



# ESIA for Well Drilling in Licence Block 2914A, Orange Basin, off the Coast of Southern Namibia

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Environmental and Social Management Programme

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**FOR: Rhino Resources Ltd**

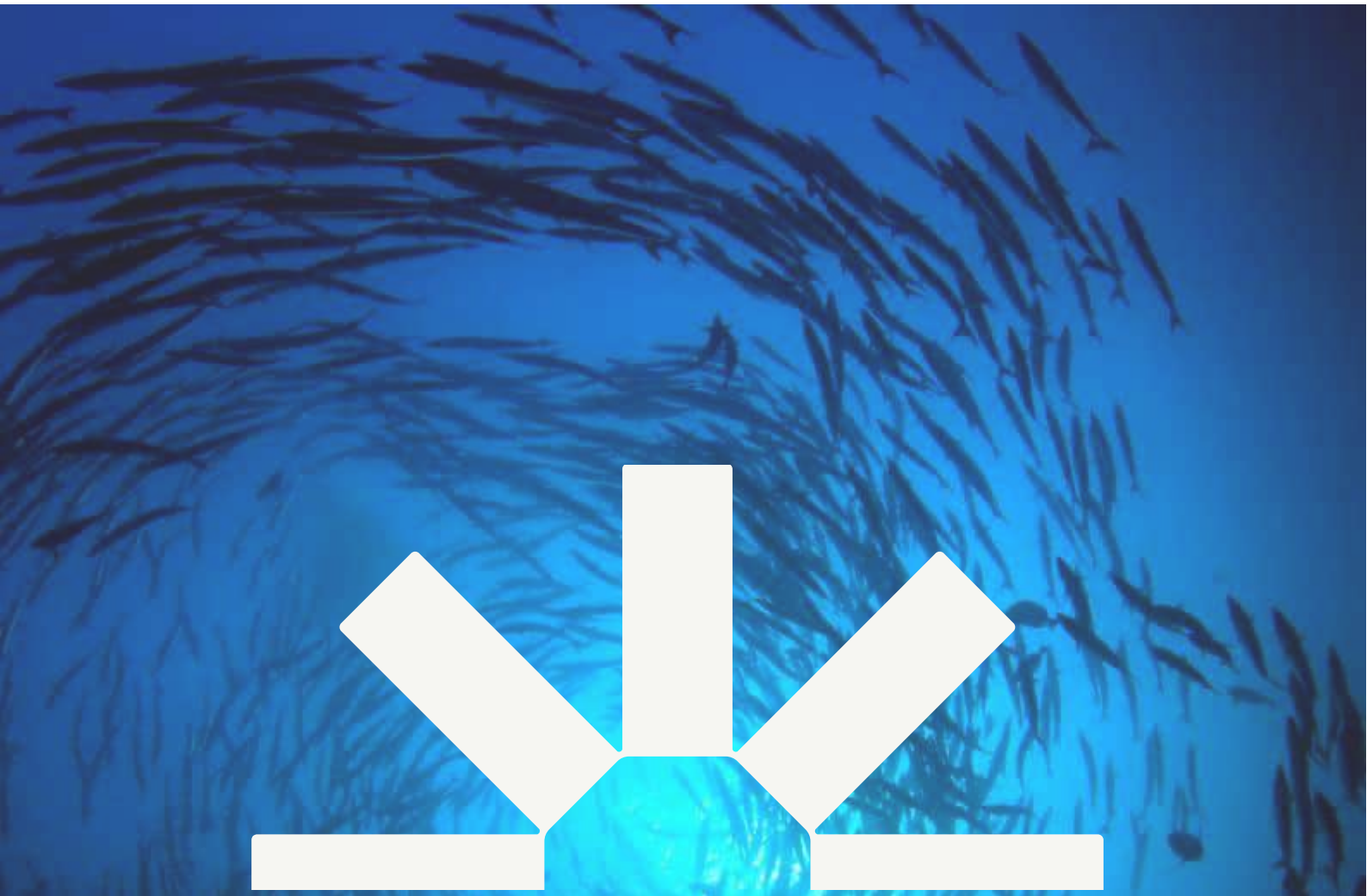
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## 10.0 Environmental and Social Management Programme

This chapter presents the ESMP prepared for the proposed exploration activities (as described in Section 5.0).

### 10.1 Introduction

#### 10.1.1 Scope and Objectives

The objectives of this ESMP include the following:

- Meet Namibian EIA legislation and international laws and conventions.
- Operationalise oil and gas industry good practices and the operator’s own project standards.
- Set out mitigation required to ensure the negative impacts associated with the proposed exploration activities (as assessed in Chapters 9) are avoided and, where they cannot be avoided, are minimised.
- Provide an implementation mechanism, by project phase, for project controls and mitigation measures identified in the ESIA Report (as presented in Sections 8.2, 8.3, 8.4 and 8.6).
- Establish a monitoring programme and record-keeping protocol against which the operator and its contractor’s/sub-contractor’s performance can be measured and to allow for corrective actions or improvements to be implemented when needed.
- Provide protocols for dealing with unforeseen circumstances or ineffective mitigation measures.

#### 10.1.2 ESMP Structure

Description of the structure and content of the ESMP is given in Table 10-1 below.

**Table 10-1 Description of the Structure and Content of the ESMP.**

Section	Contents
Section 10.1	<b>Introduction</b> Objectives and structure of the ESMP.
Section 10.2	<b>Summary of the Key Environmental and Social Sensitivities</b> Key sensitivities in the study area and implications for the project.
Section 10.3	<b>Supporting Documentation</b> Main documentation supporting the implementation of the ESMP.
Section 10.4	<b>Roles and Responsibilities</b> Key roles and responsibilities for the implementation and management of the ESMP.
Section 10.5	<b>Training, Awareness and Competency</b> Training and awareness provisions for the operator’s staff and Contractors involved in the project.
Section 10.6	<b>Compliance Verification and Corrective Actions</b> Inspections, monitoring and auditing requirements to ensure compliance with the



Section	Contents
	ESMP and implementation of corrective actions.
Section 10.7	<b>Management of Change</b> Procedure to be followed to respond to changes to the ESMP and/or drilling design.
Section 10.8	<b>Communication</b> Communication channels between the operator, the contractor(s) and external stakeholders.
Section 10.9	<b>Document Control and Reporting</b> Document control and reporting requirements (internal and external).
Section 10.10	<b>Environmental and Social Mitigation Management Commitment Register</b> Commitments that will be implemented to prevent, minimise or manage significant negative impacts and optimise and maximise any potential benefits of the project.

## 10.2 Summary of the Key Environmental and Social Sensitivities

Key sensitivities in the Project's area of influence are provided in Table 10-2 below.

**Table 10-2: Key Sensitivities in the Project's Area of Influence**

Receptor/ Variable	Key sensitivities in the area of influence
<b>1. Bio-physical considerations</b>	
Tripp Seamount	Tripp Seamount is located approximately 10 km to the south-east of Licence Block 2914A. This seamount is an important feature because it attracts an abundance of marine life and is a productive fishing ground.
Benthic Habitats and Species	The proposed drilling activities would be undertaken in the offshore marine environment (approximately 140 km offshore) within the Namib Biozone which extends beyond the shelf break onto the continental slope and into abyssal depths. This biozone is considered as 'Least Threatened'.
Marine Fauna	The taxa most likely to be encountered in the survey area are pelagic seabirds, turtles, and large migratory pelagic fish and cetaceans, some of which, potentially occurring in the survey area, are considered globally 'Critically Endangered' (e.g. Tristan Albatross, Leatherback Turtle, Whitetip Shark), 'Endangered' (e.g. Yellow-Nosed Albatross, Southern Bluefin Tuna, Dusky Shark, Longfin Mako Shark, Blue Whale, Humpback whales, Fin Whale and Sei Whale), 'Vulnerable' (e.g. Bigeye Tuna, Blue Marlin, Great White Shark, Shortfin Mako Shark, Sperm, and Bryde's) or 'Near threatened' (e.g., Blue Shark, Longfin).
MPAs and other conservation areas	License Block 2914A avoids MPA's but partially overlaps with the Orange Seamount and Canyon Complex-transboundary EBSA as well as the ESA bordering it.
<b>2. Socio-economic considerations</b>	
Fisheries	Fishing plays a significant role in providing livelihoods and income for communities living in and around Lüderitz and Walvis Bay. Four fishery sectors overlap with Licence Block 2914A, namely large pelagic long-line, demersal trawl, demersal



Receptor/ Variable	Key sensitivities in the area of influence
	longline and tuna pole line. All the other sectors, including the small-scale fisheries, fall outside the area of interest and zones of impact for normal operations (noise, sediment plume and safety zones).
Marine traffic	Most international shipping traffic is located on the outer edge of the continental shelf. Licence Block 2914A is located within a main traffic route that passes around southern Africa. .
Onshore logistics base	Lüderitz and Walvis Bay are established, well serviced, medium sized, industrial harbour towns. Walvis Bay is the most important harbour in Namibia. The towns and their associated facilities, including the port services and accommodation, are sufficiently developed and have the capacity to cater for development projects.
Tourism	Coastal tourism and recreational activities and services are found primarily in and around Lüderitz and further up the coast at Walvis Bay, Swakopmund and Henties Bay. It should be noted that the bulk of tourism and small-scale fishing takes place within 1 nm of the coast.
Intangible Cultural Heritage	With regard to the proposed project and Licence Block 2914A, no specific spiritual links have been found between indigenous communities and the sea. The known beliefs linked to water relates to rivers and not the Namibian offshore environment and no specific ritual practices linked to the coast are known. Similarly, no specific spiritual links have been found between Europeans resident along the coast of Namibia and the sea.

### 10.3 Supporting Documentation / Actions

This Section lists the plans / documents / actions that form part of the overall internal Health, Safety and Environment Management System (HSE-MS) and will be prepared in addition to the ESMP, but only prior to exploration being undertaken.

#### 10.3.1 Well Drilling Design

Rhino will develop and finalise the well drilling design, according to applicable policies, procedures, standards and guidelines, prior to going out for tender, including: well location, well depth, well architecture, fluid programme, onboard treatment, well abandonment strategy/plan, planning and logistic organisation, etc.

The well drilling details will be compiled into a notification document, which will be submitted to MME at least 30 days prior to mobilisation.

#### 10.3.2 HSE Plan

The purpose of the HSE Plan is to present its company HSE-MS applicable to the specific project.

It will detail the specificities and equipment related to the operations and associated environmental, socio-economic and health aspects, as well as the organisation supporting the project (objectives, resources, documentation, risk management and control, etc.). Part of this document are the aspects related to the management of air emissions, discharges to the sea, waste, spill and related logbooks.



All staff, contractors and sub-contractors are required to comply with this document when working on the project.

### **10.3.3 Project Plan**

Rhino will prepare a Project Plan, which deals with HSE aspects specific to the project (e.g., operation specificities, project ESIA main outcomes, specific Emergency Response Plan (ERP), waste management with local facilities, planning, organogram, local content etc).

### **10.3.4 HSE-MS Bridging Document**

Rhino will prepare a Bridging Document with their contractors and sub-contractors. This will provide, through dedicated key procedures, for effective interfacing of the HSE-MS used by the various companies involved in executing the work both on location and throughout the supply chain.

### **10.3.5 Contractor Kick-off Meeting and Crew Awareness**

The objective of the Kick-Off Meeting is to introduce the team, understand the project background, the key environmental and social sensitivities, what needs to be undertaken to mitigate risks and impacts, and also agree on how the work should be undertaken to ensure efficiency.

Prior to operation, as part of the kick-off meeting, Rhino on-board representative and/or contractor will present an HSE awareness introduction training to ensure the project personnel (including project vessels / drilling unit, etc. where applicable) are appropriately informed of the purpose and requirements of the overall HSE system and plan, including emergency procedures, spill management, etc., as well as the specificities of the project.

The information presented at the HSE training will be communicated by the contractors to any new staff coming onto site after the initial training course and to all suppliers.

### **10.3.6 Commitments Register**

Table 10-6 details the specific management commitments that will be implemented during all project phases (planning, mobilisation, operation and demobilisation) to prevent, minimise or manage significant potential negative impacts and optimise and maximise any potential benefits of the project.

### **10.3.7 Plans and Procedures**

This ESMP will form part of an overall HSE-MS which will be prepared before the start of the exploration campaign. It will include at least the documents listed below and will include all of the project controls and mitigation measures detailed in the Commitments Register (see Section 10.3.6).

#### **10.3.7.1 Shipboard Oil Pollution Emergency Plan (SOPEP)**

Before mobilisation to site, the drilling contractor will submit for approval to Rhino and MME a SOPEP and procedures to be implemented in the event of an accidental spill of oil (or other polluting substances) at sea.

This plan will notably require:



- The implementation of measures to immediately stop the spill (sealing the leak, repairing leaking tanks, etc.).
- Recovery of spilled fluids.
- The notification of Rhino and the Namibian authorities on the spill.
- The implementation of external response measures in the event of a large spill.

Any oil or chemical spills in water must be reported immediately to Rhino and regular updates must be sent during pollution clean-up operations.

The SOPEP will include procedures in line with international good practice for the accidental release of chemicals and fuels during exploration activities. The plan will include the following:

- Definition of roles and responsibilities.
- Identification of potential sources of accidental pollution (storage, use, etc.).
- Definition of design standards adopted to ensure the integrity and reliability of the equipment.
- Description of the security systems in place to prevent pollution.
- Inspection reports for the proper maintenance of safety equipment and systems.
- Procedures for handling chemicals and fuels to reduce the risk of accidental pollution (also refer to Section 10.3.7.7 for the Hazardous Substances Management Plan).
- An action plan with instructions for the oil pollution prevention team. This is a list of duties the crew members have to fulfil in case of a spill.

### 10.3.7.2 Emergency Response Plan (ERP)

Rhino holds the overarching ERP and any gaps with the contractor ERP (site specific) are addressed in a bridging document. The ERP will establish the procedures for addressing potential emergency situations (e.g., fuel / oil spill, injury, damage to or loss of company / private property or equipment, etc.) that could occur during the project at the various project sites. The ERP addresses these situations and provides information and direction for addressing the situation as quickly as possible.

The ERP will classify emergencies into severity levels and include emergency procedures that address the potential degrees of impact / risk relating to various scenarios (including well control incident, oil / chemical spill, explosion / fire, helicopter incident, vessel incident, man overboard / missing person, medical emergency, loss of office service and road transport incident):

- A low-level emergency (accident or incident) is one that can be handled at the site and involves no serious human injuries, no disruptions of operations and no publicity. There are no national or international implications.
- A moderate-level emergency (emergency) may involve a single serious injury, temporary disruption of operations, some publicity or the likelihood thereof, with possible implications at the national level.



- A high-level emergency (crisis) would involve one or more fatalities or multiple serious injuries, sustained disruption of operations, significant publicity or the certainty thereof, plus implications at the national and possibly international level. There might be a potential threat to the viability of a company.

### 10.3.7.3 Blow-Out Contingency Plan (BOCP)

The BOCP focuses on well control operations and will set out the detailed response plan and intervention strategy to be implemented in the event of a blow-out. It ensures response times are minimised and that the most efficient and effective contingency measures are implemented.

Since potential blow-outs and subsequent intervention techniques may be inherently different, it is impractical to cover all possibilities in a general contingency document. However, for rapid response, a structured organisational and technical guideline, with examples and trigger mechanisms, is essential. These will be detailed in the BOCP, which is an internal document.

### 10.3.7.4 Oil Spill Contingency Plan (OSCP)

As standard practice, an OSCP will be prepared for each drilling operation for approval by MME. The OSCP is the operational internal document prepared and aligned with local and national regulations, applicable international conventions and company rules. The primary objective of the OSCP is to identify all possible spill scenarios, level of response requirements and set in motion the necessary actions to stop any discharge of oil and to minimise its effects. It also:

- Provides an emergency notification system, including a standardised format for oil spill notification.
- Describes the escalation monitoring process from Tier 1 to Tier 2 and Tier 3 incidents (refer to Box 11-1).
- Outlines the system for command and control of the oil spill response operations and organisation.
- Provides checklists of actions for key personnel during an oil spill.
- Provides strategy and tactics to respond to the different types and levels of oil spills using local and international resources.
- Includes oiled wildlife emergency response measures.

Thus, the OSCP provides for a comprehensive response to all oil and chemical pollution emergencies in the marine environment regardless of how costs might be attributed or ultimately recovered. In updating the OSCP for each well, Rhino will review the capacity of local resources and, where necessary, it will be adjusted/made specific to local context and any short-comings in local resources will be addressed where required.

The OSCP will be periodically tested to ensure an effective and co-ordinated response to oil spill situations.



**BOX 10-1: TIERED PREPAREDNESS AND RESPONSE**

Oil spill response planning is based on the principle of a tiered response. Tiered Preparedness and Response gives a structured approach to both establishing oil spill preparedness and undertaking a response. It allows potential oil spill incidents to be categorised in terms of their potential severity and the capabilities that need to be in place to respond (IPIECA, 2007). Conventionally the concept has been considered as a function of size and location of a potential oil spill, with three tiers typically defined (see table below). Tier 1 being the lowest category of response and Tier 3 being the highest category requiring response from Government and international assistance.

Tier 1	Minor spills that are quickly controlled, contained and cleaned up using local (onsite or immediately available) company/contractor owned equipment and personnel resources. For offshore facilities, local resources could include those at the facility, or nearby support vessels or at a designated shore support base or staging area.
Tier 2	Tier 2 events are more diverse in their scale and by their nature involve potentially a broad range of impacts and stakeholders. Moderate spills, controlled or uncontrolled, requiring activation of significant regional oil spill response resources and all or most of the Spill Management Team. Tier 2 response resources are varied in their provision and application. Management responsibilities are usually shared in a collaborative approach and a critical feature is the integration of all resources and stakeholders in the response efforts.
Tier 3	Major spills, controlled or uncontrolled, requiring activation of large quantities and multiple types of response resources including those from out of the region, and possibly international sources. Tier 3 events are rare, but have the potential to cause widespread damage and affect many people. Tier 3 response resources are concentrated in a relatively few locations, held in readiness to be brought to the country when needed. Such significant events usually call for the mobilisation of very substantial resources and a critical feature is their rapid movement across international borders and the integration of all resources into a well-organized and coordinated response. The entire Spill Management Team will be required and will likely be supplemented by outside organisations.

**10.3.7.5 Stakeholder Engagement Plan**

**Objectives**

The Stakeholder Engagement Plan, prepared by Rhino, will provide the framework to ensure effective engagement with external stakeholders and detail the planning for information disclosure, stakeholder engagements and dealing with expectations / grievances. It will ensure that the right stakeholders are notified timeously about the project activities with information that is accurate and transparent. The plan will provide for stakeholder concerns and grievances to be responded to in an efficient and coordinated manner.

This plan will set out the specific measures to be taken to ensure the project is communicated to stakeholders and to minimise the potential negative impacts of the Project on human and socio-economic receptors, specifically:

- A public information and disclosure programme covering all Rhino activities and phases to ensure that the public are informed of the exploration activities (specifically onshore and nearshore activities).
- Management of community expectations related to local procurement, local content, and local employment opportunities.





- Establishment of a functional grievance mechanism that allows stakeholders to lodge specific grievances related to operation.

The aim of such engagement is to ensure open communication, direct communication and consistent communication with stakeholders that may be affected by operations.

### **Stakeholder Database**

A stakeholder database will be developed and maintained. At minimum, the database will contain the contact details of:

- Any person that submitted a request to be included in the database at any time.
- Any person that has submitted written comments or attended any public meetings.
- All organs of state which have jurisdiction in respect of the Project.

The database will be built on and customised to accurately cover the stakeholders of each activity. Any and all forms of correspondence between the Project and registered stakeholders will be recorded under a Stakeholder Database.

### **Notifications**

A public information and disclosure programme will be implemented to ensure stakeholders are regularly informed of exploration activities. This will support ongoing engagement and assist in drawing out any ongoing or new issues and concerns. Focus should be placed on the onshore logistics base location.

Notifications will provide the details and timing of the drilling, including amongst other:

- Notification to stakeholders (including local authorities, fishing associations, small-scale fisheries, indigenous groupings and leadership, civil society, etc.) prior to and after each drilling campaign.
- Notification during drilling via navigational warnings via Navigational Telex (Navtext) and twice daily on Channel 16 VHF; Call sign: ZSC.
- Meetings with stakeholders, as required.

### **Information Disclosure**

Rhino will disclose project information<sup>35</sup> containing all the relevant facts in a truthful and transparent manner. Through the disclosure, relevant information or documentation will be broadly available to stakeholders, including people with limited access to technology, education, or resources. At minimum this will include:

- Placing hardcopies of relevant documents at public venues at beneficiary communities.
- Placing hardcopies of relevant documents at municipal offices.
- Main documents will be prepared in English (as the official language).

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<sup>35</sup> Where information is deemed to be sensitive or private in nature, Rhino may elect to not release this information. Nevertheless, sufficient information will be provided for stakeholders to become aware and understand the components of the exploration so as to make informed comments and representations.



- Translation of key documents to local indigenous languages where required.
- Meetings with stakeholders, as required.
- Monitoring of and engaging with other vessels.

The drilling unit will be equipped with appropriate radar and communications to ensure that other vessels adhere to the safe operational limits. Other vessels (e.g., fishing, transport, etc.) will be alerted about the drilling operation.

Any fishing vessels at a radar range of 24 nm from the drilling unit will be notified via radio regarding the safety requirements around the vessel / drilling unit.

### **Concerns and Grievances Management**

Rhino is committed to ensure stakeholders have access to an effective Grievance Mechanism and will, prior to commencement of operations, implement a grievance procedure detailing how to manage stakeholder grievances related to negative or perceived negative impacts caused by Project related activities. This procedure will protect the complainant's rights to access to information, access to the grievance procedure, and the right to have one's confidentiality and/or anonymity protected, if requested.

This grievance procedure will be promoted among external stakeholders through different possible access points and communication means (Rhino grievance administrator, toll free number, web page, email, complaint boxes, posters and leaflets, etc).

The key steps of the process consists of:

- Receiving and registering the grievance;
- Acknowledgement of the grievance received and informing stakeholders about the follow-up actions;
- Assessing and investigating the grievance;
- Proposing a solution;
- Implementing the solution when the solution is approved by the complainant; and
- Closing-out the grievance when no further action is required.

After a solution is proposed to the complainant, different levels of resolution are possible, depending on the acceptance of the solution by the complainant, until a final solution is satisfactory and accepted. Rhino will appoint a Grievance Management Committee to support the resolution process internally and may require support from an external party in some cases.

Rhino will ensure the complainant is informed and involved all along the resolution process.

All grievances will be documented to ensure they are handled properly and within the timeframe described in the procedure. It must also reflect that Human Rights have been respected all along the process.



### 10.3.7.6 Waste and Emissions Management Plan

#### Objectives

The Waste Management Plan establishes procedures for the storage, collection, management, and disposal of waste, including air emissions, liquid and solid waste (hazardous and non-hazardous wastes). Certain waste will be treated and disposed of offshore, while other waste will be transported ashore. The plan will, therefore, describe the procedures to be followed to ensure the treatment, transfer and/or disposal of waste both offshore and onshore.

#### Compliance with International Conventions

The drilling unit and all project vessels will have equipment, systems and protocols in place for prevention of pollution by oil, sewage and garbage in accordance with the MARPOL convention. MARPOL 73/78 was developed by the IMO with an objective to minimise pollution of the oceans and seas, including dumping, oil and air pollution.

Specific MARPOL requirements are included in the detailed Environmental and Social Mitigation Management Commitment Register (see Section 10.10).

#### Waste Management General Principles

Waste management during the drilling campaign will be planned in accordance with the waste prevention and management principles described in Table 10-3.

**Table 10-3: Waste Prevention and Management Principles**

PRINCIPLE	RULES TO BE IMPLEMENTED
Minimisation of waste generated	<ul style="list-style-type: none"> <li>In the Project supply policy, select the equipment and supplies that generate the least waste (by minimising packaging).</li> <li>Select the equipment and supplies that generate the least hazardous waste.</li> </ul>
Storage security	<ul style="list-style-type: none"> <li>The waste will be handled and stored according to its nature and its risk class, in compliance with hygiene and safety rules.</li> <li>A waste storage area will be defined on the drilling unit and project vessels, and at the logistics base. Compatible waste will be stored together.</li> <li>Any hazardous waste will be stored separately, on retention. The area will be adequately ventilated if the waste is flammable.</li> <li>Access to waste storage areas will be controlled.</li> <li>The waste storage areas will be kept in good order and clean.</li> </ul>
Waste management hierarchy	<p>Waste will be managed by applying the following order of priority:</p> <ul style="list-style-type: none"> <li>Avoid generating waste.</li> <li>Minimise the generation of waste.</li> <li>Reuse waste (especially for reusable non-hazardous waste).</li> <li>Recycle waste.</li> <li>Onboard treatment and incineration (when relevant and authorised).</li> <li>Dispose of waste in compliance with applicable regulations and rules of good practice.</li> </ul>
Recording and monitoring of	<ul style="list-style-type: none"> <li>A register of the waste generated will be kept up to date in order to identify the nature and quantity of the waste generated, ensure its traceability, and</li> </ul>



PRINCIPLE	RULES TO BE IMPLEMENTED
waste generated	identify if possible, the types of waste that can be avoided. <ul style="list-style-type: none"> <li>• This register will include monitoring of waste evacuated ashore and their disposal, specifying the providers mandated for their management, the disposal method agreed. The transfer and waste disposal forms and certificates will be kept for traceability.</li> </ul>
Staff training	The workforce will be trained on: <ul style="list-style-type: none"> <li>• Waste management.</li> <li>• Protection of the environment and the impacts associated with poor waste management, and how to avoid these impacts.</li> <li>• Promoting the reuse and recycling of waste.</li> <li>• Treatment of waste in accordance with the management plan by type and risk class.</li> <li>• Adopting the necessary safety measures when handling hazardous waste.</li> <li>• Keeping and maintaining traceability records.</li> </ul>

### Management of Discharge and Emissions

The Waste, Emissions and Discharge Management Plan will also provide for the management of discharges linked to activities. The plan will include procedures that comply with national regulations and international good practice guides. The plan will include the following:

- Identification and characterisation of discharges and emissions.
- Definition of qualitative and quantitative treatment objectives for discharges and emissions.
- Definition of responsibilities for the measurement, recording and reporting of discharge / emission characteristics.
- Definition of resources, tools and methods to be used to measure, record and report discharges and emissions.
- Definition of the means (equipment and procedures) used to treat these discharges and emissions in accordance with the defined limits.

### Monitoring Requirements

Monitoring requirements are presented in Section 10.6.1.

#### 10.3.7.7 Hazardous Substances Management Plan

A Hazardous Substances Management Plan will be developed by the contractor to detail the measures to minimise potential pollution. The plan will be applied to all phases of the Project and will include all hazardous products used during the Project, including drilling fluids and cement used during well drilling. The Hazardous Substances Management Plan is based on the principles of life cycle assessment. A standard plan will include:

- Inventory of chemical products (identification, classification, quantification and method of delivery);



- Product properties (dangerousness, toxicity, health and safety recommendations) based on product safety sheets (Safety data sheets, eco-toxicological data);
- Evaluation of the use of alternative products;
- Storage and handling procedures including personal protective equipment for personnel;
- Emergency procedures;
- Evaluation of recycling possibilities; and
- Disposal procedures for unused products (return to the supplier for example).

#### **10.3.7.8 Preventive Maintenance Plan**

A Preventive Maintenance Plan will be available on board the drilling unit and all project vessels in order to minimise the risk of mechanical failure likely to lead to reduced efficiency (e.g., sewage treatment plan, incinerator, macerator/grinder, oil/water separator, etc.) and other unplanned events (e.g., oil leaks or diesel spills). Control and maintenance procedures will be implemented at regular intervals by the various service providers.

This plan will provide for the implementation of leak detection and maintenance programmes for:

- Valves, flanges, fittings, seals, hydraulic systems, hoses, etc;
- All diesel motors and generators receive adequate maintenance to minimise soot and unburnt diesel released to the atmosphere; and
- Waste treatment facilities, e.g., sewage treatment plan, incinerator, macerator/grinder, etc.

This plan will also detail the procedure to follow if certain facilities (e.g., oil/water separator) are not available due to maintenance or overload.

This plan will also ensure that all equipment (e.g., wellheads, BOPs, etc.) that has been used in other regions is thoroughly cleaned prior to deployment.

#### **10.3.7.9 Ballast Water Management Plan**

Ballast water discharge will follow the requirements of the IMO 2004 International Convention for the Control and Management of Ships' Ballast Water. All ships engaged in international traffic are required to manage their ballast water to a certain standard, according to a ship-specific Ballast Water Management Plan. This plan deals with the ballast water management system on each of the project vessels, including how it operates and procedures for monitoring and reporting, including ballast logbook.

#### **10.3.7.10 Corrective Action Plan**

Events (incidents / accident) will undergo a root cause analysis, while non-compliances identified during audit findings (see Section 10.6.2) will be investigated to identify underlying causes to non-compliance situations and then rectified. Management actions will be taken to correct the underlying causes behind the audit findings and improvements will be made before another audit is conducted. This audit process allows for problems to be corrected, compliance to be improved and prevention of the same findings during subsequent audits.



Where corrective actions are deemed necessary, specific measures will be developed, with designated responsibility and timing, and implemented. In this way, continuous improvement in performance will be achieved. Corrective actions will be captured in a Corrective Action Plan, which will document the actions to correct an issue, problem, non-compliance or underperformance. It is essentially a plan to improve performance and/or reduce risk.

## 10.4 Roles and Responsibilities

The project will have dedicated, competent personnel that will manage and oversee the HSE aspects over the project lifecycle. Rhino, as operator of the block, will retain the primary responsibility for meeting environmental and social commitments throughout the project life span.

The key HSE management roles and responsibilities supported by a project specific organogram will be defined by the drilling contractor and validated by the operator prior to the commencement of any exploration activities.

### 10.4.1 Rhino

Rhino will be responsible for the overall implementation of the ESMP and meeting the environmental and social commitments. Rhino maintains responsibility for exploration activities and the management of any contractors and sub-contractors, and will have the following key responsibilities:

- Ensure that all contractors and subcontractors adhere to the ESMP, as stipulated in appointment contracts.
- Ensure that sufficient resources are deployed in order to efficiently implement this ESMP.
- Ensure the contractors implement the ESMP and any additional approval conditions contained in the ECC issued by MEFT.
- Ensure that environmental audits are undertaken to measure compliance with the agreed environmental performance objectives.
- Ensure that environmental monitoring and reporting are undertaken by all contractors.
- Ensure that personnel with responsibilities (e.g., MMOs, PAM operators, etc.) are adequately trained and experienced and are supported with essential resources.
- Conduct monitoring, auditing and implement corrective actions as per the requirements of the ESMP.
- Engage with MME, MEFT and relevant stakeholders when necessary at key stages of the project.
- Coordinating with contractors to ensure that key stakeholders are timely informed about the project activities, and that concerns and questions are responded to and grievances are managed properly, as per the Stakeholder Engagement Plan.
- Appoint a Rhino representative onboard the drilling unit to ensure compliance with the various commitments and supervise contractor coordination, especially with MMO and PAM personnel.



- Establish and maintain a functional grievance mechanism that allows stakeholders to submit specific grievances related to operations, by ensuring they are informed about the process and that resources are mobilized to manage the resolution of all grievances.

#### **10.4.2 Drilling Contractor**

The drilling contractor appointed by Rhino shall be responsible for the drilling unit. All regulatory requirements and obligations endorsed by Rhino shall apply to the contractors and any sub-contractors. Rhino shall inform the contractors of these obligations in the appointment contract.

The contractor shall:

- Be responsible for and convey the requirements of the ESMP to all staff and any sub-contractors (including MMOs, PAM operators and other subcontractors, e.g., support vessels, helicopter, emergency support, catering, etc.), and ensure that they comply with their obligations.
- Ensure that all staff are given an environmental and social induction and that further training is undertaken at crew changes.
- Be responsible for ensuring the health and safety of all personnel on the drilling unit and project vessels.

#### **10.4.3 Marine Mammal Observers**

MMOs must have the following qualifications / experience:

- Experience in seabird, turtle, large pelagic fish and marine mammal identification and observation techniques.
- Certification from the Joint Nature Conservation Committee (JNCC) or an equivalent body, e.g., Bureau of Ocean Energy Management (BOEM).
- The lead MMO should have an appropriate graduate degree and relevant seafaring experience.
- Safety certificate (BOSIET or equivalent).
- Medical certificate (OGUK, ENG1 or equivalent).

The MMO shall have the following responsibilities during VSP operations:

- Provide effective regular briefings to crew members, and establish clear lines of communication and procedures for onboard operations.
- Record airgun activities, including sound levels, “soft-start” procedures and pre-firing regimes.
- Observe and record responses of marine fauna to VSP operations from optimum vantage points, including penguin, large pelagic fish (e.g., shoaling tuna, sunfish, sharks), turtle and cetacean incidence and behaviour and any mortality or injuries of marine fauna as a result of VSP operations. Data captured should include species identification, position (latitude/longitude), distance/bearing from the drilling unit, swimming speed and direction (if applicable) and any obvious changes in behaviour



(e.g., startle responses or changes in surfacing/diving frequencies, breathing patterns) as a result of the VSP activities. Both the identification and the behaviour of the animals must be recorded accurately along with current VSP sound levels. Any attraction of predatory seabirds, large pelagic fish or cetaceans (by mass disorientation or stunning of fish as a result of VSP activities) and incidents of feeding behaviour among the hydrophone streamers should also be recorded.

- Record meteorological conditions at the beginning and end of the observation period, and whenever the weather conditions change significantly.
- Request the delay of start-up or temporary termination of VSP operations, as appropriate. It is important that MMO decisions on the termination of firing are made confidently and expediently, and following dialogue between the observers on duty at the time. A log of all termination decisions must be kept (for inclusion in both daily and “close-out” reports).
- Use a recording spreadsheet (e.g., JNCC, 2017) in order to record all the above observations and decisions.
- Prepare a close-out report summarising the findings of the MMO observations with the records database appended.

#### 10.4.4 PAM Operators

PAM operators must have the following qualifications/experience:

- Experience in marine mammal detection and identification techniques.
- Experience in appropriate deployment of PAM equipment.
- Certification from JNCC or an equivalent body (e.g., BOEM)
- The lead PAM operator should have an appropriate training certificate and relevant seafaring experience.
- Safety certificate (BOSIET or equivalent).
- Medical certificate (OGUK, ENG1 or equivalent).

The PAM operator will have the following responsibilities during VSP operations:

- Provide effective regular briefings to crew members, and establish clear lines of communication and procedures for onboard operations.
- Ensure that the PAM hydrophone cable is optimally placed, deployed, tested and repaired / replaced (when necessary) for acoustic detections of marine mammals.
- Recording all airgun activities, including timeline log, sound levels, “soft-start” procedures and pre-firing regimes.
- Confirm that there is no marine mammal activity within 500 m of the airgun array prior to commencing with “soft-start” procedures.
- Record species identification, position (latitude/longitude), distance and bearing from the vessel and acoustic source, where possible.
- Record general environmental conditions.





- Request the delay of start-up and temporary shut-down of VSP operations, as appropriate.

## 10.5 Training, Awareness and Competency

Rhino and the contractor will implement environmental awareness and training and ensure the competency of staff with responsibilities in terms of the ESMP.

Rhino will, at the Drill Well on Paper (DWOP), Pre-spud meeting and Test Well on Paper (TWOP), highlight the contractor's responsibility in terms of identifying, planning, monitoring, and recording the training needs of personnel whose work may have a significant adverse impact upon safety, the environment and in the community. Employees at all levels will be made aware of the potential impacts of their activities, and the roles and responsibilities in achieving conformance with the ESMP and internal policy and procedures.

The personnel with responsibilities in specific HSE practices will be adequately trained to ensure effective implementation of the work instructions and procedures for which they have responsibilities. This training will include awareness and competency with respect to the following:

- General awareness relating to exploration activities, including environmental and social impacts that could potentially arise from project activities.
- Legal requirements in relation to safety and environmental performance.
- Necessity of conforming to the requirements of the ECC and ESMP, including reporting requirements (i.e. such as incident reporting).
- Activity-specific training (i.e. waste management practices, grievance management).
- Roles and responsibilities to achieve compliance, including change management and emergency response.
- Roles and responsibilities to achieve compliance, including change management and emergency response.

Training will take cognisance of the level of education, designation and language preferences of the personnel.

The appointed contractor (and any sub-contractors) will also be required to institute training programmes for its personnel. The contractor will be responsible for site HSE awareness training for personnel working on the project and for identification of any additional training requirements to maintain required competency levels.

The contractor training programme will be subject to approval by the operator, and it will be audited to ensure that:

- Training programmes are adequate and all personnel requiring training have been trained; and
- Competency is being verified.

## 10.6 Compliance Verification and Corrective Actions

Monitoring and auditing will be undertaken to confirm adequate implementation of the ESMP, as well as the effectiveness of mitigation measures in avoiding or minimising



impacts. Rhino's and contractor's HSE staff will implement a formal tracking procedure for investigating cause and identifying corrective actions in response to accidents, HSE and/or social non-compliances. Corrective actions include those intended to improve performance, non-compliances and non-conformances.

### 10.6.1 Monitoring

Monitoring will be conducted to ensure compliance with regulatory requirements and the performance objectives specified in the ESMP, as well as to evaluate the effectiveness of operational controls and mitigation measures. Monitoring will include, but not limited to, those criteria listed in Table 10-1, which must be reviewed and updated to incorporate any additional aspects that may need to be monitored.

The main objectives of the monitoring programme include:

- Gathering, recording and analysing data required for regulatory and ESMP purposes.
- Verifying the predictions and conclusions made in the ESIA Report.
- Identifying changes in the physical, biological and social environment.
- Producing information to evaluate environmental performance specified in the ESMP.
- Producing information about emergencies that require an immediate response.
- Obtaining information on the actual and potential environmental and social impacts of exploration activities.
- Using monitoring results as a source of information and as grounds for decision making regarding the design of new mitigation measures.
- Describing whether and to what extent discharges from exploration activities have had impacts on the marine environment.

As a general approach, Rhino will ensure that all monitoring programmes comprise the following:

- A formal procedure.
- Use of appropriately calibrated equipment.
- The date, time and monitoring point of each sample is to be recorded.
- Where samples require analysis, these will be preserved according to laboratory specifications.
- Accredited laboratories will be used to undertake sample analyses and/or internal laboratory results will periodically be checked by independent and accredited laboratories.
- Analysis, where relevant, must be carried out in accordance with methods prescribed by the Namibian National Standards, in terms of the Standards Act, 2005 (No. 18 of 2005) or similar.
- Monitoring data will be stored in an appropriate database.
- Data will be interpreted and reports on trends in the data will be compiled on a regular basis.



- Both the data and the reports will be kept on record for the duration of operations.

### **10.6.2 Auditing**

Contractors will be required to conduct routine HSE inspections (internal and independent audits) to monitor compliance and implementation of conditions stipulated in this ESMP. The results of the inspection and monitoring activities will be reported to the operator (Rhino).

Beyond the routine inspection and monitoring activities conducted by the contractors, formal audits will be carried out internally by Rhino's on-board HSE representatives to determine the level of compliance with the ESMP and its own HSE standards and policies. The audit data will include the contractor's monitoring and inspection records.

The audit will include amongst other things, checking:

- Completeness of HSE documentation, including planning documents and inspection records.
- Conformance with monitoring requirements.
- Efficacy of activities to address any non-conformance with monitoring requirements.
- Training activities and record keeping.

Findings will be documented in audit reports, which will be submitted to the relevant Manager for action and follow-up.



**Table 10-4: Monitoring Requirements**

No.	Risk	Criteria to be monitored	Inspections	Accountability (indicative)
<b>M1</b>	<b>Waste and Emissions Management Plan</b>			
M1-1	Galley waste and air emissions	<ul style="list-style-type: none"> <li>Type and volume of waste discharged/incinerated</li> <li>Estimate volume of air emissions from incineration</li> </ul>	Recorded daily in the operational log inspection	Contractors (Vessel Captain / Offshore Installation Manager)
M1-2	General waste	<ul style="list-style-type: none"> <li>Type and volume of waste generated daily</li> <li>Location of waste discharged</li> <li>Type and volume transferred for onshore disposal and possibly incinerated</li> <li>Compliance with Waste Management Plan</li> </ul>	Prior to waste transfers to supply vessel / port	Contractor (Vessel Captain)
M1-3	Hazardous waste	<ul style="list-style-type: none"> <li>Type and volume of waste generated</li> <li>Volume transferred for onshore disposal</li> <li>Compliance with Waste Management Plan</li> </ul>	Prior to waste transfers to supply vessel / port	Contractors (Vessel Captain / Offshore Installation Manager)
M1-4	Fuel usage and air emissions	<ul style="list-style-type: none"> <li>Type and volume on board</li> <li>Type and volume consumed</li> <li>Air emissions from fuel combustion, including CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> levels</li> </ul>	Daily operational log inspection Fuel transfer log sheet	Contractors (Vessel Captain / Offshore Installation Manager / Pilot)
M1-5	Sewage	<ul style="list-style-type: none"> <li>Discharge volumes</li> <li>Residual chlorine concentration</li> </ul>	Recorded daily in the operational log inspection	Contractors (Vessel Captain / Offshore Installation Manager)
M1-6	Drilling fluids (WBM)	<ul style="list-style-type: none"> <li>Volume on board drilling unit</li> <li>Volume used</li> <li>Volume discharged</li> <li>Toxicity, barite contamination and zero oil content</li> <li>Residual muds sent to shore (at end of drilling)</li> </ul>	Recorded daily in the operational log inspection	Contractors (Offshore Installation Manager)
M1-7	NADF fluids and	<ul style="list-style-type: none"> <li>Volume on board drilling unit</li> <li>Volume used</li> </ul>	Recorded daily in the operational log inspection	Contractors (Offshore Installation Manager)



No.	Risk	Criteria to be monitored	Inspections	Accountability (indicative)
	associated drill cuttings	<ul style="list-style-type: none"> <li>Volume discharged or shipped to shore</li> <li>Oil content in drill cuttings (&lt;6.9% oil on cuttings)</li> <li>Gamma ray results to assess radioactivity if the risk of radioactivity exists</li> </ul>		
M1-8	Cement	<ul style="list-style-type: none"> <li>Volume used (total volume, including volume discharged onto seabed)</li> <li>Pressure testing on abandonment cement plugs</li> </ul>	During cementing operations using ROV	Contractors (Offshore Installation Manager)
M1-9	Flaring	<ul style="list-style-type: none"> <li>Record daily flare and cumulative flare volumes</li> <li>Continuous visual monitoring of the flare for security, malfunctioning and efficiency</li> <li>Record Air emissions from flaring, including CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> levels</li> </ul>	During flaring	Contractor (Offshore Installation Manager)
M1-10	Produced water	<ul style="list-style-type: none"> <li>Discharge volume or volume sent for onshore treatment</li> <li>Oil content in produced water</li> </ul>	During produced water discharge	Contractor (Offshore Installation Manager)
<b>M2</b>	<b>Preventive Maintenance Plan</b>			
M2-1	Deck drainage/ machinery space/ bilge water	<ul style="list-style-type: none"> <li>Correct operation of oil separating / filtering equipment and oil content meter (compliance with MARPOL 73/78 standards)</li> <li>Oil in water concentration in normal discharges (not produced water) &lt;15 ppm prior to discharge overboard</li> </ul>	Prior to drilling and once during campaign	Contractors (Vessel Captain / Offshore Installation Manager)
M2-2	Sewage discharge	<ul style="list-style-type: none"> <li>Correct operation of sewage treatment system (compliance with MARPOL 73/78 standards)</li> <li>BOD of &lt;25 mg/l (if the treatment plant was installed after 01/01/2010,) or &lt;50 mg/l (if installed before 01/01/2010)</li> <li>Sewage Certificate</li> </ul>	At start and once during campaign	Contractors (Vessel Captain / Offshore Installation Manager)
M2-3	Galley waste and air emissions	<ul style="list-style-type: none"> <li>Correct operation of macerator</li> </ul>	At start and once during campaign	Contractors (Vessel Captain / Offshore Installation Manager)



No.	Risk	Criteria to be monitored	Inspections	Accountability (indicative)
M2-4	Equipment fouling	<ul style="list-style-type: none"> <li>Ensure all equipment (e.g., wellhead, BOP, etc.) that has been used in other regions is thoroughly cleaned prior to deployment.</li> </ul>	Prior to deployment	Contractors (Vessel Captain / Offshore Installation Manager)
M2-5	Lighting	<ul style="list-style-type: none"> <li>Ensure lighting on the drilling unit and project vessels is reduced to a minimum compatible with safe operations whenever and wherever possible.</li> </ul>	At start and once during campaign	Contractors (Vessel Captain / Offshore Installation Manager)
M2-6	Cranes	<ul style="list-style-type: none"> <li>Ensure loads are lifted using the correct lifting procedure and within the maximum lifting capacity of crane system.</li> </ul>	Prior to lifting operations	Contractors (Vessel Captain / Offshore Installation Manager)
M2-7	Emissions	<ul style="list-style-type: none"> <li>Ensure diesel motors and generators are in good working order to minimise soot and unburnt diesel released to the atmosphere.</li> </ul>	Ad hoc during operation	Contractors (Vessel Captain / Offshore Installation Manager)
<b>M3</b>	<b>Biodiversity Management (as per Drilling Programme)</b>			
M3-1	Sensitive seabed structures	<ul style="list-style-type: none"> <li>Hard substrate and rocky outcrops mapping within 200 m of a proposed well site</li> <li>Type and quantity of benthic biota</li> </ul>	ROV inspection prior to drilling	Contractor (Offshore Installation Manager) Expert review of ROV footage
M3-2	Fauna interaction	<ul style="list-style-type: none"> <li>Presence of marine faunal activity (cetaceans, penguins, shoaling large pelagic fish or turtles) within 500 m radius of the vessel prior to commencing with the “soft-start” procedures (visually during the day) and during VSP operations</li> <li>Record airgun activities, including sound levels, “soft-start” procedures and pre-firing regimes</li> <li>Species, position (latitude/longitude) and distance from the vessel, where</li> </ul>	During VSP operations	Marine Mammal Observer (MMO)



No.	Risk	Criteria to be monitored	Inspections	Accountability (indicative)
		possible <ul style="list-style-type: none"> <li>Responses of marine fauna to VSP operations</li> <li>A log of all VSP activity and shut-down decisions</li> </ul>		
M3-3		<ul style="list-style-type: none"> <li>Presence of cetacean activity detected by PAM within 500 m radius prior to commencing with the “soft-start” procedures and during operations (subject to risk assessment)</li> <li>Species, position (latitude/longitude) and distance from the vessel, where possible</li> <li>A log of all VSP (seismic) activity and shut-down decisions</li> </ul>	During VSP operation (at night and periods of poor visibility)	Passive Acoustic Monitoring (PAM) Operator
<b>M4</b>	<b>Stakeholder Engagement Plan</b>			
M4-1	Grievances	<ul style="list-style-type: none"> <li>Registering of all grievances, solution and outcome</li> </ul>	Continuous throughout operations	Rhino
<b>M5</b>	<b>Emergency Response Plan, SOPEP, OSCP and BOCIP</b>			
M5-1	Faunal Strikes	<ul style="list-style-type: none"> <li>Vessel transit speed between the drill site and port - 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), as well as when sensitive marine fauna are present in the vicinity</li> </ul>	Continuous during transit	Vessel Captains
M5-2	Lost equipment	<ul style="list-style-type: none"> <li>Scan seafloor for any dropped equipment around the well site</li> <li>Retrieve these objects, where practicable, after assessing the safety and metocean conditions</li> </ul>	Prior to drilling unit leaving site using ROV	Contractor (Offshore Installation Manager)
		<ul style="list-style-type: none"> <li>Establish a hazards database listing:                             <ul style="list-style-type: none"> <li>&gt; the type of gear lost / left on the seabed</li> <li>&gt; date of abandonment/loss</li> <li>&gt; location</li> <li>&gt; where applicable, the dates of retrieval</li> </ul> </li> </ul>	Ongoing through daily operational log and incident reporting system	Contractors (Vessel Captain / Offshore Installation Manager)
M5-3	Oil / fuel spill	<ul style="list-style-type: none"> <li>Bunkering operations log</li> </ul>	During bunkering	Contractors (Vessel



No.	Risk	Criteria to be monitored	Inspections	Accountability (indicative)
		<ul style="list-style-type: none"> <li>Weather conditions and sea state during bunkering operations</li> </ul>		Captain / Offshore Installation Manager)
M5-4	Oil / fuel spill	<ul style="list-style-type: none"> <li>Record of all spills (Incident Register), including spill reports and use of dispersants; emergency exercise reports; contacts update, audit reports</li> </ul>	Ongoing through daily operational log and incident reporting system	Contractors (Vessel Captain / Offshore Installation Manager)
M5-5	Blow-out	<ul style="list-style-type: none"> <li>BOP certifications / tests</li> <li>Emergency response equipment availability</li> </ul>	At start of campaign	Offshore Installation Manager
<b>M6</b>	<b>Ballast Water Management Plan</b>			
M6-1	Ballast water	<ul style="list-style-type: none"> <li>Volume discharged and location (start and finish coordinates)</li> <li>Uptake volumes and location (start and finish coordinates)</li> <li>Start and finish times for pumping water during an exchange</li> <li>Actual pumping times</li> <li>Residual volume remaining in the tank at the end the empty cycle prior to refill (empty refill method only)</li> </ul>	During and after de-ballasting	Contractor (Offshore Installation Manager)
<b>M7</b>	<b>Hazardous Substances Management Plan</b>			
M7-1	Chemicals and hazardous materials	<ul style="list-style-type: none"> <li>Volume stored</li> <li>Volume consumed</li> </ul>	Routine operational inspection of the: <ul style="list-style-type: none"> <li>Storage area</li> <li>Management and transfer procedures</li> <li>Log sheet update</li> </ul>	Contractors (Vessel Captain / Offshore Installation Manager)
M7-2	Radioactive sources	<ul style="list-style-type: none"> <li>Test to determine leak levels</li> <li>Record sources lost down hole</li> </ul>	At start and once during campaign	Contractor (Offshore Installation Manager)
M7-3	Accidental oil and chemical spills	<ul style="list-style-type: none"> <li>Type of chemical spilled</li> <li>Volume</li> </ul>	Ongoing through daily operational log and incident reporting system	Contractors (Vessel Captain / Offshore Installation Manager)





### 10.6.2.1 Audit Methodology

An audit methodology, programme and protocol will be developed for the internal audits and the external ESMP close-out compliance audits. These audits are an integral part of the implementation of the ESMP and audit findings can be used as a basis to measure compliance and confirm the efficacy and efficiency of the mitigation measures. The proposed approach to auditing consists of four basic steps:

- Planning the audit.
- Conducting the audit.
- Producing audit findings (measuring compliance and identifying problems).
- Reporting audit findings for management action.

A four-level rating scale is proposed to assess the performance of the ESMP against each individual element. Elements are rated individually as “full compliance”, “partial compliance”, “non-compliance” or “not applicable” as per the Table 10-5 below.

**Table 10-5: Audit Rating Scale**

<b>Full compliance</b>	All of the requirements of the ESMP element have been fulfilled. Element has been documented and monitored and upon verification is found to be fully implemented.
<b>Partial compliance</b>	Only certain elements of the key requirements have been fulfilled and a plan is in place to progress to full compliance. Element has been documented and monitored but not consistently or completely implemented.
<b>Non-compliance</b>	The requirements of the ESMP have not been fulfilled. No evidence or incomplete evidence of compliance.
<b>Not applicable</b>	The ESMP elements are not applicable.

### 10.6.3 Corrective Actions

Rhino’s and contractor’s HSE staff will implement a formal non-compliance and corrective action tracking procedure for investigating cause and identifying corrective actions in response to accidents, HSE and/or social non-compliances.

Audit findings will undergo a root cause analysis to identify underlying causes to non-compliance events. Management actions will be taken to correct the underlying causes behind the audit findings and improvements will be made before another audit is conducted. This process allows for problems to be corrected, compliance to be improved and prevention of the same findings during subsequent audits.

Where corrective actions are deemed necessary, specific measures will be developed and documented in a Corrective Action Plan, with designated responsibility and timing, and implemented. In this way, continuous improvement in performance will be achieved.

Rhino’s and contractor’s HSE staff will be responsible for keeping records of corrective actions and for overseeing the modification of environmental or social protection procedures and/or training programmes to avoid repetition of non-conformances and non-compliances.



## 10.7 Management of Change

The development and implementation of the ESMP is an ongoing process that is iterative in nature. This document must thus be seen as a 'living' document and amendments may need to be implemented during the project. Typical changes that can affect the ESMP include:

- A material project design change that occurs after the ESMP has been compiled and approved.
- Changes in the feasibility/availability of specific mitigation measures.
- Personnel changes and/or planning on the project.
- Equipment failure during the survey or drilling.

This document is the first version of the ESMP. Certain aspects of this document may be expanded/made more specific during the detailed design stage to ensure, firstly, that it includes all conditions of approval and, secondly, that it addresses all impacts related to the detailed design. It may also need to be amended if audit findings indicate:

- Insufficient mitigation of environmental impacts associated with the undertaking of the activity; or
- Insufficient levels of compliance with the ECC or ESMP.

These changes will be subject to a management of change procedure. Further detail on the management of change procedure, including levels of change and associated actions, is presented in Section 3.5.

## 10.8 Communication

### 10.8.1 Internal Communication

Channels of communication will be established between Rhino, the contractors, project personnel (e.g. MMOs and PAM operators) and external stakeholders. Rhino will establish and implement procedures for internal communication between the various levels and functions of the project staff organisation.

### 10.8.2 Stakeholder Engagement

As noted in Section 10.3.7.5, a Stakeholder Engagement Plan will be developed and implemented.

A grievance procedure will also be established and implemented (see Section 10.3.7.5).

### 10.8.3 Authority Communication

A notification document with well drilling details must be submitted to MME and MEFT at least 30 days prior to mobilisation.

Rhino will submit an ESMP close-out compliance report to the Competent Authority (MME) within 90 days of the end of each drilling campaign (see Section 10.9.4).



## 10.9 Document Control and Report

### 10.9.1 Documentation

Rhino will control HSE documentation, including project licences, approvals, management plans, associated procedures, checklists, forms, audits, and reports, through a formal procedure. The document control procedure will describe the processes that the project will employ for official communication of both hardcopy and electronic documents and the requirement for electronic filing, document tracking and version control numbers.

Contractors will be required to develop a system for maintaining and controlling its own HSE documentation and describe these systems in their respective HSE plans.

### 10.9.2 Incident Reporting

Following every HSE incident, Rhino will conduct an incident investigation and prepare a report detailing the events, root causes of the incident(s) and corrective and preventative measures implemented as a result. All incidents where local regulatory standards are exceeded will be reported to MME and MEFT.

### 10.9.3 Audit Reports

Audit findings (see Section 10.6.2) will be documented in audit reports, which will be submitted to the relevant Manager for action and follow-up.

### 10.9.4 ESMP Close-Out Compliance Report

Rhino will submit an ESMP close-out compliance report to the competent authority (MME) within 90 days of the end of each drilling campaign. This report will *inter alia* outline the implementation of the mitigation measures and degree of compliance with the performance objectives detailed in the ESMP.

## 10.10 Environmental and Social Mitigation Management Commitment Register

Table 10-6 details the specific management commitments that will be implemented to prevent, minimise or manage significant potential negative impacts and optimise and maximise any potential benefits of the project.

These tables are structured in the following manner so that the mitigation measures have a clear and logical context within which they are designed, implemented, monitored and evaluated:

- **Activities:** Activities are the operational activities that occur as a result of project implementation.
- **Aspect:** Environmental and social aspects are defined as ‘an element of an organisation’s activities, products or services that can interact with the natural and human environment’ e.g., atmospheric emissions, underwater noise levels or discharge of waste to sea.
- **Environmental and Social Performance Objectives / Impact Management Outcomes or Targets:** Every environmental and social management requirement must be translated into an objective, namely an outcome or target that is to be



achieved. This is not to say that every requirement must be expressed as an objective, but requirements can be combined as appropriate into single objectives. If the outcome / target is met then the objective will have been deemed to be met, but if the target is not achieved then suitable corrective action must be defined and implemented so as to ensure that the performance is improved to the point that the target is met and the performance is sustained.

- **Associated Plan and Procedure:** The corresponding plan or procedure to which the commitment relates is listed in this column.
- **Mitigation / Management Actions:** A key component of the ESIA process is to explore practical ways of avoiding or reducing potentially significant impacts of the proposed exploration programme. These are commonly referred to as mitigation measures and are incorporated into the project as part of the ESMP. Mitigation is aimed at preventing, minimising and/or managing potential negative impacts to as low as reasonably practicable (ALARP) and optimising and maximising any potential benefits of the proposed project.
- **Responsibility:** Defining who is responsible for the implementation, monitoring and recording of the mitigation measure.
- **Timing:** Timing refers to the schedule. The 'timing' can be specified in terms of a specific date or relative to other actions (i.e., before project mobilisation, or during operation, as examples) or frequency.
- **Monitoring and Record Keeping:** Monitoring and record keeping requirements must be defined, whereby the organisation responsible for implementing the action/s is given a prescribed reporting mechanism, limited as far as possible to documents plans, correspondence, records, registers, etc.



**Table 10-6: Environmental and Social Mitigation Management Commitment Register**

Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
<b>1. PLANNING PHASE</b>							
<b>1.1 PREPARATION OF SUBSIDIARY PLANS</b>	Planning and Management	Identification of all parties and their responsibilities documented and communicated	BOCP OSCP SOPED EMP	<p>Develop a well-specific response strategy and plans (OSCP and BOCP), aligned with the National OSCP, Rhino requirements and International Industry best practice, for each well location that identifies the resources and response required to minimise the risk and impact of oiling (shoreline and offshore). This response strategy and associated plans must take cognisance to the local oceanographic and meteorological seasonal conditions, local environmental receptors and local spill response resources. The development of the site-specific response strategy and plans must include the following:</p> <ul style="list-style-type: none"> <li>• Assessment of onshore and offshore response resources (equipment and people) and capabilities at time of drilling, location of such resources (in-country or international), and associated mobilisation / response timeframes.</li> <li>• Selection of response strategies that reduce the mobilisation / response timeframes as far as is practicable. Use the best combination of local and international resources to facilitate the fastest response.</li> <li>• Well-specific oil spill modelling for planning purposes taking into consideration site- and temporal-specific information, the planned response strategy, and associated resources.</li> </ul>	Rhino / Drilling Contractor	At least 30 days prior to commencement of operation	Copies of all plans



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
				<ul style="list-style-type: none"> <li>Intervention plans for the most sensitive areas to minimise risks and impacts and integrate these into the well-specific response strategy and associated plans.</li> <li>Intervention plans for the most sensitive areas to minimise risks and impacts and integrate these into the well-specific response strategy and associated plans.</li> <li>Oiled wildlife response measures. Note that an incident-specific Oiled Wildlife Response Plan would be developed in collaboration with a specialist with experience in oiled wildlife response in the event of a blow-out.</li> </ul>			
<b>1.1 PREPARATION OF SUBSIDIARY PLANS</b>	Planning and Management	Identification of all parties and their responsibilities documented and communicated	See Section 10.3.7	Ensure the following subsidiary plans are also in place: <ul style="list-style-type: none"> <li>Rhino Emergency Procedures document and Medical Emergency Response Plan</li> <li>Drilling Contractor Emergency Response Plan (including MEDIVAC plan)</li> <li>Shipboard Oil Pollution Emergency Plan (SOPEP) as required by MARPOL</li> <li>Stakeholder Engagement Plan</li> <li>Waste, Emissions and Discharges Management Plan</li> <li>Hazardous Substances Management Plan</li> <li>Preventive Maintenance Plan</li> <li>Ballast Water Management Plan</li> <li>Corrective Action Plan</li> </ul>	Rhino / Drilling Contractor	30 days prior to commencement of operation	Copies of all plans and certificates  Confirm compliance and justify any omissions



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
<b>1.1 PREPARATION OF SUBSIDIARY PLANS</b>	Planning and Management	Identification of all parties and their responsibilities documented and communicated	See Section 10.3.7	In addition to the above, ensure that: <ul style="list-style-type: none"> <li>• Drilling unit must have Pollution Safety Certificate(s).</li> <li>• There is a record of drilling unit / vessels seaworthiness certificate and/or classification stamp. Submit copies of all certificates to MME (see Row 2.1).</li> <li>• A valid International Sewage Pollution Prevention Certificate (ISPPC), as required by vessel class.</li> <li>• International Oil Pollution Prevention (IOPP) Certificate, as required by vessel class.</li> </ul>	Rhino / Drilling Contractor	30 days prior to commencement of operation	Copies of all plans and certificates  Confirm compliance and justify any omissions  Correspondence to MME
<b>1.2 PREPARATION FOR DRILLING</b>	Drilling personnel for faunal observations/detections during VSP	Minimise impact on and disturbance of marine fauna	Drilling programme	<ul style="list-style-type: none"> <li>• Make provision for the placing of at least two dedicated Marine Mammal Observer (MMO), with a recognised MMO training course, on board for marine mammal observation (360 degrees around drilling unit), distance estimation and reporting.</li> <li>• 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).</li> </ul>	Rhino / Drilling Contractor	Prior to commencement of VSP operations	MMO monitoring (see Row M3-2 & M3-3 in Table 10-4)  MMO / PAM report
	Equipment			Ensure PAM technology is available for use (one or more hydrophones), which detects animals through their vocalisations, should it be possible to safely deploy PAM equipment.			
	Oil spill planning	Minimise impact of a well blow-out by implementing response procedures efficiently	OSCP	Undertake a drilling unit inspection that is specifically focused on well control equipment. A specific BOP inspection, and	Rhino	Prior to drilling unit hire	Inspection report and Peer review report (see Row



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
<b>1.2 PREPARATION FOR DRILLING</b>	Oil spill planning	Minimise impact of a well blow-out by implementing response procedures efficiently		relevant upgrades / refurbishment should be completed prior to the unit operating in Namibian waters.			M5-4 in Table 10-4)
			OSCP	Ensure that both the well design and well construction plans (Drilling Programme) are peer reviewed internally by HQ specialists, prior to spudding the well.	Rhino	Prior to finalising drilling programme	Inspection report and Peer review report (see Row M5-4 in Table 10-4)
				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.	Drilling Contractor	Prior to commencement of drilling operations	Contracts
				Ensure there is adequate protection and indemnity insurance cover for oil pollution incidents. Submit all forms of financial insurance and assurances to MME to manage all damages and compensation requirements in the event of an unplanned pollution event.			
				Plan for a standby vessel being within 30 minutes of the drilling unit and equipped for dispersant spraying and can be used for mechanical dispersion (using the propellers of the ship and/or firefighting equipment). It should have at least 10 m <sup>3</sup> of dispersant onboard for initial response.			





Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
<b>2. MOBILISATION PHASE</b>							
<b>2.1 STAKEHOLDER CONSULTATION AND NOTIFICATION FOR DRILLING</b>	Interaction, engagement & communication with national authorities and key stakeholders	Inform MME about the commencement of drilling	Stakeholder Engagement Plan	Compile the well drilling details into a notification document and submit to MME. The notification should provide: <ul style="list-style-type: none"> <li>• Drilling programme (timing, co-ordinates and duration).</li> <li>• Contractor details.</li> <li>• Drilling unit and support vessel specifications (including relevant certification and indemnity insurance).</li> </ul>	Rhino, Drilling Contractor	Notification to be submitted at least 30-days prior to drilling commencement	Correspondence to MME
		Ensure that other users of the sea are aware of drilling activities and navigational safety and parties are aware of the mechanism to follow for raising concerns  Minimise disruption to drilling and other users of the sea	Stakeholder Engagement Plan	Notify key stakeholders of the navigational co-ordinates of the operational area (including navigational co-ordinates of well location, timing and duration of proposed activities), and safety zone requirements: <ul style="list-style-type: none"> <li>• Fishing industry / associations: Confederation of Namibian Fishing Association, Large Pelagic and Hake Longlining Association, Namibian Large Pelagic Association, Namibian Hake Association, Namibian Deep Water Trawling Association, Walvis Bay Pelagic Fishing Association.</li> <li>• Directorate of Maritime Affairs.</li> <li>• South African Navy Hydrographic Office (SANHO).</li> <li>• Namibian Ports Authority.</li> <li>• MFMR Monitoring, Control and Surveillance Unit in Walvis Bay (Vessel Monitoring System).</li> </ul>	Rhino, Drilling Contractor	3 weeks prior to commencement of operations	Copies of all correspondence and list of those to whom it was sent



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
<b>2.1 STAKEHOLDER PARTICIPATION AND NOTIFICATION FOR DRILLING</b>	Interaction, engagement & communication with national authorities and key stakeholders	<p>Ensure that other users of the sea are aware of drilling activities and navigational safety and parties are aware of the mechanism to follow for raising concerns</p> <p>Minimise disruption to drilling and other users of the sea</p>	Stakeholder Engagement Plan	Implement a public information and disclosure programme (notification) covering all Rhino exploration activities to ensure the public are regularly informed of the exploration activities. As part of the public information and disclosure programme, disclose project information via local media and communication channels – e.g., newspaper articles, public notices, newsletters, websites and meetings as required. Focus should be placed on Lüderitz, Oranjemund and Walvis Bay in particular.	Rhino	Prior to each well drilling campaign commencement	Copies of any newspaper articles, public notices, newsletters and websites
				Implement a comprehensive, consistent and regular consultation with indigenous groupings and leadership, as well as those who fall outside this category. The aim of such engagement should ensure open communication, direct communication and consistent communication with stakeholders that may be affected by operations.			Copies of all correspondence, meetings, etc.
				Consult local communities on the potential engagement (e.g. rituals) necessary to mitigate potential impacts on intangible cultural heritage from the project.			Details of all events undertaken
				Engage with local community forums, business chambers, tourism offices and other collective organisations on a regular basis in order to disclose information to key stakeholders and draw out any ongoing issues and concerns. Focus should be placed on Lüderitz, Oranjemund and Windhoek in particular.		Prior to and during each well drilling campaign	Copies of any newspaper articles, public notices, newsletters and websites



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
<b>2.1 STAKEHOLDER PARTICIPATION AND NOTIFICATION FOR DRILLING</b>			Stakeholder Engagement Plan	Request, in writing, SANHO to broadcast a navigational warning via Navigational Telex (Navtext) and Channel 16 VHF.	Drilling Contractor	7 days prior to drilling unit being on drill site	Confirm that request was sent to SANHO
				Establish a grievance mechanism that allows stakeholders to register specific grievances related to the project, and maintain a record of how these are resolved. Include resources to permit the investigation, resolution and close-out of all grievances	Rhino, Drilling Contractor	Throughout the drilling campaign	Grievance monitoring (see Row M4-1 in Table 10-4)
		Manage community expectations related to local procurement, local content, and local employment opportunities		Ensure that all service providers/contractors actively manage community expectations related to local procurement, local content, and local employment opportunities, with support from Rhino. This should include a co-ordinated and approved public message / statement prepared jointly with Rhino and communicated as and when necessary.	Rhino, Drilling Contractor	30 days prior to drilling commencement and during drilling as required	Copy of public messages / statements
<b>2.2 PREPARATION FOR DRILLING</b>	Oil spill planning	Minimise impact of a well blow-out by implementing response procedures efficiently	OSCP	Schedule joint oil spill exercises including Rhino and local departments/organisations to test the emergency response capability.	Drilling Contractor	Prior to commencement of drilling	Copy of attendance register and training records
				Deploy response equipment, as specified in the site-specific response strategy (OSCP and BOCP) – refer to Row 1.1 above.			Contracts
<b>2.3 MOBILISATION OF PROJECT STAFF</b>	Training and allocation of responsibilities	Project staff have the capability and competence to achieve the ESMP objectives and know what the ESMP environmental requirements are  All staff receive HSE training as part of their HSE induction, refresher training and an ongoing awareness and	Environmental and Social awareness	Ensure that a copy of the ESIA Report and ESMP is supplied to the contractor and sub-contractors and is on board all project vessels during the operation.	Rhino Drilling Contractor	At drilling commencement meeting (Kick-off Meeting) and before new staff commence with work on the project	Copy of attendance register and training records
				Undertake HSE Awareness Training, including induction training to ensure the project personnel (including drilling and support vessels, MMO, PAM operator) are appropriately informed of the purpose and requirements of the ESMP, including emergency procedures, spill management,			



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
		behaviour system		emission awareness, etc. Ensure that ESMP responsibilities are clearly defined in Job Descriptions of relevant staff. Establish training and exercise programmes to ensure that the response activities can be effectively executed. Ensure that MMOs are briefed on the area-specific sensitivities and on the VSP planning (including roles and responsibilities, and lines of communication).			
<b>2.4 EQUIPMENT TRANSFER</b>	Introduction of non-indigenous invasive marine species	Control the spread of non-native invasive species to vulnerable ecosystems Ships' Ballast Water	Preventive Maintenance Plan	Ensure all equipment (e.g., wellheads, BOPs, riser, etc.) that has been used in other regions is thoroughly cleaned prior to deployment	Drilling Contractor	Prior to entry into Namibian waters	Equipment checking (see Row M2-4 in Table 10-4)
<b>2.5 EXCHANGE OF BALLAST WATER</b>	Introduction of non-indigenous invasive marine species	Control the spread of non-native invasive species to vulnerable ecosystems by fulfilling the requirements of the International Convention for the Control and Management of Ships' Ballast Water and Sediments ("the Ballast Water Management Convention")	Ballast Water Management Plan	Implement the Ballast Water Management Plan. <ul style="list-style-type: none"> <li>Avoid the unnecessary discharge of ballast water.</li> <li>No discharging of ballast water in harbour / port.</li> </ul> Use filtration procedures during loading in order to avoid the uptake of potentially harmful aquatic organisms, pathogens and sediment that may contain such organisms. Whenever possible, conduct the exchange of ballast water at least 200 nm (± 370 km) from the nearest land and in water of at least 200 m depth when arriving from another maritime region. Where this is not feasible, the exchange should be as far from the nearest land as possible, and in all cases a minimum of 50 nm (± 93 km) from the	Contractors	During ballast water discharge	Waste monitoring (see Row M6-1 in Table 10-4)  Copy of Ballast Water Management Plan and ballast water management certificate  Maintain a complete and accurate Ballast Water Record System  Records are to be



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
				nearest land and preferably in water at least 200 m in depth.			maintained of ballast water uptakes, discharges and exchanges as per the Ballast Water Management Plan
				Ensure that routine cleaning of the ballast tank is carried out, where practicable, in mid-ocean in accordance with Ballast Water Management Plan.		During ballast tank cleaning	
<b>2.6 AIR POLLUTION CONTROL DURING MOBILISATION</b>	Emissions to the atmosphere	As per operation phase – refer to Row 3.7 below.					
<b>2.7 POLLUTION CONTROL AND WASTE AND DISCHARGES MANAGEMENT DURING MOBILISATION</b>	Discharge of liquid and solid waste to sea	As per operation phase – refer to Row 3.9 below.					
<b>2.8 LIGHT POLLUTION CONTROL DURING MOBILISATION</b>	Increased ambient lighting	As per operation phase – refer to Row 3.11 below.					
<b>2.9 NOISE POLLUTION DURING MOBILISATION</b>	Increased ambient noise levels	As per operation phase – refer to Row 3.12 below.					
<b>2.10 SHORE-BASED COMMUNITY HEALTH AND SAFETY MANAGEMENT DURING</b>	Impacts to shore-based community health and safety	As per operation phase – refer to Row 3.15 below.					



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
<b>MOBILISATION</b>							
<b>3 OPERATIONAL PHASE</b>							
<b>3.1 STAKEHOLDER PARTICIPATION AND NOTIFICATION OF VESSEL OPERATIONS</b>	Safety zone around drilling unit	Ensure other users of the sea are notified and navigational safety, and prevention of emergencies / accidents	Stakeholder Engagement Plan	Distribute an <u>updated</u> Notice to Mariners to fishing companies and directly onto vessels. The notice should give updated notice of: <ul style="list-style-type: none"> <li>the co-ordinates of the drilling area;</li> <li>an indication of the proposed operational timeframes;</li> <li>The dimensions of the safety zone around the drilling unit (2Nm); and</li> <li>details on the movements of support vessels servicing the project.</li> </ul>	Rhino, Drilling Contractor	21 days prior to establishment at drill site	Copies of all correspondence
		Minimum disruption to drilling and other users of the sea		Maintain a functional grievance mechanism / procedure that allows stakeholders to register specific grievances related to operations, by ensuring they are informed about the process and that resources are mobilised to manage the resolution of all grievances, in accordance with the Grievance Management procedure.			



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
<b>3.2 PREVENTION OF ACCIDENTS</b>	Presence of drilling unit Presence of drilling unit	Ensure navigational safety, prevention of accidents, preparation for emergencies and minimise the chance subsequent damage to the environment occurring	Stakeholder Engagement Plan	Maintain standard vessel watch procedures. Enforce the 2nm safety zone around the drilling unit. Notify any fishing vessels at a radar range of 24 nm from the drilling unit via radio regarding the safety requirements around the drilling unit. Manage the lighting on the drilling unit to ensure that it is sufficiently illuminated to be visible to fishing vessels and compatible with safe operations Practice regular emergency response drills. Request, in writing, for SANHO to broadcast a navigational warning via Navigational Telex (Navtext) and navigational warnings twice daily on Channel 16 VHF. Ensure access to and use of current meteorological and oceanographic information in management of drilling activities (part of Rhino's Technical Risk Assessment procedures). Use flares or fog horn where necessary.	Drilling Contractor	Throughout operation	Provide record of any incidents and interaction with other vessels.  Provide record of safety drills  Provide record of any incidents and interaction with other vessels.
	Presence and operation of support vessel	Minimise risk of collision with large cetaceans	Drilling programme	Ensure vessel transit speed between the drill site 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), as well as when sensitive marine fauna are present in the vicinity. Keep a constant watch for marine mammals and turtles in the path of the vessel. Alter course and avoid animals when necessary.	Drilling Contractor	Throughout transit	Vessel speed (see Row M3-4in Table 10-4)



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
<b>3.3 SPUDDING</b>	Physical disturbance of the seabed sediments	Protect sensitive seabed habitats	Drilling programme	<ul style="list-style-type: none"> <li>Undertake pre-drilling site surveys (with ROV) to ensure there is sufficient information on seabed habitats, including the mapping of sensitive and potentially vulnerable habitats within 200 m of a proposed well site.</li> <li>Limit the area directly affected by physical contact with infrastructure to the smallest area required.</li> <li>Ensure the ROV does not land or rest on the seabed as part of normal operations.</li> </ul>	Drilling Contractor	Prior to finalising of drill sites and spudding	Seabed monitoring (see Row M3-1 in Table 10-4)  ROV footage and marine faunal specialist report
		Protect sensitive seabed habitats	Drilling programme	Ensure that, based on the pre-drilling site survey and expert review of ROV footage, well sites are not located within a 200 m radius of any sensitive or potentially vulnerable habitats (e.g. hard grounds), species (e.g. cold corals, sponges) or sensitive structural features (e.g. rocky outcrops).	Drilling Contractor, Marine faunal specialist		
		Protect shipwrecks	Drilling programme	Adjust the well location to avoid any shipwrecks identified in pre-drilling ROV surveys.	Drilling Contractor	During spudding, if wreck is identified	ROV footage
			Stakeholder Engagement Plan	Develop and implement Chance Find Procedure. Specifically, if any historic shipwreck objects are found during the pre-drilling seafloor survey or after drilling commencement, which could potentially be impacted by the activity, work in the directly affected area should cease (if identified after drilling commencement) until the Namibian Heritage Authority has been notified and the operator has complied with any additional mitigation as specified by the Authority, including any recommended buffer.			Correspondence with Namibian Heritage Authority / National Heritage Council of Namibia





Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
<b>3.4 WELL DRILLING - DISCHARGE OF DRILL CUTTINGS AND CEMENT</b>	Physical disturbance of the seabed sediments and increased sediment in the water column	Protect sensitive seabed fauna / habitats and pelagic fauna	Waste and Discharges Management Plan  Hazardous Substances Management Plan	<ul style="list-style-type: none"> <li>Use WBMs for drilling, as far as possible.</li> <li>Careful selection of drilling fluid additives taking into account their concentration, toxicity, bioavailability and bioaccumulation potential; Ensure only, PLONOR (Pose Little Or No Risk) chemicals, low-toxicity, low bioaccumulation potential and partially biodegradable additives are used, where practicable.</li> <li>Maintain a full register of Material Safety Data Sheets (MSDSs) for all chemical used, as well as a precise log file of their use and discharge.</li> </ul>	Drilling Contractor	Throughout drilling, if using WBMs	Monitor fluids and cuttings (see Row M1-6 in Table 10-4)
				<p>Use a low toxicity Group III NADF. When using NADF:</p> <ul style="list-style-type: none"> <li>Use only low-toxicity and partially biodegradable additives are used where practicable.</li> <li>Use high efficiency solids control equipment to reduce the need for fluid change out and minimise the amount of residual fluid on drilled cuttings.</li> <li>Treat NADF cuttings to reduce oil content to &lt;6.9% Oil On Cutting (OOC) prior to discharge overboard.</li> <li>Ensure regular maintenance of the onboard solids control package and avoid inappropriate discharge of NADF cuttings.</li> </ul>		Throughout drilling, if using NADFs	



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
<b>3.4 WELL DRILLING - DISCHARGE OF DRILL CUTTINGS AND CEMENT</b>	Physical disturbance of the seabed sediments and increased sediment in the water column	Protect sensitive seabed fauna / habitats and pelagic fauna	Waste and Discharges Management Plan  Hazardous Substances Management Plan	Monitoring as per Table 10-4	Drilling Contractor	Throughout drilling	Monitor fluids and cuttings (see Row M1-7 in Table 10-4)
				Discharge of risered cuttings via a caisson at greater than 10m below the surface.			
				Use only low-toxicity and partially biodegradable additives in cement.  <ul style="list-style-type: none"> <li>Avoid excess cement usage during the initial riserless drilling and plugging stages by monitoring (by ROV) for discharges during cementing. If significant discharges are observed on the seafloor terminate cement pumping, as far as possible.</li> <li>Monitor (using ROV) hole wash out to reduce discharge of fluids as far as possible.</li> </ul>			
	Increased levels of radioactivity	Protect the environment and workers	Waste and Discharges Management Plan	If seabed radioactivity was not confirmed as part of the Environmental Baseline Study, analyse Gamma ray results for radioactivity during logging and / or during cuttings treatment. If any issues with regard to radioactivity are detected, undertaken appropriate treatment and disposal.	Drilling Contractor	During initial cutting treatment / logging	Monitor cuttings (see Row M1-7 in Table 10-4)
<b>3.5 TRANSPORT, STORAGE AND HANDLING OF</b>	Increased levels of radioactivity	Protect the environment and workers	Preventive Maintenance Plan	Designate competent person/s in charge and to handle radioactive devices and/or explosives.	Drilling Contractor	Throughout drilling operations	Training certificates



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
<b>RADIOACTIVE DEVICES AND EXPLOSIVES</b>				<ul style="list-style-type: none"> <li>Comply with necessary regulations for the transport, storage and handling of radioactive devices.</li> <li>Transport and store radioactive devices in specially designed secured (locked) storage containers.</li> </ul>			
<b>3.5 TRANSPORT, STORAGE AND HANDLING OF RADIOACTIVE DEVICES AND EXPLOSIVES</b>	Increased levels of radioactivity	Protect the environment and workers	Preventive Maintenance Plan	<ul style="list-style-type: none"> <li>Follow standard / prescribed radioactive sources procedure.</li> <li>When radioactive sources are to be used, secure the area between and around the storage containers and the floor and only allow key personnel in the area.</li> </ul>	Drilling Contractor	Throughout drilling operations	Training certificates
				Set up incident and emergency reporting procedures for actual or suspected individual over-exposure, theft or loss, logging tools stuck downhole in wells, and release or spillage into the environment.			
				Routinely test the sources according to industry requirements to document leak levels.			Test results
<b>3.6 VERTICAL SEISMIC PROFILING (VSP)</b>	Increased ambient underwater noise levels	Reduce disturbance of marine fauna, particularly cetaceans (whales and dolphins), seals, seabirds (particularly penguins) and turtles	Drilling programme	Appoint a minimum of two dedicated Marine Mammal Observer (MMO), with a recognised MMO training course, on board for marine fauna observation (360 degrees around drilling unit), distance estimation and reporting during VSP operations. Passive Acoustic Monitoring (PAM) is required should VSP operations be undertaken in darkness or periods of low visibility. Therefore, one MMO should be a trained PAM operator. A risk assessment, undertaken ahead of the VSP operation, must be conducted to confirm that PAM equipment can be safely deployed considering the metocean conditions	Drilling Contractor	During VSP operations	MMO & PAM Operator monitoring (see Row M3-2 & M3-3 in Table 10-4)  MMO / PAM report



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
				(specifically current). Ensure drilling unit vessel is fitted with PAM technology (one or more hydrophones), which detects animals through their vocalisations, should VSP be undertaken in darkness or periods of low visibility, and it is assessed as safe to deploy PAM equipment.			
<b>3.6 VERTICAL SEISMIC PROFILING (VSP)</b>	Increased ambient underwater noise levels	Reduce disturbance of marine fauna, particularly cetaceans (whales and dolphins), seals, seabirds (particularly penguins) and turtles	Drilling programme	<u>Pre-start Protocols for airgun testing and profiling:</u> <ul style="list-style-type: none"> <li>Commence VSP profiling, as far as possible, during daylight hours with good visibility. However, if this is not possible due to prolonged periods of poor visibility (e.g., thick fog) or unforeseen technical issue which results in a night-time start, refer to “periods of low visibility” below.</li> <li>Undertake a 60-minute (as water depths &gt; 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.</li> <li>Implement a “soft-start” procedure of a minimum of 20 minutes’ duration when initiating the VSP acoustic source (except if testing a single airgun on lowest power). This requires that the sound source be ramped from low to full power rather than initiated at full power, thus allowing a flight response by marine fauna to outside the zone of injury or avoidance.</li> </ul>	Drilling Contractor	During VSP operations	MMO & PAM Operator monitoring (see Row M3-2 & M3-3 in Table 10-4)  MMO / PAM report



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
				<ul style="list-style-type: none"> <li>Delay "soft-starts" if cetaceans, turtles and shoaling large pelagic fish are observed / detected within the mitigation zone during the pre-shoot visual / acoustic scan. A "soft-start" should not begin until 20 minutes after cetaceans depart the mitigation zone or 20 minutes after they are last seen or acoustically detected by PAM in the mitigation zone. In the case of penguins, shoaling large pelagic fish and turtles, delay the "soft-start" until animals move outside the 500 m mitigation zone.</li> <li>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.</li> </ul>			
<b>3.6 VERTICAL SEISMIC PROFILING (VSP)</b>	Increased ambient underwater noise levels	Reduce disturbance of marine fauna, particularly cetaceans (whales and dolphins), seals, seabirds (particularly penguins) and turtles	Drilling programme	<u>Shut-Downs</u> <ul style="list-style-type: none"> <li>Shut down the acoustic source if cetaceans, penguins, shoaling large pelagic fish or turtles are sighted within 500 m mitigation zone until such time as the mitigation zone is clear of cetaceans for 20 minutes or, in the case of penguins, shoaling large pelagic fish or turtles, the animals move outside the 500 m mitigation zone before the soft-start procedure and production may commence.</li> </ul>	Drilling Contractor	During VSP operations	MMO & PAM Operator monitoring (see Row M3-2 & M3-3 in Table 10-4)  MMO / PAM report



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
<b>3.6 VERTICAL SEISMIC PROFILING (VSP)</b>	Increased ambient underwater noise levels	Reduce disturbance of marine fauna, particularly cetaceans (whales and dolphins), seals, seabirds (particularly penguins) and turtles	Drilling programme	<p><u>Breaks in Airgun Firing: Breaks of less than 20 minutes</u></p> <ul style="list-style-type: none"> <li>There is no requirement for a soft-start and firing can recommence at the same power level as at prior to the break (or lower), provided no cetaceans, penguins, shoaling large pelagic fish or turtles were detected in the mitigation zone during the breakdown period.</li> <li>If a cetacean is detected in the mitigation zone during the breakdown period, there must be a minimum of a 20-minute delay from the time of the last detection within the mitigation zone and a soft-start must then be undertaken. In the case of penguins, shoaling large pelagic fish or turtles, the animals move outside the 500 m mitigation zone within the 20 minute period.</li> </ul>	Drilling Contractor	During VSP operations	MMO & PAM Operator monitoring (see Row M3-2 & M3-3 in Table 10-4)  MMO / PAM report
				<p><u>Breaks in Airgun Firing: Breaks longer than 20 minutes:</u> If it takes longer than 20 minutes to restart the airguns, a full pre-watch and soft-start should be carried out before the survey re-commences. If an MMO/PAM operator has been monitoring during the breakdown period, this time can contribute to the 60-minutes pre-watch time.</p>			
				<p><u>Period of low visibility:</u>                      Ensure that during periods of low visibility (where the mitigation zone cannot be clearly viewed out to 500 m), including night-time, the VSP source is only used if PAM technology is used to detect vocalisations (subject to a risk assessment indicating that the PAM equipment can be safely deployed considering the metocean conditions) or:</p>			



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
				<ul style="list-style-type: none"> <li>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</li> <li>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 cetaceans, penguins, shoaling large pelagic fish or turtles were sighted within the 500 m mitigation zone.</li> </ul>			
<b>3.7 AIR POLLUTION CONTROL DURING GENERAL OPERATION</b>	Emissions to the atmosphere during operation	Reduce volume of diesel burned and emissions to the air	Drill and logistics design Waste and Emissions Management Plan	Optimise drilling unit positioning, drilling unit movement and the logistics (number of trips required to and from the onshore logistics base) in order to lower fuel consumption and avoid delays which may result in increased emissions.	Drilling Contractor	Throughout operations	Fuel consumption monitoring (see Row M1-4 in Table 10-4) Inventory of volume and type of fuel used.
				Ensure compliance with the requirements set out in MARPOL Annex VI Regulation 18 - Fuel Quality by supplying Project vessels with marine gasoil (MGO) or heavy fuel oil (HFO) with less than 0.5% sulphur (mass).			
				Record CO <sub>2</sub> , CH <sub>4</sub> and N <sub>2</sub> O levels (calculated based on Tier 2 or 3 methodologies) annually.	Rhino	Annually	
				Ensure no incineration of waste occurs within the port limits.	Drilling Contractor	Throughout operations	



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
		Reduce volume of diesel burned and emissions to the air	Preventive Maintenance Plan	Maintain appropriate operational controls and implement a maintenance plan for all equipment. (e.g. diesel motors and generators) to minimise soot, unburnt diesel and emissions released to the atmosphere.			Equipment monitoring (see Row M2-7 in Table 10-4)
<b>3.8 AIR POLLUTION CONTROL DURING WELL TEST</b>	Emissions to the atmosphere during flaring	Reduce volume of hydrocarbons burned and emissions to the air	Waste and Emissions Management Plan	Optimise well test programme to reduce flaring (volume and duration) as much as possible during the test, and avoid flaring in foggy conditions as far as possible.	Drilling Contractor	During flaring	Flaring monitoring (see Row M1-9 in Table 10-4)
				Commence with well testing during daylight hours, as far as possible.			
				Avoid the venting of hydrocarbons. Where necessary, flare excess gas using a high-efficiency flare (>99% combustion efficiency) to reduce methane emissions from gas flaring.			
				Develop and implement a flare inspection and maintenance programme to ensure flare is operating efficiently. Monitor flare (continuous) for any malfunctioning, interruption, etc.			





Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
<b>3.8 AIR POLLUTION CONTROL DURING WELL TEST</b>	Emissions to the atmosphere during flaring	Reduce volume of hydrocarbons burned and emissions to the air	Waste and Emissions Management Plan	<p>During flaring, implement the following good practices:                      Implement source gas reduction measures to the extent possible;</p> <ul style="list-style-type: none"> <li>• Use efficient flare tips and optimise the size and number of burning nozzles;</li> <li>• Maximize flare combustion efficiency by controlling flare fuel, air and stream flow rates to ensure the correct ratio of assist stream to flare stream;</li> <li>• Minimize flaring from purges and pilots by using purge gas reduction devices, vapour recovery units, inert purge gas, soft seat valve technology and conservation pilots;</li> <li>• Minimize risk of pilot blow-out by ensuring sufficient exit velocity and providing wind guards;</li> <li>• Use a reliable pilot ignition system;</li> <li>• Use a high integrity instrument pressure protection system to reduce overpressure events and avoid or reduce flaring situations;</li> <li>• Minimize liquid carryover and entrainment in the gas flare stream with a suitable liquid separation system;</li> <li>• Minimize flame lift off and/or flame lick;</li> <li>• Operate the flare to control odour and visible smoke (i.e. no visible black smoke); and</li> </ul>	Drilling Contractor	During flaring	Flaring monitoring (see Row M1-9 in Table 10-4)



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
				<ul style="list-style-type: none"> <li>Implement burner maintenance and replacement programmes to ensure continuous maximum flare efficiency.</li> </ul>			
				Record CO <sub>2</sub> , CH <sub>4</sub> and N <sub>2</sub> O levels (calculated based on Tier 2 or 3 methodologies) annually.	Rhino	Annually	Flaring monitoring (see Row M1-9 in Table 10-4)
<b>3.9 POLLUTION CONTROL AND WASTE AND DISCHARGES MANAGEMENT DURING GENERAL OPERATION</b>	Discharge of liquid and solid waste to sea	Reduce discharges and improve quality of liquid and solid waste to sea by fulfilling the requirements of MARPOL 73/78 standards	Waste and Emissions Management Plan	Implement the following plans:	Drilling Contractor	Throughout operations	Copy of all plans  Report the total discharge waste stream volumes
				<ul style="list-style-type: none"> <li>Waste, Emissions and Discharges Management Plan.</li> </ul>			
				Prohibit operational discharges when transiting through the NIMPA and any mapped EBSAs.			
				Drilling unit and project vessels will have: <ul style="list-style-type: none"> <li>an onboard sewage treatment plant;</li> <li>a sewage comminuting and disinfecting system, and/or</li> <li>a sewage holding tank.</li> </ul>			
				Ensure sewage discharges comply with: <ul style="list-style-type: none"> <li>a BOD of &lt;25 mg/l (if the treatment plant was installed after 1/1/2010,) or &lt;50 mg/l (if installed before this date); and</li> <li>minimal residual chlorine concentration of 0.5 mg/l.</li> </ul>		Throughout operations, during discharges	Sewage monitoring (see Row M1-5 & M2-2 in Table 10-4)  Sewage Certificate containing the test



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
				Sewage discharge to comply with the following: <ul style="list-style-type: none"> <li>No visible floating solids must be produced or discolouration of the surrounding water must occur.</li> <li>Sewage must be comminuted and disinfected for discharges between 3 nm and 12 nm from the coast.</li> <li>Disposal of sewage from holding tanks must be discharged at a moderate rate while the ship is proceeding on route at a speed not less than 4 knots.</li> </ul>			results of the sewage treatment plant
<b>3.9 POLLUTION CONTROL AND WASTE AND DISCHARGES MANAGEMENT DURING GENERAL OPERATION</b>	Discharge of liquid and solid waste to sea	Reduce discharges and improve quality of liquid and solid waste to sea by fulfilling the requirements of MARPOL 73/78 standards	Waste and Emissions Management Plan	Galley waste discharge to comply with the following: <ul style="list-style-type: none"> <li>No disposal to occur within 3 nm of the coast.</li> <li>Disposal at &gt;3 nm from coast to be comminuted to particle sizes smaller than 25 mm.</li> <li>Disposal overboard without grinding can occur greater than 12 nm from the coast when the vessel is sailing. As the drilling unit will be stationary, food waste will need to be comminuted prior to discharge at the drilling site.</li> </ul>	Drilling Contractor	Throughout operations, during discharges	Waste monitoring (see Row M1-1 & 1-2 in Table 10-4)
				Minimise the discharge of waste material should obvious attraction of fauna be observed.			Inventory of volume of waste discharged and discharge location
				Ensure all relevant deck and machinery drainage is routed to: <ul style="list-style-type: none"> <li>sump tanks on board for treatment prior to discharge to ensure MARPOL compliance.</li> <li>oil residue holding tanks.</li> </ul>			Waste monitoring (see Row M1-3 & M2-1 in Table 10-4)



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping	
				Oil in water concentration in normal discharges (not produced water) must be less than 15 ppm prior to discharge overboard. The oil discharge monitoring and control system must ensure that any discharge of oily mixtures is stopped when the oil content of the effluent exceeds 15 ppm.			Oil Record Book	
<b>3.9 POLLUTION CONTROL AND WASTE AND DISCHARGES MANAGEMENT DURING GENERAL OPERATION</b>	Discharge of liquid and solid waste to sea	Reduce discharges and improve quality of liquid and solid waste to sea by fulfilling the requirements of MARPOL 73/78 standards	Waste and Emissions Management Plan	<ul style="list-style-type: none"> <li>Ensure all process areas are bunded to ensure drainage water flows into the closed drainage system.</li> <li>Use drip trays to collect run-off from equipment that is not contained within a bunded area and route contents to the closed drainage system.</li> </ul>	Drilling Contractor	Throughout operations, during discharges	Waste monitoring (see Row M1-3 & M2-1 in Table 10-4)  Quantity of oil residue (sludge) produced.	
				Use low-toxicity biodegradable detergents in deck cleaning.				Record all discharges, together with date, time and method of discharge, disposal route, any system failure and accidental oil spills in the Oil Record Book
				Implement leak detection and maintenance programmes for valves, flanges, fittings, seals, hydraulic systems, hoses, etc.				
				Initiate a waste minimisation system, which includes awareness of reduced water usage.				
				No disposal overboard of general waste (e.g., domestic waste, cooking oil, plastics and incinerator ash)		Waste monitoring (see Row M1 in Table 10-4). Inventory volume of waste generated		
				Ensure on-board solid waste storage is secure.				



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
				<p>When authorized, incinerate (non-hazardous only) waste or transport to a licensed onshore waste management facility for disposal/recycling. Retain waste receipts.</p> <ul style="list-style-type: none"> <li>Segregate, classify and store all hazardous waste in suitable receptacles on board in order to ensure the safe containment and transportation of waste</li> <li>Dispose of hazardous waste at a facility that is appropriately licensed and accredited.</li> </ul>			<p>Inventory of volume transferred for onshore disposal / incinerated</p> <p>Waste receipts</p>
<b>3.10 POLLUTION CONTROL AND WASTE AND DISCHARGES MANAGEMENT DURING WELL TESTING</b>	Discharge of liquid waste to sea	Reduce discharges and improve quality of liquid waste to sea by compiling with Rhino standards	Waste and Emissions Management Plan	<p>Treat produced water prior to discharge.</p> <ul style="list-style-type: none"> <li>If following onboard treatment, the hydrocarbon content is &lt;30 mg/l, the produced water may be discharged overboard.</li> <li>If the content is &gt;30 mg/l, it should either undergo a second treatment (see bullet above) or be transferred to shore for treatment and disposal.</li> </ul>	Drilling Contractor	During discharge of produced water	Produced Water monitoring (see Row M1-10 in Table 10-4)
	Flaring off some of the oil and gas brought to the surface	Minimise the risk of hydrocarbon 'drop-out'		Optimise well test programme (volume and duration) to reduce flaring as much as possible during the test and avoid flaring in foggy conditions as far as possible.		During flaring	Flaring monitoring (see Row M1-9 in Table 10-4)
				Commence with well testing during daylight hours, as far as possible.			
				Avoid the venting of hydrocarbons. Where necessary, flare excess gas using a high-efficiency flare (>99% combustion efficiency) to reduce methane emissions from gas flaring and hydrocarbon 'drop-out' during well testing.			



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
				Develop and implement a flare inspection and maintenance programme to ensure flare is operating efficiently. Monitor flare (continuous) for any malfunctioning, etc. (including any drop-out).			
<b>3.11 LIGHT POLLUTION CONTROL DURING GENERAL OPERATION AND FLARING</b>	Increased ambient lighting	Protect marine fauna, migratory birds and seabirds by managing illumination of the project vessels Zero fatalities of marine fauna, migratory birds and seabirds	Drilling programme	<ul style="list-style-type: none"> <li>Reduce lighting on the support vessels and drilling unit to a minimum compatible with safe operations whenever and wherever possible.</li> <li>Positioning light sources, if possible and consistent with safe working practices, in places where emissions to the surrounding environment can be minimised.</li> </ul>	Drilling Contractor	Throughout operations	Lighting monitoring (see Row M2-5 in Table 10-4)
				<ul style="list-style-type: none"> <li>Keep disorientated, but otherwise unharmed, seabirds in dark containers (e.g., suitably ventilated cardboard box) for subsequent release during daylight hours.</li> <li>Report ringed/banded birds to the appropriate ringing/banding scheme (details are provided on the ring).</li> </ul>	Drilling Contractor	As required	Record information on patterns of bird reaction to lights and real incidents of injury/death, including stray land birds resting on the project vessels
<b>3.12 NOISE POLLUTION CONTROL DURING GENERAL OPERATION</b>	Increased ambient noise levels from vessel and drilling operations (non-impulsive)	Protect marine fauna, migratory birds and seabirds by managing emitted noise levels by vessels and drilling operations	Drilling programme	<ul style="list-style-type: none"> <li>Implement a maintenance plan to ensure all diesel motors and generators receive adequate maintenance to minimise noise emissions.</li> <li>Ensure vessel transit speed between the 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).</li> </ul>	Drilling contractor	Throughout operations	Vessel speed (see Row M3-4- in Table 10-4)



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
<b>3.13 BUNKERING / REFUELLING AT SEA</b>	Spill of hydrocarbons to sea	Protect marine environment  Minimise disturbance / damage to marine life	Stakeholder Engagement Plan	Transfer of oil at sea is not permitted within the economic zone (i.e., 200 miles from the coast) without the permission of the Ministry of Works and Transport.  Submit an application (including location, supplier and timing) for the transfer of oil at sea (outside a harbour within 50 m of the Namibian coast) to the Ministry of Works and Transport.	Contractors	As required, at least 5 days prior to refuelling	Provide copies of the correspondence with the Ministry of Works and Transport and approval for bunkering
			Contractor HSE Plan  Contractor Bridging Document  SOPEP	Offshore bunkering should not be undertaken in the following circumstances: <ul style="list-style-type: none"> <li>• Wind force and sea state conditions of <math>\geq 6</math> on the Beaufort Wind Scale;</li> <li>• During any workboat or mobilisation boat operations;</li> <li>• During helicopter operations;</li> <li>• During the transfer of in-sea equipment; and</li> <li>• At night or times of low visibility.</li> </ul>	Contractors	During bunkering	Bunkering (see Row M5-2 in Table 10-4)  Spill monitoring (see Row M5-3 in Table 10-4)  Record of all spills (Incident Register), including spill reports; emergency exercise reports; audit reports.



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
3.14 OPERATION OF HELICOPTERS FOR CREW CHANGES, SERVICING, ETC.	Increased ambient noise levels	Minimise disturbance / damage to marine and coastal fauna  All pilots are briefed on sensitivity of bird and seal colonies and whale breeding areas	Flight path design	Ensure all flight paths avoid (except in medical emergency): <ul style="list-style-type: none"> <li>Elizabeth Bay;</li> <li>any islands within the NIMPA and</li> <li>seal colonies (including Atlas Bay, Wolf Bay and Long Islands).</li> </ul>	Helicopter contractor	All flights between drilling unit and Lüderitz/Oranjemund	Copy of set flight path (including altitude)  Helicopter logs  Deviations from set flight paths
				Maintain a flight altitude of >1 000 m at all times, including above NIMPA islands and seal colonies at Van Reenen Bay, Wolf and Atlas Bays and Baker's Bay, except when taking off and landing or in a medical emergency, and for Diaz Point provided Diaz Point is only approach from the North by air.			
				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.			
				Maintain an altitude of at least 1 000 m above the NIMPA islands within a radius of one nautical mile around islands' low water mark.			
3.15 SHORE-BASED COMMUNITY HEALTH AND SAFETY CONTROL AND MANAGEMENT	Impacts to shore-based community health and safety	Reduce undesirable behaviour and associated impacts to shore-based community health and safety.	Rhino Code of Conduct	Comply fully with aviation and authority guidelines and rules.	Rhino and Helicopter contractor	Throughout operations	Copy of attendance register and training records.
				Brief of all pilots, as part of the HSE indication for pilots, on the ecological risks associated with flying at a low altitude along the coast or above marine mammals.			





Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
				fighting, including the use of weapons, gender-based violence including rape etc.); Ensure compliance with the following measures from the World Bank Group Environmental, Health and Safety Guidelines (2015). Generally, taking care of the wellness of onboard staff will lead to reduced anti-social behaviour: <ul style="list-style-type: none"> <li>• Supply adequate living accommodations appropriate to outside environmental conditions, plus related policies that consider the physical and mental strain on personnel living on production or drilling facilities;</li> <li>• Create space for recreation and social activities and/or limit the number of consecutive days permitted on the drilling unit, commensurate to the exploration phase/activities performed.</li> <li>• Ensure a work environment that provides for staff wellbeing, including stress relief, to promote positive social behaviour when interacting with local communities.</li> <li>• Establish and maintain a functional grievance mechanism which is equitable, transparent, accountable, culturally sensitive, human rights-compatible, confidential, and at no cost to the stakeholder.</li> </ul>			Grievance monitoring (see Row M4-1 in Table 10-4)  Grievance register.



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping	
<b>4. DEMOBILISATION PHASE</b>								
<b>4.1 ABANDONMENT OF WELLS</b>	Sealing and testing of wells	Isolate permeable and hydrocarbon bearing formations and avoid leakages	Drilling programme	Seal well by inserting cement plugs in the well bore at various levels according to good oilfield practice.	Drilling Contractor	On completion of well drilling	Log on pressure testing the abandonment cement plugs	
				Test for integrity.			Test results	
				Remove BOP stacks and any other equipment that may have dropped on the seafloor.			ROV footage	
				Install monitoring gauges on appraisal wells to monitor pressure and temperature where Rhino plan to return in the future for additional appraisal / production purposes. Install over trawlable abandonment caps on suspended wells within the trawling grounds (<850 m)				
Increased hard substrate on seafloor	Minimise impact on other users of the sea	Minimise impact on other users of the sea	Waste Management Plan	Ensure any excess cement onboard the drilling unit is shipped to shore for storage or disposal.			Waste receipts	
				Stakeholder Engagement Plan			Ensure abandoned well locations are surveyed and accurately charted with SANHO.	Correspondence with SANHO
							Emergency Response Plan	<ul style="list-style-type: none"> <li>Undertake final clearance survey by ROV to confirm the status of seafloor around the well to ensure no dropped equipment remain.</li> <li>Retrieve lost objects / equipment, where practicable, after assessing the safety and metocean conditions.</li> <li>Refer to lost equipment in Row 5.2 for equipment that can't be retrieved.</li> </ul>



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
<b>4.2 STAKEHOLDER PARTICIPATION</b>	Safety zone around drilling unit	Ensure navigational safety  Notification of all key maritime stakeholders	Stakeholder Engagement Plan	Inform all key stakeholders including SANHO (refer to Row 2.1) that the drilling unit and support vessels are off location and provide details of wellhead abandonment.	Rhino	Within two weeks after completion of drilling	Copies of notification documentation required
				Maintain a functional grievance mechanism / procedure that allows stakeholders to register specific grievances related to operations, by ensuring they are informed about the process and that resources are mobilised to manage the resolution of all grievances, in accordance with the Grievance Management procedure.	Rhino, Drilling Contractor	Throughout the drilling campaign	Grievance monitoring (see Row M4-1 in Table 10-4)  Copy of grievance register and responses
<b>4.3 AIR POLLUTION CONTROL</b>	Emissions to the atmosphere	As per operation phase – refer to Row 3.7 above.					
<b>4.4 POLLUTION CONTROL AND WASTE AND DISCHARGES MANAGEMENT</b>	Discharge of liquid and solid waste to sea	As per operation phase – refer to Row 3.9 above.					
<b>4.5 LIGHT POLLUTION CONTROL</b>	Increased ambient lighting	As per operation phase – refer to Row 3.11 above.					
<b>4.6 NOISE POLLUTION CONTROL</b>	Increased ambient noise	As per operation phase – refer to Row 3.12 above					
<b>5. UNPLANNED EVENTS</b>							
<b>5.1 MINOR OIL SPILLS</b>	Minor oil spill caused by vessel or equipment failure and refuelling	Minimise impact to the marine fauna and the environment by implementing response procedures efficiently	SOPEP Emergency Response Plan	Implement emergency plans in Row 1.1 above. In doing so take cognisance of the Namibian Marine Pollution Contingency Plan, which sets out national policies, principles and arrangements for the management of emergencies including oil pollution in the marine environment.	Contractors	In event of spill	Spill monitoring (see Row M5-3 in Table 10-4)  Record of all spills (Incident Register),



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
				<p>Ensure personnel are adequately trained in both accident prevention and immediate response, and resources are available on each vessel.</p> <ul style="list-style-type: none"> <li>Mop up any spills onboard immediately with biodegradable low toxicity detergents.</li> <li>Use oil absorbent.</li> </ul> <p>Attempt to control and contain the spill at sea, as far as possible and whenever the sea state permits, using suitable recovery techniques to reduce the spatial and temporal impact of the spill.</p> <p>Where diesel, which evaporates relatively quickly, has been spilled, the water should be agitated or mixed using a propeller boat/dinghy to aid dispersal and evaporation.</p> <p>Use low toxicity dispersants that rapidly dilute to concentrations below most acute toxicity thresholds. Use dispersants only with the permission of MET/MFMR.</p> <p>Ensure adequate resources are available to collect and transport oiled birds to a cleaning station as per specific protocols for capturing and transporting oiled seabirds as outlined in the OSCP.</p>			
<b>5.2 EQUIPMENT LOSS</b>	Obstruction on seafloor or in water column	Protect sensitive seabed habitat	Preventive Maintenance Plan	Ensure containers are sealed / covered during transport and that loads are lifted using the correct lifting procedure and within the maximum lifting capacity of crane system.	Contractors	During operation	Equipment monitoring (see Row M2-6 and 5-1 in Table 10-4) Establish a hazards database
				Minimise the lifting path between vessels.			



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
				Maintain an inventory of all equipment and undertake frequent checks to ensure items and equipment are stored and secured safely on board each vessel.			listing: <ul style="list-style-type: none"> <li>the type of gear lost</li> <li>date of abandon-ment / loss</li> <li>location; and where applicable, the dates of retrieval</li> </ul>
<b>5.2 EQUIPMENT LOSS</b>	Obstruction on seafloor or in water column	Minimise risk of collision / accident / entanglement and inform relevant parties	Emergency Response Plan	<ul style="list-style-type: none"> <li>Undertake a post drilling ROV survey to scan seafloor for any dropped equipment and other removable features near to the well.</li> <li>In the event that equipment is lost during the operational stage, assess safety and metocean conditions before performing any retrieval operations.</li> </ul>	Contractors	As required	
				When any item that constitute a seafloor or navigation hazard is lost on the seabed, or in the sea, complete a standard form which records the date and cause of loss, details of equipment type, vessel Sea Control location, sea state and weather, and the nature of the seabed. Inform the Ministry of Works and Transport (Directorate of Maritime Affairs).	Drilling Contractor	As required	Copies of all correspondence
				Notify SANHO of any items left on the seabed or floating in the water column that constitute a seafloor or navigational hazard, and request that they send out a Notice to Mariners with this information.			



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
<b>5.3 FAUNAL COLLISIONS WITH PROJECT VESSELS</b>	Vessel strikes	Minimise risk of collision with large cetaceans	Drilling programme  Emergency Response Plan	Ensure vessel transit speed between the drill site 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), as well as when sensitive marine fauna are present in the vicinity.	Drilling Contractor	During transit	Vessel speed (see Row M3-4- in Table 10-4)
				Keep a constant watch from all vessels (Vessel Captain and crew) for cetaceans and turtles in the path of the vessel. Alter course and avoid animals when necessary.			
				Report any collisions with large whales to the International Whaling Commission (IWC) database, which has been shown to be a valuable tool for identifying the species most affected, vessels involved in collisions, and correlations between vessel speed and collision risk.		As required	
<b>5.4 WELL BLOW-OUT</b>	Major oil spill from well blow-out	Minimise impact to the marine fauna and the environment by implementing response procedures efficiently	BOCP	Implement emergency plans in Row 1.1 above.	Drilling Contractor	In event of loss of well control or well blow-out	Spill monitoring (see Row M5-4 in Table 10-4)  Record of all spills (Incident Register), including spill reports; emergency exercise reports; audit reports  Incident log
			OSCP	Schedule drilling operations to align with periods of favourable weather and sea state, as far as possible, and always within the drilling unit's safe working weather limits.			
			ERP	Schedule oil spill exercises to test the Tier 1, 2 & 3 responses			
			SOPEP	Ensure contract arrangements and service agreements are in place to implement the OSCP, e.g. capping stack, SSDI kit, surface response equipment (e.g. booms, dispersant spraying system, skimmers, etc.), dispersants, response vessels, etc.			
				Use low toxicity dispersants that rapidly dilute to concentrations below most acute toxicity thresholds. Dispersants should be used cautiously and only with the permission			



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
				of MFMR.			
<b>5.4 WELL BLOW-OUT</b>	Major oil spill from well blow-out	Minimise impact to the marine fauna and the environment by implementing response procedures efficiently	BOCP	Ensure a standby vessel is within 30 minutes of the drilling unit and equipped for dispersant spraying and can be used for mechanical dispersion (using the propellers of the ship and/or firefighting equipment). It should have at least 10 m <sup>3</sup> of dispersant onboard for initial response.	Drilling Contractor	In event of loss of well control or well blow-out	Spill monitoring (see Row M5-4 in Table 10-4)
			OSCP				
			ERP				
		SOPEP	In the event of a large spill, use drifter buoys and satellite-borne Synthetic Aperture Radar (SAR)-based oil pollution monitoring to track the behaviour and size of the spill and optimise available response resources.				
				Take all efforts, when the sea state permits, to attempt to control and contain the spill at sea with suitable recovery techniques to reduce the spatial and temporal impact of the spill.			Record of all spills (Incident Register), including spill reports; emergency exercise reports; audit reports
		Minimise socio-economic impact to individuals, companies and other organisations	Stakeholder Engagement Plan	Plan for and implement responses in terms of IPICEA-IOGP guideline document for the economic assessment and compensation for marine oil releases.	Rhino		Incident log
				The grievance mechanism available at the occasion of a blow-out should include longer term interventions to address socio-economic grievances, and economic losses, as listed above, depending on the severity and scope of the spill. In the stakeholder engagement plan to be prepared for the operation, include a section dedicated to the blow-out/oil spill, which should include the following: Provision for a conflict resolution and communications specialist to engage with	Drilling contractor		Grievance monitoring (see Row M4-1 in Table 10-4)
							Copy of grievance register and responses



Project Activities	Aspect	Environmental and Social Performance Objectives / Impact Management Outcomes or Targets	Associated Plan and Procedure	Mitigation / Management Actions	Responsibility	Frequency / Timing	Monitoring and record keeping
				the various stakeholders, including the local and international fishing and environmental communities. Effective dissemination of accurate, transparent and timely reports and updates of the spill and responses to avoid the spread of speculation and misinformation. Regular testing of potentially contaminated fish, transparently reporting the results, to ensure Namibian markets are kept informed.			

