

**ENVIRONMENTAL MANAGEMENT PLAN (EMP)
FOR THE EXPLORATION ACTIVITIES OF PRECIOUS STONES ON THE
EXCLUSIVE PROSPECTING LICENCE (EPL) 8627 VISTORINA N NAMA**



LEAD CONSULTANT:

PROPONENT:

ENVIRONMENTAL ASSESSMENT PRACTITIONER:

PROPONENT:

**Mulife Siyambango, MSc-IRM, MCSM, MBA
Centre for Geosciences Research cc
P O Box 31423
Windhoek
Cell: +264 856419511
Email: cegeornam@gmail.com**

**Vistorina N Nama
P O Box 23219
Windhoek
Cell: +264817089888
Email: oursrealestate@gmail.com**



DOCUMENT INFORMATION	
DOCUMENT STATUS	FINAL REPORT – APP - 23106002230
PROJECT TITLE	ENVIRONMENTAL IMPACT ASSESSMENT FOR THE ESTABLISHMENT OF EXPLORATION ACTIVITIES OF PRECIOUS STONES ON THE EXCLUSIVE PROSPECTING LICENCE (EPL) 8627, MOEB BAY, OFFSHORE, KARAS REGION.
CLIENT	VISTORINA N NAMA P O BOX 23219 Windhoek CELL: +264817089888
PROJECT CONSULTANT	MULIFE S SIYAMBANGO P O BOX 3142 PIONEERSPARK WINDHOEK CELL: +264 856419511
LOCATION	OFFSHORE, !KARAS REGION
DATE	6 OCTOBER 2022

ABBREVIATION

AIDS	Acquired Immunodeficiency Syndrome
COVID19	Coronavirus
DEA	Department of Environmental Affairs
EA	Environmental Assessment
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
ECO	Environmental Compliance Officer
EEZ	Exclusive Economic Zones
EIA	Environmental Impact Assessment
EMA	Environmental Management Act (No. 7 of 2007)
EMP	Environmental Management Plan
EPL	Exclusive Prospecting Licence
HIV	Human Immunodeficiency Virus
ISM	International Safety Management
MARPOL	International Convention for the Prevention of Pollution from Ships
MAWLR	Ministry of Agriculture, Water and Land Reform
MEFT	Ministry of Environment, Forestry and Tourism
MFMR	Ministry of Fisheries and Marine Resources
MME	Ministry of Mines and Energy
NAMPORT	Namibian Port Authority
NHC	National Heritage Council
NOSA	National Occupational Safety Association
P&I	Protection and Indemnity
PPE	Personal Protective Clothing
UNCLOS	United Nations Law of the Sea Convention

Contents

ABBREVIATION	3
1. INTRODUCTION	5
1. PROJECT LOCATION.....	5
2. PURPOSE OF THE EMP	8
3. COMPLIANCE TO THE EMP	9
4. LEGAL AND POLICY FRAMEWORK.....	10
4.1 Relevant statutory framework of Namibian	10
4.2 Key Relevant International obligations.....	16
4.2.1 United Nations Law of the Sea Convention (UNCLOS) of 1982	16
4.2.2 International Convention for the Prevention of Pollution from Ships (MARPOL) 1973.....	16
5. ROLES & RESPONSIBILITIES.....	17
5.1. Environmental Compliance Officer (ECO)	17
5.2. The Proponent	17
5.3. Environmental Manager	17
5.4. Employees and Contractors	18
6. DISCIPLINARY ACTION.....	18
7. THE ENVIRONMENTAL MANAGEMENT PLAN	19
8. CONCLUSION AND RECOMMENDATIONS.....	47

1. INTRODUCTION

Vistorina N Nama, hereafter referred to as the proponent intends to carry out exploration activities for precious stones on the Exclusive Prospecting Licence (EPL) 8627. **Vistorina N Nama** is a Namibian citizen with strong interest in mining. Vistorina N Nama had been provisionally granted the Exclusive Prospecting Licence in 2022 by the Ministry of Mine and Energy (MME), and has been given 12 months from the date of issue to undertake EIA assessment in EPL 8627. The proponent has secured both financial and technical partners to carry out the proposed exploration activities. The proposed activity is a listed activity as per the Environmental Management Act 2007 (Act No. 7 of 2007) (EMA) and an Environmental Clearance Certificate (ECC) is therefore required to commission such a project. CEGEOR cc was therefore appointed by Vistorina N Nama to carry out an Environmental Impact Assessment (EIA) and formulate an Environmental Management Plan (EMP) for the planned exploration project

1. PROJECT LOCATION

EPL8627 is situated at Moeb Bay offshore, approximately 150 Km north of Lüderitz !Karas Region, (see **Figure 1,2 & 3**). The EPL is located over an area with a water depth of 0-100 meters offshore and it covers an area of 4978,4464 Ha and is accessible via sea.

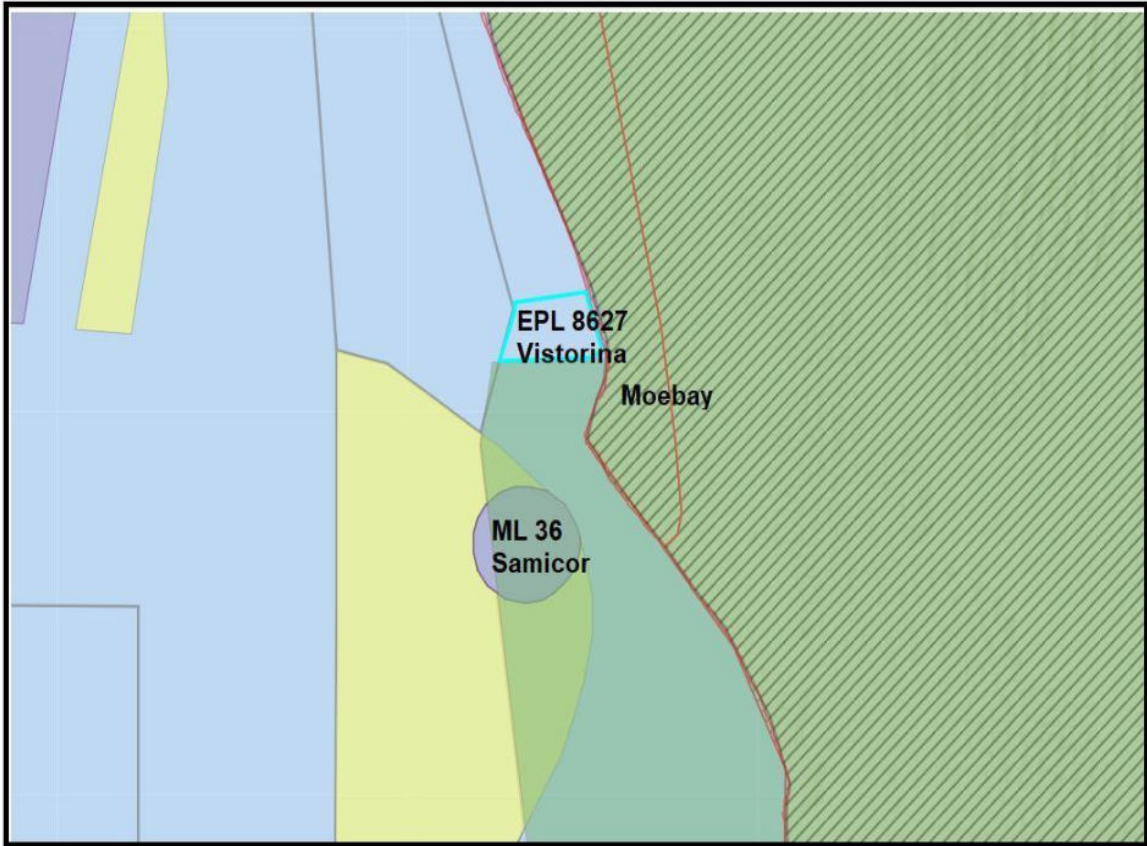


Figure 1: Location of EPL8627 at Moeb Bay offshore north of Lüderitz, Lüderitz District, Karas Region (GPS coordinates **-24.457222 S, 14.5575 E**).



Figure 2: Bathymetry of EPL8627 at Moeb Bay offshore north of Lüderitz, Lüderitz District, Karas Region (GPS coordinates **-24.457222 S, 14.5575 E**).

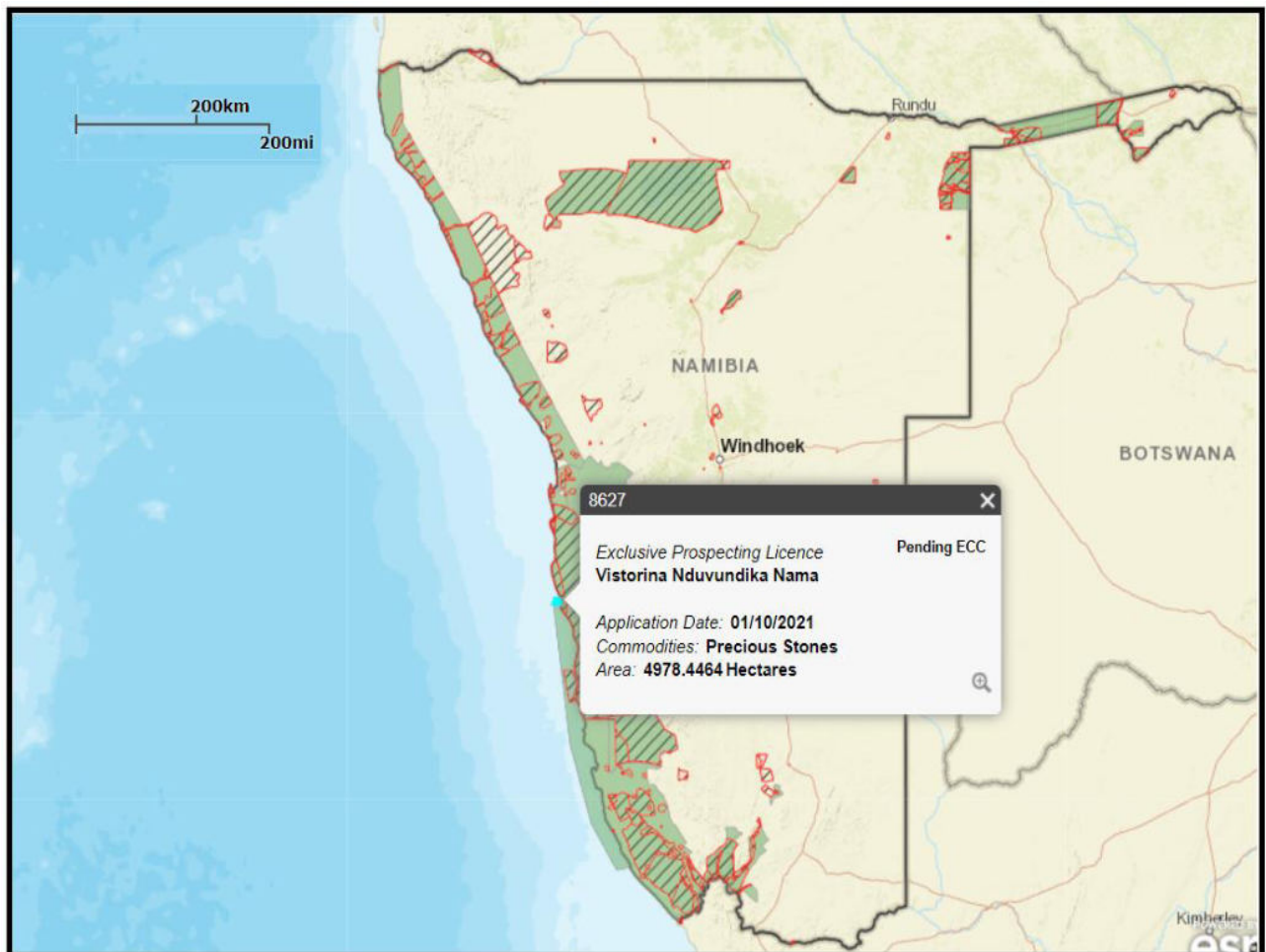


Figure 3: Location of EPL 8627 at Moeb bay offshore north-west of Lüderitz, Karas Region.

2. PURPOSE OF THE EMP

This Environmental Management Plan (EMP) is a risk approach that outline logical and practical framework, monitoring programs, mitigation measures, and management control strategies to minimize potential environmental impacts to insignificant levels. It further specifies the roles and responsibility of persons involved in the proposed exploration project. This EMP includes formulated mitigation measures for the proposed exploration activities for precious stones on the Exclusive Prospecting Licence (EPL) 8627.

3. COMPLIANCE TO THE EMP

This EMP is a legally binding document as given under the provisions of the Environmental Management Act, 2007 (Act No. 7 of 2007). **Vistorina N Nama** and her contractors must therefore adhere to the framework of this document. It should be noted further that the EMP is a living document and is subjected to alterations depending on the changing environments and new information that may be available in the future, hence it must be amended accordingly with the provision of the EMA.

4. LEGAL AND POLICY FRAMEWORK

The proposed project shall be established and operated under the provision of the relevant statutory framework of Namibian and international laws of which Namibia is signatory.

4.1 Relevant statutory framework of Namibian

Table 1. Legal Requirements for the proposed project

Legislation	Summary	Applicability
The Namibian Constitution	The Namibian constitution is the supreme law of the country which is committed to sustainable development. Article 95(1) of the Constitution of Namibia states that: - “The State shall actively promote and maintain the welfare of the people by adopting policies aimed at ... The maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future”.	To undertake the EIA in order to maintain the ecological process and diversity of ecosystem
The Environmental Management Act	The Environmental Management Act No 7 of 2007 aims to promote the sustainable management of the environment and the use of natural resources and to provides for a process of assessment and control of activities which may have significant effects on the environment; and	Legal requirement to undertake an EIA

Legislation	Summary	Applicability
	<p>to provide for incidental matters. The acts provide a list of activities that may not be undertake without an environmental clearance certificate.</p> <p>Further, the Act ensures that;</p> <ul style="list-style-type: none"> (a) Potential threats are considered timeously (b) A comprehensive stakeholder’s consultation is conducted, and all Interested and affected parties are given an opportunity to comment on the project (c) Decision are robust by considering the above-mentioned activities 	
<p>Atmospheric Pollution Prevention Ordinance Act No.11 of 1976)</p>	<p>This Ordinance serves to control air pollution from point sources, but it does not consider ambient air quality. This ordinance is being repealed by the proposed Pollution Control and Waste Management Bill. Any person carrying out a ‘scheduled process’ which are processes resulting in noxious or offensive gases typically pertaining to point source emissions have to obtain a registration certificate from the Department of Health.</p>	<p>Generation of Greenhouse Gases from fuel used by the vessel.</p>
<p>Draft Pollution Control and Waste Management Bill</p>	<p>This Bill serves to regulate and prevent the discharge of pollutants to air and water as well as providing for general waste management. The Bill will repeal the Atmospheric Pollution Prevention Ordinance (11 of 1976) when it comes into force. The Bill also provides for noise, dust</p>	<p>Possible fuel spill and leakages may pollute sea water.</p>

Legislation	Summary	Applicability
	<p>or odour control that may be considered a nuisance. Further, the Bill advocates for duty of care with respect to waste management affecting humans and the environment and calls for a waste management licence for any activity relating to waste or hazardous waste management.</p>	
<p>Environmental Policy framework (1995)</p>	<p>This policy subjects all developments and project to environmental assessment and provides guideline for the Environmental Assessment. Its provision mandate that Environmental Assessment take due consideration of all possible impacts and incorporate them in the development or planning stages.</p>	<p>Provision of the EIA and guidelines</p>
<p>The Occupational Safety and Health Act No. 11 of 2007;</p>	<p>Safety: A safety risk is a statistical concept representing the potential of an accident occurring, owing to unsafe operation and/or environment. In the working context “SAFETY” is regarded as “free from danger” to the health injury and to properties.</p> <p>Health: Occupational Health is aimed at the promotion and maintenance of the highest degree of physical, mental and social wellbeing of workers in</p>	<p>Operating exploration equipment has the potential risk of injuries.</p> <p>Provision of a clean vessel facility, routine health check-ups for employees, HIV/AIDS awareness etc.</p>

Legislation	Summary	Applicability
	all occupations. This is done by ensuring that all work-related hazards are prevented and where they occur, managed.	
Public Health Act No. 36 of 1919	The Act serves to protect the public from nuisance and states that no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him/her or of which he/she is in charge of any nuisance or other condition liable to be injurious or dangerous to health.	Ensure employees safety from noise pollution.
Marine Resource Act No 27 of 2000	To provide for the conservation of the marine ecosystem and the responsible utilisation, conservation, protection and promotion of marine resources on a sustainable basis; for that purpose, to provide for the exercise of control over marine resources; and to provide for matter connected therewith.	Ensure that the marine ecosystems are protected and used in a sustainable manner.
Water Resources Management Act (2004)	This Act provides a framework for managing water resources based on the principles of integrated water resources management. It provides for the management, development, protection, conservation, and use of water resources. Furthermore, any watercourse on/or in close proximity to the site and associated ecosystems should be protected in alignment with the listed principles.	Ensure that the sea systems are not polluted and implement pollution control mechanism to avoid water pollution

Legislation	Summary	Applicability
Water Act No, 54 of 1956	<p>This act states that, all water resources belong to the State. It prevents pollution and promotes the sustainable utilization of the resource. To protect these resources, this act requires that permits are obtained when activities involve the following;</p> <ul style="list-style-type: none"> • Discharge of contaminants into water sources such as pipe, sewer, canal, sea outfall and • Disposal of water in a manner that may cause detrimental impact on the water resources. 	Contaminated water, such as sewage sludge must not be dumped into the sea.
Petroleum Product and Energy Act No, 13 of 1990	This Act provides a framework for handling and distribution of petroleum products which may include purchase, sale, supply, acquisition, possession, disposal, storage or transportation thereof.	Safe handling of the petroleum products such as fuel and lubricants.
Diamond Act 13 of 1999	This Act deals with the regulation of unpolished diamond in Namibia.	Registration in respect of unpolished diamond and security check of person employed or engaged in activity related to unpolished diamond.
Labour Act No. 11 of 2007	This Act aims to regulate labour in general and includes the protection of the health, safety and welfare of employees. The 1997 regulations relating to the Health and Safety of employees at work sets out the duties of the employer, welfare and facilities at the workplace, safety of	Follow legal labour requirements such as safety, remuneration etc

Legislation	Summary	Applicability
	machinery, hazardous substances, physical hazards, medical provisions, construction safety and electrical safety.	
Regional Council Act, 1992 (Act No. 22 of 1992)	The Regional Councils Act legislates the establishment of Regional Councils that are responsible for the planning and coordination of regional policies and development. The main objective of this Act is to initiate, supervise, manage and evaluate development at regional level.	Observe the regional by laws
Hazardous Substances Ordinance No. 14 of 1974	This ordinance gives provision to control the handling of hazardous substance in all circumstances, such as manufacturing, imports and exporting of these to ensure human and environmental safety.	Handling of fuel, fire and explosion risks
National Heritage Act No. 27 of 2004	The Act makes provision for the protection and conservation of places and objects of heritage significance and the registration of such places and objects. Part V Section 46 of the Act prohibits removal, damage, alteration or excavation of heritage sites or remains, while Section 48 sets out the procedure for application and granting of permits such as	Exploration activities such as dredging may unearth archaeological material.
Word's Best Practises	<p><i>Precautionary Approach Principle</i></p> <p>This principle is worldwide accepted when there is a lack of sufficient knowledge and information about the possible threats to the environment. Hence if the anticipated impacts are greater, then</p>	Offshore diamond exploration particularly in the marine environment can be detrimental to the marine ecosystem. Therefore, precaution must

Legislation	Summary	Applicability
	<p>precautionary approach is applied. In this project, there are no eminent uncertainty however in cases when they arise, this approach should be applied.</p> <p><i>Polluter Pays Principle</i></p> <p>This principle ensures that proponents takes responsibility of their actions. Hence in cases of pollution, the proponent bears the full responsibility to clean up the environment.</p>	<p>be taken when diamond dredge pump is used.</p> <p>In the event of any pollution of marine ecosystem, the proponent must be responsible to clean up the environment.</p>

4.2 Key Relevant International obligations

4.2.1 United Nations Law of the Sea Convention (UNCLOS) of 1982

Requires member states to adopt legislation to reduce marine pollution from the seabed activities in the Exclusive Economic Zones (EEZ) and on the continental shelf (Article 208 and 2014) and from land-based source (Articles 208 and 207). It also contains provision relating to marine pollution emanating from dumping of waste at sea (Article 210 and 216).

4.2.2 International Convention for the Prevention of Pollution from Ships (MARPOL) 1973

This convention was adopted in 1973 (MARPOL 73) and modified by the Protocol of 1978 (MARPOL 78), hence its shortened MARPOL 73/78. The convention provide regulation covering various source of ship generated pollution. Namibia is a party to Annex I, Annex II, Annex III, Annex IV and Annex V.

5. ROLES & RESPONSIBILITIES

5.1. Environmental Compliance Officer (ECO)

The Ministry of Environment, Forestry and Tourism is the custodian of environmental protection. The Environmental Compliance Officer shall be an appointed Environmental Officer from the Directorate of Environmental Affairs entrusted to enforce compliance as per the provision of the EMA. The ECO may carry out inspection at any given time to enforce compliance. Depending on his/her work schedule, the ECO shall visit the site at any time for environmental inspection and monitoring.

5.2. The Proponent

Vistorina N Nama shall resume the overall responsibility of environmental management through adequate implementation of the environmental management plan. Furthermore, it shall be a full responsibility of **Vistorina N Nama** to implement the following activities.

- Appoint a Environmental Manager;
- Ensures that all workers and contractors are conversant with the Environmental Management Plan (EMP) and are inducted on safety measures regarding exploration of precious stones;
- Ensure a safe and healthy working environment;
- Provide workers with appropriate Personal Protective Clothing (PPE);
- Monitor the employees works with regard to safety;
- Ensure good environment performance and compliance;
- Contract an environmental consultants or specialist to carry out environmental audits.

5.3. Environmental Manager

The Environmental Manager shall represent **Vistorina N Nama** . He/she will be responsible for monitoring daily operations and ensure acceptable adherence of workers and contractors to the EMP. The Site Manager must ensure that

a copy of the EMP is available on the vessel at all times and every worker is conversant with the EMP.

5.4. Employees and Contractors

All stakeholders, especially employees and contractors must;

- Adhere to the EMP;
- Ensure to wear personal protective clothing at all time when working;
- Report worn out PPE and request for replacement;
- Adhere to the company rules and policies.

6. DISCIPLINARY ACTION

The EMP is a legally binding document. Non-compliance to the EMP must result in punishable legal action against the proponent such as;

- Suspension of work;
- Financial penalties.

The disciplinary action shall be determined as per the provision of EMA and relevant statutory framework. Under Section 27 (4), *Any person who contravenes subsection (3) commits an offence and is on conviction liable to a fine not exceeding N\$500 000 or to imprisonment for a period not exceeding 25 years or to both such fine and such imprisonment”.*

7. THE ENVIRONMENTAL MANAGEMENT PLAN

The scope of this EMP is with reference to the EIA of the exploration activities for precious stones on the Exclusive Prospecting Licence (EPL) 8627 and decommissioning phase of the planned project. This EMP is structured by considering Social, Environmental, Safety and Occupational Health aspects associated with this project as summarised in **Table 2** below.

Table 2 : Environmental Management Plan (EMP)

Activity	Objectives
A – Staff Induction	Induction
	Communication
B – Health and Safety	General safety at workplace (Vessel)
	Noise Exposure
C – Pollution and Waste Management	Sediment plumes, material waste, domestic waste
	Chemicals, exploration equipment and vibration
	Fuel spillage
D – Environment	Seabed
	Water
	Biodiversity
	Rehabilitation
E – Cultural Heritage	Archaeological and Heritage
F – Socio- Economic	Employment
	Alcohol and drug abuse
	Working hours
	Capacity building
	HIV / AIDS
G – Decommissioning/Closure	Decommissioning/closure plan
	Financial provision for the decommissioning/closure of exploration activities and rehabilitation.

SECTION A: STAFF INDUCTION

Table 3. Staff Induction Mitigation Measures

Environmental or Social Aspects	Objective	Proposed Mitigation Measures	Monitoring Indicators	Responsibility
Staff Induction	To ensure that all staff / employees are familiar with the requirements of the EMP including environmental policy and procedures.	<p>All employees and contractors must go through an rigorous induction course on all the provisions of the EMP including environmental policy and procedures.</p> <ul style="list-style-type: none"> There must be an annual induction course for all the workers. New employees must not start work without going through the induction course. 	<p>Induction minutes and attendance register signed by each staff member.</p> <p>Induction report</p>	Management or Environmental Manager
	Disciplinary	<ul style="list-style-type: none"> Company must adopt a disciplinary system to discipline staff for non-compliance, such 	Disciplinary meetings and actions	Management or Environmental Manager

Environmental or Social Aspects	Objective	Proposed Mitigation Measures	Monitoring Indicators	Responsibility
		<p>as not ensuring a safe inshore waste disposal practice etc.</p> <ul style="list-style-type: none"> • Strict measure must be put in place, any employee found contravening provisions of the EMP, must be granted a warning letter. 	<p>Disciplinary letters / Warnings</p>	
	<p>Availability of the EMP and Environmental Policy Statement on the vessel for ease of reference.</p>	<ul style="list-style-type: none"> • Ensure that a copy of the EMP and Environmental Policy Statement are kept on the vessel and accessible 	<p>Physical view of the EMP and Environmental Policy Statement.</p>	<p>Management or Environmental Manager</p>

Environmental or Social Aspects	Objective	Proposed Mitigation Measures	Monitoring Indicators	Responsibility
Communication	To ensure effective communication and improve environmental management and awareness.	<ul style="list-style-type: none"> • The project must develop a communication strategy • Correspondences must be in writing • The contact numbers for the Environmental Manager must be available, displayed at key areas on vessel in case of emergencies. • There must be an alarm bell for emergency communication • All personnel who are in a position to make or take actions that will influence environmental protection and management will be made aware of the content and their respective responsibilities for the implementation of the 	<p>Communication Strategy</p> <p>Letters, e-mail, notices, minutes</p> <p>Display of Environmental manager and emergency numbers at key areas on the vessel.</p>	Management or Environmental Manager

Environmental or Social Aspects	Objective	Proposed Mitigation Measures	Monitoring Indicators	Responsibility
		EMP, Environmental Policy Statement and Environmental Management System.		
Presence of vessels	To ensure an effective commencement of the exploration project.	<ul style="list-style-type: none"> • At least 14 days in advance prior to the commencement of the exploration project; • Notify the Executive Director in Ministry of Mine and Energy in writing pertaining to the location, nature and extend of the exploration project. • Notify other relevant authority namely; NAMPORT and 		Management or Environmental Manager

Environmental or Social Aspects	Objective	Proposed Mitigation Measures	Monitoring Indicators	Responsibility
		<p>Lüderitz Town Council including other key industry players in the area in writing pertaining to the location, nature and extend of the exploration project.</p> <ul style="list-style-type: none"> • Notify Walvis Bay radio of the intended exploration using the vessel. • On completion of the exploration notify the Walvis Bay radio, that the exploration activities have been completed. 		

SECTION B: HEALTH AND SAFETY

Table 4. Health and Safety Measures to be implemented

Environmental / Social Aspects	Objective	EXPLORATION PHASE Mitigation Measures	Monitoring Indicators	Management Indicators	Responsibility
Health & Safety	Adhere to the Health and Safety Regulations, Government Notice 156/1997 (GG 1617).	<ul style="list-style-type: none"> • The proponent must develop a health and safety plan; • A compulsory safety induction course must be given to all employees. • Each employee must be provided with personal protective equipment (PPE) and must be worn at all time during working and when on vessel. • Ensure all workers are inducted on the dangers of the risks associated with working on a marine 	Health and safety included and reflected in the induction minutes Visual Inspection Visual Signs available	Certification of completion by approved personnel. Visual Inspection	Management or Environmental Manager

Environmental / Social Aspects	Objective	EXPLORATION PHASE Mitigation Measures	Monitoring Indicators	Management Indicators	Responsibility
		<p>exploration vessel, chemicals and emergency response;</p> <ul style="list-style-type: none"> • There must be clear health and safety signs at designated area such as, ASSEMBLY AREA, NO SMOKING “DANGER”, “ENTRANCE PROHIBITED” etc. • Employees must NOT be exposed to noise levels above the required -85dB (A) limit over a period of 8 hours. Should the noise level be higher than 85dB (A), the employer must 	Record of hearing loss	<p>Availability of fire extinguishers on the vessel and evidence of training (e.g. minutes, training pictures etc). Visible signages</p> <p>Report of health check ups</p>	

Environmental / Social Aspects	Objective	EXPLORATION PHASE Mitigation Measures	Monitoring Indicators	Management Indicators	Responsibility
		<p>implement a hearing conservation program such as noise monitoring;</p> <ul style="list-style-type: none"> • Worker must be provided with appropriate PPE such as industrial earmuffs; • Supply safe drinking water. • Ensure adequate, hygienic and user-friendly ablution facilities for all staff; • Inspect ablution facilities regularly. • Supervisors must undergo an occupational 	<p>Clean water</p> <p>Clean toilets at all time</p>	<p>Laboratory analysis report</p> <p>Clean toilets at all time</p>	

Environmental / Social Aspects	Objective	EXPLORATION PHASE Mitigation Measures	Monitoring Indicators	Management Indicators	Responsibility
		health and first aid course.	Proof of Certification		
Establish and Maintain Safety Management System (SMS)	Improved health and safety	<ul style="list-style-type: none"> Maintain high safety standards onboard and arrange annual audits by the National Occupational Safety Association (NOSA). 	Accident records	High standards of occupational health and safety ratings is maintained.	Management or Environmental Manager
Comply with International Safety Management (ISM) Code Prevention	Improved health and safety	<ul style="list-style-type: none"> Ensure compliance with International Maritime Organisation's International Safety Management (ISM) code developed and implemented. Ensure that the required external assessments of 	Submission of monitoring and evaluation report to the relevant authority.	Compliance certificate	Management or Environmental Manager

Environmental / Social Aspects	Objective	EXPLORATION PHASE Mitigation Measures	Monitoring Indicators	Management Indicators	Responsibility
		compliance to the ISM Code are conducted.			

SECTION C: POLLUTION CONTROL AND WASTE MANAGEMENT

Table 5. Pollution and Waste Management Mitigation Measures

Environmental / Social Aspect	Objectives	EXPLORATION PHASE Mitigation Measures	Monitoring Indicator	Management Indicator	Responsibility
Acoustic positioning for seabed crawlers	To reduce seabed hazards	<ul style="list-style-type: none"> Maintain the hazards database of the locations of concrete blocks used in the acoustic positioning system for crawlers. If there is any request, report this 	Records of submission monitoring report to the relevant authority.	Endorsement by the relevant authority	Management or Environmental Manager

Environmental / Social Aspect	Objectives	EXPLORATION PHASE Mitigation Measures	Monitoring Indicator	Management Indicator	Responsibility
		data to the relevant authority.			
Seismic surveying (airgun, tow- fish)	Reduces the vibration and noise disturbance of marine mammals and fish.	<ul style="list-style-type: none"> • Maintain the marine life sighting programme from the vessel to record the presence, proximity to behaviour patterns of marine mammals and seabirds near the exploration vessel. • Render specialised training for marine mammal's observer to implement the required monitoring programs. 	Monitoring programs/schedules	Monitoring reports	Management / Environmental Manager

Environmental / Social Aspect	Objectives	EXPLORATION PHASE Mitigation Measures	Monitoring Indicator	Management Indicator	Responsibility
Sampling programs	To reduces the disturbance of the benthic habitat and its communities.	<ul style="list-style-type: none"> • Carry out a high-resolution geophysical survey such as bathymetry and seismic profiling before commencing with exploration activities to determine the depth and exploration dredges steepness. • Carry out benthic macrofaunal assessment to determine the seabed topography and marine species present to have a 	Database of benthic marine species.	Publication of benthic marine environment report.	Management / Environmental Manager

Environmental / Social Aspect	Objectives	EXPLORATION PHASE Mitigation Measures	Monitoring Indicator	Management Indicator	Responsibility
		<p>better understanding of the area marine environment and determine the suitable exploration techniques and methodology.</p> <ul style="list-style-type: none"> • Conduct a coring survey to determine the presence of Hydrogen Sulphide pockets in thick mud overburden area prior to exploration. • Monitor onboard air quality during exploration within the EPL 8627 area. 	<p>Hydrogen Sulphide eruption monitoring reports.</p> <p>Air quality monitoring report</p>	<p>Monitoring reports</p> <p>Air quality monitoring report</p>	

Environmental / Social Aspect	Objectives	EXPLORATION PHASE Mitigation Measures	Monitoring Indicator	Management Indicator	Responsibility
Suspended sediment plumes	Reduce the disposal of tailing overboard during exploration	<ul style="list-style-type: none"> • Conduct an ecological risk assessment on the suspended sediment plumes and report to the relevant authority to recommend further action. • Ensure that water sample are analysed by an approved laboratory. • Make sure the monitoring results is scientifically evaluated by qualified personnel. 	Suspended sediment monitoring report	Suspended sediment monitoring report.	Management / Environmental Manager

Environmental / Social Aspect	Objectives	EXPLORATION PHASE Mitigation Measures	Monitoring Indicator	Management Indicator	Responsibility
		<ul style="list-style-type: none"> The monitoring report must be submitted to the relevant authority. 			
Use of chemicals for onboard treatment process	Strictly monitoring of ferrosilicon onboard treatment process.	<ul style="list-style-type: none"> Strictly monitor the utilisation of ferrosilicon on a continuous basis. Encourage initiative such as the use of shell crushing equipment to amplify the retrieval of ferrosilicon where there are operation in shelly substrate since this compound accumulate in shells. 	Continuous monitoring	Continuous monitoring	Management / Environmental Manager

Environmental / Social Aspect	Objectives	EXPLORATION PHASE Mitigation Measures	Monitoring Indicator	Management Indicator	Responsibility
Oil Spillages	To prevent the pollution of the sea by heavy fuel and diesel during refuelling or tank burst.	<ul style="list-style-type: none"> • Acquire a specific exemption from the Namibian Directorate of Maritime Affairs prior to refuelling within the 200 nautical miles of the coast. • In the event of the oil spills the following action should be taken; • Follow the Shipboard Oil Spill Emergency Response Manual procedure approved by the Namibian 	Oil-spill Contingency Plans	Oil-spill Contingency Plans	Management / Environmental Manager

Environmental / Social Aspect	Objectives	EXPLORATION PHASE Mitigation Measures	Monitoring Indicator	Management Indicator	Responsibility
		<p>Directorate of Maritime Affairs.</p> <ul style="list-style-type: none"> As per the Emergency Plan the vessel superintendent must inform all the relevant authorities in Namibia namely; Ministry of Works and Transport (Marine Division), MFMR, MME, MEFT and NAMPORT the Harbour Master at, Lüderitz and Walvis Bay. 			

Waste Generation/Management	Avoid the pollution of the marine environment	<ul style="list-style-type: none"> • Ensure that Namibian National Solid Waste Management Strategy of 2017 is in place and enforce. • Comply with all legal requirements for waste management and pollution control and employ a good house-keeping and monitoring practice. • Follow stringent cradle to grave waste management practices. • Promote environmental awareness on waste management. 	Waste management plan	Waste management plan	Management / Environmental Manager
------------------------------------	---	--	-----------------------	-----------------------	------------------------------------

Environmental / Social Aspect	Objectives	EXPLORATION PHASE Mitigation Measures	Monitoring Indicator	Management Indicator	Responsibility
		<ul style="list-style-type: none"> • Ensure a safe inshore waste disposal practice and promote the waste management approach; reduce, reuse and recycle. • Maintain a record on the type and amount of waste disposed. 			

SECTION D: ENVIRONMENT

Table 6. Environmental Mitigation Measures to be implemented

Aspect	Objective	EXPLORATION PHASE Mitigation Measure	Monitoring Indicator	Responsibility
Biodiversity	Maintain the coastal and marine ecosystem services and protect the fauna and flora.	<ul style="list-style-type: none"> • No worker is allowed to disturb, catch, remove, injure or feed any marine animals or seabirds. • No worker is permitted to intentionally remove, injure or kill any marine animals or seabird. • No workers should be permitted to disturb, remove or collect any plant or its materials. • Pick, uproot, fell or damage any plant materials growing in the coastal area without a permit. • Ecological sensitive areas such breeding sites and area in proximity to Island should be avoided during exploration/prospecting. • Disciplinary actions must be taken to any person not complying and strict penalties shall be imposed. 	Disciplinary records	Management / Environmental Manager

Aspect	Objective	EXPLORATION PHASE Mitigation Measure	Monitoring Indicator	Responsibility
Illegal harvesting of marine mammals, fish, rock lobster and turtle	To prevent the disturbance of marine animals.	<ul style="list-style-type: none"> • No worker is permitted to harvest any marine animals without a valid permit. • Any illegal fishing activities should be report to the relevant authority. 	Disciplinary records	Management / Environmental Manager
Water Resource	Conservation of water resource	<ul style="list-style-type: none"> • A valid water abstraction permit should be obtained from the MAWLR. • No pollution or contaminant should be allowed to enter the marine ecosystem. • There should be a continuous water quality monitoring taking place to ensure that there is no water contamination taking place within the EPL area. • Recycle water and foster the re-use of water. • Monitor and control water usage and minimise if possible. 	Valid water abstraction permit.	Management / Environmental Manager

Aspect	Objective	EXPLORATION PHASE Mitigation Measure	Monitoring Indicator	Responsibility
		<ul style="list-style-type: none"> Keep record of water consumption, set target and put action plan when targets are exceeded. 		
Alien Invasive	Maintain natural ecosystem	<ul style="list-style-type: none"> Release ballast water only when the vessel is more than 12 miles from land in water depths greater than 25 meters. 	No alien invasive species recorded	Management / Environmental Manager

SECTION E: HERITAGE AND ARCHEOLOGICAL SITES

Table 7. Archaeology and Heritage Mitigation Measures

Environment / Social Aspect	Objectives	EXPLORATION PHASE Mitigation Measure	Monitoring Indicator	Responsibility
Heritage Resources / Artefacts	Preserve Heritage and Archaeological materials	<ul style="list-style-type: none"> The management should be made aware of the provision of the National Heritage Act regarding prompt reporting of any archaeological findings. 	Sighting report/s of heritage resources / artefacts	Management / Environmental Manager

Environment / Social Aspect	Objectives	EXPLORATION PHASE Mitigation Measure	Monitoring Indicator	Responsibility
		<ul style="list-style-type: none"> • Immediately inform the Environmental Manager or management, who will inform the NHC. • Retain all the artefacts recovered and where feasible; maintain a photographic record, take note of the date, time, location and type of artefacts found in the logbook; • Hire a marine archaeologist in consultation with NHC to survey the area. • Avoid conducting exploration within 500m from the centre once the area has been surveyed in order to obtain the baseline data, a 2-3 baseline data is recommended. 		

SECTION F: SOCIO ECONOMIC

Table 8. Social Economic Mitigation Measures

Environmental / Social Aspects	Objectives	EXPLORATION PHASE Mitigation Measures	Monitoring Indicator	Responsibility
Employment	Promote benefits to the local resident	<ul style="list-style-type: none"> • Adopt a local first policy to ensure that all general work is reserved for local people from Lüderitz, unless in circumstances where specialised skills are required. • Ensure that wellness program includes all the employees. • Employ local contractors e.g. SMEs • Where possible expand wellness programs to contracted SMEs. • Fair compensation and labour practise as per Namibian Labour Laws must be followed. 	Employee structure and proportion of local employment	Management or Environmental Manager
Corporate Social Responsibility	Enhance the livelihood of the	<ul style="list-style-type: none"> • With the resources available support appropriate initiatives to improve the 		

Environmental / Social Aspects	Objectives	EXPLORATION PHASE Mitigation Measures	Monitoring Indicator	Responsibility
	local communities	community welfare particularly in Lüderitz and !Karas region.		
HIV/AIDS	To prevent the spread of HIV/AIDS	Provide HIV / AIDS awareness at induction.		
COVID 19	To prevent the spread of Covid 19.	<ul style="list-style-type: none"> • Adhere to all Covid19 regulations and protocol. • Maintain the wearing of face mask, social distance and sanitising. • Ensure that employee's temperature is checked. • Report any case of suspected employee with sign of Covid 19 and isolate the suspect and fellow employees who were in contacts with the suspect. 	Suspected employees and contacts	Management or Environmental Manager
Alcohol and Drug use	Prevent alcohol and drug use	<ul style="list-style-type: none"> • Ban the use of alcohol and drugs on the vessel. 	Drunk / Misbehaving employees	Management or Environmental Manager

Environmental / Social Aspects	Objectives	EXPLORATION PHASE Mitigation Measures	Monitoring Indicator	Responsibility
		<ul style="list-style-type: none"> Teach employees about dangers alcohol and substance abuse. All employees must be screen with the breathalyser to avoid intoxicated personnel to board the vessel. 	Breathalyser report	
Working hours	Adhere to the Labour Act No. 11 of 2007	<ul style="list-style-type: none"> Operate within the prescribed working days and hours as per the Namibian Labour laws and regulations 	Labour unrest / Demonstration	Management or Environmental Manager

SECTION G: DECOMMISSIONING/CLOSURE

Table 9. Decommissioning/closure Mitigation Measures to be implemented

Aspect	Objective	EXPLORATION PHASE Mitigation Measure	Monitoring Indicator	Responsibility
Decommissioning/Closure Plan	To ensure and attain the decommission/closure targets.	<ul style="list-style-type: none"> Ensure decommissioning/closure plan is continuous throughout the life cycle of the project. Collect all relevant information throughout the life cycle of the project to ensure that all 	Updated decommissioning/closure plan.	Management / Environmental Manager

Aspect	Objective	EXPLORATION PHASE Mitigation Measure	Monitoring Indicator	Responsibility
		<p>environmental risks are quantified and managed properly.</p> <ul style="list-style-type: none"> • Submit the decommissioning/closure plan to the office of the Environmental Commissioner and Mining Commissioner for approval. 		
Financial provision for the decommissioning/closure of exploration activities and rehabilitation.	Enhance decommissioning/closure and rehabilitation	<ul style="list-style-type: none"> • Allocate substantial operational cost in order to attain the EMP objectives by ensuring that potential impacts are managed or monitored. • Maintain sufficient Protection and Indemnity (P&I) Insurance Cover for the purpose of decommissioning/closure and rehabilitation liabilities. • Allot operational cost to monitor and ensuring natural recovery of the seabed through pre and post exploration. • Reserve adequate funds for specialist assessments such as benthic assessment in the event that the natural recovery process is taking longer than anticipated and resources for continuous monitoring will be requirement. 	Protection and Indemnity (P&I) Insurance Cover.	Management / Environmental Manager

8. CONCLUSION AND RECOMMENDATIONS

The proposed exploration project had different environmental parameters that were assessed for possible environmental impacts. The potential environmental impacts will be localised to the EPL only. Exploration of precious stones is a listed activity according to EMA and may not be undertaken without a valid ECC. Most of the potential negative impact can be reduced to insignificance levels if the mitigation measure outlined in this EMP are correctly executed.

All the potential impacts were identified, and mitigation measures proposed were given with high confidence.

Based on the information provided, and environmental set up of the planned exploration project, it is recommended that the Environmental Clearance Certificate shall be issued to necessitate the commencement of the project and with continuous changing of the environment, regular monitoring must be put in place, therefore, the proponent must appoint an Independent Environmental Consultant and relevant specialists to uninterruptedly conduct environmental audits and prepare specialist reports for submission to the office of Environmental Commissioner.