ENVIRONMENTAL MANAGEMENT PLAN (EMP)

CONTINUED OPERATION OF THE EXISTING AFRICAN BAG & TRADING CONSUMER FUEL FACILITY IN THE CAPE CROSS AREA,

ERONGO REGION

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PROJECT DETAILS

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REPORT STATUS:	**FINAL**

CLEARANCE ISSUED TO:

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1. INTRODUCTION AND BACKGROUND

An Environmental Management Plan (EMP) has been commissioned by Total Energies Namibia (Pty) Ltd. for the proposed continued operations of the existing African Bag & Trading consumer fuel installation at Mile 72, in the Cape Cross area (Erongo Region).

African Bag & Trading (Pty) Ltd. has been operating the 23m3 diesel aboveground tank installation for over 5 years at the company's premises. The installation allows the company to operate its salt work operations more efficiently and effectively. Total Energies Namibia as the fuel supplier, has recently taken over the installation from VIVO Energy Namibia.

This EMP is developed to outline measures to be implemented in order to minimise adverse environmental degradation associated with this development. The document serves as a guiding tool for the contractors and workforce on their roles and responsibilities concerning environmental management on site, and also provides an environmental monitoring framework for all project phases of the development. This environmental management plan aims to take a pro-active route by addressing potential problems before they occur. The EMP acts as a stand-alone document, which can be used during the various phases of the development.

In this report,

a) the **Project Personnel** (proponent and its associates) refers to the employees, staff, fuel consumers and suppliers responsible for the *operations activities* of the facility.

b) the **Contractor** (its sub-contractors) refers to personnel responsible for the *maintanance activities* and *possible decommissioning activities* of the facility.

The purpose of the EMP is to:

- ✓ Train employees and contractors with regard to environmental obligations.
- ✓ Promote and encourage good environmental management practices.
- ✓ Outline responsibilities and roles of the proponent and the contractor in managing the environment.
- ✓ Describe all monitoring procedures required to identify environmental impacts.
- ✓ Minimise disturbance of the natural environment.
- ✓ Develop waste management practices.
- ✓ Prevent all forms of pollution.
- ✓ Protect the natural environment.
- ✓ Prevent soil and water erosion.
- ✓ Comply with all applicable laws, regulations and standards for environmental protection.

The project is made up of 3 phases, namely the operation, maintanance and possible decommissioning. Activities involved in all phases are as follows:

Operational Phase:

- ✓ Filling of the aboveground storage tank from road transport tankers.
- ✓ Dispensing of fuel into company trucks, vehicles, equipment and machinery.

Maintanance Phase:

- ✓ Regular maintenance fuel installation.
- ✓ Regular maintanance of bund walls, floors and other spill control measures.
- ✓ Regular maintanance of associated electrical supply.
- ✓ Regular maintanance of associated buildings and other infrastructure.

Possible Decommissioning Phase:

- ✓ Removal of all infrastructure not reused during future use of land; and
- ✓ Rehabilitation of the land.

1.1. Locality and Land Use

The project site (21.83713°S; 14.05967°E) is situated along the C34 road at Mile 72, in the Cape Cross area. The site is situated approximately 60km north of Henties Bay along the Skeleton Coast of Namibia. See Figure 1. The installation occupies an approximate land size of 100m2

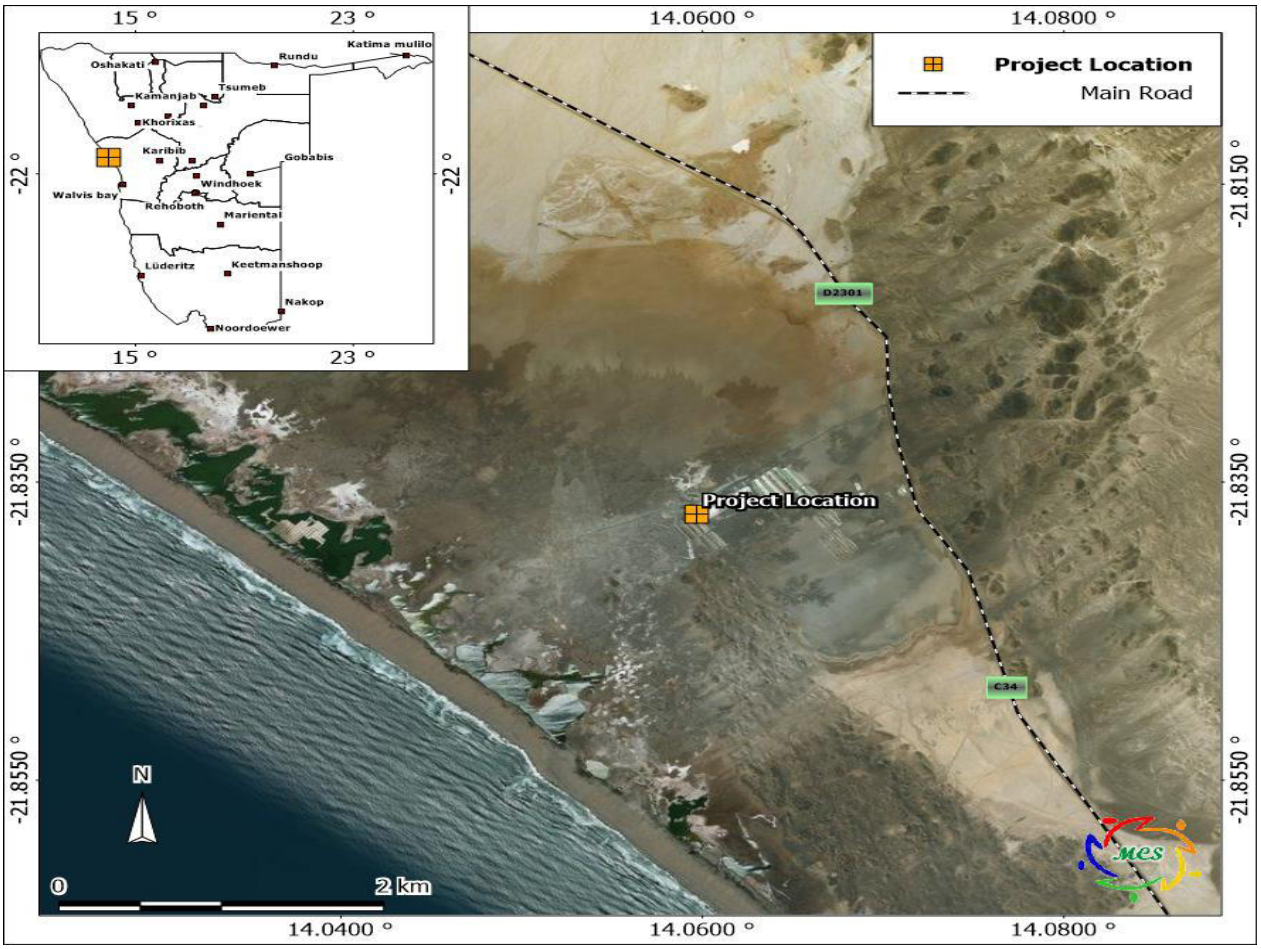

Figure 1. Project Location (21.83713°S; 14.05967°E)

2. RECEIVING ENVIRONMENT

This section lists the most important environmental characteristics of the project area and provides a statement on the potential environmental impacts.

2.1. Climate

Classification of climate:	Semi-arid area
Average rainfall:	Rainfall in the area is averaged between 0 mm-50 mm per year.
Variation in rainfall:	Variation in rainfall is averaged to be more than 100% per year.
Average evaporation:	Evaporation in the area is averaged between 2600-2800 mm per year.
Precipitation:	The highest summer rains are experienced in February. Sporadic and unpredictable, high intensity, highly localised storm events between October and April does occur.
Water Deficit:	Water deficit in the area is averaged between 1701-1900 mm per year.
Temperatures:	The temperatures are highest in February with an average of 20.2°C. The lowest average temperatures of 14.8°C occur in August during the year. During the year, the average temperatures vary by 5.4°C.
Wind direction:	Wind direction in the area is predominantly southerly.

2.2. Topography and Drainage

The topography of the project location is relatively flat with a gentle slope towards the west. The landscape is classified as an area of dissection and erosional cutback of the Central-western plains. The site is located within the catchment of the Ugab River, an ephemeral river draining west into the Atlantic Ocean. The Atlantic Ocean is situated less than 2km west of the project site.

Proper drainage systems should be developed at the facility, in order to control the flow of surface water run-off from the site. Contain any possible surface pollution emanating from daily operational activities of the fuel installation.

2.3. Geology and Hydrogeology

The project area is covered mainly by salt pans. Underlying the pans are the Damara Sequence rocks of the Swakop Group. The Swakop Group is made up of the Khomas and Ugab subgroups. The Khomas subgroup comprises of the Kuiseb, Karibib and Chuos formations. The Ugab subgroup is characterised by the Rossing formation. All of the

underlying formations are classified as hard rock formations. Groundwater flow would be mostly along fractures, faults (secondary porosity) and other geological structures present within the formations.

According to the Department of Water Affairs (DWA) database, no boreholes exist within a 5km radius of the facility. The nearest borehole is situated 9.2km east of the site (inland). Depth to water table is expected 5m below ground level (mbgl).

This area does not fall within water control area; however groundwater belongs to the government of the Republic of Namibia. This means that groundwater remains the property of the government of Namibia and controls the exploration and usage of it. See Figure 4 below, for the hydrogeological map.

3. LEGISLATIVE FRAMEWORK

I. The Namibian Constitution

The Namibian Constitution has a section on principles of state policy. These principles cannot be enforced by the courts in the same way as other sections of the Constitution. But they are intended to guide the Government in making laws which can be enforced.

The Constitution clearly indicates that the state shall actively promote and maintain the welfare of the people by adopting policies aimed at management of ecosystems, essential ecological processes and biological diversity of Namibia for the benefit of all Namibians, both present and future.

II. Environmental Management Act No.7 of 2007

This Act provides a list of projects requiring an Environmental assessment. It aims to promote the sustainable management of the environment and the use of natural resources and to provide for a process of assessment and control of activities which may have significant effects on the environment; and to provide for incidental matters.

The Act defines the term "*environment*" as an interconnected system of natural and human-made elements such as land, water and air; all living organisms and matter arising from nature, cultural, historical, artistic, economic and social heritage and values.

The Environmental Management Act has three main purposes:

(a) to make sure that people consider the impact of activities on the environment carefully and in good time

(b) to make sure that all interested or affected people have a chance to participate in environmental assessments

(c) to make sure that the findings of environmental assessments are considered before any decisions are made about activities which might affect the environment

Line Ministry: Ministry of Environment and Tourism

III. The Water Act (Act No 54 of 1956)

The Water Act No. 54 of 1956 as amended, aims to provide management of the national water resources to achieve sustainable use of water for the benefit of all water users.

The Act broadly controls the use and conservation of water for domestic, agricultural, urban and industrial purposes; to control, in certain respects, the use of sea water; to control certain activities on or in water in certain areas; and to control activities which may alter the natural occurrence of certain types of atmospheric precipitation.

IV. Water Resources Management Act of Namibia (2004) *(Guideline only)*

This act repealed the existing South African Water Act No.54 of 1956 which was used by Namibia. This Act ensures that Namibia's water resources are managed, developed, protected, conserved and used in ways which are consistent with fundamental principles depicted in section 3 of this Act. Part IX regulates the control and protection of groundwater resources. Part XI, titled Water Pollution Control, regulates discharge of effluent by permit.

Line Ministry: Ministry of Agriculture, Water Affairs and Forestry

V. Environmental Assessment Policy of Namibia (1995)

Environmental Assessments (EA's) seek to ensure that the environmental consequences of development projects and policies are considered, understood and incorporated into the planning process, and that the term ENVIRONMENT (in the context of IEM and EA's) is broadly interpreted to include biophysical, social, economic, cultural, historical and political components.

All listed policies, programmes and projects, whether initiated by the government or private sector, should be subjected to the established EA procedures.

Apart from the requirements of the Environmental Assessment Policy, the following sustainability principles needs to be taken into consideration, particularly to achieve proper waste management and pollution control:

- ✓ **Cradle to Grave Responsibility**

  This principle provides that those who manufacture potentially harmful products should be liable for their safe production, use and disposal and that those who initiate potentially polluting activities should be liable for their commissioning, operation and decommissioning.

- ✓ **Precautionary Principle**

  There are numerous versions of the precautionary principle. At its simplest it provides that if there is any doubt about the effects of a potentially polluting activity, a cautious approach should be adopted.

- ✓ **The Polluter Pays Principle**

  A person who generates waste or causes pollution should, in theory, pay the full costs of its treatment or of the harm, which it causes to the environment.

- ✓ **Public Participation and Access to Information**

  In the context of environmental management, citizens should have access to information and the right to participate in decisions making.

Line Ministry: Ministry of Environment and Tourism

VI. Petroleum Products and Energy Act of Namibia (Act No. 13 of 1990)

The Act makes provision for impact assessments for new proposed consumer fuel facilities and petroleum products known to have detrimental effects on the environment.

VII. Draft Pollution Control and Waste Management Bill *(Guideline only)*

The proposed operations of the fuel facility, only applies to Parts 2, 7 and 8 of the Bill.

Part 2 stipulates that no person shall discharge or cause to be discharged any pollutant to the air from a process except under and in accordance with the provisions of an air pollution licence issued under section 23. It further provides for procedures to be followed in licence application, fees to be paid and required terms of conditions for air pollution licences.

Part 7 states that any person who sells, stores, transports or uses any hazardous substances or products containing hazardous substances shall notify the competent authority, in accordance with sub-section (2), of the presence and quantity of those substances.

Part 8 calls for emergency preparedness by the person handling hazardous substances, through emergency response plans.

VIII. Atmospheric Pollution Prevention Ordinance of Namibia No. 11 of 1976

The Ordinance prohibits anyone from carrying on a scheduled process without a registration certificate in a controlled area. A certificate must be issued if it can be demonstrated that the best practical means are being adopted for preventing or reducing the escape into the atmosphere of noxious or offensive gases produced by the scheduled process. Best practice would be to notify the line Ministry about emissions but it is not a legal requirement.

Line Ministry: Ministry of Health and Social Services

IX. Hazardous Substances Ordinance No. 14 of 1974

The Ordinance applies to the manufacture, sale, use, disposal and dumping of hazardous substances, as well as their import and export and is administered by the Minister of Health and Social Welfare. Its primary purpose is to prevent hazardous substances from causing injury, ill-health or the death of human beings.

Line Ministry: Ministry of Health and Social Services

4. INSTALLATIONS AND RELATED ACTIVITIES

4.1. Existing Installation Specifications

The fuel facility is equipped with one 23m^3 above ground diesel storage tank. The tank is bunded and contained in a steel containment structure. A ladder is available on the containment structure to access the filler point at the top. The tank is fitted with a shut-off valve, vent pipe, dispensing point and an off-loading bay is installed at the site.

The supplier's guidelines for fuel storage and handling must be followed to reduce the risk of spillage. The facility is constructed and operated according to relevant SANS standards (or better).

Figure 2. Site Layout Map

Photo 1. Existing 23m3 tank in containment structure

Photo 2. Dispenser on concrete containment floor

5. ENVIRONMENTAL MANAGEMENT STRUCTURES

The Proponent and its contractor(s) will be responsible for environmental management on site during all maintenance and operational activities. For the purpose of this report,

- the Project Personnel refers to the proponent, employees, staff, fuel consumers and suppliers responsible for the *operational activities* of the facility.
- the Contractor (and its sub-contractors) refers to personnel responsible for the *maintanance activities* and *possible decommissioning activities* of the facility.

An independent environmental consultant will be appointed to act as the ECO; and conduct inspections of the operational activities (on a regular basis); and EMP implementation throughout the duration of facility operation. After each inspection, the ECO will produce a monitoring report that will be submitted to the environmental manager (and Ministry of Environment and Tourism (Department of Environmental Affairs) if required). Relevant sections of the minutes of site meetings will be attached to the monitoring report.

Roles, responsibility and authority shall be defined, documented and communicated in order to facilitate effective environmental management through implementation of the EMP.

5.1. Responsible Parties

The responsibility matrix table below will be assigned and completed before any work commences at the site.

Table 1. Responsibility Matrix

Function	Name / Mobile Number	Responsibility
Environmental Manager (EM)	**Total Energies Namibia (Pty) Ltd / African Bag & Trading (Pty) Ltd**	▪ Overall management of project and EMP implementation. ▪ Oversees site works, liaison with Contractor, ESO and ECO.

Environmental Control Officer (ECO)	**Matrix Consulting Services**	▪ Implementation of EMP and liaison between Total Energies Namibia (Pty) Ltd, African Bag & Trading (Pty) Ltd, Department of Environmental Affairs (MET), local authority, Contractor and Landowners/stakeholders.
Contractor	To be appointed	▪ Implementation and compliance with recommendations and conditions of the EMP.

Management shall provide resources essential to the implementation and control of the EMP including: human resources, technology, and financial resources. The general roles and responsibilities of various parties during the maintenance and operational phase of the project are outlined below.

5.1.1. Roles of the Environmental Manager (EM)

The EM (proponent's representative) will act as the employer's on-site implementing agent and has the responsibility to ensure that the Client's responsibilities are executed in compliance with the relevant legislations. Any on-site decisions regarding environmental management are ultimately the responsibility of the EM. The on-site EM shall assist the ECO where necessary and will have the following responsibilities in terms of the implementation of this EMP:

- ✓ Be fully knowledgeable with the contents of the EMP;
- ✓ Review and authorise updates to the EMP.
- ✓ Ensure resource allocation for implementation of the EMP requirements.
- ✓ Ensure that environmental requirements are integrated into project plans, work method statements, tender and contract documents.
- ✓ Ensure necessary support to the proponent for implementation of the EMP.
- ✓ Undertake environmental system reviews, site inspections, audits and other verification activities to assure that the EMP implementation is at an optimal level.
- ✓ Participate in environmental performance verification activities to verify the level of compliance with the EMP in delivering the legal and environmental obligations.
- ✓ Assess the efficacy of the EMP and identify possible areas of improvement or amendment required within the EMP.
- ✓ Participate in incident investigations (as required).
- ✓ Initiate external audits (as required).

5.1.2. Roles of the Environmental Control officer (ECO)

The ECO for the site is an independent environmental consultant appointed by Total Energies Namibia to monitor and review the on-site environmental management and implementation of this EMP on the construction site.

The duties of the ECO:

- ✓ Ensure that all site maintenance and/or operational activities on site are undertaken in accordance with the EMP;
- ✓ Undertake compliance audits against the EMP and conditions of the Environmental Authorisation (where required).
- ✓ Provide support and advice to the project team, contractor and all subcontractors in the implementation of environmental management procedures and corrective actions.
- ✓ Ensure that monitoring programs, which assess the performance of the EMP, are implemented.
- ✓ The ECO officer will submit all written instructions and verbal requests to the contractor and forward a copy to the proponent via the facility manager.
- ✓ Assist in the investigation of incidents and non-conformances and confirm in conjunction with the EM that corrective and preventive action is taken and is effective.
- ✓ Assess the efficiency of the EMP and identify possible areas of improvement or amendment required within the EMP.
- ✓ Facilitate the amendment of the EMP in conjunction with the Environmental Manager (as required).
- ✓ Provide environmental training for key project personnel (in communication with Environmental Manager).
- ✓ Reviewing and approving method statements in consultation with the Environmental Manager.
- ✓ Prepare audit reports (and submit reports to the relevant authority as required).

5.1.3. Roles of the Contractor

The contractor shall ensure that all maintanance and possible site decommissioning staff, sub-contractors, suppliers, etc. are familiar with, understand and adhere to the EMP. Failure by any Contractor, Sub-contractor, Suppliers etc. to show adequate consideration to the environmental aspects of this contract shall be considered sufficient cause for the ECO to instruct the EM to have the employee removed from the site. The EM will also order the removal of equipment from the site that is causing continual environmental damage (e.g. leaking oils and grease, diesel and

petrol fuels, and any other hazardous substance). Such measures will not replace any legal proceedings the Client may institute against the Contractor.

The EM shall order the contractor to suspend part or all of the works if the contractor and/or any sub-contractor, suppliers, etc., fail to comply with both the EMP and the construction procedures supplied by the Contractor. The suspension will be enforced until such time as the offending procedure or equipment is corrected and/or if required remedial measures are put in place.

By virtue of the environmental obligations delegated to the Contractor through the Contract Document, all workers (including subcontractors, suppliers, and service providers) appointed for the project would be responsible for:

- ✓ Ensuring adherence by providing adequate staff and provisions to meet the requirements of the EMP;
- ✓ Ensuring that Method Statements are submitted to the Environmental Manager for approval before any work is undertaken, and monitor compliance with the EMP and approved Environmental Method Statements;
- ✓ Ensuring that any instructions issued by the ECO and/or EM are adhered to;
- ✓ Ensuring the representation of a report at each site meeting, documenting all incidents that have occurred during the period before the site meeting;
- ✓ Ensuring that a register of all the transgressions issued by the EM is kept in the site office;
- ✓ Ensuring that a register of all public complaints is maintained; and
- ✓ Ensure that all employees, including those of sub-contractors receive training before the commencement of construction in order that they can constructively contribute towards the success full implementation of the environmental requirements of the Contract;
- ✓ Report and record any environmental incidents caused by the Contractor or due to the Contractor's activities;
- ✓ obtain required corrective action within specified time frames and close out of environmental incidents;
- ✓ Provide weekly checklists to the EM.

6. IMPLEMENTATION AND MONITORING

6.1. Site Maintenance / Operational Activities

6.1.1. Environmental Awareness Training

Total Energies Namibia (Pty) Ltd / African Bag & Trading (Pty) Ltd. have the responsibility to ensure that all persons involved in the project are aware of, and are familiar with, the environmental requirements for the project. All project personnel, including contractors and sub-contractors are required to receive training of a type and level of detail that is appropriate for the environmental aspects of their work.

Training shall be held during normal working hours, preferably on site. A copy of the register shall be handed to the ECO. As a minimum, all personnel are required to complete the training requirements stipulated in Table 2 below.

Table 2. Environmental Awareness Requirements

Environmental Awareness Training and Induction Requirements		
Awareness Requirement		**Frequency**
Site Induction - the purpose of the induction is to ensure that, as a minimum, all on-site personnel understand the EMP in terms of:		**Operational Activities (including Maintanance)**: prior to commencement of work by staff and / or contractors.
	Key issues relating to the project.	
	Relevant conditions of the Environmental Authorisation.	
	Location and protection of environmentally sensitive areas (if any).	
	Waste management and minimisation.	
	Minimising potential impacts to air, noise and water quality.	
	Surface and groundwater contamination.	
	Spill control measures.	
	Environmental Emergency Plan.	
	Incident reporting procedures.	
	Roles and responsibility relating to environmental management.	
Pre-Start Meeting – Pre-start meetings should be undertaken prior to commencement of a new activity in order to discuss the planned work and operational aspects of the tasks. Health, safety and environmental issues and controls should be discussed and understood.		**Operational Activities (including Maintanance)**: As required.

All senior and supervisory staff members shall familiarise themselves with the full contents of the EMP. They shall know and understand the specifications of the EMP and be able to assist other staff members in matters relating to the EMP.

6.2. Site Establishment

6.2.1. Demarcation of the Project Site

During maintenance work, the site will be properly demarcated and/or temporarily fenced off as agreed with the EM. The method of demarcation shall be determined by the proponent/contractor and agreed to by the EM prior to any work being undertaken. The proponent and contractor shall maintain the demarcation line and ensure that materials used for site maintanance and operations do not blow on or move outside the site and environs, or pose a threat to people. The boundaries of the site shall be demarcated prior to any work commencing on the site. The site boundary demarcation fence shall be removed when all construction work is completed.

The proponent shall ensure that all his plant, labour and materials remain within the boundaries of the site, unless otherwise agreed in writing with EM. Failure to do so may result in the EM requiring the contractor to fence the boundaries of the site with wire mesh at his own expense to the satisfaction of the EM and the local area. It will be the responsibility of the proponent to decide on an appropriate system of protective fencing for the site.

The proponent shall be responsible to ensure that building materials such as sand is not blown away and take the necessary precautions to prevent sand from being blown by the wind.

6.2.2. Ablution Facilities

The company premises are equipped with existing toilet facilities for use during the site maintenance and operations. Where additional ablution facilities are required, the proponent shall provide the necessary portable toilets for its personnel. The sitting of these toilets shall be agreed with the EM. The toilets shall be secured to prevent them from blowing over, and the doors shall be properly lockable to prevent toilet paper from being blown out. Toilets shall be properly cleaned, emptied and serviced regularly.

The proponent shall ensure that any waste from the toilets is not spilled on the ground at any time. Should there be spillage of chemicals and/or waste, the EM shall require the proponent to place the toilets on solid base or containment structures with sumps. Abluting anywhere other than in the toilets shall not be permitted. The proponent shall be responsible for cleaning up any waste deposited by personnel.

6.2.3. Erosion Control

The Proponent shall protect all areas susceptible to erosion due to the operations of the fuel consumer facility and shall take measures, to the approval of the ECO. The Proponent shall not allow erosion to develop on a large scale before effecting repairs and all erosion damage shall be repaired as soon as possible.

6.2.4. Noise

Noise pollution due to operational vehicles, equipment and machinery already exists at the site. It is not expected that the operations of the fuel facility will generate noise that will impact any third parties or neighbouring land. However care should be taken when operating the facility, especially during non operational hours or night times, as it may interfere with the wildlife in the vicinity. The Skeleton Coast is a protected area with a diversity of wildlife. Excessive noise pollution may have a negative impact on wildlife in the area by reducing habitat quality and increasing environ stress levels.

6.2.5. Dust

When necessary, the Proponent shall take precautions to limit the production of dust and damage caused by dust. The following measures must be implemented to minimise dust impacts:

- ✓ During high wind conditions the Proponent must make the decision to cease works until the wind has calmed down; and
- ✓ Cover any stockpiles with a suitable material, such as plastic or shade-cloth, to minimise windblown dust.

6.3. Material Handling and Storage

6.3.1. Chemical, Harmful and Hazardous Materials

All project personnel and contractors shall comply with all relevant national and local legislation with regard to storage, transport, use and disposal of chemical, harmful and hazardous substances and materials. The proponent shall obtain the advice of the manufacturer with regard to the safe handling of such substances and materials.

The proponent shall provide the ECO and EM with a list of all chemical, harmful and hazardous substances and materials on site, together with storage, handling and disposal procedures for these materials.

The proponent shall ensure that information on all chemical, harmful and hazardous substances are available to all personnel on site. The proponent shall furthermore be responsible for the training and education of all its personnel on site who will be handling the material about its proper use, handling and disposal. A dangerous material datasheet should be available on site. The contractor shall submit method statements detailing the substances / materials to be used, together with the storage, handling and disposal procedures of the materials.

6.4. Waste Management

Contaminated soil due to oil leakages, lubricants and grease from the operational vehicles, equipment and machinery may be generated during site maintanance and operations. All hazardous waste generated at the site shall be stored in enclosed, containment areas, the

location of which shall be determined on site in conjunction with the EM. Such waste shall be disposed offsite at an appropriate waste disposal site.

Proponent / Contractor shall institute a waste control and removal system for the site. The Proponent shall not dispose of any waste by burning, or by burying. All waste shall be disposed off site at an approved waste disposal site.

Where necessary, the Proponent shall supply waste bins/skips at the site. The bins shall be secured in such a manner as to prevent their contents blowing out. The Proponent shall ensure that all personnel immediately deposit all waste in the waste bins for removal by the Proponent. Waste shall be properly contained in a scavenger, water and wind-proof containers until disposed of at an approved waste disposal site. Bins shall be emptied and waste removed at least once a week from the site. The bins shall not be used for any purposes other than waste collection.

All hydrocarbon contaminated soils must be removed from the site and disposed off at the Kupferberg hazardous waste disposal site.

6.5. Waste Water Treatment

6.5.1. Discharge of Waste Water

Waste water in this report, refers to all water affected by fuel installation operational activities. The proponent shall construct and operate the necessary collection facilities to prevent pollution. The proponent shall dispose of collected waste water in a manner agreed with the ECO.

No washing of plant, equipment, concreting equipment etc. shall be permitted at the site unless approved by the EM.

6.5.2. Prevention of Soil, Surface-and Groundwater Pollution

The Proponent shall take all reasonable precautions to prevent the pollution of the Atlantic Ocean; and groundwater resource in the area, as a result of his activities. Such pollution could result from the release, accidental or otherwise, of chemicals, oils, fuels, sewage and waste products, etc.

The Proponent shall obtain oil absorbent pads, booms and spill kits, or similar products or materials to soak up oil, petrol and diesel. These materials shall be readily available for use wherever construction equipment is fuelling up. This should also be available at work stations where fuel and lubricants is handled, stored, equipment is filled and serviced. The Contractor shall ensure that he is familiar with the correct use and disposal of any materials designed to soak up petroleum products. Environmental friendly methods will be used during construction e.g.

- ✓ cement batching on boards, no wash water allowed to run off,
- ✓ paint washing in containers to be removed to licensed site,
- ✓ use of environmental friendly paints with low toxicity,

- ✓ use sand filters for paint brush washing and contain cement bags,
- ✓ waste water from paints with potential high environmental impact must be disposed of in accordance with an agreed method with the EM.

The Proponent shall ensure that no oil, petrol, diesel, etc. is discharged onto the ground. Pumps and other machinery requiring oil, diesel, etc. that is to remain in one position for longer than two days shall be placed on drip trays or other similar suitable containment structures. These containment structures shall be watertight and shall be emptied regularly and the contaminated water disposed off-site at a facility capable of handling such waste liquid. Drip trays shall be cleaned before any possible rain events that may result in the drip trays overflowing and before long weekends and holidays.

The Proponent shall remove all oil, petrol, diesel-soaked soil immediately and shall dispose of it as hazardous waste.

6.6. Site Clean Up and Rehabilitation

6.6.1. Site Clean Up

The Contractor shall ensure that all waste, temporary structures, equipment, materials and facilities used during the site maintanance activities are removed upon completion of the project. The Contractor shall clear and clean the construction site to the satisfaction of the ECO and EM upon completion of the project.

6.6.2. Rehabilitation

The Contractor must ensure that all temporary structures, materials, waste and facilities used for maintanance activities are removed upon completion of the project. The project site should be fully rehabilitated (i.e. clear and clean area) including all disturbed areas and protect them from erosion.

Due to the disturbed nature of the project site, very little vegetation is present at the site as the site was cleared for this purpose. However, if deemed necessary, revegetation of disturbed operational areas shall take place as soon as possible after the propose site operations is completed.

6.7. Emergency Procedures

6.7.1. Fire and Safety Management

All electrical installations, wiring and systems at the project site must be approved by a qualified electrician who will issue a Certificate of Compliance before commencement of operations of the consumer fuel facility.

Proper handling, storage, use and disposal of any hazardous waste (e.g. hydrocarbons, paint, batteries, radioactive waste etc) should be conducted. Hydrocarbons are volatile under certain conditions and their vapours in specific

concentrations are flammable. If precautions are not taken to prevent their ignition, fire and subsequent safety risks may arise.

No uncontrolled fire, whether for cooking, heating or any other purpose, is to be made at the site during all phases. The proponent and contractor shall take all reasonable measures and active steps to avoid increasing the risk of fire through activities on site and prevent the accidental occurrence or spread of fire; and shall ensure that there is sufficient fire-fighting equipment on site at all times. This equipment shall include fire extinguishers. The Proponent and Contractor should be prepared for such events.

The following measures will be followed to reduce the intensity of fires during the site maintenance activities and operational phase:

- ✓ Ensure maintanance / operational personnel to perform construction activities carefully (e.g. some machines create sparks)
- ✓ Restrict smoking to designated areas,
- ✓ Provide fire extinguishers,
- ✓ Restrict fires to designated areas,
- ✓ Emergency response plan related to fuel storage,
- ✓ Emergency fire plan for visitors and staff.

6.7.2. Accidents on Site

The Proponent shall comply with the Occupational Health and Safety Act and any other national, regional or local regulations with regard to safety on site. The Proponent shall ensure that contact details of the local medical services are available to the relevant construction personnel prior to commencing work.

6.7.3. Emergency Advisory Procedures

The Proponent shall ensure that there is an emergency advisory procedure on site before commencing any operations that may cause damage to the environment. The Proponent shall also ensure that site staffs are familiar with all emergency procedures to be followed.

The Proponent shall ensure that lists of all emergency telephone numbers/contact people are kept up to date, and that all numbers and names are posted at the construction site at all times.

6.8. Compliance Monitoring

6.8.1. Procedures

The Proponent shall comply with the environmental specifications and requirements on an ongoing basis and any failure on his part to do so will entitle the ECO and to impose a penalty. In the event of non-compliance the following recommended process shall be followed:

- ✓ The ECO shall issue a notice of non-compliance to the offender, stating the nature and magnitude of the contravention. A copy shall be provided to the EM.
- ✓ The Proponent shall act to correct the non-conformance within 24 hours of receipt of the notice, or within a period that may be specified within the notice.
- ✓ The offender shall provide the ECO with a written statement describing the actions to be taken to discontinue the non-conformance, the actions taken to mitigate its effects and the expected results of the actions. A copy shall be provided to the EM.
- ✓ In the case of non-compliance giving rise to physical environmental damage or destruction, the ECO shall be entitled to undertake or to cause to be undertaken such remedial works as may be required to make good such damage and to recover from the offender the full costs incurred in doing so.
- ✓ The EM shall at all times have the right to stop work and/or certain activities on site in the case of non-compliance or failure to implement remediation measures.

6.8.2. Environmental Monitoring

Periodic inspections of the project site will be performed by the ECO. These will consist of formal reviews of conformance against policies and procedures stated in this document. Inspections will occur as required. Supervisors in all work areas will conduct performance and compliance reviews, using the EMP as guideline to ensure compliance.

6.8.3. EMP Administration

Copies of this EMP shall be kept at the project site and should be distributed to all senior staff members, including those of the contractors.

6.8.4. EMP Amendments

The EMP amendments can only be made with the approval of the EM and ECO, and if required ultimately by the DEA. Amendments to the EMP should be liaised to all employees and contractors.

6.8.5. Non-Compliance

Problems may occur in carrying out mitigation measures or monitoring procedures that could result in non-compliance of the EMP. The responsible personnel should encourage staff to comply with the EMP, and address acts of non-compliance and penalties.

The EM is responsible for reporting non-conformance with the proponent. The EM, in consultation with the ECO must, thereafter, undertake the following activities:

- ✓ Investigate and identify the cause of non-conformance.
- ✓ Implement suitable corrective action as well as prevent recurrence of the incident.
- ✓ Assign responsibility for corrective and preventative action.
- ✓ Any corrective action taken to eliminate the causes of non-conformance shall be appropriate to the magnitude of the problems and commensurate with the environmental impact encountered.

6.8.6. Environmental Register

An environmental register should be kept on site in which incidents related to actual impacts are recorded. This will include information related to incidents as spillages, dust generation and complaints from adjacent properties. It should also contain information relating to actions taken. Any party on site may complete the register, however, it is envisaged that the EM, ECO and the contractor will be the main contributors, and who will also be the main parties involved in suggesting mitigation measures.

6.8.7. Site Management

Areas outside the designated working zone shall be considered "no go" areas. The offloading zones must be clearly demarcated when offloading goods to enhance safety around the project site.

6.8.8. Access Routes and Fuelling Site

Vehicular movement, operational vehicles and equipment will access the fuel facility via the designated routes at the salt mine. Fuelling site shall be clearly demarcated and road signs erected were needed. The general public should not have unauthorised or uncontrolled access to the fuel installation during its operation.

Vehicle access must be limited to a single entrance (where necessary) to facilitate control. The entrance must be manned during the operation hours, but will be locked during non-operational hours to prevent unauthorised entry.

A notice board, in two languages or more, must be erected at the entrance and must state the most pertinent site health and safety issues, the operator/responsible person and emergency telephone numbers. Suitable signs must also be erected on the approach roads and on-site, to direct drivers and to control speed.

Furthermore, on-going controls, such as fencing and policing, must be implemented.

6.8.9. Staff Management

The Contractor and Proponent must ensure that their employees have suitable personal protective equipment and properly trained in fire fighting and first aid. Training records must be kept for future references.

7. MANAGEMENT OF ENVIRONMENTAL ASPECTS DURING PRE-OPERATIONAL ACTIVITIES

Pre-operational phase	
Description	▪ Compliance Requirements ▪ Environmental Awareness ▪ Health and safety Aspects
Proposed Mitigation Measures	Develop an environmental management plan (EMP) to comply with the requirements of the Environmental Management Act (2007) and its regulations of 2012. Identify and address all environmental and social issues. Ensure that all persons involved in the project are aware of, and are familiar with, the environmental requirements for the project. Ensure that all contractors, employees, staff, fuel consumers, suppliers, etc. are familiar with, understand and adhere to the EMP. Develop and implement environmental emergency preparedness procedures. Establish personnel protection standards and mandatory safety practices and procedures for the development. Establish the lines of communication among contractors and subcontractors involved in work operations for safety and health matters.
Proposed Monitoring	Record of environmental compliance (ECC). Record of approved site-specific EMP for project site. Record of awareness training and attendance register. Record of health and safety plan.
Responsible Party	Proponent / ECO

8. MANAGEMENT OF ENVIRONMENTAL ASPECTS DURING MAINTANANCE AND OPERATIONAL PHASES

This section will look at the potential environmental impacts, which may arise during maintenance and operational phases of the African Bag & Trading consumer fuel installation.

The impacts associated with possible decommissioning phase will be similar to that of construction activities. The supplier's guidelines for tank removal must be followed to reduce the risk of spillage and groundwater contamination. A site-specific Environmental Management Plan for this phase will have to be reviewed at the time of decommissioning to cater for changes made to the facility.

Groundwater

Maintanance / Operational phase	
Description	Although groundwater in the area is not utilised, groundwater quality could be impacted through leachate of oil leakages, hydrocarbon fuel, lubricants and grease from vehicles and equipment frequenting the facility. Spillages may also occur during fuel delivery to the above ground storage tanks from road transport tanker trucks. Care must be taken to avoid contamination of soil and groundwater.
Proposed Mitigation Measures	▪ All operational surfaces and the fuel storage facility must be installed with spill containment areas as per the relevant SANS standards (or better). Special emphasis is placed on SANS 10089:1999, SANS 100131:1977, SANS 100131:1979, SANS 100131:1982, SANS 100131:1999. ▪ Proper monitoring of the product levels must take place to eliminate overfilling. ▪ All operational surfaces at the facility must be installed with spill containment areas. ▪ Ensure that any petroleum products, such as grease, waste oils and lubricants are contained in containment structures (e.g. plastic liners, drip trays etc.). ▪ Avoid discharge of pollutants (such as cement, concrete, lime, chemicals, contaminated waste water or leachate) into stormwater channels and water courses. ▪ Equipment and materials to deal with spill cleanup must be readily available on site and staff must be trained as to how to use the equipment and briefed about reporting procedures. ▪ Regular tank and pipeline tightness inspections are advised to eliminate the risk of impact on the environment due to leakage. ▪ The condition of the fuel reticulation system will have to be checked regularly and repaired to prevent leakages;
Proposed Monitoring	Regular visual inspection.
Responsible Party	Proponent / Contractors.

Surface Water

Maintanance / Operational phase	
Description	Spillages might occur during fuel delivery to the aboveground storage tank from road transport tanker trucks. This may also occur during dispensing of fuel to construction vehicles and equipment. Spillages and/or leakages of fuel may occur due to failure of reticulation pipelines or storage tanks. Contaminated soil might pose a risk to surface water.
Proposed Mitigation Measures	▪ Proper containment mechanisms installed should be able to contain any spillages that might occur during the operation of the facility. ▪ All spills should be cleaned up as soon as possible. ▪ The presence of an emergency response plan and suitable equipment is advised, so as to react to any spillage or leakages properly and efficiently.
Proposed Monitoring	Regular visual inspection surface water and drainage channels.
Responsible Party	Proponent / Contractors.

Air Quality (Dust Pollution)

Maintanance / Operational phase	
Description	Air quality around the site could be impacted by exhaust fumes from the construction vehicles accessing the facility. Hydrocarbon vapours will be released during delivery and dispensing, as liquid displaces the gaseous mixture in the tanks. In terms of fuel storage tank, the vapours will be released through vent pipe on the tank.
Proposed Mitigation Measures	▪ Vehicle idling time shall be minimised by putting up educative signs. ▪ All venting systems and procedures have to be designed according to SANS standards (SANS 1929:2011) and placed in a sensible manner. ▪ Vent pipe should be placed in such a manner as to prevent impact on potential receptors. Use vapour recovery equipment and techniques to avoid air pollution and minimise fuel loss.
Proposed Monitoring	It is recommended that regular air quality monitoring be conducted at the facility. A complaints register regarding emissions/smell should be kept and acted on if it becomes a regular complaint.
Responsible Body	Proponent / Contractors.

Safety and Security

Maintanance / Operational phase	
Description	The operations of the fuel consumer facility can cause health and safety risks to workers on site. Occupational exposures are normally related to inhalation of fuel vapours and physical contact with fuels.
Proposed Mitigation Measures	➢ Ensure the general safety and security at all times by providing day and night security guards and adequate lighting within and around the premises. ➢ Operators must be properly trained on safety and health issues of the project. ➢ Well stocked first aid box which is readily available and accessible should be provided within premises. ➢ Signs such as 'NO SMOKING' must be prominently displayed in parts where inflammable materials are stored on the premises. ➢ Workers should be fully equipped with personal protective equipment gear.
Proposed Monitoring	Regular inspection and incident monitoring report evaluation.
Responsible Body	Proponent / Contractors.

Noise Pollution

Maintanance / Operational phase	
Description	Noise pollution may be generated by construction vehicles and equipment frequenting the site.
Proposed Mitigation Measures	➢ Delivery of fuel products by road tanker trucks should be limited to normal working hours (08h00 to 17h00). ➢ Loud music from vehicles fuelling up should be restricted. ➢ Maintain the grievance mechanism to capture public perceptions and complaints with regard to noise impacts, track investigation actions and introduce corrective measures for continuous improvement.
Proposed Monitoring	Strict delivery and collection times. Observation of on-site noise levels by the ESO and ECO.
Responsible Body	Proponent / Contractors.

Waste Generation

Maintanance / Operational phase	
Description	Waste such as contaminated soil, litter, empty cans of engine oil will be generated during the operational phase.
Proposed Mitigation Measures	▪ Contaminated soil must be removed and disposed off at a suitable waste disposal site. ▪ Waste bins must be available at the fuel consumer facility at all times. Waste must be appropriately collected and disposed off at an approved appropriate waste disposal site. ▪ Care should be taken when handling contaminated material. The cradle to grave principal should be kept in mind during waste disposal. ▪ Any non-biodegradable hazardous material (i.e. oil cans and containers etc.) generated should be properly stored in containment structures, collected and transported to the nearest approved hazardous waste disposal facility.
Proposed Monitoring	Regular visual inspection of entire fuel system. Containment area inspections.
Responsible Body	Proponent / Contractors.

Traffic

Maintanance / Operational phase	
Description	Traffic around the consumer installation
Proposed Mitigation Measures	▪ Delivery of fuel products by road tanker trucks should be limited to normal operational hours.
Proposed Monitoring	Strict delivery times monitoring. Observation of traffic by the ESO and ECO.
Responsible Body	Proponent / Contractors.

Ecological impacts

Maintanance / Operational phase	
Description	The site is situated in an already disturbed setting with extensive salt mining operations. The general biophysical conditions of the site are predominantly free of sensitive flora and fauna area. The facility operations will have minimal impacts the surrounding fauna and flora.
Proposed Mitigation Measures	➢ The operational activities would not exceed the demarcated area of the fuel consumer facility.
Proposed Monitoring	Regular site inspection of areas outside the designated area.
Responsible Body	Proponent / Contractors.

Overfilling of tank and vehicles

Maintanance / Operational phase	
Description	Overfilling of construction vehicles; and fuel storage tank may take place.
Proposed Mitigation Measures	➢ This impact can be reduced by the installation of spill containment areas around the pumps and through proper training of the operators. ➢ Proper monitoring of the product levels in the tank must take place to eliminate overfilling. ➢ Proper training of the operators on site is vital.
Proposed Monitoring	Regular inspection of the level of fuel in tank.
Responsible Body	Proponent / Contractors.

Fire and explosion hazard

Maintenance / Operational phase	
Description	Hydrocarbons are volatile under certain conditions and their vapours in specific concentrations and conditions are flammable.
Proposed Mitigation Measures	➢ There should be sufficient water available for fire fighting purposes. ➢ Ensure that all fire-fighting devices are in good working order and they are serviced. ➢ All personnel have to be trained about responsible fire protection measures and good housekeeping such as the removal of flammable materials on site.
Proposed Monitoring	Regular inspections should be carried out to inspect and test fire fighting equipment.
Responsible Body	Proponent / Contractors.

Spillages

Maintanance / Operational phase	
Description	Spillages are bound to occur during delivery of diesel fuel to the aboveground tank; and during dispensing of diesel to construction vehicles, equipment and machinery.
Proposed Mitigation Measures	▪ All operational surfaces and the fuel storage facility must be installed with spill containment areas as per the relevant SANS standards (or better). Special emphasis is placed on SANS 10089:1999, SANS 100131:1977, SANS 100131:1979, SANS 100131:1982, SANS 100131:1999. ▪ Risk of impact from this can be lowered through proper training of staff. ▪ All fuel delivery and dispensing operations should be conducted on provided spill containment areas around the dispensing points and tank farm. ▪ Staff must be provided with emergency response procedures which they should be familiar with. ▪ The storage tank should be kept in the tank containment farm provided throughout the duration of the installation. ▪ Regular inspection of the storage tank and farm, reticulation pipelines, dispensing pumps and the entire fuel system should be conducted. ▪ Staff should at all times be aware of the precautions associated with the handling of petroleum / chemical products as described in the relevant Material Safety Data Sheets. The general response to a fuel spill at the consumer facility must be: ▪ Switch off all pump(s) using the automatic pump cut-off. Switches should be located within easy reach of the console attendant and be clearly marked. Cut-offs at the fuse board is not acceptable; ▪ If spillage is outside the bund wall containment, use all appropriate measures necessary to contain the spill; ▪ Use booms or a sand/soil dam to prevent the spill from entering stormwater drains. Use the absorbents in the spill kit to soak up as much fuel as possible; ▪ Report any spillage more than 200 litres to the relevant authorities and remediation instituted (refer to section 49 of the Petroleum Products and Energy Act, 1990 (Act No. 13 of 1990)). ▪ Keep the public away from the spill.
Proposed Monitoring	Regular visual inspection of the entire fuel system.
Responsible Party	Proponent / Contractors.

9. CONCLUSIONS

If the above-mentioned management recommendations are properly implemented, it is anticipated that most of the adverse impacts on the environment can be mitigated. An appointed environmental control officer will need to monitor or audit the site throughout the continued operations of the facility to ensure that the EMP is fully implemented and complied with.

The EMP should be used as an on-site tool during all phases of the proposed project. Regular environmental audits should be carried out throughout all phases to ensure compliance of the EMP and environmental regulations of Namibia. Parties responsible for non-conformances of the EMP will be held responsible for any rehabilitation that may need to be undertaken.

The environmental clearance is valid for 3 years only, as per the environmental management act No.7 of 2007, thus it is the responsibility of the proponent to commission an application for renewal of the permit by submitting an updated EIA/EMP document before it expires.

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