



**ECC**  
**ENVIRONMENTAL**  
COMPLIANCE CONSULTANCY



ECC-79-337-REP-13-D

**ENVIRONMENTAL MANAGEMENT PLAN**  
**EXPLORATION ACTIVITIES ON EPL 7508**  
FOR NUCLEAR FUEL MINERALS  
ERONGO REGION

*PREPARED FOR*

*MARENICA VENTURES (PTY) LTD*



MARCH 2021

## TITLE AND APPROVAL PAGE

<b>Project Name:</b>	Environmental management plan for the proposed exploration activities on EPL 7508 for nuclear fuel minerals, Erongo Region.
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## DEFINITIONS AND ABBREVIATIONS

ABBREVIATIONS	DESCRIPTION
AEM	Airborne Electromagnetic
ECC	Environmental Compliance Consultancy
EIA	Environmental Impact Assessment
ESIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
EPL	Exclusive Prospecting Licence
I&APs	Interested and Affected Parties
MEFT	Ministry of Environment, Forestry, and Tourism
MME	Ministry of Mines and Energy
MSDS	Safety Data Sheets
SOP	Standard Operating Procedure

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## 1 INTRODUCTION

### 1.1 BACKGROUND TO THE PROPOSED PROJECT

Environmental Compliance Consultancy (ECC) has been engaged by the proponent Marenica Energy Ltd - Marenica Ventures (Pty) Ltd, herein referred to Marenica, to undertake an Environmental and Social Impact Assessment (ESIA) and an Environmental Management Plan (EMP) in terms of the Environmental Management Act, No. 7 of 2007 and its regulations. An application for an environmental clearance certificate was submitted to the relevant competent authorities, the Ministry of Mines and Energy (MME) and the Ministry of Environment, Forestry and Tourism (MEFT).

Marenica is an Australian Securities Exchange Listed Company that has various projects in Namibia, including Exclusive Prospecting Licences (EPL) on the following 6987, 3308 and MDRL 3287 in the Erongo Region. Marenica has also developed a uranium concentration process that is unique and ground-breaking, lowering the extraction cost of uranium at the Marenica deposit as well as various environmental benefits. This *U-pgrade™* technology can be applied to surficial uranium deposits and is capable of concentrating uranium by a factor of up to 50 times, thereby reducing the feed to a leaching circuit dramatically. Marenica seeks to explore further uranium mining opportunities and propose to undertake exploration activities on EPL 7508.

The proponent intends to explore on EPL 7508 in search for nuclear fuel minerals in the Erongo Region, Namibia. Exploration methods may include an airborne electromagnetic survey (non-invasive, coarse line spacing) and ground truthing: soil and rock-chip sampling, geological mapping and geophysical surveys. Exploration sampling and drilling may occur at a later stage should initial test results appear viable.

The EPL is located approximately 50 km north east of Henties Bay along the C35 road (Figure 1). The EPL site covers the surface area of approximately 55333 ha. The surface area of the EPL extends largely outside the borders of the Dorob National Park and lies within the Tsiseb Conservancy, which is named after the Tsiseb Gorge in which the White Lady rock painting is located. Marenica will carry out the necessary exploration work and operation on the EPL.

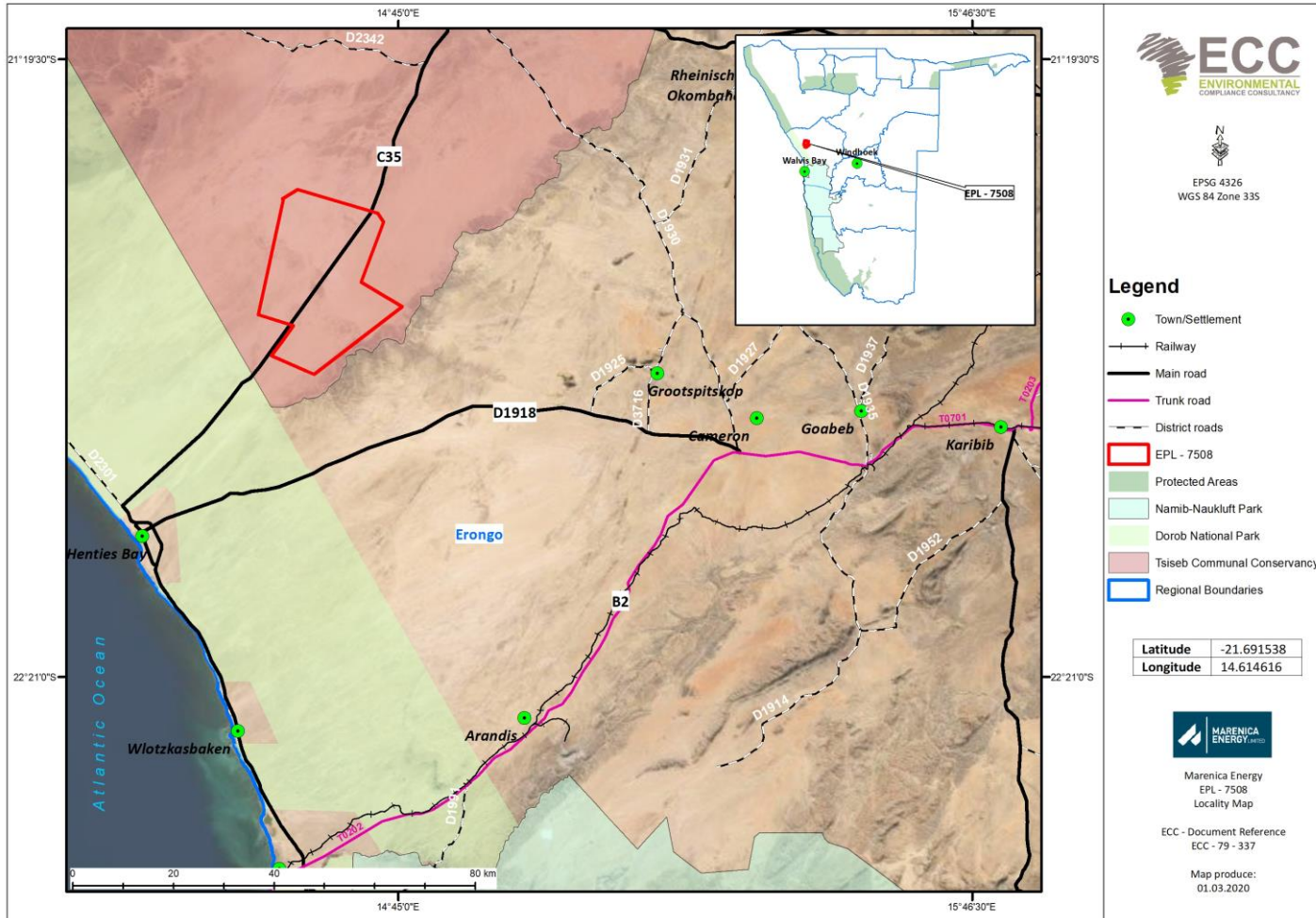


FIGURE 1 - LOCATION OF THE MARENICA VENTURES EPL 7508

## 1.2 ENVIRONMENTAL REGULATORY REQUIREMENTS

The proposed project is considered as a listed activity as stipulated in the Environmental Management Act, No. 7 of 2007 and the Environmental Impact Assessment Regulation, No. 30 of 2012. As a listed activity an application for an environmental clearance certificate is required. An environmental scoping report and EMP are required as part of the environmental clearance certificate application, as well as to support the decision-making process. This report presents the EMP and has been undertaken in accordance with the requirements of the Environmental Management Act, No. 7 of 2007 and its regulations.

## 1.3 PURPOSE AND SCOPE OF THIS REPORT

This EMP provides a logical framework, proposed mitigation measures and management strategies for the exploration activities associated with the proposed project. In this way ensuring that the potential environmental and social impacts are mitigated and minimised as far as practically possible and that statutory and other legal obligations are adhered to and fulfilled. Outlined in the EMP are the protocols, procedures and roles and responsibilities to ensure the management arrangements are effectively and appropriately implemented.

This EMP forms an appendix to the environmental scoping report and was based on the findings of the assessment; therefore, the environmental scoping report should be referred to for further information on the proposed project, assessment methodology, applicable legislation, and assessment findings.

This EMP is a live document and shall be reviewed at predetermined intervals, and updated when the scope of works alters, or when further data or information can be added. All personnel working on the project will be legally required to comply with the standards set out in this EMP.

The scope of this EMP includes all activities carried out during the exploration stage in search of nuclear fuel minerals on EPL 7508 in the Erongo Region.

## 1.4 MANAGEMENT OF THIS EMP

The proponent Marenica Ventures (Pty) Ltd will hold the environmental clearance certificate for the proposed project and shall be responsible for the implementation and management of this EMP. The implementation and management of this EMP and thus the monitoring of compliance shall be undertaken through daily duties and activities as well as by monthly inspections.

This EMP shall be circulated to all contractors and made available on ECC's website.

## 1.5 LIMITATIONS, UNCERTAINTIES AND ASSUMPTIONS OF THIS EMP

This EMP does not include measures for compliance with statutory occupational health and safety requirements. This will be provided in the safety management plan to be developed by the proponent.

Where there is any conflict between the provisions of this EMP and any contractor's obligations under their respective contracts, including statutory requirements (such as licences, project



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approval conditions, permits, standards, guidelines and relevant laws), the contract and statutory requirements are to take precedence.

The information contained in this EMP has been based on the project description as provided in the environmental assessment report. Where the design or exploration methods alter, this EMP may require updating and potential further assessment undertaken.

#### 1.6 ENVIRONMENTAL CONSULTANCY

Environmental Compliance Consultancy, a Namibian consultancy with registration number CC/2013/11401, has prepared this document on behalf of the proponent. ECC operates exclusively in the environmental, social, health and safety fields for clients across Southern Africa in the public and private sector. The CV's of the authors of this report are contained in Appendix A. ECC is independent of the proponent and has no vested or financial interest in the proposed project except for fair remuneration of professional services rendered.

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## 2 PROJECT MANAGEMENT PERSONNEL

### 2.1 ORGANISATIONAL STRUCTURE, ROLES AND RESPONSIBILITIES

The proponent shall be responsible for:

- Ensuring all members of the project team, including contractors comply with the procedures set out in this EMP;
- Ensuring that all personnel are provided with sufficient training, supervision, and instruction to fulfil this requirement; and
- Ensuring that any persons allocated specific environmental management responsibilities are notified of their appointment and confirm, in writing, that their responsibilities are clearly understood.

Contractors shall be responsible for ensuring and demonstrating that all personnel employed by them are compliant with this EMP, and meet the responsibilities listed above. The key personnel and environmental responsibilities of each role through the project life are presented in Table 1.

**TABLE 1 - ROLES AND RESPONSIBILITIES**

ROLE	RESPONSIBILITIES & DUTIES
<b>Proponent</b>	<ul style="list-style-type: none"> <li>- Overall responsibility for the implementation and management of this EMP;</li> <li>- Ensure the environmental policy is communicated to all personnel throughout the proposed project and ensure that employees, contractors and visitors understand and adhere to the EMP;</li> <li>- Responsible for providing the required resources (including financial and technical) to complete the required tasks;</li> <li>- Appoint supervisors such as an exploration (project) manager and a site manager; and</li> <li>- Ensure that all employees, contractors and visitors are inducted on safety measures.</li> </ul>
<b>Exploration Manager</b>	<ul style="list-style-type: none"> <li>- Responsible for ensuring compliance with this EMP including overseeing all day-to-day activities throughout the duration of the project, including routine and non-routine maintenance works, as well as the decommissioning of the project;</li> <li>- Ensure adequate resources are made available for the implementation of this EMP;</li> <li>- Responsible for the management, utilisation and possible future revisions of this EMP;</li> <li>- Ensure all personnel are aware of the commitments made in this EMP and any other relevant regulatory requirements applicable to the project;</li> <li>- Ensure all employees and contractors participate in a site induction process prior to commencing with work on the project;</li> <li>- Maintain the community issues and concern register, and keep records of complaints received;</li> <li>- Ensure that best environmental practice is undertaken throughout the duration of the project; and</li> </ul>

	<ul style="list-style-type: none"> <li>– Report any non-compliance or accidents to the regulatory authority.</li> </ul>
<b>Site Manager (or nominated supervisor)</b>	<ul style="list-style-type: none"> <li>– Ensure that all employees, contractors and visitors to the site are conversant with the requirements of this EMP, relevant to their roles on site and adhere to this EMP at all times;</li> <li>– Provide environmental awareness or management training and site inductions for all employees, contractors and visitors;</li> <li>– Monitor daily operations and ensure adherence by personnel to the EMP;</li> <li>– Receive, respond to and record complaints; and</li> <li>– Report any non-compliance or accidents to the exploration manager.</li> </ul>
<b>Employees (and contractors and visitors where applicable)</b>	<ul style="list-style-type: none"> <li>– Responsible for being compliant with this EMP throughout the project;</li> <li>– Adhere to this EMP at all times;</li> <li>– Ensure attendance of site inductions;</li> <li>– Ensure appropriate briefings for certain activities have been provided and are fully understood; and</li> <li>– Report any operations and conditions that deviate from the EMP or any non-compliant issues or accidents to the site manager and exploration manager.</li> </ul>

## 2.2 CONTRACTORS

Any contractors hired during the exploration activities or for any accessory works for the project, or contractors appointed for maintenance activities, shall be compliant with this EMP, and shall be responsible for the following:

- Undertaking activities in accordance with this EMP as well as relevant policies, procedures, management plans, statutory requirements, and contract requirements;
- Implementing appropriate environmental management measures;
- Reporting of environmental issues, including actual or potential environmental incidents and hazards, to the exploration manager;
- Ensuring appropriate corrective or remedial action is taken to address all environmental hazards and incidents reported; and
- Adhere to the safety management plan developed by the proponent.

## 2.3 EMPLOYMENT

The proponent (and all contractors) shall comply with the requirements of the national regulations for Labour, health and safety and any amendments to these regulations. The following shall be complied with:

- In liaison with local government, community, stakeholders and relevant authorities the proponent shall ensure that local people have access to information about job opportunities and are considered first for exploration or maintenance contract employment positions;

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- The number of job opportunities shall be made known together with the associated skills and qualifications;
  - The maximum length of time the job is likely to last for shall be clearly indicated;
  - Foreign workers with no proof of permanent legal residence shall not be hired; and
  - Every effort shall be made to recruit from the pool of unemployed workers living in the local area for labour positions.

### 3 COMMUNICATION AND TRAINING

In order to ensure that potential risks and impacts are minimised, it is vital that personnel are appropriately informed and trained on operational procedures that include the above mitigation measures. It is also important that regular communications are maintained with all the stakeholders and that they are made aware of potential impacts and how to minimise or avoid them. This section sets out the framework for communication and training in relation to the EMP.

#### 3.1 COMMUNICATIONS

During exploration, the exploration manager or the site manager shall communicate all environmental issues to the project team through the following means (as and when required):

- Site induction;
- Audits and site inspections;
- Toolbox talks, including instruction on incident response procedures; and
- Briefings on key project-specific environmental issues.

This EMP shall be distributed to the exploration team including any contractors and personnel working on the exploration site to ensure that the environmental requirements are adequately communicated. Key activities and environmentally sensitive operations shall be briefed to workers and contractors in advance.

During the exploration activities, communication between the management team shall include discussing any complaints received and actions to resolve them, any inspections, audits or non-conformance with this EMP, and any objectives or target achievements.

#### 3.2 ENVIRONMENTAL EMERGENCY AND RESPONSE

Table 2 contains a list of numbers to be contacted in case of an emergency. All personnel will be made aware of these numbers.

**TABLE 2 - EMERGENCY CONTACT DETAILS**

TOWN	AMBULANCE	POLICE	FIRE BRIGADE
Swakopmund	+264-64 410 6000	219 048 or 10111	+264 81 128 5613
Henties Bay	+264 (0) 85 300 2001	+264 (0) 85 300 2000	+264 (0) 81 2411299

For large-scale spills and other significant environmental incidents, the fire services should be contacted as required and the MET office informed of the incident (telephone +264 61 284 2111 Windhoek). All correspondence with MET should be undertaken by the manager.

For the clean-up of smaller spills, the relevant Material Safety Data Sheet (MSDS) should be consulted to determine the appropriate clean-up procedure. Basic spill response training will be provided as part of the site environmental induction, spill response equipment, including relevant

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MSDS copies, will be provided in areas where potentially environmentally hazardous chemicals may be used.

### 3.3 COMPLAINTS HANDLING AND RECORDING

Any complaints received verbally by any personnel on the project site shall be recorded by the site manager or the receiver, including the name and contact details of the complainant, date and time of the complaint, and the nature of the complaint. The information shall be given to the exploration manager who is responsible for the overall management of complaints and will provide a written response to the complainant. The site manager shall inform the exploration manager of issues, concerns or complaints in a timely manner. It is the duty of both the site manager and exploration manager to maintain a complaint register that details the name of the complainant, date and time of the complaint and action taken to resolve the issues.

The workforce shall be informed about the complaints register, its location and the person responsible, in order to refer residents or the general public who wish to lodge a complaint. The complainant shall be informed in writing of the results of the investigation and action to be taken to rectify or address the matter(s). Where no action is taken, the reasons why are to be recorded in the register.

The complaints register shall be kept for the duration of the project and will be available for government or public review upon request.

### 3.4 TRAINING AND AWARENESS

All personnel working on the project shall be competent to perform tasks that have the potential to cause an environmental impact. Competence is defined in terms of appropriate education, training, and experience.

#### 3.4.1 SITE INDUCTION

All personnel involved in the project shall be inducted to the site with a specific environment and social awareness training component. The environment and social awareness training shall ensure that personnel are familiar with the principles of this EMP, the environment and social aspects and impacts associated with their activities, the procedures in place to control these impacts and the consequences of departure from these procedures.

The exploration manager shall ensure an up-to-date register of completed training is maintained.

The site induction should include, but not limited to the following:

- A general site-specific induction that outlines:
  - o What is meant by “environment” and “social”;
  - o Why the environment needs to be protected and conserved;
  - o How exploration activities can impact on the environment; and
  - o What can be done to mitigate against such impacts.
- The inductee’s role and responsibilities with respect to implementing the EMP;
- The site’s environmental rules;

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- Details of how to deal with, and who to contact if environmental problems occur;
  - Basic vegetation clearing principals and species ID sheets;
  - Noise control measures for drilling in proximity to residents;
  - Focal themes such as compliance, reporting of accidents and incidents, good housekeeping and standard procedures for waste management;
  - The potential consequences of non-compliance with this EMP and relevant statutory requirements; and
  - The role of people responsible for the project.

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## 4 REPORTING, COMPLIANCE AND ENFORCEMENT

### 4.1 ENVIRONMENTAL INSPECTIONS AND COMPLIANCE MONITORING

### 4.2 COMPLIANCE TO THE NATIONAL PARK

The EPL 7508 is not located in the Dorob National Park. However it is essential that the employees and contracts are aware of the National Policy on the Prospecting and Mining in Protected Areas, which may provide guideline in terms of where mining and exploration related impacts are legally prohibited and where biodiversity priority areas may present high risks for mining projects. In addition, the Dorob National Park Management Plan provides guidance and requirements for these activities in the Park.

Requirements under the Policy and Management Plan are as follows:

- The proponent shall provide the National Park staff and the MEFT with an environmental progress report every six months during exploration works.
- The proponent shall communicate with the National Park staff regularly to ensure that mutual expectations are clear and reinforced, including:
  - o One month before undertaking the activities
  - o Once during each scheduled program of works
  - o Once a month whilst activities are in progress
  - o Within one month of all site, rehabilitation works.
- The proponent shall allow Park staff and the MEFT to regularly visit and talk to the operators during exploration activities. The MEFT and Ministry of Mines and Energy (MME) may conduct inspections at any time during the year to monitor compliance with the Environmental Contract, ESIA, EMP and/or any other conditions that are stipulated. Where non-compliance is observed, Park staff must immediately report the matter to the Chief Control Warden to enable "in house" remediation. If this fails, the matter must be reported to MET headquarters for higher-level attention.
- An annual environmental audit must be carried out on any EPL within any Protected Area. This audit must be conducted by the MET or MME, or an independent expert may be commissioned, at the licensee's cost, to conduct the audit, and
- Once prospecting has ceased, any impacts shall be rehabilitated as per the conditions stipulated in licence for EPL 7508. Conditions to operate in protected areas are set out in Annex 6 of the Policy are included in Table 3.

**TABLE 3 - CONDITIONS TO OPERATE IN PROTECTED AREAS**



**General Conditions:**

1. A list of company personnel, including ID/Passport numbers, nationality, and position, authorized to enter or work on the company's tenements within the Dorob National Park, must be supplied to the MET officer in charge of the area.
2. Employee and personnel lists must be updated regularly (when any changes happen).
3. A Park Access permit must be obtained from the MET to enter the Dorob National Park. All permanent staff must be listed on this permit. This permit must be shown each time a staff member enters the park, and all people in a group must correspond with the permit list. A separate permit must be obtained from the MET for non-permanent employees (contractors, service providers, etc.) to cover the duration of their visit.
4. A copy of all permits and permissions from the relevant authorities or ministries to carry out any of the proposed activities on the EPL must be supplied to the officer in charge of the area.
5. All employees must have an ID/name tag with their name, photo and job or function with an authorizing signature.
6. A suitable communication system to enable regular contact with Dorob National Park officials must be installed, especially to prevent and mitigate poaching.

**Environmental Conditions:**

1. A six-monthly progress report and environmental management report must be submitted to the MET.
2. All provisions of the Nature Conservation Ordinance, Ordinance 4 of 1975 and all amendments to this ordinance and Regulations Relating to Nature Conservation, GN 240 of 1976, with all amendments or any legislation that replaces it must be complied with including the banning of plastic bags in the game park.
3. All provisions of the Environmental Management Act, Act 7 of 2007, must be complied with.
4. Provisions of any other legislation pertaining to any aspect of the environment must be complied with.
5. Strict compliance with all conditions in the Environmental Contract and appendices.
6. No movement outside of the EPL area except when in transit between the entrance to the PA and the EPL area will be allowed. Such transit will be on a specified route.
7. A detailed site inspection will be carried out in conjunction with MET staff prior to commencement of any prospecting activities to establish access routes to target areas.
8. No motor bike, 3-wheeler or quad bike of any nature will be allowed to be used in an EPL for any purpose.
9. No hunting, catching or wilfully disturbing any animal, plants and avifauna is allowed.
10. No boating will be allowed on any river or water body unless it is within the operations detailed on the operational documentation.

11. No gathering of firewood or driftwood for any purpose will be allowed.
12. No pets of any description will be allowed.
13. No firearms, bows, crossbows, catapults or other weapons. Weapons for security purposes must be motivated and registered with the officer in charge of the area.
14. Traveling will be confined to an agreed-upon track network. New tracks will be kept to a minimum.
15. All waste must be removed from the license area to a waste disposal unit. No waste to be disposed of within the PA. A suitable scavenger and wind proof storage facility must be constructed to store waste material prior to transportation out of the area. Waste may be burnt on site and the ash and non-burn-able residue must be removed as described above. Attention must be given to wind (especially with the eastern and south-western wind) conditions and all necessary measures must be taken to prevent wind distribution of rubbish. All fuel and lubricant waste products must be disposed of at a suitable facility outside of the Dorob National Park.
16. Suitable and effective traps or pans must be used at vehicle or machinery refuelling points. Soil contaminated with fuel or oil must be immediately dug up and stored in a safe place for later removal to a suitable disposal facility.
17. Under no circumstances may any waste material of any nature be disposed of in any water body or river.
18. All structures are to be temporary.
19. Mobile toilets (of a 'long drop' or pit latrine type) may be brought to site. The use of chemical toilets will not be acceptable, as there is the problem of disposing of the chemical residue. Any toilet must be constructed away from any river to prevent contamination.
20. Harvesting of reeds or other natural materials for construction or other purposes will not be allowed.
21. Transgressions of any provisions of the Nature Conservation Ordinance or its amendments will be dealt with severely. Second-time offenders will be asked to leave the park.

#### 4.2.1 DAILY COMPLIANCE MONITORING

A copy of this EMP shall be on site throughout the project and shall be available upon request. It is the responsibility of the exploration manager to ensure this EMP is complied with through their daily roles. Daily, weekly and monthly inspections will be undertaken. Any environmental problems or risks identified shall be reported to the exploration manager and actioned as soon as is reasonably practicable.

#### 4.2.2 MONTHLY COMPLIANCE MONITORING

Monthly inspections shall be undertaken by the exploration manager to check that the standards and procedures as set out in this EMP are being complied with and pollution control measures are in place and working correctly. Any non-conformance shall be recorded, including the following details: a brief description of non-conformance, the reason for the non-conformance, the

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responsible party, the result (consequence), and the corrective action to be taken and any necessary follow up measures required.

#### 4.2.3 REPORTING

There shall be a requirement to ensure that any incident or non-compliance, including any environmental issue, failure of equipment or an accident, is reported to the exploration manager in a timely manner.

### 4.3 ENVIRONMENTAL PERMITS

Whilst the Water Resources Management Act, No. 11 of 2013 is not enforced, it is best practice to adhere to its stipulations while ensuring compliance with the Water Act, No. 54 of 1956, which is still maintained.

Should water not be sourced directly from a private borehole or from a local Municipal source, a licence to abstract water is required in terms of the Water Act, No. 54 of 1956 and shall operate in accordance with any conditions of the licence.

In the event that vegetation is to be cleared all requirements under the Forest Act, No. 12 of 2001 as amended by the Forest Amendment Act, No. 13 of 2005 and its regulations of 2015 will be complied with.

### 4.4 NON-COMPLIANCE

#### 4.4.1 NON-COMPLIANCE EVENT

Where it has been identified that works are not compliant with this EMP, the exploration manager shall employ corrective actions so that the works return to being compliant as soon as possible. In instances where the requirements of the EMP are not upheld, a non-conformance and corrective action notice shall be produced. The notice shall be generated during the inspections and the exploration manager shall be responsible for ensuring a corrective action plan is established and implemented to address the identified shortcoming.

A non-compliance event or situation, for example, is considered if:

- There is evidence of a contravention of this EMP and associated indicators or objectives;
- The exploration manager or contractor have failed to comply with corrective or other instructions issued by the exploration manager or qualified authority; or
- The exploration manager or contractor fails to respond to complaints from the public.

Activities shall be stopped in the event of serious non-compliance until corrective action(s) has been completed.

### 4.5 INCIDENT REPORTING

The exploration manager must ensure that an accident and incident (including minor or a near-miss) reporting system is maintained so that all applicable statutory requirements are covered. For any serious incident involving a fatality, or permanent disability, the incident scene must be left

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untouched until witnessed by a representative of the police. This requirement does not preclude immediate first aid being administered and the location being made safe.

The exploration manager must investigate the cause of all work accidents and significant incidents and must provide the results of the investigation and recommendations on how to prevent a recurrence of such incidents. A formal root-cause investigation process should be followed.

#### 4.5.1 DISCIPLINARY ACTION

This EMP is a legally binding document and non-compliance with it shall result in disciplinary action being taken against the perpetrator(s). Such action may take the form of (but is not limited to):

- Fines or penalties;
- Legal action;
- Monetary penalties imposed by the proponent on the contractor;
- Withdrawal of licence(s); and
- Suspension of work.

The disciplinary action shall be determined according to the nature and extent of the transgression or non-compliance, and penalties are to be weighed against the severity of the incident.

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## 5 ENVIRONMENTAL AND SOCIAL MANAGEMENT

### 5.1 ENVIRONMENTAL PERFORMANCE MEASUREMENT

This chapter provides a register of environmental risks and issues, which identifies mitigation and monitoring measures, as well as the responsible roles. This register will be subject to regular review by the exploration manager and updated when necessary.

The exploration manager or the site manager (if applicable) will use this register to undertake monthly inspections (see next section) to ensure the project is compliant with this EMP.

### 5.2 OBJECTIVES AND TARGETS

Environmental objectives for the project are as follows:

- Zero pollution incidents;
- Minimal vegetation clearing and earthworks;
- Protect local flora and fauna;
- Minimise the generation of waste; and
- Use natural resources effectively and efficiently.

### 5.3 REGISTER OF ENVIRONMENTAL RISKS AND ISSUES

An environmental review of the proposed project was completed which identified all the commitments and agreements made within the environmental assessment report. From this, a schedule of environmental commitments and risks has been produced (Table 4), which details deliverables including measures identified for the prevention of pollution or damage to the environment during exploration.

Table 4 provides a register of environmental risks and issues, which identifies mitigation and monitoring measures, as well as the responsible person. This register will be subject to regular review by the exploration manager and updated when necessary. The exploration manager will use this register to undertake monthly inspections to ensure the project is compliant with this EMP.

**TABLE 4 - ENVIRONMENTAL RISKS AND ISSUES, AND MITIGATION AND MONITORING MEASURES**

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT / MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
<b>Access and site preparation</b>	<ul style="list-style-type: none"> <li>- Miscommunication with landowners;</li> <li>- Disruption of farm operations (i.e. leaving gates open); and</li> <li>- Potential conflict with landowners and neighbours (suspicious movement, and poaching, stock theft, field fires, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>- Ensure documented permission to enter private properties is enforced;</li> <li>- Landowners should have access to all farm areas at all times;</li> <li>- Existing water points and feeding area need to be left; unaffected;</li> <li>- Use existing roads for access to avoid new tracks and cut lines; and</li> <li>- Compliance with all applicable laws and agreements.</li> </ul>	Daily	Exploration manager or site manager (or nominated site supervisor)
	<ul style="list-style-type: none"> <li>- Potential grievances and complaints; and</li> <li>- Social discomfort and anxiety.</li> </ul>	<ul style="list-style-type: none"> <li>- Develop and implement an environmental and social operation manual or procedures to work on private farms and implement monitoring programmes thereafter;</li> <li>- Maintain continuous communication with I&amp;APs to identify concerns and mitigation measures;</li> <li>- Compliance with all applicable laws and agreements;</li> <li>- Train personnel and raise awareness to sensitize them about contentious issues such as stock theft and poaching;</li> <li>- Ensure appropriate supervision of all activities daily; and</li> <li>- Accidents and incidents need to be reported to the exploration manager and recorded in the incident register.</li> </ul>	Weekly, monthly	

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT / MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
<b>General on-ground exploration activities</b>	Residing and nesting organisms can possibly be disturbed, injured or killed by the movement of vehicles and equipment.	<ul style="list-style-type: none"> <li>- Restrict movements to areas of activities only;</li> <li>- Use existing tracks and routes as far as practically possible;</li> <li>- Identify rare, endangered, threatened and protected species in advance such as the white or black rhino;</li> <li>- Route new tracks around sensitive areas inhabited by protected species (i.e., pangolins, etc.);</li> <li>- Restrict movements to daytime hours;</li> <li>- Sensitize personnel by training and creating awareness amongst them and notify them to avoid some areas;</li> <li>- No driving off designated access routes (into the bush) or any off-road driving; and</li> <li>- No animals or birds may be collected, caught, consumed or removed from the site.</li> </ul>	Weekly	
	<ul style="list-style-type: none"> <li>- Residing and nesting organisms can be disturbed as a result of ambient noise from operations and movements of vehicles and equipment; and</li> <li>- Conflict with farmers and neighbours about rising of ambient noise levels and potential damage, disturbance or interference with research equipment or experiments.</li> </ul>	<ul style="list-style-type: none"> <li>- Restrict excessive noise to areas of activities only;</li> <li>- Restrict excessive noise to daytime hours (7 am to 5 pm weekdays and 7 am until 1 pm on Saturdays);</li> <li>- No activities are allowed between dusk and dawn;</li> <li>- Drill equipment shall be suitably positioned to ensure that noisy equipment is away from receptors;</li> <li>- Residents shall be provided at least two weeks' notice of drilling operations</li> </ul>	Daily	Site manager (or nominated site supervisor)

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT / MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		<p>within 1 km of their property;</p> <ul style="list-style-type: none"> <li>- All equipment to be shut down or throttled back between periods of use; and</li> <li>- Comply with national civil aviation regulations about the use of a drone, if necessary.</li> </ul>		
	<ul style="list-style-type: none"> <li>- Visual disturbances.</li> </ul>	<ul style="list-style-type: none"> <li>- Position drill equipment and other heavy equipment in such a way that it is out of sight from human receptors;</li> <li>- Barriers or fences shall be used if drilling occurs in locations that may affect residents or livestock;</li> <li>- Maintain good housekeeping standards on site; and</li> <li>- Maintain continuous communication with I&amp;APs to identify concerns and mitigation measures.</li> </ul>	Daily, weekly	
	<ul style="list-style-type: none"> <li>- Dust and emissions.</li> </ul>	<ul style="list-style-type: none"> <li>- All vehicles and machinery or equipment to be shut down or throttled back between periods of use;</li> <li>- Use existing access roads and tracks where possible;</li> <li>- Apply dust suppression where possible;</li> <li>- Restrict the speed of vehicles (<math>\leq 30\text{km/h}</math>); and</li> <li>- Specific activities that may generate dust and impact on residents shall be avoided during high wind events.</li> <li>- Residents need to be informed at least two weeks in advance that drilling</li> </ul>	Daily	



ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT / MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
	<ul style="list-style-type: none"> <li>- Loss of soil quality due to mixing of earth matter, trampling, compaction and pollution, and</li> <li>- Enhanced soil erosion.</li> </ul>	<p>operations are within 1km of their property;</p> <ul style="list-style-type: none"> <li>- Vehicles and machinery are to be regularly serviced according to the manufacturers' specifications and kept in good working order so as to minimise exhaust emissions.</li> <li>- Where possible, plan access routes, drill pads and camps outside of existing drainage lines;</li> <li>- Where necessary, install diversions to curb possible erosion;</li> <li>- Restore drainage lines when disturbed;</li> <li>- Topsoil should be stockpiled separately, and re-spread during rehabilitation;</li> <li>- Limit the possibility of compaction and creation of a hard subsurface,</li> <li>- Limit the possibility of trampling;</li> <li>- During drilling, oil absorbent matting should be placed under and around the drill rig;</li> <li>- Equipment must be in a good condition to ensure that accidental oil spills do not occur and contaminate soil;</li> <li>- In the event of spills and leaks, polluted soils must be collected and disposed of at an approved site; and</li> <li>- Limit the possibility of mixing mineral waste with topsoil.</li> </ul>	<p>Weekly</p>	

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT / MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
	Groundwater contamination	<ul style="list-style-type: none"> <li>- Ensure drill pads and spill kits are in place on site;</li> <li>- Consider alternative sites when the water table is too high;</li> <li>- Wastewater shall be contained; and</li> <li>- Where possible, water from existing water sources shall be used.</li> </ul>	Weekly	
<b>Airborne EM survey (AEM) over the EPL, possible low flying, indication of line spacing</b>	<ul style="list-style-type: none"> <li>- Perceived impact from low-flying EM survey activities on livestock and humans.</li> </ul>	<p>Prior to conducting aerial surveys, both directly and indirectly affected parties should be informed in writing at least 2 weeks prior.</p> <p>The following information is to be included in the written communication sent to the interested and affected parties. This can be in the form of a Press Notice.</p> <ul style="list-style-type: none"> <li>- Company name;</li> <li>- Survey dates, time and duration;</li> <li>- Purpose of the survey;</li> <li>- Flight altitude;</li> <li>- Survey location, map of survey area and flight lines, and</li> <li>- Contact details for enquiries.</li> </ul>	Once-off	-
<b>Vegetation clearance for access routes, drill sites and temporary contractor camps</b>	<ul style="list-style-type: none"> <li>- Loss of plant species;</li> <li>- Loss of habitat;</li> <li>- Create landscape scars; and</li> <li>- Loss of Sense of Place.</li> </ul>	<ul style="list-style-type: none"> <li>- Use existing roads for access to avoid new tracks and cut lines;</li> <li>- Minimise clearance areas through proper planning of the exploration activities;</li> <li>- Route new tracks around established</li> </ul>	Daily	- Exploration Manager

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT / MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		<p>and protected trees, and clumps of vegetation;</p> <ul style="list-style-type: none"> <li>- Identify rare, endangered, threatened and protected species;</li> <li>- During toolbox talks and induction sessions, highlight to workers that the removal of significant plants should be avoided;</li> <li>- Where possible rescue and relocate plants of significance; and</li> <li>- Promote revegetation of cleared areas upon completion of exploration activities.</li> </ul>		
	<ul style="list-style-type: none"> <li>- Alien plants and weeds can accidentally be introduced.</li> </ul>	<ul style="list-style-type: none"> <li>- All project equipment arriving on site from an area outside of the project or coming from an area of known weed infestations (not present on the project site) should have an internal weed and seed inspection completed prior to such equipment being used;</li> <li>- Ensure contractors receive induction on preventing the spread of alien weed;</li> <li>- Ensure the potential introduction and spread of alien plants is prevented;</li> <li>- Ensure the correct removal of alien invasive vegetation and prevent the establishment and spread of alien invasive plants;</li> <li>- Eradicate weeds and alien species as soon as they appear; and</li> <li>- Make workers aware about alien</li> </ul>	Monthly	<ul style="list-style-type: none"> <li>- Employees, contractors</li> <li>- Site manager (or nominated site supervisor)</li> </ul>

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT / MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		species and weeds.		
<p><b>Fuel handling and storage, maintenance on equipment, machinery and vehicles</b></p> <p><b>Inadequate control or accidental release of hazardous substances on site</b></p>	<ul style="list-style-type: none"> <li>- Soil contamination;</li> <li>- Water contamination; and</li> <li>- Enhanced accidental veld fires during high wind periods.</li> </ul>	<p><b>Storage</b></p> <ul style="list-style-type: none"> <li>- Label chemicals appropriately.</li> <li>- Chemicals with different hazard symbols should not be stored together - clear guidance on the compatibility of different chemicals can be obtained from the Materials Safety Data Sheets (MSDS) which should be readily available;</li> <li>- Store chemicals in a dedicated, enclosed and secure facility with a roof and a concrete floor. Chemical tanks should be completely contained within secondary containment such as bunding;</li> <li>- Consider the feasibility of substituting hazardous chemicals with less hazardous alternatives;</li> <li>- Storage and handling of fuels and chemicals shall be in compliance with relevant legislation and regulations; and</li> <li>- Fuels, lubricants, and chemicals are to be stored within appropriately sized, impermeable bunds or trays with a capacity not less than 110% of the total volume of products stored.</li> </ul>	<ul style="list-style-type: none"> <li>- Daily observations</li> <li>- Weekly inspections</li> </ul>	<p>Site manager (or nominated site supervisor)</p>

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT / MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		<p><b>Fire risk</b></p> <ul style="list-style-type: none"> <li>- No open fires are allowed to be lit by personnel, associated with the proponent anywhere on the EPL outside of dedicated campsites;</li> <li>- The proponent to ensure that exploration campsites have proper cooking facilities available to use. Gas stoves are the preferred option;</li> <li>- No cigarette butts are allowed to be discarded into the environment. These should be contained in appropriate domestic containment bins and disposed of at the local landfill site;</li> <li>- No unauthorised movement beyond the exploration areas and campsites is allowed;</li> <li>- Proper fire hazard identification signage to be placed in areas that store flammable material (e.g., hydrocarbons and gas bottles);</li> <li>- Control and reduce the potential risk of fire by segregating and safe storage of materials;</li> <li>- Avoid potential sources of ignition by prohibiting smoking in and around facilities; and</li> </ul>		

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT / MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		<ul style="list-style-type: none"> <li>- Fire extinguishers should always be at designated areas and should be inspected regularly.</li> </ul> <p><b>Spills</b></p> <p>Spill kits with the following items as a minimum should be made available on site:</p> <ul style="list-style-type: none"> <li>- Absorbent materials;</li> <li>- Shovels;</li> <li>- Heavy-duty plastic bags;</li> <li>- Protective clothing (e.g., gloves and overalls);</li> <li>- Major servicing of equipment shall be undertaken offsite or in appropriately equipped workshops;</li> <li>- For small repairs and unavoidable and necessary maintenance activities all reasonable precautions to avoid oil and fuel spills must be taken (e.g., spill trays, impervious sheets);</li> <li>- Provision of adequate and frequent training on spill management, spill response and refueling must be provided to all onsite personnel;</li> <li>- No refueling is to take place within 50 meters of groundwater boreholes, surface water or streams;</li> <li>- Vehicles and machinery are to be</li> </ul>		

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT / MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		<p>regularly serviced to minimise oil and fuel leaks; and</p> <ul style="list-style-type: none"> <li>- All major petroleum product spills (spill of more than 200 liters per spill) should be reported to the Ministry of Mines and Energy (MME) on Form PP/11 titled "Reporting of major petroleum product spill", attached as Appendix B.</li> </ul> <p><b>The following points therefore apply to all areas on the site:</b></p> <ul style="list-style-type: none"> <li>- Assess the situation for potential hazards;</li> <li>- Do not come into contact with the spilled substance until it has been characterised and the necessary Personal Protective Equipment (PPE) is provided; and</li> <li>- Isolate the area as required.</li> </ul> <p><b>The following measures are to be implemented in response to a spill:</b></p> <ul style="list-style-type: none"> <li>- Spills are to be stopped at the source as soon as possible (e.g., close valve or upright drum);</li> <li>- Spilt material is to be contained to the smallest area possible using a combination of absorbent material, earthen bunds or other containment</li> </ul>		

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT / MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		<p>methods;</p> <ul style="list-style-type: none"> <li>- Spilt material is to be recovered as soon as possible using appropriate equipment. In most cases, it will be necessary to excavate the underlying soils until clean soils are encountered;</li> <li>- All contaminated materials recovered subsequent to a spill, including soils, absorbent pads and sawdust, are to be disposed of at appropriately licensed facilities; and</li> <li>- A written incident report must be submitted to the general manager.</li> </ul>		
<p><b>Generation of waste</b></p>	<ul style="list-style-type: none"> <li>- Soil contamination;</li> <li>- Water contamination;</li> <li>- Nuisance (visual impacts and litter); and</li> <li>- Ecological risks.</li> </ul>	<ul style="list-style-type: none"> <li>- Good housekeeping standards applied on site;</li> <li>- Training and raise awareness through toolbox talks and induction;</li> <li>- Implement a Standard Operational Procedure (SOP) on waste management, for all kinds of waste possible on-site (e.g., hydrocarbons, domestic, waste water);</li> <li>- Implement a culture of correct waste collection, waste segregation and waste disposal, complementary to the waste hierarchy – avoid, re-use, recycle; and</li> <li>- Wastewater discharges will be contained – no disposal of wastewater directly into the environment is allowed.</li> </ul>	<ul style="list-style-type: none"> <li>- Daily and weekly</li> </ul>	<ul style="list-style-type: none"> <li>- Employees, contractors</li> <li>- Site manager (or nominated site supervisor)</li> </ul>



ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT / MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
<b>Water use</b>	<ul style="list-style-type: none"> <li>- Soil contamination;</li> <li>- Ground and surface water contamination; and</li> <li>Nuisance (visual and odour).</li> </ul>	<ul style="list-style-type: none"> <li>- Minimise the operational consumption of water throughout the lifespan of the project;</li> <li>- Visual monitoring and a photographic record should be kept of any surface and or groundwater intersected;</li> <li>- Recycle wastewater, where possible.</li> <li>- Install devices to prevent spills and overfills, e.g., shutoff devices for large volume tanks (e.g., &gt; than 2000lts).</li> <li>- Install an impermeable hardstand in areas of high-risk contamination to prevent ground infiltration by pollutants;</li> <li>- Segregation of wastewater (domestic and industrial effluent); and</li> <li>- During operation, monitoring of wastewater discharges (specific to a wastewater discharge permit conditions) should be conducted on a regular basis (quarterly).</li> </ul>	<ul style="list-style-type: none"> <li>- Daily inspection of operations</li> </ul>	<ul style="list-style-type: none"> <li>- Exploration Manager</li> <li>- Employees, contractors</li> <li>- Site manager (or nominated site supervisor)</li> </ul>
<b>Resource use</b>	<ul style="list-style-type: none"> <li>- Inefficient use of water resources</li> </ul>	<ul style="list-style-type: none"> <li>- Use water effectively and efficiently by following the reduce, recycle and re-use approach</li> </ul>	<ul style="list-style-type: none"> <li>- Daily observations</li> </ul>	<ul style="list-style-type: none"> <li>- Exploration manager</li> <li>- Employees</li> </ul>
<b>Heritage</b>	<ul style="list-style-type: none"> <li>- Disruption of heritage sites.</li> </ul>	<p>In case of discovering or unearthing heritage sites, the following measures (chance-find procedure) shall be applied:</p> <ul style="list-style-type: none"> <li>- Works to cease and the area to be demarcated with appropriate tape by the site supervisor, and the site manager to be informed;</li> <li>- The site manager to visit the site and</li> </ul>	<ul style="list-style-type: none"> <li>- Daily inspection</li> </ul>	<ul style="list-style-type: none"> <li>- General Manager, and</li> <li>- Deputy Manager (or nominated supervisor)</li> </ul>

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT / MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		<p>determine whether work can proceed without damage to findings, mark exclusions boundary and inform the environment and social manager with the GPS position if possible</p> <ul style="list-style-type: none"> <li>- If works cannot proceed without damage to findings, the site manager to inform the environmental manager who will get in touch with an archaeologist who will provide advice.</li> <li>- Exploration manager or an archaeological specialist to evaluate the significance of the remains and identify appropriate action, for example, record and remove; relocate or leave in situ (depending on the nature and value of the remains);</li> <li>- Inform the police if the remains are human, and</li> <li>- Obtain appropriate clearance or approval from the competent authority. if required, recover and remove the remains to the national museum or national forensic laboratory as directed.</li> </ul>		
<p><b>Job creation, skills development and business opportunities</b></p>	<ul style="list-style-type: none"> <li>- Beneficial socio-economic impacts on a local and regional scale.</li> </ul>	<ul style="list-style-type: none"> <li>- Maximise local employment and local business opportunities;</li> <li>- Enhance the use of local labour and local skills as far as reasonably possible; and</li> <li>- Ensure that goods and services are sourced from the local and regional economy as far as reasonably possible.</li> </ul>	<ul style="list-style-type: none"> <li>- Monthly</li> </ul>	<ul style="list-style-type: none"> <li>- Exploration Manager</li> </ul>

## 6 IMPLEMENTATION OF THE EMP

Exploration work will be carried out in compliance with the relevant requirements of the Minerals (Prospecting and Mining) Act, 1992. No significant impacts are anticipated for the activities that have been identified. Management and mitigation measures are in place for potential risks.

This EMP:

- A. Has been prepared pursuant to a contract with the proponent;
- B. Has been prepared on the basis of information provided to ECC up to March 2021;
- C. Is for the sole use of the proponent, for the sole purpose of an EMP;
- D. Must not be used (1) by any person other than the proponent or (2) for a purpose other than an EMP; and
- E. Must not be copied without the prior written permission of ECC.

ECC has prepared the EMP on the basis of information provided by the proponent, specialist reports and the environmental scoping report.

**APPENDIX A - APPLICATION FOR A WASTEWATER DISCHARGE LICENCE**



**DEPARTMENT OF WATER AFFAIRS & FORESTRY**

FAX: (061) 208 7160 PRIVATE BAG 13184  
 TEL: (061) 208 7111 WINDHOEK  
 REFERENCE NO: ..... NAMIBIA

**APPLICATION FOR A WASTEWATER DISCHARGE LICENCE, IN TERMS  
 OF PART XIV OF THE WATER RESOURCES MANAGEMENT ACT, 2004**

**(Act No. 24 of 2004 - as published in the Government Gazette of the Republic of Namibia, No. 3357, of 23 December 2004, Government Notice No. 284)**

**A. GENERAL INSTRUCTIONS**

1. Applications must be submitted in duplicate to:  
 The Permanent Secretary  
 Attn.: Law Administration  
 Ministry of Agriculture, Water and Forestry  
 Private Bag 13184  
 WINDHOEK
2. Application Fee (to accompany this document): N\$ \_\_\_\_\_
3. The various sections have to be completed as follows:  
**Section B & C** - All applicants  
**Section D** - Complete only the part relevant to technology employed in your works.  
**Section E** - All applicants (compulsory!)
4. Only the relevant Sections that have been filled in need to be submitted with this application.
5. A separate application needs to be filled in for each different plant/works.

**NAME OF TREATMENT PLANT/WORKS:** \_\_\_\_\_

**PLACE:** \_\_\_\_\_ **GPS Coordinates:** \_\_\_\_\_  
 (e.g. town, settlement)

**B. GENERAL INFORMATION**

1. Name of applicant: \_\_\_\_\_

2. Address - Contact Person: \_\_\_\_\_

- Postal: \_\_\_\_\_

- Physical: \_\_\_\_\_

- Tel No.: \_\_\_\_\_

- Fax No.: \_\_\_\_\_

- E-mail: \_\_\_\_\_

3. Region in which plant is situated: \_\_\_\_\_

4. Constituency in which plant falls: \_\_\_\_\_

5. Type of establishment:  
 (e.g. school, town, industry) \_\_\_\_\_

6. Source of water supply:  
 (e.g. borehole, river, sea) \_\_\_\_\_

7. Total water consumption: \_\_\_\_\_ m<sup>3</sup>/day ADWF\*

(\*ADWF = Average Dry Weather Flow) \_\_\_\_\_ m<sup>3</sup>/day ADWF\*

• Consumption based on the average usage over a 12-month period. \_\_\_\_\_ m<sup>3</sup>/day ADWF\*

• List different sources separately \_\_\_\_\_ m<sup>3</sup>/day ADWF\*

8. Application:

• Prepared by: Name : \_\_\_\_\_ Position: \_\_\_\_\_

(e.g. Consultant) Signature: \_\_\_\_\_ Date: \_\_\_\_\_

• Responsible Executive: Name : \_\_\_\_\_ Position: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

### C. TECHNICAL DETAILS - GENERAL

Answers to the following information must be contained in this application either from the questionnaire or as an attachment thereto (see also details in Appendix A):

NAME OF TREATMENT PLANT/WORKS: \_\_\_\_\_

1. Type of effluent (please also refer to Section D for classifications): \_\_\_\_\_

2. Site of works:

2.1 Submit a site plan indicating the exact location (or intended location) of the works. This plan should indicate (as a minimum):

- 2.1.1 General location of the works with regards to settlements, main roads, boreholes, rivers etc.
- 2.1.2 Layout plan of property showing all existing and proposed water pipes and effluent and drainage lines in distinctive colours.
- 2.1.3 Topographical plan/area photograph/contour plans showing the property and effluent treatment plant in relation to residential areas, rivers, pans, dams, lakes and boreholes.
- 2.1.4 Contour plans indicating the exact location of the effluent treatment works and point of discharge of final effluent in relation to watercourses that drain the area.
- 2.1.5 Give the following information:
  - 2.1.5.1 Distance to nearest inhabitants: \_\_\_\_\_m
  - 2.1.5.2 Distance to nearest water abstraction point (e.g. river, borehole): \_\_\_\_\_m
  - 2.1.5.3 Distance to nearest watercourse (e.g. dry river) and specify: \_\_\_\_\_m
  - 2.1.5.4 Wind direction (main/normal) \_\_\_\_\_

2.2 Submit overall details of works:

- 2.2.1 Type of effluent treatment system and a brief description of its method of operation. (If domestic effluents are dealt with by the local authority please enclose a letter from the authority confirming this agreement).
- 2.2.2 Flow diagram/mass balances to show the present average quantities of incoming water, recycled water, final outflow, seepage and evaporation losses (all in m<sup>3</sup>/day).
- 2.2.3 Layout orientation drawing indicating all major treatment units and fence around works.
- 2.2.4 Complete flow diagram and key design parameters to include:
  - 2.2.4.1 Dimensions and design capacities of each unit process;
  - 2.2.4.2 Process Flow Diagram(s) and major instrumentation employed, e.g. water meters;
  - 2.2.4.3 Loadings on the system (e.g. hydraulic, COD, BOD, nitrogen, phosphate);
- 2.2.5 Indicate allowances that have been made for future expansion and increased loads (if any).
- 2.2.6 Methods of sludge disposal or recirculation.
- 2.2.7 Disinfection of the final effluent (indicate dosing type, method, retention period and optimum disinfectant level in final effluent).

3. Monitoring boreholes for monitoring groundwater pollution over time must be available within 500 m of the point of final effluent discharge.

4. Please note: Additional information is required for new treatment plants (e.g. an environmental impact assessment) - details can be obtained from the Department of Water Affairs and Forestry.

5. All relevant information must be included with this application. **It is a criminal offence to deliberately withhold vital information relevant to this application.** Where applicants are found to be in contravention with this requirement, they may/will be prosecuted.

## D. TECHNICAL DETAILS - SPECIFIC

Applicants should only complete sections relevant to their specific effluent (please tick relevant box):

- |  |  |
|--|--|
|  | D-1: Domestic Effluent - Includes wastewater collected in towns (excluding industrial effluent!), villages, schools, lodges, administration buildings. |
|  | D-2: Industrial Effluent - Includes wastewater generated by any industry, factory, etc.  |
|  | D-3: Mining Effluent - Includes wastewater accumulated or collected due to mining operations (e.g. Acid mine wastewater)                               |
|  | D-4: Combination/mix of various effluents (list major effluent streams on page 11)   |

### Final Effluent Reuse

The pressure on Namibia's existing fresh-water supplies can, to a great extent, be eased by the sensible reuse of effluents for a variety of purposes including dust control, agriculture and industrial processes. Therefore, reuse of effluent after suitable treatment is encouraged.

The allowable reuse of an effluent is dependent upon its quality as well as many local circumstances and hence each application in this category needs careful and individual scrutiny, which should be undertaken by a specialist in this field and must be supported by an environmental impact assessment study.

A separate licence for effluent reuse is required and more details in this regards can be obtained from the Department of Water Affairs and Forestry.

**D-2. INDUSTRIAL EFFLUENTS**

Plant Name: .....

2.1	Describe industry and major activities resulting in effluent generation		
2.2	Capacity / Flowrates :		
	Design - Average daily flow		m <sup>3</sup> /d
	- Peak hourly flow		m <sup>3</sup> /h
	Actual (if in operation) - Average daily flow		m <sup>3</sup> /d
	- Peak hourly flow		m <sup>3</sup> /h
	If ponds are employed, state total surface area		m <sup>2</sup>
2.3	List only major contaminants (also attach full analysis of typical effluent sample)		
2.4	Type of treatment employed (give short overview of process):		
2.5	List major treatment chemicals* employed in the unit process(es):		
2.6	Final effluent quality after treatment (put envisaged final quality for a new plant):		
2.7	Sludge generation:		
	- Volume generated		m <sup>3</sup> /d
	- Mass		kg/d (dry solid)
	- Method of disposal		
	- Place of disposal		
	- Major constituents		
	- If sludge ponds, state frequency of cleaning		
2.8	Do you employ cleaner production principles (CPP)?      Yes/No		
	If "yes", elaborate:		
2.9	Is the following documentation included (give reason if not)?		
	▪ Water (and waste) management plan:	Yes/No	
	▪ Decommissioning plan:	Yes/No	

\* For the chemicals employed, proper mass balances should be included that show chemical usage, movement and discharge within the factory/process(es). All safety aspects related to handling, storage and disposal of chemicals on site must be followed at all times.



**D-4. COMBINATION OF VARIOUS EFFLUENTS**

Plant Name: .....

4.1	Describe major activities resulting in effluent generation (e.g. type of industry):				
4.2	Capacity / Flowrates of different streams (major only)	1	2	3	
	Type (e.g. domestic, industrial, mining, others)				
	Design - Average daily flow				m <sup>3</sup> /d
	- Peak hourly flow				m <sup>3</sup> /h
	Actual (if in operation) - Average daily flow				m <sup>3</sup> /d
	- Peak hourly flow				m <sup>3</sup> /h
4.3	List only major contaminants (also attach full analysis of typical effluent sample)				
4.4	Type of treatment employed (give short overview of process)				
4.5	List major treatment chemicals employed in the unit process(es):				
4.6	Final effluent quality after treatment (put envisaged final quality for a new plant)				
4.7	Sludge generation:				
	- Volume generated				m <sup>3</sup> /d
	- Mass				kg/d (dry solid)
	- Method of disposal				
	- Place of disposal				
	- Major constituents				
	- If sludge ponds, state frequency of cleaning				

**E. FINAL EFFLUENT DISPOSAL**

1.4.1	Where is the final effluent discharged to? (E.g. French drain, pumped out by Local Authority, dry river course, perennial river, etc.)	
1.4.2	IF soakaway, state: - Type of soil - Suitability/porosity of soil - Size of soakaway area - Include topography and plan of soakaway area	
1.4.3	Is there any post-treatment applied? (e.g. disinfection, filtration)	
1.4.4	Is the final effluent re-used? (Yes/No)	
	If "Yes", complete:	
	- Do you have a reuse licence?	
	- Amount of water that will be re-used:	m <sup>3</sup> /d
	- For what application:	
	- Type of irrigation used (if applicable):	
	- What crops are grown:	
- Area of land that will be irrigated:	ha	
1.4.5	Name (if any) downstream users (downstream of discharge point).	
1.4.6	Past records of complaints or objections by people living close to works:	

Reuse:

A reuse licence is required – details can be obtained from the Department of Water Affairs and Forestry.

Irrigation:

The crops allowed to be irrigated are dependent upon effluent quality (details will be supplied on request by the Department of Water Affairs and Forestry).





## APPENDIX C - COMPLAINTS REGISTER TEMPLATE

NAME	CONTACT DETAILS	DATE AND LOCATION OF COMPLIANT	NATURE OF COMPLIANT	ACTION TAKEN TO RESOLVE	NOMINATED PERSON TO RESOLVE ISSUE <i>(Signature)</i>	DATE OF RESOLUTION/ CLOSED OUT COMPLAINT

## APPENDIX D - MONTHLY INTERNAL COMPLIANCE CERTIFICATE

FOR THE PERIOD ..... TO .....

MANAGEMENT REPRESENTATIVE:	SIGN:
SHE COORDINATOR:	SIGN:

Date of Submission: \_\_\_\_\_

Key activities on site during the month: \_\_\_\_\_

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**NON-CONFORMANCE:**

Area of activity: \_\_\_\_\_

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Reason: \_\_\_\_\_

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Responsible party: \_\_\_\_\_

Results: \_\_\_\_\_

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Correction action taken: \_\_\_\_\_

Intended follow-up: \_\_\_\_\_

**GOOD PERFORMANCE:**

Description of activity or action in which the area/person went beyond compliance towards responsible care for the environment:

**ADDITIONAL COMMENTS:**