3. Environmental management plan

6.1 Overview

Conducting an environmental assessment prior to engaging in an activity such as mining or exploration is one means of anticipating future environmental repercussions and creating ways to avoid or minimize them. Prior to prospecting or mining a specific location, it is usual practice to have an environmental management plan in place. It's crucial to have a well-structured, all- encompassing plan in place, as well as an environmental management system put up by a certified environmental consultant to assist management in making responsible and realistic decisions. Each on-site employee should be given a simplified explanation of the EMP's needs at the start of exploratory activities. Employees must be informed that they are required to follow this plan when this paper is issued.

6.2 Environmental management principles

Everyone will be expected to conduct all of their activities in an environmentally and socially responsible manner. This includes all consultants, contractors, and subcontractors, as well as transport drivers, visitors, and anybody else involved in the mineral exploration project who enters the exploration regions.

Protect project staff and the general public's health and safety from the project's potential consequences. This covers road safety, on-site protection from natural risks, and radiation concerns. Environmental resource management and conservation that takes into account the needs of current and future generations Prevent contamination of the air, water, and soil, and conserve biodiversity.

6.3 Impacts on the bio-physical environment

Table 7 Possible effects on the bio-physical environment, mitigation measures, and their monitoring methods .

Impacts	Mitigation measures	Monitoring methods
Impacts on Archaeological Sites	- Buffer zones will be created around the sites. - Adhere to practical guidelines provided by an archaeologist to reduce the archaeological impact of	An archaeologist will inspect any identified archaeological sites before commencing with the mineral exploration activities.

	mineral exploration activities. - All archaeological sites to be identified and protected before further exploration commences. - Notices/information boards will be placed on sites. - Training employees regarding the protection of these sites.	

Impacts on Fauna	- Some habitat areas such as trees of the riverbeds and tunnels outcrops will be avoided wherever possible. - A fauna survey will be conducted to determine the effect of fragmented habitat on game species should the need arise. - No animals shall be killed, captured or harmed in any way. - 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	Regular monitoring of any unusual signs of animal habitat.

	- No animals shall be fed. This allows animals to lose their natural fear of humans, which may result in dangerous encounters.	
Impact on Vegetation	- Environmental considerations will always be adhered to before clearing roads, trenching and excavating. - Paths and roads will be aligned to avoid root zones. Permeable materials will be used wherever possible. - The movement of vehicles in riverbeds, rocky outcrops and vegetation sensitive areas will be avoided. - The movement of vehicles will be restricted to certain tracks only. - Areas with species of concern will be avoided. - Ministry of Environment and Tourism will be informed of any	Environmental education awareness, and regular monitoring of any unusual signs of animal habitat.

	protected species which will be transplanted in consultation with MET.	
Impacts on Socio-Economic	- The population change can be mitigated by employing people from the local community and encouraging	Public meetings will be held by the proponent whenever necessary

	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.	
Visual Impacts	Environmental considerations will be adhered to at all times before clearing roads, trenching and excavating.	Employees will be trained on the importance of minimizing visual impacts.
Generation of Solid Waste	Commit to the management of solid waste life cycle by all the employees and contractors of the site.	Transportation of solid waste to a registered site for disposal.
Noise	Disturbance to fauna that roam the area will be minimized by training the employees on ways to minimize noise.	Restriction duration of noise pollution.
Air quality	- All staff on should be equipped with dosimeters that measure exposure levels to radiation. - All staff must be made aware of the health risk and obliged to wear dust masks.	

Use of Natural Resources	The bulk of the power supply to the exploration site will be sourced from the proponent's own generator. The proponent will drill a borehole as a water source.	The proponent will use water efficiently and recycle wherever possible.

CONSTRUCTION PHASE			
Environmental impacts	**Proposed mitigation measures**	**Responsibility**	**Monitoring plan**
Solid waste	- Any debris should be collected by a waste collection company - If trenches are dug, waste should be re-used or backfilled. - The site should have waste receptacles with bulk storage facilities at convenient points to prevent littering during exploration.	Management	Presence of well-Maintained receptacles and central collection point.
Oil leaks and spills	- Vehicles and equipment should be well maintained to prevent oil leaks. - Contractor should have a designated area where maintenance is carried out and that is protected from rainwater.	Proponent	No oil spills and leaks on the site
Visual	- Environmental considerations will be adhered to at all times before clearing roads, trenching and excavating.	Management	Employees will be trained on the importance of minimizing visual impacts.
Archaeological Sites	- Adhere to practical guidelines provided by an archaeologist to reduce the archaeological impact of mineral exploration activities. - All archaeological sites to be identified and protected before further exploration commences.	Management	

6.4 Table 8

Air pollution	- Maintenance of vehicles and equipment. - Control speed and operation of construction vehicles. - Prohibit idling of vehicles. - Workers should be provided with dust masks if working in sensitive areas.	Site manager	Control amount of dust produced
Noise pollution	- Field work should only be carried out only during daytime at a specific time. - Workers should wear earmuffs if working in noisy section.	Proponent and management	Control amount of noise

Summary of Environmental Management Plan during the phases of the project

	- Management to ensure that noise is kept within reasonable levels.		
Soil pollution	- Clearly mark/demarcate vehicle routes. - No worker should ever drive off road, but to stick to the demarcated routes.	Project coordinator Management and park warden	Proper planning and management
Flora	- Care should be taken to avoid/minimize destruction of endemic and Red Data Species. - A geologist should be consulted with respect to the viability of moving the trench to avoid destruction of fragile species.	Management and proponent	Warning signs on site and restored vegetation
Fauna	- Some habitat areas such as trees of the riverbeds and tunnels outcrops will be avoided wherever possible. - A fauna survey will be conducted to determine the effect of fragmented habitat on game - species should the need arise. No animals shall be killed, - captured or harmed in any way. No food will be left lying around as these will attract animals which might result in human- animal conflict	Management	Regular monitoring of any unusual signs of animal habitat.
Occupational Health and Safety	- Provide Personal Protective Equipment Train workers on personal safety and how to handle equipment and - machines. A well-stocked first aid kit shall be maintained by qualified personnel. - Provide sufficient and suitable sanitary conveniences which should be kept clean.	Proponent	- Workers using protective equipment. - Presence of Well stocked first aid kit. - Clean sanitary facilities.
OPERATIONAL PHASE			

Oil leaks and spills	- Impervious PVC sheets should be deployed as flooring and covered with sand to absorb - spillages Should spillages occur, contaminated sand needs to be removed and stored in a drum, to	Proponent	No oil spills and leaks on the site.

	be later removed to an approved disposal site		
Solid waste	- Under no conditions should any waste be buried or burned at the site - Minimize solid waste generated on site. - Waste to be deposited at a demarcated waste site in the park or if it needs to be removed to designated sites outside the park	Proponent Management	Presence of well-Maintained receptacles and central collection point.
Visual	- Environmental considerations will be adhered to at all times before clearing roads, trenching and excavating. - Siting of roads should avoid the traversing of tops of ridges and always use of existed roads rather than creating new ones. - Erected infrastructure should be sited in depressions not on hill tops or rises and should not be visible from any major tourist roads lookout points.	Park wardens and Management	Employees will be trained on the importance of minimizing visual impacts.
Archaeological Sites	- Adhere to practical guidelines provided by an archaeologist to reduce the archaeological impact of mineral exploration activities. - Should any item of interest be located, all activities need to cease immediately at that location, and notify the National Monuments Council.	Management	Update Register of all archaeological sites identified.
Noise pollution	-Workers to wear earmuffs if working in noisy section -Management to ensure that noise is kept within reasonable levels.	Proponent Management	Control amount of noise

Soil pollution	- The top soil needs to be removed and stockpiled - Stockpiled soil must be covered to prevent it from being windblown within three months - All hydro-carbon products need to be stored in a bunded area, to avoid any accidental spillages.	Project coordinator Management and park warden	Proper planning and management
Flora	- Care should be taken to avoid/minimize destruction of endemic and Red Data Species.	Management and contractor	Warning signs on site and restored vegetation

	- A geologist should be consulted with respect to the viability of moving the trench to avoid destruction of fragile species.		
Fauna	- Strict employee's code of conduct including prohibition of hunting or trapping or interfering in any manner with any wild animals. - No feeding of wild animals should be allowed. - Litter should be prevented and adequately disposed of to prevent attracting scavenging wild animals.	Management	Regular monitoring of any unusual signs of wild animal habitat.
Environment Health and Safety	- Train workers on personal safety and disaster preparedness. - A well-stocked first aid kit shall be maintained by qualified personnel. - Report any accidents / incidences and treat and compensate affected workers. - Provide sufficient and suitable sanitary conveniences which should be kept clean. - Conduct Annual Health and Safety Audits.	Management	Provide sanitary facilities.

Fire preparedness	- Firefighting emergency response plan. - Ensure all firefighting equipment are regularly maintained, serviced and inspected. - Fire hazard signs and directions to emergency exit, route to follow and assembly point in case of any fire incidence.	Management	- Proof of inspection on firefighting equipment - Fire Signs put up in strategic places. - Availability of firefighting equipment.
DECOMMISSIONING PHASE			
Solid waste	- Solid waste should be collected by a contracted waste collection company - Excavation waste should be re- used or backfilled.	Proponent and Management	Amount of waste on Site. Presence of well-maintained receptacles and

			central collection point
Noise & Air pollution	- Maintain plant equipment. - Decommissioning works to be carried out only during - daytime. Workers working in noisy section to wear earmuffs. - Workers should be provided with dust masks.	Proponent and Management	Amount of noise
Soil pollution	- The contaminated soil needs to be treated either by adding bacteria which break down spilled hydro-carbon, or by simply distributing the soil thinly in direct sunlight to naturally break down the hydro-carbons.	Proponent	
Disturbed Physical environment	- Undertake a complete environmental restoration program and introducing appropriate vegetation	Management	Management
Occupational Health and Safety	- Provide Personal Protective Equipment. - Train workers on personal safety and how to handle equipment and machines. - A well-stocked first aid kit shall be maintained by qualified personnel. - Demarcate area under decommissioning.	Proponent	- Workers using Protective Equipment. - Presence of a First Aid Box.
Visual pollution	- Rake the track or drag tyres to smooth tracks - Removal of all construction equipment, surplus material and temporary structures, fences and works of every kind, and everything that was brought at the site.		Rehabilitation of every foreign material at the site

.5 Monitoring, Auditing and Reporting

6.5.1 Inspections and Audits

Performance against the EMP commitments will need to be reviewed throughout the project's life cycle, with corrective action implemented as needed, to guarantee compliance with the

EMP and any Enviro-legal obligations. This will include conducting both the internal inspections/audits and external audits, documentation, reporting, establishing an environmental management systems, adhere to the drafted environmental policy, maintain the impact aspect register, drafting procedures and method statements by the relevant responsible mineral exploration staff and contractors, determining the relevant roles and responsibilities, and others.

Internal compliance monitoring will be implemented in the following manner:

a) All contractors will be subjected to project kick-off and close-out audits. This applies to all phases of the process, including drilling contract work:
   - Before a contractor begins work, the applicable phase site manager will perform an audit to confirm that the EMP commitments are reflected in the contractor's standard operating procedures (SOPs) and method statements.
   - After a contractor's work is completed, the applicable phase site manager will conduct a final close-out audit of the contractor's performance against the EMP commitments.

b) During the construction/initial and decommissioning phases, monthly internal EMP performance audits will be conducted.

6.5.2 Roles and responsibilities for environmental management

6.5.2.1 Communication between Parties

Emphasis will be put towards open communication between all parties, in order to reach a proactive approach towards potential environmental issues deriving from the project. This approach should guarantee that environmental impacts are anticipated and prevented, or minimised, rather than adopting a negative “policing” approach after negative impacts have already occurred. The importance of a proactive approach cannot be overemphasised, particularly in relation to preventing unnecessary tracks, and damage to vegetation (i.e. protected and endemic species) as these impacts cannot easily be remedied.

6.5.2.2 The Operating Company

The company is ultimately responsibility for all stages of the project and the impacts resulting from those activities. The responsible persons will be the company’s Environmental Control Officer (ECO) and Managing Director to ensure that:

- The EMP and its environmental specifications are included in contractual documents and it is required that contractors, and subcontractors, consultants etc. do meet the EMP requirements;
- The company and all its subcontractors, consultants etc. comply with all Namibian legislation and policies and any relevant International Conventions;

➢Compliance with the environmental specifications are enforced on a day-to-day basis;

➢Environmental audits are conducted periodically by a suitably qualified ECO to confirm that the environmental requirements are properly understood and effectively implemented;

➢Sufficient budget is provided to implement those measures that have cost implications;

➢The site manager must commission tree surveys well in advance of planned road construction or drill pad preparation so that the necessary site visits by forestry personnel and forestry permits are acquired; and,

➢Open an effective communication between all parties concerning environmental management on the project.

6.5.2.3 Site managers

Day-to-day responsibility for environmental management will be assigned to the ECO and Manager Field Operations site manager for the duration of all operational activities to:

➢Be familiar with the contents of the EMP and applicable sections of the EIA and the measures recommended therein;

➢Monitor compliance with the environmental specifications on a daily basis and enforce the environmental compliance on site by communicating the ECO's directions to all personnel involved;

➢In the event of any infringements leading to environmental damage, personnel need to consult with the ECO and seek advice on any remedial measures to limit or rectify the damage;

➢Maintain a record (photographic and written) of "before-and-after" conditions on site;

➢Facilitate communication between all role players in the interests of effective environmental management

6.5.2.4 Environmental Control Officer (ECO*)*

KMZ Enterprises cc must appoint a suitably qualified ECO who is responsible to:

➢Undertake environmental audits of overall compliance with the environmental specifications. This should be done at least bi-annually for the warehouse.

➢Submit a site inspection report to the Managing Director and MFO;

➢Advise the MFO on interpretation and implementation of the environmental specifications as required; and,

- Make recommendations for remedial action in cases of non-compliance with the environmental specifications.

6. 5.3 Environmental Management System Framework

The proponent and its contractors will create and implement an Environmental Management System (EMS) in order to apply Environmental Management Practices. The structure for compiling a project EMS is established in this section. All environmental management paperwork will be kept in a paper and/or electronic system by the applicable exploration

EMP. These may include, but are not limited to:

- Standard operating procedures for the implementation of the environmental action plan and management program.
- Procedures for dealing with incidents and emergencies.
- Procedures for auditing, monitoring, and reporting, as well as
- EMP compliance method statements for ad hoc actions not explicitly covered in the EMP action plans.

e) Register of Roles and Responsibilities

Relevant roles and duties will be identified during project planning and risk assessments. All environmental commitment duties and obligations must be documented in a register. The register must include pertinent contact information and be updated as needed. **f) Site Map**

It is essential to keep an up-to-date map of the exploration site that shows all project activities.

The following detail, in addition to the project layout, must be depicted:

- Material handling and storage
- Waste management (collection, storage, and transfer, among other things);
- Areas with a high level of sensitivity;
- The location of the incident and emergency equipment; and the location of the accountable parties.

g) Environmental Management Schedule

The applicable phase site managers and/or relevant Contractors must keep a schedule of environmental control actions. The exploration manager is responsible for keeping a master schedule of all such activities up to date. Environmental risk assessments, environmental management meetings, and other scheduled environmental actions include, but are not limited to:

- Handling, managing, and rehabilitating soils

- Waste removal
- Inspection and repair of incident and emergency response equipment
- Environmental education
- Participation of stakeholders; environmental inspections; and
- Auditing, monitoring, and reporting are all part of the auditing, monitoring, and reporting process.

h) Change Management

The EMS must have a change management procedure in place. In this regard, environmental documentation, procedures and method statements, action plants, and other related documents will be updated and revised as needed to account for the following scenarios:

Changes in standard operating procedures (SOPs), scope changes, ad hoc activities, project phase changes, and duties or roles changes

6.6 Closure Plan

The proposed project's closing plan is to develop a secure, stable, and non-polluting post- prospecting landscape that may support integrated, self-sustaining, and value-generating activities, leaving a positive legacy in the process. The closure plan's goals are to:

- Prioritizing the creation of a functional post-prospecting environment that allows for self- sustaining agricultural operations whenever possible.
- To promote the restoration of terrestrial and aquatic wetland biodiversity, when appropriate.

6.6.1 Alternatives Considered

Because this is an exploration project, the proposed project is not complicated, and the hazards associated with prospecting are well understood and may be mitigated once the project is completed. There are few alternatives for closure. There are just two activity possibilities for the closure plan that have been considered:

First alternative:

Closure or backfill of boreholes with overburden removed during drilling (best option).

Second alternative**:**

Leaving boreholes open to allow for groundwater recharge from surface run-off.

6.6.2 Preferred Alternative: Rehabilitation/ Backfill of boreholes

The restoration of a disturbed environment that has been deteriorated as a result of operations such as mining, road construction, or waste disposal to a land use similar to that which existed before the activity began is known as rehabilitation. This involves

aesthetic concerns, so that a disturbed region does not stand out from the surrounding surroundings. Backfilling boreholes with overburden removed during development and covering with growth medium to produce vegetation is the preferred technique for preserving physical, chemical, and biological ecosystem functions in degraded environments. This option provides a number of benefits, which are listed below:

Benefits:

- The site will be pleasing to the eye
- The location will blend in with the surroundings
- The site will be a suitable habitat for fauna and flora again
- The site will be safe and pollution-free

Option 1, which is to leave boreholes unbackfilled, carries the risk of these boreholes filling with water, which could attract wildlife and communities, resulting in drowning and the possibility of getting trapped in the declines. Backfilling is required to reduce these dangers.

6.6.3 Closure Assumptions

This closure plan was created using the minimal information available, including environmental data. During the operational phase, some of the already accessible data may need to be enhanced. To construct the suggested closure actions, numerous assumptions were made about general conditions, as well as the closure and rehabilitation of the site's facilities. These assumptions will be examined and amended as more information becomes available during operations.

The following are some of the assumptions that were utilized to create this plan:

- Once the last intended weight of minerals has been removed from the site for laboratory testing, the closing period will begin.
- The recommended prospecting sites will be followed to the letter in order to minimize potential consequences.
- Vegetation will be established in accordance with the native vegetation of the project area.
- Water management infrastructure constructed during the operational period will be kept for closure / end of project life if needed.
- There are few chances to build infrastructure on site, and any infrastructure that is created will be of minimal utility to the community. As a result, all structures will be demolished.
- All hazardous and household garbage will be carried offsite to licensed landfills for disposal.

- Existing roads will be utilized to the greatest extent practicable. Where access tracks have been built in the absence of roads, they will be restored and closed as part of the standard closure process.

6.6.4 Closure and Rehabilitation Activities

The remediation procedures that will be conducted when the projected prospecting activities reach the end of their life cycle are explained below:

6.6.4.1 Infrastructure

All infrastructure will be decommissioned, and the footprints will be repaired so that vegetation can grow. To minimize any surplus materials at closure, material inventories will be maintained at the end of prospecting activities. Equipment and materials of value that aren't needed for post-closure operations will be sold or removed from the site as much as possible. Scrap and salvageable equipment will be removed from the site and sold to recyclers.

Following the completion of demolition activities, a soil contamination investigation will be carried out. The goal is to identify potential contaminated locations and then create and implement appropriate remediation methods to ensure that soil contaminants are removed. The following actions will be taken to bring the situation to a close:

- Prior to undertaking any decommissioning work, all power and water services will be disconnected and certified as safe
- All remaining inert equipment and decommissioning waste will be disposed of at the nearest licensed general waste disposal facility
- Salvageable equipment will be removed and transported offsite prior to and during decommissioning
- All tanks, pipes, and sumps containing hydrocarbons will be flushed or emptied prior to removal to ensure no hydrocarbon/c is present

6.6.4.2 Boreholes

Boreholes will be backfilled with overburden stripped before prospecting activities begin. All overburden should be dumped into the vacuum, and the finished surface should be moulded to match the surrounding terrain while remaining free draining. After backfilling, a growth medium cover will be installed, and vegetation will begin to grow.

6.6.4.3 Roads

Existing roads will be utilized to the greatest extent practicable. • All signage, fences, and shade structures, as well as traffic barriers, will be removed as part of the road and parking area closure.

- All 'hard top' surfaces, as well as any concrete structures, must be ripped.
- All potentially contaminated soils must be identified and delineated for further treatment

- All haul routes treated with saline dust suppression water must be treated, with the upper surface pulled off and disposed of in authorized contaminated disposal places.

6.6.4.4 Remediation of Contaminated Areas

- All hydrocarbon-containing tanks, pipes, and sumps will be flushed or emptied, and removed soils will be treated according to the nature and amount of the pollution.
- The liquid storage tanks will be drained, the structure will be removed/demolished, and the sub-surface holes will be plugged; and
- All equipment used to store or transport chemicals will be cleaned and disposed of at a proper disposal facility.

6.6.4.5 Vegetation

Using non-invasive plants that meet the habitat's criteria, successful revegetation will help control erosion of soil resources, maintain soil productivity, and reduce sediment loading in streams (e.g. soils, water availability, slope and other appropriate environmental factors). Invasive species will be avoided, and the area will be managed to keep them from spreading. On slopes, naturally occurring grassland species will be planted to combat the effects of erosion. These plants will increase soil holding capacity while also lowering runoff velocity. The flat areas will be re-vegetated with the goal of establishing a long-term ecology. Before vegetation is removed, the presence of protected plant species must be identified, and the necessary licenses for destruction or relocation must be secured.

6.6.4.6 Waste Management

Hazardous waste will be controlled, sorted, and disposed of, while non-hazardous garbage will be disposed of in a nearby permitted landfill site. Scrap and waste steel will be sold to recyclers. Wastes to be contained in animal-proof drums with a solid lid, and drums be in an enclosed fence, to prevent windblown debris from escaping, and scavenging animals from rummaging through the waste

7.public participation

Notification of the proposed activities were advertised in the two widely common newspaper to consult the public as presented in Appendix, to identify and contact as many potential I&APs as possible. The description of the project was presented and opportunity was given for the I&Aps to give their comments and issues. However, currently no stakeholders registered for comment.

1. Conclusions

The scoping report is prepared for the Environmental Impact Assessment for mineral exploration in the Skeleton Coast Park. The proposed site is located within the areas of Torra bay along C39 road, northwest of Khorixas, and its geographical coordinates are - 20.285 and 13.373.

The approach and methodology will be guided by the Environmental Regulations of 2012 and as per proponent's provisions. The project will employ individuals from the local towns and communities throughout the exploratory phase. If the exploratory project results in the finding of a commercially viable mineral deposit, a mine could be built in the area. A mine can make a substantial contribution to the social and economic development of the town.

On condition that that the relevant mitigation measures are effectively implemented by the proponent, there are no environmental reasons why the proposed project should not be approved. The project will have significant positive economic impacts that would benefit the local, regional and national economy of Namibia.

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