

# Appendix 1

## ENVIRONMENTAL MANAGEMENT PLAN

FOR

### THE PROPOSED CONSTRUCTION AND OPERATION OF A PETROLEUM DEPOT IN KATIMA MULILO, ZAMBEZI REGION



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## 1. Introduction

### 1.1 Background and Objective

An Environmental Management Plan (EMP) provides a plan or program that seeks to achieve a required end state and describes how activities, which have or could, have an adverse impact on the environment, will be mitigated, controlled, and monitored during the various phases of the project implementation, simultaneously enhancing the positive benefits of the projects. Therefore, this plan aims to ensure that any environmental or social impacts associated with the proposed establishment and operation of a bulk fuel depot on portion 113 of Farm Katima Mulilo Townlands No. 1328 are minimized during the entire project development stages and thus ensure that the activity aligns with a sustainable development approach.

### 1.2 Composition and Requirements

It typical of an environmental management plan to elaborate the impacts, mitigation measures, roles and responsibilities, timescales and possible costs of mitigations. An EMP is a dynamic and flexible document, therefore it should conform and provide for the following:

- i. Regularly update to align with the project progress though all phases.
- ii. Revisable where necessary to mitigate unanticipated impacts.
- iii. Confirm to Best Management Practices (BMP) that includes aspects of record keeping, reporting, communication, training, monitoring, and corrective action.

Moreover, all stakeholders with roles and responsibilities in the EMP should be made aware to ensure successful implementation.

## 2. Roles and Responsibilities

### 2.1 The Proponent

The Proponent 'Munitenge Service Station CC' through its director retain the following responsibilities towards the implementation of the EMP:

- i. Ensure implementation of all requirements of the EMP, inclusive of legislative and financial requirements to ensure that the Proponent is always compliant with the entire scope of measures prescribed.
- ii. Avail resources required for comprehensive implementation of the EMP.
- iii. Ensure a monitoring, review, and update schedule on the progress of implementing the EMP.
- iv. Ensure other relevant stakeholders are updated and informed on the implementation of EMP.
- v. Ensure that all the required environmental licenses and permits have been obtained as required.
- vi. Ensure environmental inspections, audits and monitoring of environmental factors as established in EMP.

- vii. Ensure reports on environmental and social performance as per monitoring plan at stipulated intervals are produced.

## 2.2 The Site Manager/Administrator

The Site Manager or Administrator is designated to a person responsible for the operations at the site during construction and that in the operation phase. Due to the limitations of setup, this individual shall also assume the designation and responsibilities assigned to the Environment Compliance Officer (ECO) and Health and Safety Officer. The Site Administrator shall carry out the following:

- i. Ensure that all relevant measures contained in the EMP are comprehensively implemented.
- ii. Establish and maintain information and record system on incidents, corrective actions, grievances process and outcomes.
- iii. Liaise with relevant authorities and contractors regarding compliance to legislation requirements.
- iv. Ensure compliance to established safety standards and requirements for safer operations.
- v. Providing recommendations for remedial action in the event of any non-compliance.
- vi. Ensure an incident logbook is established, maintained, updated.
- vii. Investigation as so necessary of grievances or incidents towards the resolution process.

## 2.3 The Contractor

Contractor refers to the company responsible for a certain work on behalf of the proponent and their activities have environmental and social implications as contained in this EMP. Obligation to the contractor are as outlined as follows.

- i. Implement all requirements and provisions of the EMP as prescribed.
- ii. To report any incidents of non-compliance to the SHEO and SM onsite.
- iii. Ensure adherence to safety and health requirements in the working environment

## 2.4 Environmental Control Officer

The role of an Environmental Control Officer (ECO) is critical to the implementation of an environmental management plan, as it requires experts in the subject matter. However, the limitation to employ such designations for small operations has been obvious in the Namibian economy. Therefore, while the site administrator takes on the role to continuously oversee the necessities of the measures contained in the EMP onsite, the role of ECO is recommended to an environmental consultant to offer scheduled auditing and inspections towards meeting compliance with the ECC requirements.

### 3. Management Plan

A structured implementation plan is prepared in Table 6 below to meet compliance requirements and mitigate the identified significant social and environmental impacts, whilst ensuring clear responsibilities and obligations.

Table 1 Environmental and Social Management Plan

No.	Impact	Mitigation Controls	Responsible	Scheduling	Regularity
<b>PRE-CONSTRUCTION</b>					
1	Omission of vital design standards to the facility	Ensure design consider preventing spillages of fuels to the ground and prevention of fire risks. Design to take into consideration the following Guidelines: - SANS 10131:2004 or latest in the design of above ground storage tank.	Proponent	Planning and drafting of designs	Once off
2	Overlook critical legislative requirements for the activity	Review legislative requirements towards the envisaged activity.	Environmental Practitioner	Assessment stage	Once-off
3	Inability to secure supplier or adequate supply the envisaged petroleum product	Proactively explore and secure supplier for the envisaged activities.	Proponent		Once-off
<b>CONSTRUCTION</b>					
1	Noise, dust, vibration and air pollution from construction activities generation from construction works	All construction work is to be carried out only during designated working hours (i.e. 07:00 -17:00).	Contractor	Duration of Works	Throughout the stage
		Placement of placards at the construction site notifying and cautioning of the construction activities.	Site Supervisor	Site preparation	Once-off
		Any construction vehicles or machinery to be switched off when not in use.	Site Supervisor	Duration of Works	Throughout the works
		Reduce or avoid dust generating activities on windy days.			
		Damp surfaces where necessary to minimize excessive dust generation.			
2	Accidents leading to injury or fatality from moving machinery or power	No construction activities to be performed in dusk conditions.	Site Supervisor	Duration of Works	Throughout the works
		Place placard signage or danger tapes to inform and caution the public on construction works.			

	equipment or any site works to a member of the public or site personnel	No unauthorized person should be allowed onsite.			
		Barricade the construction area where possible to avoid open accessibility to the public.			
		Ensure site personnel are provided with personal protective equipment (helmets, gloves, respirators, work suits, earplugs, goggles and safety shoes) as may be necessary for the different types of work.	Contractor	Prior Commencement of works	Once off and as necessary
		Site personnel to be provided with regular onsite safety and health talks before commencement of work or to new workers.	Site Supervisor	Commencement	Weekly and as necessary
		Ensure all accidents are reported to the site responsible for timely investigation and rectification of faults and closeout.	All personnel	Duration of Works	Throughout works
		Provide onsite first aid kit and training for minor incidents.	Site Supervisor	Duration of Works	As necessary
		Ensure arrangement for timely access to medical treatment for accidents with severe consequences beyond first aid.			
3	Soil or subsurface pollution from leakage or spill of lubricant or fuels from site machinery and equipment onsite.	Daily inspection of all machinery before use for any signs of leaks for lubricants or fuels and continuous observation during operations to avoid excess leakages to the open surfaces.	All personnel	Daily	Continuous through phase
		<p>In case of a spill, it is required that the procedure includes the following procedure.</p> <ol style="list-style-type: none"> <li>a. The source of the spill / leak shall be isolated, to be contain discharging. This may include replacement of caps to prevent further discharge of the substance.</li> <li>b. Condon/mark the area of coverage of the spill with danger cones.</li> <li>c. Apply appropriate spill containment material for the spill such as an absorbent to clean up spillages.</li> <li>d. Log the incident for record</li> <li>e. Investigate cause of the spill and take necessary corrective action to avoid recurrence.</li> </ol>	Site Supervisor	Duration of Works	As necessary

		Conduct training of all personnel with responsibility of handling petroleum products or other hazardous substances.	Site Supervisor	Duration of Works	Prior commencement and as necessary
		Any spillage of more than 200 liters must be reported to the Ministry of Mines and Energy.	Proponent	Duration of Works	As necessary per incident
		Ensure availability of drip trays as may be necessary for minor leakages or spills onsite.	Contractor	Duration of Works	Continuous throughout the phase
		Ensure contaminated soil is scoped for disposal at appropriate sites.	Site Supervisor	Duration of Works	As necessary per incident
4	Pollution from unmanaged solid waste	No solid waste including cement bags, cardboard, offcut planks, plastics packaging. Offcut metals shall be loosely placed onsite.	Site Supervisor	Duration of Works	Continuous throughout the phase
		No burying or burning of redundant construction packaging materials or allowing them to scatter onsite.			
		The use of waste skip or drum containers for collection and storage of construction waste onsite is highly recommended			
		All domestic waste is to be collected and prepared for collection in line with local municipal services.			
		Obtain permission for disposal of any construction related waste at municipal waste facility if necessary	Proponent	Commencement of works	Once-off
		Practice good housekeeping across the site.	Site Supervisor	Duration of Works	Continuous throughout the phase
		As far as practically possible, implement waste management hierarchy through promoting avoidance, minimization, differentiation of waste into tins, bottles, papers, kitchen waste, office waste for potential recycling or reuse.			
5	Obstruction of traffic on the adjacent B8 highway	Place temporary construction signage by the B8 Highway roadside to caution road users in both directions.	Contractor	Commencement of works	Once-off

		No disposal of any waste or material on roads or street.	Site Supervisor	Duration of Works	Continuous throughout the phase
6	Disturb heritage sites	The site does not appear on the list of declared or yet declared heritage sites and thus the likelihood of any buried material or heritage value is minimal. Nonetheless, for a chance find, during work such as excavation and trenching, it will be required to halt work and report that matter to the National Heritage Council or Local Police	Site Supervisor	Duration of Works	Continuous throughout the phase
		Onsite workers to be made aware of the established procedure for siting of strange objects.	Contractor	Commencement of works	Once-off and as necessary
7	Damage to existing structures such as reticulating lines for power, telecommunication, water and sewer	Obtain site clearance prior to any construction activities on location of any service lines.	Proponent	Prior commencement of works	Once-off
		Place cautionary signs and mark areas to ensure construction teams operates sensibly in the area.	Site Supervisor	Prior commencement of works	Once-off
		No work should be carried out without clearance of service lines established.	Site Supervisor	Commencement of works	Once-off and as necessary
8	Damage to site structures or theft of materials	Employ guards for the protection of materials at all times.	Proponent	Duration of Works	Continuous throughout the phase
		Construct temporal secure shelter for the housing of materials from unfavorable weather conditions.	Site supervisor	Prior commencement of works	Once-off

OPERATION

1	Liability for accidental release of hazardous substances into the environment during transportation	Ensure suppliers hold appropriate licenses for the service of bulk supply of petroleum products across the country.	Proponent	Procurement of suppliers	Once-off
		Ensure supplier contracts address environmental and social liability in the transportation of petroleum products across the country.			

		No transportation of petroleum products without adequate measures in place to address environmental risks. Validate supplier subscribes to guideline SANS 1518 - Transport of dangerous goods, design requirements for road vehicles and portable tanks.	Proponent	Supplier Sourcing	Once-off and as necessary
2	Liability for accidental fires and explosion during transportation	Ensure supplier contracts address fire liabilities in the transportation of petroleum products across the country. Ensure supplier has firefighting protocols for accidents.	Proponent	Procurement of suppliers	Once-off
3	Contamination of soil and groundwater from spillages during transfer to the storage tank and servicing of bulk customers.	Subscribe operations to the following guidelines; - SANS 10089-1 Storage and distribution of petroleum products in above ground bulk installations. - SANS 10263 - The warehousing of dangerous goods - Part 0: General Requirements.	Proponent	Throughout operations	Continuous
		All fuel transfers to be undertaken on paved areas	Site Manager		Continuous
		Use shutoff nozzles to prevent accidental spills	Proponent	Procurement of site equipment and machinery	Once-off
		Install sand bucket or other absorbent for minor spillages at the depot	Site Manager	Commission of the operations	Continuous
		Ensure all dispensing is done by trained personnel			
		Paving area to channel flows to an oil water separator. No spillages should come into contact with the open surfaces	Proponent	Design of the structure for the site	Once-off
		Use sand buckets to treat minor spills properly after handling contaminated sand.	Site Manager	Throughout operations	As necessary per incident
4	Nuisance smell to the surroundings	Use of shutoff nozzles fitted with automatic shut off devices.	Proponent	Procurement of site equipment and machinery	Once-off
		Provide gas marks for people offloading the fuel as may be necessary.			
		Ensure that vent pipes for pressure release of fuels in the tanks are high enough and placed far from people or activities.	Site Manager	Throughout operations	As necessary per incident

5	Accidental fire and explosion	Install an automatic fire alarm system with heat and smoke detectors in all buildings.	Proponent	Preparations for operations	Once-off and continuous readiness to operate
		Provisions of marked fire exits or assemble areas and ensure that these routes are always unobstructed.	Site Manager	Commission of the operations	Continuous
		Ensure that all firefighting equipment is strategically positioned, regularly maintained and serviced.			
		Provide emergency fire hydrants for firefighting.	Proponent	Site and structural design	Once-off
		Conduct regular fire drills/simulations to sensitize workers and maintain records.	Site Manager	Commission of the operations	Monthly
		Provide fire hazard signs such as 'No Smoking' signs, direction to exit in case of any fire incidence and emergency contact numbers, fire assembly point and no-cell phone usage close to fueling pumps.		Commencement of operations	As necessary
6	Contamination of adjacent soils or subsurface from unmanaged repair works.	No repair work shall be done on open surface areas.	Site Manager	Throughout operations	As necessary per incident
		No defunct equipment or material leaking of hazardous liquids to be placed on open surfaces areas.	Site Manager		
7	Pollution of surroundings from unmanaged disposal of waste and defunct equipment.	Consider safe re-use of certain items including cans or plastic containers where possible.	Site Manager	Throughout operations	As necessary per incident
		As far possible implement proper waste separation to for recycling opportunities.			
		All contaminated soils be handled according to the established spill handling protocol to avoid further contamination of areas and resources.			
		All items and materials that are non-reusable to be disposed safely at appropriate disposal sites.			
8	Dust generation from heavy vehicles off the main highway for refueling	Include paving of an off-ramp from the highway to the site into site designs.	Proponent	Site Deign reviews	Once-off
		Include the paving of the active depot footprint in site designs	Proponent		

		Construct speed reducing structure where necessary	Contractor	Construction stage	Once off
		Apply wetting in some area to alleviate dust generation	Site Administrator	Operation stage	As necessary
7	Increased risk of accidents	Ensure road access complies with national road design standards to and from site onto the highway.	Proponent	Design phase	Once-off
		Place adequate and visible road signage to warn of potential hazards to pedestrians and vehicles.	Contractor Proponent	Construction phase	Once off and as necessary

#### 4. Regulatory Compliance Plan

The following monitoring, reporting and compliance requirement are established for in this environmental management plan (Table 7).

Table 2 Legislative Compliance Plan

Legislation/Instrument	Requirement	Compliance
Environmental Management Act	Listed activity	Apply to obtain Environmental Clearance Certificate
	Environmental Reporting	As determined by ECC conditions conduct audit and submit reports.
Petroleum and Products Act	Petroleum products handling license	Apply to obtain wholesale license
	Spill of 200 liters or more report	Availability of PF10 forms.
	Fire management	Ensure emergency fire management system in place.
Water Resources Management Act	Protection of groundwater resources.	No surface spill or leakage of lubricants or fuel onto open surfaces
		Management of contaminated storm water from paved surfaces.
Road Act	Construction of access routes to the national road	Apply for authorization to construct linkage to highway

#### 5. Review of the Plan

This EMP must be used as an on-site reference document during all phases of site development and operation. The validity of the EMP is determined by the duration of the ECC that will further stipulate required reporting requirements. However, to meet the required compliance, it is necessary that regular self-auditing on quarterly basis is implemented by an environmental expert to consolidate reports towards compliance with the ECC reporting requirements.

#### 6. Conclusion and Recommendations

The Proponent, through the established roles shall be liable for the implementation of the EMP and to achieve required level of implementation. Non-compliance shall be subject to legislative requirements and subsequent applicable processes by the Environmental Commissioner.

The Environmental Assessment Practitioner recommends to the Environmental Commissioner that this developed EMP as sufficient tool and framework to adequately manage the potential significant adverse

impacts established in the report from the proposed activity through issuance of an environmental clearance certificate. The following conditions are made on the issuance of the ECC:

- ✓ The proponent implements and adheres to the controls of the EMP.
- ✓ Regular review and update of the EMP to ensure that anticipated are managed, while unanticipated impacts are included and managed
- ✓ All role players are made aware of their roles in the implementation of the management plan.
- ✓ Adherence to any other conditions that the Environmental Commissioner deems necessary to mitigate the impacts from the proposed activity.