ENVIRONMENTAL MANAGEMENT PLAN (EMP)

EXISTING HANOVER NAMCOR FUEL RETAIL FACILITY IN ONGWEDIVA, OSHANA REGION

UPDATED EMP FOR ECC RENEWAL

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REPORT STATUS:	**FINAL**

1. INTRODUCTION AND BACKGROUND

An Environmental Management Plan (EMP) has been commissioned by Hanover Service Station Cc. for the existing Hanover fuel retail facility in Ongwediva, Oshana Region. The EMP serves as a managing tool for the continued operations and possible decommissioning activities of the existing fuel facility (hereinafter also referred to as "service station"). The EMP is also developed to outline measures to be implemented in order to minimise adverse environmental degradation associated with this development.

The original environmental clearance certificate (ECC) was issued in July 2018, which has since expired. Matrix Consulting Services was appointed to undertake the necessary activities to enable a renewal application for the ECC with the Environmental Commissioner as prescribed by the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012).

The updated EMP 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 **Contractor** (and its sub-contractors) refers to construction personnel responsible for the *maintenance activities* of the development.

b) the **Proponent** (i.e. Hanover Service Station Cc) refers to the employees, staff and its suppliers responsible for the *operational activities* of the development.

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 Hanover Service Station Cc 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 maintanance and operational activities of the service station entails:

- ✓ Maintanance of buildings and associated facilities.
- ✓ Maintanance (up keep) of fuel storage tanks, reticulation pipelines, dispensing points and associated spill control structures.
- ✓ Maintanance of associated electrical supply.
- ✓ Transport of fuel supply with road transport tanker trucks.
- ✓ The dispensing of fuel to vehicles and/or approved containers.
- ✓ 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 (17.77554°S; 15.75343°E) is located at Erf 5578, corner of Sam Nujoma Road and Kalomo Kutondokwa Street in Ongwediva, Oshana Region. See Figure 1 for the locality map. The fuel retail facility occupies an approximate land size of 5,000m^2. Land use in the area is classified as business.

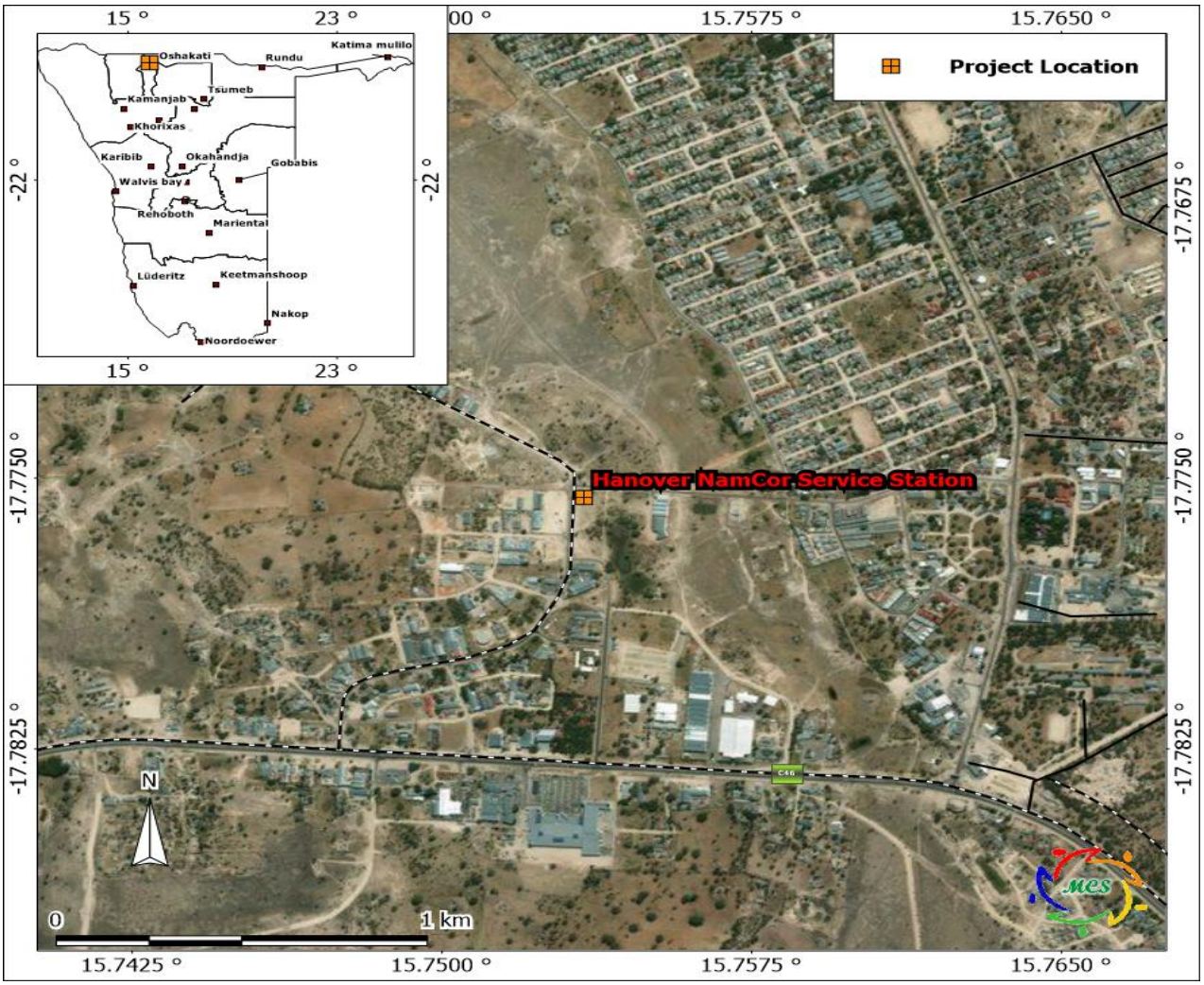

Figure 1. Project Location (17.77554°S; 15.75343°E)

Figure 2. Layout of the site

2. 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 assessment for new proposed fuel retail facilities and petroleum products known to have detrimental effects on the environment.

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

The operations of the existing Hanover Service Station, 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

3. RECEIVING ENVIRONMENT

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

3.1. Topography and Drainage

The site is relatively flat with a gentle slope towards the southeast. The landscape is classified as being in the Oshana system, a low gradient anatomising to braided fluvial system, which periodically floods.

The site is located within the Cuvelai catchment of the Etosha (Etosha-N River) Pan, an ephemeral river, draining in a southern direction into the Etosha Pan.

Drainage in the area is well developed and runoff usually collects in nearby oshana depression, some 300m east of the site. Run-off from the site takes place towards the Oshana system. Surface water in these oshanas are often used for animal watering.

Proper drainage systems (e.g. erection of culverts) should be developed at the facility, in order to control the flow of surface water run-off from the site; thereby preventing any possible surface pollution emanating from daily operational activities at the fuel retail facility. Storm water management systems should form part of the engineering designs.

3.2. Climatic Conditions

Classification of climate:	Semi-arid area
Average rainfall:	Rainfall in the area is averaged to be between 450 mm-500 mm per year.

Variation in rainfall:	Variation in rainfall is averaged to be between 30-40 % per year.
Average evaporation:	Evaporation in the area is averaged to be between 1960-2100 mm per year.
Precipitation:	Sporadic and unpredictable, high intensity, highly localised storm events between October and April does occur.
Water Deficit:	Water deficit in the area is averaged to be between 1501-1700 mm per year.
Temperatures:	Temperatures in the area are averaged to be more than 22°C per year.
Wind direction:	Wind direction in the area is predominantly easterly.

3.3. Surface and Groundwater

Surface geology at the site consists of a Kalahari cover of unknown thickness. The Kalahari Group consists mainly of unconsolidated formations, but some degree of consolidation may be present. The subsurface geology consists of red mudstones, siltstones, sandstones, grit and conglomerate of the Ecca group - Omingonde formation (Tro_uc).

Groundwater flow would be mostly through primary porosity in the Kalahari cover but flow along fractures, faults (secondary porosity) and other geological structures present within the underlying formations might take place where consolidated layers are present.

Groundwater flow from the site can be expected in a southerly direction; however local drainage patterns may vary due to groundwater abstraction. According to the Department of Water Affairs database (DWA), no known boreholes and/or well exists within 1km radius from the site.

The area does not fall within a groundwater control area; however groundwater remains the property of the government of Namibia. This means that government controls the exploration and usage of it.

4. ENVIRONMENTAL MANAGEMENT PLAN

4.1. Responsibilities for environmental management

Hanover Service Station Cc / NAMCOR will be responsible for environmental control on site during the maintenance and operational phase. It is very important that pre-work and/or maintenance briefing meetings be held to reach an agreement on specific roles of various parties and penalties for non-compliance.

4.2. Training and induction

Hanover Service Station Cc / NAMCOR are bound to be responsible for ensuring that environmental awareness education of all employees and contractors is done satisfactorily. The facility management should ensure that employees and contractors are made aware of the environmental requirements of the project.

The EMP should form part of the Terms of Reference for all contractors, sub-contractors and suppliers. All contractors, sub-contractors and suppliers will have to sign an agreement to assure that they understood the EMP and that they will comply. All senior staff should familiarise themselves with the full contents of the EMP and its implications. Senior staff is expected to train and assist the rest of the employees on the contents of the EMP.

4.3. Environmental incident reporting

All environmental incidents occurring at the proposed site will be recorded. The incident report will have to include time, date, location, and nature of the incident, extent of the incident, actions taken, and personnel involved.

All complaints received from the neighbouring properties or communities should be directed to the manager of Hanover Service Station. Management should be able to respond to the complainant within a week (even if pending further investigation).

4.4. Environmental monitoring

Periodic environmental monitoring must be taken on a regular basis. Monitoring should be done in order to ensure compliance with all aspects of the EMP. Findings should be liaised with to all responsible officers as chain command.

4.5. EMP administration

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

4.6. EMP amendments

The EMP amendments can only be made with the approval of the DEA. Amendments to the EMP should be liaised to all employees and contractors.

4.7. Non compliance of the EMP

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.

4.8. Environmental Control Officer

The Environmental Control Officer for the site can be an independent environmental consultant (e.g. Matrix Consulting Services) appointed by Hanover Service Station Cc. to monitor and review the on-site environmental management and implementation of this EMP.

4.9. Site Management

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

3.9.1 Access routes and work sites

Passenger vehicles and road transport trucks will access the fuel retail facility via the existing Sam Nujoma Road and/or Kalomo Kutondokwa Street. No new tracks/roads shall be established and only existing roads may be used. Work sites shall be clearly demarcated and road signs erected were needed. The general public should not have access to the work sites during maintenance activities.

3.9.2 Fire and safety management

Any electrical wiring to be conducted at the facility will have to be approved by a qualified electrician who will issue a Certificate of Compliance for these buildings prior to occupation.

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 fire, whether for cooking or any other purpose, is to be made at the fuel retail facility during any of the three phases (maintenance, operational and decommissioning). The 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 Contractor should be prepared for such events.

The Hanover Service Station management together with contractors shall take all reasonable measures to avoid increasing the risk of fire and shall ensure that there is sufficient fire-fighting equipment on site at all times.

3.9.3 Staff management

The Contractor must ensure that their employees have suitable personal protective equipment and properly trained in fire fighting and first aid.

3.9.4 Waste management

The developer shall remove all waste off-site to designated waste disposal sites. Sufficient bins or containers on-site to store any solid or liquid waste produced should be provided by Hanover Service Station. The bins and containers should be weatherproof and scavenger-proof.

3.9.5 Cement and concrete batching

Concrete mixing directly on the ground shall not be allowed and shall take place on an impermeable surface. All run-off from batching areas shall be strictly controlled, and cement contaminated water shall be collected, stored and disposed of at a licensed suitable waste disposal facility.

3.9.6 Hydrocarbons management

If any spillage occurs, contaminated soil shall be collected in a holding tray or drum and which will then disposed at a licensed hazardous waste site. Any spillage of more than 200 litres must be reported to the Ministry of Mines and Energy as per the Petroleum Products Act.

The Contractor shall take all reasonable measures to prevent surface or groundwater pollution from the release of oils and fuels.

Sufficient space should be left in fuel storage tanks to allow for fuel expansion and to prevent leakage of fuel from the fuel retail facility.

3.9.7 Flood management

Storm water management of the site should be a key aspect of flood management on site. All culverts should be kept clean to allow storm water to flow freely.

5. ENVIRONMENTAL MANAGEMENT MEASURES DURING MAINTANANCE AND OPERATIONAL PHASES

The impacts associated with the decommissioning phase will be similar to that of maintanance and construction activities. The supplier's guidelines for tank removal must be followed during decommissioning to reduce the risk of spillage and groundwater contamination.

The Environmental Management Plan for this phase will have to be reviewed at the time of decommissioning to cater for changes made to the development.

Groundwater

Maintanance (including possible decommissioning activities)	
Description	Groundwater contamination can be caused by leakages and spills of chemicals and petroleum products (i.e. oil leakages, hydrocarbon fuel, lubricants and grease) from construction vehicles, equipment and machinery during maintanance activities. Care must be taken to avoid contamination of soil and groundwater.
Proposed Mitigation Measures	↓ Prevent spillages of any chemicals and petroleum products (i.e. oils, lubricants, petrol and diesel). ↓ Use drip trays, linings or concrete floors when evidence of leaks are observed on vehicles, equipment and machinery.
Proposed Monitoring	Regular visual inspection.
Responsible Party	Hanover Service Station Cc / Contractors.

Operational phase	
Description	Groundwater quality could be impacted through leachate of oil leakages, hydrocarbon fuel, lubricants and grease from vehicles frequenting the facility. Spillages may also occur during fuel delivery and loading of road transport tanker trucks. Care must be taken to avoid contamination of soil and groundwater. Run-off from overflowing and/or leaking onsite sewage systems may transport the effluent to groundwater.
Proposed Mitigation Measures	↓ All operational surfaces and fuel storage facilities 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. ↓ The risk can be lowered further through proper training of staff. ↓ All spills must be cleaned up immediately.
Proposed Monitoring	Groundwater monitoring sampling for hydrocarbon pollution.
Responsible Party	Hanover Service Station Cc

Surface Water

Maintanance (including possible decommissioning activities)	
Description	The site is located within the catchment of the Etosha (Etosha-N River) Pan, an ephemeral river, draining in a southern direction into the Etosha Pan. Drainage in the area is well developed and run-off takes place to the southeast. Contaminants in the form of chemicals and petroleum products (i.e. oil leakages, hydrocarbon fuel, lubricants and grease) from construction vehicles, equipment and machinery during maintanance and decommissioning activities. Oil Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could be impaired. Care must be taken to avoid contamination of soil and any nearby surface water present in the area.
Proposed Mitigation Measures	➢ Machinery should not be serviced on the facility to avoid spills. ➢ All spills should be cleaned up as soon as possible. ➢ Chemical and/or hydrocarbon contaminated soil; clothing or equipments should not be washed within 100m of any surface water body (i.e. nearby drainage lines, storm water systems etc).
Proposed Monitoring	Regular visual inspection. Surface water quality monitoring in cases of evident pollution.
Responsible Party	Hanover Service Station Cc / Contractors.

Operational phase	
Description	Spillages might occur during fuel delivery and loading of road transport tanker trucks. This may also occur during filling of vehicles and containers. Contaminated soil might pose a risk to surface water.
Proposed Mitigation Measures	➢ 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. ➢ Ensure all stormwater drains or channels are clear of litter or obstructing material.
Proposed Monitoring	Regular visual inspection. Surface water monitoring sampling for hydrocarbon pollution.
Responsible Party	Hanover Service Station Cc

Air quality (including dust)

Maintanance (including possible decommissioning activities)	
Description	Dust may be produced during maintanance activities; and might be worsened when strong winds occur. These are expected to be site specific and could potentially pose a slight nuisance to the neighbouring residence and business. In general, maintanance activities of the fuel facility will have minimal impact on the surrounding air quality.
Proposed Mitigation Measures	➢ It must be ensured that all vehicles entering the site and machinery used in maintanance activities are in good working order to prevent unnecessary emissions. ➢ Vehicles should not be allowed to idle for unnecessarily long periods of time. ➢ Excavation, handling and transport of materials must be avoided under high wind conditions. ➢ Dust suppression measures (e.g. dampening with water) may be required from time to time, should dust become a nuisance.
Proposed Monitoring	Regular visual inspection.
Responsible Party	Hanover Service Station Cc / Contractors.

Operational phase	
Description	Air quality around the site could be impacted by exhaust fumes from the fleet of transport tanker trucks and vehicles accessing the facility. Hydrocarbon vapours will be released during delivery and dispensing, as liquid displaces the gaseous mixture in the tanks.
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 and placed in a sensible manner. ➢ In terms of fuel storage tanks, the vapours will be released through vent pipes on the tanks. ➢ Vent pipes should be placed in such a manner as to prevent impact on potential receptors.
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	Hanover Service Station Cc

Health and Safety

Maintanance (including possible decommissioning activities)	
Description	During maintanance activities, construction vehicles and equipment will be used on site. This increases the possibility of injuries. The presence of equipment lying around on site may encourage criminal activities (theft).
Proposed Mitigation Measures	➢ Equipment and machinery operators should be equipped with ear protection equipment. ➢ Operations should be strictly between 07H00 to 17H00. First aid and safety awareness training for contractors. ➢ The maintanance / construction staff must be properly trained on safety and health issues of the project. ➢ Workers should be fully equipped with personal protective equipment gear. ➢ The site must be clearly demarked and fenced off to prevent unauthorised persons from accessing the site, who could get injured on site.
Proposed Monitoring	Safety procedures evaluation. Health and safety incident monitoring.
Responsible Party	Hanover Service Station Cc / Contractors.

Operational phase	
Description	The operations of the fuel retail 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	Hanover Service Station Cc

Noise Pollution

Maintanance (including possible decommissioning activities)	
Description	Noise pollution due to construction equipment and vehicles on site during maintanance activities will be generated. It is expected that the noise generated will not have a significant impact on any third parties.
Proposed Mitigation Measures	▪ Sensitize vehicle drivers and machinery operators used during maintanance activities to switch off engines of vehicles or machinery not being used. ▪ Ensure engines of machinery used during maintanance activities are fitted with mufflers. ▪ Equipment and machinery operators should be equipped with ear protection equipment. ▪ Operations should be strictly between 07H00 to 17H00.
Proposed Monitoring	Strict operational times. Regular inspection.
Responsible Party	Hanover Service Station Cc / Contractors.

Operational phase	
Description	Noise pollution already exists around the site in the form of noise generated from vehicles using the Sam Nujoma Road and/or Kalomo Kutondokwa Street.
Proposed Mitigation Measures	▪ Delivery of fuel products by heavy-duty tankers should be limited to 07h00 to 19h00. ▪ Loud music from vehicles fuelling up should be restricted.
Proposed Monitoring	Strict delivery and collection times. Observation of on-site noise levels by the Manager or Supervisor.
Responsible Body	Hanover Service Station Cc

Waste Generation

Maintanance (including possible decommissioning activities)	
Description	This can be in a form of contaminated soil, building and domestic waste, oil spills or leakages of petroleum products may occur during maintanance activities.
Proposed Mitigation Measures	▪ Ensure that sufficient weather- and vermin-proof bins / containers are present on site for the disposal of solid waste ▪ Ensure that no excavated soil, refuse or building waste generated on site are placed, dumped or deposited on adjacent/surrounding properties or land. ▪ Waste must be disposed off at the designated Ongwediva waste disposal site.
Proposed Monitoring	Regular inspection and housekeeping procedure monitoring. Observation of site appearance by the manager.
Responsible Party	Hanover Service Station Cc / Contractors.

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 the designated Ongwediva waste disposal site. ▪ Waste bins must be available at the fuel retail facility at all times. Waste must be appropriately collected and disposed off at the waste disposal site. ▪ Oil-water separator effluent originating from storm water runoff, tank bottoms and washing activities should be separated before disposal of the water. Regular monitoring of the oil-water separator outflow must be conducted. ▪ 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 the fuel infrastructure.
Responsible Body	Hanover Service Station Cc

Traffic

Maintanance (including possible decommissioning activities)	
Description	The site is situated at the corner of the Sam Nujoma Road and Kalomo Kutondokwa Street, in Ongwediva. Maintanance related activities are expected to have a minimal impact on the movement of traffic along these roads. Diversion of traffic or closure of roads is not expected.
Proposed Mitigation Measures	➢ It is recommended that if the need arises for traffic diversion road closure, the contractor should liaise with the relevant authorities. ➢ Speed limit and construction site warning signs must be erected to minimise accidents. ➢ Construction vehicles must be tagged with reflective signs or tapes to maximise visibility of the vehicles and avoid accidents.
Proposed Monitoring	Observations of the traffic flow on Sam Nujoma Road and Kalomo Kutondokwa Street.
Responsible Party	Hanover Service Station Cc / Contractors.

Operational phase	
Description	Traffic around the Service station
Proposed Mitigation Measures	➢ Delivery time of fuel products by heavy-duty tankers should be limited to 07h00 and 19h00.
Proposed Monitoring	Strict delivery times monitoring. Observation of traffic by the Manager or Supervisor.
Responsible Body	Hanover Service Station Cc

Ecological impacts

Maintanance (including possible decommissioning activities)	
Description	The site has been built-up and disturbed. No conservation worthy vegetation exists at the site.
Proposed Mitigation Measures	➢ No disturbance of areas outside the designated working zone should be allowed.
Proposed Monitoring	Regular site inspection.
Responsible Party	Hanover Service Station Cc / Contractors.

Operational phase	
Description	Disturbance or impacts on fauna and flora. No impacts are expected as the area is built-up and disturbed.
Proposed Mitigation Measures	➢ Prevent disturbance of areas outside the designated working zone.
Proposed Monitoring	Regular site inspection.
Responsible Body	Hanover Service Station Cc

Overfilling of tanks and vehicles

Operational phase	
Description	Overfilling of vehicles and fuel storage tanks 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 tanks 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 tanks.
Responsible Body	Hanover Service Station Cc

Nuisance Pollution

Maintanance (including possible decommissioning activities)	
Description	Aesthetics and inconvenience caused to person trying to access/exit the site.
Proposed Mitigation Measures	➢ The site manager should maintain tidiness on site at all times. ➢ Take cognition when parking vehicles and placing equipment.
Proposed Monitoring	Regular visual site inspection.
Responsible Party	Hanover Service Station Cc / Contractors.

Fire and explosion hazard

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. ➢ Emergency response procedures should be in place so as to alert the employees on how to react to fire and explosions incidents. ➢ Regular inspections should be carried out to inspect and test fire fighting equipment and emergency response at the development. ➢ Ensure sufficient water is available all the time for fire fighting purposes. ➢ It is highly recommended that any electrical wiring works at the facility be conducted and approved by a qualified electrician who will issue a Certificate of Compliance.
Proposed Monitoring	Regular inspections should be carried out to inspect and test fire fighting equipment. Strict procurement/appointing procedures of contractors doing work at facility.

Hydrocarbon Spillages

Operational phase	
Description	Fuel spillages might occur during delivery during the operational phase.
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. ▪ All spills must be cleaned up immediately. ▪ 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	Risk of impact from this can be lowered through proper training of staff and the installation of suitable containment structures.
Responsible Body	Hanover Service Station Cc

6. DETECTING LOSS OF PRODUCT

Leaks and spills of products do not necessarily indicate the potential spill size; however the accuracy of stock monitoring techniques is critical to detecting leaks at an early stage. It follows that a larger quantity of product may leak to soil and groundwater from a long running undetected pipe work leak than from a catastrophic failure of an underground tank. Thus, it's very important to that proper stock management techniques are implemented prior to the operation of the filling station.

Losses of product are often indicated by stock reconciliation systems, upon investigation it may be determined that losses are not caused by leaks. Dispenser meters should be checked periodically and other sources of loss (e.g. theft, faulty gauge probes etc.) should be considered. The elimination of apparent losses should improve business, performance and improve the leak detection capacity of the systems in use.

7. CONCLUSION

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 officer/consultant will need to monitor or audit the site throughout its operations to ensure that the EMP is fully implemented and complied with. The EMP caters for all project phases, but will need to be reviewed during all phases of project, especially when revisions are made to the project development plans.

The Environmental Management Plan should be used as an on-site tool during all phases of the development. Parties responsible for contravention of the EMP should be held responsible for any rehabilitation that may need to be undertaken. It is the Proponent's responsibility to initiate the update of the EMP once it has expired after 3 years from the issue date of the environmental clearance.