

APP-006598

**OPERATIONS OF THE DIESEL WHOLESALE FACILITY OF ATMEI
CONSTRUCTION NAMIBIA IN ROSH PINAH, //KHARAS REGION**

ENVIRONMENTAL MANAGEMENT PLAN



Prepared by:



Prepared for:



October 2025

Project:	OPERATIONS OF THE DIESEL WHOLESALE FACILITY OF ATMEI CONSTRUCTION NAMIBIA IN ROSH PINAH, //KHARAS REGION: ENVIRONMENTAL MANAGEMENT PLAN	
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Report Approval	 André Faul Conservation Ecologist	

I, IGNATIUS C. SCHUTTE, acting as representative of Atmei Construction Namibia CC, hereby confirm that the project description contained in this report is a true reflection of the information which the Proponent provided to Geo Pollution Technologies. All material information in the possession of the Proponent that reasonably has or may have the potential of influencing any decision or the objectivity of this assessment is fairly represented in this report and the report is hereby approved.

Signed at  on the 31 day of OCTOBER 2025.

Atmei Construction Namibia CC

CC/1998/0218
Business Registration/ID Number

EXECUTIVE SUMMARY

Atmei Construction Namibia CC requested Geo Pollution Technologies (Pty) Ltd to prepare an environmental management plan (EMP) for their existing diesel wholesale facility on erf 172, Kurper Street in Rosh Pinah, //Kharas Region. The facility supplies diesel, lubricants and grease to bulk customers in the town and region. Two aboveground steel tanks of 23 m³ and 14 m³ each, with concrete bunding, are present on site, but only one tank is currently being used. The tank is filled with diesel delivered by a large tanker truck as needed. Diesel is then dispensed into bowsers or directly into heavy motor vehicles at a pump located next to the tank.

Potential environmental impacts and associated social impacts were identified and preventative / enhancement and mitigation measures are provided in the form of an EMP in this report. It includes all environmental, safety, health and socio-economic impacts associated with the facility.

The premises is zoned for industrial use and is surrounded by industrial erven and business like a logistics company and a tyre wholesaler. Due to the nature and location of the facility, limited impacts are expected on the surrounding environment. It is however recommended to regularly monitor environmental performance to ensure regulatory compliance and that corrective measures be taken if necessary. Operations of the facility play a positive role in contributing to a reliable supply of fuel to the local industries and bulk users of diesel.

The major concerns related to the operations of the facility are that of potential groundwater, surface water and soil contamination, health impacts, traffic and the possibility of fire. These will however be limited by adherence to relevant South African National Standards and Material Safety Data Sheet instructions. Furthermore, noise levels should meet the minimum requirements of the Health and Safety Regulations of the Labour Act and World Health Organisation guidelines on community noise. By appointing local contractors and employees, and by implementing educational programs, the positive socio-economic impacts can be maximised while mitigating any negative impacts.

The environmental management plan included in Section 1 of this document should be used as an on-site reference document for the facility. All monitoring and records kept should be included in a report to ensure compliance with the environmental management plan. Parties responsible for transgression of the environmental management plan should be held responsible for any rehabilitation that may need to be undertaken. A health, safety, environment and quality policy should be used in conjunction with the environmental management plan. Operators and responsible personnel must be taught the contents of these documents. Local or national regulations and guidelines must be adhered to and monitored regularly as outlined in the environmental management plan.

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1 INTRODUCTION

Geo Pollution Technologies (Pty) Ltd was appointed by Atmei Construction Namibia CC. (the Proponent) to prepare an environmental management plan (EMP) for the existing and continued operations of a diesel wholesale facility located at 172 Kurper Street, Rosh Pinah, in the //Kharas region of Namibia (Figure 1-1). The Proponent requires the EMP to apply for an environmental clearance certificate (ECC) in accordance with the Environmental Management Act No. 7 of 2007 (EMA).

The facility has been in operation for an extended period, consistently serving the local community and surrounding areas. Its continued presence underscores its importance as a critical infrastructure asset within the town of Rosh Pinah. The Proponent plays a vital role by delivering essential fuel services to wholesale consumers, thereby ensuring that customers have reliable and cost-effective access to fuel needed for their daily activities and business operations. In addition to the core operational activities, the facility undergoes routine maintenance and periodic upgrades. These measures are implemented on a regular basis to uphold compliance with industry standards, ensuring the safe and efficient operation of the site and its continued ability to meet the needs of its customers.

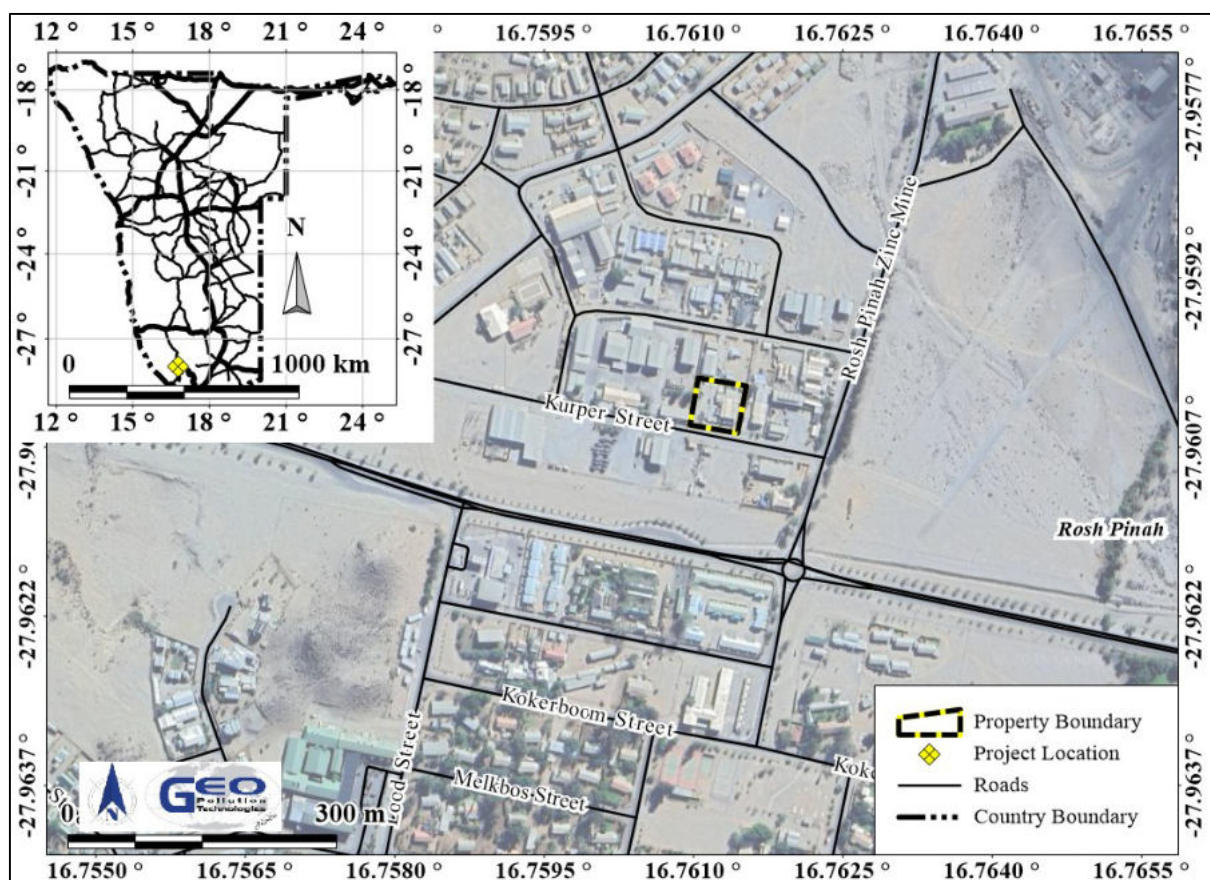


Figure 1-1 Project location

A brief risk assessment was undertaken to determine the potential impacts of the operational and possible decommissioning phases of the facility on the environment. The environment being defined in the Environmental Management Act as “land, water and air; all organic and inorganic matter and living organisms as well as biological diversity; the interacting natural systems that include components referred to in sub-paragraphs, the human environment insofar as it represents archaeological, aesthetic, cultural, historic, economic, paleontological or social values”.

Project Justification – Local industries and businesses require diesel fuel for their daily operations. Diesel is mainly used by mining industries, drilling contractors and construction companies for fueling of heavy motor vehicles, earthmoving equipment, generators, etc. Atmei Construction thus fulfils an important role by delivering fuel to wholesale consumers. Benefits of the fuel wholesale facility include:

- ◆ Reliable supply of fuel to local industries and business.

- ◆ Employment, skills development and training.
- ◆ Increase in economic resilience in the area through support for diversified business activities and opportunities.

2 SCOPE

The scope of this assessment, in compliance with the requirements of EMA, is to:

1. Determine the potential environmental impacts emanating from the operational and possible future decommissioning activities of the fuel facility.
2. Identify a range of management actions which could mitigate the potential adverse impacts to acceptable levels.
3. Provide sufficient information to the relevant competent authority and Ministry of Environment, Forestry and Tourism (MEFT) to make an informed decision regarding the operations and possible decommissioning of the facility.

3 METHODOLOGY

The following methods were used to investigate the potential impacts of the facility on the social and natural environment:

1. Baseline information about the site and its surroundings was obtained from existing secondary information.
2. Potential environmental impacts emanating from the operations and decommissioning of the facility were determined and possible enhancement measures were listed for positive impacts while mitigation/preventative measures were provided for negative impacts.
3. An EMP was prepared to be submitted to the MEFT's Department of Environmental Affairs (DEA).

4 PROJECT DESCRIPTION

Atmei Construction is responsible for the storage and sale of fuel, oil, and grease to several key users within the Rosh Pinah area. The facility supplies these products to local mines, construction companies, and other wholesale customers, ensuring the necessary fuel supply to sustain their operations.

The Proponent's facility in Rosh Pinah has two steel, aboveground storage tanks (AST) of 23 m³ and 14 m³ each, situated inside concrete bund areas on the property (Table 4-1) (Photo 4-1, Photo 4-5). Only the 23 m³ tank is currently utilised for the purpose of storing diesel. Its filler point is situated on the side of the tank closest to the fence and the road. One dispensing pump is located next to the tank. A platform for storage and dispensing of oil barrels and grease (i.e. the lube bay) is also present on site. Other buildings and infrastructure include offices (Photo 4-4) and ablution facilities as well as a storage room/workshop. The project location is serviced with municipal water and electricity supply and sewers.

Tanker trucks delivering fuel to the facility park outside the perimeter fence, next to the tank. A pump and flexible hose are then used to transfer diesel from the tanker truck to the tank (Photo 4-3). Dispensing of fuel to customers' fuel bowsers and heavy motor vehicles takes place inside the property, at the dispensing pump.

Hazardous waste that is generated on site like hydro-carbon soaked rags, fuel filters, contaminated fuel, and soil is disposed of in skips that are provided by Rosh Pina Zinc who then disposes of the waste along with their own hazardous waste at dedicated places according to their standard operating procedures.

Daily activities include cleaning and maintenance of the site as well as administrative tasks. Tank dips and fuel volume reconciliations are performed in order to detect any product losses and to ensure timely fuel delivery requests.

Table 4-1 Storage tank details

	T1	T2
Product	Diesel 50 ppm	Currently Not in Use
Capacity (m³)	23	14
Aboveground / Below ground	Aboveground	Aboveground
Material	Steel	Steel
Spill Control	Concrete Bund	Concrete Bund
Filler Point	Side of the tank	None



Figure 4-1 Site layout



Photo 4-1 Diesel storage tank in bund area



Photo 4-2 Dispensing point



Photo 4-3 Filler point (Google Maps, 2025)



Photo 4-4 Office building with oil drums (Google Maps, 2025)



Photo 4-5 Google Street view of the warehouse and fuel tanks (Google Maps, 2025)

5 ADMINISTRATIVE, LEGAL AND POLICY REQUIREMENTS

To protect the environment and achieve sustainable development, all projects, plans, programmes and policies deemed to have adverse impacts on the environment require an environmental assessment, as per the Namibian legislation. The legislation and standards provided in Table 5-1 to Table 5-3 govern the environmental assessment process in Namibia and/or are relevant to the facility.

Table 5-1 Namibian law applicable to the fuel facility

Law	Key Aspects
The Namibian Constitution	◆ Promote the welfare of people ◆ Incorporates a high level of environmental protection ◆ Incorporates international agreements as part of Namibian law
Environmental Management Act Act No. 7 of 2007, Government Notice No. 232 of 2007	◆ Defines the environment ◆ Promote sustainable management of the environment and the use of natural resources ◆ Provide a process of assessment and control of activities with possible significant effects on the environment
Environmental Management Act Regulations Government Notice No. 28-30 of 2012	◆ Commencement of the Environmental Management Act ◆ List activities that requires an environmental clearance certificate ◆ Provide Environmental Impact Assessment Regulations
Petroleum Products and Energy Act Act No. 13 of 1990, Government Notice No. 45 of 1990	◆ Regulates petroleum industry ◆ Makes provision for impact assessment ◆ Petroleum Products Regulations (Government Notice No. 155 of 2000) ○ Prescribes South African National Standards (SANS) or equivalents for construction, operation and decommissioning of petroleum facilities (refer to Government Notice No. 21 of 2002) ◆ Used Mineral Oil Regulations (Government Notice No. 48 of 1991) ○ Regulations relating to the purchase, sale, supply, acquisition, possession, disposal, storage, transportation, recovery and re-refinement of used mineral oil

Law	Key Aspects
Water Resources Management Act Act No. 11 of 2013, Government Notice No. 268 of 2023	- Provide for management, protection, development, use and conservation of water resources - Prevention of water pollution and assignment of liability
Local Authorities Act Act No. 23 of 1992, Government Notice No. 116 of 1992	- Define the powers, duties and functions of local authority councils - Regulates discharges into sewers
Public and Environmental Health Act Act No. 1 of 2015, Government Notice No. 86 of 2015	- Provides a framework for a structured more uniform public and environmental health system, and for incidental matters - Deals with Integrated Waste Management including waste collection disposal and recycling; waste generation and storage; and sanitation
Labour Act Act No 11 of 2007, Government Notice No. 236 of 2007	- Provides for Labour Law and the protection and safety of employees - Labour Act, 1992: Regulations relating to the health and safety of employees at work (Government Notice No. 156 of 1997)
Atmospheric Pollution Prevention Ordinance Ordinance No. 11 of 1976	- Governs the control of noxious or offensive gases - Prohibits scheduled process without a registration certificate in a controlled area - Requires best practical means for preventing or reducing the escape into the atmosphere of noxious or offensive gases produced by the scheduled process
Hazardous Substances Ordinance Ordinance No. 14 of 1974	- Applies to the manufacture, sale, use, disposal and dumping of hazardous substances as well as their import and export - Aims to prevent hazardous substances from causing injury, ill-health or the death of human beings
Pollution Control and Waste Management Bill (draft document)	- Not in force yet - Provides for prevention and control of pollution and waste - Provides for procedures to be followed for licence applications

Table 5-2 Relevant multilateral environmental agreements for Namibia and the facility

Agreement	Key Aspects
Stockholm Declaration on the Human Environment, Stockholm 1972.	Recognizes the need for a common outlook and common principles to inspire and guide the people of the world in the preservation and enhancement of the human environment
1985 Vienna Convention for the Protection of the Ozone Layer	- Aims to protect human health and the environment against adverse effects from modification of the Ozone Layer are considered - Adopted to regulate levels of greenhouse gas concentration in the atmosphere
United Nations Framework Convention on Climate Change (UNFCCC)	The Convention recognises that developing countries should be accorded appropriate assistance to enable them to fulfil the terms of the Convention
Convention on Biological Diversity, Rio de Janeiro, 1992	Under article 14 of The Convention, EIAs must be conducted for projects that may negatively affect biological diversity

Table 5-3 Standards or Codes of Practise

Standard or Code	Key Aspects
South African National Standards (SANS)	◆ The Petroleum Products and Energy Act prescribes SANS standards for the construction, operations and demolition of petroleum facilities ◆ SANS 10089-1:2008 (ED. 4.03): The petroleum industry Part 1: Storage and distribution of petroleum products in above-ground bulk installations. ◆ SANS 10131 (2004): Above-ground storage tanks for petroleum products ○ Provide requirements for spill control infrastructure

The fuel retail facility is listed as an activity requiring an environmental clearance certificate as per the following points from Section 9 of Government Notice No. 29 of 2012:

Hazardous Substance Treatment, Handling and Storage

- ◆ 9.1 “The manufacturing, storage, handling or processing of a hazardous substance defined in the Hazardous Substances Ordinance, 1974.” (The facility store and handle hazardous substances in the form of fuel.)
- ◆ 9.2 “Any process or activity which requires a permit, licence or other form of authorisation, or the modification of or changes to existing facilities for any process or activity which requires an amendment of an existing permit, licence or authorisation or which requires a new permit, licence or authorisation in terms of a law governing the generation or release of emissions, pollution, effluent or waste.” (The facility store and handle hazardous substances in the form of fuel which is permitted by the Ministry of Mines and Energy.)
- ◆ 9.5 “Construction of filling stations or any other facility for the underground and aboveground storage of dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin.” (The facility stores diesel aboveground.)

6 ENVIRONMENTAL CHARACTERISTICS

This section lists pertinent environmental characteristics of the study area and provides a statement on the potential environmental impacts on each.

6.1 LOCALITY AND SURROUNDING LAND USE

The facility is situated on erf 172, Kurper Street in Rosh Pinah (27.960394 °S; 16.761254 °E). It is in the industrial zoned area of Rosh Pinah and is surrounded by properties of similar nature.

6.2 CLIMATE

Rosh Pinah is situated in an arid climatic region. Heavy rainfall in Rosh Pinah is mostly common between June and August, peaking mostly in June, whilst September to February has little or no rainfall. The average annual rainfall ranges between 0 to 100 mm/a, with a variation in rainfall of 60 to 70% and an average annual evaporation rate of between 2,300 and 2,400 mm/a.

Table 6-1 Summary Climate Data

Classification of climate	Karoo
Average annual rainfall (mm/a)	0-100
Variation in annual rainfall (%)	60-70
Average annual evaporation (mm/a)	2,300
Average annual temperatures (°C)	21-22

6.3 TOPOGRAPHY AND DRAINAGE

The project area is located in the transition zone between the Coastal plains and Orange River Valley. The topography is characterized by rugged, mountainous terrain situated on the north-

western edge of the Ai-Ais–Richtersveld Transfrontier Park in southern Namibia. The area features a striking contrast between steep rocky hills, narrow valleys, and gently undulating plains. Elevations range from approximately 400 to over 1,000 metres above sea level, with the terrain generally sloping westward toward the Orange River valley. Prominent ridges and inselbergs composed of resistant quartzites and schists dominate the landscape, while ephemeral drainage channels dissect the area, reflecting the influence of infrequent but intense rainfall events. The relief and sparse vegetation give the region a rugged, semi-desert appearance, typical of the south-western Namibian escarpment zone.

6.4 GEOLOGY AND HYDROGEOLOGY

The Rosh Pinah Formation underlying the project area was deposited between approximately 1,150 and 1,050 million years ago during the rifting that formed the Adamastor Ocean, and was subsequently metamorphosed and deformed around 545 million years ago during the Pan-African orogeny associated with the ocean's closure. It belongs to the Gariep Complex, forming part of its lower sequence, and is composed mainly of arkose, quartzite, mudstone, microquartzite (NRp), and carbonate units deposited in a rift-graben setting. The dominant lithologies in the area are siliciclastic and carbonate rocks that host stratabound and stratiform lead-zinc sulfide mineralization. The associated aquifer system is typically a fractured-rock aquifer, where groundwater occurs in secondary permeability zones along fractures, shears, and bedding planes within the quartzite and carbonate layers, often yielding moderate to low borehole productivity with localized enhancement near faulted or mineralized zones (Cairncross and Fraser, 2012).

The town Rosh Pinah is supplied with drinkable water from the Orange River. This water supply scheme is managed and run by NamWater, where the river water is treated to meet quality drinking standard before supplying it to the town. The project area is not located in a Water Control area.

6.5 PUBLIC WATER SUPPLY

The town of Rosh Pinah relies on fresh water pumped from the Orange River, southeast of the town. Water is supplied to residents and businesses by the local municipality.

6.6 FAUNA AND FLORA

This region is located in the Succulent Karoo biome. This biome is known to be home to a wide variety of plant species and subspecies that make its conservation a priority. It can further be classified under the Succulent steppe sub-biome and forms part of the floristic group - Southern succulent desert. The area hosts up to 533 species of flora with 0-5% of the area being covered by woody plants and the rest of the area remaining bare and exposed. Around 64 plants found in the area may be endemic, with 10 species possibly locally endemic.

6.7 DEMOGRAPHIC AND ECONOMIC CHARACTERISTICS

The project is located within the //Karas Region, and falls under the Oranjemund Constituency. The total population of the //Karas Region is 109,893 of which 55,670 are male and 54,223 are female. The region also has a density of 0.7 people/km² and a literacy rate of 95.1%, while the constituency has a total population of 13,224 and a density of 2.9 people/km² (National Statistics Agency, 2023).

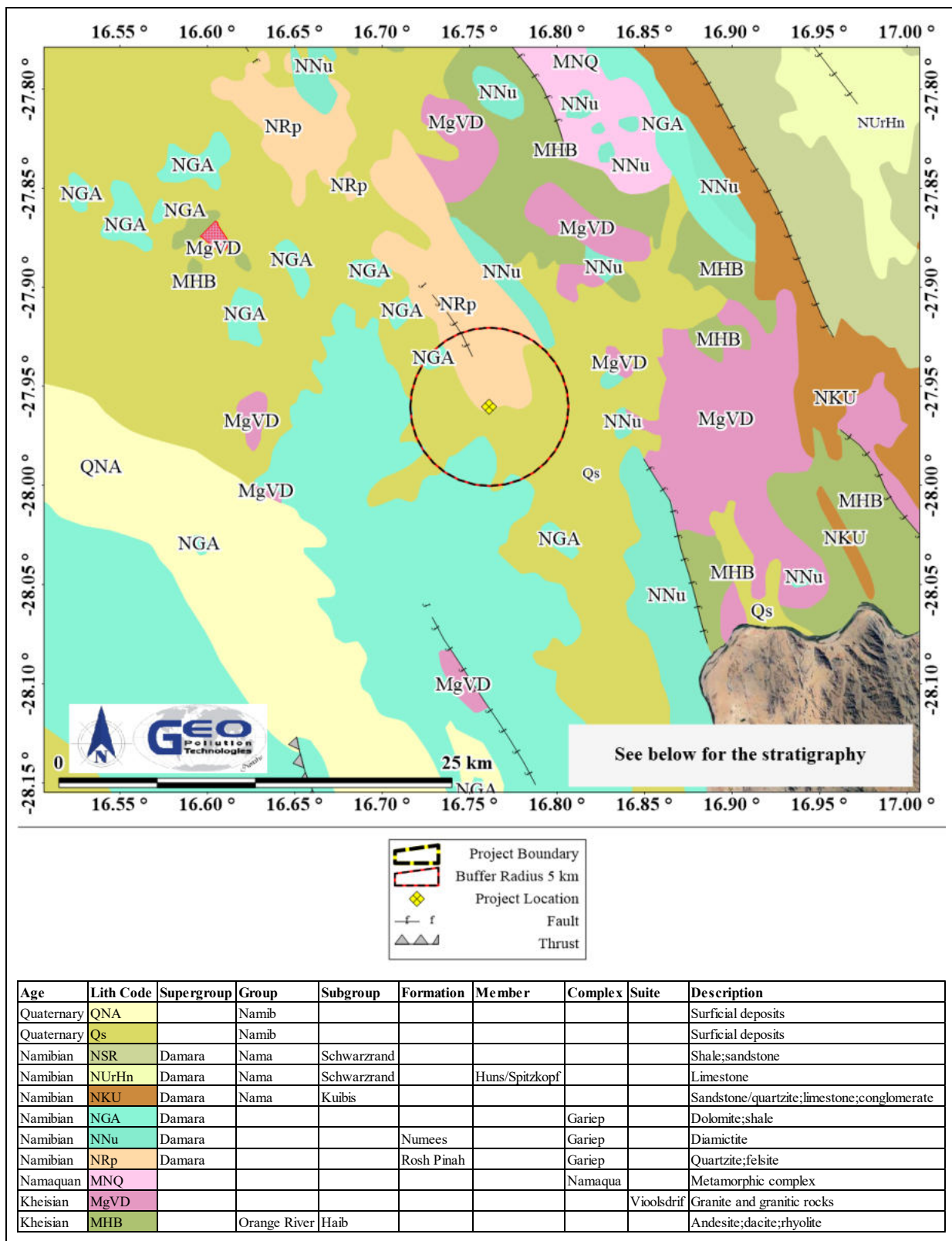


Figure 6-1 Geology map

7 ENVIRONMENTAL MANAGEMENT PLAN

The EMP provides management options to ensure impacts of the facility are minimised. An EMP is a tool used to take pro-active action by addressing potential problems before they occur. This should limit the corrective measures needed, although additional mitigation measures might be included if necessary. The environmental management measures are provided in the descriptions below. These management measures should be adhered to during the various phases of the operations of the facility. All personnel taking part in the operations of the facility should be made aware of the contents in this section, so as to plan the operations accordingly and in an environmentally sound manner.

The objectives of the EMP are:

- ◆ to include all components of operations, maintenance and possible decommissioning of the facility,
- ◆ to prescribe the best practicable control methods to lessen the environmental impacts associated with the facility,
- ◆ to monitor and audit the performance of operational personnel in applying such controls; and
- ◆ to ensure that appropriate environmental training is provided to responsible operational personnel.

Various potential and definite impacts will emanate from the operations, maintenance and possible future decommissioning phases. The majority of these impacts can be mitigated or prevented. The impacts with prevention and mitigation measures are listed below. Impacts related to the operational phase are expected to mostly be of medium to low significance and can mostly be mitigated to have a low significance. The extent of impacts are mostly site specific to local and are not of a permanent nature. Due to the nature of the surrounding areas, cumulative impacts are possible and include groundwater contamination and traffic impacts.

7.1.1 Planning

During the phases of planning for continued operations and possible future decommissioning of the facility, it is the responsibility of Proponent to ensure they are, and remain, compliant with all legal requirements. The Proponent must also ensure that all required management measures are in place prior to, and during all phases, to ensure potential impacts and risks are minimised. The following actions are recommended for the planning phase and should continue during various other phases of the project:

- ◆ Ensure that all necessary permits from the various ministries, local authorities and any other bodies that governs the operations of the facility are in place and remains valid. This includes the petroleum products licence.
- ◆ Ensure all appointed contractors and employees enter into an agreement which includes the EMP. Ensure that the contents of the EMP are understood by the contractors, sub-contractors, employees and all personnel present or who will be present on site.
- ◆ Make provisions to have a health, safety and environmental (HSE) coordinator to implement the EMP and oversee occupational health and safety as well as general environmental related compliance at the site.
- ◆ Have the following on site, where reasonable, to deal with all potential emergencies:
 - EMP, emergency response plan and HSE manuals.
 - Procedures, equipment and materials required for emergencies.
 - Adequate protection and indemnity insurance cover for incidents.
- ◆ If one has not already been established, establish and maintain a fund for future restoration of the project site should project activities cease and the site is decommissioned and environmental restoration or pollution remediation is required.
- ◆ Establish and/or maintain a bi-annual reporting system to report on aspects of operations, maintenance and decommissioning as outlined in the EMP.
- ◆ Submit bi-annual reports to the MEFT to allow for ECC renewal after three years. This is a requirement by MEFT.
- ◆ Appoint a specialist environmental consultant to update the EMP and apply for renewal of the ECC prior to expiry.

7.1.2 Employment

Continued operations and maintenance of the facility relies on employment. Skilled and unskilled labourers are employed or contracted for various tasks of operations and maintenance. Unskilled labour may be sourced locally while it is expected that skilled contractors within Namibia will be used for specialised work. The presence of the facility therefore contributes to employment creation in the skilled and unskilled labour sector.

Desired Outcome: Provision of employment to local Namibians.

Actions

Mitigation:

- ◆ The Proponent must employ local Namibians where possible.
- ◆ If the skills exist locally, employees must first be sourced from the town, then the region and then nationally.
- ◆ Deviations from this practice must be justified.

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

- ◆ Bi-annual summary report based on employee records.

7.1.3 Revenue

The wholesale of fuel, lubricants and grease contributes to revenue generation which is paid to the national treasury while also contributing to the local economy in terms of increased spending power of employees as well as the sourcing of goods and services.

Desired Outcome: Contribution to national treasury and sustaining of the livelihoods of the local community.

Actions

Mitigation:

- ◆ Payment of salaries, taxes and levies in accordance with Namibian laws.
- ◆ Employment of local Namibians where possible.
- ◆ If the skills exist locally, employees must first be sourced from the town, then the region and then nationally. Deviations from this practice must be justified.

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

- ◆ Bi-annual summary report based on employee records.

7.1.4 Skills, Technology and Development

During operations of the facility, training is provided to a portion of the workforce to be able to perform their duties according to the required standards. Skills are transferred to an unskilled workforce for general tasks. Development of people and technology are key to economic development of the town, region and nationally.

Desired Outcome: To see an increase in skills of local Namibians, as well as development and technology advancements in the fuel industry.

Actions

Mitigation:

- ◆ Skills development and improvement programs to be made available as identified during performance assessments.
- ◆ Employees to be informed about parameters and requirements for references upon employment.

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

- ◆ Record should be kept of training provided.
- ◆ Ensure that all training is certified or managerial reference provided (proof provided to the employees) inclusive of training attendance, completion and implementation.
- ◆ Bi-annual summary reports on all training conducted.

7.1.5 Demographic Profile and Community Health

The facility relies on labour for operations. The scale of the project is limited and it is not foreseen that it has or will in future create a change in the demographic profile of the local community. Exposure to factors such as communicable disease like HIV/AIDS as well as alcoholism / drug abuse are often associated with the trucking industry. Spills and leaks may present risks to members of the public especially if groundwater is polluted.

Desired Outcome: To prevent the in-migration and growth in informal settlements and to prevent the spread of diseases such as HIV/AIDS.

Actions:

Prevention:

- ◆ Employ only local people from the area, deviations from this practice should be justified appropriately.
- ◆ Adhere to all municipal by-laws relating to environmental health and sanitation requirements for the various facilities.

Mitigation:

- ◆ Educational programmes for employees on HIV/AIDs and general upliftment of employees' social status.
- ◆ Appointment of reputable contractors.

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

- ◆ Facility inspection sheet for all areas which may present environmental health risks, kept on file.
- ◆ Bi-annual summary report based on educational programmes and training conducted.
- ◆ Bi-annual report and review of employee demographics.

7.1.6 Fuel Supply

The facility contributes to ensuring a reliable and convenient supply of fuel to various businesses and industries.

Desired Outcome: Ensure a secure and reliable fuel supply remains available.

Actions

Mitigation:

- ◆ Ensure compliance to the petroleum regulations of Namibia.
- ◆ Proper management to ensure constant supply.
- ◆ Record supply problems and take corrective actions.

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

- ◆ Record supply problems and corrective actions taken and compile a bi-annual summary report.

7.1.7 Health, Safety and Security

Activities associated with the operational phase are reliant on human labour and therefore will expose them to health and safety risks. Handling of hazardous chemicals (inhalation and carcinogenic effect of some petroleum products), will pose the main risks to employees. Security risks will be related to unauthorized entry, theft and sabotage.

Desired Outcome: To prevent injury, health impacts and theft.

Actions

Prevention:

- ◆ Clearly label dangerous and restricted areas as well as dangerous equipment and products.
- ◆ Equipment that will be locked away on site must be placed in a way that does not encourage criminal activities (e.g. theft).
- ◆ Provide all employees with required and adequate personal protective equipment (PPE).
- ◆ Ensure that all personnel receive adequate training on operation of equipment/handling of hazardous substances.
- ◆ All health and safety standards specified in the Labour Act should be complied with.
- ◆ Implementation of maintenance register for all equipment and fuel / hazardous substance storage areas.
- ◆ Selected personnel should be trained in first aid and a first aid kit must be available on site. The contact details of all emergency services must be readily available.
- ◆ Implement and maintain an integrated health and safety management system, to act as a monitoring and mitigating tool, which includes: operational, safe work procedures, emergency response plans, housekeeping rules, material safety data sheets (MSDS) and signage requirements (PPE, flammable etc.).
- ◆ Security procedures and proper security measures must be in place to protect workers and clients.

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

- ◆ Any incidents must be recorded with action taken to prevent future occurrences.
- ◆ A biannual report should be compiled of all incidents reported. The report should contain dates when training were conducted and when safety equipment and structures were inspected and maintained.

7.1.8 Traffic

The presence of the facility and its operations increase traffic flow through the delivery and distribution of fuel. Smaller tanker trucks or bowzers are filled from the storage tank for transport and delivery of diesel to customers in the area. Large tanker trucks transport fuel to the facility for delivery of fuel. Increased traffic in the area may increase the risk of incidents and accidents.

Desired Outcome: Minimum impact on traffic and no transport or traffic related incidents.

Actions

Prevention:

- ◆ Properly trained and licenced truck drivers.
- ◆ Erect clear signage regarding access and exit points at the facility.

Mitigation:

- ◆ Tanker trucks and other vehicles collecting and delivering fuel should not be allowed to obstruct any traffic.
- ◆ If any traffic impacts are expected, traffic management should be performed to prevent these.

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

- ◆ Any complaints received regarding traffic issues should be recorded together with action taken to prevent impacts from repeating itself.
- ◆ A bi-annual report should be compiled of all incidents reported, complaints received, and action taken.

7.1.9 Fire

Operational activities increase the risk of the occurrence of fires. Although diesel is not as flammable as for example unleaded petrol, it can still ignite under certain circumstance or if handled incorrectly.

Desired Outcome: To prevent property damage, possible injury and impacts caused by uncontrolled fires.

Actions:

Prevention:

- ◆ A holistic fire protection and prevention plan is needed. This plan must include an emergency response plan, firefighting plan and spill recovery plan.
- ◆ Ensure all chemicals are stored according to MSDS and SANS instructions.
- ◆ Maintain regular site, mechanical and electrical inspections and maintenance.
- ◆ Clean all spills/leaks immediately.
- ◆ Special note must be taken of the regulations stipulated in sections 47 and 48 of the Petroleum Products and Energy Act, 1990 (Act No. 13 of 1990).
- ◆ Follow SANS standards for operations and maintenance of the facility.
- ◆ Maintain firefighting equipment and promote good housekeeping.
- ◆ Personnel training (firefighting, fire prevention and responsible housekeeping practices).

Mitigation:

- ◆ In case of a fire, implement the firefighting plan and contact emergency services immediately.

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

- ◆ A register of all incidents must be maintained on a daily basis. This should include measures taken to ensure that such incidents do not repeat themselves.
- ◆ A biannual report should be compiled of all incidents reported. The report should contain dates when fire drills were conducted and when fire equipment was tested and training given.

7.1.10 Noise

Noise may be generated due to heavy and light motor vehicles accessing the site to offload fuel or refuel. The facility is situated in an industrial area and no significant noise impact is expected on neighbours.

Desired Outcome: To prevent any nuisance and hearing loss due to noise generated.

Actions

Prevention:

- ◆ Follow Health and Safety Regulations of the Labour Act and World Health Organization (WHO) guidelines on maximum noise levels (Guidelines for Community Noise, 1999) to prevent hearing impairment and a nuisance at nearby receptors.
- ◆ All machinery must be regularly serviced to ensure minimal noise production.

Mitigation:

- ◆ Hearing protectors as standard PPE for workers in situations with elevated noise levels.

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

- ◆ Health and Safety Regulations of the Labour Act and WHO guidelines
- ◆ Maintain a complaints register.
- ◆ Bi-annual report on complaints and actions taken to address complaints and prevent future occurrences.

7.1.11 Waste

Waste is produced during the operational phase. Waste includes hazardous waste associated with the handling of hydrocarbon products. Maintenance waste may include building rubble and discarded equipment contaminated by hydrocarbon products. Contaminated soil and water is considered as hazardous waste. Domestic waste will be generated by the facility and related operations. Waste presents a contamination risk and when not removed regularly may become a fire hazard.

Desired Outcome: To reduce the amount of waste produced and prevent pollution and littering.

Actions

Prevention:

- ◆ Waste reduction measures should be implemented and all waste that can be re-used/recycled must be kept separate.
- ◆ Ensure adequate waste storage facilities are available.
- ◆ Ensure waste cannot be blown away by wind.
- ◆ Prevent scavenging (human and non-human) of stored waste.

Mitigation:

- ◆ Waste should be disposed of regularly and at appropriately classified disposal facilities, this includes hazardous material (empty chemical containers, contaminated rugs, paper water and soil).
- ◆ See the MSDS available from suppliers for disposal of contaminated products and empty containers.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ A register of hazardous waste disposal should be kept. This should include type of waste, volume as well as disposal method/facility.
- ◆ Any complaints received regarding waste should be recorded with notes on action taken.
- ◆ All information and reporting to be included in a bi-annual report.

7.1.12 Ecosystem and Biodiversity

The site has previously been developed and is mostly devoid of vegetation. The nature of the operational activities is such that the probability of creating a habitat for flora and fauna to establish is low. Ecosystem or biodiversity impacts are mostly associated with pollution of the environment.

Desired Outcome: To avoid pollution of, and impacts on, the ecological environment.

Actions.

Prevention:

- ◆ Educate all contracted and permanent employees on the value of biodiversity.

Mitigation:

- ◆ Contain construction material and activities on site.
- ◆ Report any extraordinary animal sightings to the MEFT.
- ◆ Mitigation measures related to waste handling and the prevention of groundwater, surface water and soil contamination should limit ecosystem and biodiversity impacts.
- ◆ Prevent scavenging of waste by fauna.
- ◆ The establishment of habitats and nesting sites at the facility should be prevented where possible.

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

- ◆ Any ecologically significant events or sightings to be included in a bi-annual report.

7.1.13 Groundwater, Surface Water and Soil Contamination

Operations entails the storage and handling of various hydrocarbons (such as fuels and lubricants). Such material may contaminate surface water, soil and groundwater. Contamination may either result from failing storage facilities and reticulation, or spills and leaks associated with fuel handling such as overfills and spills.

Desired Outcome: To prevent the contamination of water and soil.

Actions

Prevention:

- ◆ All vehicles should be maintained to be in a good working condition during operations and any leaks repaired without delay.
- ◆ Fuel volume changes, due to temperature differences between collection and delivery points, should be considered and overfilling of tankers avoided.
- ◆ Employ spill control such as impermeable surfaces, drip trays and spill clean-up kits during fuel transport, during operations and when servicing / repairs of vehicles and equipment are needed.
- ◆ Spill control structures and procedures must be in place according to SANS standards or better. This include bunding around the tank and surfaces such as concrete slabs with regularly maintained seals between slabs and spill catchment pits where refuelling occurs.
- ◆ Any valves on the bunding around the tanks must at all times be closed and only opened to release rainwater when it is ascertained that no hydrocarbons are present, or where a sump with an underflow arrangement is present, it should be opened to release only water and not hydrocarbon products.
- ◆ The procedures followed to prevent environmental damage during service and maintenance, and compliance with these procedures, must be audited and corrections made where necessary.
- ◆ Proper training of operators must be conducted on a regular basis (fuel handling, spill detection, spill control).

Mitigation:

- ◆ Any spillage of more than 200 l must be reported to the Ministry of Industries, Mines and Energy.
- ◆ Spill clean-up means must be readily available on site as per the relevant MSDS and all spills must be cleaned up immediately.

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

- ◆ Daily tank inspections to detect product loss due to leaks as soon as possible.
- ◆ A report should be compiled bi-annually of all spills or leakages reported. The report should contain the following information: date and duration of spill, product spilled, volume of spill, remedial action taken, comparison of pre-exposure baseline data (previous pollution conditions survey results if available) with post remediation data (e.g. soil / groundwater hydrocarbon concentrations) and a copy of documentation in which spill was reported to Ministry of Industries, Mines and Energy.

7.1.14 Visual

Being in an industrial area, the visual impact is minimal. However, the general upkeep and maintenance of the facility will not only reduce any negative visual impacts, but also ensure the longevity of the structures and buildings.

Desired Outcome: To minimise aesthetic impacts associated with the facility and prevent lighting from being a visual disturbance.

Actions

Mitigation:

- ◆ Regular waste disposal, good housekeeping and routine maintenance on infrastructure will ensure that the longevity of structures are maximised and a low visual impact is maintained.
- ◆ Lighting should be directed towards the facility and away from nearby receptors where possible.
- ◆ Minimum lighting necessary for operations to be used at night. The installation of auto-dimming lights when no movement is detected are desirable.

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

- ◆ A bi-annual report should be compiled of all complaints received and actions taken.

7.1.15 Cumulative Impact

Possible cumulative impacts associated with the operational phase include increased traffic and noise in the area.

Desired Outcome: To minimise all cumulative impacts associated with the facility.

Actions

Mitigation:

- ◆ Addressing each of the individual impacts as discussed and recommended in the EMP would reduce the cumulative impact.
- ◆ Reviewing biannual and annual reports for any new or re-occurring impacts or problems would aid in identifying cumulative impacts and help in planning if the existing mitigations are insufficient

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

- ◆ Annual summary report based on all other impacts must be created to give an overall assessment of the impact of the operational phase.

7.2 DECOMMISSIONING AND REHABILITATION

Decommissioning is not foreseen during the validity of the ECC. Decommissioning was however assessed. Should decommissioning occur at any stage, rehabilitation of the area may be required. Decommissioning will entail the complete removal of all infrastructure including buildings and underground infrastructure. Any pollution present on the site must be remediated. A soil conditions survey should be conducted to detect any hydrocarbon pollution and to implement remediation measures. The impacts associated with this phase include noise and waste production as structures are dismantled. Noise must be kept within Health and Safety Regulations of the Labour Act and WHO standards and waste should be contained and disposed of at an appropriately classified and approved waste facility and not dumped in the surrounding areas. Future land use after decommissioning should be assessed prior to decommissioning and rehabilitation initiated if the land will not be used for similar future purposes. The EMP for the facility will have to be reviewed at the time of decommissioning to cater for changes made to the site and to implement guidelines and mitigation measures.

7.3 ENVIRONMENTAL MANAGEMENT SYSTEM

The Proponent could implement an Environmental Management System (EMS) for their operations. An EMS is an internationally recognized and certified management system that will ensure ongoing incorporation of environmental constraints. At the heart of an EMS is the concept of continual improvement of environmental performance with resulting increases in operational efficiency, financial savings and reduction in environmental, health and safety risks. An effective EMS would need to include the following elements:

- ◆ A stated environmental policy which sets the desired level of environmental performance;
- ◆ An environmental legal register;
- ◆ An institutional structure which sets out the responsibility, authority, lines of communication and resources needed to implement the EMS;
- ◆ Identification of environmental, safety and health training needs;
- ◆ An environmental program(s) stipulating environmental objectives and targets to be met, and work instructions and controls to be applied in order to achieve compliance with the environmental policy;
- ◆ Periodic (internal and external) audits and reviews of environmental performance and the effectiveness of the EMS; and
- ◆ The EMP.

8 CONCLUSION

The fuel facility and its related fuel procurement and delivery operations have a positive impact on the various sectors operational in southern Namibia. In addition to reliable and convenient fuel supply to mines, construction companies and drilling operators, the Proponent contributes to employment, skills transfer and training which in turn develops the local workforce.

Negative impacts can successfully be mitigated. SANS standards relating to the petroleum industry and prescribed by Namibian law must be followed during all operations of the fuel retail facility. Noise pollution should at all times meet the prescribed Health and Safety Regulations of the Labour Act and WHO guidelines to prevent hearing loss and not to cause a nuisance. Fire prevention should be adequate, and health and safety regulations should be adhered to in accordance with the regulations pertaining to relevant laws and internationally accepted standards of operation. Any waste produced must be removed from site and disposed of at an appropriate facility or re-used or recycled where possible. Hazardous waste must be disposed of at an approved hazardous waste disposal site. Spill containment infrastructure is key in preventing pollution of the environment and includes drip trays and suitably surfaced areas where fuel is handled.

The EMP should be used as an on-site reference document for the operations of the facility. Parties responsible for transgressing of the EMP should be held responsible for any rehabilitation that may need to be undertaken. The Proponent could use an in-house Health, Safety, Security and Environment

Management System in conjunction with the EMP. All operational personnel must be taught the contents of these documents.

Should the DEA of the MEFT find that the impacts and related mitigation measures, which have been proposed in this report, are acceptable, an ECC may be granted to the Proponent. The ECC issued, based on this document, will render it a legally binding document which should be adhered to.

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Appendix A: Consultant's Curriculum Vitae

ENVIRONMENTAL SCIENTIST

André Faul

André entered the environmental assessment profession at the beginning of 2013 and since then has worked on more than 250 Environmental Impact Assessments including assessments of the petroleum industry, harbour expansions, irrigation schemes, township establishment and power generation and transmission. André's post graduate studies focussed on zoological and ecological sciences and he holds a M.Sc. in Conservation Ecology and a Ph.D. in Medical Bioscience. His expertise is in ecotoxicological related studies focussing specifically on endocrine disrupting chemicals. His Ph.D. thesis title was The Assessment of Namibian Water Resources for Endocrine Disruptors. Before joining the environmental assessment profession he worked for 12 years in the Environmental Section of the Department of Biological Sciences at the University of Namibia, first as laboratory technician and then as lecturer in biological and ecological sciences.

CURRICULUM VITAE ANDRÉ FAUL

Name of Firm	:	Geo Pollution Technologies (Pty) Ltd.
Name of Staff	:	ANDRÉ FAUL
Profession	:	Environmental Scientist
Years' Experience	:	24
Nationality	:	Namibian
Position	:	Environmental Scientist
Specialisation	:	Environmental Toxicology
Languages	:	Afrikaans – speaking, reading, writing – excellent English – speaking, reading, writing – excellent

EDUCATION AND PROFESSIONAL STATUS:

B.Sc. Zoology	:	University of Stellenbosch, 1999
B.Sc. (Hons.) Zoology	:	University of Stellenbosch, 2000
M.Sc. (Conservation Ecology)	:	University of Stellenbosch, 2005
Ph.D. (Medical Bioscience)	:	University of the Western Cape, 2018

First Aid Class A	EMTSS, 2017, OSH-Med 2022
Basic Fire Fighting	EMTSS, 2017, OSH-Med 2022

PROFESSIONAL SOCIETY AFFILIATION:

Environmental Assessment Professionals of Namibia (Practitioner and Committee Member)

AREAS OF EXPERTISE:

Knowledge and expertise in:

- ◆ Environmental Impact Assessment
- ◆ Environmental Management Plans
- ◆ Water Sampling, Extractions and Analysis
- ◆ Biomonitoring and Bioassays
- ◆ Biodiversity Assessment
- ◆ Toxicology
- ◆ Restoration Ecology

EMPLOYMENT:

2013-Date	:	Geo Pollution Technologies – Environmental Scientist
2005-2012	:	Lecturer, University of Namibia
2001-2004	:	Laboratory Technician, University of Namibia

PUBLICATIONS:

Publications:	5
Contract Reports	+250
Research Reports & Manuals:	5
Conference Presentations:	1