APP-002366

OPUWO FILLING STATION

ENVIRONMENTAL SCOPING ASSESSMENT REPORT

Assessed by:

Assessed for:

March 2021

Project:	**OPUWO FILLING STATION: ENVIRONMENTAL ASSESSMENT SCOPING REPORT**	
Report: Version/Date:	Final March 2021	
Prepared for: (Proponent)	Puma Energy (Namibia) (Pty) Ltd P.O. Box 3594 Windhoek	
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Report Approval	 **André Faul** Conservation Ecologist	

I, _____, acting as representative of Puma Energy (Namibia), 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 WINDHOEK on the 26 day of MARCH 2021.

Puma Energy (Namibia) (Pty) Ltd

Puma Energy (Namibia), f (Pty) Ltd

26 -03- 2021

2020303 10093

Business Registration/ID No.

EXECUTIVE SUMMARY

Puma Energy (Namibia) (Pty) Ltd requested Geo Pollution Technologies (Pty) Ltd to undertake an environmental assessment for an existing fuel retail facility situated on erf 225, Opuwo. The facility supplies diesel and unleaded petrol from underground storage tanks via dispensers on a forecourt area. To comply with South African National Standards, the Proponent plans to refurbish the facility. Once complete, the facility will supply fuel via dispensers in a forecourt area from three underground tanks, with a combined capacity of 69 m^3. Continued operations of the fuel retail facility include filling of the underground storage tanks from road transport tankers; dispensing of fuel to customers; tank dips and fuel volume reconciliation; as well as general operational activities and maintenance procedures associated with a fuel retail facility.

The environmental assessment is conducted to determine all environmental, safety, health and socio-economic impacts associated with the construction and operations of the facility. Relevant environmental data has been compiled by making use of secondary data and from a reconnaissance site visit. Potential environmental impacts and associated social impacts were identified and are addressed in this report. Due to the nature and location of the facility, limited impacts are expected on the surrounding environment, see summary impacts table below. The facility is surrounded mainly by informal to semi-formal businesses. It is recommended that environmental performance be monitored regularly to ensure regulatory compliance and that corrective measures be taken if necessary. The fuel retail facility plays a role in contributing to a reliable supply of fuel to the residents and business sector of Opuwo as well as to the transport and tourism industries.

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

The environmental management plan included in Section 10 of this document should be used as an on-site reference document during all phases (planning, construction, operations and decommissioning) of 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 as well as Environmental Policy could be used in conjunction with the environmental management plan. Operators and responsible personnel must be taught the contents of these documents. Municipal or national regulations and guidelines must be adhered to and monitored regularly as outlined in the environmental management plan.

Impact Summary Class Values

Impact Category	Impact Type	Refurbishment	Operations
	Positive Rating Scale: Maximum Value	5	5
	Negative Rating Scale: Maximum Value	-5	-5
EO	Skills, Technology and Development	2	2
EO	Revenue Generation and Employment	2	2
SC	Demographic Profile and Community Health	-1	-2
EO	Fuel Supply		2
SC	Traffic	-1	-1
SC	Health, Safety and Security	-2	-2
PC	Fire	-2	-2
PC	Air Quality	-1	-1
PC	Noise	-2	-1
PC	Waste Production	-2	-2
BE	Ecosystem and Biodiversity Impact	-1	-1
PC	Groundwater, Surface Water and Soil Contamination	-2	-2
SC	Visual Impact	-1	2
	Cumulative Impact	-2	-2

BE = Biological/Ecological EO = Economical/Operational PC = Physical/Chemical SC = Sociological/Cultural

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LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
BE	Biological/Ecological
DWA	Department of Water Affairs
EA	Environmental Assessment
EIA	Environmental Impact Assessment
EMA	Environmental Management Act No 7 of 2007
EMP	Environmental Management Plan
EMS	Environmental Management System
EO	Economic/Operational
ES	Environmental Classification
GPT	Geo Pollution Technologies
HIV	Human Immunodeficiency Virus
IAPs	Interested and Affected Parties
IUCN	International Union for Conservation of Nature
LNAPL	Light Non-Aqueous Phase Liquids
m/s	Meter per second
mbs	Meters below surface
MEFT	Ministry of Environment, Forestry and Tourism
mm/a	Millimetres per annum
MSDS	Material Safety Data Sheet
PC	Physical/Chemical
PPE	Personal Protective Equipment
ppm	Parts per million
SANS	South African National Standards
SC	Sociological/Cultural
UNCCD	United Nations Convention to Combat Desertification
WHO	World Health Organization

GLOSSARY OF TERMS

Alternatives - A possible course of action, in place of another, that would meet the same purpose and need but which would avoid or minimize negative impacts or enhance project benefits. These can include alternative locations/sites, routes, layouts, processes, designs, schedules and/or inputs. The "no-go" alternative constitutes the 'without project' option and provides a benchmark against which to evaluate changes; development should result in net benefit to society and should avoid undesirable negative impacts.

Assessment - The process of collecting, organising, analysing, interpreting and communicating information relevant to decision making.

Competent Authority - means a body or person empowered under the local authorities act or Environmental Management Act to enforce the rule of law.

Construction - means the building, erection or modification of a facility, structure or infrastructure that is necessary for the undertaking of an activity, including the modification, alteration, upgrading or decommissioning of such facility, structure or infrastructure.

Cumulative Impacts - in relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

Environment - As defined in the Environmental Assessment Policy and Environmental Management Act - "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, palaeontological or social values".

Environmental Impact Assessment (EIA) - process of assessment of the effects of a development on the environment.

Environmental Management Plan (EMP) - A working document on environmental and socio-economic mitigation measures, which must be implemented by several responsible parties during all the phases of the proposed project.

Environmental Management System (EMS) - An Environment Management System, or EMS, is a comprehensive approach to managing environmental issues, integrating environment-oriented thinking into every aspect of business management. An EMS ensures environmental considerations are a priority, along with other concerns such as costs, product quality, investments, PR productivity and strategic planning. An EMS generally makes a positive impact on a company's bottom line. It increases efficiency and focuses on customer needs and marketplace conditions, improving both the company's financial and environmental performance. By using an EMS to convert environmental problems into commercial opportunities, companies usually become more competitive.

Evaluation – means the process of ascertaining the relative importance or significance of information, the light of people's values, preference and judgements in order to make a decision.

Hazard - Anything that has the potential to cause damage to life, property and/or the environment. The hazard of a particular material or installation is constant; that is, it would present the same hazard wherever it was present.

Interested and Affected Party (I&AP) - any person, group of persons or organisation interested in, or affected by an activity; and any organ of state that may have jurisdiction over any aspect of the activity.

Mitigate - The implementation of practical measures to reduce adverse impacts.

Proponent (Applicant) - Any person who has submitted or intends to submit an application for an authorisation, as legislated by the Environmental Management Act no. 7 of 2007, to undertake an activity or activities identified as a listed activity or listed activities; or in any other notice published by the Minister or Ministry of Environment & Tourism.

Public - Citizens who have diverse cultural, educational, political and socio-economic characteristics. The public is not a homogeneous and unified group of people with a set of agreed common interests and aims. There is no single public. There are a number of publics, some of whom may emerge at any time during the process depending on their particular concerns and the issues involved.

Scoping Process - process of identifying: issues that will be relevant for consideration of the application; the potential environmental impacts of the proposed activity; and alternatives to the proposed activity that are feasible and reasonable.
Significant Effect/Impact - means an impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment.
Stakeholder Engagement - The process of engagement between stakeholders (the proponent, authorities and I&APs) during the planning, assessment, implementation and/or management of proposals or activities. The level of stakeholder engagement varies depending on the nature of the proposal or activity as well as the level of commitment by stakeholders to the process. Stakeholder engagement can therefore be described by a spectrum or continuum of increasing levels of engagement in the decision-making process. The term is considered to be more appropriate than the term "public participation".

Stakeholders - A sub-group of the public whose interests may be positively or negatively affected by a proposal or activity and/or who are concerned with a proposal or activity and its consequences. The term therefore includes the proponent, authorities (both the lead authority and other authorities) and all interested and affected parties (I&APs). The principle that environmental consultants and stakeholder engagement practitioners should be independent and unbiased excludes these groups from being considered stakeholders.
Sustainable Development - "Development that meets the needs of the current generation without compromising the ability of future generations to meet their own needs and aspirations" – the definition of the World Commission on Environment and Development (1987). "Improving the quality of human life while living within the carrying capacity of supporting ecosystems" – the definition given in a publication called "Caring for the Earth: A Strategy for Sustainable Living" by the International Union for Conservation of Nature (IUCN), the United Nations Environment Programme and the World Wide Fund for Nature (1991).

1 BACKGROUND AND INTRODUCTION

Geo Pollution Technologies (Pty) Ltd was appointed by Puma Energy (Namibia) (Pty) Ltd (the Proponent) to undertake an environmental assessment for the Opuwo Filling Station in the Kunene Region (Figure 2-1). The Opuwo Filling Station is an existing fuel retail facility that has been in operation on erf 225, Opuwo, for many years. The facility operates under a retail licence from the Ministry of Mines and Energy and supplies unleaded petrol and diesel to residents of Opuwo, the surrounding community, transport industry and tourists. The Proponent plans some refurbishments for the site and once complete will supply fuel from three underground tanks with a combined capacity of 69 m^3.

Operations of the fuel retail facility include:

- Filling of the storage tanks with fuel from road transport tankers;
- Dispensing of fuel to customers;
- Tank dips and fuel volume reconciliation;
- General operational activities and maintenance procedures associated with the fuel retail facility.

A risk assessment was undertaken to determine the potential impact of the refurbishment, operational and possible decommissioning phases of the project on the environment. The environment being defined in the Environmental Assessment Policy and 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".

The environmental assessment was conducted to apply for an environmental clearance certificate in compliance with Namibia's Environmental Management Act (Act No 7 of 2007) (EMA).

Project Justification – The fuel retail facility has been operational for many years and serves to provide a reliable supply of fuel to, among others, residents, surrounding communities, and the transport and tourism industries.

Benefits of the fuel retail facility include:

- Reliable supply of fuel to the local community and various business sectors,
- Employment and skills development,
- Maintained economic resilience in the area through diversified business activities and opportunities.

2 SCOPE

The scope of this assessment is to:

1. Determine the potential environmental impacts emanating from the operational, refurbishment and possible decommissioning activities of the fuel retail facility.
2. Identify a range of management actions which could mitigate the potential adverse impacts to acceptable levels.
3. Comply with the requirements of EMA.
4. Provide sufficient information to the MEFT to make an informed decision regarding the operations, refurbishment and possible decommissioning of the facility.

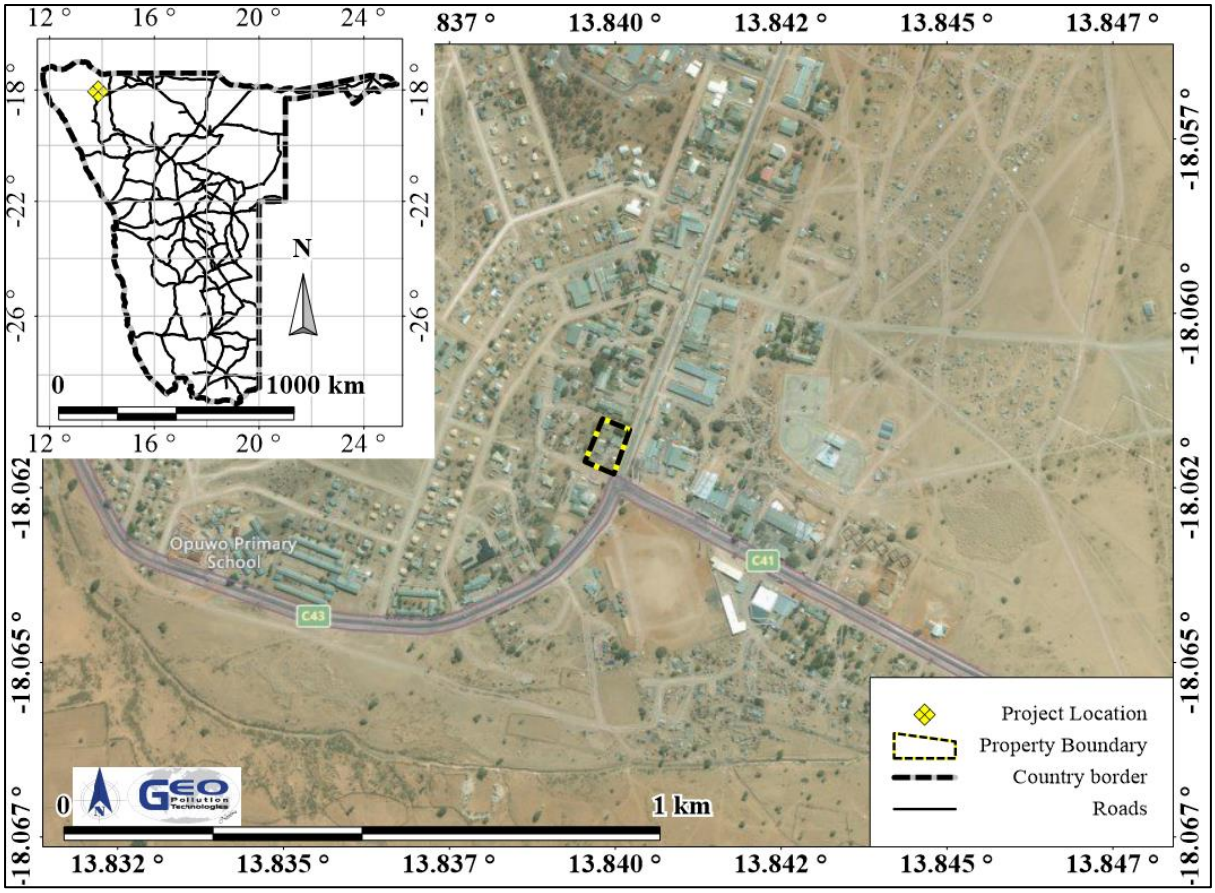


Figure 2-1. Project location

3 METHODOLOGY

The following methods were used to investigate the potential impacts on the social and natural environment due to the operations, refurbishment and decommissioning of the facility:

1. Baseline information about the site and its surroundings was obtained from existing secondary information as well as from a reconnaissance site visit.
2. As part of the scoping process to determine potential environmental impacts, interested and affected parties (IAPs) were consulted about their views, comments and opinions, all of which are presented in this report.
3. Potential environmental impacts emanating from the operations, refurbishment 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.
4. As per the findings of this scoping report, an environmental management plan (EMP) was incorporated into this report to be submitted to the Ministry of Environment, Forestry and Tourism (MEFT).

4 PROJECT INFORMATION

The Opuwo Filling Station is an existing site dating from the 1980's. It currently hosts three underground storage tanks with a combined capacity of 46 m^3. Only two of the tanks are used for the storage of diesel and unleaded petrol respectively. The third tank has not been used for a number of years. The facility has a pump island underneath an overhead canopy which hosts two dispensing units. To adhere to South African National Standards as prescribed by Namibian law, the site will be refurbished. This will allow for proper spill control infrastructure to be installed in order to protect the environment from accidental pollution.

4.1 REFURBISHED SITE

The refurbished site will host three underground, double-walled composite storage tanks of 23 m^3 each. Two pump islands underneath a canopy will comprise the forecourt area with an additional dispensing point serving as a customer own collection (COC) facility. All surfaces where fuel will be handled will be connected to a three stage oil water separator. Refurbishment activities will include site preparation and earthworks as directed by a geotechnical survey. Excavations will be performed for the installation of tanks, fuel reticulation, plumbing, electrical installations, etc. Cement works will include the construction of all spill control surfaces, pump islands and buildings. Additional safety systems include properly vented tanks with leak detection and tank pit inspection holes, emergency shutoff systems, and channelling of storm water in order to prevent contamination with hydrocarbons. Fire extinguishers and emergency stops will be placed throughout the facility and within easy reach of attendants. A retail shop, tyre repair facility, offices and ablution facilities will also be present on site

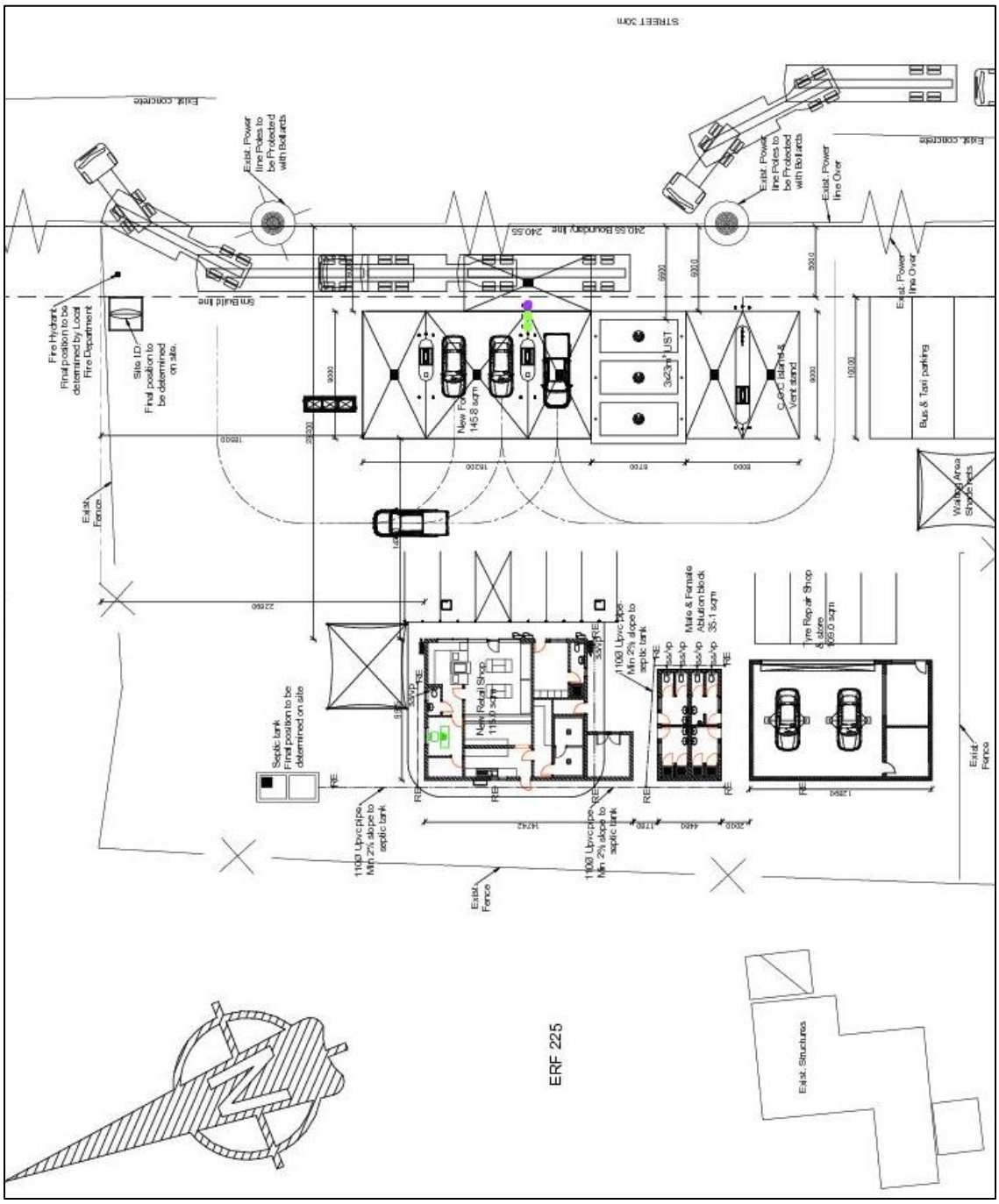


Figure 4-1. Site layout

4.2 OPERATIONAL ACTIVITIES

Unleaded petrol and 50 ppm diesel will be received from tanker trucks and stored in the underground storage tanks. Fuel will be dispensed to customers via the dispensers on pump islands by pump attendants as required. Regular tank dips and reconciliation of fuel volumes will be performed to detect any possible leaks and to ensure fuel orders are placed prior to fuel being depleted.

Photo 4-1. Opuwo Filling Station

Photo 4-2. Forecourt area

5 ALTERNATIVES TO THE PROPOSED FACILITY

Since the facility must adhere to SANS standards or better, no alternatives in design parameters adhering to SANS is proposed. The proposed location is located in an area with increased commercial activities and on a popular tourist route and high future traffic volumes are expected. The fuel retail facility will continue to aid in alleviating congestion at other fuel retail facilities while providing convenient fuel supply.

From an environmental perspective the environmental assessment did not find any reason why the facility may not be established at this site, on condition that it complies with SANS standards or better as prescribed by Namibian legislation and gets approval from the relevant authorities on the design of the facility and its entrance / exit locations.

6 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 6-1 to Table 6-3 govern the environmental assessment process in Namibia and/or are relevant to the facility.

Table 6-1. Namibian law applicable to the fuel retail 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

Law	Key Aspects
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) o Prescribes South African National Standards (SANS) or equivalents for construction, operation and decommissioning of petroleum facilities (refer to Government Notice No. 21 of 2002)
The Water Act Act No. 54 of 1956	♦ Remains in force until the new Water Resources Management Act comes into force ♦ Defines the interests of the state in protecting water resources ♦ Controls water abstraction and the disposal of effluent ♦ Numerous amendments
Water Resources Management Act Act No. 11 of 2013	♦ Provide for management, protection, development, use and conservation of water resources ♦ Prevention of water pollution and assignment of liability ♦ Not in force yet
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 Health Act Act No. 36 of 1919	♦ Provides for the protection of health of all people
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

Law	Key Aspects
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 6-2. Relevant multilateral environmental agreements for Namibia and the development

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 6-3. 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 10089-3:2010 is specifically aimed at storage and distribution of petroleum products at fuel retail facilities and consumer installations o 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 fuel retail 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 fuel retail facility store and handle hazardous substances in the form of fuel which is permitted by the Ministry of Mines and Energy.)

9.4 "The storage and handling of a dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 cubic metres at any one location." (The fuel retail facility store and handle more than 30 m^3 of fuel.)

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 is a filling station with petrol and diesel.)

7 ENVIRONMENTAL CHARACTERISTICS

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

7.1 LOCALITY AND SURROUNDING LAND USE

The fuel retail facility is located on erf 225, Opuwo, in the Kunene Region (18.061862 °S, 13.840063 °E) (Figure 2-1). It is situated at the corner of Mbumbijazo Muharukua Road and Opuwo Main Road (C41). Access to the site is from the C41 Main Road. It is situated in a commercial area of Opuwo with semi-formal to informal businesses nearby. The site falls under the authority of the Opuwo Town Council who provided consent for the refurbishment and continued operations of the facility (Appendix A).

Implications and Impacts

Erf 225 is zoned for business use and situated in an area with mixed land use. Being relatively low impact establishments, fuel retail facilities are common within mixed land use areas.

7.2 CLIMATE

The project location is in the semi-arid Kaokoland and is part of a savannah biome. The general lack of functioning weather stations in Namibia limits the availability of long term, true weather data. As a best possible workaround, long term climate data was obtained from Atlas of Namibia Project (2002) and the CHIRPS-2 database (Funk et al., 2015), see Table 7-1, Table 7-2, Figure 7-1, Figure 7-2 and Figure 7-3. Atlas of Namibia Project data was compiled from almost 300 rainfall stations across Namibia, the data was contoured in 50 mm intervals prior to 1999 for variable length data sets. The CHIRPS-2 dataset (Climate Hazards Group Infra-Red Precipitation with Station data version 2) consist of long term rainfall data (1981 to near-present) obtained from satellite imagery and, where present, in-situ station data. The resultant dataset provides a reasonably well represented overview of the climatic conditions and historic weather conditions of a general area. True values for single, site specific meteorological events may however differ to some degree. This is especially true where the dominant rainfall is depended on localized storm cells that causes a high rainfall variability over short distances.

In the project area, days are mostly warm with very hot days during the summer months, while nights are generally cool. The rain season normally starts in October and last until April, peaking in January, February and March. Heavier rainfall (single day events) occur between November and March, with a single event of 45.2 mm in January (last 39 years data) being the highest.

The average annual rainfall for the last 39 years was calculated as 276 mm/a, with a coefficient of variance of 27% (Table 7-2). This coefficient of variance correlates with Atlas of Namibia Project data (Table 7-1). Daily and seasonal rainfall data (Funk et al., 2015) is presented in Figure 7-2. Seasonal (July to June) total rainfall, centred on the average line for the last 39 years, is presented, with the daily total rainfall and the seasonal cumulative rainfall.

From the figure it is clear that Opuwo has received mostly below average rainfall since the 2012-2013 season and is currently very dry. The driest year (last 39 years data) being 2019 with about 100 mm recorded (Figure 7-3).

Table 7-1. Summary of climate data for Opuwo (Atlas of Namibia Project, 2002)

Average annual rainfall (mm/a)	300-350
Variation in annual rainfall (%)	40-50
Average annual evaporation (mm/a)	3,000-3,200
Water deficit (mm/a)	1,701-1,900
Average annual temperatures (°C)	21-22

Average Monthly Rainfall (mm)											
Jul	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**
0.0	**0.1**	**0.8**	**6.7**	**22.0**	**19.2**	**58.8**	**41.2**	**58.5**	**12.9**	**0.7**	**0.1**

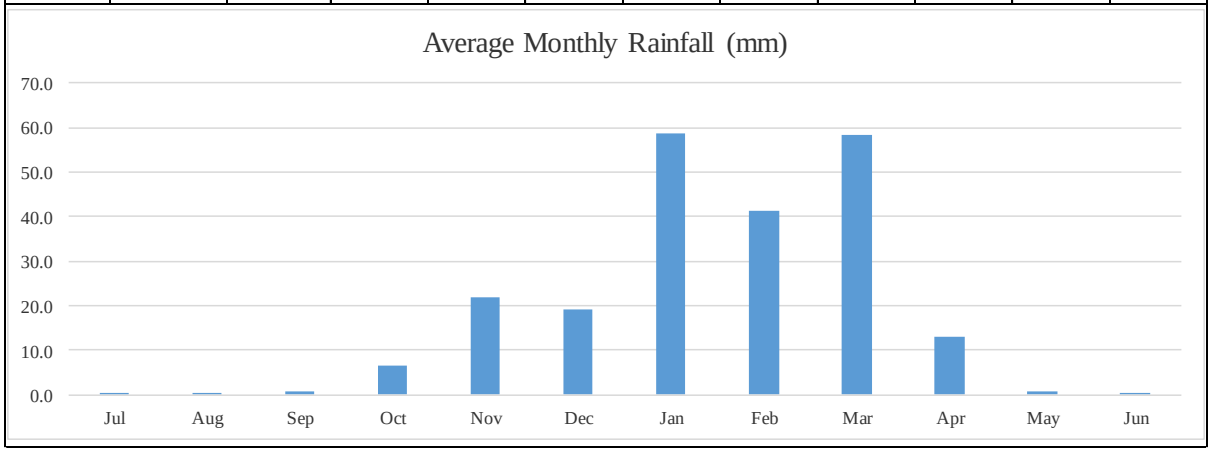


Figure 7-1. Average monthly rainfall for the Opuwo area (Atlas of Namibia Project, 2002)

Table 7-2. Rainfall statistics based on CHIRPS-2 data (Funk et al., 2015)

Month	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Minimum (mm)	0.0	3.8	17.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maximum (mm)	167.6	166.9	128.3	134.3	1.2	0.1	0.0	0.0	3.2	38.9	41.4	158.7
Average (mm)	63.1	61.2	63.9	20.1	0.0	0.0	0.0	0.0	0.6	7.5	19.4	39.7
Variability (%)	58.0	59.0	44.0	119.0	616.0	366.0	358.0	NA	168.0	108.0	58.0	84.0
Daily maximum (mm)	45.2	31.5	38.2	34.5	1.2	0.1	0.0	0.0	3.2	16.3	18.8	31.4
Average rain days	8	9	9	3	0	0	0	0	0	2	4	6
Season July - June average: 276 mm				**Season coefficient of variation: 27 %**								
Data range	1981-Jul-01	to	2020-Jun-30							Lat: -18.0619°S Long: 13.8401°E		

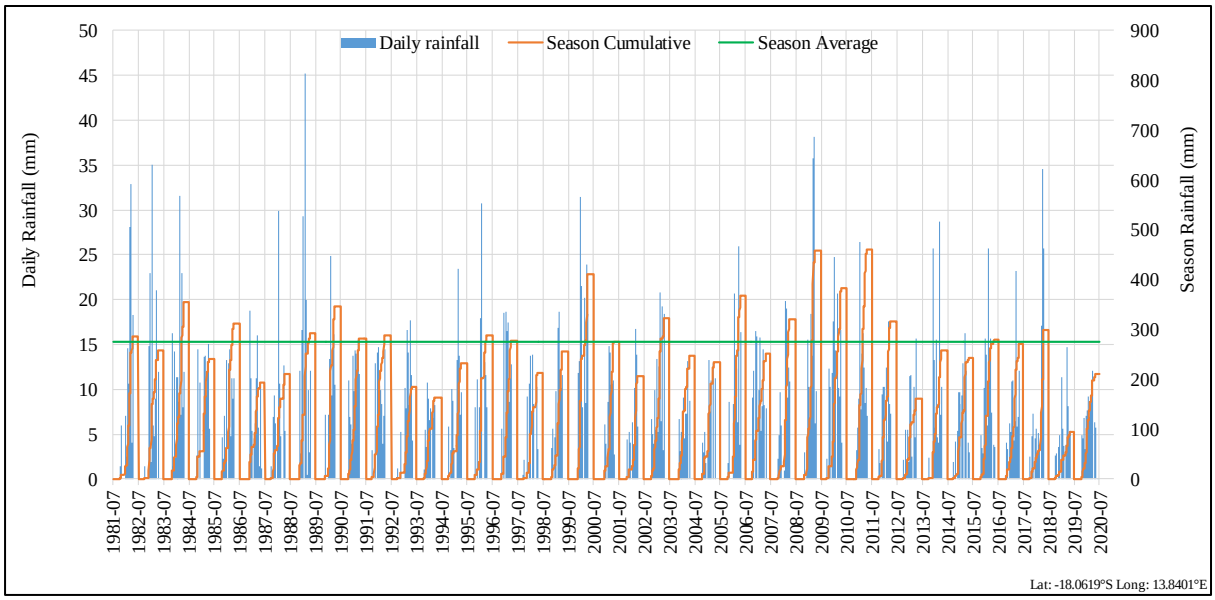


Figure 7-2. Daily and seasonal rainfall from CHIRPS-2 data (Funk et al., 2015)

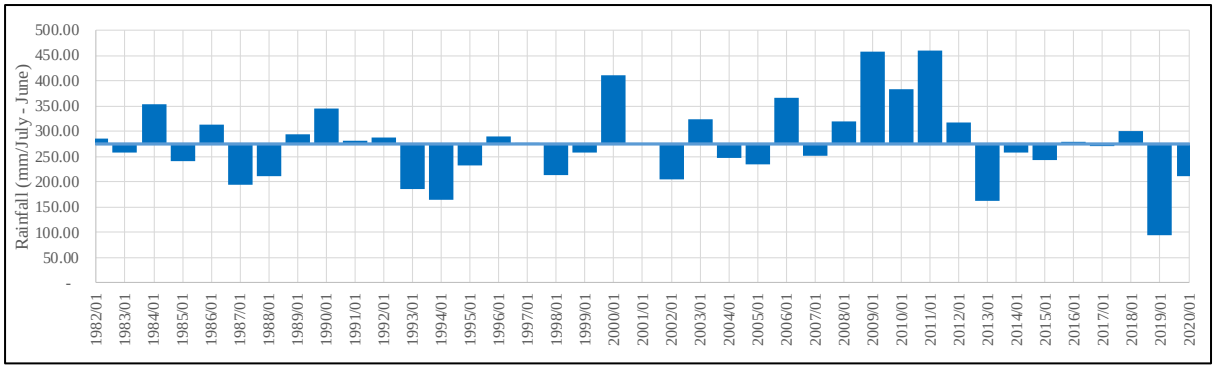


Figure 7-3. Average annual rainfall from CHIRPS-2 data (Funk et al., 2015)

Implications and Impacts

Water is a scarce and valuable resource in Namibia and the extreme variability in seasonal rainfall makes water an extremely vulnerable resource. Rainfall events are typically thunderstorms with heavy rainfall that can occur in short periods of time (cloud bursts). The fuel retail facility must meet all prescribed SANS requirements and therefore should not pose any environmental threat due to Namibia's climatic conditions. Water resources would thus be safe under typical conditions and expected extremes.

7.3 TOPOGRAPHY AND DRAINAGE

The greater area is dominated by long northwest to north trending valleys with high relief and large scale geological folding. The valley floors have lower relief and drain to a north-western direction into the Namib terrain. The relief east of Opuwo, near the project area, tend to be low relief. The project area is located within the sub-catchment of the Hoarusib River, an ephemeral river, which covers an approximate area of 500 km^2 (Interconsult, 1997). The Hoarusib River drains in a north-western direction towards the Opuwo town where it later drains more west to the Atlantic Ocean. All local rivers in the sub catchment drain in a north-western direction.

The project area itself is relatively flat and slopes slightly towards the northeast. A map showing surface drainage directions can be seen in Figure 7-4.

Implications and Impacts

Any pollutants that are not contained and are transported via surface water flow will be transported out of the site via the storm water drainage lines and potentially pollute the surrounding environment. Therefore, the storage and use of fuel must be strictly controlled according to SANS 10089 standards.

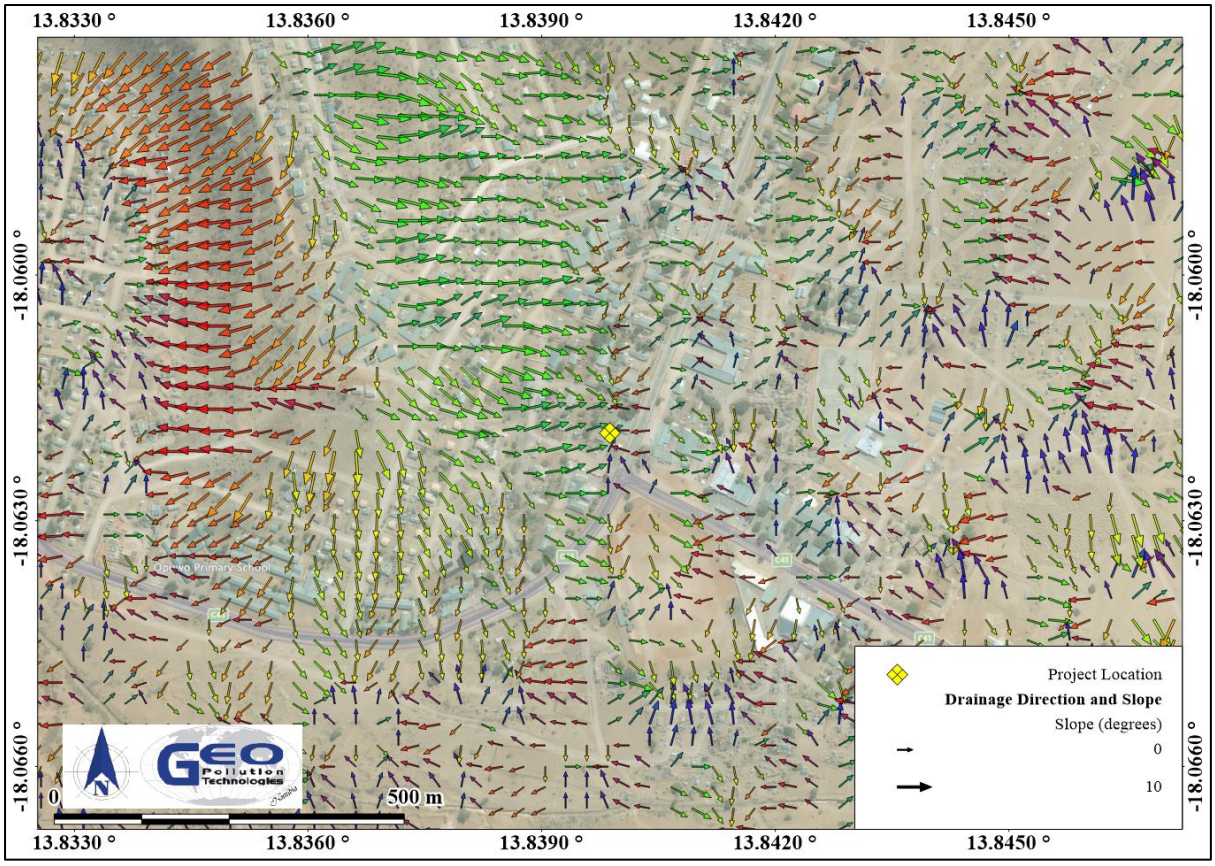


Figure 7-4. Drainage direction and slope

7.4 GEOLOGY AND HYDROGEOLOGY

The geology of the project area consist of rocks and deposits from the Quaternary-, Tertiary-, Permo-Carniferous- and Namibian Age. The Quaternary and Tertiary Age geology comprise of Kalahari Group deposits, which is sand, calcrete and gravel. These deposits originate mainly from fluvial deposition with some reworking through aeolian processes. The Karoo Supergroup rocks of the Permo-Carniferous overlie discordantly on Namibian-Age Damara Sequence rocks. The Karoo Supergroup consist locally of the Dwyka Formation, which typically form horizontal layering of tillite, boulder shale and sandstone. Locally the Damara Sequence consists of the Nosib Group and Otavi Group. The Abenab - and Tsumeb Sub Groups make up the Otavi Group rocks. Although a thin layer of surficial deposits may occur, rocks from the Abenab Subgroup makes up the subsurface geology of the project area. This Subgroup commonly comprises of dolomite, limestone, shale and quartzite.

Numerous faulting-, thrusting- rifting- folding episodes have complicated the geology in the project area. A prominent geological structure, the Opuwo Lineament, occurs about 7 km north of the town and strikes towards west-northwest. The main fault orientation strikes roughly toward the northwest and to the east-northeast. Groundwater flow is expected to take place through primary porosity in the surface cover, while it is expected to flow along fractures, faults, dykes/mineralised faults or along contact zones (secondary porosity) and other geological structures present within the underlying formations (hard rock formations). Karstification tends to take place within the rocks of the Otavi Group. Groundwater flow from the site can be expected in a northern to north-western direction. Local flow patterns may vary due to groundwater abstraction.

The project location is situated in the Kunene North Groundwater Basin. Localised groundwater flow may take place along preferred flow paths in different directions, but the larger scale groundwater flow is expected to be in a north-western direction (Figure 7-5). According to the borehole data of the Department of Water Affairs (DWA), as seen in Table 7-3, there are at least

twenty two known boreholes within a 5 km radius around the study area. The average expected depth of the groundwater is 30 m below surface but can be as shallow as 20 m below surface. The project location falls outside a water control area and therefore a permit is not required for drilling. All groundwater remains the property of the Government of Namibia.

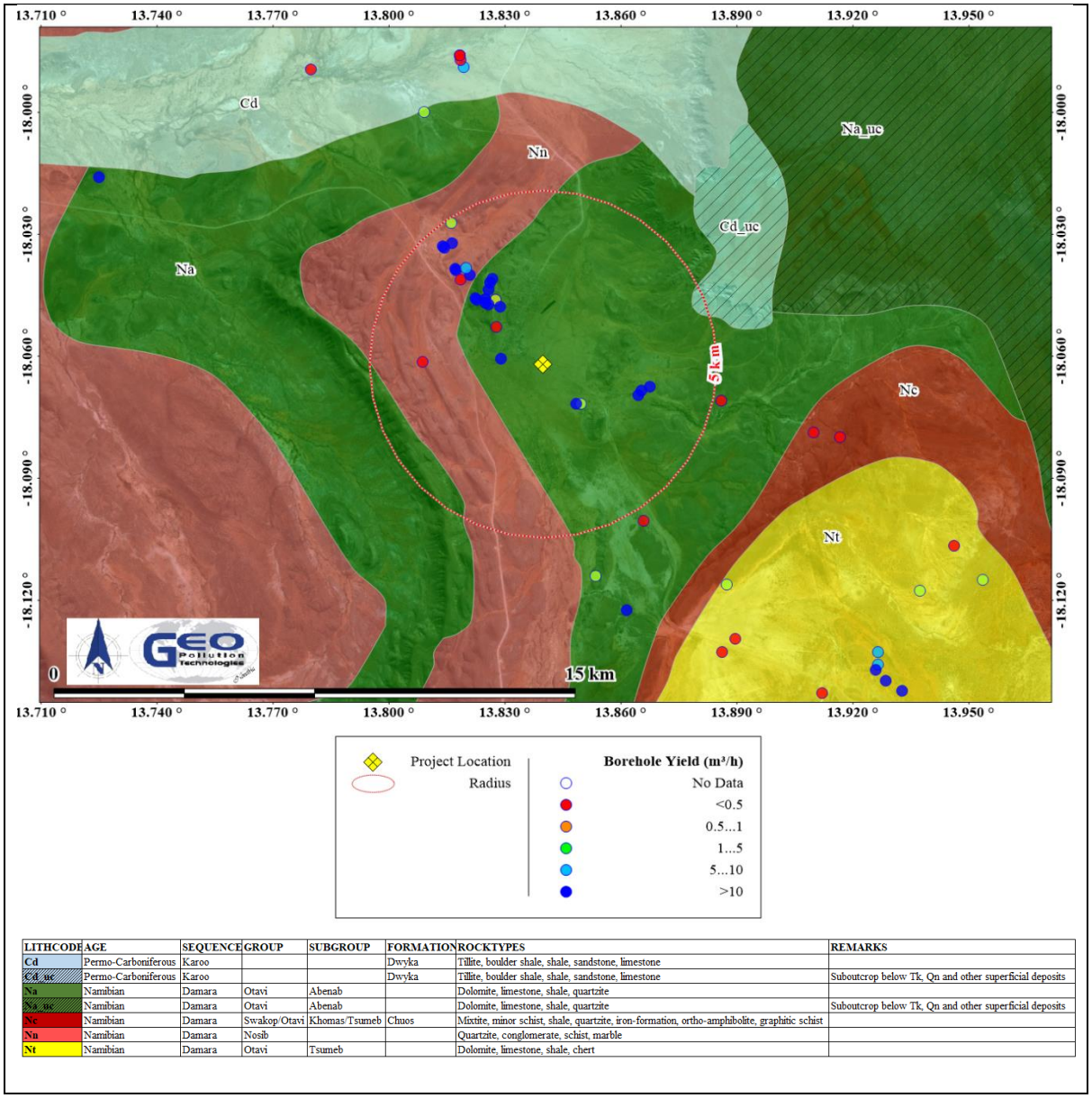
Table 7-3. Groundwater borehole statistics for the area

Query Centre:	Opuwo Filling Station; -18.0619°S; 13.8401°E									Query Box Radius: 5.0km	
	NUMBER OF KNOWN BOREHOLES	LATITUDE	LONGITUDE	DEPTH (mbs)	YIELD (m3/h)	WATER LEVEL (mbs)	WATER STRIKE (mbs)	TDS (ppm)	SULPHATE (ppm)	NITRATE (ppm)	FLUORIDE (ppm)
Data points	22			22	22	20	20	7	7	5	6
Minimum		-18.016904	13.792772	33	0	20	30	1090	228	1	0
Average				94	19	30	41	1530	504	2	1
Maximum		-18.106896	13.887428	150	72	40	69	2029	747	4	2
Group A				4.55%	72.73%	0.00%	0.00%	0.00%	0.00%	100.00%	83.33%
Limit				50	>10	10	10	1000	200	10	1.5
Group B				63.64%	18.18%	100.00%	80.00%	28.57%	85.71%	0.00%	16.67%
Limit				100	>5	50	50	1500	600	20	2.0
Group C				31.82%	4.55%	0.00%	20.00%	57.14%	14.29%	0.00%	0.00%
Limit				200	>0.5	100	100	2000	1200	40	3.0
Group D				0.00%	4.55%	0.00%	0.00%	14.29%	0.00%	0.00%	0.00%
Limit				>200	<0.5	>100	>100	>2000	>1200	>40	>3

Statistical grouping of parameters is for ease of interpretation, except for the grouping used for sulphate, nitrate and fluoride, which follow the Namibian guidelines for the evaluation of drinking-water quality for human consumption, with regard to chemical, physical and bacteriological quality. In this case the groupings has the following meaning:
Group A: Water with an excellent quality
Group B: Water with acceptable quality
Group C: Water with low health risk
Group D: Water with a high health risk, or water unsuitable for human consumption.

Implications and Impacts

Groundwater is utilised in the area. Pollution of the groundwater is prohibited. Spill control structures installed and maintained to SANS specifications or better should successfully prevent pollution of groundwater, surface water or soil.



LITHCODE	AGE	SEQUENCE	GROUP	SUBGROUP	FORMATION	ROCKTYPES	REMARKS
Cd	Permo-Carboniferous	Karoo			Dwyka	Tillite, boulder shale, shale, sandstone, limestone	
Cd_uc	Permo-Carboniferous	Karoo			Dwyka	Tillite, boulder shale, shale, sandstone, limestone	Suboutcrop below Tk, Qn and other superficial deposits
Na	Namibian	Damara	Otavi	Abenab		Dolomite, limestone, shale, quartzite	
Na_uc	Namibian	Damara	Otavi	Abenab		Dolomite, limestone, shale, quartzite	Suboutcrop below Tk, Qn and other superficial deposits
Nc	Namibian	Damara	Swakop/Otavi	Khomas/Tsumeb	Chuos	Mixtite, minor schist, shale, quartzite, iron-formation, ortho-amphibolite, graphitic schist	
Nn	Namibian	Damara	Nosib			Quartzite, conglomerate, schist, marble	
Nt	Namibian	Damara	Otavi	Tsumeb		Dolomite, limestone, shale, chert	

Figure 7-5. Geology Map

7.5 PUBLIC WATER SUPPLY

Groundwater is the only bulk water supply to Opuwo, and is sourced from a combination of production boreholes situated in and around the town. Opuwo has a history of experiencing water supply interruptions and shortages, mainly due to groundwater quality leading to reduction in borehole yields.

Implications and Impacts

Groundwater remains an important resource and would be at risk if fuel spills are not contained, cleaned and disposed of properly.

7.6 FAUNA AND FLORA

The site lies in the Savanna Biome with a Karstveld vegetation type. Trees such as *Acacia reficiens, Commiphora* species, *Euphorbia guerichiana, Colophospermum mopane, Maerua schinzii, Adenolobus garipensis* and a variety of other trees are characteristic of this vegetation type. Table 7-4 and Table 7-5 present a summary of the general fauna and flora of the broader area. No animals of particular significance are expected on site.

Table 7-4. General flora data (Atlas of Namibia Project, 2002)

Biome	Savanna
Vegetation type	Karstveld
Vegetation structure type	Woodland
Diversity of higher plants	High (Diversity rank = 4 [1 to 7 representing highest to lowest diversity])
Number of plant species	400 – 500
Percentage tree cover	2 – 10
Tree height (m)	2 – 5
Percentage shrub cover	11 – 25
Shrub height (m)	0.5 – 2
Percentage dwarf shrub cover	2 – 10
Dwarf shrub height (m)	< 0.5
Percentage Grass Cover	2 – 10
Grass Height (m)	< 0.5
Dominant plant species	*Acacia reficiens, Commiphora* species, *Euphorbia guerichiana, Colophospermum mopane, Maerua schinzii, Adenolobus garipensis*

Table 7-5. General fauna data (Atlas of Namibia Project, 2002)

Mammal Diversity	76 - 90 Species
Rodent Diversity	24 - 27 Species
Bird Diversity	111-140 Species
Reptile Diversity	61 - 70 Species
Snake Diversity	30 - 34 Species
Lizard Diversity	32 - 35 Species
Termite Diversity	10 - 12 Genera
Scorpion Diversity	10 - 11 Species

Implications and Impacts

The fuel retail facility is an existing site. No threat to biodiversity is expected from its refurbishment and continued operations.

7.7 DEMOGRAPHIC AND ECONOMIC CHARACTERISTICS

The project area falls within the Kunene Region with a population of 88,300 and a density of approximately 0.8 people per km^2. The Opuwo constituency has a population density of 10 to 25 people/km^2 (National Planning Commission, 2012). Table 7-6 provides demographic information for the Opuwo Constituency, the region and nationally.

Table 7-6. Demographic characteristics of Opuwo, the Kunene Region and nationally (Namibia Statistics Agency, 2011)

	Opuwo	**Kunene Region**	**Namibia**
Population (Males)	13,376	43,900	1,021,912
Population (Females)	13,896	44,400	1,091,165
Population (Total)	27,272	88,300	2,113,077
Unemployment (15+ years)	41%	19.8%	33.8%
Literacy (15+ years)	62%	64.9%	87.7%

Implications and Impacts

The facility will continue to sustain employment to people from the area. Some skills development and training also benefit employees during the refurbishment and operational phase.

7.8 CULTURAL, HERITAGE AND ARCHAEOLOGICAL ASPECTS

There are no known cultural, heritage of archaeologically significant sites in the immediate vicinity of the fuel retail facility. Artefacts dating back from 12,000 BC to +1000 AD, in the form of macrolithic stone artefacts, microlithic stone artefacts and pottery have however previously been uncovered in the Opuwo District (Vogelsang & Keding, 2013). These artefacts point

towards hunter-gatherers as well as pastoralists previously inhabiting the greater area and may be of cultural importance.

Implications and Impacts

No heritage of cultural resources will be affected by the refurbishment or operations of the fuel retail facility.

8 PUBLIC CONSULTATION

Consultation with the public forms an integral component of an environmental assessment investigation and enables Interested and Affected Parties (IAPs) e.g. neighbouring landowners, local authorities, environmental groups, civic associations and communities, to comment on the potential environmental impacts associated with the proposed facility and to identify additional issues which they feel should be addressed in the environmental assessment.

Since the Opuwo Filling Station is an existing site, only the neighbours and Opuwo Town Council were notified of the environmental assessment. The Opuwo Town Council also provided consent for the refurbishment and continued operations of the fuel retail facility (Appendix A).

9 MAJOR IDENTIFIED IMPACTS

During the scoping exercise a number of potential environmental impacts have been identified. The following section provides a brief description of the most important of these impacts.

9.1 HYDROCARBON POLLUTION

This section describes the most pertinent pollution impacts that are expected from the facility and its operations. Groundwater and soil pollution from hydrocarbon products are major issues associated with the storage and handling of such products. Both forms of pollution are prohibited in Namibia.

When a release of hydrocarbon products takes place to the soil, the Light Non-Aqueous Phase Liquids (LNAPL) will infiltrate into the soil and start to migrate vertically. LNAPL transport in the subsurface environment occurs in several phases, including bulk liquid, dissolved, and vapour phases. Mechanisms that influence transport include the physicochemical properties of the specific compounds present such as density, vapour pressure, viscosity, and hydrophobicity, as well as the physical and chemical properties of the subsurface environment, including geology and hydrogeology. Hydrocarbon liquids are typically complex mixtures composed of numerous compounds, each with its own individual physicochemical and, therefore, transport properties.

If small volumes of spilled LNAPL enter the unsaturated zone (i.e. vadose zone), the LNAPL will flow through the central portion of the unsaturated pores until residual saturation is reached. A three-phase system consisting of water, LNAPL, and air is formed within the vadose zone. Infiltrating water dissolves the components within the LNAPL (e.g., benzene, xylene, and toluene) and transports them to the water table. These dissolved contaminants form a contaminated plume radiating from the area of the residual product. Many components found in LNAPL are volatile and can partition into soil air and be transported by molecular diffusion to other parts of the aquifer. As these vapours diffuse into adjoining soil areas, they may partition back into the water phase and transfer contamination over wider areas. If the soil surface is relatively impermeable, vapours will not diffuse across the surface boundary and concentrations of contaminants in the soil atmosphere may build up to equilibrium conditions. However, if the surface is not covered with an impermeable material, vapours may diffuse into the atmosphere.

If large volumes of LNAPL are spilled, the LNAPL flows through the pore space to the top of the capillary fringe of the water table. Dissolved components of the LNAPL precede the less soluble components and may change the wetting properties of the water, causing a reduction in the residual water content and a decrease in the height of the capillary fringe.

Since LNAPL are lighter than water, it will float on top of the capillary fringe. As the head formed by the infiltrating LNAPL increases, the water table is depressed and the LNAPL accumulate in the depression. If the source of the spilled LNAPL is removed or contained, LNAPL within the vadose zone continue to flow under the force of gravity until reaching residual saturation. As the LNAPL continue to enter the water table depression, it spread laterally on top of the capillary fringe. The draining of the upper portions of the vadose zone reduces the total head at the interface between the LNAPL and the groundwater, causing the water table to rebound slightly. The rebounding water displaces only a portion of the LNAPL because the LNAPL remain at residual saturation. Groundwater passing through the area of residual saturation dissolves constituents of the residual LNAPL, forming a contaminant plume. Water infiltrating from the surface also can dissolve the residual LNAPL and add to the contaminant load of the aquifer.

Decrease in the water table level from seasonal variations may lead to dropping of the pool of LNAPL. If the water table rises again, part of the LNAPL may be pushed up, but a portion remains at residual saturation below the new water table. Variations in the water table height, therefore, can spread LNAPL over a greater thickness of the aquifer, causing larger volumes of aquifer materials to be contaminated.

Hydrocarbon products do biodegrade in the subsurface, although the effectiveness of this process depends on subsurface conditions. The type of hydrocarbon product plays a further role in the duration of biodegradation, with the longer chain components taking much longer to biodegrade.

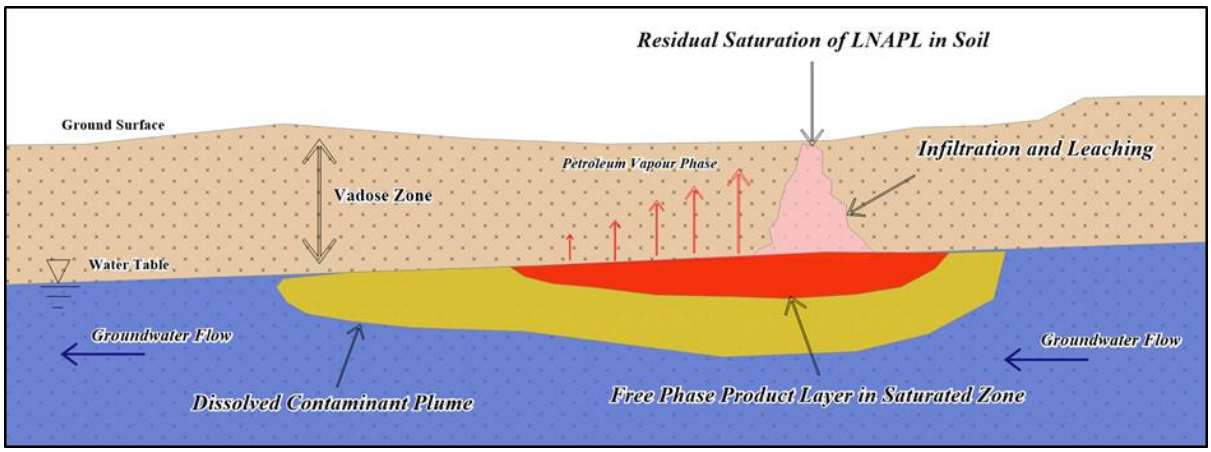


Figure 9-1. Conceptual LNAPL release to the vadose zone

9.2 NOISE IMPACTS

Noise will be a factor during the refurbishment phase of the retail facility due to large trucks and machinery working on site. Some noise will also exist due to heavy and light motor vehicles accessing the site for delivering and collecting fuel during operations.

9.3 TRAFFIC IMPACTS

Some traffic impacts can be experienced in the vicinity of the fuel retail facility, especially where vehicles gains access from and to the facility. Traffic flow may be impacted by delivery trucks bringing fuel to the site, potentially resulting in incidents such as collisions if proper management measures are not in place.

9.4 FIRE

Chemicals and paints used during refurbishment and maintenance may be flammable. Machinery like welders and grinders can cause sparks that can cause fires. Unleaded petrol is extremely flammable and if fuel is not handled according to Material Safety Data Sheet instructions and SANS requirements, a fire risk exist during the operational phase.

9.5 HEALTH

Refurbishment activities and working at heights have inherent health risks. Hydrocarbons are carcinogenic and dermal contact and inhalation of fumes should be prevented.

9.6 ECOSYSTEM AND BIODIVERSITY IMPACT

As the proposed location is in an already disturbed area with an existing fuel retail facility no significant impacts are expected. Pollution of the environment and groundwater, especially by fuel, can deteriorate the ecosystem structure and function.

9.7 SOCIO-ECONOMIC IMPACTS

Refurbishment activities and operations of the fuel retail facility will provide additional employment opportunities in the area. The operational phase will create permanent employment opportunities and some training and skills development will take place. Social ills including spread of disease, alcohol misuse, theft, etc., may result from construction personnel and job seekers moving into the area or due to the larger workforce if employees are not sourced locally.

10 ASSESSMENT AND MANAGEMENT OF IMPACTS

The purpose of this section is to assess and identify the most pertinent environmental impacts that are expected from the refurbishment, operational, and potential decommissioning activities of the facility. An EMP based on these identified impacts are also incorporated into this section.

For each impact an Environmental Classification was determined based on an adapted version of the Rapid Impact Assessment Method (Pastakia, 1998). Impacts are assessed according to the following categories: Importance of condition (A1); Magnitude of Change (A2); Permanence (B1); Reversibility (B2); and Cumulative Nature (B3) (see Table 10-1)

Ranking formulas are then calculated as follow:

Environmental Classification = A1 x A2 x (B1 + B2 + B3)

The environmental classification of impacts is provided in Table 10-2.

The probability ranking refers to the probability that a specific impact will happen following a risk event. These can be improbable (low likelihood); probable (distinct possibility); highly probable (most likely); and definite (impact will occur regardless of prevention measures).

Table 10-1. Assessment criteria

Criteria	Score
Importance of condition (A1) – assessed against the spatial boundaries of human interest it will affect	
Importance to national/international interest	4
Important to regional/national interest	3
Important to areas immediately outside the local condition	2
Important only to the local condition	1
No importance	0
Magnitude of change/effect (A2) – measure of scale in terms of benefit/disbenefit of an impact or condition	
Major positive benefit	3
Significant improvement in status quo	2
Improvement in status quo	1
No change in status quo	0
Negative change in status quo	-1
Significant negative disbenefit or change	-2
Major disbenefit or change	-3
Permanence (B1) – defines whether the condition is permanent or temporary	
No change/Not applicable	1
Temporary	2
Permanent	3
Reversibility (B2) – defines whether the condition can be changed and is a measure of the control over the condition	

No change/Not applicable	1
Reversible	2
Irreversible	3
Cumulative (B3) – reflects whether the effect will be a single direct impact or will include cumulative impacts over time, or synergistic effect with other conditions. It is a means of judging the sustainability of the condition – not to be confused with the permanence criterion.	
Light or No Cumulative Character/Not applicable	1
Moderate Cumulative Character	2
Strong Cumulative Character	3

Table 10-2. Environmental classification (Pastakia 1998)

Environmental Classification	Class Value	Description of Class
72 to 108	5	Extremely positive impact
36 to 71	4	Significantly positive impact
19 to 35	3	Moderately positive impact
10 to 18	2	Less positive impact
1 to 9	1	Reduced positive impact
0	-0	No alteration
-1 to -9	-1	Reduced negative impact
-10 to -18	-2	Less negative impact
-19 to -35	-3	Moderately negative impact
-36 to -71	-4	Significantly negative impact
-72 to -108	-5	Extremely Negative Impact

10.1 RISK ASSESSMENT AND 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 tables and descriptions below. These management measures should be adhered to during the various phases of the refurbishment and operation of the facility. This section of the report can act as a stand-alone document. 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 refurbishment activities and operations of the facility;
- to prescribe the best practicable control methods to lessen the environmental impacts associated with the project;
- 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 refurbishment, operations and decommissioning phases. The majority of these impacts can be mitigated or prevented. The impacts, risk rating of impacts as well as prevention and mitigation measures are listed below.

As depicted in the tables below, impacts related to the facility 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.

10.1.1 Planning

During the phases of planning for future operations, refurbishment and 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 refurbishment activities and operations of the project remains valid.
- 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 emergency plans, equipment and personnel on site where reasonable to deal with all potential emergencies:
  - Risk management/mitigation/EMP/ Emergency Response Plan and HSE Manuals
  - Adequate protection and indemnity insurance cover for incidents;
  - Comply with the provisions of all relevant safety standards;
  - Procedures, equipment and materials required for emergencies.
- If one has not already been established, establish and maintain a fund for future ecological 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 reporting system to report on aspects of refurbishment activities, operations and decommissioning as outlined in the EMP.
- Submit 6 monthly environmental monitoring reports to allow for future environmental clearance certificate renewal applications.
- Appoint a specialist environmental consultant to update the EA and EMP and apply for renewal of the environmental clearance certificate prior to expiry.

10.1.2 Skills, Technology and Development

During the refurbishment and operations of the facility, training will be provided to a portion of the workforce to be able to construct and operate various features of a fuel retail facility according to the required standards. Skills will be transferred to an unskilled workforce for general tasks. Development of people and technology are key to economic development.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Refurbishment	Employment, technological development and transfer of skills	2	1	2	3	1	12	2	Probable
Daily Operations	Employment, technological development and transfer of skills	2	1	2	3	2	14	2	Definite
Indirect Impacts	Transfer of skills and technological development	2	1	2	3	3	16	2	Definite

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

Actions

Mitigation:

- If the skills exist locally, contractors must first be sourced from the region, and then nationally. Deviations from this practice must be justified.
- 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.
- The proponent must employ Namibians where possible. Deviations from this practise should be justified appropriately.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- Record should be kept of training provided (6 monthly monitoring reports).
- Ensure that all training is certified or managerial reference provided (proof provided to the employees) inclusive of training attendance, completion and implementation.

10.1.3 Revenue Generation and Employment

Refurbishment of the facility is hinged on employment. Skilled and unskilled labour will be employed for the installation of the tanks and general earth works. Unskilled labour may be sourced locally while it is expected that skilled contractors within Namibia will be used for specialised work. The refurbishment phase will therefore contribute to employment creation in the unskilled labour sector while contributing to sustaining employment of the skilled sector during the refurbishment phase.

The facility will continue to generate revenue that is paid to the national treasury. An increase of skilled and professional labour will take place due to the operations of the facility.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Refurbishment	Employment and contribution to local and national economy	2	1	2	2	2	12	2	Definite
Daily Operations	Employment contribution to local economy	2	1	3	3	1	14	2	Probable
Indirect Impacts	Decrease in unemployment, contribution to local economy	3	1	3	3	3	27	3	Definite

Desired Outcome: Contribution to national treasury and provision of employment to local Namibians. Create a competitive environment to enhance service delivery to the area.

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.

10.1.4 Demographic Profile and Community Health

The project is reliant on labour during the refurbishment and operational phase. The scale of the project is limited and it is not foreseen that it will create a change in the demographic profile of the local community. Community health may be exposed to factors such as communicable disease like HIV/AIDS as well as alcoholism / drug abuse, associated with possible foreign construction teams and /or clients collecting fuel. An increase in foreign people in the area may potentially increase the risk of criminal and socially / culturally deviant behaviour. However, such trends are considered unlikely. Spills and leaks may present risks to members of the public. The project further contributes to cumulative demand for services in the region which includes electricity and sewage removal.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Refurbishment	In-migration and social ills related to unemployment	2	-1	1	1	2	-8	-1	Probable
Daily Operations	In-migration and social ills related to unemployment	2	-1	1	2	2	-10	-2	Probable
Indirect Impacts	The spread of disease	2	-1	2	2	2	-12	-2	Probable

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 which includes, but is not limited to, sand and grease traps for the various facilities and sanitation requirements.
- Facility design to incorporate water and energy saving technologies such as low energy electrical appliances and lighting.

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.

10.1.5 Fuel Supply

The refurbished facility will continue to aid in securing fuel supply to the residents, commercial sector and tourists in the area and the town.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Daily Operations	Contribution to economy, contribution to the fuel supply in the area	2	1	3	2	2	14	2	Definite
Indirect Impacts	Secure supply in fuel allowing travel and trade	3	1	3	2	2	21	2	Definite

Desired Outcome: Ensure a secure fuel supply remains available to the area

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.

10.1.6 Traffic

The facility may increase the traffic flow to the site through the provision of construction material (refurbishment phase) and fuel (operational phase). This may increase the risk of incidents and accidents.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Refurbishment	Delivery of equipment and building supplies	1	-1	2	2	2	-6	-1	Probable
Daily Operations	Increase traffic, road wear and tear and accidents	1	-1	2	2	2	-6	-1	Probable

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

Actions

Prevention:

- Erect clear signage regarding access and exit points at the facility. Clear indications of fuel deliveries and related down-time communicated to motorists.

Mitigation:

- Tanker trucks delivering fuel should not be allowed to obstruct any traffic.
- If any traffic impacts are expected, traffic management should be performed to prevent these.
- The placement of signs to warn and direct traffic will mitigate traffic impacts.

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 report should be compiled every 6 months of all incidents reported, complaints received, and action taken.

10.1.7 Health, Safety and Security

Every activity that will be associated with the refurbishment and operational phase is reliant on human labour and therefore will expose them to health and safety risks. Activities such as the operation of machinery and 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.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Refurbishment	Physical injuries, exposure to chemicals and criminal activities	1	-2	3	3	1	-14	-2	Probable
Daily Operations	Physical injuries, exposure to chemicals and criminal activities	1	-2	3	3	2	-16	-2	Probable

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.

Mitigation:

- Selected personnel should be trained in first aid and a first aid kits 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: colour coding of pipes, operational, safe work and medical procedures, permits to work, emergency response plans, housekeeping rules, MSDS's and signage requirements (PPE, flammable etc.).
- Security procedures and proper security measures must be in place to protect workers and clients, especially during cash in transit activities.
- Reduce the amount of cash kept on site to reduce the risk of robberies.
- Strict security that prevents unauthorised entry during refurbishment phases.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- Any incidents must be recorded with action taken to prevent future occurrences.
- A report should be compiled every 6 months of all incidents reported. The report should contain dates when training were conducted and when safety equipment and structures were inspected and maintained.

10.1.8 Fire

Refurbishment and operational activities may increase the risk of the occurrence of fires. Fuel, especially unleaded petrol, is highly flammable and therefore presents a fire risk. Fuel remaining in old tanks that have to be removed presents a fire hazard.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Refurbishment	Fire and explosion risk	1	-2	2	2	1	-10	-2	Probable
Daily Operations	Fire and explosion risk	1	-2	2	2	1	-10	-2	Probable

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

Actions:

Prevention:

- Ensure all tanks are empty prior to removal.
- Ensure all chemicals are stored according to MSDS and SANS instructions.
- Maintain regular site, mechanical and electrical inspections and maintenance.
- Clean all spills / leaks.
- 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 operation and maintenance of the facility.
- All dispensers must be equipped with devices that cut fuel supply during fires.

Mitigation:

- A holistic fire protection and prevention plan is needed. This plan must include an emergency response plan, firefighting plan and spill recovery plan.
- Maintain firefighting equipment, good housekeeping and personnel training (firefighting, fire prevention and responsible housekeeping practices).

Responsible Body:

- Proponent
- Contractors

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 report should be compiled every 6 months of all incidents reported. The report should contain dates when fire drills were conducted and when fire equipment was tested and training given.

10.1.9 Air Quality

During refurbishment, earth works and general refurbishment may increase ambient dust levels. The operational phase will release fuel vapours into the air during refuelling of bulk storage tanks as well as at filling points. Prolonged exposure may have carcinogenic effects.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Refurbishment	Excessive dust generated from maintenance and upgrade activities	1	-1	2	2	2	-6	-1	Probable
Daily Operations	Fuel vapours	1	-1	2	2	1	-5	-1	Probable

Desired Outcome: To prevent health impacts and minimise the dust generated.

Actions

Mitigation:

- Personnel issued with appropriate masks where excessive dust or vapours are present.
- A complaints register should be kept for any dust related issues and mitigation steps taken to address complaints where necessary e.g. dust suppression.
- Employees should be coached on the dangers of fuel vapours.
- Vent pipes must be properly places as per SANS requirements.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- Any complaints received regarding dust or fuel vapours should be recorded with notes on action taken.
- All information and reporting to be included in a bi-annual report.

10.1.10 Noise

Noise pollution may be generated due to heavy and light motor vehicles accessing the site to offload construction material, fuel or refuel. Refurbishment operations are noisy by nature and may disturb nearby receptors. A fuel retail facility is a 24 hour operation which means that vehicle noise is generated throughout the day and night.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Refurbishment	Excessive noise generated from refurbishment activities – nuisance and hearing loss	1	-2	2	2	1	-10	-2	Probable
Daily Operations	Noise generated from the operational activities – nuisance	1	-1	2	2	1	-5	-1	Probable

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

Actions

Prevention:

- Follow World Health Organization (WHO) guidelines on maximum noise levels (Guidelines for Community Noise, 1999) to prevent hearing impairment.
- All machinery must be regularly serviced to ensure minimal noise production.
- Keep volume of public address systems on a level where neighbours are not impacted on.
- Manage noise caused by clients – loud music etc.

Mitigation:

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

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- WHO Guidelines.
- Maintain a complaints register.
- Bi-annual report on complaints and actions taken to address complaints and prevent future occurrences.

10.1.11 Waste Production

Various waste streams will be produced during the refurbishment and operational phase. Waste may include hazardous waste associated with the handling of hydrocarbon products etc. Refurbishment waste may include building rubble and discarded equipment contaminated by hydrocarbon products. Contaminated soil and water as considered as hazardous wastes. 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.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Refurbishment	Excessive waste production, littering, illegal dumping, contaminated materials	1	-2	2	2	2	-12	-2	Probable
Daily Operations	Excessive waste production, littering, contaminated materials	1	-2	2	2	2	-12	-2	Probable

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 disposal 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).
- The spill catchment traps and oil water separator should be cleaned regularly and waste disposed of appropriately. Surfactants (soap) may not be allowed to enter the oil water separator.
- See the material safety data sheets available from suppliers for disposal of contaminated products and empty containers.
- Liaise with the municipality regarding waste and handling of hazardous waste.

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.
- The oil water separator must be regularly inspected and all hydrocarbons removed once detected. Outflow water must comply with effluent quality standards.
- All information and reporting to be included in a bi-annual report.

10.1.12 Ecosystem and Biodiversity Impact

The site is void of natural vegetation apart from some trees which may be retained. Refurbishment operations may present a pollution risk to the surrounding biophysical features. The nature of the operational activities is such that the probability of creating a habitat for flora and fauna to establish is low. No significant impact on the biodiversity of the area is predicted. Impacts are therefore mostly related to pollution of the environment.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Refurbishment	Impact on fauna and flora. Loss of biodiversity	1	-1	3	2	2	-7	-1	Improbable
Daily Operations	Impact on fauna and flora. Loss of biodiversity	1	-1	3	2	2	-7	-1	Improbable

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

Actions.

Mitigation:

- Contain construction material and activities on site.
- Report any extraordinary 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.
- Avoid scavenging of waste by fauna.
- The establishment of habitats and nesting sites at the facility should be avoided where possible.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- All information and reporting to be included in a bi-annual report.

10.1.13 Groundwater, Surface Water and Soil Contamination

During refurbishment, heavy machinery may present a contamination risk to the soil, surface and groundwater through breakdowns. Operations will entail the storage and handling of various hydrocarbons (such as fuels and lubricants) which present a contamination risk. Such material may contaminate surface water, soil and groundwater. Contamination may either result from failing storage facilities, or spills and leaks associated with fuel handling. The facility will provide fuel to public vehicles which may further present contamination risks through overfills, spills and leakages. Modern retail facilities are well designed to reduce leakages and spillages form contaminating soil and water.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Refurbishment	Contamination from hazardous material spillages and hydrocarbon leakages	2	-1	2	2	1	-10	-2	Probable
Daily Operations	Contamination from hazardous material spillages and hydrocarbon leakages	2	-1	2	2	1	-10	-2	Probable

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

Actions

Prevention:

- All construction machines should be maintained to be in a good working condition during refurbishment.
- Employ drip trays and spill kits during refurbishment when onsite servicing / repairs of equipment is needed.
- Spill control structures and procedures must be in place according to SANS standards or better and connection of all surfaces where fuel is handled, with an oil water separator.
- All fuelling should be conducted on surfaces provided for this purpose. E.g. Concrete slabs with regularly maintained seals between slabs.
- 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 litre must be reported to the Ministry of Mines and Energy.
- Spill clean-up means must be readily available on site as per the relevant MSDS.
- Any spill must be cleaned up immediately.
- The spill catchment traps and oil water separator should be cleaned regularly and waste disposed of at a suitably classified hazardous waste disposal facility.
- Surfactants (soap) may not be allowed to enter the oil water separator e.g. soap usage on spill control surfaces.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- During refurbishment a conditions survey must be conducted in order to determine the presence of any existing contaminants which will require remediation.
- Inspection holes at the ends of the tanks must as a minimum be inspected every 14 days and measurements must be recorded for future reference. Inspection must include the evaluation of LNAPL on the water surface, if water is present.
- 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) with post remediation data (e.g. soil/groundwater hydrocarbon concentrations) and a copy of documentation in which spill was reported to Ministry of Mines and Energy.

10.1.14 Visual Impact

This is an impact that not only affects the aesthetic appearance, but also the integrity of the facility. The refurbished facility will significantly improve the character of the area and is thus regarded as a positive impact. Fuel retail facilities are regularly found in commercial areas.

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Refurbishment	Aesthetic appearance and integrity of the site	1	-1	2	2	2	-6	-1	Probable
Daily Operations	Aesthetic appearance and integrity of the site	1	2	2	2	2	12	2	Definite

Desired Outcome: To minimise aesthetic impacts associated with the facility.

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.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- A report should be compiled every 6 months of all complaints received and actions taken.

10.1.15 Cumulative Impact

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

Project Activity/Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Refurbishment	The build-up of minor impacts to become more significant	2	-2	2	2	2	-24	-3	Probable
Daily Operations	The build-up of minor impacts to become more significant	2	-2	2	2	2	-24	-3	Probable

Desired Outcome: To minimise cumulative all 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.

10.2 DECOMMISSIONING AND REHABILITATION

Decommissioning is not foreseen during the validity of the environmental clearance certificate. Decommissioning was however assessed as refurbishment activities include modification and decommissioning. 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. The impacts associated with this phase include noise and waste production as structures are dismantled. Noise must be kept within 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 would not be used for 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.

10.3 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; and
- Periodic (internal and external) audits and reviews of environmental performance and the effectiveness of the EMS.
- The EMP.

11 CONCLUSION

The refurbished fuel retail facility will have a positive impact on the various sectors operational in the vicinity and the area as a whole, see Table 10-3. In addition to reliable and convenient fuel supply, the fuel retail facility will continue to contribute locally to skills transfer and training which in turn develops the local workforce during operations of the facility. The refurbished facility will enhance service delivery through competitive actions.

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 WHO requirements 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.

The EMP (Section 10) should be used as an on-site reference document for the operations of the facility. Parties responsible for transgressing of the environmental management plan 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 environmental management plan. All operational personnel must be taught the contents of these documents.

Should the Directorate of Environmental Affairs (DEA) of the MEFT find that the impacts and related mitigation measures, which have been proposed in this report, are acceptable, an environmental clearance certificate may be granted to the Proponent. The environmental clearance certificate issued, based on this document, will render it a legally binding document which should be adhered to. Focus could be placed on Section 9, which includes an EMP for this project. It should be noted that the assessment process's aim is not to stop the proposed activity, or any of its components, but to rather determine its impact and guide sustainable and responsible development as per the spirit of the EMA.

Table 10-3. Impact Summary Class Values

Impact Category	Impact Type	Refurbishment		Operations	
	Positive Rating Scale: Maximum Value	5		5	
	Negative Rating Scale: Maximum Value		-5		-5
EO	Skills, Technology and Development	2		2	
EO	Revenue Generation and Employment	2		2	
SC	Demographic Profile and Community Health		-1		-2
EO	Fuel Supply			2	
SC	Traffic		-1		-1
SC	Health, Safety and Security		-2		-2
PC	Fire		-2		-2
PC	Air Quality		-1		-1
PC	Noise		-2		-1
PC	Waste Production		-2		-2
BE	Ecosystem and Biodiversity Impact		-1		-1
PC	Groundwater, Surface Water and Soil Contamination		-2		-2
SC	Visual Impact		-1		2
	Cumulative Impact		-2		-2

BE = Biological/Ecological EO = Economical/Operational PC = Physical/Chemical SC = Sociological/Cultural

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Appendix A: Town Council Consent

OPUWO TOWN COUNCIL

MBUMBIJAZO MUHARUKUA STR.
P.O.BOX 294, OPUWO, KUNENE REGION
TEL : +264-65-273 007 / 332
FAX : +264-65-273 250

Application for Approval of Building Plans

I submit herewith for consideration plans depicting certain building which intend to erect on the under-mentioned site in Opuwo

01. Location of Site Erf No. ERF-225 Opuwo Proper Zoning Business

02. Personal Information of Owner
Name Century Measure Graph cc T/A Opuwo Fuel Station
Address
Tel/Fax Cellphone 081-1247707

03. Personal Information of Applicant / Duly authorized representative If Any (authority to be attached)
Name Century Measure Graph cc T/A Opuwo Fuel Station
Address
Tel/Fax Cellphone 081-1247707

04. Personal Information of person who will erect building
Name
Address
Tel/Fax Cellphone

05. Personal Information of Profession. Engineer who prepared Plan (Where applicable)
Name
Address
Tel/Fax Cellphone

06. Personal Information of Architect or other person who has prepared the plans
Name Engineering & Drafting Services
Address Windhoek
Tel/Fax Cellphone 081-3773736

07. Intended use of Buildi Fuel station 08. Estimated cost of Buildin N$

NB : No work shall be carried out by the Building Constractor without a building permi

30. 04. 2020
(DATE)

(SIGNATURE APPLICANT / REPRESENTATIVE)

(For official use only)

Existing Structures		Proposed Additions / New Buildings / New Boundary Wall	
Area of existing Main Build	332.00 m²	Area of addition to Main Building / New Main Building	115.00 m²
Area of existing Outbuilding	269.00 m²	Area of addition to Outbuilding / New Outbuilding	144.10 m²
Total estimated Building Ar	601.00 m²	Total New Building Area	259.10 m²
Total area of Site	3227.00 m²	Length of New Boundary W	0.00 m
Length of existing Boundary Wall	0.00 m		

Total Building Ar 860.10 m² Total Boundary W 0.00 m Coverag 26.65 %

Dear Sir / Madam DATE : 30. 04. 2020

It is recommended that the application submitted on the above-mentioned date be approved subject to the provisio of Regulation 2, Chapter 2, Part V of the Standard Building Regulations.

Charge for Application

(250 (Basic Charge) + 259.10 (Total New Building Area) × 8.5 (Tarrifs) + 0.00 (Length of New Boundary Wall) × 3.5 (Tarrifs)) × 1.15 (VAT 15%)

= N$ 2,820.2
(Total Charge)

Manager: Technical and Town Planning Services

OPUWO TOWN COUNCIL
Technical Department
2020 -05- 20
Tel: 065 - 273524
Fax: 065 - 273250
PO Box 294, Opuwo

Tel: 065 273007
Email Address: opuwotc@gmail.com
Enquiries: Mr K. Rikambura
Manager: Technical and Town Planning

P.O. Box 294
Mbumbijazo Muharukua Avenue
Opuwo

OPUWO TOWN COUNCIL

DEPARTMENT OF TECHNICAL SERVICES AND TOWN PLANNING

Attention: Century Measure Graph cc T/A Opuwo Fuel Station
P.O. Box 2500
Erf No. 225
Tel: 081-1247707

18th May 2020

RE: BUILDING PLAN IS TO BE APPROVED WITH CONDITIONS TO BE MET BEFORE CONSTRUCTION BEGIN

- The drawings and site diagram are to be set precisely with coordinate of the approved surveyor diagram of the subdivision to be conducted for erf 225.
- There must be a mutual understanding and cooperation between the individuals inhabiting the building behind the filling stations which are indicated to be demolished before demolishing the buildings.
- Entrance roads to be paved, preferably with interlocks as indicated in your drawings. Fencing off boundary, minimum standard mesh wire with poles is a requirement where it is applicable.
- Environmental Impact Assessment (EIA), Environment Management Plan (EMP) and Environment Clearances are required before any work commence. Slabs and steel works to be approved by registered engineers with Namibia Engineering Council.
- All Acts in the Republic of Namibia concerning the above-mentioned development (upgrading of filling stations) should be met.
- Connection of the storm water to the existing requires a separate design and to be submitted to Town Council. Provide Town Council with retail license for the existing filling station.
- The building plan at the current moment shows no error and should be approved. Please submit two additional set of drawing for the plans to be approved.

SUBMITTED BY

MR K. RIKAMBURA
MANAGER: TECHNICAL AND TOWN PLANNING

APPROVED/ APPROVED AS AMENDED/ NOT APPROVED

MR. PETRUS SHUUYA
CHIEF EXECUTIVE OFFICER

19 MAY 2020

Tel: 065-273 007/302
Fax: 065-273 250

All official correspondence must be addressed to the office of the Chief Executive Officer

Appendix B: Fuel Retail Licence

MINISTRY OF MINES AND ENERGY

PETROLEUM PRODUCTS AND ENERGY ACT, 1990
PETROLEUM PRODUCTS REGULATIONS (2000)

RETAIL LICENCE
[Regulation 5(4)]

RETAIL LICENCE		**Licence No. R/374/2019**
Name of licence-holder	Opuwo Filling Station	
Address of licence-holder	**Physical Address**	**Postal Address**
	Corner of Mbumbijazo Muharukua and Opuwo Main Road Namibia	P O Box 2500 Ondangwa Namibia
Name of Retail Outlet	Opuwo Filling Station	
Name of Supplying Wholesaler	Northern Fuel Distributors cc (Petrosol)	
Premises to which licence relates	Corner of Mbumbijazo Muharukua and Opuwo Main Road Namibia	
Conditions applicable to licence *See overleaf of page for general and special conditions applicable to licence.*		
Date of issue of licence	07 February 2020	

Issued by the Minister of Mines and Energy in terms of regulations 5(4), on 07 February 2020 **at** Windhoek

.....
Minister: Mines and Energy

Appendix C: 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 140 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	:	20
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
Basic Fire Fighting	EMTSS, 2017

PROFESSIONAL SOCIETY AFFILIATION:

Environmental Assessment Professionals of Namibia (Practitioner)

AREAS OF EXPERTISE:

Knowledge and expertise in:

- 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	+140
Research Reports & Manuals:	5
Conference Presentations:	1