

**UPDATED ENVIRONMENTAL  
MANAGEMENT PLAN FOR THE RENEWAL  
OF AN ENVIRONMENTAL CLEARANCE  
CERTIFICATE FOR A DOMESTIC  
WASTEWATER TREATMENT PLANT  
SYSTEM FOR THE OKALONGO  
SETTLEMENT, OMUSATI REGION**

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## 1. Project Background

### 1.1 Introduction

The proponent, Omusati Regional Council, was initially granted an environmental clearance certificate in July 2014. The proponent intends to continue with the operation of the domestic wastewater treatment plant system for the Okalongo settlement. An outline of the area is shown in the image below.

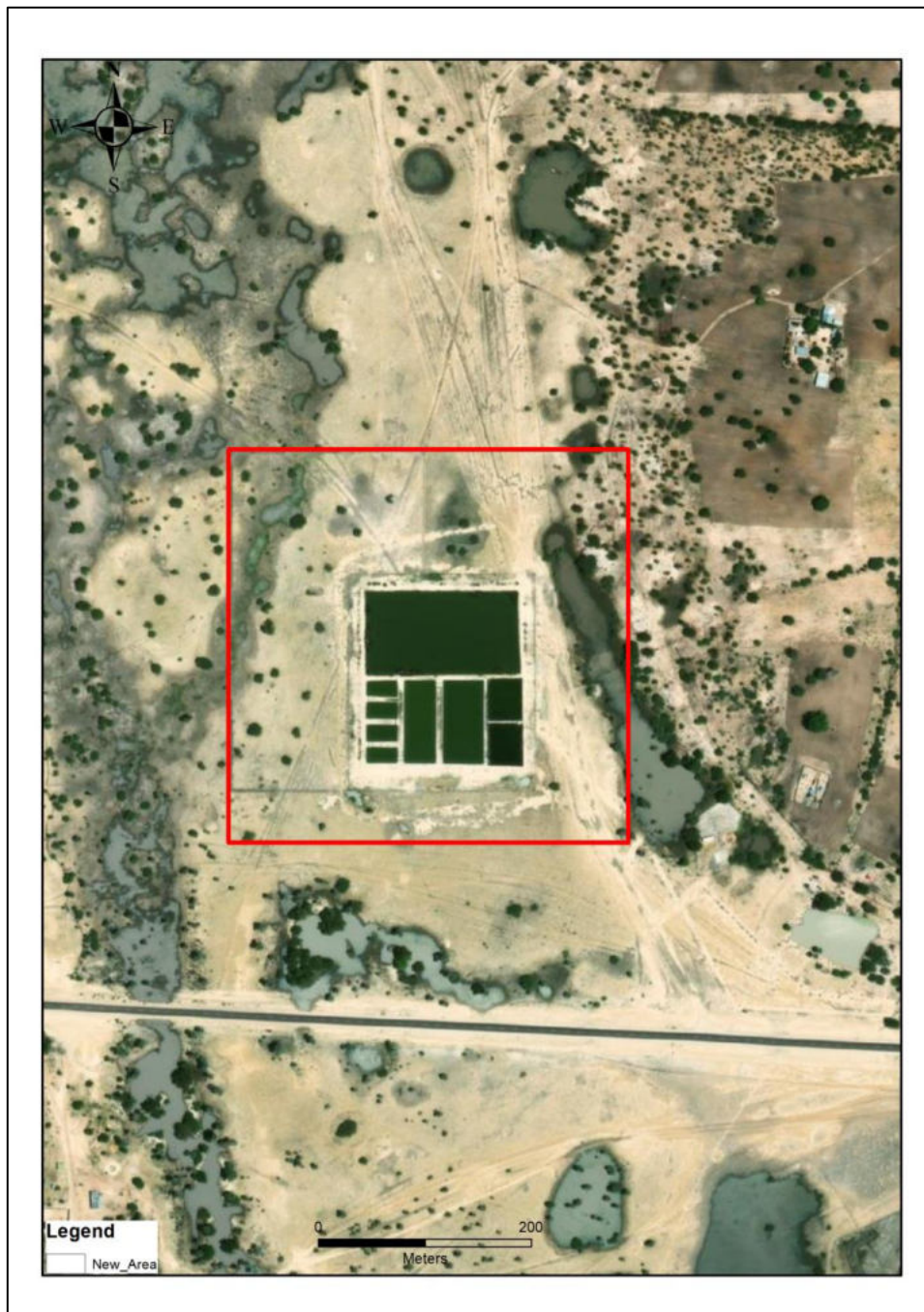


Figure 1 A satellite imagery showing the orientation of the project area.

An environmental impact assessment and environmental management plan (EMP) for the domestic wastewater treatment plant system and its operations were completed in 2014 and an environmental clearance certificate (ECC) was issued by the Ministry of Environment and Tourism. The proponent requires the renewal of the ECC and has requested Impala Environmental to assist with the process. Figure 2 shows a street map of the surrounding project area.







## 1.2 Project Location

The ponds are located 2 km west of the town of Okalongo, along the D3608 road. The coordinates of the ponds are **-17.438351** and **15.310201**.



Figure 3 Locality map of the oxidation pond area

### 1.3 Operational Activities

The Okalongo oxidation ponds were constructed from imported gravel materials compacted. In layers of 150 mm to form embankment walls and the pond floors. The inner faces of the embankment walls were then covered with 100 mm Hyson Cell concrete aprons and an installation of a HDPE liner into the anaerobic ponds. The oxidation pond site was designed, approved by Division of Water Resources, and constructed to clean wastewater in a fourstep treatment process and then discharge the cleansed wastewater to the environment:

**Treatment step 1:** The wastewater is first screened by a grid which removes large objects.

**Treatment step 2:** The wastewater then flows into one of the deep anaerobic ponds for treatment.

**Treatment step 3:** The wastewater then flows out of the anaerobic pond and is split into two streams by a flow splitter installation and directed into the two facultative ponds.

**Treatment step 4:** The wastewater from the two facultative ponds then flows into the two maturation ponds.

**Last step:** Lastly, the cleansed wastewater is discharged to the natural environment.

The oxidation ponds were designed so that different types of microbial biomes predominate in the three different types of treatment ponds (anaerobic, facultative and maturation). The different types of microbial biomes have different wastewater treatment capabilities. There are two anaerobic ponds so that the sludge that has accumulated in one of the ponds can be removed while the other pond is in use. An anaerobic pond typically needs the accumulated sludge to be removed once a year.

The Okalongo oxidation pond is protected by a perimeter fence.



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## 2. Summary of applicable legislation

All policies, related to waste water treatment plants in Namibia, are regulated by the Ministry of Environment and Tourism. The acts that affect the implementation, operation and management of fuel stations in Namibia are shown below.

### 2.1 Environmental Management Act of 2007

**Line Ministry:** Ministry of Environment and Tourism

The regulations that accompany this act lists a number of activities that may not be undertaken without an environmental clearance certificate issued in terms of the Act. The act further states that any clearance certificate issued before the commencement of the act (6 February 2012) remains in force for one year. If a person wishes to continue with activities covered by the act, he or she must apply for a new certificate in terms of the Environmental Management Act.

### 2.2 Water Resources Management Act of 2004

**Line Ministry:** Ministry of Agriculture, Water and Forestry

The act provides for the management, protection, development, usage and conservation of water resources; to provide for the regulation and monitoring of water resources and to provide for incidental matters.

### 2.3 Nature conservation ordinance, ordinance No. 4 of 1975

**Line Ministry:** Ministry of Environment and Tourism

The Nature Ordinance 4 of 1975 covers game parks and nature reserves, the hunting and protection of wild animals (including reptiles and wild birds), problem animals, fish, and the protection of indigenous plants. It also establishes a nature conservation board. The basic set of regulations under the ordinance is contained in GN 240/1976 (OG 3556). The topics covered in the regulations include tariffs (game parks), regulations relating to game parks, swimming baths, use of boats in game parks, inland fisheries, keeping game and other wild animals in capturing. In addition, the ordinance also regulates game dealers, game skins, protected plants, birds kept in cages, trophy hunting of hunt-able game, hunting at night, export of game and game

meat, sea birds, private game parks, nature reserves, regulations of wildlife associations and registers for coyote getters.

## **2.4 Atmospheric Pollution Prevention Ordinance (1976)**

**Line Ministry/Body:** Ministry of Health and Social Services

This ordinance provides for the prevention of air pollution and is affected by the Health Act 21 of 1988. Under this ordinance, the entire area of Namibia, with the exception of East Caprivi, is proclaimed as a controlled area for the purposes of section 4(1) (a) of the ordinance.

## **2.5 Hazardous Substance Ordinance, No. 14 of 1974**

**Line Ministry/Body:** Ministry of Safety and Security

The ordinance provides for the control of toxic substances. It covers manufacture, sale, use, disposal and dumping as well as import and export. Although the environmental aspects are not explicitly stated, the ordinance provides for the importing, storage, and handling.

## **2.6 Namibian Water Corporation (Act 12 of 1997)**

**Line Ministry/Body:** Namibian Water Corporation

The act caters for water rehabilitation of related areas, environmental impact assessments and for minimising or preventing pollution.



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## Environmental Management Plan

### 3.1 Overview

This Environmental Management Plan is intended to give effect to the recommendations of the Environmental Impact Assessment. To achieve this goal, it is essential that all personnel involved on the oxidation pond are fully aware of the environmental issues and the means to avoid or minimize the potential impacts of activities on site. Legal and policy requirements are well known and understood by the proponent, its employees and contractors and will be strictly enforced by its management team.

Environmental management requires a joint effort on the part of all parties involved. The proponent has assigned certain roles to ensure that all players fulfil their responsibilities in this regard.

### 3.2 Environmental Management Principles

The proponent will ensure that all parties involved in the project uphold the following broad aims:

1. All persons will be required to conduct all their activities in a manner that is environmentally and socially responsible. This includes all consultants, contractors, and sub-contractors, transport drivers, visitors and anyone entering the oxidation pond area.
2. Health, Safety and Social Well Being
  - Safeguard the health and safety of project personnel and the public against potential impacts of the project. This includes issues of road safety, precautions against natural dangers on site, and radiation hazards; and,
  - Promote good relationships with the local authorities and their staff.
3. Biophysical Environment
  - Wise use and conservation of environmental resources, giving due consideration to the use of resources by present and future generations;
  - Prevent or minimise environmental impacts;

- Prevent air, water, and soil pollution, Biodiversity conservation and Due respect for the purpose and sanctity of the area.

To achieve these aims, the following principles need to be upheld.

#### **A. Commitment and Accountability:**

The proponent's senior executives and line managers will be held responsible and accountable for:

Health and safety of site personnel while on duty, and environmental impacts caused by the operation of a oxidation pond or by personnel engaged other related activities, including any recreational activities carried out by personnel on site.

#### **B. Competence**

The proponent will ensure a competent work force through appropriate selection, training, and awareness in all safety, health and environmental matters.

#### **C. Risk Assessment, Prevention and Control**

Identify, assess and prioritise potential environmental risks. Prevent or minimize priority risks through careful planning and design, allocation of financial resources, management and workplace procedures. Intervene promptly in the event of adverse impacts arising.

#### **D. Performance and Evaluation**

Set appropriate objectives and performance indicators. Comply with all laws, regulations, policies and the environmental specifications. Implement regular monitoring and reporting of compliance with these requirements.

#### **E. Stakeholder Consultation**

Create and maintain opportunities for constructive consultations with employees, authorities, other interested or affected parties. Seek to achieve open exchange of information and mutual understanding in matters of common concern.



## F. Continual Improvement

Through continual evaluation, feedbacks, and innovation, seek to improve performance regarding social health and well-being and environmental management throughout the lifespan of the filling station project.

## G. Financial Provisions

In line with Namibia's environmental rehabilitation policy, the proponent will make the necessary financial provision for compliance with the EMP.

### 3.3 Impacts on the Bio-physical Environment

#### 3.3.1 Impacts on Archaeological Sites

The **nature of impact** is outlined below:

- Potential damage to archaeological sites as a result of vehicle tracks, footprints and actions of contractors, employees and visitors of the oxidation pond site.
- As the mitigation measures below are fully enforced, any impact will be significantly reduced compared to with present situation.

**Mitigation Measures** to be enforced:

- Buffer zones will be created around the sites.
- Adhere to practical guidelines provided by an archaeologist to reduce the archaeological impact of oxidation pond activities.
- All archaeological sites to be identified and protected before further construction commences.
- Notices/information boards will be placed on site.
- Training employees regarding the protection of these sites.

#### 3.3.2 Impacts on Fauna

The **nature of impact** is outlined below:

- Movement of vehicles in and out of the site.

- Noise produced by moving earth-moving equipment.

**Mitigation Measures** to be enforced:

- No animals shall be killed, captured or harmed in any way.
- No foodstuff will be left lying around as these will attract animals which might result in human-animal conflict.
- Care will be taken to ensure that no litter is lying around as these may end up being ingested by wild animals
- No animals shall be fed. This allows animals to lose their natural fear of humans, which may result in dangerous encounters.

**Methods for monitoring:**

- Regular monitoring of any unusual signs of animal habitat.

### 3.3.3 Impacts on Avifauna

Birds or Nest sites will not be disturbed by any employee, visitor or contractor.

### 3.3.4 Impact on Vegetation

The **nature of impact** is outlined below:

- Negative impacts on plants from trenching, excavating and removal of plants.
- Negative Impact from movement of vehicles and the movement of people around the site.
- Negative impacts from land-clearing and oxidation pond operations.

**Mitigation Measures** to be enforced:

- Environmental considerations will be always adhered to before clearing land, trenching and excavating.
- Permeable materials will be used wherever possible.



### 3.3.5 Impacts on Socio-Economic

The **nature of impact** is outlined below:

- Demographic factors: Attraction of additional population that cannot benefit from the project.
- Perception of Health and Safety risks associated with oxidation pond.

**Mitigation Measures** to be enforced:

- The population change can be mitigated by employing people from the local community and encouraging the contractors to employ local individuals.
- The perception of risks will be mitigated by putting up safety signs wherever possible and ensuring that all employees and visitors to the site undergo a safety induction course.

**Methods for monitoring:**

- Public meetings will be held by the proponent whenever necessary.

### 3.3.6 Visual Impacts

The **nature of impact** is outlined below:

- Tracks and damaged vegetation caused by the movement of vehicles.

**Mitigation Measures** to be enforced:

- Environmental considerations will be always adhered to before clearing land, trenching and excavating.

**Methods for monitoring:**

- Employees will be trained on the importance of minimising visual impacts.

### 3.3.7 Use of Natural Resources

Water and electricity is very scarce in Namibia. The bulk of the power supply to the site will be sourced from boreholes. The proponent will maximise water recycling opportunities wherever possible.

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### 3.3.8 Generation of Solid Waste

Correct management of solid waste will involve a commitment to the full waste life cycle by all the employees and contractors of the site. The Proponent's goal is to avoid the generation of solid waste in the first place and if not possible, to minimise the volumes generated by looking at technologies that promote longevity and recycling of products. Ideally, the proponent should transport solid waste to a registered site for disposal. Appropriate on-site facilities will be designed to store large volumes of waste.

### 3.3.9 Noise

The **nature of impact** is outlined below:

- Movement of people, delivery trucks and vehicles.

**Mitigation Measures** to be enforced:

- Noise disturbance will be minimized by training the employees on ways to minimise noise.

### 3.3.10 Air Quality

The **nature of impact** is outlined below:

- Dust from movement of people, vehicles, and earth-moving machinery. Emissions from vehicles and trucks as well.

**Mitigation Measures** to be enforced:

- All staff on site should be equipped with dosimeters that measure exposure levels to radiation.
- All staff must be made aware of the health risk and obliged to wear dust masks whenever necessary.

## 3.4 Summary of Environmental Management Plan during construction, operation and decommissioning phases

<b>Construction/Initial Phase</b>
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<b>Environmental Impact</b>	<b>Proposed mitigation measures</b>	<b>Responsibility</b>	<b>Monitoring plan</b>
<b>Air pollution</b>	<ul style="list-style-type: none"> <li>Control speed and operation of construction vehicles.</li> <li>Prohibit idling of vehicles.</li> <li>Maintenance of vehicles and equipment.</li> <li>Sensitize workers and contractors.</li> <li>Workers should be provided with dust masks if working in sensitive areas.</li> </ul>	<ul style="list-style-type: none"> <li>Contractor</li> <li>Site Manager</li> </ul>	<ul style="list-style-type: none"> <li>Amount of dust produced.</li> <li>Level of Land-scaping carried out.</li> </ul>
<b>Noise pollution</b>	<ul style="list-style-type: none"> <li>Maintain equipment and vehicles.</li> <li>Construction work should only be carried out during daytime i.e. 08h00 to 17h00.</li> <li>Workers should wear ear muffs if working in noisy section.</li> <li>Management to ensure that noise is kept within reasonable levels.</li> </ul>	<ul style="list-style-type: none"> <li>Contractor</li> <li>Management</li> </ul>	Amount of noise
<b>Solid waste</b>	<ul style="list-style-type: none"> <li>Any debris should be collected by a waste collection company</li> <li>If trenches are dug, waste should be re-used or backfilled.</li> <li>The site should have waste receptacles with bulk storage facilities at convenient points to prevent littering during construction.</li> </ul>	<ul style="list-style-type: none"> <li>Management</li> </ul>	Presence of well Maintained receptacles and central collection point.
<b>Oil leaks and spills</b>	<ul style="list-style-type: none"> <li>Vehicles and equipment should be well maintained to prevent oil leaks.</li> <li>Contractor should have a designated area where maintenance is carried out and that is protected from rain water.</li> <li>All oil products should be handled carefully.</li> </ul>	<ul style="list-style-type: none"> <li>Contractor</li> </ul>	No oil spills and leaks on the site
<b>First aid</b>	<ul style="list-style-type: none"> <li>A well-stocked first aid kit shall be maintained by a qualified personnel</li> </ul>	<ul style="list-style-type: none"> <li>Management</li> </ul>	Contents of the first aid kit.
<b>Visual</b>	<ul style="list-style-type: none"> <li>Environmental considerations will be adhered to at all times before clearing land, trenching and excavating.</li> </ul>	<ul style="list-style-type: none"> <li>Management</li> </ul>	<ul style="list-style-type: none"> <li>Employees will be trained on the importance of minimising visual impacts.</li> </ul>
<b>Archaeological Sites</b>	<ul style="list-style-type: none"> <li>Buffer zones will be created around the sites.</li> <li>Adhere to practical guidelines provided by an archaeologist to reduce the archaeological impact of oxidation pond activities.</li> <li>All archaeological sites to be identified and protected before further construction commences.</li> </ul>	<ul style="list-style-type: none"> <li>Management</li> </ul>	<ul style="list-style-type: none"> <li>Register of all archaeological sites identified.</li> </ul>
<b>Occupational Health and Safety</b>	<ul style="list-style-type: none"> <li>Provide Personal Protective Equipment</li> <li>Train workers on personal safety and how to handle equipment and machines.</li> <li>A well-stocked first aid kit shall be maintained by a qualified personnel.</li> <li>Report any accidents / incidences and treat and Compensate affected workers.</li> <li>Provide sufficient and suitable sanitary conveniences which should be kept clean.</li> </ul>	<ul style="list-style-type: none"> <li>Contractor</li> <li>Management</li> </ul>	<ul style="list-style-type: none"> <li>Workers using Protective Equipment.</li> <li>Presence of Well stocked First Aid Box.</li> <li>Clean sanitary facilities.</li> </ul>
<b>Fauna</b>	<ul style="list-style-type: none"> <li>No animals shall be killed, captured or harmed in any way.</li> <li>No foodstuff will be left lying around as these will attract animals which might result in human-animal conflict.</li> </ul>	<ul style="list-style-type: none"> <li>Management</li> </ul>	<ul style="list-style-type: none"> <li>Regular monitoring of any unusual signs of animal habitat.</li> </ul>

<b>Loss of vegetation</b>	<ul style="list-style-type: none"> <li>Environmental considerations will be adhered to at all times before clearing land, trenching and excavating.</li> <li>Paths and roads will be aligned to avoid root zones. Permeable materials will be used wherever possible.</li> </ul>	<ul style="list-style-type: none"> <li>Contractor</li> <li>Management</li> </ul>	<ul style="list-style-type: none"> <li>Warning signs on site</li> <li>restored vegetation</li> </ul>
<b>Operational Phase</b>			
<b>Environmental/ Social Impact</b>	<b>Proposed mitigation measures</b>	<b>Responsibility</b>	<b>Monitoring plan</b>
<b>Noise pollution</b>	<ul style="list-style-type: none"> <li>Maintain vehicles and drilling equipment.</li> <li>Construction drilling should be carried out only during daytime.</li> <li>Workers to wear ear muffs if working in noisy section</li> <li>Management to ensure that noise is kept within reasonable levels.</li> </ul>	<ul style="list-style-type: none"> <li>Contractor</li> <li>Management</li> </ul>	<ul style="list-style-type: none"> <li>Amount of noise</li> </ul>
<b>Visual</b>	<ul style="list-style-type: none"> <li>Environmental considerations will be adhered to at all times before clearing land, trenching and excavating.</li> </ul>	<ul style="list-style-type: none"> <li>Management</li> </ul>	<ul style="list-style-type: none"> <li>Employees will be trained on the importance of minimising visual impacts.</li> </ul>
<b>Fauna</b>	<ul style="list-style-type: none"> <li>No animals shall be killed, captured or harmed in any way.</li> <li>No foodstuff will be left lying around as these will attract animals which might result in human-animal conflict.</li> </ul>	<ul style="list-style-type: none"> <li>Management</li> </ul>	<ul style="list-style-type: none"> <li>Regular monitoring of any unusual signs of animal habitat.</li> </ul>
<b>Loss of vegetation</b>	<ul style="list-style-type: none"> <li>Environmental considerations will be adhered to at all times before clearing land, trenching and excavating.</li> </ul>	<ul style="list-style-type: none"> <li>Contractor</li> <li>Management</li> </ul>	<ul style="list-style-type: none"> <li>Warning signs on site</li> <li>restored vegetation</li> </ul>
<b>Solid waste</b>	<ul style="list-style-type: none"> <li>Minimize solid waste generated on site.</li> <li>Recycle waste especially waste from trenching.</li> <li>Debris should be collected by waste collection company.</li> </ul>	<ul style="list-style-type: none"> <li>Contractor</li> <li>Management</li> </ul>	<ul style="list-style-type: none"> <li>Amount of waste on Site</li> <li>Presence of well Maintained receptacles and central collection point.</li> </ul>
<b>Oil leaks and spills</b>	<ul style="list-style-type: none"> <li>Machinery should be well maintained to prevent oil leaks.</li> <li>Contractor should have a designated area where maintenance is carried out and that is protected from rain water.</li> <li>All oil products should be stored in a site store and handled carefully.</li> </ul>	<ul style="list-style-type: none"> <li>Contractor</li> </ul>	<ul style="list-style-type: none"> <li>No oil spills and leaks on the site.</li> </ul>
<b>Archaeological Sites</b>	<ul style="list-style-type: none"> <li>Buffer zones will be created around the sites.</li> <li>Adhere to practical guidelines provided by an archaeologist to reduce the archaeological impact of oxidation pond activities.</li> <li>All archaeological sites to be identified and protected before further operations commences.</li> </ul>	<ul style="list-style-type: none"> <li>Management</li> </ul>	<ul style="list-style-type: none"> <li>Update Register of all archaeological sites identified.</li> </ul>



<b>First aid</b>	<ul style="list-style-type: none"> <li>• A well-stocked first aid kit shall be maintained by a qualified personnel</li> </ul>	<ul style="list-style-type: none"> <li>• Management</li> </ul>	<ul style="list-style-type: none"> <li>• Contents of the first aid kit.</li> </ul>
<b>Fire preparedness</b>	<ul style="list-style-type: none"> <li>• Fire fighting drills carried out regularly.</li> <li>• Fire fighting emergency response plan.</li> <li>• Ensure all firefighting equipment are regularly maintained, serviced and inspected.</li> <li>• Fire hazard signs and directions to emergency exit, route to follow and assembly point in case of any fire incidence.</li> </ul>	<ul style="list-style-type: none"> <li>• Management</li> </ul>	<ul style="list-style-type: none"> <li>• Number of fire drills carried.</li> <li>• Proof of inspection on firefighting equipment.</li> <li>• Fire Signs put up in strategic places.</li> <li>• Availability of fire fighting equipment.</li> </ul>
<b>Environment Health and Safety</b>	<ul style="list-style-type: none"> <li>• Train workers on personal safety and disaster preparedness.</li> <li>• A well-stocked first aid kit shall be maintained by a qualified personnel.</li> <li>• Report any accidents / incidences and treat and compensate affected workers.</li> <li>• Provide sufficient and suitable sanitary conveniences which should be kept clean.</li> <li>• Conduct Annual Health and Safety Audits.</li> </ul>	<ul style="list-style-type: none"> <li>• Management</li> </ul>	<ul style="list-style-type: none"> <li>• Provide sanitary facilities.</li> <li>• Copies of Annual Audit</li> </ul>
<b>Decommissioning Phase</b>			
<b>Environmental/Social Impact</b>	<b>Proposed mitigation measures</b>	<b>Responsibility</b>	<b>Monitoring plan/indicator</b>
<b>Noise &amp; Air pollution</b>	<ul style="list-style-type: none"> <li>• Maintain plant equipment.</li> <li>• Decommissioning works to be carried out only during daytime.</li> <li>• Workers working in noisy section to wear ear muffs.</li> <li>• Workers should be provided with dust masks.</li> </ul>	<ul style="list-style-type: none"> <li>• Contractor</li> <li>• Management</li> </ul>	<ul style="list-style-type: none"> <li>• Amount of noise</li> </ul>
<b>Disturbed Physical environment</b>	<ul style="list-style-type: none"> <li>• Undertake a complete environmental restoration programme and introducing appropriate vegetation</li> </ul>	<ul style="list-style-type: none"> <li>• Management</li> </ul>	
<b>Solid waste</b>	<ul style="list-style-type: none"> <li>• Solid waste should be collected by a contracted waste collection company</li> <li>• Excavation waste should be re-used or backfilled.</li> </ul>	<ul style="list-style-type: none"> <li>• Contractor</li> <li>• Management</li> </ul>	<ul style="list-style-type: none"> <li>• Amount of waste on Site.</li> <li>• Presence of well maintained receptacles and central collection point.</li> </ul>
<b>Occupational Health and Safety</b>	<ul style="list-style-type: none"> <li>• Provide Personal Protective Equipment.</li> <li>• Train workers on personal safety and how to handle equipment and machines.</li> <li>• A well-stocked first aid kit shall be maintained by a qualified personnel.</li> <li>• Demarcate area under decommissioning.</li> </ul>	<ul style="list-style-type: none"> <li>• Contractor</li> </ul>	<ul style="list-style-type: none"> <li>• Workers using Protective Equipment.</li> <li>• Presence of a First Aid Box.</li> </ul>

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## 3.5 Monitoring, Auditing and Reporting

### 3.5.1 Inspections and Audits

During the life of the project, performance against the EMP commitments will need to be monitored, and corrective action taken where necessary, to ensure compliance with the EMP and relevant enviro-legal requirements.

#### 3.5.1.1 Internal Inspections/Audits

The following internal compliance monitoring programme will be implemented:

1. Project kick-off and close-out audits will be conducted on all contractors. This applies to all phases, including drilling contract work during operations:
  - Prior to a contractor beginning work, an audit will be conducted by the applicable phase site manager to ensure that the EMP commitments are included in Contractors' standard operating procedures (SOPs) and method statements.
  - Following completion of a Contractors work, a final close-out audit of the contractor's performance against the EMP commitments will be conducted by the applicable phase site manager.
2. Monthly internal EMP performance audits will be conducted during the construction/initial and decommissioning phases.
3. Ad hoc internal inspections can be implemented by the applicable phase operations manager at his/her discretion, or in follow-up to recommendations from previous inspection/audit findings.

#### 3.5.1.2 External Audits

- At the close of each project phase, and annually during the operational phase, an independently conducted audit of EMP performance will be conducted.
- Specialist monitoring/auditing may be required where specialist expertise are required or in order to respond to grievances or authorities directives.

- Officials from the DEA may at any time conduct a compliance and/or performance inspection of oxidation pond operations. The proponent will be provided with a written report of the findings of the inspection. These audits assist with the continual improvement of the oxidation pond project and the proponent will use such feedback to help improve its overall operations.

### **3.5.1.3 Documentation**

Records of all inspections/audits and monitoring reports will be kept in line with legislation. Actions will be issued on inspection/audit findings. These will be tracked and closed out.

### **3.5.1.4 Reporting**

Environmental compliance reports will be submitted to the Ministry of Environment and Tourism on a bi-annual basis.

## **3.5.2 Environmental Management System Framework**

In order to implement Environmental Management Practices, an Environmental Management System (EMS) will be established and implemented by the proponent and their Contractors. This subchapter establishes the framework for the compilation of a project EMS. The applicable oxidation pond manager will maintain a paper based and/or electronic system of all environmental management documentation. These will be divided into the following main categories:

### **3.5.2.2 Policy and Performance Standards**

A draft environmental policy and associated objective, goals and commitments has been included in the EMP. The proponent may adapt these, as necessary.

### **3.5.2.3 Enviro-Legal Documentation**

A copy of the approved environmental assessment and EMP documentation will be always available by the proponent. Copies of the Environment Clearance Certificate and all other associated authorisations and permits will also be kept with the oxidation pond team. In addition, a register of the legislation and regulations applicable to the project will be maintained and updated, as necessary.

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### 3.5.2.3 Impact Aspect Register

A register of all project aspects that could impact the environment, including an assessment of these impacts and relevant management measures, is to be maintained. This Draft EMP identifies the foreseeable project aspects and related potential impacts of the proposed project, and as such forms the basis for the Aspect-Impact Register, with the Project Activity. It is however noted that during the life of the project additional project aspects and related impacts may arise which would need to be captured in the Aspect-Impact Register. In this regard, the impact identification principles set forth in the scoping report can be used to update the Register. This method can be modified as required by the applicable oxidation pond manager as necessary during the life of the project.

### 3.5.2.4 Procedures and Method Statements

In order to affect the commitments contained in this EMP, procedures and method statements will be drafted by the relevant responsible oxidation pond staff and Contractors. These include, but may not be limited:

- Standard operating procedures for environmental action plan and management programme execution.
- Incident and emergency response procedures.
- Auditing, monitoring, and reporting procedures, and
- Method statements for EMP compliance for ad hoc activities not directly addressed in the EMP action plans.

All procedures are to be version controlled and signed off by the applicable oxidation pond manager. In addition, knowledge of procedures by relevant staff responsible for the execution thereof must be demonstrable and training records maintained.

### 3.5.2.5 Register of Roles and Responsibilities

During project planning and risk assessments, relevant roles and responsibilities will be determined. These must be documented in a register of all environmental



commitment roles and responsibilities. The register is to include relevant contact details and must be updated as required.

### **3.5.2.6 Site Map**

An up-to-date map of the oxidation pond site indicating all project activities is to be maintained. In addition to the project layout, the following detail must be depicted:

- Materials handling and storage.
- Waste management areas (collection, storage, transfer, etc.);
- Sensitive areas;
- Incident and emergency equipment locations; and Location of responsible parties.

### **3.5.2.7 Environmental Management Schedule**

A schedule of environmental management actions is to be maintained by the applicable phase site managers and/or relevant Contractors. A master schedule of all such activities is to be kept up to date by the exploration manager. Scheduled environmental actions can include, but are not limited to:

- Environmental risk assessment;
  - Environmental management meetings;
  - Soil handling, management and rehabilitation;
  - Waste collection
  - Incident and emergency response equipment evaluations and maintenance
  - Environmental training;
  - Stakeholder engagement; Environmental inspections; and
  - Auditing, monitoring and reporting.
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### **3.5.2.8 Change Management**

The EMS must have a procedure in place for change management. In this regard, updating and revision of environmental documentation, of procedures and method statements, actions plants etc. will be conducted as necessary in order to account for the following scenarios:

- Changes to standard operating procedures (SOPs);
- Changes in scope;
- Ad hoc actions;
- Changes in project phase; and
- Changes in responsibilities or roles

All documentation will be version controlled and require sign off by the applicable phase site managers.

## **4. Conclusion**

The review of the Environmental Management Plan found it practical and efficient towards the improvement of environmental sustainability.

The EMP contains a set of Environmental Specifications that will form part of all contracts between the proponent and contractors such as drilling companies. The requirements of the EMP will be enforced on site by the Management team, and periodic environmental audits will be undertaken and submitted to MET.

## 5. References

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