutual aid MoU for relief well drilling is in place which allows for expedited use of drilling rig for relief well drilling. Relevant well site personnel hold International Well Control Forum certificates.			
	<u>Hydrocarbon characteristics and weathering</u> Blacktip Condensate (API 46.7) contains a low proportion (1% by mass) of hydrocarbon compounds that will not evaporate at atmospheric temperatures and will persist in the marine environment. The whole condensate has low asphaltene content (<0.5%), indicating a low tendency for the hydrocarbons to take up water to form water-in-oil emulsion over the weathering cycle. A weathering study predicted rapid evaporation of Blacktip condensate is with 67% of the volume of the condensate is lost within the first 2 hours and 89 % by 8 hours. Between 8 and 72 hours a further 7% is lost reaching a maximum weathering at 72 hours of 95% lost volume (Intertek, 2013). <u>Surface and shoreline hydrocarbon</u> Hydrocarbons are predicted to remain relatively localised around the release location, with very low probabilities of contact to the nearest shoreline receptors (1%). The worst replicate spills modelled determined low maximum accumulated shoreline hydrocarbon for the JBG East, JGB West and Kimberley coast at 10 m^3, <1 m^3 and <1 m^3 respectively. The maximum distance to the outer extent of the 1 g/m^2 is predicted to be 19 km. Floating oil concentrations are not predicted to exceed 10 g/m^2 and 25 g/m^2 thresholds at probabilities greater than 1%.				

Subsurface – entrained hydrocarbon

Entrained oil concentrations at or greater than 100 ppb could travel up to 310 km from the release location. Concentrations are not predicted to exceed 500 ppb. Probability contours calculated for entrained oil at or greater than 100 ppb reveal that oil will typically migrate in longshore directions towards Darwin to the north and Broome to the south, with each of these opposing trajectories more likely in certain seasons.

The probabilities of contact by entrained oil concentrations are predicted to be greatest at the Carbonate Bank and Terrace System of the Sahul Shelf KEF (4% at 100 ppb), Joseph Bonaparte Gulf AMP (1% at 100 ppb), Kimberley AMP (1% at 100 ppb) and the Kimberley Coast (1% at 100 ppb)

Subsurface – aromatics

Dissolved aromatic hydrocarbon concentrations at or greater than 6 ppb could travel up to 532 km from the release location. The probability contours calculated for dissolved aromatic hydrocarbons reveal that the directions of travel follow those of the entrained oil.

The probabilities of contact by dissolved aromatic hydrocarbon concentrations are predicted to be greatest at the Carbonate Bank and Terrace System of the Sahul Shelf KEF, Joseph Bonaparte Gulf AMP, Joseph Bonaparte Gulf West and Kimberley AMP with probabilities of 28%, 3%, 1% and 1% at the 6 ppb threshold

The worst-case instantaneous dissolved aromatic hydrocarbon concentration at any receptor is predicted at the Carbonate Bank and Terrace System of the Sahul Shelf KEF as 44 ppb.

The potential environmental impact to sensitive receptors is summarised below.

Environmental Sensitivity	Potential Impact
Marine fauna	
Plankton (including zooplankton; fish and coral larvae)	Surface hydrocarbons will have no impact on plankton as plankton is present in the water column only. There is potential for localised mortality of plankton due to reduced water quality and toxicity. Effects will be greatest in the upper 10 m of the water column and areas close to the spill source where hydrocarbon concentrations are likely to be highest. The Operational Area at the WHP is not anticipated to provide spawning grounds for mackerel or demersal species fished in the JBG, given their preference for spawning in oceanic conditions on reef edges and areas (NT Government, 2005, Department of Fisheries, 2010, Department of

Hazard	Potential Impact		Control Measures	L^2	S	RR
			Fisheries, 2011). The Operational Area at the SPM location is within the JBG Marine Park which contains a number of prominent shallow seafloor features including an emergent reef system, shoals, and sand banks and may provide spawning habitat for a number of fish species. In the unlikely event of a spill occurring, fish larvae in the region may be impacted by hydrocarbons entrained in the water column. However, following release, the hydrocarbons associated with potential Blacktip spills (MGO/MDO, condensate) will rapidly evaporate and disperse in the offshore environment, reducing the concentration and toxicity of the spill. Given lack of suitable habitat for aggregating fish populations near the surface, combined with the quick evaporation and dispersion of hydrocarbons, impacts to overall fish populations are not expected to be significant.			
		Marine mammals	Marine mammals may be come in contact with hydrocarbons due to surfacing within slick. Effects include irritation of eyes/mouth and potential illness. Surface respiration could lead to accidental ingestion of hydrocarbons or result in the coating of sensitive epidermal surfaces. Fresh hydrocarbons may have a higher potential to cause toxic effects when ingested, while weathered hydrocarbons are considered to be less likely to result in toxic effects. Behavioural disturbance (i.e. avoiding spilled hydrocarbons) in some instances has been observed (Geraci, 1988) or several species of cetacean suggesting that cetaceans have the ability to detect and avoid surface slicks. The highest potential risks for dugongs are related to direct ingestion of macro-algae exposed to acute or chronic toxicity and or drastic reduction on macro-algae coverage due to hydrocarbon spills. Migratory marine mammals may encounter either surface or entrained hydrocarbons, however, due to the localised nature of the spill, significant numbers are unlikely to be impacted.			
		Marine reptiles	Direct contact with hydrocarbons may result in harmful effects through ingestion of oil, inhalation of toxic vapours (e.g. close to the spill source) or irritation to the head, neck and flippers due to oil contact with the skin. Shoreline contact and beached hydrocarbons may result in toxic impacts to turtle nesting habitat potentially impacting adults, eggs and hatchlings. There is flatback turtle nesting activity in the area of Northern Yelcherr Beach and Injin Beach to the north (10 km from the Operational Area) and along the coastline from Cape Hay to Pearce Point (10 km to the east of the Operational Area). A significant Flatback Turtle nesting area occurs on the north side of Cape Domett, WA (70 km to the south of the Operational Area.			

Hazard	Potential Impact		Control Measures	L^2	S	RR
			The hydrocarbons associated with potential Blacktip spills (MGO, condensate) are expected to rapidly evaporate and disperse. Surface MGO from a spill at the SPM location is predicted to be confined within a 35 km radius and condensate within 19 km. Blacktip condensate is not predicted to exceed 10 g/m^2 and 25 g/m^2 surface oil thresholds at probabilities greater than 1%. It is therefore predicted the impact area from surface hydrocarbons (from a blowout) is confined to around the spill site and not the wider JBG region. Stranded hydrocarbons are anticipated to be <1 m^3 on the north Kimberly Coastline where Cape Domett is located. Given Blacktip hydrocarbons will evaporate quickly and the probability and volumes of shoreline hydrocarbons is low, the number of individuals potentially affected would be low and population level impacts will not occur.			
		Seabirds	Seabirds are particularly vulnerable to surface hydrocarbons. As most fish survive beneath floating slicks, they will continue to attract foraging seabirds, which typically do not exhibit avoidance behaviour. Smothering can lead to reduced water proofing of feathers and ingestion while preening. In addition, hydrocarbons can erode feathers causing chemical damage to the feather structure that subsequently affects ability to thermos-regulate and maintain buoyancy on water. The predicted impact area from surface hydrocarbons is confined to around the spill site and not the wider region. Any beached hydrocarbons will evaporate quickly in the temperatures experienced in the JBG. However, reduced prey may be available to foraging shorebirds due to mortality or avoidance, and nesting individuals may be temporarily disturbed.			
		Fish and sharks	While fish and sharks do not generally break the sea surface, individuals may feed at the surface. However, since the MGO and Blacktip condensate are expected fully dispersed and evaporated within 8 hours and 24 hours (90% evaporated), the probability of prolonged exposure to a surface slick by fish and shark species is low. In addition, surface MGO and condensate are predicted to be confined within 35 km and 19km from the spill site respectively, presenting a localised area of floating hydrocarbon. There is potential for localised mortality of fish eggs and larva due to reduced water quality and toxicity. Effects will be greatest in the upper 10 m of the water column and areas close to the spill source where hydrocarbon concentrations are likely to be highest and therefore demersal fish communities are not expected to be impacted. No BIAs overlap the hydrocarbon spill ZPI.			

Habitats	
Sandy beaches (including intertidal and subtidal sand)	Sandy beaches have a relatively low biodiversity although they do provide important habitats for nesting turtles, breeding and foraging seabirds, and shorebirds. They also provide habitat for polychaetes, molluscs, marine crustaceans, semi-terrestrial crustaceans and insects. The nearest sandy beaches are Northern Yelcherr Beach and Injin Beach to the north (10km from the Operational Area) and Yelcherr Beach to the east (7 km from the Operational Area). These beaches have the potential to be impacted from the MGO spill (Risk Item 6) as a result of vessel collision which a maximum of 60 m^3 of MGO being stranded. The north Kimberly coastline also has areas of Sandy Beach and a major Flatback turtle beach is located at Cape Dommet, 70 km to the south of the Operational Area. However stranded hydrocarbons from a blowout are anticipated to be <1 m^3 on the north Kimberly Coastline and significant impacts are not anticipated.
Intertidal and submerged reefs (including coral communities, intertidal limestone pavement and macroalgae communities)	Intertidal reefs occur within the ZPI (notably along the Kimberley Coastline). Submerged reefs and shallow shoals are found at the carbonate bank and terrace system of the Sahul Shelf KEF, within the ZPI. Surface hydrocarbons are not anticipated to make contact with intertidal and submerged reefs; while entrained oil has the potential to coat and smother contacted coral reefs. Filter feeders such as molluscs are especially liable to ingest entrained oil with lethal and various sub-lethal effects. However due to the quick dispersal and evaporation of hydrocarbons in the marine environment and the low concentrations of entrained oil which could make contact with the intertidal area of the Kimberly (<110 ppm) significant impacts to intertidal reef habitats are not expected.
Mangroves	The shoreline is not considered to be a significant mangrove area, although mangroves occur throughout the JBG Gulf and on the Kimberly coast where there are locally important groups. Isolated groups of mangroves are within the ZPI, particularly at JBG east coast. Significant impacts to mangrove habitats are not expected due to the entrained hydrocarbon concentrations reaching the shorelines, the volume of accumulated hydrocarbon (max 10m^3 at the JBG east coast) and the quick dispersal and evaporation of Blacktip hydrocarbons (MGO and condensate) in the marine environment.

Hazard	Potential Impact		Control Measures	L^2	S	RR
	Socioeconomics					
	Fisheries	In addition to the effects of entrained oil, exclusion zones surrounding a spill can directly impact fisheries by restricting access for fishermen. Entrained hydrocarbon can have toxic effects on fish (as outlined above) reducing catch rates and rendering fish unsafe for consumption. Both entrained and surface hydrocarbons have the potential to lead to temporary disturbance to fishing operations.				
	Tourism	In the waters immediately surrounding the Operational Area, tourism activities are expected to be low. However there nearer shore areas there are many sources of marine-based tourism within the environment that may be affected. Expedition cruise boat operates in the dry months (April to October) between Broome and Wyndham and Darwin, exploring the Kimberley coast (DPaW, 2016). Recreational fishing over the area is possible, occasional passing private motor vessels or yachts may also occur. Exclusion zones surrounding a spill will reduce access for vessels for the duration of the response undertaken for spill clean-up (if applicable).				
	Shipping	Exclusion zones surrounding a spill will reduce access for shipping vessels for the duration of the response undertaken for spill clean-up (if applicable); vessel may have to take large detours leading to potential delays and increased costs.				
	Defence	The level of defence activities carried out is in the airspace only, therefore interference of defence activities due to a hydrocarbon spill are likely to be minimal.				
	Shipwrecks	Surface oil will have no impact on shipwrecks. Entrained oil from a vessel collision will remain in the surface waters and is therefore unlikely to have an impact on shipwrecks.				
	Indigenous	The level of activities undertaken by indigenous users is expected to be low. Along the north-western coastline of Australia, traditional and subsistence fishing is generally limited to shorelines, creeks and nearshore reefs (Leprovost et al, 1997). Interference due to a hydrocarbon spill are likely to be minimal, however in event there is a requirement for land-based response activities/ disturbance relevant representatives will be contacted.				

Hazard	Potential Impact		Control Measures	L^2	S	RR
	Existing oil and gas activity	Exclusion zones surrounding spills will reduce access potentially leading to delays to work schedules with subsequent financial implications. However, there is no oil and gas infrastructure in the vicinity of the ZPI therefore no impact is anticipated.				
	Protected areas	Protected areas within the ZPI include: <u>JBG Marine Park</u> The Operational Area is within the JBG AMP. The JBG AMP has a designated multiple use zone which allows for petroleum activities to be undertaken within it. This AMP exists to protect foraging areas and habitats for EPBC listed species including whales, sharks, turtles, migratory birds and some seafloor features. <u>North Kimberley Marine Park</u> The North Kimberley Marine Park overlaps with the western extent of the ZPI and is located 80 km south-west of the Operational Area. There are more than 1000 islands within the boundaries of the North Kimberley Marine Park, each providing an array of intertidal and subtidal habitats. There are extensive coral reefs, large estuaries, mudflats and mangroves forests supporting many threatened, protected and culturally important species such as dugongs, turtles and sawfish As discussed above, marine mammals, seabirds, sharks and reptiles within protected areas are at risk of direct contact with hydrocarbons due to chance of surfacing within slick. Effects include irritation of eyes/mouth and potential illness. Surface respiration could lead to accidental ingestion of hydrocarbons or result in the coating of sensitive epidermal surfaces.				
6. Marine Grade Oil or Marine Diesel Oil (MGO/MDO) Spills to Sea	Potential credible MGO/MDO spill scenarios to sea include: • Rupture/leak from vessel (e.g. vessel collision scenario); • MGO/MDO spills during refuelling / bunkering operations: – between the vessel and MODU; – during fuelling of the WHP cranes.		Navigation equipment and procedures on MODU and vessels compliant with Marine Order Part 30 (Prevention of Collisions) 2009: • Adhere to steering and sailing rules including maintaining look-outs (e.g. visual, hearing, radar etc.), proceeding at safe speeds, assessing risk of collision and taking action to avoid collision (monitoring radar).	A	3	Low

Hazard	Potential Impact	Control Measures	L^2	S	RR
	Vessel and MODU activity is not constant within the Operational Area and risk is therefore limited for periods relating to that specific activity (e.g. drilling, IMR, geophysical surveys etc.). Vessels used during the Blacktip operations will not refuel at sea, except in an emergency event. A loss of MGO/MDO to the marine environment would result in a localised reduction in water quality in the upper surface waters of the water column. As described above, the maximum distance a surface spill could travel is 35 km from the source. Given the proximity of the Operational Area to land, shoreline contact is possible. In addition to sensitivities found at these shorelines (mangroves, sandy beaches), transient fauna may traverse the area potentially impacted by a spill. In the event of direct transport in a single direction towards the shoreline 7km from SPM, the largest volume potentially stranded on shore is 60 m^3 from a 100 m^3 spill. Although it is noted that the typical capacity of the largest fuel tank on a support vessel is 30m^3, and with nearshore mixing and seasonal variations, wind direction and tidal currents, the actual shoreline loading is expected to be much lower. The Operational Area is within the JBG AMP and therefore the AMP will rapidly receive surface, entrained and dissolved aromatics from the MGO/MDO. However, surface MGO/MDO once spilled is predicted to evaporate within 8 hours, this will limit time for entrainment of hydrocarbons within the water column. MGO/MDO also has low volatile C4 to C10 hydrocarbons (6%) and low aromatics, limiting the toxicity effects of entrained hydrocarbons. Given the low aromatics, the high evaporation potential and the weathering that the MGO/MDO will be subject to, impacts to the JBG AMP are not considered significant and recovery will be rapid once the MGO/MDO disperses.	• Adhere to navigation light display requirements, including visibility, light position/shape appropriate to activity. • Adhere to navigation noise signals as required. Navigation equipment and procedures on MODU and vessels compliant with AMSA Marine Order Part 21 (Safety of Navigation and Emergency Procedure) 2012: • Adherence to minimum safe manning levels. • Maintenance of navigation equipment in efficient working order (compass/radar). • Navigational systems and equipment required are those specified in Safety of Life at Sea (SOLAS) Chapter V (Regulation 19). • Automatic Identification System (AIS) installed as required by vessel class in accordance with SOLAS Chapter V (Regulation 19). Use of existing 500 m PSZ around WHP during drilling and communicated to marine users. Marine radio available and monitored. Establishment of a 500 m PSZ around WHP and SPM. Low sulphur fuel is used when available, in accordance with Marine Order 97. Vessel / MODU contractor bunkering procedure implemented for all hydrocarbon vessel bunkering			

Hazard	Potential Impact	Control Measures	L^2	S	RR
	The potential impacts to sensitive receptors are similar to those for Risk Item 5, and are summarised above.	and helicopter refuelling activities includes the following requirements: • A completed PTW and/or JSA shall be implemented for the hydrocarbon bunkering/refuelling operation • Visual monitoring of gauges, hoses, fittings and the sea surface during the operation • Hose checks prior to commencement Bunkering not undertaken in adverse weather conditions and addressed within JSA. Management of bunkering equipment to prevent bunkering spills, includes the following: • All hoses that have a potential environmental risk following damage or failure shall be placed on a hose register that is linked to the MODU's preventative maintenance system. • There shall be dry-break couplings and flotation on fuel hoses. • There shall be an adequate number of appropriately stocked, located and maintained spill kits. • All bulk transfer hoses shall be certified for integrity before use (in accordance with OEM recommendations). Vessels used during the Blacktip operational activities will not refuel at sea, except in an emergency event.			

Hazard	Potential Impact	Control Measures	L^2	S	RR
7. Loss of Condensate at the SPM	Credible spill scenario for loss of Blacktip condensate at the SPM are: • A failure of the Pipeline End Manifold (PLEM) valve during a condensate export operation at the SPM. • A failure of the CEP upstream of the PLEM during a condensate export operation at the SPM. • A failure of floating or submarine flexible hose at SPM (downstream of PLEM) during a condensate export operation. In the event of a loss of condensate at the SPM, the volume of condensate released would be a maximum of 250 m^3. Floating oil at 1 g/m^2 is predicted to be transported towards the north on the ebb and south on the flood tide up to 35 km from the release site. Dispersion from natural weathering processes ensure the majority of oil remains offshore. The model showed that the JBG East and JBG West shorelines may receive shoreline oil, with a maximum accumulation of 2.5 m^3 on the shoreline of JBG East, and a maximum accumulation of 0.6 m^3 on the shoreline of JBG West during the months of September and March. A maximum of 2 m^3 may also accumulate on the shoreline of JBG East during the months of April and August. The earliest time for oil contact to the shoreline of JBG East is 2 hours. Maximum accumulated shoreline concentration is predicted to be 59 g/m^2, therefore shoreline impact is not anticipated as the ≥100 g/m^2 threshold based on French-McCay (2009) that could impact the survival and reproductive capacity of intertidal benthic epifaunal has not been met and the volumes of accumulated hydrocarbons (2.5 m^3 and 0.6 m^3) are relatively minor. The susceptibility of marine fauna to the condensate is dependent on exposure duration however given that exposures would be limited in extent and duration (More than 90% of the mass would	Offtake operations must comply with the terminal handbook which includes the following requirements to prevent loss of hydrocarbons: • The PLEM Emergency Shutdown (ESD) is tested prior to the arrival of the tanker. The ESD can remotely close the valve and stop offtake flow. • A pre-loading meeting will be held, attended by the Berthing Master and Berthing Master's Assistant, and personnel from the Export Tanker that will be involved in the cargo operations to ensure personnel are aware of their responsibilities during offtake, • The Berthing Master's Assistant will confirm that the sea valves are closed and sealed prior to offtake. The cargo surveyor will conduct the sealing of these valves. • One person stationed at the tanker manifold during the time the offtake is made. He will monitor the manifold pressure and check for any leaks between the flange of the Offtake Hose and the tankers' manifold flange. • Communications will be established between the Export Tanker bridge and the Onshore Gas Plant control room so the flow can be controlled. The SPM floating hose is inspected and tested prior to offtake in accordance with the testing guidelines. This includes:	A	4	Medium

Hazard	Potential Impact	Control Measures	L^2	S	RR
	evaporate from the water surface within 24 hours of release (APASA, 2013)), exposure to marine fauna from this hazard is not expected to result in a fatality. Given that the SPM is within the JBG AMP, the AMP will rapidly receive, surface, entrained and dissolved aromatics from the condensate. Potential impacts may include: the contamination of sediments, impacts to benthic fauna/habitats and associated impacts to demersal fish populations and reduced biodiversity. However, given the low maximum concentrations, the weathering of condensate and the low aromatics and persistent fraction it is not anticipated the AMP will be significantly impacted. The potential impacts to sensitive receptors are similar to those for Risk Item 5, and are summarised above.	• An integrity test to be completed no more than one month prior to an offtake or after a major weather event such as a cyclone to ensure the hose is not leaking • Raising the internal pressure in the hose during testing to its rated pressure, or operating pressure plus 50%, whichever is lower, and then holding it for a period of three hours. • Visually check on the Floating hose including: a check of any signs of damage; deterioration, scuffing or tears of: – the outer carcass, – every hose connection. – the (partially submerged) 'Break-Away Coupling', and 'Tanker Valve'. Asset Integrity Management System (AIMS) and Pipeline Integrity Management System (PIMS) provide processes and requirements for maintenance, inspection and corrosion management. The AIMS and PIMS include: • ROV survey requirements to detect external features, damage or signs of damage on the CEP and GEP, and deterioration that could present a leak risk. • Side scan sonar requirements of the CEP and GEP and subsea infrastructure following extreme cyclonic events which will detect movement of the CEP and GEP and the potential damage / leak issues.			

Hazard	Potential Impact	Control Measures	L^2	S	RR
8. Loss of Condensate from the Gas Export System	Credible spill scenario for loss of Blacktip condensate from the GEP are: • A subsea leak during operations through a <50 mm diameter hole at any point within Commonwealth waters along the GEP due to corrosion. • A subsea rupture of the GEP at the WHP due to a dropped object during drilling (e.g. from a rig crane) Scenarios which were considered but determined 'not credible': • A subsea rupture of the GEP at the WHP due to a dropped object during Blacktip operational actives (e.g. from a rig crane) A dropped object from the WHP pedestal crane resulting in subsea rupture of the GEP is considered not credible. The WHP pedestal crane is positioned on the opposite side of the WHP to the GEP, and therefore a dropped object from the pedestal crane could not make contact with the GEP. In the event of a leak of condensate from the GEP the volume of condensate released would be a maximum of 150 m^3 over a week period. Given the nature of the condensate and the distance from shorelines, dilution and dispersion from natural weathering processes such as ocean currents it is expected that the condensate spill will weather offshore and not impact shorelines, this is based on the modelling from the 24-hour 250 m^3 release at the SPM location, which showed minimal shoreline contact. The susceptibility of marine fauna to the condensate is dependent on exposure duration, however given that exposures would be limited in extent and duration, any impacts are expected to be localised and short term. More than 90% of the mass would evaporate from the water surface within 24 hours of release	AIMS and PIMS provide processes and requirements for maintenance, inspection and corrosion management. The AIMS and PIMS include: • ROV survey requirements to detect external features, damage or signs of damage on the CEP and GEP, and deterioration that could present a risk. Side scan sonar requirements of the CEP and GEP and subsea infrastructure following extreme cyclonic events which will detect movement of the CEP and GEP and the potential damage / leak issues. Lifting Operations Standard ENI-HSE-ST-007 details processes to reduce risk of dropped object, including: • Competency of persons undertaking lift • Planning and preparation process for undertaking lifts. Dropped object study conducted for rig operations and recommendations implemented prior to drilling to prevent impact to GEP or SSIV.	A	3	Low

Hazard	Potential Impact	Control Measures	L^2	S	RR
	(APASA, 2013). Given the release rate of 21 m^3 per day, it would be anticipated that only 2.1 m^3 of condensate would be on the water surface each day. Exposure to marine fauna from this hazard is not expected to result in a fatality.				
9. Oil Spill Response Operations	While spill response activities are intended to reduce the potential environmental consequences of a hydrocarbon spill, response activities could potentially exacerbate or cause further environmental harm. Decisions regarding spill response activities need to consider both the potential environmental impacts associated with taking no action and the potential environmental impacts associated with a response activity or combination of spill response activities. In the event of a hydrocarbon spill, response strategies will be implemented where possible to reduce environmental impacts to ALARP. The selection of strategies will be undertaken through the Net Environmental Benefit Analysis (NEBA) process, outlined in the OPEP. Spill response will be under the direction of the relevant Control Agency, as defined within the OPEP. The response strategies and supporting activities deemed appropriate for the oil spill scenarios for the Petroleum Activities Program are detailed in the OPEP, and identified as: • Operational monitoring; • Source control; • Shoreline protection and deflection; • Shoreline clean-up; • Oiled wildlife response; and • Scientific monitoring.	In the event of a hydrocarbon spill, the vessel master will implement available controls and resources of the Shipboard Oil Pollution Emergency Plan (SOPEP). The Vessel Master is responsible for undertaking the initial SOPEP reporting requirements and immediate reporting to Eni Perth. External notifications in the event of a level 1 or level 2 spills will be carried. An oil spill response drill will be undertaken in accordance with SOPEP requirements on all vessels prior to conducting the activity and will be in accordance with testing requirements (including frequency) of the response arrangements. In the event of a level 2 or 3 oil spill, Eni will initiate KSAT to collect satellite imagery of the slick on a daily basis. In the event of a level 2 or 3 spill, Eni will mobilise aerial surveillance within 24 hours.	B	2	Low

5. ONGOING MONITORING OF ENVIRONMENTAL PERFORMANCE

Eni's management of Health Safety and Environment (HSE) matters is arranged hierarchically in three distinct levels:

- Corporate level Management System;
- Regional (Eni Australia) level HSE Integrated Management System (IMS); and
- Blacktip Facilities Management System (BOMS).

Within Eni Australia, HSE management is delivered at the regional and asset level through the Eni HSE IMS which is the means by which all HSE hazards and risks are controlled. The HSE IMS refers to the totality of Eni Australia's management systems in terms of:

- The concepts, policies, strategies, HSE goals, processes, procedures and work instructions that comprise the formal content of the HSE IMS;
- The organisational structures, communication systems, safety-related data, roles and responsibilities, competencies and training needed by the personnel in order to implement the HSE IMS for the WHP; and
- The physical elements of the WHP and associated facilities that are critical to safety (equipment, structures and engineered systems), including the codes and standards used to design and construct them.

The Eni Australia HSE IMS, which covers Blacktip Operations, has been certified against the following standards:

- ISO 14001 Environmental Management System;
- OHSAS 18001 Occupational Health and Safety Management System; and
- AS/NZS 4801 Occupational Health and Safety Management System.

In addition, the system uses the guidelines of ISO 17776 in its overall risk assessment approach.

The Blacktip Operations Management System (BOMS) provides the management system framework for controlling operational/production activities to ensure safe and efficient operations and encompasses the procedures for normal and abnormal operations of the WHP, YGP, SPM and associated pipelines system. Platform, pipelines and plant start-ups and shutdowns are also controlled using procedures contained within BOMS.

All new staff and visitors to the Blacktip Facility must undertake an induction. Training is provided to employees and contractors at Eni as appropriate in order to ensure that individuals have the skills, knowledge and competencies to fulfil their roles.

Environmental performance outcomes have been defined for each environmental aspect; these are monitored and reviewed against key control measures, as evidenced in Table 4.7, to ensure environmental outcomes are achieved.

Prior to drilling activities, Eni HSE will prepare and provide a commitments register to Well Operations in accordance with the Well Process Manual to ensure controls implemented. The commitments register will include responsibilities as agreed with Production and Well Operations.

Change is managed on the Blacktip facilities in accordance with the Eni Australia Management of Change (MOC) Procedure. The MOC procedure applies to changes in operational assets, systems, processes, operations, products, organisation and staffing that have the potential to alter hazard or risk levels, or affect environmental outcomes including compliance with applicable laws or standards or to significantly affect a stakeholder involved with the above items.

Eni will complete an annual compliance audit against this EP. Audits of the routine operations will be conducted against the objectives, standards and criteria to ensure effective legislative compliance and management of the identified risks. Where the audits highlight areas of non-compliance, a review of practices will be conducted and will be incorporated into future revisions of the Blacktip EP and other standard operating systems and procedures. Audit findings will be included in the Annual Report.

Monitoring continues throughout the Blacktip production operations at the WHP remotely from the Control Room at the YGP.

For production operations, information is collected for monitoring of compliance to the EPOs, controls, standards and measurement criteria in this EP. At a minimum, evidence identified in the measurement criteria will be collected and will be used to demonstrate the EPOs and standards are met.

The following systems may be used by Eni to monitor environmental performance during ongoing production operations:

- Daily production reports, which includes production, gas consumption, venting and chemical consumption;
- Records of consultation;
- Progress against production KPIs;
- Reports from monitoring; and
- Audits against the management system, EP requirements or other requirements.

In addition, Blacktip operations operate under an AIMS and PIMS which provides processes and requirements for maintenance, inspection and corrosion management. The AIMS and PIMS include ROV survey requirements to detect external features, damage or signs of damage on the CEP and GEP, and deterioration that could present a risk.

The following systems may be used by Eni and contractors to monitor environmental performance during IMR and drilling activities:

- Daily vessel or drilling reports during relevant offshore activities;
- Monthly drilling reports, which include the number of toolboxes/training undertaken, waste, discharges, cetacean sightings;
- Reports from monitoring;
- Contractor inspections and audits;
- Review of waste management and recycling records;
- Audits against the management system, EP requirements or other requirements.

Eni will have the ability to identify compliance issues, identify non-conformance, activity risks and impacts through the monitoring and auditing systems and tools described above.

The HSE IMS is reviewed on a minimum five-yearly basis in association with risk assessment outcome and incident reviews for required changes. This review includes the review of any triggers requiring update to the HSE IMS (as detailed below), as well as general business planning outcomes and assessments of the effectiveness of performance standards. The review also documents actions and requirements for items including the review and update of procedures and systems as identified in the HSE IMS review.

The HSE IMS review also incorporates feedback from the public and Regulators with respect to performance and expectations.

6. OIL POLLUTION EMERGENCY PLAN

An Oil Pollution Emergency Plan (OPEP) has been developed to prevent long term significant environmental impacts by safely limiting the adverse environmental effects from an unplanned release of hydrocarbons to the marine environment to a level that is as low as reasonably practicable (ALARP).

Key components of the OPEP are:

- First strike plan, including initial activation of OPEP or Shipboard Oil Pollution Emergency Plan (SOPEPs) and first response actions.
- Response arrangements;
- Response strategies;
- Testing and auditing;
- Operational and scientific monitoring.

6.1 Response Arrangements

In addition to state and territory pollution response arrangements, Eni has the following arrangements in place:

- Services agreements with Australian Marine Oil Spill Centre (AMOSC) and Oil Spill Response Limited (OSRL) for supply of spill response personnel and equipment;
- Memorandum of Understanding (MoU) with AMSA for vessel-based spills;
- MoU with other industry participants for access to a MODU for relief well drilling;
- Access to support services including oil spill trajectory modelling, satellite monitoring, environmental services, logistics, and waste management services.

6.2 Response Strategies

A summary of response strategies is provided below:

- Source control
  - Relief well drilling;
  - Vessel SOPEP;
- Monitor and evaluate
  - Aerial surveillance;
  - Vessel surveillance;
  - Satellite monitoring;
  - Oil spill trajectory modelling (OTSM);
- Shoreline assessment and clean-up;
- Waste management;

- Oiled wildlife response.

Surface MGO from a spill at the SPM location is predicted to be confined within a 35km radius and condensate within 19 km. Blacktip condensate are not predicted to exceed 10 g/m2 and 25 g/m2 surface oil thresholds at probabilities greater than 1%. Therefore, widespread physical oiling to wildlife is unlikely offshore. OWR may be undertaken onshore in the event of a shoreline contact.

6.3 Testing Arrangements

Testing provides an opportunity for crew to gain confidence in using onboard spill equipment and implementing incident response procedures, increase efficiency in the event of an emergency, review the efficiency of procedures and detect any failures in equipment.

Emergency response drills may be either desktop exercises or field-based response exercises. Testing of OPEP response arrangements is conducted annually in accordance with the Eni 4Y Emergency Exercise Plan.

Eni maintains a high standard of oil spill response preparedness through:

- training Eni personnel, particularly those nominated to IMT or CMT;
- implementation and maintenance of an Eni Incident Management Plan;
- ensuring Contractors can respond as required;
- outlining ongoing capability through exercises and drills in accordance with the Eni 4Y Emergency Exercise Plan;
- annual oil spill response drills and assessment of the performance of the IMT;
- ongoing audits to review that the above remain effective;
- regular review of the OPEP;
- consultation to support spill response strategies and ensure roles and responsibilities are understood and accepted.

6.4 Operational and Scientific Monitoring

Eni has prepared an Operational and Scientific Monitoring Plan (OSMP) for use in the event of a large spill. The OSMP provides guidance on how and when monitoring data will be collected in the event of a level 2 or 3 hydrocarbon spill. The data generated will be used to:

- determine the magnitude of short and long term environmental impacts associated with the spill (and its response), including the extent, severity and persistence of the impacts;
- support the planning and execution of the hydrocarbon spill response activities set out in the OPEP;
- inform remediation efforts, if required; and
- determine whether environmental performance outcomes have been achieved.

The following operational monitoring programs (OMPs) and scientific monitoring programs (SMPs) have been identified for use in the event of a large spill:

- OMP1 – Monitoring of Surface Hydrocarbon Distribution at Sea and Visual Observation of Megafauna;
- OMP2 – Monitoring of Hydrocarbon: Weathering and Behaviour in Marine Waters;
- OMP3 – Shoreline Assessment Surveys;
- SMP1 – Wildlife Impact Monitoring and Sampling;
- SMP2 – Shoreline Ecological Assessment Aerial Surveys;
- SMP3 – Assessment of Fish for the Presence of Hydrocarbons;
- SMP4 –Fisheries Assessment;
- SMP5 – Shoreline Ecological Surveys;
- SMP6 – Hydrocarbon Fate and Effects Assessment;
- SMP7 – Assessment of Subtidal Benthic Communities.

The programs may involve desktop studies and in-field studies, including ground surveys, collection of field samples and collection of fauna specimens.

7. STAKEHOLDER CONSULTATION

The Blacktip facilities have been operational since 2009 and Eni is familiar with local community stakeholders and other users of the marine environment in the region. Stakeholders were informed of activities covered in the EP in December 2018. A consultation letter was developed giving overview of the planned activities and associated risk and distributed to identified stakeholders via email and post.

No significant stakeholder issues were raised in consultation for the Petroleum Activities Program.

Eni considers that consultation with regulators and key stakeholders has been adequate for the assessment of the EP. Notwithstanding, Eni has identified the need for additional stakeholder consultation to ensure the effective implementation of identified control measures.

Eni maintains a close working relationship with the traditional owners in the Wadeye Community through the Thamarrurr Development Corporation and Thamarrurr Rangers. The Thamarrurr Rangers support a variety of ongoing environmental monitoring activities at the onshore YGP and at the SPM and are kept informed of activities in the local area, including offtakes and maintenance at the SPM.

Eni will continue to accept feedback from all stakeholders throughout the duration of the accepted EP.

Additional consultation with relevant stakeholders will occur in the event there is a significant change to the proposed activities.

Table 7.1: Consultation summary and assessment

Stakeholder	Relevance / reasoning for engagement	Consultation Summary	Consultation Assessment
Shipping safety, security and communications			
AHO	The Australian Hydrographic Office is part of the Commonwealth Department of Defence responsible for maintaining and disseminating nautical charts, including the distribution of Notice to Mariners.	The AHO were provided the Blacktip Offshore EP revision consultation information sheet via email on December 4th, 2018 and responded with an email to acknowledge receipt of Eni's email on December 4th, 2018.	AHO does not object to the Blacktip Offshore EP revision and have made no claim. The Australian Hydrographic Office (AHO) is notified 4 weeks prior to commencing drilling Eni considers the level of consultation to be adequate.
AMSA	AMSA is the statutory authority established under Australian Maritime Safety Act 1990. Its principal functions are promoting maritime safety and protection of the marine environment, preventing and combating ship-sourced pollution in the marine environment, providing infrastructure to support safety of navigation in Australian waters, and providing national search and rescue service to the maritime and aviation sectors.	AMSA were provided the Blacktip Offshore EP revision consultation information sheet via email on December 4th, 2018 and responded with an email to request coordinates of the proposed new well on December 4th, 2018. Eni replied via email to AMSA to advise the coordinates on December 4th, 2018.	AMSA does not object to the Blacktip Offshore EP revision and have made no claim. The AMSA Rescue Coordination Centre (RCC) (as part of marine safety division) notified of the drilling operations 4 weeks prior to mobilisation Eni considers the level of consultation to be adequate.
DoD	The Commonwealth DoD as an Australian Government Agency are identified as a relevant person	The DoD were provided the Blacktip Offshore EP revision consultation information sheet via email on December 4th, 2018 and responded with an email	DoD does not object to the Blacktip Offshore EP revision and have made no claim.

Stakeholder	Relevance / reasoning for engagement	Consultation Summary	Consultation Assessment
	under the OPGGS€ Regulations 2009.	requesting information about the well test flaring plume on December 21st, 2018. Eni responded to DoD on January 17th, 2019 with the requested information. DoD requested the WHP location for charting on the aviation hazard maps via email on January 19th, 2019, Eni provided the coordinates to DoD and included clarification of the timing of flaring on January 21st, 2019. DoD will chart the well test flare as an aviation hazard.	Eni considers the level of consultation to be adequate.
AMOSC	AMOSC operates the Australian oil industry's major oil spill response facility. AMOSC's stockpile of oil spill response equipment includes oil spill dispersant and containment, recovery, cleaning, absorbent and communications equipment.	Eni and AMOSC meet regularly regarding spill response services and industry updates.	AMOSC does not object to the Blacktip Offshore EP revision and have made no claim. Eni considers the level of consultation to be adequate.
WA DoT	DoT is responsible for marine safety, marine environment protection and coastal facilities. Administer WestPlan-MOP	The DoT were provided the Blacktip Offshore EP revision consultation information sheet via email on December 4th, 2018 and responded asking Eni for the OPEP if State waters will be impacted via email on December 17th, 2018. Eni responded to DoT on December 28th, 2018 to confirm that there is potential for impact to WA State Waters, and Eni will provide a copy of the OPEP when finalised.	Eni commits to ongoing consultation with the DoT regarding their role as State marine pollution coordinator as per the DoT's Offshore Petroleum Industry Guidance Note – Marine Oil Pollution: Response and Consultation Arrangements (Sep 2018). Eni considers the level of consultation to be adequate.

Stakeholder	Relevance / reasoning for engagement	Consultation Summary	Consultation Assessment
			Eni are to provide a copy of the OPEP when finalised.
OSRL	Oil Spill Response Limited (OSRL) is the largest international industry-funded oil spill response cooperative, and provides preparedness, response and intervention services anywhere in the world.	Eni and OSRL are in regular contact regarding spill response services and industry updates.	OSRL does not object to the Blacktip Offshore EP revision and have made no claim. Eni considers the level of consultation to be adequate.
Commonwealth government departments			
AFMA	AFMA is the Australian Government agency responsible for the efficient management and sustainable use of Commonwealth fish resources.	AFMA were provided the Blacktip Offshore EP revision invitation to consult via email on December 4th, 2018 AFMA did not respond. Eni sent a follow up email on January 22nd, 2019. On 23rd January 2019 AFMA provided contact details for CFA and WAIFIC for Eni to follow-up.	Eni considers the level of consultation to be adequate.
Department of Agriculture and Water Resources – Fisheries	As an Australian Government Agency the DAWR are identified as a relevant person under the OPGGS(E) Regulations 2009. Activities such as seismic surveys, drilling, exploration, geotechnical surveys, construction and installation of sub-sea infrastructure have the potential to affect commercially important fish species, their prey and habitats, and the business activities of commercial fishers.	The Department were provided the Blacktip Offshore EP revision consultation information sheet via email on December 4th, 2018 Marine Pests replied with an email of acknowledgement and provided a link to resources in relation to marine pests on December 11th, 2018. On 29th May Eni sent the pest division of DAWR an email with the proposed approach to manage IMS risk, inviting any comment.	DAWR does not object to the Blacktip Offshore EP revision and have made no claim. IMS risk has bene discussed in Section 8.3 of the EP Eni considers the level of consultation to be adequate.

Stakeholder	Relevance / reasoning for engagement	Consultation Summary	Consultation Assessment
DIIS	The DIIS is responsible for development and reform of policy relating to the resources sector, including oil and gas.	DIIS were contacted by Eni on January 17th, 2019 requesting advice whether prior usage rights apply to Blacktip licenses. DIIS responded on January 18th, 2019 advising that prior usage rights apply to the pipeline titles NT/PL2 (Blacktip to Cosmo Howley) and NT/PL3 (Blacktip NT condensate export). DIIS advised that production licence WA-33-L does not overlap a Marine Park and is not subject to the provisions of the EPBC Act and EPBC Regulations that relate to an Australian Marine Park.	DIIS does not object to the Blacktip Offshore EP revision and have made no claim. As detailed in Section 1 of the EP, prior usage rights apply to the pipeline titles NT/PL2 (Blacktip to Cosmo Howley) and NT/PL3 (Blacktip NT condensate export). Eni considers the level of consultation to be adequate.
DoNP	The DoNP is the statutory authority responsible for administration, management and control of Commonwealth Marine Parks (CMRs).	DoNP were provided the Blacktip Offshore EP revision consultation information sheet via email on December 4th, 2018. Marine Parks responded on January 11th,2019 to Eni confirming no authorisation requirements from the DoNP were required and requesting consideration of the Australian marine parks in the EPs. Eni confirmed on January 16th, 2019 that the information will be considered and provided a further update with the ZPI predicted by the oil spill modelling, which shows the potential also for impact to the eastern edges of the Kimberley and North Kimberley Marine Parks. On June 19th, 2019 Eni sent DoNP an email detailing the activities that could be undertaken within the JBG AMP and details on the impact to the AMP values. On 26th July, 2019 DNP requested Eni Australia Ltd would notify DNP:	DoNP does not object to the Blacktip Offshore EP revision and have made no claim. The impact to Australian Marine parks have been assessed throughout Section 7 and 8 of the EP. Eni considers the level of consultation to be adequate. Eni will consider Marine Parks in the EP. Notification requirements have been included in Section 10.8 Eni will notify DNP if NOPSEMA approve the revised Environment Plan.

Stakeholder	Relevance / reasoning for engagement	Consultation Summary	Consultation Assessment
		• if NOPSEMA approve the revised Environment Plan, and • prior to and at the conclusion of IMR surveys and IMR Span Rectification Activities within the Australian Marine Park.	
NOPSEMA	Safety and environmental regulator	NOPSEMA met with Eni on January 17th, 2019 and January 24th, 2019 to discuss the submission of the 5-year EP revision.	NOPSEMA does not object to the Blacktip Offshore EP revision and have made no objection Eni considers the level of consultation to be adequate.
State government departments			
NT Department of Primary Industry and Resources – Fisheries	The Department of Primary Industry and Resources has a key role to play in the emerging agenda for the development of northern Australia. Its three areas of focus are growing new industries including diversification of existing production enterprises, protecting industries and market access and providing the specialist services needed for these operations.	DPIR were provided the Blacktip Offshore EP revision consultation information sheet via email on December 4th, 2018. DPIR responded to Eni via email on December 20th, 2018 with a list of fisheries potentially impacted by a spill and requested these be noted. DPIR indicated they would like to continue to be consulted in regard to the EP. Eni confirmed on December 28th, 2018 that the fisheries would be noted and considered in the risk assessment and queried if shapefiles of fishing areas are available. DPIR provided the shapefiles of key fisheries of interest as well as advice on pearl leases, Seafarms and Small Pelagic fishery on January 2nd, 3rd and 4th, 2019. DPIR also provided information on guided fishing tour operators and suggested Eni contact NT Guided Fishing Industry Association on January 4th, 2019. Eni responded to	Eni commits to keeping DPIR informed with regards to the development of the Blacktip Offshore EP revision. DPIR does not object and have made no claim. On 10th January 2019 Eni contacted the NT Guided Fishing Industry Association Fishing effort in the Operational Area and ZPI has been discussed in Section 5.7 of the EP. Eni considers the level of consultation to be adequate.

Stakeholder	Relevance / reasoning for engagement	Consultation Summary	Consultation Assessment
		DPIR on January 4th, 2019 confirming receipt of the above information, and to say that it will be considered in the EP and ENI will contact NT Guided Fishing Industry Association. On 31st May 2019 Eni contacted NT DPIRD seeking feedback on the proposed IMS risk assessment approach.	
NT Department of Primary Industries and Resources – Petroleum	The Department of Primary Industry (DPIR) and Resources has a key role to play in the emerging agenda for the development of northern Australia. Its three areas of focus are growing new industries including diversification of existing production enterprises, protecting industries and market access and providing the specialist services needed for these operations.	DPIR were provided the Blacktip Offshore EP revision consultation information sheet via email on December 4th, 2018. No reply has been received by submission of this EP.	Eni considers the level of consultation to be adequate.
NTEPA	The NTEPA is an independent authority established under the Northern Territory Environment Protection Authority Act. The NTEPA provides advice on the environmental impacts of development proposals and advice and regulatory services to encourage effective waste management, pollution control and sustainable practices.	NTEPA were provided the Blacktip Offshore EP revision consultation information sheet via email on December 4th, 2018 Eni followed up with an additional email confirming the EP and OPEP will be provided to NTEPA following acceptance, in accordance with EPL230. NTEPA responded to acknowledge Eni's email on December 11th, 2018.	NTEPA does not object to the Blacktip Offshore EP revision and have made no claim. The EP and OPEP will be provided to NTEPA following acceptance Eni considers the level of consultation to be adequate.

Stakeholder	Relevance / reasoning for engagement	Consultation Summary	Consultation Assessment
DENR	The DENR has the following divisions: • Flora and fauna • Rangelands • Weed management • Bushfires NT • Water resources • Water data portal • Environment	DENR were provided the Blacktip Offshore EP revision consultation information sheet via email on December 4th, 2018. No reply has been received by submission of this EP.	Eni considers the level of consultation to be adequate.
Marine Safety Branch DIPL	NT Department of Infrastructure, Planning and Logistics. Created to bring together many of the key functions that drive land use, infrastructure and transport.	DIPL were provided the Blacktip Offshore EP revision consultation information sheet via email on December 4th, 2018. No reply has been received by submission of this EP.	Eni considers the level of consultation to be adequate.
WA DPIRD - Fisheries	DPIRD is responsible for conserving, developing and managing WA aquatic resources; commercial and recreational fishing licensing; protecting the aquatic environment and fish ecosystems.	DPIRD were provided the Blacktip Offshore EP revision consultation information sheet via email on December 4th, 2018 Eni also requested access to fishing license holder contacts register. Fisheries responded to Eni on December 5th, 2018 indicating potential presence of Mackerel, Northern Demersal Scalefish Fishery (line and trap) commercial fishers. Also suggested contacting WAFIC, Recfishwest and Helen Lucich regarding a list of licence holders. Eni contacted Helen Lucich via email on December 7th, 2018 regarding obtaining commercial fishing licence holder information. Helen Lucich reverted with the application form. Fishing license holder were issued	DPIRD does not object to the Blacktip Offshore EP revision. Impacts and controls that have been considered for: • Pollution plans (See OPEP), • Underwater noise; • Marine discharge; • Seabed disturbance; • IMS risk. On 31st May 2019 Eni contacted the fisheries division of NT DPIRD.

Stakeholder	Relevance / reasoning for engagement	Consultation Summary	Consultation Assessment
		the consultation information sheet via post on February 20th, 2019. WAFIC cc'd Carli Telfer on their email response on February 4th, 2019. On February 14th, 2019, Carli Telfer contacted Eni indicating DPIRD would like to provide some feedback on Blacktip Field Project and asked if there was additional documentation provided. Eni provided further information specific to the commercial fishing industry via email on February 20th, 2019. On 15th March 2019 Eni received an email from DPIRD which provided information to Eni on consultation with relevant persons, pollution plans, underwater noise and marine discharge and seabed disturbance. On 29th May 2019 Eni responded to DPIRD with the impacts and controls that have been considered for pollution plans, underwater noise and marine discharge and seabed disturbance. In addition the email also included the proposed Eni approach to manage IMS risk, inviting any comment. On 31st May 2019 DPRID responded noting that Operations were in NT waters and to contact the NT DPIRD and DWAR for feedback on the proposed IMS management approach. On 31s May 2019 Eni responded and committed to contacted NT DPIRD (Eni had already contacted DWAR in regard to IMS). On 6th June 2019 DPIRD contacted Eni with a link to the fish cube data request and an update the oil spill number. On 17th June 2019 Eni responded	The EP includes the information from the fish cube data. Eni considers the level of consultation to be adequate. OPEP notification includes the new oil spill number for DPIRD.

Stakeholder	Relevance / reasoning for engagement	Consultation Summary	Consultation Assessment
		confirming that fish cube data has been received and the updated phone number is in the OPEP.	
WA DBCA	DBCA is responsible for promoting biodiversity and conservation, through sustainable management of Western Australia's species, ecosystems, lands and the attractions in the department's care.	DBCA were provided the Blacktip Offshore EP revision consultation information sheet via email on January 10th, 2019 and responded with an automatic reply on the same day.	As Eni has also consulted with other WA government agencies, Eni considers the level of consultation to be adequate.
WA DMIRS	The DMIRS is responsible for ensuring the State's resources sector is developed and managed responsibly and sustainably for the benefit of all Western Australians. Prior to NOPSEMA it was the Designated Authority for adjacent Commonwealth Waters. As recommended by the Department, provide pre-start and cessation notifications of activities being undertaken in Commonwealth waters adjacent to the WA coastline.	DMIRS were provided the Blacktip Offshore EP revision consultation information sheet via email on December 4th, 2018. No reply has been received by submission of this EP.	As Eni has also consulted with other WA government agencies, Eni considers the level of consultation to be adequate.
Fishing industry			
CFA	The CFA was engaged as a representative body for Commonwealth fisheries. As no Commonwealth fishing activity for the tuna industry has been	CFA were provided the Blacktip Offshore EP revision consultation information sheet via email on December 4th, 2018. An undeliverable notice email was received by Eni from CFA on December 6th, 2018, indicating that the email bounced.	No response from the CFA has been received. Consultation with fishing industry bodies such as AFMA and WAFIC relates to fishing

Stakeholder	Relevance / reasoning for engagement	Consultation Summary	Consultation Assessment
	identified in recent years, the level of interest from the CFA is expected to be low.		effort from Commonwealth fisheries
Pearl Producers Association	Fishing group	PPA were provided the Blacktip Offshore revision consultation information sheet via email on December 4th, 2018. Eni sent a follow up email to PPA on January 22nd, 2019.	Eni considers the level of consultation to be adequate.
Recfishwest	Industry non-government organisation – peak recreational fishing body and advocate for fisheries.	Recfishwest were provided the Blacktip Offshore EP revision consultation information sheet to consult via email on December 7th, 2018. Eni sent a follow up email to Recfishwest on January 22nd, 2019.	Eni considers the level of consultation to be adequate.
WAFIC	WAFIC is the peak industry body representing the interests of the commercial fishing, pearling and aquaculture sector. WAFIC is a relevant stakeholder for this petroleum activity.	WAFIC were provided the Blacktip Offshore EP revision consultation information sheet via email on December 4th, 2018. Eni then sent WAFIC an email with additional information regarding fisheries and groups that Eni were engaging with on December 11th, 2018. Eni sent a follow up email to WAFIC on January 22nd, 2019. WAFIC responded on January 23rd, 2019, noting their view that the consultation notice needed to be updated and addressed to the needs of commercial fishers and stakeholders on the water, including bespoke fact sheets, no technical jargon, clear presentation of potential issues. Eni provided updated information on February 4th, 2019. WAFIC responded on February 4th, 2019, with further feedback regarding the accuracy of information regarding commercial fisheries' activity in the area, and mitigation of potential impacts to ALARP. Eni reviewed its information and provided an update to WAFIC on	WAFIC does not object to the Blacktip Offshore EP revision and have made no claim. • Impacts to fisheries have been discussed in the EP: • Interaction with other marine users; • Underwater survey equipment noise; • Drilling Muds and Fluids Discharge; • Spills scenarios. Eni considers the level of consultation to be adequate.

Stakeholder	Relevance / reasoning for engagement	Consultation Summary	Consultation Assessment
		February 20th, 2019 which included details on the impacts to fisheries and the associated mitigation measures	
NTSC	NTSC represent fishing industry views in Northern Territory.	NTSC were provided the Blacktip Offshore EP revision consultation information sheet via email on December 4th, 2018. Eni sent a follow up email to NTSC on January 22nd, 2019.	Eni considers the level of consultation to be adequate.
NTGFIA	NTGFIA is the industry body for guided fishing and recreational fishers.	NTGFIA were provided the Blacktip Offshore EP revision consultation information sheet via email on January 10th, 2019. Follow-up email sent on May 19th, 2019. Follow-up included a note explaining that the Blacktip Operational Area is within Commonwealth waters and the existing Blacktip Gas Export Pipeline (detailed on the Figure attachment) and the Single Point Mooring locations are within the Joseph Bonaparte Australian Marine Park Multiple Use Zone.	Eni considers the level of consultation to be adequate.
Northern Territory Seafood Council	Northern Territory Seafood Council on promoting the NT seafood industry	Northern Territory Seafood Council were provided the Blacktip Offshore EP revision consultation information sheet via email on December 4th, 2018 Follow-up email sent on May 19th, 2019. Follow-up included a note explaining that the Blacktip Operational Area is within Commonwealth waters and the existing Blacktip Gas Export Pipeline and the Single Point Mooring locations are within the Joseph Bonaparte Australian Marine Park Multiple Use Zone.	Eni considers the level of consultation to be adequate.
Commercial Fisheries			

Stakeholder	Relevance / reasoning for engagement	Consultation Summary	Consultation Assessment
Austral Fisheries	Austral is a large commercial fishing company.	Austral were provided the Blacktip Offshore EP revision consultation information sheet via email on December 4th, 2018. Austral sent an email reply on December 5th, 2018 which confirmed that this falls within NPF. The original email was then forwarded onto NPF's current CEO, Annie Jarrett, who will offer a whole industry response.	Austral Fisheries does not object to the Blacktip Offshore EP revision and have made no claim. Eni considers the level of consultation to be adequate.
Northern Prawn Fishery	Fishing group	NPF responded to consultation email (via Austral) on December 19th, 2018 and requested position information of the area to assess their activities in the area. Eni responded on December 28th, 2018 with the coordinates of the SPM and WHP. Eni then followed up with the NPF on January 22nd, 2019 to check whether they had completed their assessment and identified any concerns. On 25th February 2019, NPF CEO Annie Jarrett responded with a request for installation of the third well outside of NPF fishing seasons. NPF also indicated they are open to further consultation in relation to Blacktip field and P3 drilling in particular. Eni responded to NPF on 4 April stating that Eni have 'undertaken a risk assessment of the proposed drilling activities and will implement all measures required to reduce the risk to acceptable and as low as reasonably practicable, with consideration for the importance of JBG and potential for disruption to commercial fishing' and 'The proposed drilling campaign for the third well is subject to planning. It	Eni will continue to consult with the NPF and provide further details on the timing of the drilling activities when they become available. Section 7.1 of the EP (interaction with other users) includes an assessment of impact to fisheries including the NPF. Section 7.8 of the EP (drilling muds and fluid discharges) includes an assessment of the drilling muds and fluid s discharge on prawn stocks. A review of the EP will be undertaken prior to undertaking drilling operations to ensure that risks remain ALARP and are pertinent to the activity. A review of the impacts to the fish stocks will

Stakeholder	Relevance / reasoning for engagement	Consultation Summary	Consultation Assessment
		is best if we continue to consult during planning of the campaign'. On August 29th Eni sent NPF an email to clarify the claim / objection around the drilling period. Eni also provided clarity that the displacement impact from the drilling activity to commercial fishing is considered to be no greater that the displacement which already occurs due to the presence of the WHP and the 500 m PSZ.	also be undertaken based on further details of the drilling activity and in line with Section 10.12 of the EP.
Mackerel Managed Fishery	WA fishing group.	NWS were provided the Blacktip Offshore EP revision consultation information sheet via post on February 20th, 2019.	Eni considers the level of consultation to be adequate.
Northern Wildcatch Seafood Australia	Fishing group	NWS were provided the Blacktip Offshore EP revision consultation information sheet via email on December 4th, 2018. Eni sent a follow up email to NWS on January 22nd, 2019.	Eni considers the level of consultation to be adequate.
North Coast Demersal Scalefish Managed Fishery	WA fishing group	North Coast Demersal Scalefish Managed Fishery were provided the Blacktip Offshore EP revision consultation information sheet via post on February 20th, 2019.	Eni considers the level of consultation to be adequate.
Other Operators			
Melbana Energy	Operator in the region	Melbana Energy were provided the Blacktip Offshore EP revision consultation information sheet via email on April 5th, 2019.	Eni considers the level of consultation to be adequate.

Stakeholder	Relevance / reasoning for engagement	Consultation Summary	Consultation Assessment
Neptune Energy	Operator in the region	Neptune Energy were provided the Blacktip Offshore EP revision consultation information sheet via email on April 5th, 2019.	Eni considers the level of consultation to be adequate.
Santos Energy	Operator in the region	Santos Energy were provided the Blacktip Offshore EP revision consultation information sheet via email on April 5th, 2019.	Eni considers the level of consultation to be adequate.
Other			
Thamarrurr Development Corporation / Rangers	Subsistence fishing	Meetings were held with Thamarrurr Rangers in December 2018 and May 2019 (about Blacktip operations in general rather than this EP development) which confirmed most of the fishing occurs nearshore and there is little to no offshore subsistence fishing. Thamarrurr Development Corporation were also provided the Blacktip Offshore EP revision consultation information sheet via email on April 5th, 2019. Eni has regular ongoing engagement with the Thamarrurr Rangers regarding other activities related to the onshore Yelcherr Gas Plant.	Eni considers the level of consultation to be adequate. Information has been included in Section 5 and 7 of the EP
Northern Land Council	Subsistence fishing and impact to heritage	Northern Land Council were provided the Blacktip Offshore EP revision consultation information sheet via email on April 5th, 2019.	Eni considers the level of consultation to be adequate.

8. CONTACT DETAILS

The nominated contact person for this EP is:

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