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## **ENVIRONMENTAL MANAGEMENT PLAN**

Exploration Activities on EPL 7662 for Nuclear Fuel Minerals.

Erongo Region

PREPARED FOR



DECEMBER 2019

## TITLE AND APPROVAL PAGE

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**DEFINITIONS AND ABBREVIATIONS**

EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
EPL	Exclusive Prospecting Licence
ECC	Environmental Compliance Consultancy
MME	Ministry of Mines and Energy
MET	Ministry of Environment and Tourism

# 1 INTRODUCTION

## 1.1 PROJECT BACKGROUND

Marenica Energy Ltd is an Australian Securities Exchange Listed Company, it is the holding company of Manmar Investments One Eight Two (Pty) Ltd which is seeking to explore for Nuclear Fuels Minerals in Namibia. Marenica has also developed a uranium concentration process that is unique and ground-breaking, lowering the extraction cost of uranium and significantly reducing potential environmental effects associated with reducing the mass of ore to be leached. This U-pgrade<sup>TM</sup> process 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.

Manmar Investments One Eight Two (Pty) Ltd proposes to undertake exploration activities on EPL 7662 for Nuclear Fuel Minerals in the Erongo Region. The EPL is located in the Namib-Naukluft National Park approximately 80km south-east of Walvis Bay off the C14 as illustrated in Figure 1.

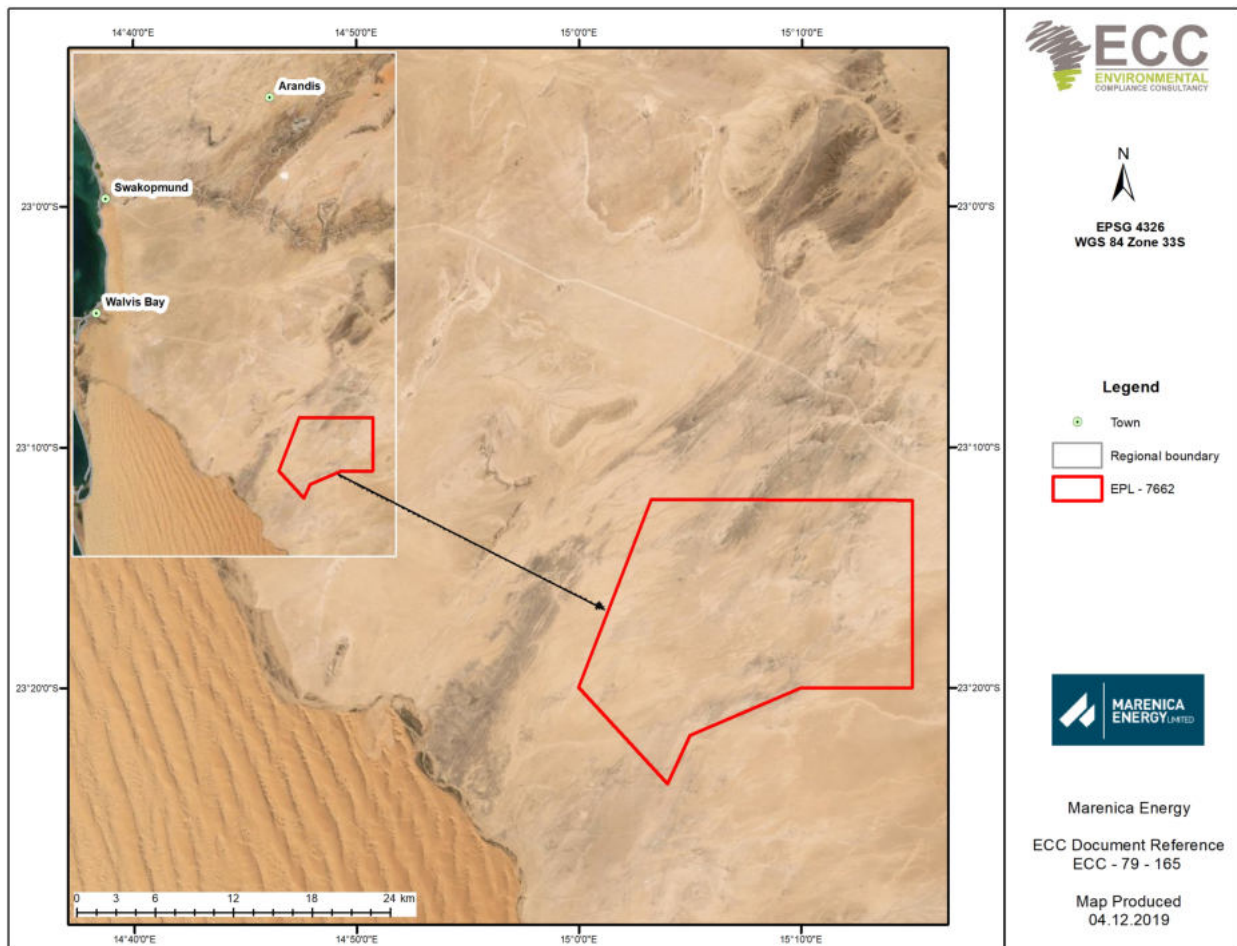


FIGURE 1: LOCALITY OF EPL 7662

## 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, 2007 (No 30 of 2011) gazetted under the Environmental Management Act, (EMA), 2007 (referred to herein as the EIA Regulations). A renewal application for an environmental clearance certificate is to be submitted. An Environmental Management Plan (EMP) is required to be

submitted as part of the renewal process, 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, 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.

The EMP forms an appendix to the environmental scoping report and has been 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/or updated when the scope of works alters, or when further data /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 7662.

### 1.4 MANAGEMENT OF THIS EMP

The proponent, Manmar Investments One Eight Two (Pty) will hold the Environmental Clearance Certificate for the proposed project and shall be responsible for the implementation and management of this EMP. Prior to the exploration activities commencing, this EMP shall be reviewed, amended as required and approved ready for implementation. The implementation and management of this EMP and thus the monitoring of compliance shall be undertaken through daily duties and activities and monthly inspections.

This EMP shall be circulated to all contractors and shall be made available on the Environmental Compliance Consultancy's (ECC) 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 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 scoping report. Where the design or construction methods alter, this EMP may require updating and potential further assessment undertaken.

### 1.6 ENVIRONMENTAL CONSULTANCY

Environmental Compliance Consultancy, a Namibian consultancy registration number 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 CVs of the authors of this report is contained in Appendix A. ECC is independent of the proponent and has no vested or financial interested in the proposed project expect for fair remuneration of professional services rendered.

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## 1.7 STRUCTURE OF THIS EMP

**Table 1 - ENVIRONMENTAL SCOPING REPORT SECTIONS**

SECTION	TITLE	CONTENT
1	Introduction	This section introduces the EMP and provides background information on the proposed project, proponent and purpose of the report
2	Project Management	Sets the roles of the team responsible for implementing this EMP
3	Communication and Training	Methods for communication the EMP, records, and complaints
4	Compliance and Enforcement	Sets out how compliance is monitored, reporting and actions to prevent reoccurrence
5	Environmental and Social Management	Register of commitments for the project
6	Implementation of the EMP	How to implement the EMP

## 2 PROJECT MANAGEMENT PERSONNEL

### 2.1 MANMAR INVESTMENTS ONE EIGHT TWO (PTY) LTD

The proponent shall provide a project team to oversee and undertake the preparation and exploration activities, which shall be composed of the proponent's personnel and contractors. A nominated role shall be identified to ensure the management and implementation of this EMP is throughout the duration of the project, which shall be supported by the proponent.

### 2.2 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 persons are provided with sufficient training, supervision, and instruction to fulfil this requirement
- Ensuring that any persons allocated specific environmental responsibilities are notified of their appointment and confirm that their responsibilities are clearly understood, and
- 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 2.

**TABLE 2 – ROLES AND RESPONSIBILITIES**

ROLE	RESPONSIBILITIES & DUTIES
<b>Proponent</b>	<ul style="list-style-type: none"> <li>- Responsible for the management and implementation of the EMP</li> <li>- Ensure environmental policies is communicated to all personnel throughout the proposed project and that employees understand the guidelines of the EMP</li> <li>- Responsible for providing the resources required to complete the project tasks</li> <li>- Appoint a Site manager and Project Manager, and</li> <li>- Ensure all workers are inducted on safety measures.</li> </ul>
<b>Exploration Management</b>	<ul style="list-style-type: none"> <li>- Overseeing exploration activities</li> <li>- Monitoring daily operations and ensure adherence by personnel to the EMP</li> <li>- Maintain the community issues and concerns register and keep records of complaints, and</li> <li>- Maintain an up to date register of employees who have completed site induction.</li> </ul>
<b>Site Manager</b>	<ul style="list-style-type: none"> <li>- Ensuring that all contract workers, sub-contractors and visitors to the site are aware of the requirements of this EMP, relevant to their roles and always adhere to this EMP</li> <li>- Reporting any non-compliance or accidents to the PM</li> <li>- Receiving, recording and responding to complaints</li> <li>- Ensure adequate resources are available for the implementation of the EMP</li> <li>- Report non-compliance to the PM</li> <li>- Ensure safe and environmentally sound operations, and</li> <li>- Responsible for the management, maintenance and revisions of this EMP.</li> </ul>
<b>Employees</b>	<ul style="list-style-type: none"> <li>- Adhere to measures set out in the EMP</li> </ul>



ROLE	RESPONSIBILITIES & DUTIES
	<ul style="list-style-type: none"> <li>- Ensure they have undertaken a site induction, and</li> <li>- Report any operations or conditions which deviate from the EMP as well as any non-compliant issues or accidents to the environmental manager</li> </ul>

## 2.3 CONTRACTORS

Any contractors hired during the exploration activities and accessory works for the project duration 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 and safety management measures
- Reporting of environmental issues, including actual or potential environmental incidents and hazards, to the Site manager and/or PM, and
- Ensuring appropriate corrective or remedial action is taken to address all environmental hazards and incidents reported by employees and subcontractors.

## 2.4 EMPLOYMENT

The proponent and all contractors shall comply with the requirements of the Republic of Namibia Regulations for Labour, Health and Safety, and any amendments to these regulations. The following shall be complied with:

- In liaison with local government and community authorities the proponent shall ensure that local people have access to information about job opportunities and are considered first for construction / maintenance contract employment positions
- 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.

## 3 COMMUNICATION AND TRAINING

### 3.1 COMMUNICATIONS

During exploration, the PM and Site manager shall communicate site wide 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
- Key project-specific environmental issues briefings.

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.

During the exploration activities, communications 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 COMPLAINTS HANDLING AND RECORDING

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

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.

### 3.3 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.

#### 3.3.1 SITE INDUCTION

All personnel involved in the project shall be inducted to the site with specific environment and social awareness training, and health and safety issues. 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 project manager shall ensure a register of completed training is maintained.

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

- A general site-specific induction that outlines:

- What is meant by “environment” and “social”
- Why the environment needs to be protected and conserved
- How exploration activities can impact on the environment
- What can be done to mitigate against impacts
- The inductee’s role and responsibilities with respect to implementing the EMP
- The sites environmental rules
- Details of how to deal with, and who to contact if environmental problems should they occur
- Basic vegetation clearing principals and species identification sheets
- The potential consequences of non-compliance with this EMP and relevant statutory requirements, and
- The role of responsible people for the project.

## 4 REPORTING, COMPLIANCE AND ENFORCEMENT

### 4.1 ENVIRONMENTAL PERFORMANCE MEASUREMENT

The EMP provides the management team with options to ensure the impacts of the exploration activities are minimized. The EMP will be used as a pro-active tool to take up action by mitigating impacts before they occur. Although additional mitigation measures might be included, the environmental management measures are discussed in the tables and description from this point forward.

### 4.2 SUMMARY OF ENVIRONMENTAL RISKS AND MITIGATION MEASURES

Chapter 5 provides a Register of environmental risks and issues, which identifies mitigation and monitoring measures, as well as roles responsible. This register will be subject to regular review by the project manager and updated when necessary. The project manager and site manager will use this register to undertake monthly inspections (see next section) to ensure the project is compliant with this EMP.

### 4.3 COMPLIANCE MONITORING

#### 4.3.1 MONITORING IN THE NATIONAL PARK

The EPL is located in the Namib-Naukluft National Park. The National Policy on the Prospecting and Mining in Protected Areas provides direction 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 Namib-Naukluft 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 MET with an environmental report every six months during exploration works, showing its progress towards meeting agreed upon safeguard targets.
- The proponent shall communicate with the National Park staff on a regular basis to ensure that mutual expectations are clear and reinforced, including:
  - o One month prior to undertaking the activities
  - o Once during each scheduled program of works (anticipated to be for three months a year for seven years)
  - o Once a month prior to activities completing
  - o Within one month of all site, rehabilitation works.
- The proponent shall allow Park staff and the MET to regularly visit and talk to the operators during exploration activities. The MET and MME may conduct inspections at any time during the year to monitor compliance with the Environmental Contract, EIA, 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 in order 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 in accordance with the stipulations of the EMP conditions, as 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 a PA, must be supplied to the MET officer in charge of the area.
2. Employee and personnel lists must be updated on a regular basis (when any changes happen).
3. An annual permit must be obtained from the MET to enter a PA. 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 be in possession of 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 PA officials must be installed.

**Environmental Conditions:**

1. A six monthly progress report and environmental management report must be submitted to the MET starting from date of commencement of operations.
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.
3. All provisions of the Environmental Management Act No. 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 motorbike, 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 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 windproof 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 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 PA.
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 of a temporary nature.
19. Toilets of a 'long drop' or pit latrine type must be put up immediately. 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.

#### 4.3.2 DAILY COMPLIANCE MONITORING

A copy of this EMP shall be on site throughout the exploration works and shall be available upon request. It is the responsibility of the PM and site manager to ensure this EMP is complied with through their daily roles. Daily inspections will be undertaken by the site manager (or nominated site supervisor). Any environmental problems or risks identified shall be notified to the PM and actioned as soon as is reasonably practicable.

#### 4.3.3 MONTHLY COMPLIANCE MONITORING

Monthly internal inspections during exploration activities shall be undertaken by the site manager to check that the standards and procedures 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 responsible party; the result (consequence); and the corrective action is taken and any necessary follow up measures required.

### 4.4 REPORTING

Reports shall be submitted to the Mining Commissioner in terms of the Minerals (Mining and Prospecting) Act, 1992. The reporting requirements for the two sites are illustrated in Table 4. A report shall be submitted 60 days after the currency of the EPL.

**TABLE 4 - REPORTING FREQUENCY**

TYPE OF LICENCE	MONTHLY	QUARTERLY	ANNUALLY
EPL	NA	Yes	NA

### 4.5 NON-COMPLIANCE

#### 4.5.1 NON-COMPLIANCE EVENT

Where it has been identified that works are not compliant with this EMP, the project 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 project manager shall be responsible for ensuring a corrective action plan is established and implemented to address the identified shortcoming.

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

- There is evidence of a contravention of this EMP and associated indicators or objectives
- The Site Manager and/or Contractor have failed to comply with corrective or other instructions issued by the Environmental Manager or qualified authority, or
- The site manager and/or contractor fail to respond to complaints from the public.

Works shall be stopped in the event of a non-compliance until corrective action(s) has been completed

#### 4.5.2 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 / penalties
- Legal action
- Monetary penalties imposed by the proponent on the contractor

- Withdrawal of license/s, and
- Suspension of work.

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

#### 4.6 ENVIRONMENTAL PERMITS

Whilst the Water Resources Management Act, 2013 is not enforced, it is best practice to adhere to the stipulations. A permit to abstract and use water may be required if boreholes are to be created, however, this is unlikely.

Some vegetation shall be cleared on the EPL sites to allow exploration activities to commence. It is unlikely that an area greater than 15ha shall be cleared, therefore a permit, in terms of the Forest Act, 2001 is not required.



## 5 ENVIRONMENTAL AND SOCIAL MANAGEMENT

### 5.1 OBJECTIVES AND TARGETS

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

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

Environmental objectives for the project are as follows:

- Zero pollution incidents
- Minimal vegetation clearing and earthworks
- Protect local flora and fauna, and
- Use natural resources effectively and efficiently.

### 5.2 REGISTER OF ENVIRONMENTAL RISKS AND ISSUES

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

**TABLE 5 – ENVIRONMENTAL RISKS AND ISSUES, AND MITIGATION AND MONITORING MEASURES**

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT/MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
Use of Plant and equipment (on the ground)	Safety	<ul style="list-style-type: none"> <li>– Plant and equipment shall be brought onto the site as and when required and stored in specific areas, and</li> <li>– Amenities (e.g. portable toilets) shall be provided and set up in a suitable location (if required).</li> </ul>	Daily observations	<ul style="list-style-type: none"> <li>– Project manager</li> <li>– Site manager</li> </ul>
	Aerial emissions	All plant to be shut down or throttled back between periods of use.	Daily observations	<ul style="list-style-type: none"> <li>– Project manager</li> <li>– Site manager</li> </ul>
	Potential loss of oil and fuel causing ground contamination	<ul style="list-style-type: none"> <li>– Refueling shall be undertaken in a designated area.</li> <li>– All stationary vehicles and machinery must have drip trays to collect leakages of lubricants and oil</li> </ul>	Daily observations	<ul style="list-style-type: none"> <li>– Project manager</li> <li>– Site manager</li> </ul>
	Water contamination	<ul style="list-style-type: none"> <li>– In the event of pollution, polluted soils must be collected and dumped at an approved site</li> <li>– Water during drilling should be retained in a lined pond to prevent pollution</li> <li>– The water collection pit from drilling must be layered in order to avoid seepage, and</li> <li>– A ‘good housekeeping’ policy shall be adopted across the construction and maintenance working areas.</li> </ul>	Daily observations	<ul style="list-style-type: none"> <li>– Project manager</li> <li>– Site manager</li> </ul>
	Dust generation	<ul style="list-style-type: none"> <li>– Use existing access roads and tracks, where possible</li> <li>– Apply dust suppression method such as water spraying during drilling operations</li> <li>– Non-toxic human dust exposure levels may not exceed 15mg/m<sup>3</sup> for total dust and 5mg/m<sup>3</sup> for respiratory dust</li> <li>– Restricted speeds (&lt;30km/h)</li> <li>– Provide protective masks and eye glasses to employees in dusty working environments, and</li> <li>– Specific activities that may generate dust shall be avoided during high wind events, e.g. soil preparation activities</li> </ul>	Daily observations	<ul style="list-style-type: none"> <li>– Project manager</li> <li>– Site manager</li> </ul>

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT/MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
	Noise generation	<ul style="list-style-type: none"> <li>- Noise shall be minimised as much as possible during construction works</li> <li>- Limit working hours to 7 am to 6 pm weekdays and 7 am to 1 pm on Saturday</li> <li>- Inform local communities and residents of scheduling and duration of noisy activities through notices or face-to-face communications.</li> <li>- Regular maintenance and servicing of vehicles, plant, and equipment.</li> <li>- All plant to be shut down or throttled back between periods of use.</li> <li>- Provide ear muffs to employees working in close proximity to excessive noise</li> <li>- Workers must not be subjected to working in noise levels above the threshold of 85dB (A) for longer than 8 hours, and</li> <li>- No flying is to be conducted (aerial surveys) between dusk and dawn, on Sundays and on public holidays.</li> </ul>	Daily observations	<ul style="list-style-type: none"> <li>- Project manager</li> <li>- Site manager</li> </ul>
<b>Use of airborne equipment (remote sensing – drone, helicopter)</b>	Noise generation	<ul style="list-style-type: none"> <li>- Only use remote sensing equipment between 7 am and 5 pm, and</li> <li>- No flying on Sundays and on public holidays.</li> </ul>	Daily observations	<ul style="list-style-type: none"> <li>- Project manager</li> <li>- Site manager</li> </ul>
<b>Vegetation Clearance</b>	Alien species	<ul style="list-style-type: none"> <li>- Ensure the correct removal of alien invasive vegetation from the proposed development area and prevent the establishment and spread of alien invasive plants due to the development activities.</li> <li>- Ensure the potential introduction and spread of alien plants is prevented</li> <li>- All project/earth moving equipment must have an internal weed and seed inspection completed prior to equipment being used on site, and</li> <li>- Invasive plants shall be removed as per the National Park Management Strategy.</li> </ul>	<ul style="list-style-type: none"> <li>- Monitor daily the removal of the alien invasive vegetation, and</li> <li>- Check the tyres of vehicles after use on site.</li> </ul>	<ul style="list-style-type: none"> <li>- Employees</li> <li>- Project manager</li> </ul>
	Dust generation	<ul style="list-style-type: none"> <li>- Apply speed restrictions (&lt;30km/h), and</li> <li>- Avoid off-road driving.</li> </ul>	Daily observations	<ul style="list-style-type: none"> <li>- Project manager</li> <li>- Site manager</li> </ul>
	Reduced soil quality	<ul style="list-style-type: none"> <li>- Use existing tracks where possible</li> </ul>	Daily observations	<ul style="list-style-type: none"> <li>- Project</li> </ul>

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT/MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		<ul style="list-style-type: none"> <li>- Refueling to occur in designated areas with drip trays, and</li> <li>- Avoid natural drainage lines</li> </ul>		<ul style="list-style-type: none"> <li>manager</li> <li>- Site manager</li> </ul>
	Injure or kill animals	<ul style="list-style-type: none"> <li>- Relocate slow-moving reptiles and amphibians away from the construction area</li> <li>- No driving off designated access routes (into the bush) / off-road driving</li> <li>- No snares or catching of animals for pets or food, and</li> <li>- No animals or birds may be collected, caught, consumed or removed from the site by the Contractor or personnel on site.</li> </ul>	Daily observations	<ul style="list-style-type: none"> <li>- Project manager</li> <li>- Site manager</li> </ul>
	Removal of vegetation may lead to loss of flora and fauna and protected/important species	<ul style="list-style-type: none"> <li>- Use existing tracks where possible.</li> <li>- Route new tracks around established and protected trees, and clumps of vegetation</li> <li>- Identify rare, endangered, threatened and protected species. Demarcate and avoid cutting down, and clearly highlight to construction workers so that they are avoided, and</li> <li>- Avoid natural drainage lines.</li> </ul>	Daily visual inspection during construction of new access tracks/widening	<ul style="list-style-type: none"> <li>- Project manager</li> <li>- Employees</li> <li>- Site manager</li> </ul>
<b>Site and ground Preparation – creation of access tracks and areas for setting up drill rigs</b>	Creation of dust	As above	Daily observations	<ul style="list-style-type: none"> <li>- Project manager</li> <li>- Site manager</li> </ul>
	Heritage remains	<p>Discovery of unearthed archaeological remains to be uncovered, the following measures (chance find procedure) shall be applied:</p> <ul style="list-style-type: none"> <li>- Works to cease, area to be demarcated with appropriate tape by the site supervisor, and the Site Manager to be informed</li> <li>- Site Manager to visit the site and 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;</li> <li>- If works cannot proceed without damage to findings, Site Manager to inform the Environmental Manager who will get in touch with an archaeologist who will provide advise</li> <li>- Environment Manager (ECC) / 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> </ul>	Daily observations	<ul style="list-style-type: none"> <li>- Project manager</li> <li>- Site manager</li> </ul>

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT/MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		<ul style="list-style-type: none"> <li>- Inform the police if the remains are human, and</li> <li>- Obtain appropriate clearance or approval from the competent authority, if required, and recover and remove the remains to the National Museum or National Forensic Laboratory as direct.</li> </ul>		
<b>Fuel handling and storage</b>	Loss of containment leading groundwater contamination	<p><b>Safe Delivery and handling:</b></p> <ul style="list-style-type: none"> <li>- Training employees and Toolbox Talks</li> <li>- Good housekeeping across the site</li> <li>- Fuel is handled with care</li> <li>- Spill kits to be at designated areas across the site or available for use during refueling, fuel delivery or use. Absorption material should be available and at hand. Where sawdust is used it should be cleaned up immediately and not left for long periods as this poses a fire hazard</li> <li>- Any major spill is reported to the PM once containment has been achieved.</li> <li>- Plant and equipment to be well maintained and serviced regularly, and</li> <li>- In the field, the use of hydrocarbons under 200 liters can be used for mobile refueling or servicing.</li> </ul> <p><b>Storage:</b></p> <ul style="list-style-type: none"> <li>- All tanks to be stored on a non-porous floor and bunded area</li> <li>- Bund to be capable of storing at least 110% of the volume of the tank</li> <li>- All containers to be suitable for use and not damaged</li> <li>- Tanks are locked at all times, and</li> <li>- Spill kits available at storage locations and around the site in suitable locations.</li> </ul> <p><b>Refueling:</b></p> <ul style="list-style-type: none"> <li>- Drip tray to be used during refueling of vehicles and on a permeable flat surface where possible, and</li> <li>- The Funnel should be available and used to avoid spillage during decanting.</li> </ul>	<ul style="list-style-type: none"> <li>- Daily observations when fuels are delivered and handled</li> <li>- Supervision during refueling</li> <li>- Weekly observations monitor containment and storage</li> </ul>	<ul style="list-style-type: none"> <li>- Project manager</li> </ul>
<b>Generation of waste</b>	<ul style="list-style-type: none"> <li>- Nuisances (odors and visual)</li> <li>- Land use</li> <li>- Litter (nuisance and ecological risk)</li> </ul>	<ul style="list-style-type: none"> <li>- Training and Toolbox Talks</li> <li>- Good housekeeping across the site</li> <li>- All working areas shall apply good house-keeping</li> <li>- Implement the waste management hierarchy across the site: Avoid, reuse, recycle, then disposal through burning or dump</li> <li>- Waste shall be collected and shall be removed on a regular basis to avoid</li> </ul>	<ul style="list-style-type: none"> <li>- Daily observations</li> <li>- Weekly checks</li> </ul>	<ul style="list-style-type: none"> <li>- Project manager</li> <li>- Employees</li> </ul>

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT/MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		pests and bad odors – It is unlikely that hazardous material and wastes will be produced, however in the event that they do, they shall be managed in a safe and responsible manner so as to prevent contamination of soils, pollution of water and/or harm to people or animals as a result of the use of these materials. Hazardous and non-hazardous waste shall be stored separately at all times		
<b>Resource use</b>	Inefficient use of water	Use water effectively and efficiently.	Daily observations	– Project manager – Employees
<b>Job creation</b>	Employment creation and skills development opportunities during the exploration phase.	– Maximise local employment and local business opportunities to promote and improve the local economy. – Enhance the use of local labour and local skills as far as reasonably possible. Where the required skills do not occur locally, and where appropriate and applicable, ensure that relevant local individuals are trained, and – Ensure that goods and services are sourced from the local and regional economy as far as reasonably possible.	– Daily observations – Weekly checks	– Project manager – Employees

## 6 IMPLEMENTATION OF THE EMP

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 August 2018
- 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.

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