Updated Environmental Management Plan for Mining at Block 4 (ML No. 118 and 119 at Lüderitz Magisterial District in //Kharas Region




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Document Status

Proponent	Fourth Mining Company (Pty) Ltd
Title of the proposed Activity	Updated Environmental Management Plan for mining at Block 4 ML 118 and 119 at Lüderitz Magisterial District in //Kharas Region
Activity Type	Continuation of mining activity at Block 4
Location of the Activity	Fourth Mining Company (Pty) Ltd Block 4 GPS Coordinates at the Mine: 28°05'29" S 17°08'25" E
Competent Authority	Environmental Commission (Ministry of Environment, Forestry and Tourism)
Consultant	KPM Environmental Consulting Tel. +264 811 473 344 E-mail: info@kpmenvironmental.com

PURPOSE OF THIS DOCUMENT

This document is an updated Environmental Management Plan (EMP) for mining at Block 4 Mining License No. 118 and 119 respectively. The initial assessment were carried out in 2002 and updated in 2007. The latest Environmental Clearance Certificate was issued in December 2017 and its validity ended on 31 December 2020.

It should be noted that, due to vandalism and theft that occurs on site and left many of the mine infrastructures dilapidated, the mining activities were halted. It is expected that the proponent would need to revamp the offices and accommodation facilities before commencing with mining. This document, therefore covers the aspects which were proposed in the initial assessment and the revised measures should be read together with the initial EMP.

The next phase would include the actual mining activity, as well as revamping the mining infrastructures such as offices and accommodation facilities.

ACRONYMS AND ABBREVIATIONS

BID	Background Information Document
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
I&AP	Interested and Affected Party
KPM	KPM Environmental Consulting
MEFT	Ministry of Environment, Forestry and Tourism
NGO	Non-Governmental Organization

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Background

1. Introduction

Fourth Mining Company (Pty) Ltd is currently mining Precious and Semi-Precious Stones at Block 4 with Mining License No. 118 and 119. Mining activities are temporally halted due to vandalism and theft and the proponent intends to revive the site and continue with mining operations. Most infrastructures and machinery are already on site and the proponent will only do minor renovations to the office buildings and accommodation for mine employee which has been vandalized.

Therefore, an application for renewal of the Environmental Clearance Certificate (ECC) will be lodged with the Environmental Commission at the Ministry of Environment and Tourism to extend the ECC with another three (3) years to enable the proponent to continue with mining activities.

Mining of Precious Stones cannot be undertaken without an Environmental Clearance Certificate and also, the proponent should adhere to all mitigation measures proposed in the Environmental Management Plan (EMP) and mining activities can only continue once the Environmental Clearance Certificate is obtained. Therefore, Fourth Mining Company (Pty) Ltd has contracted KPM Environmental Consulting to update the initial Environmental Management Plan and to apply for a renewal of the ECC.

2. The Environmental Assessment Practitioner

KPM Environmental Consulting is a Namibian consulting firm based in Windhoek with broad skilled and experienced environmental professionals. KPM Environmental Consulting has worked with several mines in Namibia conducting independent environmental assessments and monitoring implementation EMPs.

The team consists of project management skills; a range of technical skills and experience, and qualified environmental assessment practitioners.

The Environmental Assessment Practitioner confirms the following in relations to KPM Environmental Consulting:

a. Have knowledge of and experience in conducting assessments, including knowledge of the Environmental Management Act, the Environmental Impact Assessment Regulations and guidelines that have relevance to this proposed activity;
b. Have performed the work relating to the renewal of this ECC application objectively, even if this results in view and findings that are not favorable to the applicant;
c. Have complied with the Environmental Management Act, the Environmental Impact Assessment Regulations, guidelines and other applicable laws, and
d. Have disclosed to the proponent, competent authority and the Environmental Commissioner all material information in its possession that reasonably has or may have the potential of influencing –

    i. Any decision to be taken concerning the application in terms of the Environmental Management;
    ii. Act, the Environmental Impact Assessment Regulations; or the objectivity of any report, plan or document prepared by the EAP in terms of the Act and its regulations.

3. Purpose and Scope of the updated EMP

This EMP aims to ensure that all issues raised in the initial assessment concerning the upgrading of Fourth Mining Company and its operations at Block 4 ML 118 and 119 and any other new activity that may be needed are covered and that mitigation measures are proposed and incorporated into the Environmental Management System (EMS). The ultimate aim is to minimize the number of residual negative impacts of HIGH significance during the mining operations.

4. Summary of the Proposed Activities

As indicated in the Environmental Monitoring Reporting, the mining activities were halted due to vandalism and theft of mining properties. The initial activities required would be to rehabilitate the office and accommodation for mining employees as well as services such as provision of water and electricity. All those services are already on site and no additional works will be required expect from maintenance. The rehabilitation works will involve renovations and construction of infrastructures that are damaged.

The second activity will be the reworking on an existing mining industrial area the Mine. The industrial mining area is an essential site for mining operations. The proponent intends to introduce new mining equipment which will be installed as soon as the mining operations commence.

The reviews and updating of the EMP is done to assess the compliance of the proponent with the initial EMP that was developed for mining activities and to ensure that mining activities did not cause any serious threat that the mining activities might have on the natural and socio-economic environment. Further, potential impacts associated with the proposed activities have been identified and added on this EMP. Impacts on air pollution were identified as significant for the mining activites especially from excavations and tranching. The additional impacts identified in the revised EMP can be mitigated through effective implementation of the Environmental Management Plan and are therefore not expected to have any detrimental negative impacts on the surrounding communities. The surrounding community is mainly made up of other miners with Block 3 in the western part of Block 4 while Block 5 is towards the western part of the mine.

The other impacts identified in this study can be addressed through the implementation of the Environmental Management Plan and are therefore not expected to have any detrimental negative impacts on the surrounding farming communities. Mitigation measures are described in greater detail in the EMP. Hence,

the mining of Precious and Semi-Precious Stones, as proposed in this report, can be undertaken with no significant impacts if executed according to the EMP.

It is therefore, concluded that mining of Precious and Semi-Precious activities at Block 4 ML 118 and 119 can be undertaken without posing any serious impacts on the environment, or pose any health impact on the surrounding communities and habitats. It is considered that the benefits of mining Precious and Semi-Precious Stones far outweigh the minor health risks that can be avoided through EMP implementation. It is recommended that the revised EMP should be implemented fully to ensure that all potential environmental and social impacts are satisfactorily addressed.

UPDATED ENVIRONMENTAL MANAGEMENT PLAN

1. Introduction to the EMP

The EMP is a set of feasible and cost-effective mitigation, monitoring and institutional measures to avoid adverse environmental and social impacts, reduce them to acceptable levels or to compensate for them. This EMP covers all adverse environmental impacts, including any that may result from the upgrading of the existing Fourth Mining Company. The EMP will provide the technical details for each mitigation, monitoring and institutional measure, including the impact(s) to which it relates and the conditions when it is required, together with designs, equipment descriptions and operating procedures. Where necessary, the EMP will specify for each mitigation measure timing, cost, locations, and institution responsible.

The EMP will specify the monitoring objectives and the types of monitoring needed to ensure that the mitigation measures have been put in place and are working as intended for plus any other monitoring of the environmental and social aspects that are considered appropriate to measure the environmental impacts or to ensure that unanticipated environmental impacts do not occur. The EMP will also specify the monitoring and reporting procedures to ensure early detection of issues and provide information on progress and results of mitigation. This EMP describes the processes that Fourth Mining Company and associates will follow to maximize compliance and minimize harm to the environment. This plan will also help the Mine map out progress toward achieving continual improvements. The EMP comprises of a list of actions needed to mitigate the potential negative environmental impacts identified in the initial EIA.

The development of an Environmental Management Plan is a requirement for any EIA project as per Namibia's Environmental Management Act No.7 of 2007. Therefore, this revised EMP is a legal document that must accompany the Environmental Monitoring Report or Compliance Report before the renewal of an Environmental Clearance Certificate.

2. Objectives of the EMP

The main purpose of this EMP is to prevent avoidable damage and/or minimize or mitigate unavoidable environmental damage associated with mining activities but more specifically on the upgrading of the mining site at Block 4 which will be upgraded.

The EMP forms part of the mandatory documents that contractors/ employees/ drivers of the Mine must be committed to.

This EMP:

- identifies all activities related to the upgrading of the mine that could cause environmental damage (risks) and provides a summary of actions required;
- identifies institutions responsible for ensuring compliance with the EMP and provides their contact information;
- provides standard procedures to avoid, minimize and mitigate the identified negative environmental impacts and to enhance the positive impact of the proposed activities on the environment;
- forms a written record of procedures, responsibilities, requirements and rules for contractor/s, their staff and any other person who must comply with the EMP;
- provides a monitoring and auditing programme to track and record compliance and identify and respond to any potential or actual negative environmental impacts, and
- provides a monitoring programme to record any mitigation measures that are implemented.

3. EMP Administration

For the general provisions of this EMP to be fully implemented there is a strong need to clearly outline the roles and responsibilities of all stakeholders. There is also a need for Fourth Mining Company and its contractors to appoint an overall responsible person to ensure the successful implementation of the EMP. The responsible person needs to be someone who has a basic understanding of EMP administration. Under the management actions, each action is allocated to a responsible entity to ensure that the specific action is managed and documented properly.

Furthermore, all key role players such as contractors who will be involved during the upgrading of the existing mine and also those who will be reworking at the mine must be informed about the contents of this EMP and activities to be undertaken to mitigate the potential impacts identified.

Any new developments that will occur during the upgrading of the mine and reworking on the dilapidated infrastructures that might have potential impacts on the environment should trigger further adjustments and revision of this EMP to ensure that all potential threats to the environment are addressed on an ongoing basis.

4. Management Actions

4.1. Generic Management Action

In many instances, many activities that have been conducted or implement as existing features do not require an Environmental Impact Assessment and hence is not generally guided by an EMP. However, to ensure that such activities are effectively maintained and that mining activities are done responsibly and that they do not pose any risks to the environment or human health and wellbeing, it is recommended that general management actions be included in this EMP.

4.2. Record Keeping

Record keeping is an essential part of effective management. Fourth Mining Company should establish an effective monitoring and record-keeping system for the duration of the mining period. The purpose of this is to ensure that effective management and control of all activities during mining are carried out responsibly as required by the law to ensure that no impacts are triggered as a result of the proposed activities.

The following is a brief guide to the type of records that should be kept:

- **Plans and Procedures:** There should be a complete record of steps and procedures clearly indicating what should be done, the responsible person and the activity that should be done as a precautionary measure. Such plans should be kept up to date by marking up all changes, i.e. omissions and additions to the procedures.

- **Daily log:** A large, page-a-day diary will serve for this purpose and any information which does not logically fit in some other record must be entered in the diary. Typical examples are weather conditions, temperature, peculiar circumstances and problems encountered.
- **Environmental, public health and safety education:** Set up an Educational Programme that is led by an Environmental Educator for staff involved in the mine and also those who might be involved in the upgrading of the mine. The programme should discuss with staff the role that they can and need to play regarding safe working on site.

5. Specific Management Actions

The table below summarizes the mitigation measures to be undertaken to minimize the overall environmental impacts that are likely to occurs during the upgrading of the mine and also during the actual mining activities.

MANAGEMENT AND MITIGATION ACTIONS

No.	Impact	Recommended mitigation	Technical Information	Implementation Schedule	Costing in N$	Responsible Agent
Aquatic Environment						
Impacts during the upgrading of the existing Mine						
1.	Loss of vegetation as some trees/plans might be cut down to allow for expansion of the mine.	Ensure that trees/plants cut down are replaced with similar plant species where possible.	The Tree Atlas of Namibia might be useful in the identification of the plants.	Mitigation measures applicable during the expansion of the facility.	No additional mitigation cost predicted.	Fourth Mining Company
2.	Dust particles that spill into the air during the upgrading of the facility may pose health hazard/air pollution.	- Dust suppression methods should be employed to control air pollution.	No technical information required.	Mitigation measures applicable during the offloading of bags.	No additional mitigation cost predicted.	Fourth Mining Company /Contractor
3.	Some rocks can cause minor irritation, tearing and mild temporary pain.	- Flush with warm running water for at least 15 minutes, including the eyelids to remove dust particle(s). If irritation persists seek medical attention.	If irritation persists seek medical attention.	Mitigation measures applicable during the offloading of bags especially when it is dusty.	No additional mitigation cost predicted.	Contractor

4.	Some particles might cause minor irritation or uncomfortable to the skin.	Remove contaminated clothing and wash affected area with soap and warm water. Seek medical attention if irritation develops or persists.	Seek medical attention if irritation develops or persists.	During the construction stage.	No additional mitigation cost predicted.	Contractor
5.	Some stone particles has very low solubility in water and generally has no direct bio-availability.	Waste particles should be handled and disposed of in a manner which complies with local, state/provincial and federal regulations. Some stones may cause adverse long-term effects in the aquatic environment. Keep out of sewers, ditches or drains. Ensure that no spillage during processing.	Keep stones out of sewers, ditches or drains.	During loading / offloading of precious stones.	No additional mitigation cost predicted.	Contractor
6.	Using of explosive equipment might result in fire outbreak	Staff should be trained on firefighting and must be fully trained and wear full protective clothing including an approved, self- contained breathing apparatus which supplies a positive air pressure within a full-facepiece mask.	Firefighting equipment should be handy and staff trained on how to respond should fire incident occur	During upgrading and operational phase.	No additional mitigation cost predicted.	Fourth Mining Company /Contractor
7.	Oil spillage on land may cause health hazards to living organisms.	Small Spill - sweep up material for disposal or recovery. Large spills - Shovel material into containers. Thoroughly sweep the area of the spill to clean up any residual material. In the case of large spills, follow the facility emergency response procedures. Provisions should also be made to clean up any oil particles that may spill on land.	Tools and equipment should be handy to correct any spillage incident.	During upgrading of the mine.	No additional mitigation cost predicted.	Fourth Mining Company /Contractor

Impacts from mining activities						
8.	Huge volumes of waste rock dump generated during the mining.	Ensure that the existing waste rock dumps are reworked on in a way that it can accommodate more waste rocks generated.	Waste Rock should be managed in a systematic way that is easy to sort and dispose of.	During dumping and sorting of waste rock.	No additional mitigation cost predicted.	Fourth Mining Company
9.	Industrial waste – disposal of used oil containers rags and cleaning fluids	Waste products must be kept in a specials container that acts as the hazardous waste dump.	Waste should be monitored by the Safety, Health and Environmental Officer.	During operational stage	Procurement of special containers appropriate for hazardous waste	Fourth Mining Company
10.	Containers/bags with leakages may cause contamination of the natural environment (water bodies, land etc.)	In case of the small spill - sweep up material for disposal or recovery. In case of large spills – shovel spills into the container. Thoroughly sweep the area of the spill to clean up any residual material. In the case of large spills, follow the facility emergency response procedures. Isolate the spill area to prevent people from entering it until the clean-up is complete.	All personnel handling or operating the transportation trucks/operating machines should be trained on how to handle any oil leakages.	During transportation of precious stones	No additional mitigation cost predicted	Contractor / Truck Operator
9.	In the event of oil spills, the truck operator may experience some eyes, skin or respiratory problems	Bus Operator should be provided with adequate personal protective equipment and in the event of spill or accident, Truck Operator should wear safety glasses or goggles, impervious gloves, boots and overalls to avoid skin contacts.	Truck Operator should be inducted on health and safety at least once a month	During the transportation period	No additional mitigation cost predicted	Contractor / Truck Operator

10.	Noise pollution from trucks and machinery	Ensure that trucks and machines are switched of when they are not operating.	No technical information is required	Mitigation measures applicable during the operational phase of the project.	No additional mitigation cost predicted	Contractors/ Truck Operator
11.	Historical archaeological and cultural heritage	Ensure that any archaeological site or artefacts identified during mining should be reported to the National Heritage Council of Namibia.	An Archaeological assessment report for the site is available.	Mitigation measures applicable during the operational phase of the project.	No additional mitigation cost predicted	Contractors/ Truck Operator
12.	Traffic congestions to and from the mine	Truck Operators and drivers should be inducted to take respect road signs and to observe road patrols or pedestrian crossing, especially around schools.	Truck Operators and Drivers should be inducted on areas where they need to give right of way to school children and pedestrian crossings.	During the transportation of precious and semi-precious stones	No additional mitigation cost predicted	Contractors/ Truck Operator
13.	Spillages caused by cargo trapped between trucks tires.	The facility should be maintained at all times.	No technical information required.	Mitigation measures applicable during the operational phase of the project.	No additional mitigation cost predicted.	Contractors.
14.	Open trenches and excavated pits	Monitoring should be performed by an independent party i.e. environmental inspectors from the Ministry of Environment, Forestry and Tourism to ensure that excavations and trenches that are already mined are filled and rehabilitated.	Initial EIA Report	Mitigation measures applicable during the operational phase of the project.	No additional mitigation cost predicted.	Fourth Mining Company
15.	All waste and unwanted materials	Ensure that waste area is created at the industrial mining area for stockpiles, waste materials etc.	No technical information required.	Mitigation measures applicable during the operational phase of the project.	No additional mitigation cost predicted.	Fourth Mining Company

16.	All mining infrastructures	The proponent should ensure that all infrastructures are removed after completion of mining.	Initial EIA Report and Rehabilitation Plan	During decommissioning stage	No additional mitigation cost predicted.	Fourth Mining Company
17.	All roads created during and for the mine.	Fourth Mining Company should ensure that all roads created for and during mining are rehabilitated as much as possible.	No technical information required.	During decommissioning stage	No additional mitigation cost predicted.	Fourth Mining Company

6. Monitoring and Evaluation

6.1. Monitoring

This section of the EMP is aimed at providing the monitoring and reporting procedures to ensure early detection of issues and provide information on progress and results of mitigation.

The main objective of this EMP's monitoring program is to ensure that the mitigation measures that have been put in place are working as intended to ensure that unanticipated environmental impacts do not occur. The effectiveness of the mitigation measures should also be evaluated and adjusted accordingly.

The person to be appointed by Fourth Mining Company to take the overall responsibly of ensuring that the EMP is fully implemented must also monitor the implementation of the EMP and keep records throughout the activity.

Reporting procedures for conveying information from the monitoring activities must be developed by the Fourth Mining Company Management to ensure that management can take rapid corrective action should certain thresholds be exceeded; this could be included as part of compliance management.

6.2. Performance Assessment of the EMP during the Operational Phase

Performance Assessment (P.A) is a process to evaluate compliance with stipulated EMP requirements and to assess the achievement of defined objectives and targets. The timing of the P.A. should be conducted once every year by an independent environmental consultancy company.

A P.A. analyse the results obtained from monitoring assesses whether objectives and targets have been met and whether there are variances from the stipulated EMP and legal requirements. Besides, the P.A. also assesses whether EMP implementation has been undertaken according to Programmed arrangements and that the EMP itself is being appropriately updated. The P.A. should confirm that the identified corrective action has been undertaken and then assess the effectiveness of that action.

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