

Environmental Performance Monitoring (EPM) Report for Mining License (ML) No. 205 **KARIBIB DISTRICT, ERONGO REGION**



Prepared by:



Prepared for:

Ludi Namibia Mining and Investments
(Pty) Ltd
10 Babs Street Ludwigsdorf
P. O. Box 210
WINDHOEK,

Contact Details

Phone: +264 811450613

E-mail: kalaharigeoenviro@gmail.com

**Kalahari Geological and Environmental Solutions Cc, Erf 316, Trunk Street, Elisenheim, P.O. Box:
32237 Windhoek**

1. ENVIRONMENTAL PERFORMANCE MONITORING

1.1 Overview

The environmental monitoring process of the EMP performances for the ongoing marble mining operations, ongoing exploration and supporting infrastructures activities is divided into two parts and these are:

- (i) Monitoring activities and effects to be undertaken by the Environmental Control Officer (ECO), and.
- (ii) Preparation of an Environmental Monitoring Report covering all activities related to the Environmental Management Plan throughout the life cycle of the ongoing mining and exploration operations to be undertaken by the Environmental Control Officer (ECO).

1.2 Ongoing Environmental Monitoring Programme

The Environmental Management Plan (EMP) mandates the implementation of a robust and continuous environmental monitoring programme. This requirement is stipulated as a condition of the Environmental Clearance Certificate (ECC), which is issued by the Office of the Environmental Commissioner (OEC) within the Ministry of Environment, Forestry and Tourism. The purpose of this monitoring is to ensure compliance with environmental regulations and standards, assess the effectiveness of the implemented management measures, and facilitate adaptive management.

1.2.1 Key Components of the Monitoring Programme

1. Comprehensive Monitoring Strategy:

- The environmental monitoring programme will be designed to cover all critical environmental aspects identified in the EMP. This includes monitoring of air and water quality, soil conditions, wildlife populations, and vegetation health, among others.
- Specific monitoring protocols will be developed for each environmental component to ensure data consistency, reliability, and accuracy. These protocols will define the frequency of monitoring, methods to be used, and the parameters to be measured.

2. Data Collection and Reporting:

- Systematic data collection is integral to the monitoring programme. Regular and systematic collection of environmental data will be performed using standardized methods approved by the OEC.
- All collected data will be compiled into comprehensive reports that assess performance against the EMP's environmental objectives. These reports will be submitted periodically to the OEC as part of the compliance requirements.

3. Roles and Responsibilities:

- The Environmental Control Officer (ECO), potentially in collaboration with external consultants or suitably qualified in-house resource personnel, will coordinate the monitoring activities. The ECO will ensure that all data collection and reporting are conducted according to the stipulated guidelines and within the required timeframes.
- The ECO will also be responsible for maintaining records of all environmental monitoring activities, findings, and any corrective actions taken. Detailed logs will be kept as part of the continuous assessment process, ensuring that all environmental impacts are promptly addressed and documented.

4. Performance Assessment and Auditing:

- The ongoing environmental monitoring programme includes both internal and external auditing mechanisms to verify compliance and efficacy of the EMP implementation.
- Audits will be conducted to evaluate the adherence to the monitoring protocols, the accuracy of the environmental data, and the effectiveness of the environmental management measures in place. These audits will help in identifying any areas of non-compliance or opportunities for improvement.

5. Documentation and Continuous Improvement:

- The monitoring process will include the documentation of all environmental activities and their impacts. Table 21 in the EMP document outline the specific types of information that must be recorded regularly.
- This documentation will play a critical role in continuous improvement by providing a basis for evaluating the environmental performance of the project and making informed decisions on necessary adjustments in management practices.

1.2.2 Implementation Framework

The ongoing environmental monitoring programme is designed to be dynamic, allowing for adjustments based on the findings from continuous data analysis and environmental audits. The feedback mechanism incorporated into the programme will enable responsive actions that align with evolving environmental conditions and regulatory requirements.

In summary, the ongoing environmental monitoring programme as part of the EMP is a comprehensive effort aimed at ensuring sustained compliance with environmental standards and improving environmental performance over the life of the project. Through meticulous planning, systematic execution, and continuous evaluation, the programme seeks to uphold and enhance environmental integrity in line with national and international environmental commitments.

1.3 Closure Environmental Monitoring Programme

The monitoring of the EMP performance will require a report outlining all the activities related to effectiveness of the EMP at the end of the ongoing mining operations to be undertaken by the Environmental Control Officer (ECO). The types of the data sets to be used in the preparation of such a report are outlined in Table 21.

The objective will be to ensure that corrective actions are reviewed and steps are taken to ensure compliance for during the aftercare stage. The report shall outline the status of the environment and any likely environmental liability after completion of the mining operations. The report shall be submitted to the OEC in the Ministry of Environment, Forestry and Tourism.

Table 1: ENVIRONMENTAL PERFORMANCE MONITORING

Aspect	Mitigation	Compliance	Follow-up Action Required	By Whom	By When	Completed
Monitoring of environmental performance implementation / environmental awareness training	Is there an Environmental awareness training programme?					
	How many people have been given environmental awareness training?					
	Is a copy of the EMP on site?					
	How effective is the awareness training? Do people understand the contents of the EMP? Where are the weaknesses? Ask 3 people at random various questions about the EMP.					
Monitoring of environmental performance for the temporal and permanent structures.	Are the temporal and permanent structures positioned to avoid sensitive zones, ephemeral river channels and potential sensitive sites?					
	Has new infrastructure been created? If so, what, and how well planned / built with respect to environment?					
	Have toilets and showers been provided? Where are they situated?					
	Do receptacles for waste have scavenging animal proof lids?					
	What litter is there – who is littering?					
	Are there facilities for the disposal of oils / etc and how often is it removed to an approved disposal					

	site?					
	Is there evidence of oil / diesel spills? Bunding or not?					
	What fuel source is being provided for cooking?					
	Housekeeping					
Environmental data collection.	Are records being kept?					
	Birds' mortality records as result of collision with the mine associated infrastructure?					
	Birds nesting activities around the mine site?					
	Noise level?					
	Air Quality?					
	Have archaeological sites been found / disturbed / described?					
	Other key environmental data sets?					
Health, Safety and ENvironment (HSE)	Is there First Aid Kit containing anti-histamines etc?					
	Are dangerous areas clearly marked off?					
	Do vehicles appear to maintain the recommended speed limits?					
	Do vehicles drive with headlights on along the gravel roads at all times?					
Recruitment of labour.	What labour source is used?					
	How has the recruitment practice been done?					
Management of the natural habitat and	Has there been any development done on or very close sensitive					

surficial materials management.	areas?					
	Has anyone been caught with plants or animals in their possession?					
	Has there been wilful or malicious damage to the environment?					
	Has topsoil / seed bank layer been removed from demarcated development areas and appropriately stored?					
Tracks and off-road driving.	Are existing tracks used and maintained?					
	What new tracks have been developed and are they planned?					
	What evidence is there of off-road driving? Who appears to be responsible?					
	Are corners being cut, what type of turning circle are there? Three point turns vs. U turns?					
	Have unnecessary tracks been rehabilitated and how well?					
	Comments					
Management of surface and groundwater.	How is potable water supplied and how often? Position of tanks?					
	Is water being wasted?					
	Is there any leakage from pipes or taps?					
	Were water samples taken regularly and measured?					

Public relations.	Have any complaints been made about the mine construction and or operational activities by the different I&APs? If so, what, and how was the issue resolved?					
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1.4 Environmental Personnel Register

Table 23 below shows the Environmental Personnel Register to be signed by every person who receives or attends the Environmental Awareness Training or who has the training material explained to him or her or in possession of the training material.

Table 2: Environmental personnel register.

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