TotalEnergies EP South Africa B.V.

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE OFFSHORE PRODUCTION RIGHT AND ENVIRONMENTAL AUTHORISATION APPLICATIONS FOR BLOCK 11B/12B – REF NO: 12/4/13 PR

Draft Environmental and Social Impact Assessment Report

CHAPTER 12

REPORT NO: 41105306-358669-10
SEPTEMBER 2023

PUBLIC

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12 ENVIRONMENTAL MANAGEMENT PROGRAMME

This chapter presents the EMPr prepared for the Project activities, as required in terms of Appendix 4 of the EIA Regulations 2014, as amended, promulgated under NEMA.

12.1 INTRODUCTION

12.1.1 OBJECTIVES

The objectives of this EMPr are as follows:

- Ensure compliance with Appendix 4 of the EIA Regulations 2014, as amended, promulgated under NEMA, as well as all applicable laws, regulations, standards and guidelines.
- Identify mitigation and management measures and environmental specifications to reduce and limit negative impacts and enhance benefits associated with the Project.
- Outline and describe the roles and responsibilities of key role players, as well as their required competencies, for implementation of the EMPr during the Project.
- Detail mechanisms and frequencies for monitoring compliance with the EMPr.
- Outline management structures that address the concerns raised by I&APs and detail the channels of communication required for the Project.
- Provide protocols to be followed in the event of unforeseen circumstances in order to limit negative impacts during unplanned events.

12.1.2 ENVIRONMENTAL MANAGEMENT PROGRAMME STRUCTURE

This EMPr consists of ten sections, the contents of which are outlined in **Table 12-1**.

Table 12-1 – EMPr Structure

Section	Contents
Section 12.1 – Introduction	Describes the objectives of the EMPr and outlines the EMPr structure.
Section 12.2 – Summary of Key Environmental and Social Sensitivities	Provides a summary of the key environmental and social sensitivities identified for the Project area and describes the implications thereof on the Project.
Section 12.3 – Supporting Documentation	Details the key documentation supporting the implementation of the EMPr.
Section 12.4 – Roles and Responsibilities	Details the key Project personnel and associated responsibilities for implementation of the EMPr.
Section 12.5 – Training, Awareness and Competency	Outlines the provisions made for training, environmental awareness and competency for implementation of the EMPr.
Section 12.6 – Compliance Verification and Corrective Actions	Details the procedures and requirements for monitoring and auditing compliance with the EMPr.
Section 12.7 – Management of Change	Details the procedures required to effect changes to the EMPr.
Section 12.8 - Communication	Outlines the channels of communication to be followed between key Project personnel.

Section	Contents
Section 12.9 – Document Control and Reporting	Provides details of the document control and reporting requirements for key Project personnel.
Section 12.10 – Environmental and Social Mitigation Management Commitment Register	Provides the commitments that will be implemented during the project to avoid, prevent, minimise and manage significant negative impacts and optimise, enhance and maximise benefits associated with the Project.

12.2 SUMMARY OF KEY ENVIRONMENTAL AND SOCIAL SENSITIVITIES

Key environmental and social sensitivities identified in the Project area are provided in **Table 12-2**.

Table 12-2 – Key environmental and social sensitivities identified within Block 11B/12B

Receptor/Variable	Key sensitivities in the area of influence
Biophysical Sensitivities	
MPAs, EBSAs, CBAs and Other Vulnerable Areas	The seabed communities in the Block 11B/12B PR Area are known to exhibit high levels of endemism, and as such, there is a need of protection which has been granted in the form of offshore MPAs. Offshore MPAs in close proximity to Block 11B/12B include the Southwest Indian Seamounts MPA (located to the south-west of Block 11B/12B) and the Port Elizabeth Corals MPA (located to the north-east of Block 11B/12B) (refer to Figure 7-14). The Southwest Indian Seamounts MPA comprises a mostly untrawled rock shelf edge with cold water corals, including coral gardens in the shallower areas, and slope and abyssal plain habitats in the deeper areas. The MPA provides and protects an important productive foraging area for seabirds, such as the endangered Atlantic Yellow-nosed Albatross (*Thalassarche chlororhynchos*). The Port Elizabeth Corals comprises a unique seascape in that the continental slopes range from 200 – 5 000 m. The MPA protects important seabed features that provide important habitat for a range of corals and is also an important nursery area for the Kingklip (*Genypterus capensis*).
	EBSAs are geographically or oceanographically discrete areas that provide important services to one or more species/populations of an ecosystem or to the ecosystem as a whole. The northern border of the Block 11B/12B PR Area is alongside the full extent of the Kingklip Corals EBSA and is just to the north-east of the Shackleton Seamount Complex EBSA (refer to Figure 7-14). While the base case route for the pipeline is located approximately 16 km from the Kingklip Corals EBSA, the proposed alternative pipeline route passes through the southwestern corner of the Kingklip Corals EBSA. The Kingklip Corals EBSA comprises undersea hills that support fragile corals. The corals are covered by dense clouds of plankton and hake. The Shackleton Seamount Complex EBSA is a dynamic offshore area with high productivity and high pelagic and benthic habitat heterogeneity. Sporadic shelf-edge upwelling enhances productivity along the outer margin.
	Proposed CBA Natural sites have natural/near-natural ecological condition, with the management objective of maintaining the sites in that natural/near-natural state. Both of the proposed pipeline routing options pass through a proposed CBA Natural area (refer to Figure 7-14).

Receptor/Variable	Key sensitivities in the area of influence
	ESAs include all portions of EBSAs that are not already within MPAs or CBAs, and a 5 km buffer area around all MPAs (where these areas are not already CBAs or ESAs). An ESA is located in the north-eastern portion of Block 11B/12B, as it creates a 5 km buffer around the Port Elizabeth Corals MPA (refer to Figure 7-14).
	IMMAs include sites that host vulnerable species or a significant percentage of the members of a species, sites that are important for reproduction or feeding, and sites that are home to a wide variety of species. In South Africa, three IMMAs have been identified: the Cape Coastal Waters IMMA, Southern Coastal and Shelf Waters IMMA and the Southeast African Coastal Migration Corridor IMMA. The north-western corner of Block 11B/12B intersects the Southern Coastal and Shelf Waters IMMA (refer to Figure 7-14).
Marine Fauna	A range of marine faunal species are likely to be encountered in Block 11B/12B, some of which have been listed on the IUCN Red List of Threatened Species. Threatened species (i.e. those with a Vulnerable conservation status or higher), including their IUCN conservation status, are listed below: ■ Turtles • Leatherback (*Dermochelys coriacea*) – Vulnerable • Loggerhead (*Caretta caretta*) – Vulnerable • Green (*Chelonia mydas*) - Endangered ■ Seabirds • African Penguin (*Spheniscus demersus*) – Endangered • Cape Gannet (*Morus capensis*)- Endangered • Bank Cormorant (*Phalacrocorax neglectus*) - Endangered • Cape Cormorant (*Phalacrocorax capensis*) – Endangered • Indian Yellow-Nosed Albatross (*Thalassarche carteri*) – Endangered • Atlantic Yellow-Nosed Albatross (*Thalassarche chlororhynchos*) - Endangered • White Chinned Petrel (*Procellaria aequinoctialis*) - Vulnerable • Spectacled Petrel (*Procellaria conspicillata*) - Vulnerable • Leach's Storm Petral (*Oceanodroma leucorhoa*) - Vulnerable ■ Cetaceans • Indian Ocean Humpback Dolphin (*Sousa plumbea*) – Endangered • Indo-Pacific Bottlenoise Dolphin (*Tursiops aduncus)* - Vulnerable • Sperm Whale (*Physeter macrocephalus*) – Vulnerable • Fin Whale (*Balaenoptera physalus*) – Vulnerable • Blue Whale (*Balaenoptera musculus ssp. Intermedia*) – Critically Endangered • Sei Whale (*Balaenoptera borealis*) – Endangered • Bryde's Whale (*Balaenoptera brydei*) – Vulnerable • Humpback Whale (*Megaptera novaeangliae*) – Vulnerable ■ Pelagic Fish • Southern Bluefin Tuna (*Thunnus maccoyii*) – Endangered • Bigeye Tuna (*Thunnus obesus*) – Vulnerable • Blue Marlin (*Makaira nigricans*) – Vulnerable • Great Hammerhead Shark (*Sphyrna mokarran*) – Critically Endangered • Smooth Hammerhead Shark (*Sphyrna zygaena*) – Vulnerable • Pelagic Thresher Shark (*Alopias pelagicus*) - Endangered • Bigeye Thresher Shark (*Alopias superciliosus*) - Vulnerable • Common Thresher Shark (*Alopias vulpinus*) - Vulnerable • Dusky Shark (*Carcharhinus obscurus*) - Endangered • Great White Shark (*Carcharodon carcharias*) - Vulnerable • Shortfin Mako Shark (*Isurus oxyrinchus*) - Endangered • Longfin Mako Shark (*Isurus paucus*) - Endangered

Receptor/Variable	Key sensitivities in the area of influence
	• Whale Shark (*Rhincodon typus*) Endangered • Oceanic whitetip Shark (*Carcharhinus longimanus*) - Critically Endangered • Bronze Whaler Shark (*Carcharhinus brachyurus*) - Vulnerable
Socio-Economic Sensitivities	
Fisheries	The inshore and deep-sea sectors of the South African hake demersal trawl target shallow water hake (*Merluccius capensis*) and deep-water hake (*M. paradoxus*). Valuable bycatch of the trawl fisheries include, monkfish (*Lophius vomerinus*), Kingklip (*Genypterus capensis*) Panga (*Pterogymnus laniarius*) and snoek (*Thyrsites atun*). Approximately 30 trawlers participate in the inshore trawl sector employing approximately 12 400 South Africans. Economically, the demersal trawl fishery is the largest South African fishing sector and contributes more than half of the total value of all commercial fisheries. There is limited overlap between the Block 11B/12B PR Area and the demersal hake inshore demersal trawl fishery of South Africa. For the deep-sea trawl area, Block 11B/12B overlaps with 0.87% deep-sea fishing area. However, this area is only fished 50% of the time. The pelagic longline fishery targets large, predatory, highly mobile fish including bigeye tuna (*Thunnus obesus*), yellowfin tuna (*T. albacares*), southern bluefin tuna (*T. maccoyii*) and swordfish (*Xiphias gladius*). The main bycatch species are albacore tuna (*T. alalunga*), blue shark (*Prionace glauca*) and shortfin mako shark (*Isurus oxyrinchus*). The total number of active longline vessels within South African waters is 15. There is some overlap between the spatial footprint of the fishery and Block 11B/12B. Block 11B/12B overlaps with 7.37% of large pelagic fishing area. The squid jig fishery usually produces in the order of 6 000 to 7 000 tons per annum, though catches of up to 12 000 tons have been recorded in the past. There is a high level of uncertainty regarding the status of the squid stock, with initial estimates suggesting that effort levels (approximately 3.6-million man hours per annum) were unsustainable and were placing the resource at a high risk (approximately 90%) of collapse. Since 1988, the fishery has been closed once a year for four weeks in an attempt to counter the effects of “creeping effort” associated with increases in vessel efficiency and catch technology. Stock assessment results in 2013 indicated that a reduction in fishing effort was required to continue exploiting the SA squid stock without undue risk. The squid stock status and fishing pressure is currently considered optimal. The fishery currently comprises 136 vessels. Block 11B/12B overlaps with 1.84% of reported squid fishing grounds and includes some areas where fishing effort is reported as “high”.
Maritime and Archaeological Heritage	South Africa has a rich and diverse underwater cultural heritage. According to SAHRA’s records, at least 2 800 vessels are known to have sunk, grounded, or been wrecked, abandoned or scuttled in South African waters since the early 1500s. According to the available records, there are no historical wrecks within Block 11B/12B, but the wreck of the Kiani Satu, which sank in 2017, may be located within the Block. Another modern wreck, the Taiwanese fishing vessel Shin Huie, which sank in July 1983 approximately 138 km south-east of Mossel Bay, lies roughly 22 km north of Block11B/12B (refer to Figure 7-14). In addition, South Africa also has pre-colonial terrestrial archaeological maritime and underwater cultural heritage resources. There have been three major global sea level fluctuations in the last 900 000 years, with the most drastic fall occurring at the height of the last glaciation, between circa 20 000 and 17 000 years ago, when the sea was more than 120 m lower than it is today. The resultant exposure of parts of the continental shelf as dry land added a large coastal plain to the South African land mass. This area, now known as the Palaeo-Agulhas Plain, was populated by terrestrial flora and fauna and by our human ancestors. As a results, a large part of the archaeological record of South Africa’s late early, middle and early late stone age

Receptor/Variable	Key sensitivities in the area of influence
	is located on the now submerged Palaeo-Agulhas Plain, with the potential existing for the Project to disturb these resources. Sedimentary and volcanic rocks of the Bredadorp Group underlie Block 11B/12B. The mostly calcareous Bredasdorp Group has the potential to be highly fossiliferous, with the formation representing at least four past ecosystems. Any marine fossils located in the underlying geology would be difficult to distinguish from modern marine taxa, but land fauna would be recognisable. Based on the geology of the area and the palaeontological record as we know it, it can be assumed that the formation and layout of the sandstones, shales and sands that occur offshore would have the same palaeosensitivity as the known onshore sediments, it can be assumed they would contain the same fossils. It is noted that during a scientific demersal trawl by the research vessel *Africana Voyager III* in the east of Block 11B/12B in 1993, a fossilised whale ear bone was recovered. Further, a fossilised whale bone and possible fossilised wood were found during environmental baseline surveys conducted by TEEPSA in Block 11B/12B in 2022. It follows that while the offshore sediments have not been extensively sampled, it is likely that fossils may be encountered in Block 11B/12B.
Intangible Cultural Heritage	South Africa has a diverse and rich intangible cultural heritage. The South African population holds a diversity of beliefs which inform daily and social interaction. Coastal and oceanic intangible cultural heritage is holistic and includes sites of spiritual significance. Specific beliefs concerning 'living' waters, applicable to the offshore environment and people's beliefs of the sea, include, but are not limited to, the following: ▪ Waters contain the ancestral spirits of the cultural communities. ▪ Waters offer a spiritual domain to which people in the present realm can travel to (intentionally or otherwise) and from which they can return if the correct ritual activities are performed to ensure safe return. ▪ Waters can be portals to a parallel universe, or mirror universe and that humans in our dimension cultivate relations with beings from this mirror universe. ▪ Waterways such as streams, rivers and pools may contain a community's specific ancestral spirits. ▪ Ancestral spirits in the ocean reside on the seabed or seafloor. ▪ Markers such as reeds, whirlpools or disturbances in the water that indicate the place and presence of ancestral or water spirits.
Maritime Navigation	A large number of vessels navigate along the South Coast on their way around the southern African subcontinent. Although most of the vessel traffic, including commercial and fishing vessels, remains relatively close inshore, a significant amount of ship traffic can be anticipated to pass through Block 11B/12B.

12.3 SUPPORTING DOCUMENTATION

In addition to this EMPr, supporting documentation will also need to be prepared to address specific aspects and impacts associated with the Project. The supporting documentation, consisting of plans, documents and procedures, will form part of the Health, Safety and Environmental Management System (HSE-MS) of the Project. The responsibility of the compilation of these plans may not only lie with TEEPSA – in some instances this responsibility will lie with the Construction/Drilling/Maintenance/Marine Survey Contractor. However, TEEPSA assumes responsibility for ensuring compliance with the relevant plans.

The supporting documentation required, as a minimum, prior to the undertaking of the Project include the following:

- **Asset Restitution Plan:** An Asset Restitution Plan will be developed by TEEPSA five years prior to the estimated assets cease of production date for implementation during the Decommissioning and Closure Phases. The purpose of the Plan is to make provision for appropriate asset restitution strategies and to present the details of the activities associated with Decommissioning and Closure that will be undertaken in line with regulatory requirements and GIIP. The Plan will provide additional details relating to the closure scenarios of the Project and will detail the costs associated thereof.
- **Ballast Water Management Plan:** A Ballast Water Management Plan will be developed by the Vessel Contractor for implementation during all phases of the Project. The purpose of the Ballast Water Management Plan is to detail measures to be put in place to minimise the impact of discharged ballast water from Project vessels. All vessels engaged in international maritime traffic are required to manage their ballast water in accordance with a vessel-specific Ballast Water Management Plan. The Ballast Water Management Plan will outline the procedures to be followed during ballast water exchange and will include a record booking for recording ballast water discharges. The Ballast Water Management Plan will be compiled in compliance with the 2004 International Convention for the Control and Management of Ships' Ballast Water and Sediments.
- **BOCP:** A Blow-Out Contingency Plan (BOCP) will be prepared by TEEPSA for implementation during all phases of the Project. The purpose of the Plan will be to provide for a detailed response plan and intervention strategy to be implemented in the event of a well blow out, so as to minimise the impacts to the environment.
- **BAP:** If required, a BAP will be compiled by TEEPSA for implementation prior to the commencement of the Project. The purpose of the BAP will be to provide mitigation measures identified in the ESIA relevant to management of activities that may impact on marine fauna and subsea benthos such as corals. The BAP will include recommendations, if required, to compensate for direct impacts arising from the Project on the proposed CBA Natural Area (refer to Figure 7-14). The BAP will include recommendations for "out-of-kind" offsets or compensation that will, amongst others, detail the ways in which TEEPSA could conduct research or fund research to an appropriate government, parastatal or NGO that contributes to a better understanding of the distribution of deep-water habitats and associated fauna off the South African Coast. See Section 9.1.2 of the marine ecology and fisheries impact assessment report for details.
- **Chemical Management Plan:** A Chemical Management Plan will be compiled by the Construction/Drilling/Production/Marine Survey Contractor for implementation during all phases of the Project. The key objectives of the Plan are to detail measures to be put in place for the management of hazardous materials, including drilling fluids, cement and other chemicals. The Chemical Management Plan will detail measures applicable to the inventory and properties of chemicals, such as the identification, classification, quantification and toxicity of chemical products; the storage and handling of chemical products, as well as disposal procedures. Procedures to be followed in an emergency/unplanned event will also be included.
- **ERP:** An Emergency Response Plan (ERP) will be prepared by TEEPSA for implementation during all phases of the Project. The Purpose of the Plan will be to establish procedures for addressing and responding to a range of emergency situations, including but not limited to, injury to onboard personnel, chemical/oil spills and loss of equipment, etc. The ERP will include a classification system that will categorise emergency situations into severity levels and will provide a range of response procedures to be followed in the case of each specific emergency event.

- **Environmental Monitoring Plan:** An Environmental Monitoring Plan will be developed by TEEPSA for implementation during all phases of the Project. The purpose of the Plan will be to minimise impacts, specifically noise impacts and possible impacts related to direct collisions, on marine fauna during the Project. The Plan will detail mitigation and management actions to be undertaken and implemented by the onboard MMOs and PAM Operators. These will include frequency and monitoring requirements on board the Project vessels, as well as reporting obligations.
- **Grievance Mechanism:** A Grievance Mechanism will be prepared by TEEPSA for implementation during all phases of the Project. The purpose of the Grievance Mechanism is to, as part of the more extensive community interactions, address issues connected to the Project in a credible, predictable, transparent and fair way; provide prompt resolution to grievances filed by project-affected individuals and communities; ensure that grievances of vulnerable groups, who often lack access to legal processed, are addressed; and to increase accountability to stakeholders, particularly those affected by the Project.
- **HSSE Management Plan:** A HSSE Management Plan will be prepared by TEEPSA for implementation during all phases of the Project. The purpose of the HSSE Management Plan is to define how the Project -specific HSSE impacts and risks will be managed in conformance with applicable company-wide HSSE, and other applicable law and legislation requirements. Compliance with the Project HSSE Management Plan will enable TEEPSA and its contractors, and appointed sub-contractors, to conduct Project activities in a safe and environmentally sound manner.
- **Maintenance Plan:** A Maintenance Plan will be prepared by the relevant contractor for implementation during all phases of the Project. The purpose of the Plan will be to provide for the implementation of leak detection and maintenance programmes so as to reduce the risk of mechanical failures likely to lead to emergency/unplanned events, reduced inefficiencies and increased noise and air emissions.
- **OSCP:** An OSCP will be prepared by TEEPSA for implementation during all phases of the Project. The purpose of the Plan is to identify all possible oil spill scenarios, level of response requirements and detail any actions necessary to contains the spills and minimise the impacts thereof on the environment. As a minimum, the Plan will outline an emergency notification system, including a standardised format for oil spill notification; describe escalation monitoring processes associated with Tier 1 to Tier 3 incidents; provide a checklist of key actions for key personnel to implement during an oil spill; and detail the strategy and tactics to respond to the different types and levels of oil spills using both national and international resources. The Plan will be prepared in compliance with local and national regulations and legislation, South Africa's National OSCP, as well as applicable international conventions.
- **Preliminary Site Restitution Plan:** A Preliminary Site Restitution Plan will be developed by TEEPSA for implementation during the Decommissioning and Closure Phases. The purpose of the Plan is to make provision for appropriate restitution and rehabilitation strategies as a result of Project activities. The Plan will establish the objectives of the Decommissioning and Closure Phases of the Project; will provide a description of the general steps and activities that will be conducted after cessation of the Production Phase; and will detail the costs associated thereof. The Preliminary Site Restitution Plan will be updated every five years to include any modifications or changes to the Project; changes to legislation, as well as any new additional abandonment, disposal and closure BATs.

- **Ship Energy Efficiency Management Plan:** A Ship Energy Efficiency Management Plan will be compiled by the Vessel Contractor for implementation during all phases of the Project. The purpose of the Plan is to provide for technical and operational energy efficiency measures to reduce the amount of carbon dioxide emissions from shipping vessels, so as to limit GHG emissions and impacts on climate change. The Ship Energy Efficiency Management Plan also provides an approach for companies to manage ship and fleet efficiency performance over time using recognised monitoring tools. The Plan will be prepared in compliance with International Maritime Organisation's Guidelines for the Development of a Ship Energy Efficiency Management Plan Resolution MEPC.346(78) (2022).
- **SLP:** A Social and Labour Plan (SLP) will be compiled by TEEPSA for implementation during all phases of the Project. The objectives of the SLP are to promote employment and advance the social and economic welfare of South Africans in relation to the Project. The SLP will include a Procurement Progression Plan, which will detail a breakdown of the procurement process in terms of capital goods, services and consumables required for the Project, with specific reference to its implementation for Historically Disadvantaged South African companies. The SLP and Procurement Progression Plan will be prepared in compliance with Part II of the Mineral and Petroleum Resources Development Regulations (GNR 527 of 2004) promulgated under the MPRDA.
- **SOPEP:** A SOPEP will be developed by the Vessel Contractor for implementation during all phases of the Project. The purpose of the SOPEP is to provide for measures to be followed in the event of any oil pollution incidents or probable oil pollution incidents. The Plan will detail the procedures for reporting an oil pollution incident; list relevant international and national department contact details of those to be communicated with in the event of an oil pollution incident; and describe response action actions to reduce, control, limit and control the discharge of oil following an oil pollution incident. The Plan will also include measures to implement to reduce the possibility of an oil pollution incident occurring, including procedures for the handling and storage of oil, as well as maintenance and inspection actions to be undertaken to prevent an oil pollution incident. The SOPEP will be compiled in compliance with the International Maritime Organisation's Guidelines for the Development of Shipboard Oil Pollution Emergency Plan Resolution MEPC.54(32) (1992), as amended by Resolution MEPC.86(44) (2000).
- **SEP:** The SEP will be prepared by TEEPSA for implementation during all phases of the Project. The purpose of the Plan will be to establish an effective and efficient framework of communicating with external stakeholders, to ensure open, direct and consistent communication with stakeholders. The Plan will comprise a public information and disclosure programme to ensure that all Project activities are communicated to stakeholders in a timeous manner and that community expectations in terms of the procurement of goods, services and employment opportunities are relayed. The SEP will also detail the grievance mechanism which will make provision for stakeholders to lodge grieves related to the Project, as well as establish processes for addressing the grievances. All records of stakeholder engagement will be recorded and maintained.
- **Waste and Discharge Management Plan:** A Waste and Discharge Management Plan will be developed by the Vessel and Logistics base Contractors for implementation during all phases of the Project. The purpose of the Plan is to detail measures to be put in place to avoid unauthorised waste discharges and transfers. The Waste and Discharge Management Plan will detail measures related to the management of solid and liquid wastes, including hazardous and non-hazardous wastes. The Waste and Discharge Management Plan will outline the written

procedures for the collection, segregation, storage, processing and disposal of waste, including the use of equipment, as well as any record keeping procedures required to be followed during waste management activities. The waste management hierarchy will be considered during the development of the Waste and Discharge Management Plan as follows:

- Avoid the generation of waste, insofar as possible.
- Where waste generation cannot be avoided, minimise the generation of waste insofar as possible.
- Reuse waste, where possible.
- Recycle waste, where possible.
- Dispose of all generated waste in compliance with applicable legislation, regulations, conventions and best available techniques.

In addition, the Waste and Discharge Management Plan will be prepared in compliance with MARPOL 73/78.

12.4 ROLES AND RESPONSIBILITIES

12.4.1 MANAGEMENT STRUCTURE

All official reporting and communication, including directives, instruction and information will be channelled in accordance with the management structure presented in Figure 12-1. The responsibilities of the entities associated with the management structure are described in the following sections.

12.4.2 COMPETENT AUTHORITY – PETROLEUM AGENCY OF SOUTH AFRICA

PASA is the authority designated for issuing a PR for the Project. PASA has the authority to enforce legal action on the Applicant, TEEPSA, in the event of any non-compliance to the PR. Any amendments to the PR will require approval by PASA prior to the implementation of any amendments.

PASA also has the responsibility for approving TEEPSA's OSCP and BOCP and ensuring its alignment with South Africa's National OSCP and international best practices.

12.4.3 COMPETENT AUTHORITY – DEPARTMENT OF MINERAL RESOURCES AND ENERGY

The DMRE is the authority designated for authorising the ESIA and EMPr. The DMRE has the authority to enforce legal action on the Applicant, TEEPSA, in the event of non-compliance. Any amendments to the environmental-related documentation for the Project, including the ESIA Report, EMPr and EA, will require approval by the DMRE prior to the implementation of any amendments.

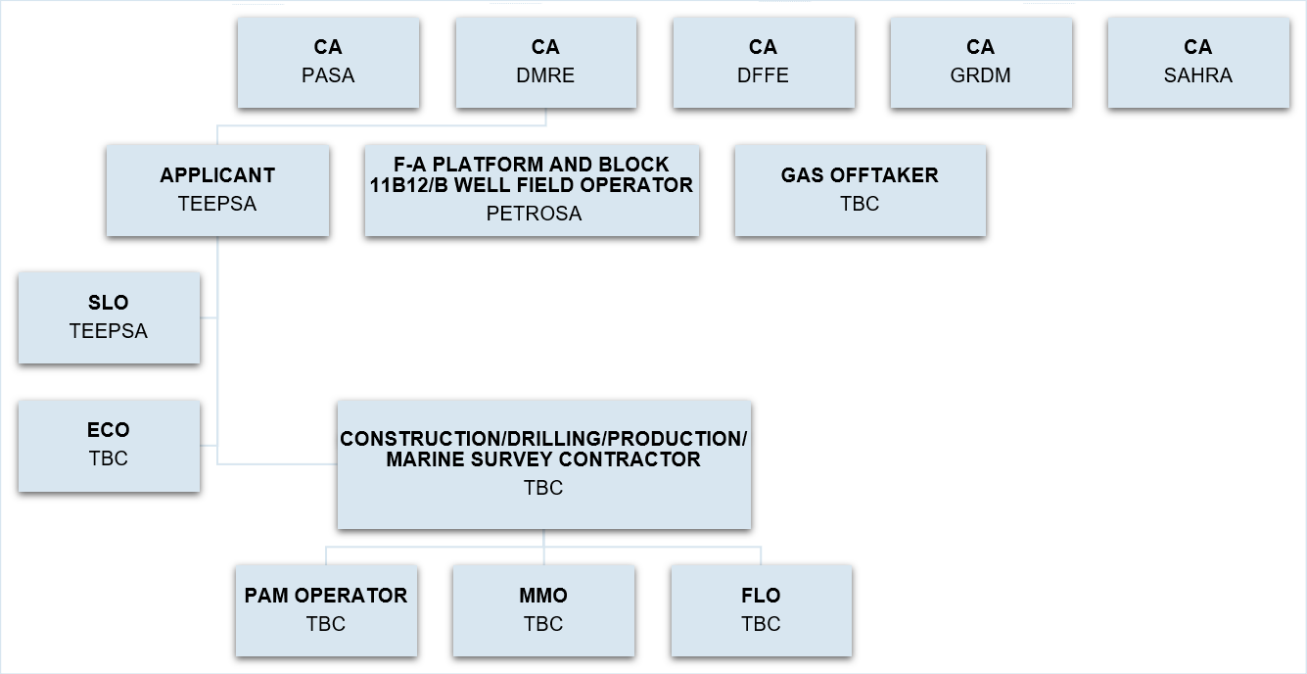

Figure 12-1 - Project Management Structure

Competent Authority – Department of Forestry, Fisheries and the Environment

The DFFE is the authority designated for deciding on appeals, should any be administered as part of the EA process for the proposed Project.

In the unlikely event of an oil spill occurring, all claims will be submitted to the DFFE, who will take the necessary steps to establish the claim is adequately substantiated and reasonable.

The DFFE also has the responsibility for approving TEEPSA's OSCP and BOCP and ensuring its alignment with South Africa's National OSCP and international best practices.

12.4.4 COMPETENT AUTHORITY – SOUTH AFRICAN MARITIME AUTHORITY

SAMSA is the CA authority responsible for monitoring and enforcing compliance with safety and environmental protection standards for responsible maritime transportation operations. SAMSA also has the responsibility for approving TEEPSA's OSCP and BOCP, ensuring its alignment with South Africa's National OSCP and international best practices, as well as processing claims submitted in the unlikely event of an oil spill.

12.4.5 COMPETENT AUTHORITY – GARDEN ROUTE DISTRICT MUNICIPALITY

The GRDM is the CA for issuing an AEL should it be determined that one would be required for the Project. The GRDM has the authority to enforce legal action on the Applicant in the event of non-compliance with an AEL. Any amendments to the AEL will require approval by the GRDM, prior to the implementation .The Municipality would also be required to be kept abreast of the Project Disaster Management Plan/OSCP/ERP so as to be able to mitigate impacts.

12.4.6 COMPETENT AUTHORITY – SOUTH AFRICAN HERITAGE RESOURCES AGENCY

SAHRA is the CA responsible for issuing any permits relating to the destruction, disturbance, excavation, alteration etc. of any heritage resources located in the Project area.

12.4.7 APPLICANT – TEEPSA

TEEPSA, as the Applicant for the Project, assumes overall responsibility for the implementation of and compliance with environmental-related documentation for the Project, including the ESIA, Report, EMPr, EA, and PR, as well as any other environmental-related documentation. TEEPSA is responsible for any financial costs related to the implementation of environmental management procedures and actions and will be responsible for rehabilitation measures associated with negative environmental impacts. In this regard, TEEPSA may issue its Contractors with fines related to non-compliance with environmental-related documentation.

TEEPSA will be responsible for the appointment of its Contractor (see Section 12.4.11) and the ECO (see Section 12.4.12). TEEPSA will be responsible for ensuring that its Contractors, and all sub-contractors, as well as the ECO, acts in compliance with Project documentation.

TEEPSA will be responsible for ensuring that monitoring of compliance with environmental-related documentation and reporting thereof is undertaken. TEEPSA will assume overall responsibility for communicating key milestone activities and dates with key stakeholders and I&APs, as described in the SEP compiled for the Project.

12.4.8 F-A PLATFORM AND BLOCK 11B/12B WELL FIELD OPERATOR – PETROSA

PetroSA, as the operator of the existing F-A Platform, assumes overall responsibility for the implementation and compliance with environmental-related documentation for all Project activities associated with the F-A Platform. However, it must be noted that any construction, modification or upgrades at the F-A Platform, the existing PetroSA-operated gas and condensate pipelines onshore, or to any onshore facility, are excluded from the scope of this EMPr.

12.4.9 GAS OFFTAKER

The Gas Off-Taker is the stakeholder responsible for the purchase of the gas and condensates to be produced as a result of the Project. To date, not offtake agreement has been signed. Any developments, upgrades or modifications associated with the end use of the gas are excluded from the scope of this EMPr.

12.4.10 SITE LIAISON OFFICER – TEEPSA

A SLO will be appointed by TEEPSA (internal appointment) and will be responsible for managing the communication between TEEPSA, as the Applicant, and the public. The SLO will effectively serve as the public face of TEEPSA and will be responsible for ensuring TEEPSA undertakes stakeholder engagement in line with the SEP developed for the Project. The SLO assumes responsibility for the implementation of the Grievance Mechanism procedure and will oversee recording keeping relating to all interactions with external stakeholders.

12.4.11 CONTRACTORS

Contractors will be appointed by TEEPSA and will be responsible for the implementation of all relevant provisions included in the ESIA Report, EMPr, EA, PR and Exploration Right, as well as any other environmental-related documentation. The Contractors are responsible for ensuring that their appointed sub-contractors, including the MMO (see Section 12.4.13) and the PAM Operator (see Section 12.4.14), also comply with environmental-related documentation.

The Contractors will also be responsible for the compilation of Project-specific supporting documentation (refer to Section 12.3) and complying with any mitigation and management measures included therein.

12.4.12 ENVIRONMENTAL CONTROL OFFICER

The ECO will be an independent environmental consultant and will be appointed by TEEPSA. The ECO will be responsible for objectively monitoring and auditing the Contractors' (and its appointed sub-contractors) compliance with the ESIA Report, EMPr, EA, PR and Exploration Right, as well as any other environmental-related documentation. The ECO will compile environmental audit reports for submission to TEEPSA and the CA, as required.

12.4.13 MARINE MAMMAL OBSERVER

The MMO will be appointed by the Construction/Drilling/Production/Marine Survey Contractor. The MMO is responsible for recording Project activities and observing and recording the responses of marine fauna to these activities. The MMO will be required to record meteorological conditions offshore during observation periods and will do on board marine faunal observations (360 degrees around the vessel) specifically for cetaceans, turtles, penguins and shoaling large pelagic fish activity. The MMO has the authority to recommend delays to Project activities, should marine fauna

be observed within close proximity to the drilling units and should significant negative impacts occur. All observations made by the MMO will be recorded in a report for analysis.

12.4.14 PAM OPERATOR

The PAM Operator will be appointed by the Construction/Drilling/Production/Marine Survey Contractor. The PAM Operator is responsible for utilising onboard PAM technology to detect, monitor and record marine faunal vocalisations. The PAM Operator assumes responsibility for ensuring that PAM equipment is in good working order and is safely deployed, considering meteorological conditions. The PAM Operator will be required to record all noise emitting activities, such as airgun arrays, and will log soft-start procedures, as well as airgun pre-firing regimes. The PAM Operator has the authority to recommend delays to Project activities, should marine fauna be identified and located within 500 m of noise-emitting equipment. All recordings made by the PAM Operator will be recorded in a report for analysis.

12.4.15 FISHING LIAISON OFFICER

A FLO will be appointed by the relevant Contractor undertaking marine surveys. The FLO will be responsible for the facilitation of communication between the Project and fishing vessels during the surveys. The FLO will report daily on vessel activity and response and advise on actions to be taken in the event of encountering fishing gear in Block 11B/12B. The FLO will also circulate daily survey schedules to key maritime stakeholders, including maritime authorities and key fishing-related organisations. The FLO will keep a log of all incidents and responses to incidents.

12.5 TRAINING, AWARENESS AND COMPETENCY

TEEPSA has responsibility to ensure that all those involved in the Project are aware of, and familiar with, the environmental requirements of the Project. The Contractors and their appointed sub-contractors must give some assurance that they understand the EMPr and that they will undertake to comply with the conditions therein. All Project personnel shall familiarise themselves with the full content of the EMPr. They shall know and understand the specifications of the EMPr and be able to assist other staff members in matters relating to the EMPr.

All Project personnel will be appropriately briefed about the EMPr, as well as other environmental-related documentation. Any new Project personnel are to undergo the environmental awareness training programme and any deviations of procedure by Project personnel shall reinitiate the environmental awareness training programme. As a minimum, the environmental awareness training programme will include:

- an explanation of the importance of complying with the ESIA Report, EMPr, EA, and PR, as well as any other environmental-related documentation;
- a discussion of the potential environmental impacts of the Project activities, including Construction, Production, Exploration & Appraisal, Decommissioning & Closure and Survey Activities;
- an explanation of the management structure of individuals responsible for matters pertaining to the implementation of the EMPr; including employees' roles and responsibilities;
- an explanation of the mitigation and management measures that must be implemented during the Project; and
- a description of the requirements of the ESIA Report, EMPr, EA, and PR, as well as any other environmental-related documentation.

TEEPSA and its Contractors will be required to keep and maintain records of all environmental awareness training programmes, including names of attendees, dates of their attendance and the information presented to them. Records of environmental training sessions shall be kept and shall be made available to the ECO, if required.

12.6 COMPLIANCE VERIFICATION AND CORRECTIVE ACTIONS

TEEPSA will ensure that internal and external monitoring and auditing procedures are undertaken to confirm compliance with the ESIA Report, EMPr, EA, PR, as well as any other environmental-related documentation. Further detail is provided in the following sections.

12.6.1 MONITORING PROCEDURES

Contractors will establish an internal monitoring and review procedure to monitor the day-to-day implementation of the ESIA Report, EMPr, EA, PR, as well as any other environmental-related documentation. Monitoring Reports will be prepared for a range of aspects and criteria, as detailed in Table 12-3. Monitoring Reports will be submitted to TEEPSA for consideration. In the instances where non-compliances are identified, the Contractors shall include corrective actions with associated timeframes, intended to improve compliance.

Table 12-3 – Monitoring Requirements

Project Activity/Phase/ IPF	Criteria to be Monitored	Monitoring Frequency	Responsibility
Normal Operations			
Routine discharges	▪ Oil content of produce water, bilge water, deck drainage, etc.	Prior to discharge	Construction/Drilling/Production /Marine Survey Contractor
Vessel and helicopter movements	▪ Fuel consumption.	Monthly	Construction/Drilling/Production /Marine Survey Contractor
	▪ Presence and mortality of, and injury to seabirds.	Daily	Construction/Drilling/Production /Marine Survey Contractor
Well drilling	▪ Toxicity, barite contamination and oil content of drill cuttings.	Prior to discharge	Drilling Contractor
	▪ Uncontrolled releases from well.	During well drilling	Drilling Contractor
	▪ Palaeontological resources	Upon extraction of each drill core	Drilling Contractor
Well flow testing	▪ Flare programme efficiency to reduce burning as much as possible.	During well flow testing	Drilling Contractor
	▪ Flaring malfunctioning and drop-out.	During well flow testing	Drilling Contractor
	▪ Cement discharges to seafloor around drill casing.	During well flow testing	Drilling Contractor
VSP and sonar activities	▪ Marine faunal presence around drilling unit.	Prior, during and after VSP and sonar activities	Drilling/Marine Survey Contractor
	▪ Marine faunal vocalisations.	Prior, during and after VSP and sonar activities	Drilling/Marine Survey Contractor
All phases	▪ Benthic communities (epifauna and infauna) in alignment with baseline surveys undertaken in 2022.	After construction	TEEPSA

12.6.2 AUDITING PROCEDURES

TEEPSA will establish an auditing and review procedure to monitor compliance and implementations of mitigation and management actions stipulated in the ESIA Report, EMPr, EA, PR, as well as any other environmental-related documentation. External auditing will be undertaken by the ECO (refer to Section 12.4.12) and will result in the compilation of an external Environmental Audit Report. External Audit Reports will be submitted to TEEPSA for consideration. The ECO will identify and recommend (if needed) amendments to the EMPr, as well as other environmental-related documentation, with the purpose of improving its effectiveness in avoiding and limiting environmental impacts. Recommended amendments to the EMPr which change the EMPr outcomes will go through an approval process before the amendments are implemented.

At the conclusion of the Project, a Final External Audit Report will be compiled for submission to the DMRE. The Report will be compiled by an independent ECO/auditor (in addition to the one already mentioned above). The Final External Audit Report will detail TEEPSA's overall compliance with the EMPr and environmental-related documentation and will highlight any non-conformances and issues that arose during the Project, as well as the measures taken to address them.

12.7 MANAGEMENT OF CHANGE

The EMPr will form part of the contract documentation to which the selected Contractors, and their appointed sub-contractors, need to comply. The EMPr is considered a dynamic document as management actions may be subject to changes because of feedback received during Project implementation and/or in response to unexpected impacts with a magnitude different to that predicted at the time the ESIA was finalised. As such, the EMPr will be reviewed and updated at regular intervals throughout implementation of the Project, as contemplated in the EA and not exceeding every five years.

In terms of Section 36(1) of the EIA Regulations, 2014, amendments to impact management actions contained in the EMPr may be effected immediately and must be reflected in the following Environmental Audit Report, submitted as contemplated in the EA. Should changes in the EMPr relate to the impact management outcomes contained in the EMPr, they may only be effected upon application and approval thereof by the DMRE. This application process will entail a public review and comment period, inviting I&APs to submit comments, queries and/or concerns on the proposed amendments. The outcome of the PPP, as well as the effected changes to the EMPr, will also need to be communicated to I&APs in accordance with the procedures outlined in the EIA Regulations, 2014.

12.8 COMMUNICATION

As mentioned in Section 12.3, a SEP will be prepared by TEEPSA for implementation during all phases of the Project. The SEP outlines a framework of communicating with external stakeholders, to ensure open, direct and consistent communication with stakeholders. TEEPSA will ensure that effective, efficient and ongoing communication channels are maintained in line with the SEP throughout the Project.

12.9 DOCUMENT CONTROL AND REPORTING

The Contractors will be responsible for ensuring that up-to-date documentation is kept on hand, within an Environmental File. The following documentation, as a minimum, will be kept on file:

- ESIA Report, EMPr, EA, PR, as well as any other environmental-related documentation (refer to Section 12.3).
- Environmental Audit Reports.
- Environmental Monitoring Reports.
- Records of stakeholder engagement undertaken to date.
- Environmental Awareness Training Programme records.

12.10 ENVIRONMENTAL AND SOCIAL MITIGATION MANAGEMENT COMMITMENT REGISTER

The Environmental and Social Mitigation Management Commitment Register is included in Table 12-4 for normal operations and Table 12-5 for unplanned events. The Register includes all mitigation and management measures required for implementation during all phases of the Project, to prevent, minimise or manage significant potential negative impacts and optimise and maximise any potential benefits of the Project.

Table 12-4 – Environmental and Social Mitigation Management Commitment Register – Normal Operations

NO.	ASPECT	POTENTIAL IMPACT ON MAIN RECEPTORS	PRE-MITIGATION SIGNIFICANCE	PROJECT CONTROLS	KEY MITIGATION / ENHANCEMENT MEASURE	RESIDUAL SIGNIFICANCE	RESPONSIBILITY	TIMING / FREQUENCY
PHASE: EXPLORATION								
1	Air Emissions	Impact on air quality	**Negligible** (offshore) **Very low** (offshore)	▪ TEEPSA will comply with the requirements set out in MARPOL Annex VI Regulation 18 - Fuel Quality. Project vessels will be supplied with marine gasoil (MGO) or heavy fuel oil (HFO) with less than 0.5% sulphur (mass). ▪ Project vessels will be operated and maintained to ensure the efficient consumption of fuel in completion of the required activities. ▪ Ensure that contractors make use of efficient flare tips, as appropriate. ▪ Optimise well test programme to reduce non-routine flaring as much as possible during the test. ▪ Commence with well testing during daylight hours where feasible due to poor dispersion potential during night-time hours. ▪ Use a high-efficiency burner for flaring to maximise combustion of the hydrocarbons to minimise emissions and hydrocarbon 'drop-out' during well testing. ▪ Flare inspections and maintenance, as well as performance monitoring, to ensure reduced malfunctions and interruptions. ▪ Burning emissions from well testing or purging shall be minimised by optimising the burning system design and the testing procedures.	▪ Optimise rig movement and the logistics (number of trips required to and from the onshore logistics base) to reduce fuel consumption. ▪ Maintain a record of fuel consumption for monthly submission to TEEPSA for reporting purposes. ▪ Ensure no incineration of waste occurs within the port limits, subject to obtaining an Atmospheric Emissions Licence. ▪ Use of onshore power supply during vessel hotelling rather than using onboard generators/boilers, when available.	**Negligible** (offshore) **Very Low** (onshore)	Drilling Contractor	Pre-drilling & Ongoing throughout Phase
2	Air emissions	Impacts on GHG emissions and climate change	**Medium**	▪ TEEPSA will comply with the requirements set out in MARPOL Annex VI Regulation 18 - Fuel Quality. Project vessels will be supplied with marine gasoil (MGO) or heavy fuel oil (HFO) with less than 0.5% sulphur (mass). ▪ Project vessels will be operated and maintained to ensure the efficient	▪ Maintain a record of fuel consumption for monthly submission to TEEPSA for reporting purposes. ▪ Implement effective programmes for the tracking of fuel consumption and other metrics relevant to the quantification of GHGs. ▪ Optimise helicopter flight paths. ▪ Optimise well test and monitor the efficiency of the flare programme to reduce burning as much as possible during the test.	**Negligible**	Drilling Contractor	Ongoing throughout Phase

NO.	ASPECT	POTENTIAL IMPACT ON MAIN RECEPTORS	PRE-MITIGATION SIGNIFICANCE	PROJECT CONTROLS	KEY MITIGATION / ENHANCEMENT MEASURE	RESIDUAL SIGNIFICANCE	RESPONSIBILITY	TIMING / FREQUENCY
				consumption of fuel in completion of the required activities. ▪ A maintenance plan will be implemented to ensure all diesel equipment receives adequate maintenance to minimise GHGs released to the atmosphere and maximise the energy efficiency. ▪ The drill unit, pipelaying vessel, support vessels and survey vessel will be required to prepare a Ship Energy Efficiency Management Plan (SEEMP) that complies with the IMO 2022 guidelines.	▪ Use a high-efficiency burner for flaring to maximise combustion of the hydrocarbons in order to minimise emissions and hydrocarbon 'drop-out' during well testing.			
3	Underwater noise from drill rig and support vessels	Physical injury or disturbance to marine fauna	**Low**	▪ No vessel may approach closer than 300 m to any whale and a vessel should move to a minimum distance of 300 m from any whales if a whale surfaces closer than 300 m from a vessel or aircraft. ▪ Ensure vessel transit speed between the survey/drill area and port is a maximum of 12 knots (22 km/hr), except within 25 km of the coast where it is reduced further to 10 knots (18 km/hr). ▪ Implement a maintenance plan to ensure all diesel motors and generators receive adequate maintenance to minimise noise emissions. ▪ TEEPSA and its contractors will undertake Project activities in a manner consistent with good international industry practice and Best Available Techniques (BAT).	▪ An independent Marine Mammal Observer (MMO) must accompany the pre-drilling survey to undertake validation of cetacean migration/distribution models. ▪ In the unlikely event of a cetacean sighting within the Permanent Threshold Shift (PTS) threshold distance for the most sensitive species (400 m) immediately prior to drilling commencement, drilling may not commence until an independent Marine Mammal Observer confirms that no cetaceans are present within this PTS radius.	**Low**	Drilling Contractor	Ongoing throughout Phase
4	Underwater noise from vertical seismic profiling	Physical injury or disturbance to marine fauna	**Low**	▪ TEEPSA and the drilling contractor will ensure that VSP activities are undertaken in a manner consistent with good international industry practice and BAT.	▪ Pre-drilling baseline surveys must be undertaken to supplement baseline information obtained in previous environmental baseline surveys for Block 11B/12B, to inform placement of wells, with the aim of preventing disturbances to the sensitive and significant VME epifaunal communities, vulnerable habitats (e.g., hard grounds), and structural features (e.g., rocky outcrops). ▪ A minimum of two dedicated Marine Mammal Observer (MMO), with a recognised MMO training course, must be on board for marine fauna observation (360 degrees	**Low**	TEEPSA Drilling contractor	Pre-drilling Ongoing throughout Phase

NO.	ASPECT	POTENTIAL IMPACT ON MAIN RECEPTORS	PRE-MITIGATION SIGNIFICANCE	PROJECT CONTROLS	KEY MITIGATION / ENHANCEMENT MEASURE	RESIDUAL SIGNIFICANCE	RESPONSIBILITY	TIMING / FREQUENCY
					around drilling unit), distance estimation and reporting. One MMO should also have Passive Acoustic Monitoring (PAM) training, should a risk assessment, undertaken ahead of the VSP operation, indicate that the PAM equipment can be safely deployed considering the metocean conditions (specifically current). ▪ MMO's to arrive at least ten days before VSP commences. ▪ Ensure drilling unit vessel is fitted with PAM technology (one or more hydrophones), which detects animals through their vocalisations, should it be possible to safely deploy PAM equipment. ▪ Undertake a one-hour (as water depths > 200 m) pre-shoot visual and possible acoustic scan (prior to soft-starts / airgun tests) within the 500 m radius mitigation zone in order to confirm there is no cetaceans, turtles, penguins and shoaling large pelagic fish activity close to the source. ▪ Implement a "soft-start" procedure of a minimum of 20 minutes' duration when initiating the acoustic source (except if testing a single airgun on lowest power). ▪ Maintain visual observations and possibly acoustic detections within the 500 m mitigation zone continuously during VSP operation to identify if there are any cetaceans present. ▪ Commence VSP profiling as far as possible during daylight hours with good visibility. However, if this is not possible due to prolonged periods of low visibility (e.g. thick fog) or unforeseen technical issues, which results in a night-time start, the following mitigation measures should be implemented: ▪ Ensure that VSP source is only used if PAM technology is in place to detect vocalisations (subject to a risk assessment indicating that the PAM equipment can be safely deployed considering the metocean conditions) or: ▪ There have not been three or more occasions where cetaceans, penguins, shoaling large pelagic fish or turtles have been sighted within the 500 m mitigation zone during the preceding 24-hour period; and ▪ A two-hour period of continual observation of the mitigation zone was undertaken (during a period of good visibility) prior to the period of low visibility and no			

NO.	ASPECT	POTENTIAL IMPACT ON MAIN RECEPTORS	PRE-MITIGATION SIGNIFICANCE	PROJECT CONTROLS	KEY MITIGATION / ENHANCEMENT MEASURE	RESIDUAL SIGNIFICANCE	RESPONSIBILITY	TIMING / FREQUENCY
					cetaceans, penguins, shoaling large pelagic fish or turtles were sighted within the 500 m mitigation zone.			
5	Ambient air noise from helicopters	Physical injury or disturbance to marine fauna	**Low**	▪ No vessel or aircraft may approach closer than 300 m to any whale and a vessel should move to a minimum distance of 300 m from any whales if a whale surfaces closer than 300 m from a vessel or aircraft. ▪ TEEPSA and its contractors will undertake Project activities in a manner consistent with good international industry practice and BAT. ▪ The operation of helicopters aircraft will be governed by the Civil Aviation Act, 2016 (Act 6 of 2016) and associated regulations. ▪ Maintain a flight altitude of at least 1 000 m during flight, except when taking off and landing or in a medical emergency. ▪ Avoid extensive low altitude (<762 m or 2 500 ft) coastal flights by ensuring that the flight path is perpendicular to the coast, as far as possible.	▪ Ensure that all flight paths avoid the Mossel Bay (Seal Island seal colony) and Robberg Peninsula (seabird and seal colonies). ▪ Brief of all pilots on the ecological risks associated with flying at a low altitude along the coast or above marine mammals.	**Low**	TEEPSA & contractors	Ongoing throughout Phase
6	Ambient air noise from support vessels	Physical injury or disturbance to marine fauna	**Low**	▪ No vessel or aircraft may approach closer than 300 m to any whale and a vessel should move to a minimum distance of 300 m from any whales if a whale surfaces closer than 300 m from a vessel or aircraft. ▪ Ensure vessel transit speed between the survey/drill area and port is a maximum of 12 knots (22 km/hr), except within 25 km of the coast where it is reduced further to 10 knots (18 km/hr). ▪ Implement a maintenance plan to ensure all diesel motors and generators receive adequate maintenance to minimise noise emissions. ▪ TEEPSA and its contractors will undertake Project activities in a manner consistent with good international industry practice and BAT.	▪ Implement noise abatement measures to ensure an adequate acoustical insulation of the engines, compressors, turbines (enclose engines) and gas flow lines and valves (lagging, in-line silencers, etc.).	**Very Low**	Drilling contractor	Ongoing throughout Phase

NO.	ASPECT	POTENTIAL IMPACT ON MAIN RECEPTORS	PRE-MITIGATION SIGNIFICANCE	PROJECT CONTROLS	KEY MITIGATION / ENHANCEMENT MEASURE	RESIDUAL SIGNIFICANCE	RESPONSIBILITY	TIMING / FREQUENCY
7	Light from drill rig and support vessels	Impact on marine fauna	**Low**	▪ TEEPSA will ensure that the contractors undertake the drilling operation in a manner consistent with good international industry practice and BAT.	▪ Include training on how to care for downed seabirds as part of induction and ongoing awareness training. ▪ Reduce the lighting to a minimum compatible with safe operations whenever and wherever possible to reduce nocturnal faunal attraction. ▪ Position light sources, if possible and consistent with safe working practices, in places where emissions to the surrounding environment can be minimised i.e., aim lighting downward rather than out to sea. ▪ Implement best practice mitigation measures for reducing lighting impacts (including the use of red filters). ▪ Monitor the presence of seabirds and identify mortalities, even when birds do not land on the vessel, especially in foggy conditions and at night. ▪ Report ringed/banded birds to the appropriate ringing/banding scheme (details are provided on the ring).	**Very Low**	TEEPSA Drilling contractor	Pre-drilling Ongoing throughout Phase
8	Light from well flow testing	Impact on marine fauna	**Very Low**	▪ TEEPSA will ensure that the contractors undertake the drilling operation, including well flow testing, in a manner consistent with good international industry practice and BAT.	▪ Include training on how to care for downed seabirds as part of induction and ongoing awareness training. ▪ Optimise well test and monitor the efficiency of the flare programme to reduce burning as much as possible during the test.	**Very Low**	TEEPSA Drilling contractor	Pre-drilling Ongoing throughout Phase
9	Produced water discharge	Impact on water quality	**Very Low**	▪ TEEPSA will ensure that the contractors undertake the drilling operation, including well flow testing, in a manner consistent with good international industry practice and BAT. ▪ Produced water will be treated onboard before being discharged or transported to shore. Following the onboard treatment process, if the hydrocarbon content is below 30 mg/L, the produced water may be discharged into the marine environment, if the hydrocarbon content exceeds 30 mg/L, the produced water will either be treated again or be transported to shore to be treated. ▪ Develop and implement a Project-specific Waste and Discharge Management Plan. ▪ All disposals at sea should strictly adhere to MARPOL 73/78 (International	▪ Use a high-efficiency burner for flaring to maximise combustion of the hydrocarbons and minimise hydrocarbon ‘drop-out’ during well testing.	**Very Low**	Drilling contractor	Ongoing throughout Phase

NO.	ASPECT	POTENTIAL IMPACT ON MAIN RECEPTORS	PRE-MITIGATION SIGNIFICANCE	PROJECT CONTROLS	KEY MITIGATION / ENHANCEMENT MEASURE	RESIDUAL SIGNIFICANCE	RESPONSIBILITY	TIMING / FREQUENCY
				Convention for the Prevention biodiversity of Pollution from Ships, 1973).				
10	Discharge of drilling fluid and cuttings (cement and WBMs)	Biochemical and toxicity water column and benthic impacts	**Low**	▪ Disposal of excess cement and additives at sea should strictly adhere to MARPOL73/78 (International Convention for the Prevention of Pollution from Ships, 1973). ▪ Ensure only low-toxicity, low bioaccumulation potential and partially biodegradable additives are used in drilling fluid and cement. ▪ Low-toxicity biodegradable detergents should be used in the cleaning of deck spillages. ▪ Development and implementation of a Project-specific Chemical Management Plan. ▪ Development and implementation of a Project-specific Waste and Discharge Management Plan	▪ Pre-drilling baseline surveys must be undertaken to supplement baseline information obtained in previous environmental baseline surveys for Block 11B/12B, to inform placement of wells, with the aim of preventing disturbances to declared / proclaimed sensitive areas and habitats. ▪ If complete avoidance mitigation is not possible, an out-of-kind compensatory mechanism needs to be developed as part of a Biodiversity Action Plan (BAP), if required. ▪ Implement suitable measures to minimise cement spillages to the environment.	**Low**	TEEPSA	Pre-drilling
11	Discharge of drilling fluid and cuttings	Turbidity and smothering impacts on marine environment	**Low** (infauna communities) **Very Low** (pelagic communities) **High** (epifauna communities)	▪ As for Point No. 10	▪ Pre-drilling baseline surveys must be undertaken to supplement baseline information obtained in previous environmental baseline surveys for Block 11B/12B, to inform placement of wells, with the aim of preventing disturbances to declared / proclaimed sensitive areas and habitats. ▪ If complete avoidance mitigation is not possible, an out-of-kind compensatory mechanism needs to be developed as part of a Biodiversity Action Plan (BAP), if required. ▪ Consider implementing innovative technologies and operational procedures for drilling solids discharges to minimise turbidity and smothering impacts.	**Low** (infauna communities) **Very Low** (pelagic communities) **Medium** (epifauna communities)	TEEPSA Drilling contractors	Pre-drilling
13	Physical disturbance of seafloor sediments	Impact on maritime heritage and palaeontology	**Low**	▪ As for Point No. 12	▪ Check for the potential for fossil and/or shipwreck-related material in or on the seabed, as part of the pre-drilling clearance surveys. ▪ Include training on fossil and/or shipwreck-related material as part of the induction and awareness training programme for the Project. ▪ Should fossils / shipwreck-related material be identified through the pre-drilling survey or during drilling, this information must be recorded and passed on to an appropriate specialist and SAHRA must be notified	**Low**	TEEPSA TEEPSA TEEPSA / Drilling contractor	Pre-drilling Pre-drilling Pre-drilling / ongoing throughout Phase

NO.	ASPECT	POTENTIAL IMPACT ON MAIN RECEPTORS	PRE-MITIGATION SIGNIFICANCE	PROJECT CONTROLS	KEY MITIGATION / ENHANCEMENT MEASURE	RESIDUAL SIGNIFICANCE	RESPONSIBILITY	TIMING / FREQUENCY
					through the implementation of the Chance Finds Procedure. ▪ Implement a buffer of at least 50 m around such a site or material to ensure that it is further not impacted by the activities in Block 11B/12B.			
14	Maritime safety zones	Impact on fisheries	**Low** (demersal trawl fishery) **Medium** (squid fishery, SSF's and large pelagic fishery)	▪ Prior to commencement of drilling, stakeholders in the fishing industry and sector bodies should be notified, as well as other organs of state such as PASA, DFFE, Transnet National Ports Authority, SAMSA and the South African Navy Hydrographic office. ▪ These stakeholders should again be notified at the completion of exploratory activities and when the support vessels are off-location. ▪ The Notice to Mariners should give notice of (1) the co-ordinates of the exploration area, (2) an indication of the proposed timeframes of the drilling activities, and (3) an indication of the 500 m safety zones and the proposed safe operational limits of the exploratory activities. ▪ These Notices to Mariners should be distributed timeously to fishing companies and directly onto vessels where possible.	▪ Maintain adequate safety clearance between fishing vessels and exploratory vessels and equipment through at-sea communications with vessels in the vicinity of the drill area.	**Very Low** (demersal trawl fishery) **Medium** (squid fishery, SSF's and large pelagic fishery)	Drilling contractor	Ongoing throughout Phase
15	Spending on local goods, services and labour	Impact on economic output and GDP	**Very Low (+)**	▪ In accordance with Section 41 of the Mineral Petroleum Resources Development Plan Regulations (MPRD regulations), a Social and Labour Plan (SLP) is required for the Project as well as the development of a Procurement Progression Plan.	▪ Increase procurement of goods and services from South African businesses, as appropriate.	**Very Low (+)**	TEEPSA / Drilling contractor	Ongoing throughout Phase
16	Spending on local goods, services and labour	Impact on jobs	**Very Low (+)**	▪ In accordance with Section 41 of the Mineral Petroleum Resources Development Plan Regulations (MPRD regulations), a Social and Labour Plan (SLP) is required for the Project as well as the development of a Procurement Progression Plan.	▪ Employ local labour (IZoI) to increase benefits to the local community where feasible. ▪ Conduct community / stakeholder engagement on procurement / employment / skills development opportunities. ▪ Engage with local forums, business chambers, tourism offices, and collective organisations in order to disclose information and ascertain any issues and/ or concerns.	**Very Low (+)**	TEEPSA / Drilling contractor	Ongoing throughout Phase

NO.	ASPECT	POTENTIAL IMPACT ON MAIN RECEPTORS	PRE-MITIGATION SIGNIFICANCE	PROJECT CONTROLS	KEY MITIGATION / ENHANCEMENT MEASURE	RESIDUAL SIGNIFICANCE	RESPONSIBILITY	TIMING / FREQUENCY
					▪ TEEPSA's local recruitment procedure will be used to guide the recruitment process. The procedure should be disclosed to communities through engagement undertaken as part of the corporate stakeholder engagement process.			
17	Spending on local goods, services and labour	Impact on household income	**Very Low (+)**	▪ As for Point No. 16	▪ Investigate opportunities to increase local procurement and localise expenditure. ▪ Explore opportunities to employ as many people from the local communities as possible. ▪ Conduct community/ stakeholder engagement on procurement/ employment/ skills development opportunities.	**Very Low (+)**	TEEPSA / Drilling contractor	Ongoing throughout Phase
PHASE: OFFSHORE SURVEYS								
18	Physical disturbance of seafloor sediment	Disturbance to benthic communities	**Low**	▪ TEEPSA will ensure that the contractors undertake survey operations in a manner consistent with good international industry practice and BAT.	▪ Prohibit the placement of receivers or metocean buoys in any area that is designated as a marine sensitive area.	**Very Low**	Survey contractor	Ongoing throughout Phase
19	Noise from sonar profiling	Physical injury or disturbance to marine fauna	**Low**	▪ TEEPSA will ensure that the contractors undertake survey operations in a manner consistent with good international industry practice and BAT.	▪ Prohibit undertaking sonar surveys in any area that is designated as a marine sensitive area. ▪ Implement relevant mitigation measures as for Point No. 4.	**Low**	Survey contractor	Ongoing throughout Phase
20	Maritime safety zones	Impact on fisheries	**Low** (demersal trawl fishery) **Medium** (squid fishery, SSF's and large pelagic fishery)	▪ Prior to commencement of the surveys, stakeholders in the fishing industry and sector bodies should be notified, as well as other organs of state such as PASA, DFFE, Transnet National Ports Authority, SAMSA and the South African Navy Hydrographic office. ▪ These stakeholders should again be notified at the completion of survey activities and when the survey vessels are off-location. ▪ The Notice to Mariners should give notice of (1) the co-ordinates of the survey area, (2) an indication of the proposed timeframes of the survey activities, and (3) an indication of the safety zones and the proposed safe operational limits of the survey activities. ▪ These Notices to Mariners should be distributed timeously to fishing companies and directly onto vessels where possible.	▪ Maintain adequate safety clearance between fishing vessels and survey vessels and equipment through at-sea communications with vessels in the vicinity of the survey area. ▪ Appoint a fisheries liaison officer (FLO) to facilitate communication with fishing vessels whilst on location. The FLO should report daily on vessel activity and respond and advise on action to be taken in the event of encountering fishing gear in the survey area.	**Low** (demersal trawl fishery) **Medium** (squid fishery, SSF's and large pelagic fishery)	Survey contractor	Ongoing throughout Phase
PHASE: CONSTRUCTION								

NO.	ASPECT	POTENTIAL IMPACT ON MAIN RECEPTORS	PRE-MITIGATION SIGNIFICANCE	PROJECT CONTROLS	KEY MITIGATION / ENHANCEMENT MEASURE	RESIDUAL SIGNIFICANCE	RESPONSIBILITY	TIMING / FREQUENCY
21	Air emissions	Impact on air quality	**Negligible** (offshore) **Very Low** (onshore)	▪ As for Point No. 1	▪ As for Point No. 1	**Negligible** (offshore) **Very Low** (onshore)	Drilling / construction contractors	Ongoing throughout Phase
22	Air emissions	Impact on GHG emissions and climate change	**Medium**	▪ TEEPSA will comply with the requirements set out in MARPOL Annex VI Regulation 18 - Fuel Quality. Project vessels will be supplied with marine gasoil (MGO) or heavy fuel oil (HFO) with less than 0.5% sulphur (mass). ▪ Project vessels will be operated and maintained to ensure the efficient consumption of fuel in completion of the required activities. ▪ A maintenance plan will be implemented to ensure all diesel equipment receives adequate maintenance to minimise GHGs released to the atmosphere and maximise the energy efficiency. ▪ The drill unit, pipelaying vessel, support vessels and survey vessel will be required to prepare a Ship Energy Efficiency Management Plan (SEEMP) that complies with the IMO 2022 guidelines.	▪ Maintain a record of fuel consumption for monthly submission to TEEPSA for reporting purposes. ▪ Implement effective programmes for the tracking of fuel consumption and other metrics relevant to the quantification of GHGs. ▪ Optimise helicopter flight paths. ▪ Optimise well test and monitor the efficiency of the flare programme to reduce burning as much as possible during the test. ▪ Use a high-efficiency burner for flaring to maximise combustion of the hydrocarbons in order to minimise emissions and hydrocarbon ‘drop-out’ during well testing.	**Negligible**	Drilling / construction contractors	Ongoing throughout Phase
23	Underwater noise from drill rig and support/construction vessels	Physical injury or disturbance to marine fauna	**Low**	▪ As for Point No. 3	▪ As for Point No. 3	**Low**	Drilling / construction contractors	Ongoing throughout Phase
24	Underwater noise from vertical seismic profiling	Physical injury or disturbance to marine fauna	**Low**	▪ As for Point No. 4	▪ As for Point No. 4	**Low**	TEEPSA Drilling / construction contractors	Pre-drilling / pre-construction Ongoing throughout Phase
25	Ambient air noise from helicopters	Physical injury or disturbance to marine fauna	**Low**	▪ As for Point No. 5	▪ As for Point No. 5	**Low**	TEEPSA Drilling / construction contractors	Pre-drilling / pre-construction Ongoing throughout Phase
26	Ambient air noise from construction vessels	Physical injury or disturbance to marine fauna	**Low**	▪ As for Point No. 6	▪ As for Point No. 6	**Very Low**	Drilling / construction contractors	Ongoing throughout Phase
27	Light from drill rig and support vessels	Impact on marine fauna	**Low**	▪ As for Point No. 7	▪ As for Point No. 7	**Very Low**	TEEPSA Drilling / construction contractors	Pre-drilling / pre-construction

NO.	ASPECT	POTENTIAL IMPACT ON MAIN RECEPTORS	PRE-MITIGATION SIGNIFICANCE	PROJECT CONTROLS	KEY MITIGATION / ENHANCEMENT MEASURE	RESIDUAL SIGNIFICANCE	RESPONSIBILITY	TIMING / FREQUENCY
								Ongoing throughout Phase
28	Light from well flow testing	Impact on marine fauna	**Very Low**	▪ As for Point No. 8	▪ As for Point No. 8	**Very Low**	TEEPSA Drilling / construction contractors	Pre-drilling / pre-construction Ongoing throughout Phase
29	Produced water discharge	Impact on marine fauna	**Very Low**	▪ As for Point No. 9	▪ As for Point No. 9	**Very Low**	Drilling / construction contractors	Ongoing throughout Phase
30	Discharge of drilling fluid and cuttings (cement and WBMs)	Biochemical and toxicity water column and benthic impacts	**Low**	▪ As for Point No. 10	▪ As for Point No. 10	**Low**	TEEPSA	Pre-drilling / pre-construction
31	Discharge of drilling fluid and cuttings	Turbidity and smothering impacts on marine environment	**Low** (infauna communities) **Very Low** (pelagic communities) **High** (epifauna communities)	▪ As for Point No. 11	▪ As for Point No. 11	**Low** (infauna communities) **Very Low** (pelagic communities) **Medium** (epifauna communities)	Drilling / construction contractors	Ongoing throughout Phase
32	Physical disturbance of seafloor sediments	Loss of benthic habitat and impact on benthic infauna	**Low**	▪ TEEPSA will ensure that the contractors undertake the drilling and construction activities in a manner consistent with good international industry practice and BAT. ▪ Based on pre-drilling ROV survey(s), the well(s) will specifically be sited to avoid sensitive hardgrounds, as the preference will be to have a level surface area to facilitate spudding and installation of the wellhead.	▪ Conduct technical studies on techniques that can be used to minimise the impact on sensitive benthic components, specifically regarding method of laying of vessel / rig anchors and chains, choice of pipe material selection and pipe laying method. ▪ Consideration should be given to the feasibility of bolting the pipeline directly to the rocky substratum or to concrete bases would minimise the area impacted. ▪ Post-construction/drilling ROV should be undertaken to scan seafloor for any dropped equipment and other removable features (e.g. excess cement) around the well and construction sites. These must be retrieved/removed, where practicable, after assessing the safety and metocean conditions.	**Very Low**	TEEPSA Drilling / construction contractors	Pre-construction Ongoing throughout Phase
33	Physical disturbance of seafloor sediments	Loss of benthic habitat and impact on benthic epifauna	**High**	▪ TEEPSA will ensure that the contractors undertake the drilling and construction activities in a manner consistent with good international industry practice and BAT.	▪ Pre-construction baseline surveys must be undertaken to supplement baseline information obtained in previous environmental baseline surveys for Block 11B/12B, to ensure that construction activities do not disturb or destroy the sensitive and significant VME indicator epifaunal communities, vulnerable habitats (e.g., hard grounds), and structural features (e.g., rocky outcrops).	**Low**	TEEPSA TEEPSA TEEPSA	Pre-drilling / pre-construction Pre-drilling / pre-construction

NO.	ASPECT	POTENTIAL IMPACT ON MAIN RECEPTORS	PRE-MITIGATION SIGNIFICANCE	PROJECT CONTROLS	KEY MITIGATION / ENHANCEMENT MEASURE	RESIDUAL SIGNIFICANCE	RESPONSIBILITY	TIMING / FREQUENCY
					▪ The results of these surveys must be used to inform construction plans with the aim to provide a one km radius buffer to any sensitive communities, habitats or structures. If this is not possible, an out-of-kind compensatory mechanism needs to be developed as part of a Biodiversity Action Plan (BAP), if required. ▪ Conduct technical studies on techniques that can be used to minimise the impact on sensitive benthic components, specifically regarding method of laying of vessel / rig anchors and chains, choice of pipe material selection and pipe laying method. ▪ Consideration should be given to the feasibility of bolting the pipeline directly to the rocky substratum or to concrete bases would minimise the area impacted. ▪ Implement suitable measures to minimise cement spillages to the environment.		Drilling / construction contractor	Pre-drilling / pre-construction Ongoing throughout Phase
34	Physical disturbance of seafloor sediments	Impact on maritime heritage and palaeontology	**Low**	▪ As for Point No. 13	▪ As for Point No. 13	**Low**	Drilling / construction contractors	Ongoing throughout Phase
35	Maritime Safety Zones	Impact on Fisheries	**Very Low** (hake demersal trawl) and **Low** (large pelagic fisheries)	▪ Prior to commencement of drilling / construction activities, stakeholders in the fishing industry and sector bodies should be notified, as well as other organs of state such as PASA, DFFE, Transnet National Ports Authority, SAMSA and the South African Navy Hydrographic office. ▪ These stakeholders should again be notified at the completion of drilling / construction activities and when the support vessels are off-location. ▪ The Notice to Mariners should give notice of (1) the co-ordinates of the drill / construction areas, (2) an indication of the proposed timeframes of the drilling / construction activities, and (3) an indication of the 500 m safety zones and the proposed safe operational limits of the drilling / construction activities. ▪ These Notices to Mariners should be distributed timeously to fishing	▪ Avoidance of siting well infrastructure in areas of higher fishing intensity if feasible. This particularly relates to the Large Pelagic Longline sector. ▪ Maintain adequate safety clearance between fishing vessels and drilling / construction vessels and equipment through at-sea communications with vessels in the vicinity of the drill / construction area.	**Very Low** (hake demersal trawl) and **Low** (large pelagic fisheries)	TEEPSA Drilling / construction contractor	Pre-drilling Ongoing throughout Phase

NO.	ASPECT	POTENTIAL IMPACT ON MAIN RECEPTORS	PRE-MITIGATION SIGNIFICANCE	PROJECT CONTROLS	KEY MITIGATION / ENHANCEMENT MEASURE	RESIDUAL SIGNIFICANCE	RESPONSIBILITY	TIMING / FREQUENCY
				companies and directly onto vessels where possible.				
36	Spending on local goods, services and labour	Impact on economic output and GDP	**Very Low (+)** (TEEPSA activities) **High (+)** (PetroSA F-A Platform activities)	▪ As for Point No. 15	▪ Investigate options for local procurement for pipeline construction to enhance local economic benefits. ▪ Engage with local forums, business chambers, tourism offices, and collective organisations in order to disclose information and ascertain any issues and/ or concerns. ▪ Project procurement policy to prioritise supply of goods and services from local suppliers, where possible. ▪ Ensure sub-contractor procurement policies for non-local (IZoI) suppliers. ▪ Implement preferential contracting of local (IZoI) companies for goods and services. ▪ Conduct community/ stakeholder engagement on procurement/ employment/ skills development opportunities.	**Medium (+)** (TEEPSA activities) **High (+)** (PetroSA F-A Platform activities)	TEEPSA / construction contractor TEEPSA / construction / drilling contractor	Pre-construction Ongoing throughout Phase
37	Spending on local goods, services and labour	Impact on jobs	**Very Low (+)** (TEEPSA activities) **High (+)** (PetroSA F-A Platform activities)	▪ As for Point No. 16	▪ Investigate options for local procurement for pipeline construction to enhance local economic benefits. ▪ Increase procurement spend in South Africa as appropriate. ▪ Employ local labour (IZoI) to increase benefits to the local community where feasible. ▪ Sub-contract to local construction companies where possible. ▪ Ensure skills transfer and knowledge sharing to build local skills bases where possible. ▪ Conduct community / stakeholder engagement on procurement/ employment/ skills development opportunities. ▪ Engage with local forums, business chambers, tourism offices, and collective organisations in order to disclose information and ascertain any issues and/ or concerns.	**Medium (+)** (TEEPSA activities) **High (+)** (PetroSA F-A Platform activities)	TEEPSA / construction / drilling contractor TEEPSA / construction / drilling contractor	Pre-construction Ongoing throughout Phase
38	Spending on local goods, services and labour	Impact on household income	**Very Low (+)** (TEEPSA activities) **High (+)** (PetroSA F-A Platform activities)	▪ As for Point No. 17	▪ As for Point No. 17	**Very Low (+)** (TEEPSA activities) **High (+)** (PetroSA F-A Platform activities)	TEEPSA / construction / drilling contractor	Ongoing throughout Phase
PRODUCTION								
39	Air emissions	Impact on air quality	**Negligible** (offshore) **Very Low** (onshore)	▪ TEEPSA will comply with the requirements set out in MARPOL Annex VI Regulation 18 – Fuel Quality. Project vessels will be supplied with marine gasoil (MGO) or heavy fuel oil (HFO) with less than 0.5% sulphur (mass).	▪ Maintain a record of fuel consumption for monthly submission to TEEPSA for reporting purposes. ▪ Ensure no incineration of waste occurs within the port limits, subject to obtaining an Atmospheric Emissions Licence.	**Negligible** (offshore) **Very Low** (onshore)	TEEPSA / Production contractors	Ongoing throughout Phase

NO.	ASPECT	POTENTIAL IMPACT ON MAIN RECEPTORS	PRE-MITIGATION SIGNIFICANCE	PROJECT CONTROLS	KEY MITIGATION / ENHANCEMENT MEASURE	RESIDUAL SIGNIFICANCE	RESPONSIBILITY	TIMING / FREQUENCY
				▪ Project vessels will be operated and maintained to ensure the efficient consumption of fuel in completion of the required activities.	▪ Use of onshore power supply during vessel hotelling rather than using onboard generators/boilers, when available. ▪ TEEPSA will continue to engage with PetroSA regarding the use of good international industry practice in the operation and maintenance of the F-A Platform.			
40	Air emissions	Impact on GHG emissions and climate change	**Medium** (TEEPSA activities) **Very High** (PetroSA F-A Platform activities)	▪ TEEPSA will comply with the requirements set out in MARPOL Annex VI Regulation 18 – Fuel Quality. Project vessels will be supplied with marine gasoil (MGO) or heavy fuel oil (HFO) with less than 0.5% sulphur (mass). ▪ Project vessels will be operated and maintained to ensure the efficient consumption of fuel in completion of the required activities. ▪ A maintenance plan will be implemented to ensure all diesel equipment receives adequate maintenance to minimise GHGs released to the atmosphere and maximise the energy efficiency. ▪ Support vessels will be required to prepare a Ship Energy Efficiency Management Plan (SEEMP) that complies with the IMO 2022 guidelines.	▪ Maintain a record of fuel consumption for monthly submission to TEEPSA for reporting purposes. ▪ Implement effective programmes for the tracking of fuel consumption and other metrics relevant to the quantification of GHGs. ▪ TEEPSA will continue to engage with PetroSA regarding the use of good international industry practice in the operation and maintenance of the F-A Platform.	**Negligible** (TEEPSA activities) **Medium** (PetroSA F-A Platform activities)	TEEPSA / Production contractors	Ongoing throughout Phase
41	Presence of seafloor infrastructure	Impact on local benthic environment	**Low** (pipeline not buried) **Negligible** (pipeline buried)	-	▪ Once the pipeline is installed, it is recommended that further disturbance along the route is minimised to allow the new (novel) community to stabilise with time.	**Low** (pipeline not buried) **Negligible** (pipeline buried)	TEEPSA / Production contractors	Ongoing throughout Phase
42	Maritime safety zones	Impact on fisheries	**Very Low** (hake demersal trawl) and **Low** (large pelagic fisheries)	▪ TEEPSA will co-ordinate with the South African Maritime Safety Agency (SAMSA) that is responsible for maritime safety, health and environmental protection regarding safety zones. After installation of the production wells, subsea infrastructure and pipeline, the locations will be surveyed and marked on bathymetric and navigation charts as a hazard. Maritime shipping, commercial and small-scale fishing sectors will be notified of the presence of the infrastructure.	▪ Continue to engage with stakeholder engagement forum established in pre-production phase, to facilitate ongoing engagement with indigenous people, coastal communities and small-scale fisheries organisations.	**Very Low** (hake demersal trawl) and **Low** (large pelagic fisheries)	TEEPSA / Production contractors	Ongoing throughout Phase

NO.	ASPECT	POTENTIAL IMPACT ON MAIN RECEPTORS	PRE-MITIGATION SIGNIFICANCE	PROJECT CONTROLS	KEY MITIGATION / ENHANCEMENT MEASURE	RESIDUAL SIGNIFICANCE	RESPONSIBILITY	TIMING / FREQUENCY
43	Spending on local goods, services and labour	Impact on economic output and GDP	**Medium (+)**	▪ As for Point No. 15	▪ Prioritise the procurement of goods and services from local suppliers, where possible. ▪ SLP initiatives for training and skills development to be aligned with technical skills requirements over the production period.	**Medium (+)**	TEEPSA / Production contractors	Ongoing throughout Phase
44	Spending on local goods, services and labour	Impact on jobs	**Medium (+)**	▪ Per Section 41 of the MPRD regulations, an SLP is required for the Project and the development of a Procurement Progression Plan. ▪ A Skills Development Plan forms part of the SLP. The Skills Development Plan must be submitted to the relevant Sector Education and Training Authority (SETA) as a Workplace Skills Plan/ Annual Training Report. The Skills Development Plan outlines proposed internship and bursary programmes, mentorship programmes and employment equity plans.	▪ Implement preferential employment of local labour to increase benefits to the local community. ▪ SLP initiatives for training and skills development to be aligned with Project technical skills requirements over the production period.	**Medium (+)**	TEEPSA / Production contractors	Ongoing throughout Phase
45	Spending on local goods, services and labour	Impact on household income	**Medium (+)**	▪ As for Point No. 17	▪ Project procurement policy to prioritise supply of goods and services from local suppliers where possible. ▪ Prioritise the use of local labour, including contractors, will be prioritised where possible in line with the Project's SLP.	**Medium (+)**	TEEPSA / Production contractors	
46	Spending on local goods, services and labour	Impact on government	**High (+)**	-	-	**High (+)**	-	-
DECOMMISSIONING								
47	Air emissions	Impact on air quality	**Negligible** (offshore) **Very Low** (onshore)	▪ TEEPSA will comply with the requirements set out in MARPOL Annex VI Regulation 18 - Fuel Quality. Project vessels will be supplied with marine gasoil (MGO) or heavy fuel oil (HFO) with less than 0.5% sulphur (mass). ▪ Project vessels will be operated and maintained to ensure the efficient consumption of fuel in completion of the required activities. ▪ Ensure that contractors make use of efficient flare tips, as appropriate.	▪ Optimise rig movement and the logistics (number of trips required to and from the onshore logistics base) to reduce fuel consumption. ▪ Maintain a record of fuel consumption for monthly submission to TEEPSA for reporting purposes. ▪ Ensure no incineration of waste occurs within the port limits, subject to obtaining an Atmospheric Emissions Licence. ▪ Use of onshore power supply during vessel hotelling rather than using onboard generators/boilers, when available.	**Negligible** (offshore) **Very Low** (onshore)	Drill rig / decommissioning contractors	Ongoing throughout Phase
48	Air emissions	Impact on GHG emissions and climate change	**Negligible**	▪ TEEPSA will comply with the requirements set out in MARPOL Annex VI Regulation 18 - Fuel Quality. Project vessels will be supplied with marine	▪ Maintain a record of fuel consumption for monthly submission to TEEPSA for reporting purposes. ▪ Implement effective programmes for the tracking of fuel consumption and other metrics relevant to the quantification of GHGs.	**Negligible**	Drill rig / decommissioning contractors	Ongoing throughout Phase

NO.	ASPECT	POTENTIAL IMPACT ON MAIN RECEPTORS	PRE-MITIGATION SIGNIFICANCE	PROJECT CONTROLS	KEY MITIGATION / ENHANCEMENT MEASURE	RESIDUAL SIGNIFICANCE	RESPONSIBILITY	TIMING / FREQUENCY
				gasoil (MGO) or heavy fuel oil (HFO) with less than 0.5% sulphur (mass). ▪ Project vessels will be operated and maintained to ensure the efficient consumption of fuel in completion of the required activities. ▪ A maintenance plan will be implemented to ensure all diesel equipment receives adequate maintenance to minimise GHGs released to the atmosphere and maximise the energy efficiency. ▪ The drill unit, pipelaying vessel, support vessels and survey vessel will be required to prepare a Ship Energy Efficiency Management Plan (SEEMP) that complies with the IMO 2022 guidelines.	▪ Optimise helicopter flight paths.			
49	Underwater noise from drill rig and support/decommissioning vessels	Physical injury or disturbance to marine fauna	**Low**	▪ As for Point No. 3	▪ As for Point No. 3	**Low**	Drill rig / decommissioning contractors	Ongoing throughout Phase
51	Ambient air noise from helicopters	Physical injury or disturbance to marine fauna	**Low**	▪ As for Point No. 5	▪ As for Point No. 5	**Low**	Drill rig / decommissioning contractors	Ongoing throughout Phase
52	Ambient air noise from construction vessels	Physical injury or disturbance to marine fauna	**Low**	▪ As for Point No. 6	▪ As for Point No. 6	**Very Low**	Drill rig / decommissioning contractors	Ongoing throughout Phase
53	Light emissions from drill rig and support/decommissioning vessels	Impact on marine fauna	**Medium**	-	▪ TEEPSA will continue to engage with PetroSA regarding the use of good international industry practices in the operation and maintenance of the F-A Platform.	**Low**	Drill rig / decommissioning contractors	Ongoing throughout Phase
54	Maritime safety zones	Impact on fisheries	**Very Low** (hake demersal trawl) and **Low** (large pelagic fisheries)	▪ Prior to commencement of decommissioning activities, stakeholders in the fishing industry and sector bodies should be notified, as well as other organs of state such as PASA, DFFE, Transnet National Ports Authority, SAMSA and the South African Navy Hydrographic office. These stakeholders should again be notified at the completion of decommissioning activities and when the support vessels are off-location. The Notice to Mariners should give notice of (1) the co-ordinates of the	▪ Maintain adequate safety clearance between fishing vessels and decommissioning vessels and equipment through at-sea communications with vessels in the vicinity of the drill area.	**Very Low** (hake demersal trawl) and **Low** (large pelagic fisheries)	Drill rig / decommissioning contractors	Ongoing throughout Phase

NO.	ASPECT	POTENTIAL IMPACT ON MAIN RECEPTORS	PRE-MITIGATION SIGNIFICANCE	PROJECT CONTROLS	KEY MITIGATION / ENHANCEMENT MEASURE	RESIDUAL SIGNIFICANCE	RESPONSIBILITY	TIMING / FREQUENCY
				decommissioning areas, (2) an indication of the proposed timeframes of the activities, and (3) an indication of the 500 m safety zones and the proposed safe operational limits of the decommissioning activities. These Notices to Mariners should be distributed timeously to fishing companies and directly onto vessels where possible. ▪ Once the closure certificate for the plugged wells is issued by the Competent Authority, the requirement for a safety zone will be decided by SAMSA based on an assessment of the risk of the infrastructure as a navigational hazard. Any infrastructure deemed a navigational hazard will remain marked on the navigational charts.				
55	Spending on local goods, services and labour	Impact on economic output and GDP	**Low (+)**	▪ As for Point No. 15	▪ Maximise salvageable plant and equipment. ▪ Ensure that waste material brought onshore is managed by a licenced contractor and disposed of at an authorised landfill.	**Low (+)**	Drill rig / decommissioning contractors	Ongoing throughout Phase
56	Spending on local goods, services and labour	Impact on jobs	**Low (+)**	▪ As for Point No. 62	▪ As for Point No. 62	**Low (+)**	Drill rig / decommissioning contractors	Ongoing throughout Phase
57	Spending on local goods, services and labour	Impact on household income	**Low (+)**	▪ As for Point No. 62	▪ As for Point No. 62	**Low (+)**	Drill rig / decommissioning contractors	Ongoing throughout Phase
ALL PHASES								
58	Routine discharges to sea	Impact on water quality	**Medium**	▪ As per the applicable requirements in MARPOL 73/7817, food waste will be ground up prior to discharge (i.e., comminuted) to <25 mm diameter to meet discharge requirements. When ground to these specifications, food waste discharges are allowed if the vessel is more than 3 nautical miles (5.6 km) offshore. Food waste that is not ground may be discharged if the vessel is at least 12 nautical miles (22.2 km) offshore when sailing. ▪ Deck drainage on board support vessels is routinely routed directly overboard, except in areas where hydrocarbons may	▪ Prohibit operational discharges within any area designated as a marine sensitive area (and up current when in close proximity) during surveying or transit to and from the drill/construction/decommissioning sites. ▪ Low-toxicity biodegradable detergents should be used in the cleaning of deck spillages. ▪ Spill management training and awareness to be provided to crew members as part of the SOPEP to ensure thorough clean-up of any spillages immediately after they occur, in order to minimise the volume of contaminants washing off decks. ▪ All reasonable measures must be implemented to ensure that no littering takes place during the various Project phases.	**Low**	Drilling / construction . production / decommissioning contractors	Ongoing throughout relevant Phases

NO.	ASPECT	POTENTIAL IMPACT ON MAIN RECEPTORS	PRE-MITIGATION SIGNIFICANCE	PROJECT CONTROLS	KEY MITIGATION / ENHANCEMENT MEASURE	RESIDUAL SIGNIFICANCE	RESPONSIBILITY	TIMING / FREQUENCY
				be released; in these latter cases, deck drainage is directed to the oil skimmers/oily water separators for treatment prior to discharge. Threshold maxima for the discharge will be 15 mg/L (parts per million, ppm) of hydrocarbons, per MARPOL requirements. Water below 15 ppm hydrocarbons content is discharged overboard with sea surface sheen monitoring. Separated oil is transferred to the waste oil tank which will be treated / disposed of onshore at an approved hazardous landfill site. ▪ Bilge and drain systems are monitored for hydrocarbon contamination. Oily water separators will process bilge and contaminated drain system water. Threshold maxima for the discharge will be 15 mg/L (parts per million, ppm) of hydrocarbons, per MARPOL Annex I requirements. Treated water (below 15 ppm) is discharged overboard; separated oil is transferred to the waste oil tank. The residue from the onboard oil/water separator will be treated and disposed onshore at a licenced hazardous landfill site. ▪ Vessels must have a Shipboard Oil Pollution Emergency Plan (SOPEP), and a valid International Oil Pollution Prevention Certificate, as required by vessel class. ▪ All sewage discharges will comply with MARPOL Annex IV requirements. Sewage and grey water will be treated using a marine sanitation device to produce an effluent with: ▪ A Biological Oxygen Demand (BOD) of <25 mg/l (if the treatment plant was installed after 1/1/2010) or <50 mg/l (if installed before this date); ▪ Minimal residual chlorine concentration of 0.5 mg/l; and	▪ TEEPSA will continue to engage with PetroSA regarding the use of good international industry practice in the operation and maintenance of the F-A Platform.			

NO.	ASPECT	POTENTIAL IMPACT ON MAIN RECEPTORS	PRE-MITIGATION SIGNIFICANCE	PROJECT CONTROLS	KEY MITIGATION / ENHANCEMENT MEASURE	RESIDUAL SIGNIFICANCE	RESPONSIBILITY	TIMING / FREQUENCY
				▪ No visible floating solids or oil and grease. ▪ Vessels are required to have a valid International Sewage Pollution Prevention Certificate (ISPPC). ▪ Vessels must have an onboard certified sewage treatment plant providing primary settling, chlorination before discharge of treated effluent. ▪ Cooling waters and freshwater surplus generated by the water supply system (including brine) must be tested prior to discharge and will comply with relevant Water Quality Guidelines for residual chlorine, salinity and temperature relative to the receiving environment. ▪ Contractors will be required to develop a Waste and Discharge Management Plan for all wastes generated at the various sites and a Chemical Management Plan detailing the storage and handling of chemicals, as well as measures to minimise potential pollution.				
59	Discharge of ballast water	Impact on water quality	**High**	▪ De- and re-ballasting of vessels must be undertaken only under strict adherence to International Maritime Organisation (IMO) guidelines (Guideline A.868(20) governing discharge of ballast waters at sea). ▪ Other precautionary guidelines recommended by the IMO include: ▪ During the loading of ballast, every effort should be made to avoid the uptake of potentially harmful aquatic organisms, pathogens and sediment that may contain such organisms, through adequate filtration procedures; ▪ Where practicable, routine cleaning of the ballast tank to remove sediments should be carried out in mid-ocean or under controlled arrangements in port or dry dock, in accordance with the provisions of the ship's ballast water management plan; and	▪ Infrastructure (e.g. wellheads, BOPs and guide bases) used in other locations must be thoroughly cleaned before deployment.	**Medium**	Drilling / construction . production / decommissioning contractors	Ongoing throughout relevant Phases

NO.	ASPECT	POTENTIAL IMPACT ON MAIN RECEPTORS	PRE-MITIGATION SIGNIFICANCE	PROJECT CONTROLS	KEY MITIGATION / ENHANCEMENT MEASURE	RESIDUAL SIGNIFICANCE	RESPONSIBILITY	TIMING / FREQUENCY
				▪ Avoidance of unnecessary discharge of ballast water. ▪ A ballast water management plan must be prepared and implemented for the drilling unit and support and construction vessels.				
60	Presence of Above Water Infrastructure	Impact on avifauna	**Low**	▪ TEEPSA will ensure that contractors undertake Project activities in a manner consistent with good international industry practice and Best Available Techniques (BAT).	▪ Include training on how to care for downed seabirds as part of the induction and awareness training programme for the Project. ▪ Monitor the presence of seabirds and identify mortalities, even when birds do not land on the vessel, especially in foggy conditions and at night. ▪ Report ringed/banded birds to the appropriate ringing/banding scheme (details are provided on the ring).	**Low**	Drilling / construction . production / decommissioning contractors	Ongoing throughout relevant Phases
61	All Project activities	Impact on intangible cultural	**High**	▪ TEEPSA will ensure that contractors undertake Project activities in a manner consistent with good international industry practice and BAT. ▪ TEEPSA will ensure that contractors undertake Project activities in compliance with the applicable requirements in MARPOL 73/78.	▪ Establish a stakeholder engagement forum to facilitate ongoing engagement with indigenous people, coastal communities and fisheries associations / organisations. Encourage communities to document and report any adverse health effects, incidents, or concerns related to the Project operations. ▪ Implement a project-specific Grievance Mechanism and ensure effective implementation through independent verification undertaken annually. ▪ Identify appropriate cultural sites and heritage research within IZoI for consideration in the TotalEnergies Corporate Social Investment programme. ▪ Engage with relevant communities to undertake a ritual event/s that supports communities' engagement with ancestral spirits and with living communities/indigenous people to allow for the usage of the sea. Details to be developed as part of the Project's Stakeholder Engagement plan. ▪ Implement a gender-sensitive ritual event that recognises gendered coastal cultural heritage to permit all genders to articulate their cultural relation with the sea and coast. Details to be developed as part of the Project's Stakeholder Engagement plan.	**Very Low** (for the exploration, construction and decommissioning phases) **Medium** (for the production operations phase)	TEEPSA TEEPSA	Pre-drilling / construction As and when required throughout relevant Phases
62	All Project activities	Impact on community health, safety and security	**Medium**	▪ TEEPSA will ensure that contractors undertake Project activities in a manner consistent with good international industry practice and BAT.	▪ Engage with local communities, government agencies, and other stakeholders throughout the Project process to understand community concerns regarding health, safety and security issues.	**Low**	TEEPSA	As and when required throughout relevant Phases

NO.	ASPECT	POTENTIAL IMPACT ON MAIN RECEPTORS	PRE-MITIGATION SIGNIFICANCE	PROJECT CONTROLS	KEY MITIGATION / ENHANCEMENT MEASURE	RESIDUAL SIGNIFICANCE	RESPONSIBILITY	TIMING / FREQUENCY
					▪ Maintain the project-specific grievance mechanisms and ensure that it is implemented effectively through independent verification on an annual basis. ▪ Coordinate with the MBLM emergency and rescue services and provide support (training and resources) as part of TotalEnergies Corporate Social Investment programme. ▪ As part of TotalEnergies Corporate Social Investment programme, invest in programmes focused on substance abuse and gender-based violence by connecting with relevant NGOs and CBOs to ascertain where assistance is needed. ▪ Ensure that Project personnel are made aware of local customs and traditions and the need to respect cultural norms. ▪ Minimise emission from vessels while in port, specifically the use of generators for power, using quayside electrical connection, where available.			
63	Maritime safety zones	Impact on livelihood of fishers	**Negligible** (commercial, recreational or mariculture fisheries) **Low** (small-scale fisheries)	▪ TEEPSA will ensure that contractors undertake Project activities in a manner consistent with good international industry practice and BAT.	▪ Once the subsea infrastructure and pipeline is installed, the location will be surveyed and the coordinates sent to SAMRA. Following a risk assessment, SAMRA will establish a permanent safety zone around the area of installation and instruct the Hydrographic Office to show any areas deemed a risk to navigation as a hazard on navigation charts and bathymetric maps. This will remain on maps and charts for the duration of the production phase and possibly indefinitely, depending on the extend of removal of subsea infrastructure during the closure phase. ▪ Establish a stakeholder engagement forum to facilitate ongoing engagement with indigenous people, coastal communities and small-scale fisheries organisations. ▪ Develop and implement a project-specific grievance mechanism and ensure effective implementation through independent verification undertaken annually.	**Negligible** (commercial, recreational or mariculture fisheries) **Very Low** (small-scale fisheries for the well drilling, construction, closure and survey phases) **Low** (small-scale fisheries for the production phase)	TEEPSA	As and when required throughout relevant Phases
64	Disturbance of marine habitat and impact on water quality	Impact on livelihood of fishers	**Medium** (commercial, recreational, small-scale and mariculture fisheries)	▪ Same as for Point No. 72	▪ No Project activities will occur in designated Marine Protected Areas and the subsea infrastructure will be placed to minimise any disturbance to ecologically or biologically sensitive areas. If necessary, an out-of-kind offset or compensation will be included in the Biodiversity Management Plan. ▪ Pre-screening surveys will be undertaken to identify the most appropriate location for well drilling and installation	**Negligible** (commercial, recreational or mariculture fisheries) **Low** (small-scale fisheries)	TEEPSA	As and when required throughout relevant Phases

NO.	ASPECT	POTENTIAL IMPACT ON MAIN RECEPTORS	PRE-MITIGATION SIGNIFICANCE	PROJECT CONTROLS	KEY MITIGATION / ENHANCEMENT MEASURE	RESIDUAL SIGNIFICANCE	RESPONSIBILITY	TIMING / FREQUENCY
					of subsea infrastructure and the pipeline to minimise disturbance to benthic habitat. ▪ Establish a stakeholder engagement forum to facilitate ongoing engagement with indigenous people, coastal communities and small-scale fisheries organisations. ▪ Develop and implement a project-specific grievance mechanism and ensure effective implementation through independent verification undertaken annually.			
65	All Project activities	Impact on household livelihood	**Medium (+)**	As per the SLP: ▪ TEEPSA will develop a database to define the HDP and status of its potential suppliers, which will include elements of ownership as well as management. ▪ Current and all future non-HDP suppliers will be either part of "strengthening, development" or Joint Venture programmes, depending on their level of competitiveness and importance to the Project. ▪ Suppliers will be encouraged to subcontract portions of their work to HDPs, or procure goods and services from HDPs, or otherwise assist in promoting the progression of HDPs in the industry. ▪ Contractors will be required to maximise local content through the employment and training of HDPs: • HDPs should be provided opportunities to be recruited and to improve their skill sets and advance their capabilities. • For all training and employment, first priority is given to HDPs.	▪ Pre-screening surveys will be undertaken to identify the most appropriate location for well drilling and installation of subsea infrastructure and the pipeline to minimise disturbance to benthic habitat. ▪ TEEPSA's local recruitment procedure will be used to guide the recruitment process. The procedure should be disclosed to communities through engagement undertaken as part of the corporate stakeholder engagement process.	**High (+)**	TEEPSA and contractors	As and when required throughout relevant Phases

Table 12-5 – Environmental and Social Mitigation Management Commitment Register – Unplanned Events

No.	Phase	Aspect	Impact on Main Receptor	Pre-Mitigation Significance	Project Controls	Key Mitigation Measures	Residual Significance	Responsibility	Timing / Frequency
1	Well drilling & production operations	Pollution generated from production well blowout and pipeline rupture	Negative impact on seabirds, turtles, marine mammals, and coastal environment	Very high	The following "multi-barrier" approach will be implemented to deal with the risk of oil spills (see Section 10.2.1.2 for details): ▪ Avoidance (or Prevention): Identify constraints that may impact the operational integrity of the drilling operation and optimise well design to ensure most stringent pressure profiles can be withstood. ▪ Technical Barriers: Design well casings to withstand a variety of forces. ▪ Blowout Control and Oil Spill Response: Implement the Blowout Contingency Plan, Emergency Response Plan and Oil Spill Contingency Plan, that has been prepared and approved in consultation with PASA, the DFFE and the South African Maritime Authority. ▪ Oil Spill/Slick Monitoring: Predict the movement of an oil spill/slick and sample and analyse spill to determine the behaviour and toxicity levels. ▪ Offshore Oil Response: Deploy adequately trained resources and dispersants. ▪ Shoreline Response: Conduct a coastal sensitivity assessment and mapping exercise to identify coastal sensitivities in order to prioritise coastal response strategies. ▪ Compensation and Insurance: Determine the economic effects of the oil spill/slick and financially manage the consequence through compensation to affected parties. ▪ Ensure that at least 5 m^3 of dispersant is readily available on standby vessels for initial response.	▪ Ensure use of low toxicity dispersants that conform with DFFE's requirements (refer to DFFE Oil Dispersant Policy and SAMSA Marine Notice on dispersants). ▪ Ensure adequate resources are provided to collect and transport oiled birds to a cleaning station. ▪ Include in TEEPSA induction programme training on how to handle, capture and transport exhausted or injured birds. ▪ Schedule joint oil spill exercises including TEEPSA and local departments/organisations to test the oil spill response readiness (regularly during construction / every 3 years during production). ▪ Ensure contract arrangements and service agreements are in place to implement the OSCP, e.g., capping stack in Saldanha Bay and other international locations, SSDI kit, surface response equipment (e.g., booms, dispersant spraying system, skimmers, etc.), dispersants, response vessels, etc. ▪ Ensure that the location of the subsea infrastructure and production pipeline, once installed, is surveyed and marked on bathymetric and navigation charts as a hazard. Maritime shipping, commercial and small-scale fishing sectors must be notified of the presence of the infrastructure.	High	TEEPSA TEEPSA / drilling contractors	Pre-drilling Ongoing throughout relevant Phases
2	Production well drilling & production operations	Pollution generated from production well blowout and pipeline rupture	Negative impact on plankton, benthic infauna, benthic epifauna, fish	High	As for Point No. 1	As for Point No. 1	Medium	As for Point No. 1	As for Point No. 1
3	Exploration well drilling	Pollution generated from exploration well blowout	Negative impact on seabirds, turtles, and coastal environment	Very high	As for Point No. 1	As for Point No. 1	High	As for Point No. 1	As for Point No. 1
4	Exploration well drilling	Pollution generated from exploration well blowout	Negative impact on plankton, benthic fauna, marine mammals	Very high	As for Point No. 1	As for Point No. 1	High	As for Point No. 1	As for Point No. 1

No.	Phase	Aspect	Impact on Main Receptor	Pre-Mitigation Significance	Project Controls	Key Mitigation Measures	Residual Significance	Responsibility	Timing / Frequency
5	Production well & production operations	Pollution generated from production well blowout and pipeline rupture	Negative impact on fisheries and mariculture	High	As for Point No. 1	As for Point No. 1	Medium	As for Point No. 1	As for Point No. 1
6	Exploration well drilling	Pollution generated from exploration well blowout	Negative impact on fisheries and mariculture	Very high	As for Point No. 1	As for Point No. 1	High	As for Point No. 1	As for Point No. 1
7	All phases	Pollution generated through fuel leaks, refuelling (bunkering), or vessel collision	Negative impact on marine environment	Medium	▪ Compliance with COLREGS (the Convention dealing with safety at sea, particularly to reduce the risk of collisions at sea) and SOLAS (the Convention ensuring that vessels comply with minimum safety standards). ▪ A 500 m safety zones will be enforced around the drilling unit and construction areas within which fishing and other vessels will be excluded. ▪ An emergency response system will be implemented to be prepared in the event of a spill incident. As standard practice, the Emergency Response Plan (ERP) will include crisis contacts and protocols and an Oil Spill Contingency Plan (OSCP) will be prepared and available at all times during the drilling operation. ▪ Regulation 37 of MARPOL Annex I will be applied, which requires that all ships of 400 gross tonnage and above carry an approved Shipboard Oil Pollution Emergency Plan (SOPEP). The purpose of a SOPEP is to assist personnel in dealing with unexpected discharge of oil onboard, to set in motion the necessary actions to stop or minimise the discharge to the sea and to mitigate its effects on the marine environment. Thus, project vessels will be equipped with appropriate spill containment and clean-up equipment, e.g., dispersants and absorbent materials. ▪ All relevant vessel crews will be trained in spill clean-up equipment use and routine spill clean-up exercises.	▪ Spray spill with dispersants (if sea conditions permit and permission has been obtained from the relative authority). ▪ Ensure adequate resources are available to collect and transport oiled birds to a cleaning station. ▪ Ensure use of low toxicity dispersants that conform with DFFE's requirements (refer to DFFE Oil Dispersant Policy and SAMSA Marine Notice on dispersants).	Low	TEEPSA / drilling / construction / production / decommissioning contractors	Ongoing throughout relevant Phases

No.	Phase	Aspect	Impact on Main Receptor	Pre-Mitigation Significance	Project Controls	Key Mitigation Measures	Residual Significance	Responsibility	Timing / Frequency
8	Production well drilling & production operations	Well blowout or pipeline rupture	Negative economic impact on commercial fishing industry	High	As for Point No. 1	▪ Ensure resources to be mobilised in response to an unplanned event are effectively trained and equipped through periodic training and simulations exercises. ▪ TEEPSA will seek to work with the relevant local authorities and civil society organisations with regard to the development and implementation of the emergency response plan in the unlikely event of a large oil spill.	Medium	TEEPSA / drilling / production contractors	Ongoing throughout relevant Phases
9	Production well drilling & production operations	Well blowout or pipeline rupture	Negative economic impact on fishing activities	Medium	As for Point No. 1	As for Point No. 8	Low	TEEPSA / drilling / production contractors	Ongoing throughout relevant Phases
10	Exploration well drilling	Well blowout	Negative economic impact on fishing activities	Very High	As for Point No. 1	As for Point No. 8	High	TEEPSA / drilling contractors	Ongoing throughout relevant Phases
11	Production well drilling & production operations	Well blowout or pipeline rupture	Negative economic impact on coastal tourism	Negligible	As for Point No. 1	As for Point No. 8	Negligible	TEEPSA / drilling / production contractors	Ongoing throughout relevant Phases
12	Exploration well drilling	Well blowout	Negative economic impact on coastal tourism	Very High	As for Point No. 1	As for Point No. 8	High	TEEPSA / drilling contractors	Ongoing throughout relevant Phases
13	Production well drilling & production operations	Well blowout or pipeline rupture	Negative impact on household livelihood	High	As for Point No. 1	▪ Ensure resources to be mobilised in response to an unplanned event are effectively trained and equipped through periodic training and simulations exercises. ▪ TEEPSA will seek to work with the relevant local authorities and civil society organisations with regard to the development and implementation of the emergency response plan in the unlikely event of a large oil spill. ▪ Establish a stakeholder engagement forum to facilitate ongoing engagement with indigenous people, coastal communities and small-scale fisheries organisations. ▪ Ensure that liability for payment of compensation is adequately provided throughout the life of the project (Section 10.2.1.3). ▪ Establish appropriate mechanisms for dealing with any claims of losses by affected parties in the case of an unplanned event.	Medium	TEEPSA / drilling / production contractors	Ongoing throughout relevant Phases
14	Exploration well drilling	Well blowout	Negative impact on household livelihood	Very High	As for Point No. 1		High	TEEPSA / drilling contractors	Ongoing throughout relevant Phases
15	Production, appraisal and	Well blowout or pipeline rupture	Negative impact on intangible cultural heritage	Very High	As for Point No. 1	▪ Ensure that operating procedures maintain the safety standards required to prevent an unplanned event.	High	TEEPSA / drilling / production contractors	Ongoing throughout

No.	Phase	Aspect	Impact on Main Receptor	Pre-Mitigation Significance	Project Controls	Key Mitigation Measures	Residual Significance	Responsibility	Timing / Frequency
	exploration well drilling Production operations					▪ Support relevant authorities in conducting a transparent and independent process for evaluation of loss experienced by communities affected by an unplanned event, including an estimate of the impact on intangible cultural heritage, to provide the basis for appropriate compensation.			relevant Phases
16	Exploration well drilling	Well blowout	Negative impact on community health, safety and security	High	As for Point No. 1	▪ As for Point No. 13 & 14	Low	TEEPSA / drilling contractors	Ongoing throughout relevant Phases
17	Production, appraisal and exploration well drilling Production operations	Well blowout or pipeline rupture	Negative impact on community health, safety and security	Very Low	As for Point No. 1	▪ As for Point No. 13 & 14	Very Low	TEEPSA / drilling / production contractors	Ongoing throughout relevant Phases
18	Production, appraisal and exploration well drilling Production operations	Well blowout or pipeline rupture	Negative impact on air quality	Low (offshore receptors) Medium (onshore receptors)	As for Point No. 1	As for Point No. 1	Negligible (offshore receptors) Very Low (onshore receptors)	As for Point No. 1	As for Point No. 1
19	All phases	Vessel collisions or SPS and trawling gear accident	Negative impact on fisheries	High	▪ A 500 m safety zone will be established around the vessels where the subsea infrastructure and pipeline installation is conducted. ▪ Radar, facility lighting and designated navigation channels will be used to manage support vessel traffic, tugboats, and supply vessels. The designated safety zones will be enforced with Project patrol boats during well drilling, construction, and decommissioning phases. ▪ Deployment of metocean buoys will require a temporary safety zone of between a 500 m and 2 km radius on the sea surface. All vessels would be excluded from entering this safety zone. ▪ During the Construction Phase, a 500 m safety zone will be established around the vessels where the subsea infrastructure and pipeline installation is conducted. After installation the location of the production wells, subsea infrastructure and pipeline will be surveyed and marked on bathymetric and navigation charts as a hazard. Maritime shipping, commercial and small-scale fishing sectors will be notified of the presence of the infrastructure. ▪ For abandoned exploration wells, well heads will be left on the seafloor with an over trawl cap designed to	▪ Ensure all Project support vessels are aware of navigation management systems outside Mossel Bay Port. ▪ Support sea rescue services to ensure that the organisation has sufficient resources and training to deal with vessel-on-vessel collision.	High	TEEPSA / contractors	Ongoing throughout relevant Phases

No.	Phase	Aspect	Impact on Main Receptor	Pre-Mitigation Significance	Project Controls	Key Mitigation Measures	Residual Significance	Responsibility	Timing / Frequency
					allow for trawling activity without damaging trawling gear. ▪ Once the closure certificate for the plugged wells is issued by the Competent Authority, the requirement for a safety zone will be decided by SAMSA based on an assessment of the risk of the infrastructure as a navigational hazard. Any infrastructure deemed a navigational hazard will remain marked on the navigational charts. ▪ Compliance with COLREGS (the Convention dealing with safety at sea, particularly to reduce the risk of collisions at sea) and SOLAS (the Convention ensuring that vessels comply with minimum safety standards).				
20	All phases	Faunal strikes	Negative impact on cetaceans	Low	▪ TEEPSA will ensure that the contractors undertake Project activities in a manner consistent with good international industry practice and best available technology (BAT). ▪ All whales and dolphins are given protection under South African Law. The Marine Living Resources Act, 1998 (Act18 of 1998) states that no whales or dolphins may be harassed, killed or fished. No vessel may approach closer than 300 m to any whale and a vessel should move to a minimum distance of 300 m from any whales if a whale surfaces closer than 300 m from a vessel. ▪ Ensure vessel transit speed between the survey / drill / construction area and port is a maximum of 12 knots (22 km/hr), except within 25 km of the coast where it is reduced further to 10 knots (18 km/hr).	▪ Ensure that all vessel paths avoid breeding areas or migration routes during peak migration or breeding times of year, if possible. ▪ Placing a trained, dedicated observer onboard vessel to help increase the detection rate of cetaceans or turtles along a vessel's route during day-light hours. ▪ Include collision risks in induction and awareness training.	Very Low	TEEPSA / drilling / construction / production / decommissioning contractors	Ongoing throughout relevant Phases
21	All phases	Loss of equipment at sea	Negative impact on benthic substate and biota	Low	▪ TEEPSA will ensure that the contractors undertake Project activities in a manner consistent with good international industry practice and best available technology (BAT).	▪ Ensure containers are sealed / covered during transport and loads are lifted using the correct lifting procedure and within the maximum lifting capacity of crane system. ▪ Minimise the lifting path between vessels. ▪ Maintain an inventory of all equipment and undertake frequent checks to ensure these items are stored and secured safely on board each vessel. ▪ Undertake a post-drilling ROV survey to scan seafloor for any dropped equipment and other removable features around the well and construction sites. Retrieve these objects, where practicable, after assessing the safety and metocean conditions.	Low	TEEPSA / drilling / construction / production / decommissioning contractors	Ongoing throughout relevant Phases

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