



Exploration Drilling within Block ER236, off the East Coast of South Africa

Non Technical Summary

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NON-TECHNICAL SUMMARY

INTRODUCTION

This Non-Technical Summary provides a synopsis of the draft Environmental Impact Assessment (EIA) Report prepared as part of EIA process being undertaken for the proposed exploration drilling programme in Block ER236, off the East Coast of South Africa (hereafter referred to as 'the project').

PURPOSE OF THIS EIA REPORT

Environmental Resources Management (ERM) has been appointed by Eni South Africa BV (Eni) to undertake, as an Independent Environmental Practitioner, the full EIA process for the project as per the National Environmental Management Act (NEMA) (Act No. 107 of 1998) Regulations, 2014 (as amended in 2017). The project requires Environmental Authorisation (EA) from the National Department of Mineral Resources (DMR), through the Petroleum Agency South Africa (PASA). The DMR is the competent authority for the project, which means that it has powers to either authorise the development or refuse it. The project would be authorised under NEMA.

The primary objectives of the EIA process has been to identify and assess potentially significant environmental impacts related to the proposed activities, and to design appropriate mitigation, management and control measures in order to assure the protection of the natural offshore environment and the safety of people and communities. To better identify potential negative impacts related to project activities, dedicated specialist studies have been undertaken (see below for more details). These have allowed the adoption of the best available technologies and practices for impact prevention and mitigation.

These prevention and mitigation measures, as well as monitoring objectives, are described within the Environmental Management Programme Report (EMPr), which forms *Chapter 9* of the draft EIA report. This is required under Chapter 5 of the National Environmental Management Act (NEMA) (No 107, 1998), as amended, and becomes legally binding on condition of approval of the project by the competent authority.

PROJECT AND PROPONENT BACKGROUND

Eni and Sasol Africa Limited (Sasol) hold an Exploration Right off the East Coast of South Africa. Eni and Sasol are considering the possibility of conducting an exploration drilling¹ programme in Block ER236. The purpose of the exploration drilling programme is to work out if there is any commercially viable hydrocarbons (oil and gas) under the seabed to make it worthwhile for Eni and Sasol to undertake further development in the Block.

Eni is an international integrated energy company, active in 71 countries in the world with a staff of over 33,000 employees. Eni is engaged in hydrocarbon exploration and production, gas and power, refining, marketing and renewables across the entire value creation chain. Eni is a world leader in subsea drilling, with over 872 subsea wells (of which 284 are deep water or ultra-deep water) drilled safely across 20 different offshore environments, presenting their own unique challenges. Its expertise has been achieved through innovation of technology and an experienced workforce who adopt the company's best practise controls and procedures.

As part of the exploration programme, Eni may drill up to six deep water wells within Block ER236, four wells within northern area of interest and two wells within the southern area of interest (*Figure 1*). The starting location (in the northern or southern area) is not yet defined, as well as the sequence of wells, which is subject to the results of the first exploration well and acquired data interpretation.

The drilling of the first exploration well is planned for some time between November 2019 and March 2020, and the drilling of one well is expected to take in the order of two months to complete. The expected drilling depth would be approximately 3,800 m to 4,100 m in the northern area and 5,100 m in the southern area, from the sea surface, through the seabed, to target depth.

Depending on the result of the first exploration well, if well is dry operations will move to another location, if a successful discovery will be found, Eni will decide to drill an appraisal well close to the same location, or to drill another explorative well. A maximum of two explorative and two appraisal wells are expected to be drilled in the Northern area of interest, while one explorative and one appraisal in the Southern area of interest.

The time sequence of these possible additional wells will be dependent on the results of the first exploration well and most likely will not occur immediately after the drilling of the initial well.

¹ When conducting exploration drilling activities, there are two types of wells drilled: the exploration well and the appraisal well. The exploration well is drilled to determine if a hydrocarbon reservoir is present. The appraisal well is located close to the exploration well. It is drilled only in case of a discovery of the hydrocarbon reservoir, and is used to establish the quantity and potential flow rate (how fast it flows) of any hydrocarbon present. The appraisal of the reservoir extension and characteristics will support the decision for a development phase, in order to produce the hydrocarbon. The development phase will require a new EIA assessment and it's not part of this EA authorization.

Well testing may be conducted only on the appraisal wells if they present potential commercial quantities of hydrocarbon.

At the end of the operations both kind of wells, exploration and appraisal, will be plugged¹ and abandoned (“decommissioning”) as per international standards and best practice. The well and wellhead is sealed off with cement plugs. The abandoned wells will have a downhole tested barrier that will seal the reservoir from and to seabed and will prevent the unwanted release of hydrocarbon and the wellhead will be left on the seabed. The position of the wellheads will be marked on HydroSAN Office charts for safe navigation.

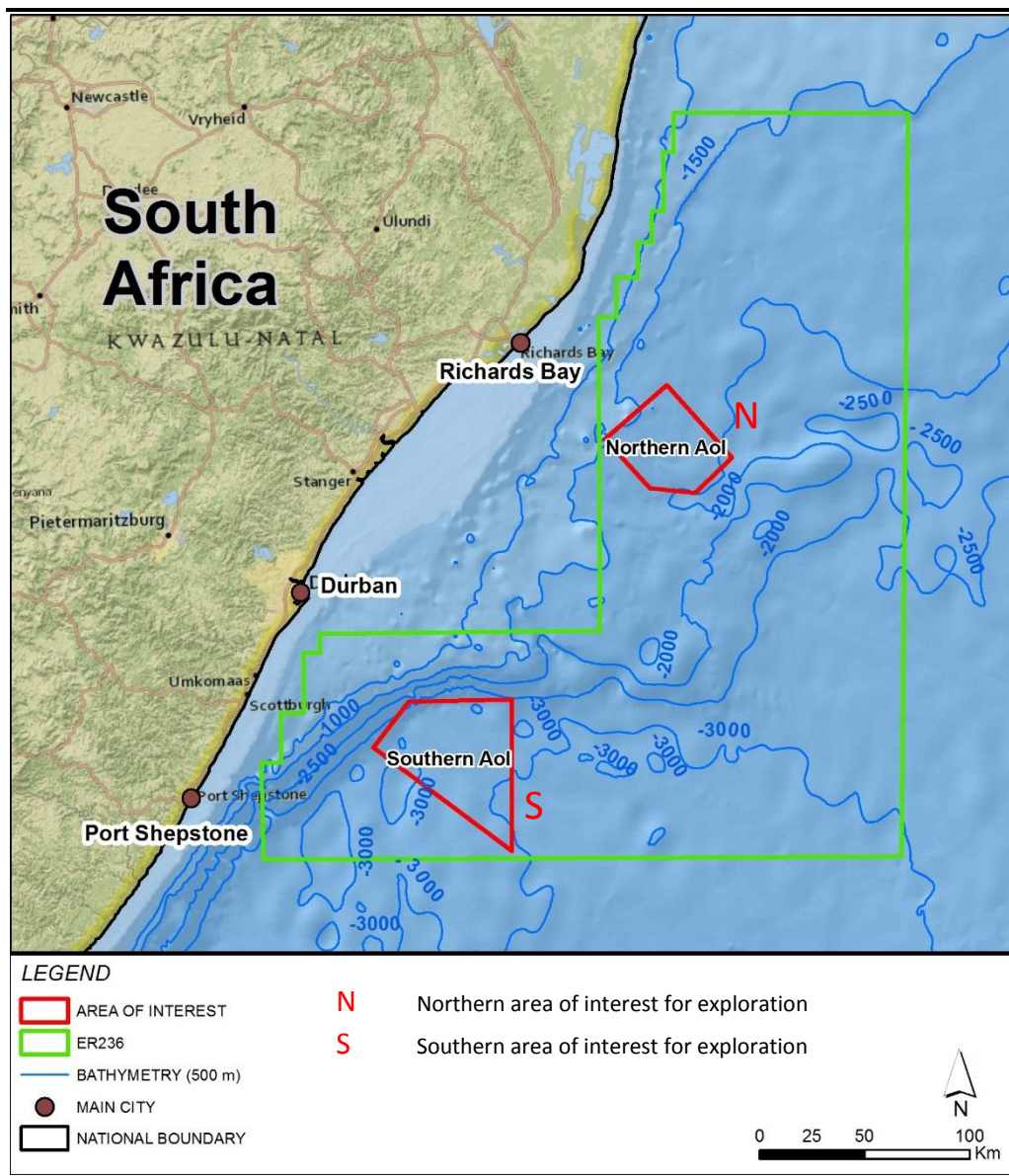
PROJECT LOCATION

Eni proposes to drill exploration wells inside Block ER236, within two areas of interest:

- A **northern area of interest** (approximately 1,717.50 km² in area), which is located, at its closest point, approximately 62 km from shore, in water depths ranging between 1,500 m and 2,100 m (*Figure 1*).
- A **southern area of interest** (approximately 2,905 km² in area), which is located, at its closet point, approximately 65 km from shore, in water depths ranging between 2,600 m and 3,000 m (*Figure 1*).

¹ For exploration wells, the plugging and abandonment job will be final, in that no re-entry of the well is planned. In the event of a discovery, for appraisal wells the cement plug will have a different composition and dimension (length) to allow the capability to re-drill the cement and recover the well for a future development phase.

Figure 1 Map of the Project Location



Source: EIA Report, 2018.

PROJECT ACTIVITIES

The main project related components include the following:

- Offshore exploration well;
- Deep water drillship (*Figure 2*);
- Exclusion zone around drillship;
- Shore base (Richards Bay or Durban);
- Supply vessels, stand-by vessels and helicopters; and
- Infrastructure and services.

Figure 2 Example of a Drillship



Source: Shutterstock, 2017

The project activities associated with drilling include the following phases:

- Mobilisation Phase
 - The deep water drillship will be mobilised to the first well location from West Africa or East Africa.
 - Support vessels may sail directly in convoy with the drillship to site or from the Richards Bay or Durban shore base.
 - Operation of the shore-based facilities for handling support services needed by the drillship.
 - Remote Operated Vehicle (ROV) surveys pre-drilling survey of the seabed and positioning of the well.
- Drilling Phase
 - Drilling of a well in either the northern or southern area of interest.
 - Well execution (side track, logging, completion) options.
 - Optional well testing.
- Well Plugging, Abandonment (“Decommissioning”) and Demobilisation Phase
 - Well plugging and abandonment.
 - Demobilisation of the drillship, vessel and local logistics base.

All activities will be conducted in a way, which conforms to recognised industry international best practice. A detailed description of project activities has been reported within *Chapter 3* of the draft EIA Report (“*project Description*”).

Despite many advances in seismic data acquisition and analysis, currently no alternatives exist to definitively establish the presence of hydrocarbon reserves other than through exploration and appraisal drilling.

PLANNED EMISSIONS AND DISCHARGES, WASTE MANAGEMENT

The planned drilling activities and project operations would result in the occurrence of air emissions, discharges to sea, waste requiring land disposal and noise emissions.

All vessels will have equipment, systems and protocols in place for prevention of pollution by oil, sewage and garbage in accordance with MARPOL 73/78. A project specific Waste Management Plan (covering all wastes generated offshore and onshore) will be developed in accordance with MARPOL 73/78 requirements, South African regulations and Eni’s waste management guidelines. An Oil Spill Contingency Plan (OSCP) will be developed for this project, in terms of the nationally adopted Incident Management System for spills and the National OSCP.

ENVIRONMENTAL AND SOCIO-ECONOMIC BASELINE

Table 1 presents a summary of the key baseline sensitivities in the project Area.

Table 1 Summary of Key Sensitivities

Feature	Description
Marine Protected Areas (MPAs)	<ul style="list-style-type: none"> • There are no existing MPAs that overlap with the areas of interest for drilling. • Although Block ER236 overlaps with the proposed Protea Banks MPA and the proposed extension of the iSimangaliso Wetland Park MPA, there is no overlap of the areas of interest for drilling with proposed MPAs. • It should be noted that sections of the original ER236 which overlapped with the existing iSimangaliso and Aliwal Shoal MPA’s were relinquished during the Exploration Right renewal process in 2016.
Seabed features and benthic habitat	<ul style="list-style-type: none"> • The northern area of interest for well drilling lies offshore, east of the Natal Bight in >1,500 m water depth. • In the northern area of interest for well drilling, Southwest Indian Upper and Lower Bathyal benthic habitats (habitats occurring on the seabed) are found, whereas Southern Indian Lower Bathyal benthic habitat dominates in the southern area of interest, both of which have been assigned an ecosystem threat status of ‘least threatened’ in the SANBI 2011 National Biodiversity Assessment. • The benthic communities within these habitats are generally the same throughout the southern African East Coast region, differing only by seabed type and/or depth zone.

Feature	Description
Coelacanths	<ul style="list-style-type: none"> The Tugela (600 to 2,800 m deep) and Goodlad Canyons (20 to 1,400 m deep) lie in close proximity to the southern and northern areas of interest for drilling respectively. Coelacanths have a narrow habitat range and have been found internationally in water depths between 90 to 300 m, in canyons with connections to the continental shelf. Due to the depths of the canyons which lie in close proximity to the northern and southern areas of interest, and limited food sources at this depth, combined with the fact that these canyons lack connectivity to the continental shelf, it has been evaluated by the specialist based on available data that the Tugela and Goodlad Canyons are unlikely to offer suitable habitat for coelacanths. Additionally, no drilling will be done within canyons.
Deep Water Corals	<ul style="list-style-type: none"> The occurrence of deep water corals in Block ER 236 and the areas of interest are unknown. This will be established through pre-drilling ROV surveys
Whales and Dolphins	<ul style="list-style-type: none"> There are 36 species of whales and dolphins (cetaceans) that are likely to be found within Block ER236. Of the 36 species, the Antarctic Blue whale is 'critically endangered', the Indo-Pacific humpback dolphin, fin whale and sei whale are considered 'endangered' and the Ifafi-Kosi Bay sub-population of the Indo-Pacific bottlenose dolphin, Sperm whale and Bryde's whale (inshore population) are considered 'vulnerable' in the IUCN South African Red Data book List Assessment. The most common species within the area of interest (in terms of likely encounter rate, not total population sizes) are likely to be the common bottlenose dolphin, Indo-pacific bottlenose dolphin, short-finned pilot whale and humpback whale. ER236 lies within the migratory route of Humpback (Least Concern) and Southern Right (Least Concern) whales. <ul style="list-style-type: none"> Southern right whales will pass through Block ER236 in July and August and again on their southward migration in October/November. Humpbacks have a bimodal distribution off the East coast, most reaching southern African waters around April, continuing through to September/October when the southern migration begins and continues through to December and as late as February. The calving season for Humpbacks extends from July to October, peaking in early August.
Marine Turtles	<ul style="list-style-type: none"> Five species of turtle are known to occur along the East Coast: leatherback, which is most frequently sighted, and the loggerhead, green, olive ridley and hawksbill turtles. In the IUCN Red listing, the hawksbill turtle is described as 'Critically Endangered', green turtle is 'Endangered' and leatherback, loggerhead and olive ridley are 'Vulnerable' on a global scale. Both the leatherback and the loggerhead turtle nest on the beaches of the northern KZN coastline (St Lucia, iSimangaliso) between mid-October and mid-January. Hatchlings are born from mid-January through to mid-March when the Agulhas Current is warmest. Once hatchlings enter the sea, they move southward following the Agulhas Current and are thought to remain in the southern Indian Ocean gyre for the first five years of their lives. The inshore regions of the northern portion of Block ER236, coincide with the inter-nesting migrations for leatherbacks, but the area of interest lies outside of the inter-nesting range. Leatherback and loggerheads are likely to be encountered in Block ER236 during their foraging migrations.
Fish spawning, nursery and recruitment areas	<ul style="list-style-type: none"> The areas of interest are offshore of the major fish spawning and migration routes and ichthyoplankton abundance is likely to be low. The sardine run along the Eastern Cape coast and up to southern KZN is inshore of the area of interest. Pilchard eggs are inshore of the area of interest.
Large Pelagic Long Line Fishing	<ul style="list-style-type: none"> The area of interest overlaps with the long line fishing area which targets primarily tuna but also swordfish.

Feature	Description
Marine Traffic	<ul style="list-style-type: none"> • The project Area may overlap with the routes taken by tankers and bulk carriers. The supply vessels may interact with the inshore vessel traffic due to the collection of supplies from the Port of Durban or Richard's Bay. • Important East Coast commercial harbours include Port Elizabeth, East London, Durban and Richards Bay.
Recreational users	<ul style="list-style-type: none"> • The recreational use of marine resources along the East Coast typically occurs within inshore waters in the vicinity of coastal towns and holiday resorts.

THE EIA PROCESS TO UNDERTAKEN TO DATE

SCOPING PHASE

The Scoping Phase undertaken followed the requirements of NEMA. This involved a process of notifying Interested and Affected Parties (I&APs) of the proposed project and EIA process in order to ensure that all potential key environmental impacts, including those requiring further investigation, were identified.

The final Scoping Report (including Plan of Study) was submitted to PASA on 8 March 2018 for its consideration. PASA's Approval Letter of the final Scoping Report was issued on 16 April 2018.

EIA PHASE

The data collected for the baseline description has been selected to be representative of the project area considered in the context of an EIA process. Based on the available data, the impact assessment has been conducted for all sensitivities not de-risked during the scoping report phase and including the additional clarifications requested by stakeholders, during the Scoping Phase comment period in February to March 2018. All the proposed preventive and mitigation measures have been provided and reported in details in *Chapter 9* (EMPr) of the EIA Report.

Specialist studies

The following specialist studies were undertaken during the EIA Phase to address the key issues that required further investigation and detailed assessment, namely:

- Oil Spill and drill cuttings modelling;
- Marine ecology;
- Fisheries; and
- Maritime heritage baseline.

Oil spill and drill cuttings modelling used available metocean data to model the extent and concentration of various discharge scenarios (including drilling cuttings and hydrocarbon spills). The other specialist studies involved the gathering of relevant data (including the results of the modelling study) in order to identify and assess environmental impacts that may occur as a result of the proposed project.

These impacts were then assessed according to pre-defined rating scales. Specialists also recommended appropriate mitigation or optimisation measures to minimise potential impacts or enhance potential benefits, respectively.

The results of oil spill and drill cuttings modelling specialist studies have been reviewed and commented by an Independent Peer Reviewer. Comments from the peer reviewer are available in *Annex D6* of the draft EIA Report. A Non-Technical Summary of the Oil Spill Modelling report has also been prepared by ERM to facilitate stakeholder understanding of the oil spill report. The summary can be found in *Annex D7* of the draft EIA Report.

ERM experienced unforeseen delays in the finalising of specialist studies for the Exploration Drilling within Block ER236, which resulted in the lapse of the EIA Application on the 3 August 2018. In line with Section 21(2)(a) and (b) of the NEMA EIA Regulations, Eni has commenced the new EIA process with the submission of an amended application form and the release of the draft EIA Report for comment.

Compilation and Review of Draft EIA Report

This draft EIA Report will be released from 26 September to 25 October 2018 for a 30 day comment period. A notification letter has been sent to all registered I&APs on the stakeholder database to inform them that a new EIA process has been initiated and that the draft EIA Report is available for comment. The report is available online on the project webpage (www.erm.com/eni-exploration-eia) and at the following locations:

- Durban Central Lending Public Library
- Port Shepstone Library
- Richards Bay Library
- East London Central Library
- Nelson Mandela Bay Municipality – Linton Grange Library

The comments received on the draft EIA Report will be incorporated into the report will be revised and submitted to PASA for consideration. A notification letter will be sent to all registered I&APs on the project database and the report is to be made available online on the project webpage (www.erm.com/eni-exploration-eia) and at the public locations mentioned above.

The contact details of the Applicant and the independent EAP are provided in *Table 2* below:

Table 2

Contact Details of the Applicant and EAP

Contact Details of project Applicant / Proponent	Contact Details of the EAP
<p>Eni South Africa BV 1st Floor, Icon Building c/o Cube WS Cnr Lower Long St. & Hans Strijdom Rd. Foreshore, 8001, Cape Town, South Africa Contact: Nicole Lomborg</p> <p>T: +27 21 412 1582</p>	<p>ERM Postnet Suite 90 Private Bag X12 Tokai 7966</p> <p>Vicky Stevens 1st Floor Great Westerford 240 Main Road Rondebosch 7700 Cape Town South Africa T +27 21 681 5400 F +27 21 686 0736 E eni.exploration.eia@erm.com</p>

ENVIRONMENTAL AND SOCIAL-ECONOMIC IMPACT ASSESSMENT OF PLANNED ACTIVITIES

The primary objective of the EIA process has been to identify and assess potentially significant environmental impacts related to the proposed drilling activities and to design appropriate mitigation measures, management and control plans for the identified impacts in order to assure the protection of offshore environment and safety of people and communities.

To assess the potential impacts of the project execution, a methodology comprising of the following was applied:

- **Impacts identification and definition:** aimed at determining what could potentially occur as a result of the exploration activity’s interaction with the physical, chemical, biological and socio-economic environment.
- **Impacts evaluation:** potential impacts have been assessed in order to determine their significance by combining the magnitude of the potential impact and the sensitivity of the resources/receptors that are potentially impacted.
- **Definition of mitigations:** according to the impact significance, appropriate control and management measures have been recommended. The basic principle of mitigation is to avoid or minimise any negative impact in the first place, rather than trying to remedy its negative effect later.
- **Residual Impacts Evaluation:** once mitigation measures are proposed, the final step in the Impact Assessment Process has been to assign residual impact significance, remaining after mitigation.

- **Implementation of the Environmental Management Programme (EMPr):**
the EMPr (*Chapter 9* of the draft EIA Report) aims to ensure that all mitigation measures and commitments included in the draft EIA Report will be implemented throughout the lifecycle of the exploration activity, in an effective manner.

Only the impacts considered potentially significant are evaluated further in the EIA report. The impacts considered non-significant are discussed briefly in planned events (*Chapter 7*) and scoped out of the detailed assessment.

Table 3 *Potential Impacts from Planned Activities*

No.	Issue	Impact	Pre-mitigation Significance Rating	Key Mitigation Measures	Post mitigation Significance Rating
1	Key Impacts Identified from Planned Activities				
1.1	Climate change	Burning of fossil fuels	Negligible	<ul style="list-style-type: none"> Compliance to MARPOL 73/78 Annex VI regulations regarding the reduction of NOx, SOx and GHG emissions from vessel engines. All diesel motors and generators will undergo routine inspections and receive adequate maintenance to minimise soot and unburnt diesel released to the atmosphere. 	Negligible
1.2	Seawater and sediment quality degradation /contamination and impacts on marine fauna	Wastewater discharges from the drillship, supply and support vessels	Negligible	<ul style="list-style-type: none"> Compliance with MARPOL 73/78 Annex I, Annex IV, Annex V standards for all project vessels. 	Negligible
		Physical disturbance to the seabed, sediments and benthic fauna from pre-drilling Remote Operated Vehicle (ROV) surveys	Negligible	<ul style="list-style-type: none"> Implement procedures for ROVs that stipulate that the ROV does not land or rest on the seabed as part of normal operations 	Negligible
		Physical disturbance to the seabed, sediments and benthic fauna from drilling operations	Negligible	<ul style="list-style-type: none"> Ensure drill site is located more than 500 m from any identified vulnerable habitats. Use high efficiency solids control equipment to minimize liquid content on cuttings, maximize reuse and recycle of drilling mud, reduce the need for fluid change out and minimise the final amount of residual spent mud. 	Negligible
		Physical disturbance to the seabed, sediments and benthic fauna from the disposal of excess cement at the seabed	Negligible	<ul style="list-style-type: none"> Eni will monitor cement returns and will terminate pumping if returns are observed on the seafloor 	Negligible
		Impact of disposal of muds and cuttings at the seabed on deep water benthos	Negligible	<ul style="list-style-type: none"> Use high efficiency solids control equipment to minimize liquid content on cuttings, maximize reuse and recycle of drilling mud, reduce the need for fluid change out and minimise the final amount of residual spent mud; Maximize re-use and re-cycle of used WBM and NADF for different drilled section and for drilling other wells; Minimize spent WBM discharge to sea; avoid NADF mud discharge. 	Negligible

No.	Issue	Impact	Pre-mitigation Significance Rating	Key Mitigation Measures	Post mitigation Significance Rating
		Impact of disposal of muds and cuttings at the seabed on deep water corals	Moderate	<ul style="list-style-type: none"> Ensure drill site is located more than 500 m from any identified vulnerable habitats 	Minor
		NADF biochemical impacts related to drill cuttings and muds on marine fauna present in the water column	Minor	<ul style="list-style-type: none"> Eni's specifications for discharge of NADF retained on drill cuttings includes: <ul style="list-style-type: none"> Discharge of cuttings via a caisson in >15 m depth. Discharge of cuttings only in water >30 m depth. Organic Phase Drilling Fluid concentration: maximum residual non aqueous phase drilling fluid (NAF) 5% (C16-C18 internal olefins) or 9.4% (C12-C14 ester or C8 esters) on wet cuttings. Hg: max 1 mg/kg dry weight in stock barite. Cd: max 3 mg/kg dry weight in stock barite. Ship-to-shore otherwise. 	Negligible
		WBM biochemical impacts related to drill cuttings and muds on marine fauna present in the water column	Negligible	<ul style="list-style-type: none"> Eni's specifications for discharge of WBM includes: <ul style="list-style-type: none"> Discharge of cuttings via a caisson in >15 m depth. Discharge of cuttings only in water >30 m depth. Hg: max 1 mg/kg dry weight in stock barite. Cd: max 3 mg/kg dry weight in stock barite. Maximum chloride contraction must be less the four time the ambient concentration of fresh or brackish receiving water. Ship-to-shore otherwise. 	Negligible
		Disturbance of marine fauna by the masking of biologically relevant sounds by underwater noise associated with drilling operations	Minor	Vessels should also undergo regular maintenance regime to reduce noise, which includes the cleaning of propeller and underwater hull.	Minor
		Avoidance behaviour of marine fauna due to disturbance by underwater noise associated with drilling operations	Negligible	Vessels should also undergo regular maintenance regime to reduce noise, which includes the cleaning of propeller and underwater hull.	Negligible
		Impacts of helicopter noise associated with drilling on marine fauna	Moderate	Avoid extensive low-altitude coastal flights (<914 m and within 2 km of the shore)	Minor
		Impact of light from project vessels on marine fauna	Negligible	The lighting on the drilling unit and support vessels should be reduced to a minimum compatible with safe operations whenever and wherever possible.	Negligible

No.	Issue	Impact	Pre-mitigation Significance Rating	Key Mitigation Measures	Post mitigation Significance Rating
1.4	Disturbance to fishing (commercial and subsistence)	Impacts related to restricted access to fishing grounds and damage to equipment due to the presence of the wellhead on the seabed	Minor	Affected stakeholders to be notified of the location, duration and timing of drilling activities. No mitigation required for equipment damage as it is unlikely due to water depth	Minor
1.5	Abandonment of wellhead(s) on seafloor	Impacts of the presence of the wellhead during abandonment on other marine activities	Negligible	Prior to demobilization of the vessel from the area, the abandoned wellhead location must be surveyed and accurately charted with the HydroSAN Office.	Negligible
1.6	No-go alternative	Impact of the no-go alternative	Moderate	No mitigation required	Moderate
2	Additional Relevant Impacts Identified through Stakeholder Engagement during Scoping				
2.1	Maritime Heritage	Exploration drilling	Negligible	Any pre-drill remote sensing data collected to ground-truth seabed conditions is to be archaeologically reviewed to establish whether any shipwrecks are present on the seabed	Negligible
2.2	Local employment	Employment of labour and allocation of jobs Training / capacity building of local people	Negligible	At this early stage, the project employment opportunities are limited. Eni will establish a recruitment policy which prioritises the employment of South African and local residents at the onshore logistics base over foreigners, where possible. This outlook is anticipated to significantly change based on the success of the exploratory well. True potential is realised at the subsea field development stage of the lifecycle.	Negligible

ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACT ASSESSMENT OF UNPLANNED ACTIVITIES

The following accidental events were considered to be potentially significant in the EIA phase and have been assessed through a dedicated Oil Spill Modelling Study (*Annex D4* of the draft EIA Report):

- Accidental oil spill due to a blowout;
- Accidental oil spill due to a vessel collision; and
- Accidental oil spill due to the accidental disconnection of the riser occurring during drilling.

The probability of a blowout is very low described in *Chapter 8* (Unplanned Events).

The industry focus, commitment and effort, in particular for major oil companies like Eni, is to conduct operations with the highest safety standards, in order to perform drilling operations with no risk and harm to the people, the environment and the asset. In order to minimize the residual risk of incidents, strict rules are defined by international standards (API/ISO) and best practice and must be followed by the company, the drilling contractors and all parties involved in drilling operations, including maritime and logistic operations.

To prevent an unwanted oil spill, Eni has defined number of mandatory responses, control and management measures, and resources that will be implemented during drilling operations. These include advanced planning of tools that can be used and training of personnel to reduce the severity of impacts in the event of a spill. These tools include the use of a subsea BOP (Blowout Preventer), to immediately shut in the well in case of emergency. In addition, the availability of a capping system can provide a backup tool to be used in case of failure of BOP. A new (advanced) capping system has been developed after the Macondo incident to successfully shut-in the well and contain any further spill. The capping system is now an effective option in case of emergency.

All the response procedures form part of an Oil Spill Contingency Plan (OSCP) that must be developed prior to the beginning of the proposed drilling activities. The OSCP shall be reviewed and approved by the South African Maritime Safety Authority (SAMSA) prior to start of drilling. On approval, SAMSA will issue a Pollution Safety Certificate.

Table 4 Summary of Potential Risks or Unplanned Activities and their Residual Significance ratings

No.	Issue	Impact	Post-mitigation Significance Rating	Key Mitigation/Management Measures
1	Unplanned Activities			
1.1	Risk significance of oil spills on marine and coastal habitats and species	Hydrocarbon spill from a vessel collision (i.e. loss of diesel) on marine and coastal habitats and species (Invertebrates, pelagic fish and larvae, and for marine mammals and turtles)	Minor (ALARP)	<ul style="list-style-type: none"> • Prior to the start any drilling operation, Eni adopts several control measures, starting from the well design and engineering phases. • During drilling operations, the drillship have real time monitoring of drilling parameters in order to reduce the risk of unexpected hydrocarbon influx (kicks) inside the well and to maximize the safety during the construction of the well at different drilled sections. • In order to minimize the risk of negative and unwanted events (such as a blowout), the well design and the operation procedures, device and equipment, will guarantee the presence of a second barrier in case of failure of the primary barrier. • A Well Control Contingency Plan (WCCP) will be put in place for each well
1.2		Hydrocarbon spill from a vessel collision on marine and coastal habitats and species (seabirds)	Moderate (ALARP)	
1.3		Oil spill due to blowout surface risk to invertebrates, fish, marine mammals and turtles (including species inside MPAs)	Minor (ALARP)	
1.4		Oil spill due to blowout surface risk to marine and coastal habitats and species (seabirds)	Moderate (ALARP)	
1.5		Oil spill due to blowout - sub-surface risk to invertebrates, fish, marine mammals and turtles (including species inside MPAs)	Minor (ALARP)	
1.6		Oil spill due to blowout -sub-surface risk to seabirds	Minor (ALARP)	
1.7		Loss of drilling fluids and cuttings due to riser disconnect on marine and coastal habitats and species (Invertebrates, pelagic fish and larvae, and for marine mammals and turtles)	Minor (ALARP)	
1.8		Loss of drilling fluids and cuttings due to emergency riser disconnect on seabirds	Moderate (ALARP)	
1.9		Loss of drilling fluids and cuttings due to emergency riser disconnect on invertebrates, fish, marine mammals and turtles (including species inside MPAs)	Minor (ALARP)	
1.10		Risk significance of oil spills on marine and coastal based livelihoods	Oil spill due to blowout or diesel spill on tourism	
1.11	Oil spill due to blowout or diesel spill on small-scale and subsistence fisheries		Moderate (ALARP)	
1.12	Oil spill due to blowout or diesel spill on recreational fisheries		Minor (ALARP)	

No.	Issue	Impact	Post-mitigation Significance Rating	Key Mitigation/Management Measures
1.13		Oil spill due to blowout or diesel spill on commercial fisheries	Minor (ALARP)	
1.14	Accidental vessel on vessel collision on community and workforce health and safety	Vessel collision on workforce health and safety	Minor (ALARP)	<ul style="list-style-type: none"> • Distribute a Notice to Mariners prior to the commencement of the drilling operations to inform them of drilling activities, including timing and location thereof; • project vessels to inform other ships and boats by radio announcements regarding drilling activity location; • Use of signals, lights and markings on the project vessel(s); • Enforce a safety/exclusion zone with a 500 m radius around the project vessels
1.15		Vessel collision on community health and safety	Moderate (ALARP)	

CONCLUSIONS AND RECOMMENDATIONS

Through the EIA process, certain control and mitigation measures have been recommended as part of the project to manage the anticipated impacts. These control and mitigation measures identified ensure that the project is fully compliant with South African Regulations as well as Eni's best practise procedures and international policy frameworks for subsea operations. These form part of the EMPr (*Chapter 9*) developed based on the outcomes of draft EIA Report.

All mitigations listed in the EMPr shall be implemented during the project to ensure that potential risks and adverse impacts associated with the project are mitigated to a level, which is deemed adequate for the project to proceed.

The 'no-go' alternative for this project has also been assessed and would result in the loss of this potential opportunity for energy production and associated economic and social benefits, although the drilling sites would remain in its current environmental state.

The EIA process also involves a stakeholder engagement process to address the concerns and allow contributions by stakeholders and Interested & Affected Parties (IAPs). Engagement with stakeholders will disclose project information, particularly regarding Eni project activities offshore and any safety requirements and control measures in respect of the proposed drilling operations. Project staff will also be on hand to answer concerns and questions directly from IAPs at the open house stakeholder engagement meetings.

In summary, based on the findings of this assessment and taking into account the benefits this projects poses for the South African economy, ERM is of the opinion that the proposed exploration drilling activities on Block ER236 to determine whether there are sufficient hydrocarbons under the seabed to substantiate further development, should be authorised. This is, however, contingent on the implementation of the mitigation measures and monitoring for potential environmental and socio-economic impacts as outlined in the draft EIA Report and EMPr being implemented by Eni.

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