

**EMP FOR THE PROPOSED MINERAL EXPLORATION OF MARBLE ON  
EXCLUSIVE PROSPECTING LICENCE (EPL) 6118 IN KARIBIB, ERONGO REGION**



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## DOCUMENT DATA SHEET

<b>Title</b>	<b>A SCOPING REPORT ON THE ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED MINERAL EXPLORATION OF MARBLE ON EXCLUSIVE PROSPECTING LICENCE (EPL) 6118 IN KARIBIB, ERONGO REGION</b>		
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# **1. Environmental Management Plan (EMP)**

## **1.1 Overview**

### **1.1.1. Purpose of this Environmental Management Plan (EMP)**

Environmental management plan (EMP) serves as a tool that can ensure sustainable mineral exploration, as it contains measures aimed at protecting, rehabilitating and restoring the environment to its productive state before, during and after exploration. It serves as a risk strategy that contains logical framework, monitoring programs, mitigation measures and management control. The aim of an Environmental Management plan (EMP) is to develop procedures to implement project's mitigation measures and monitoring requirements. It is deemed as a risk strategy that contains logical framework and management control strategies to minimize potential environmental impacts to significant level. The EMP ensures the community that the environmental management of the project is acceptable. As well as stipulating the roles and responsibilities of persons involved in the project. An EMP ensures that legal and policy requirements are well known and understood by the proponent, its employees and contractors and will be strictly enforced by its management team. Issues and concerns identified in the EIA will form a set of environmental specifications that will be implemented on site.

The control measures described in this EMP have been developed following consideration of the findings of the Environmental Impact Study (EIS), which concluded that a number of environmental values would be impacted by the proposed exploration activities. The intent of the proposed control measures is to ensure that project related activities will not negatively affect the environment or the health, welfare and amenity of people and land uses by meeting or exceeding statutory requirements.

Furthermore, overall objectives of this EMP are:

- To develop measures that will mitigate the adverse impacts of the proposed project

- Ensuring compliance with regulatory authority stipulations and guidelines
- To formulate measures to enhance the value of environmental components where possible.
- To formulate measures to protect environmental resources as well enhance the value of environmental components where possible.
- Responding to unforeseen events and providing feedback for continual improvement in environmental performance.

### **1.1.2. Summary of the proposed activities**

The proponent has an exclusive prospecting licence (EPL 6118) over the Project site. Exploration activities and associated activities have potential impacts on the following:

- Potential land or soil disturbances,
- Soil and water resources contamination,
- Biodiversity (fauna and flora),
- Air quality/dust,
- Noise,
- Health and safety,
- Vehicular traffic safety,
- Archaeological impact.

### **1.1.3. Project Phases Covered in the EMP**

The following phases are addressed in this EMP:

- **Exploration phase:** this is the phase where Catseye (proponent) will be carrying out exploration of dimension stone and other minerals. It is also the time when proponent has to undertake maintenance and care of the environment and machinery.

- **Environmental monitoring phase:** this is the phase when mitigation measures are implemented, and the monitoring plan put in place. This phase runs concurrently with the exploration and decommissioning.
- **Decommissioning phase:** This is the phase when exploration activities cease as a result of either poor exploration results or loss of market demand for the targeted commodity. Rehabilitation measures will have to put in place during exploration and before decommissioning.

#### **1.1.4 Legal Implications and obligations under the EMP**

The EMP will be sent to the Directorate of Environmental Affairs (DEA) of the Ministry of Environment, Forestry and Tourism (MEFT) for approval. Once the DEA is satisfied with the contents of the EMP, they will issue an Environmental Clearance Certificate (ECC) to the Proponent to commence with the exploration in the proposed area. The ECC is linked with the recommendations of the Environmental Management Plan. Once the ECC is issued, the EMP becomes a legally binding document and each role-player including contractors and sub-contractors are made responsible to implement the relevant sections of the EMP and is required to abide by the conditions stipulated in this document

### **1.1.5 Environmental Management Principles**

The proponent will ensure that all parties involved in the project uphold the following broad aims:

1. All persons will be required to conduct all their activities in a manner that is environmentally and socially responsible. This includes all consultants, contractors, and sub-contractors, transport drivers, guests and anyone entering the exploration area in connection with the exploration project.

#### **2. Health, Safety and Social Well Being**

- ❖ Safeguard the health and safety of project personnel and the public against potential impacts of the project. This includes issues of road safety, precautions against natural dangers on site, and radiation hazards; and,
- ❖ Promote good relationships with the local authorities and their staff.

#### **3. Biophysical Environment**

- ❖ Wise use and conservation of environmental resources, giving due consideration to the use of resources by present and future generations;
- ❖ Prevent or minimize environmental impacts;
- ❖ Prevent air, water, and soil pollution, Biodiversity conservation and due respect for the purpose and sanctity of the area.

To achieve these aims, the following principles need to be upheld.

#### **Commitment and Accountability:**

The proponent's senior executives and line managers will be held responsible and accountable for: Health and safety of site personnel while on duty, including while travelling to and from site in company vehicles and environmental impacts caused by exploration activities or by personnel

engaged in the exploration activities, including any recreational activities carried out by personnel in the area.

### **Competence**

The proponent will ensure a competent work force through appropriate selection, training, and awareness in all safety, health and environmental matters.

### **Risk Assessment, Prevention and Control**

Identify, assess and prioritise potential environmental risks. Prevent or minimize priority risks through careful planning and design, allocation of financial resources, management and workplace procedures. Intervene promptly in the event of adverse impacts arising.

### **Performance and Evaluation**

Set appropriate objectives and performance indicators. Comply with all laws, regulations, policies and the environmental specifications. Implement regular monitoring and reporting of compliance with these requirements.

### **Stakeholder Consultation**

Create and maintain opportunities for constructive consultations with employees, authorities, other interested or affected parties. Seek to achieve open exchange of information and mutual understanding in matters of common concern.

### **Continual Improvement**

Through continual evaluation, feedbacks, and innovation, seek to improve performance regarding social health and well-being and environmental management throughout the lifespan of the exploration project.

### **Financial Provisions for exploration**

In line with Namibia's environmental rehabilitation policy, the proponent will make the necessary financial provision for compliance with the EMP.

## **1.2. Identified impacts, monitoring and proposed mitigation measures**

The EMP will be the tool used by the proponent and their employees and/or their contractors during exploration to ensure that environmental impacts are either avoided or minimized.

### **1.2.1. Impacts on bio-physical environment**

#### **1.2.1.1. Liquid waste: oil spillage and wastewater**

**Mitigation Measures** to be enforced:

- Ensure adequate storage and handling of liquid waste, fuel, wastewater as well as regular maintenance of plant equipment.
- Avail a spill response action plan in case of accident.
- Accessibility to spill prevention and response equipment, such equipment should be visible and accessible to all employees at any given time.
- Spills will be cleaned up immediately to the satisfaction of the site Manager by removing the spillage together with the polluted soil and by disposing of them at a recognized facility.
- Designated waste collection tanks should be available on-site and away from waterways, and such isolation should be maintained at all times.
- Storage of the hazardous substances in a bounded area,
- Refuel vehicles at a designated area that has a protective surface covering/geo-membrane lining and utilize drip trays for stationary plant.

#### **1.2.1.2 Impacts on surface water**

**Mitigation Measures** to be enforced:

- No dumping of waste products of any kind in or in close proximity to surface water bodies.



- Heavy exploration vehicles should be kept out of any surface water bodies and the movement of vehicles should be limited where possible to the existing roads and tracks.
- Ensure that oil/ fuel spillages from vehicles transporting the stones and machinery are minimized and that where these occur, that they are appropriately dealt with.
- Drip trays must be placed underneath vehicles when not in use to contain all oil that might be leaking from these vehicles.

### **1.2.1.3. Solid waste**

Solid waste is a challenge during the exploration phases. It can be generated from contractors, staff members and other visitors to the area. Proper solid waste management will involve full commitment by all the employees and contractors on site. Solid waste which will be generated from this project if not managed will have an effect on the environment.

**Mitigation Measures** to be enforced:

- The collected solid waste should be disposed of at Karibib Town Council solid waste disposal sites.
- For human waste, during the exploration phase, the mobile toilet should be made available on-site for workers and once these facilities are full, the collected human waste should be disposed at the Town Council human waste disposal site.
- It is recommended that waste from the temporary toilets be pumped out and disposed of at the designated waste treatment site in Karibib.
- Mandatory waste segregated right at the source of waste generation.
- Non-degradable waste will be transferred to the municipal solid waste management system.

### **1.2.1.4. Land and soil disturbance**

Dimensions stone and other mineral exploration process involve geophysical surveys, drilling, pitting, trenching and excavations. This undertaking has the potential though very negligible of disturbing the structural composition and biological productivity of topsoil and if not taken care of this can lead to land degradation.

**Mitigation Measures** to be enforced:

- The access road to exploration sites must be established in consultation with the landowner and usage of existing roads shall be enforced.
- The design, construction, and location of access to main roads will be in accordance with the requirements laid down by the controlling authority.
- Land markings, vehicle tracks, trenches and excavations shall be restored to the original landform and, visual state as much as possible.
- In the case of dual or multiple uses of access roads by other users, arrangements for multiple responsibilities must be made with the other users. If not, the maintenance of access roads will be the responsibility of the holder of the exclusive prospecting licence (EPL).

#### **1.2.1.5. Biodiversity (fauna and flora)**

Some of the activities of the proposed project i.e. vehicles, human movements, excavating pose a risk to the integrity of baseline biodiversity as well as the biological productivity of the site and the immediate proximity. Movement of vehicles in and out of the site and noise produced by moving earth-moving equipment are the major threats to fauna. The following mitigations are to be undertaken to minimize further impact on the existing biodiversity:

**Mitigation Measures** to be enforced: **flora**

- Disturbed areas must be kept to a minimum.
- Remove unique fauna and sensitive fauna before commencing with the development activities and relocate to a less sensitive/disturbed site if possible.

- Recommend the planting of local indigenous species of flora as part of the landscaping as these species would require less maintenance than exotic species and have important ecological functions in terms of carbon sequestration from decomposing materials at the site.
- Disturbance of marginal vegetation in the mountains should be limited.
- Where it is clear that certain large species will be destroyed consideration should be given to offering to rescue the individuals involved and relocate them to nearby gardens.
- Transplant removed trees where possible, or plant new trees in lieu of those that have been removed.
- Prevent the destruction of protected tree species.

**Mitigation Measures** to be enforced: **fauna**

- Barriers/barricades confining driving trucks must be erected to avoid stray driving and trampling on habitat. Proper demarcation of the exploration area.
- Avoid disturbance on invertebrate on-site and along the gravel road stretch.
- Avoid the creation of multiples roads strips, which could result in the disturbance of breeding sites for various mammals.
- No workers will be allowed to collect any plant or snare, hunt or otherwise capture any wild animal.
- No domestic animals will be permitted on the exploration site by means of erecting a perimeter fence, small stock should graze at designated areas.
- A fauna survey will be conducted to determine the effect of fragmented habitat on game species should the need arise.
- No foodstuff will be left lying around as these will attract animals which might result in human-animal conflict.
- Care will be taken to ensure that no litter is lying around as these may end up being ingested by wild animals

**Methods for monitoring:**

- Regular monitoring of any unusual signs of animal habitat.
- There should be limited movement of heavy-duty machinery and exploration equipment in the area to avoid interference.
- Birds or Nest sites will not be disturbed by any employee, visitor or contractor.
- If possible encountered bird kills and nest removal should be registered in a biodiversity data-base and information should be made available to the general public

**1.2.1.6. Air quality**

The proposed exploration activities are the potential of fugitive sources for the dust particles as they are easily dispersed and carried away by the winds. During the operation phase dust will be generated onsite by earth moving equipment and also on the gravel road by trucks and vehicles. Continuous movements of people, vehicles and earth moving vehicles on site can thus loosen and re-suspend the deposited material again into the air

**Mitigation Measures** to be enforced

- Dust suppressants shall be applied to all the exploration activities as well as all off roads and gravel roads.
- The speed of exploration vehicles must be strictly controlled to reduce dust or prevent deterioration of the roads being used.
- All off roads in the project area should have a speed limit of 50km/h in order to minimize the amount of dust generated by vehicles.
- During high wind conditions the proponent must make the decision to cease works until the wind has calmed down.
- Use of personal protective equipment for proper dust control for respiratory protection and other necessary PPE (gloves, work suits, sun hats etc.).

## **Monitoring**

- Daily inspection by the ENC of the gravel roads and exploration site on possible dust creation that requires attention.
- Daily inspection on site by the ENC to ensure that all workers are wearing their protective clothes at all time during the exploration process and the dry skin contact with gloves is prevented.

### **1.2.1.7. Impacts on Archaeological Sites**

Potential damage to archaeological sites may be impacted through unintentional destruction or damage as a result of vehicle tracks, footprints and actions of contractors, employees and visitors of the exploration site. Currently, there is no information provided about known heritage or site of cultural values within the project site. Therefore, this impact can be rated medium to low, if there are no mitigation measures in place. At the sites, there are no known heritage areas or artifacts deemed to be impacted by the ongoing exploration and exploration activities. However, there might be unknown archaeological remains within the Exclusive prospecting licence area hence the Proponent is required to follow the chance find procedures and consult the Heritage Council immediately. The Proponent should consider having a qualified and experience archaeologist on standby during entire operational phase. This action will be to assist on the possibility of uncovering sub-surface graves or other cultural/heritage objects and advice the proponent accordingly. Identified graves or any archaeological significant objects on the site should not be disturbed but are to be reported to the project Environmental officer or National Heritage Council offices.

### **Mitigation Measures to be enforced**

- Buffer zones will be created around the operation site.
- Adhere to practical guidelines provided by an archaeologist to reduce the archaeological impact of exploration activities.

- All archaeological sites to be identified and protected before construction commences.
- Notices/information boards will be placed on sites.
- Training employees regarding the protection of these sites.
- Obtain appropriate clearance or approval from the competent authority.
- In the event of such finds, exploration must stop and the project management or contractors should notify the National Heritage Council of Namibia immediately.

### **Monitoring**

- An archaeologist will inspect any identified archaeological sites before commencing of exploration activities.

#### **1.2.1.8. Noise**

Noise emissions on site are mainly generated by earthmoving equipment, drilling rigs, people and vehicles. The main noise sources are associated with drilling and transport of equipment or materials to or from the exploration site. Exposure to loud noises at work can cause irreversible hearing damage, workplace accidents and be a contributing factor to other health problems.

#### **Mitigation Measures** to be enforced

Continuous monitoring of noise levels should be conducted to make sure the noise levels at the exploration site does not exceed acceptable limits.

- Reduction of noise from drilling rigs by using down hole drilling.
- No activity having a potential noise impact should be allowed after 18:00 hours if possible.
- Workers working near high noise exploration machinery will be provided with ear muffs/ earplugs.

#### **1.2.1.9. Visual negative impacts**

**Mitigation Measures** to be enforced

- Negative visual effects can further be prevented through mitigations (i.e. keep existing trees, introduce tall indigenous trees).
- When exploration activities cease, restore the visual sense of the area to its natural state.
- Care must be taken to ensure that all rehabilitated areas are similar to the immediate environment in terms of visual character, vegetation cover and topography and any negative visual impacts will be rectified to the satisfaction of the environmental consultant.
- Overburden will be placed back into excavation as part of the rehabilitation programme

**1.7.2.1.10 Fire and Explosion Hazard**

**Mitigation Measures** to be enforced

- Sufficient fire extinguishers will be installed on every exploration vehicle.
- Exploration personnel will be trained on how to use fire extinguishers.

**1.2.1.11. Health, safety and security**

There are number of hazards associated with the movement of equipments and impact on dangerous parts of the equipment. The risk of an accident will be high if the dangerous parts are exposed and operators are poorly trained or supervised. This increases the possibility of injuries, and the responsible manager must ensure that all staff members are briefed about the potential risks of injuries on site.

**Mitigation Measures** to be enforced:

- All vehicular equipment operators must have valid licences for that particular vehicle class.
- Ensure that all exploration personnel are properly trained depending on the nature of their work.

- Provide for a first aid kit and a properly trained person to apply first aid when necessary.
- A wellness program should be initiated to raise awareness on health issues, especially the impact of sexually transmitted diseases as described above.
- Encourage HIV counselling and testing and facilitate access to Antiretroviral (ARV) medication
- Clearly demarcate the exploration (area of current activities e.g. drilling site) site boundaries along with signage of “no unauthorized access”.
- Clearly demarcate dangerous areas and no-go areas on site.
- Staff and visitors to the exploration site must be fully aware of all health and safety measures and emergency procedures.
- The contractor must comply with all applicable occupational health and safety requirements.
- The workforce should be provided with all necessary Personal Protective Equipment where appropriate.
- Emergency medical treatment should be available on site.

### **1.2.2. Negative Impacts on Socio-Economic**

The **nature of impact** is outlined below:

- Impact from loss of grazing for domestic livestock in “exclusive use zone”
- Impacts on cultural and spiritual values.
- Demographic factors: Attraction of additional population that cannot benefit from the project.
- Perception of Health and Safety risks associated with exploration.

**Mitigation Measures** to be enforced:

- The population change can be mitigated by employing people from the local community and encouraging the contractors to employ local individuals.
- The perception of risks will be mitigated by putting up safety signs wherever possible and ensuring that all employees and visitors to the site undergo a safety induction course.



**Methods for monitoring:**

- Public meetings will be held by the proponent whenever necessary.

**1.3. Environmental Management Plan, Organization and Implementation**

The environmental aspects which may be affected by the proposed project have been categorized into negative and positive impacts. As an extension of the preceding sections, this section summarizes the objectives, indicators to be observed, schedules to adhere to, and the roles and responsibilities of various stakeholders to the EMP. The following tables give the mitigation measure to be undertaken during exploration and site closure phases with the agency responsible for implementation. The following abbreviations are used to indicate who is responsible for what impact mitigation objective:

- Site Foreman SF
- Site Manager SM
- Project manager PM
- Project Proponent PP
- Project Geologist PG
- Environmental Coordinator ENC
- Contractor C
- Geological Technician GT
- Project staff PS

**Table 1:** Implementing of the negative impacts. All the mentioned impacts in the below table are scheduled for all the phases of the proposed project.

<b>Objectives</b>	<b>Indicators</b>	<b>Responsibility</b>
To avoid any form of hydrocarbon spills on and around the exploration site	No hydrocarbon spillage or/and remnants of hydrocarbon spillage shall be visible around the project site	SF, PS, ENC
To avoid any form of litter be it paper, metal, plastic and human waste on and	No litter or/and remnants of litter shall be visible around the project site	SF, PS, ENC

around the exploration site		
To minimize land and soil disturbance	Driving tracks and excavation shall be restricted and only be visible within the project site.	SM, SF, ENC
To protect and conserve fauna and flora within the project area	Minimum levels of habitat disturbance	SM, SF, ENC
To minimize dust generation on site and atmospheric pollution	Emissions/generation particulate content of the dust around the site and gravel roads shall not exceed maximum allowable concentration that may affect human being and animals	SM, SF, ENC
To ensure compliance with statutory requirements	Assurance measures shall be put in place and Periodic inspections aimed at corrective action undertaken, recorded and documented	EC, PP, ENC

**Table 2:** Summary of Environmental Management Plan during exploration and decommissioning phases.

<b>Exploration</b>			
<b>Environmenta l Impact</b>	<b>Proposed mitigation measures</b>	<b>Respon sibility</b>	<b>Monitoring plan</b>
<b>Air pollution</b>	<ul style="list-style-type: none"> <li>Control speed and operation of exploration vehicles.</li> <li>Regular maintenance of vehicles and equipment.</li> <li>Sensitize exploration workers and contractors.</li> <li>Provide dust masks to everyone on site.</li> </ul>	C SM PM ENC	<ul style="list-style-type: none"> <li>Amount of dust produced.</li> <li>Level of Landscaping executed.</li> </ul>
<b>Noise pollution</b>	<ul style="list-style-type: none"> <li>All noise sources should be removed from site or kept within reasonable level.</li> <li>Work should only be carried out only during daytime.</li> <li>Regular maintenance of vehicles, equipment.</li> <li>Regular maintenance of and heavy machinery, vehicles and equipment.</li> <li>Workers should be provided with personal hearing protection if working in noisy environment.</li> </ul>	C GT SM ENC	<ul style="list-style-type: none"> <li>Amount of noise produced</li> </ul>

<b>Solid waste</b>	<ul style="list-style-type: none"> <li>Littering should be discouraged.</li> <li>All domestic waste and general waste produced on a daily basis should be contained until such time that they are transported to the designated disposal point.</li> <li>The site should have waste receptacles or dust bins at convenient points to prevent littering during exploration.</li> <li>Waste disposal systems should be implemented on site for both hazardous waste such as oil and fuel and domestic waste such as paper and plastic.</li> </ul>	PM SM ENC PS	<ul style="list-style-type: none"> <li>Presence of dust bins, waste collection point.</li> </ul>
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<b>Oil leaks and spills</b>	<ul style="list-style-type: none"> <li>Vehicles and equipment should be well maintained to prevent oil leaks.</li> <li>Contractor should have a designated area where maintenance is carried out and that is well sealed to prevent percolation into the ground.</li> <li>All oil products should be handled carefully.</li> </ul>	C ENC SM	<ul style="list-style-type: none"> <li>Absence of oil spills and leaks onsite</li> </ul>
<b>First aid</b>	<ul style="list-style-type: none"> <li>A well-stocked first aid kit shall be maintained by qualified personnel</li> </ul>	PM	<ul style="list-style-type: none"> <li>Contents of the first aid kit.</li> </ul>
<b>Visual</b>	<ul style="list-style-type: none"> <li>Environmental considerations will always be adhered to before clearing access roads and exploration.</li> </ul>	PM GT	<ul style="list-style-type: none"> <li>Employees to be trained on how to minimize visual impacts.</li> </ul>
<b>Archaeological Sites</b>	<ul style="list-style-type: none"> <li>Buffer zones will be created around the sites.</li> <li>Adhere to practical guidelines provided by an archaeologist to reduce the archaeological impact of exploration activities.</li> <li>All archaeological sites to be identified and protected before commencement of exploration</li> </ul>	PM ENC PP SM	<ul style="list-style-type: none"> <li>Register of all archaeological sites identified.</li> </ul>
<b>Occupational Health and Safety</b>	<ul style="list-style-type: none"> <li>Provide Personal Protective Equipment, Train workers on personal safety and how to handle equipments and machines.</li> <li>A well-stocked first aid kit shall be maintained by qualified personnel.</li> <li>Report any accidents / incidences and treat and compensate affected workers.</li> <li>Provide sufficient and suitable sanitary conveniences which should be kept clean.</li> </ul>	C PM PP ENC	<ul style="list-style-type: none"> <li>Workers using Protective Equipment.</li> <li>Presence of Well stocked First Aid Box.</li> <li>Clean sanitary facilities.</li> </ul>

<b>Fauna</b>	<ul style="list-style-type: none"> <li>• Some habitat areas such as trees of the riverbed and tunnels outcrops will be avoided wherever possible.</li> <li>• A fauna survey will be conducted to determine the effect of fragmented habitat on game species should the need arise.</li> <li>• No animals shall be killed, captured or harmed in any way.</li> <li>• No foodstuff will be left lying around as these will attract animals which might result in human-animal conflict.</li> </ul>	PM ENC PP SM PS	<ul style="list-style-type: none"> <li>• Regular monitoring of any unusual signs of animal habitat.</li> </ul>
<b>Loss of vegetation</b>	<ul style="list-style-type: none"> <li>• Environmental considerations will be adhered to at all times before clearing access roads and exploration.</li> <li>• The movement of vehicles in riverbeds, rocky outcrops and vegetation sensitive areas will be avoided.</li> <li>• The movement of vehicles will be restricted to certain tracks only.</li> <li>• The movement of vehicles will be restricted to certain tracks only.</li> <li>• Avoid placing access routes through sensitive areas if there is any and stick to existing roads/tracks.</li> <li>• Limit the operation to the specific site.</li> <li>• Care should be exercised during exploration to minimize/ avoid vegetation destruction</li> </ul>	PM ENC PP SM PS	<ul style="list-style-type: none"> <li>• Warning signs onsite</li> <li>• Restored vegetation</li> </ul>
<b>HIV, Aids, STIs</b>	<ul style="list-style-type: none"> <li>• Exploration personnel should be sensibilized on HIV/AIDS and other STDs matters</li> <li>• Free distribution of condoms on site</li> </ul>	ENC	<ul style="list-style-type: none"> <li>• Availability of free sex educational materials</li> </ul>

	<b>Site closure as result of unfruitful exploration results or other unforeseen shortcomings</b>		
<b>Environmental/Social Impact</b>	<b>Proposed mitigation n measures</b>	<b>Responsibility</b>	<b>Monitoring plan/indicator</b>

<b>Disturbed Physical environment, Solid waste, Safety and health</b>	<ul style="list-style-type: none"> <li>❖ Undertake a complete environmental restoration program and introducing appropriate vegetation</li> <li>❖ Site should be rehabilitated to as close as possible to its original condition.</li> <li>❖ Remove all sample bags, plastic waste, survey pegs, etc. from site at completion of drill schedule.</li> <li>❖ Make sure there is no contaminated soil on drill site before rehabilitation.</li> <li>❖ Where drilling was done on a slope, some earthworks might be necessary to stabilize the area.</li> <li>❖ Make sure all drill holes are properly plugged.</li> <li>❖ Spread stockpiled topsoil back over the entire drill site.</li> <li>❖ Compacted ground on a drill site should be loosened to facilitate the regrowth of topsoil vegetation.</li> </ul>	PM C	Amount of waste on site.  Absence of contaminated soils.  Absence of unplugged holes
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#### **1.4. Monitoring, reporting and corrective action**

##### **1.4.1 Monitoring of EMP**

Monitoring of the EMP performance for the proposed project by the Contractor emphasizes early detection, reporting, and corrective action. It is divided into three parts, namely:

- Monitoring of project activities and actions to be undertaken by the Environmental Coordinator (ENC) appointed by the Contractor.
- The Environmental Coordinator (ENC) shall report all incidents and situations which have the potential of jeopardizing compliance of statutory provisions as well as provisions of this EMP to the Project Proponent.
- The Environmental Coordinator (ENC) shall take corrective prompt measures, adequate and long-lasting in addressing non-compliance activities or behavior.

To ensure compliance of the Contractor ENC to the implementation of the EMP, it is highly recommended that an External Environmental Expert is appointed by the proponent to ensure the implementation of the EMP.

#### **1.4.1.1. Inspections and Audits**

During the life of the project, performance against the EMP commitments will need to be monitored and corrective action taken where necessary, in order to ensure compliance with the EMP and relevant environ-legal requirements.

#### **Internal Inspections/Audits**

The following internal compliance monitoring programme will be implemented:

1. Project kick-off and close-out audits will be conducted on all contractors. This applies to all phases during exploration:
  - Before a contractor begin any work, an audit will be conducted by the applicable phase site manager to ensure that the EMP commitments are included in Contractors' standard operating procedures (SOPs) and method statements.
  - Following completion of a Contractors work, a final close-out audit of the contractor's performance against the EMP commitments will be conducted by the applicable phase site manager.
2. Monthly internal EMP performance audits will be conducted during the construction/initial and decommissioning phases.
3. Ad hoc internal inspections can be implemented by the applicable manager at his/her discretion, or in follow-up to recommendations from previous inspection/audit findings.

#### **External Audits**

- At the end of each project phase, and annually during the exploration phase, an independently conducted audit of EMP performance will be conducted.

- Specialist monitoring/auditing may be required where specialist expertise are required or in order to respond to grievances or authorities directives.
- Officials from the DEA may at any time conduct a compliance and/or performance inspection of exploration activities. The proponent will be provided with a written report of the findings of the inspection. These audits assist with the continual improvement of the exploration project and the proponent will use such feedback to help improve its overall operations.

#### **1.4.2. Documentation**

Records of all inspections/audits and monitoring reports will be kept in line with legislation. Actions will be issued on inspection/audit findings. These will be tracked and closed out.

#### **1.4.3. Reporting**

Environmental compliance reports will be submitted to the Ministry of Environment, Forestry and Tourism on a bi-annual basis.

##### **1.4.3.1. Environmental management system framework**

Environmental Management System (EMS) will be established and implemented by the proponent and their Contractors. This subchapter establishes the framework for the compilation of a project EMS. The applicable manager will maintain a paper based and/or electronic system of all environmental management documentation. These will be divided into policy and performance standards & Enviro legal documentation.

#### **1.4.4. Policy and Performance Standards**

A draft environmental policy and associated objective, goals and commitments has been included in the EMP. The project proponent may adapt these as necessary.

#### **1.4.5. Enviro-Legal Documentation**

A copy of the approved environmental assessment and EMP documentation will always be available by the proponent. Copies of the Environment Clearance Certificate and all other associated authorizations and permits will also be kept with the exploration team. In addition, a register of the legislation and regulations applicable to the project will be maintained and updated as necessary.

#### **1.4.6. Impact aspect register**

A register of all project aspects that could impact the environment, including an assessment of these impacts and relevant management measures, is to be maintained. This Draft EMP identifies the foreseeable project aspects and related potential impacts of the proposed project, and as such forms the basis for the Aspect Impact Register; with the Project Activity. It should however noted that during the life of the project additional project aspects and related impacts may arise which would need to be captured in the Aspect-Impact Register.

##### **1.4.6.1. Procedures and Method Statements**

In order to affect the commitments contained in this EMP, procedures and method statements will be drafted by the relevant responsible exploration staff and Contractors. These include, but may not be limited:

- Standard operating procedures for environmental action plan and management programme execution.
- Incident and emergency response procedures.
- Auditing, monitoring and reporting procedures, and
- Method statements for EMP compliance for ad hoc activities not directly addressed in the EMP action plans.



All procedures are to be version controlled and signed off by the applicable manager. In addition, knowledge of procedures by relevant staff responsible for the execution thereof must be demonstrable and training records maintained.

#### **1.4.6.2. Register of roles and responsibilities**

During project planning and risk assessments, relevant roles and responsibilities will be determined. These must be documented in a register of all environmental commitment roles and responsibilities. The register is to include relevant contact details and must be updated as required.

#### **1.4.6.3. Environmental management schedule**

A schedule of environmental management actions is to be maintained by the applicable phase site managers and/or relevant Contractors. A master schedule of all such activities is to be kept up to date by the manager. Scheduled environmental actions can include, but are not limited to:

- Environmental risk assessment;
- Environmental management meetings;
- Soil handling, management and rehabilitation;
- Waste collection;
- Incident and emergency response equipment evaluations and maintenance
- Environmental training;
- Stakeholder engagement;
- Environmental inspections and
- Auditing , monitoring and reporting

#### **1.4.6.4. Change Management**

The environmental management schedule must have a procedure in place for change management. In this regard, updating and revision of environmental documentation, of procedures and method statements, actions plants etc. will be conducted as necessary in order to account for the following scenarios:

- Changes to standard operating procedures (SOPs);
- Changes in scope;
- Ad hoc actions;
- Changes in project phase; and
- Changes in responsibilities or roles

All documentation will be version controlled and require sign off by the applicable phase site managers.

## **1.5. Environmental code of conduct**

The Code of Conduct outlined in this section of the EMP applies to, subcontractors, visitors, permanent and temporal workers. Therefore, anybody within the boundaries of the project site must adhere to the Environmental Code of Conduct as outlined in this section of the EMP. The Environmental Coordinator ENC will implement on-site environmental guidelines and has the authority to issue warnings as well as discipline any person who transgresses environmental rules and procedures. Persistent transgression of environmental rules will result in a disciplinary hearing and thereafter continued noncompliance behavior will result in permanent removal from the construction sites.

## **1.6. Site closure and rehabilitation**

### **1.6.1 Introduction**

Rehabilitation is the process of repairing the damage done by exploration activities. Rehabilitation plan has been developed with a main aim of returning disturbed environment close to its pre exploration state. It is also planned to cater for the access road, vehicle tracks around the site, removal, and restoration of areas covered by stockpile and rock piles. The closure vision for the proposed project is to establish a safe, stable and non-polluting post-

prospecting landscape that can facilitate integrated, self-sustaining and value generating opportunities, thereby leave a lasting positive legacy.

### **1.6.2. Site closure and rehabilitation activities**

All waste (such as hazardous and domestic) waste will be transported offsite for disposal in licensed landfills in Karibib town. Disturbed or/and contaminated areas will be cleaned up, treated where necessary and restored to its pristine state.

- Where access tracks have been developed in cases where there are no roads, these will be rehabilitated and closed as part of normal closure actions in consultation with landowners.
- The recovered topsoil and subsoil should be utilized to reconstruct the original soil profile.

The rehabilitation actions intended to be undertaken at the end of the life of the proposed exploration activities are described below.

#### **1.6.2.1. Remediation of Contaminated Areas**

All soil, contaminated with hydrocarbons, will be identified, excavated and disposed in accordance with nearest town council disposal requirements at appropriate sites.

- Removed soils will be managed as determined by the nature and extent of the contamination.
- All equipment in which chemicals have been stored or transported will be cleaned and disposed of in a suitable disposal facility.

#### **1.6.2.2. Waste Management**

Waste management activities will include:

- Hazardous waste will be managed handled, classified and disposed.
- Nonhazardous substances will be disposed in the nearby landfill sites.

- It may be necessary to fence temporary salvage yards for security reasons, particularly where these are located close to public roads.

## **2. Conclusion and recommendations**

The above Environmental Management Plan, if properly implemented, will help to minimize adverse impacts on the environment. Where impacts occur, immediate action must be taken to reduce the escalation of effects associated with these impacts. The Environmental Management Plan should be used as an on-site reference document during all phases of the proposed project, and auditing should take place in order to determine compliance with the EMP for the proposed site. Parties responsible for transgression of the EMP should be held responsible for any rehabilitation that may need to be undertaken.

The EMP Consultants are confident that the potential negative impacts associated with the exploration activities on site can continue to be mitigated by effectively implementing the recommended management action measures and their monitoring. This report should be viewed as a framework for integrating mitigation measures and applicable legal tools to ensure both compliance and sustainability. It is therefore very important that the proponent provides adequate support for human and financial resources, for the implementation of the proposed mitigations and effective environmental management during the planned exploration activities.

Therefore, it is recommended that the dimension stone and other mineral exploration activities on the project site be granted an Environmental Clearance Certificate, provided that: All mitigations provided in this EMP should be implemented as stipulated and where required and emphasized, improvement should be effectively put in place. The Proponent and all their workers comply with the legal requirements governing this type of project and its associated activities.