OPERATIONS OF THE AGRI KOËS FUEL RETAIL FACILITY

ENVIRONMENTAL MANAGEMENT PLAN

Assessed by:

Assessed for:

March 2020

Project:	**OPERATIONS OF THE AGRI KOËS FUEL RETAIL FACILITY: ENVIRONMENTAL MANAGEMENT PLAN**	
Report: Version/Date:	Final March 2020	
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Cite this document as:	Faul A, Coetzer W, Brunette C; 2020 March; Operations of the Agri Koës Fuel Retail Facility: Environmental Management Plan	
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Report Approval	 **André Faul** **Conservation Ecology**	

I, F.P VERMEULEN, acting as representative of Dorver Trust t/a Agri Koës, 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 KOËS on the 12 day of MARCH 2020 ~~2019~~.

Dorver Trust t/a Agri Koës

T318/06
Business Registration/ID Number

SUMMARY

Dorver Trust t/a Agri Koës requested Geo Pollution Technologies (Pty) Ltd to prepare an environmental management plan (EMP) for the continued operations of an **existing** fuel retail facility on Plot 162, Koës, in the //Karas Region. The facility supply diesel and unleaded petrol from underground storage tanks via dispensers on a forecourt area and at a customer own collection facility. General operations involve the receipt of fuel from road tankers, dispensing fuel to vehicles, and day to day administrative tasks like tank dips and fuel volume reconciliation and cleaning.

The EMP is prepared to provide preventative and mitigation measures for all environmental, safety, health and socio-economic impacts associated with the operations of the facility. Relevant environmental data was compiled by making use of secondary data, potential impacts determined, and measures for environmental protection suggested.

The facility is situated in an area with mixed land use within the small settlement of Koës. Due to the nature and location of the facility, limited impacts are expected on the surrounding environment. It is however recommended that environmental performance be monitored regularly to ensure regulatory compliance and that corrective measures be taken if necessary. The operations of the fuel retail facility play a positive role in the community by providing the only reliable supply of fuel to the town, the surrounding farming community and tourists visiting the area.

The EMP should be used as an on-site reference document during all phases (planning, operations and decommissioning) of the facility and should be used in conjunction with a health, safety, environment and quality policy. Operators and responsible personnel must be taught the contents of these documents. Local or national regulations and guidelines must be adhered to and monitored regularly as outlined in the EMP. All monitoring and records kept should be included in a report to ensure compliance with the EMP. Parties responsible for transgression of the EMP should be held responsible for any rehabilitation that may need to be undertaken.

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1 BACKGROUND AND INTRODUCTION

Geo Pollution Technologies (Pty) Ltd was appointed by Dorver Trust t/a Agri Koës to prepare an environmental management plan (EMP) for the continued operations of their **existing** fuel retail facility on plot 162, Koës, in the //Karas Region (Figure 1). The facility has been in operation for many years and is the only fuel retail facility in the town and surrounding areas. It has four underground storage tanks of 13.5 m^3 each, two for diesel and two for unleaded petrol. Fuel is dispensed via four pumps, two under an overhead canopy in the forecourt area, and two at the rear of the buildings, acting as a customer own collection (COC) point. A COC is typically where bulk fuel at often discounted prices are supplied to trucks, busses and bowsers requiring more than 200 litres at a time. All surfaces where fuel is handled are covered with concrete to prevent fuel from entering the soil. The facility has four employees and is operated from 06h00 to 20h00 weekdays and 06h00 to 21h00 on weekends.

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

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

Project Justification – The local community including the surrounding farmers and the trucks visiting the area for deliveries and collections rely on the Agri Koës fuel retail facility for their fuel.

Benefits of the fuel retail facility include:

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

Photo 1. Forecourt area

Photo 2. Customer Own Collection

2 SCOPE

The scope of this assessment is to:

1. Determine the potential environmental impacts emanating from the operational 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 relevant competent authority and MET to make an informed decision regarding the operations and possible decommissioning of the facility.

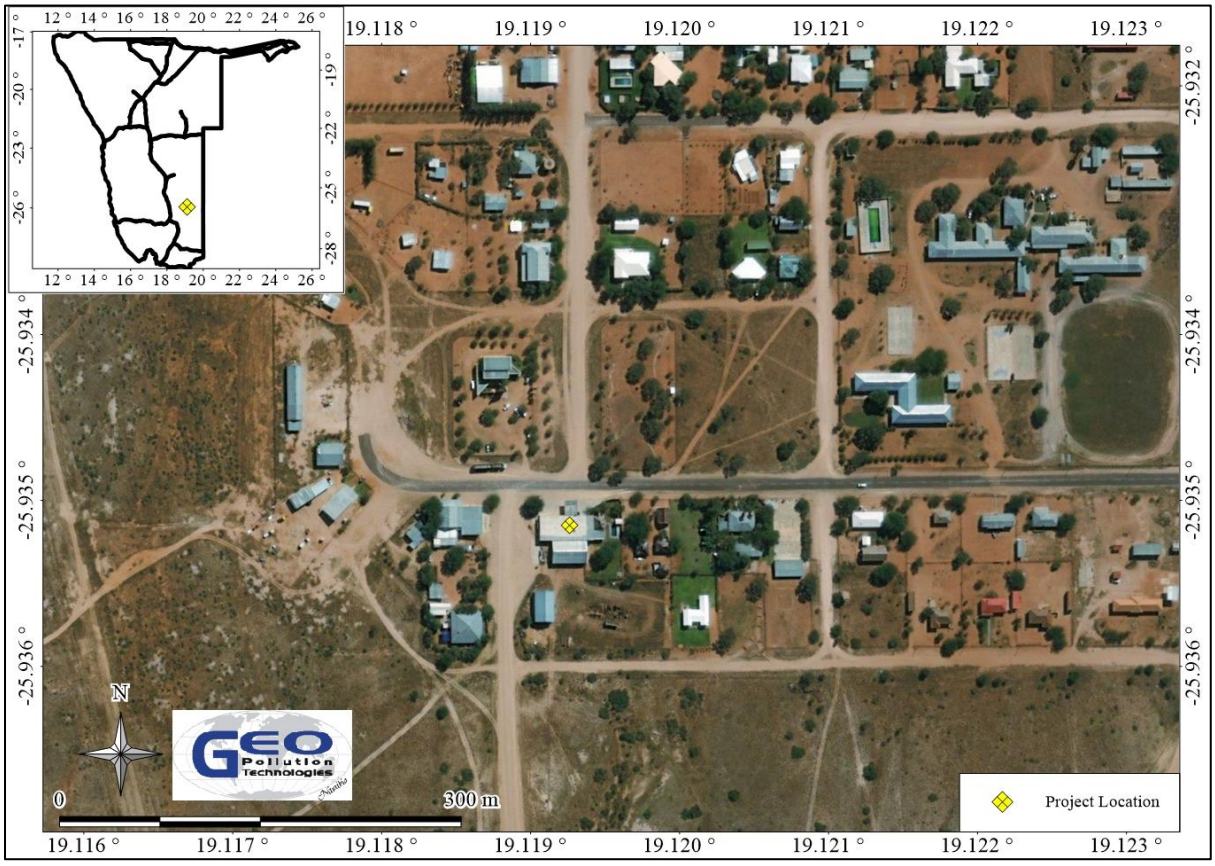

Figure 1. Project location

3 METHODOLOGY

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

1. Baseline information about the site and its surroundings was obtained from existing secondary information.
2. Potential environmental impacts emanating from the operations and decommissioning of the facility were determined and possible enhancement measures were listed for positive impacts while mitigation / preventative measures were provided for negative impacts.
3. An environmental management plan (EMP) was prepared to be submitted to the Ministry of Environment and Tourism (MET).

4 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 1 to Table 3 govern the environmental assessment process in Namibia and/or are relevant to the facility.

Table 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

Law	Key Aspects
Environmental Management Act Act No. 7 of 2007, Government Notice No. 232 of 2007	♦ Defines the environment ♦ Promote sustainable management of the environment and the use of natural resources ♦ Provide a process of assessment and control of activities with possible significant effects on the environment
Environmental Management Act Regulations Government Notice No. 28-30 of 2012	♦ Commencement of the Environmental Management Act ♦ List activities that requires an environmental clearance certificate ♦ Provide Environmental Impact Assessment Regulations
Petroleum Products and Energy Act Act No. 13 of 1990, Government Notice No. 45 of 1990	♦ Regulates petroleum industry ♦ Makes provision for impact assessment ♦ Petroleum Products Regulations (Government Notice No. 155 of 2000) 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 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 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 proposed 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 and thus requires a permit from 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.)

5 ENVIRONMENTAL CHARACTERISTICS

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

5.1 LOCALITY AND SURROUNDING LAND USE

The fuel retail facility is located on plot 162 in Koës, //Karas Region, and has been present here for many years (25.935172 °S, 19.118727 °E) (Figure 1). The town (village) is very small and is mainly supported by the surrounding farming communities. It is situated next to the C17 (M0030) main road, about 120 km northeast of Keetmanshoop.

5.2 CLIMATE

The project location has a warm desert climate. Peak rainfall in this region is mostly common between January and March, peaking mostly in February, whilst May to September have little or no rainfall. Low rainfall volumes coupled with extreme variability in rainfall and high evaporation rates result in the dry conditions. See Table 1 for a summary of climate data.

Table 4. Summary of climate data for the area (Atlas of Namibia)

Average annual rainfall (mm/a)	150 - 200
Variation in annual rainfall (%)	60 - 70
Average annual evaporation (mm/a)	3,600 – 3,800
Average annual temperatures (°C)	21 - 22

5.3 TOPOGRAPHY AND DRAINAGE

The Koës area is generally very flat and thus the formation of pans, such as the Koës Pan, are common. Drainage is poorly developed and rainwater typically accumulate within the various pans.

5.4 GEOLOGY AND HYDROGEOLOGY

The underlying geology of the site consist of shale and mudstone covered by Kalahari sand. The rocks form part of the Prince Albert Formation which is the oldest formation in the Ecca Group of the Karoo Sequence/Supergroup that mainly consists of horizontally layered sedimentary rocks. These rocks formed during the Permian period, about 250 - 290 million years ago.

Water is utilized in the area, with at least 21 boreholes known of within a 5 km radius contained in the Department of Water Affairs (DWA) database. Note that this database is generally outdated and more boreholes might be present. The site occurs in the South Eastern Kalahari Groundwater Basin. The site also occur outside the water control area, therefore the groundwater is not regulated by the Namibian Government. It means no permits is needed for groundwater related activities (drilling, cleaning or deepening of boreholes and rates of water abstraction). However all groundwater is property of the Namibian Government.

5.5 PUBLIC WATER SUPPLY

Potable water is supplied from boreholes tapping into the Nossob Aquifer. Water supply is by NamWater via the Village Council.

5.6 FAUNA AND FLORA

The site lies in the Nama-Karoo Biome with a Karas dwarf shrubland vegetation type. Vegetation is sparse (just more than 8%) and comprises mostly of grasses and shrubs, while trees cover less than 1% of the area. Diversity is low with about 200 species of plants. Animal diversity is also low, with low endemism.

5.7 DEMOGRAPHIC AND ECONOMIC CHARACTERISTICS

Koës is mainly within a farming community with some establishments catering for the tourism sector. It is a sparsely populated town situated in the //Karas Region which has about 75,000 people (2011 census) and an unemployment rate of 32.9% (Namibia Statistics Agency, 2011).

6 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 operations of the facility. All personnel taking part in the operations of the facility should be made aware of the contents in this section, so as to plan the operations accordingly and in an environmentally sound manner.

The objectives of the EMP are:

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

6.1.1 Planning

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

- Ensure that all necessary permits from the various ministries, local authorities and any other bodies that governs the operations of the facility are in place and remains valid. This includes the petroleum products licence.
- Ensure all appointed contractors and employees enter into an agreement which includes the EMP. Ensure that the contents of the EMP are understood by the contractors, sub-contractors, employees and all personnel present or who will be present on site.
- Make provisions to have a Health, Safety and Environmental 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:
    - EMP / Risk management / mitigation / Emergency Response Plan and HSE Manuals
    - Adequate protection and indemnity insurance to 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 bi-annual reporting system to report on aspects of construction activities, operations and decommissioning as outlined in the EMP.
- Submit bi-annual reports to the MET to allow for environmental clearance certificate renewal after three years. This is a requirement by MET.
- Appoint a specialist environmental consultant to update the EMP and apply for renewal of the environmental clearance certificate prior to expiry.

6.1.2 Revenue Generation and Employment

The facility aid in ensuring a reliable supply of fuel to the local community and surrounding farmers. Revenue is generated and employment is sustained. The fuel retail facility employs two pump attendants and two sales persons at the kiosk.

Desired Outcome: Contribution to national treasury and provision of employment to local Namibians.

Actions

Mitigation:

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

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Bi-annual summary report based on employee records.

6.1.3 Skills, Technology and Development

During operations of the facility, training will be provided to a portion of the workforce to be able to operate various features of the 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.

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 and employees must first be sourced from the town, 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.

Responsible Body:

- Proponent

Data Sources and Monitoring:

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

6.1.4 Demographic Profile and Community Health

The facility relies on labour for operations. The scale of the project is limited and it is not foreseen that it will in future create a change in the demographic profile of the local community. Exposure to factors such as communicable disease like HIV/AIDS as well as alcoholism/drug abuse may impact the local community. Spills and leaks may present risks to members of the public.

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.

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.

6.1.5 Fuel Supply

The facility aid in securing fuel supply to the residents of the town, nearby farmers and visiting tourists.

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.

6.1.6 Traffic

The facility may increase traffic flow to the site through the provision of fuel. This may increase the risk of incidents and accidents.

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.

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.

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.

6.1.7 Health, Safety and Security

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

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

Actions

Prevention:

- Clearly label dangerous and restricted areas as well as dangerous equipment and products.
- Equipment that will be locked away on site must be placed in a way that does not encourage criminal activities (e.g. theft).
- Provide all employees with required and adequate personal protective equipment (PPE).
- Ensure that all personnel receive adequate training on operation of equipment / handling of hazardous substances.
- All health and safety standards specified in the Labour Act should be complied with.
- Implementation of maintenance register for all equipment and fuel/hazardous substance storage areas.
- Selected personnel should be trained in first aid and a first aid kit must be available on site. The contact details of all emergency services must be readily available.
- Implement and maintain an integrated health and safety management system, to act as a monitoring and mitigating tool, which includes: 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 construction phases.

Responsible Body:

- Proponent

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.

6.1.8 Fire

Operational activities may increase the risk of the occurrence of fires. Fuel, especially unleaded petrol, is highly flammable and therefore presents a fire and explosion risk.

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

Actions:

Prevention:

- Ensure all chemicals are stored according to MSDS and SANS instructions.
- Maintain regular site, mechanical and electrical inspections and maintenance.
- Clean all spills / leaks immediately.
- Special note must be taken of the regulations stipulated in sections 47 and 48 of the Petroleum Products and Energy Act, 1990 (Act No. 13 of 1990).
- Follow SANS standards for operation and maintenance of the facility.
- All dispensers must be equipped with devices that cut fuel supply during fires.
- 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 and promote good housekeeping.
- Personnel training (firefighting, fire prevention and responsible housekeeping practices).

Responsible Body:

- Proponent

Data Sources and Monitoring:

- A register of all incidents must be maintained on a daily basis. This should include measures taken to ensure that such incidents do not repeat themselves.
- A 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.

6.1.9 Air Quality

The operational phase release fuel vapours into the air during refuelling of bulk storage tanks as well as at dispensing points. Prolonged exposure may have carcinogenic effects.

Desired Outcome: To prevent health impacts related to reduced air quality.

Actions

Mitigation:

- Employees should be informed about the dangers of fuel vapours.
- Vent pipes must be properly placed as per SANS requirements.

Responsible Body:

- Proponent

Data Sources and Monitoring:

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

6.1.10 Noise

Noise pollution may be generated due to heavy and light motor vehicles accessing the site to offload fuel or refuel. The fuel retail facility is only operated from 06h00 to 20h00 in the week and 06h00 to 21h00 on weekends. Thus, no night time noise is created, limiting the nuisance to neighbours.

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 and a nuisance at nearby receptors.
- All machinery must be regularly serviced to ensure minimal noise production.
- 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

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.

6.1.11 Waste production

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

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

Actions

Prevention:

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

Mitigation:

- Waste should be disposed of regularly and at appropriately classified disposal facilities, this includes hazardous material (empty chemical containers, contaminated rugs, paper water and soil).
- See the material safety data sheets available from suppliers for disposal of contaminated products and empty containers.
- Liaise with the village council regarding waste and handling of hazardous waste.

Responsible Body:

- Proponent

Data Sources and Monitoring:

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

6.1.12 Ecosystem and Biodiversity Impact

The site has previously been developed and is mostly devoid of vegetation. Some ornamental trees surround the site. Ecosystem and biodiversity impacts are mostly associated with pollution of the environment.

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

Actions.

Prevention:

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

Mitigation:

- Report any extraordinary animal sightings to the Ministry of Environment and Tourism.
- 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.

6.1.13 Groundwater, Surface Water and Soil Contamination

Operations 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 and reticulation, or spills and leaks associated with fuel handling such as overfills, spills and leakages.

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

Actions

Prevention:

- 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 and all spills must be cleaned up immediately.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Daily tank dips and fuel volume reconciliation in order to detect product loss due to leaks as soon as possible.
- A report should be compiled bi-annually of all spills or leakages reported. The report should contain the following information: date and duration of spill, product spilled, volume of spill, remedial action taken, comparison of pre-exposure baseline data (previous pollution conditions survey results) 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.

6.1.14 Visual Impact

This is an impact that not only affects the aesthetic appearance, but also the integrity of the facility. Bright lighting used at night may negatively impact nearby residents.

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

Actions

Mitigation:

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

Responsible Body:

- Proponent

Data Sources and Monitoring:

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

6.1.15 Cumulative Impact

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

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

Actions

Mitigation:

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

Responsible Body:

- Proponent

Data Sources and Monitoring:

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

6.2 DECOMMISSIONING AND REHABILITATION

Decommissioning is not foreseen during the validity of the environmental clearance certificate. Decommissioning was however assessed. Should decommissioning occur at any stage, rehabilitation of the area may be required. Decommissioning will entail the complete removal of all infrastructure including buildings and underground infrastructure. Any pollution present on the site must be remediated. 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 will not be used for similar future purposes. The EMP for the facility will have to be reviewed at the time of decommissioning to cater for changes made to the site and to implement guidelines and mitigation measures.

6.3 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

7 CONCLUSION

The fuel retail facility has a positive impact on the various sectors operational in the vicinity and the area as a whole. In addition to reliable and convenient fuel supply, the fuel retail facility contribute locally to skills transfer and training which in turn develops the local workforce during operations of the facility.

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 and municipal 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 should be used as an on-site reference document for the operations of the facility. Parties responsible for transgressing of the EMP should be held responsible for any rehabilitation that may need to be undertaken. The proponent could use an in-house Health, Safety, Security and Environment Management System in conjunction with the EMP. All operational personnel must be taught the contents of these documents.

Should the Directorate of Environmental Affairs (DEA) of the MET 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.

8 REFERENCES

Digital Atlas of Namibia Unpublished Report. Ministry of Environment & Tourism

Directorate of Environmental Affairs, 2008. Procedures and Guidelines for Environmental Impact Assessment (EIA) and Environmental Management Plans (EMP), Directorate of Environmental Affairs, Ministry of Environment and Tourism, Windhoek.

Namibia Statistics Agency. Namibia 2011 Population and Housing Census Main Report.

Appendix A: 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/23/2013**
Name of licence-holder	**Dorver Trust T/A Agri-Köes**	
Address of licence-holder	**Physical Address**	**Postal Address**
	162 Main Road Köes	P.O. Box 116 Köes
Name of Retail Outlet		**Dorver Trust T/A Agri-Köes**
Name of Supplying Wholesaler		**Total Namibia (Pty) Ltd**
Premises to which licence relates		162 Main Road Köes //Karas Region
Conditions applicable to licence ***See overleaf of page for general and special conditions applicable to licence.***		
Date of issue of licence		**14 August 2013**

Issued by the Minister of Mines and Energy in terms of regulations 5(4), on
14 August 2013 **at** Windhoek

.....
Minister: Mines and Energy

Official Stamp
(for office use)

Appendix B: Consultants' 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 120 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	:	18
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 and Committee Member)

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 + 1 in preparation
Contract Reports	+120
Research Reports & Manuals:	5
Conference Presentations:	1

ENVIRONMENTAL GEOLOGIST **Wikus Coetzer**

Wikus has 4 years' experience in environmental science related fields with 2 years' experience in conducting environmental impact assessments and preparation of environmental management plans. He holds an honours degree in Environmental Sciences – Environmental Geology from the Northwest-University Potchefstroom (NWU) South Africa. He first completed a B.Sc. degree in Geology and Botany in the required time also from the Northwest University Potchefstroom, South Africa. His honours project focused on the rehabilitation and phytoremediation of various tailings types and soils.

He has working experience as an environmental monitor / assisting environmental officer at Petra Diamonds, Cullinan Diamond Mine (CDM) where he gained a proper understanding of environmental monitoring responsibilities as well as legislations, regulations and the implementation of EMS/ISO14001. He started working at Geo Pollution Technologies in 2017, and regularly conducts/assists and report on environmental impact assessments, environmental management plans and pollution surveys..

CURRICULUM VITAE WIKUS COETZER

Name of Firm	:	Geo Pollution Technologies (Pty) Ltd.
Name of Staff	:	WIKUS COETZER
Profession	:	Environmental Geologist
Nationality	:	South African
Position	:	Environmental Geologist
Specialisation	:	Environmental Geology/ Geochemistry
Languages	:	Afrikaans – speaking, reading, writing English – speaking, reading, writing

EDUCATION AND PROFESSIONAL STATUS:

B.Sc. Environmental and Biological Sciences – Geology & Botany	: NWU Potchefstroom 2013
B.Sc. (Hons.) Environmental Sciences – Environmental Geology	: NWU Potchefstroom 2014

First Aid Class A	EMTSS, 2017
Basic Fire Fighting	EMTSS, 2017

AREAS OF EXPERTISE:

Knowledge and expertise in:

- Phytoremediation
- Environmental Geology / Geochemistry
- Environmental Monitoring
- Environmental Compliance

EMPLOYMENT:

2017 - :	Geo Pollution Technologies
2015 - 2016:	Petra Diamonds CDM – Environmental monitor / Assisting environmental officer
2015:	Petra Diamonds CDM – Graduate program: Environmental Officer
2014:	NWU Potchefstroom department of Geo and Spatial Sciences – Research assistant

PUBLICATIONS:

Contract Reports: +30

HYDROGEOLOGIST **Henri Christian Brunette**

Christian has 4 years' experience in hydrogeology, environmental science and related fields. He has worked as a drilling supervisor at drilling campaigns in the Windhoek district and is currently a hydrogeologist at Geo Pollution Technologies (Pty) Ltd. Christian Brunette holds an honours degree in Geology from the University of Namibia (UNAM). He first completed a B.Sc. degree in Geology/Geography from the University of the Free State (UFS) in Bloemfontein, South Africa.

He has experience in geological mapping, hydrological catchment delineation, groundwater specialist studies and geophysical methods. He also has experience in environmental pollution assessments such as soil vapour surveys, tank pit surveys, interface surveys and soil and water sampling. He has experience in assisting in environmental impact assessments and the preparation of environmental management plans. In addition he has specialist practical knowledge in the field of mineralogy and utilising graphical information systems (GIS).

CURRICULUM VITAE CHRISTIAN BRUNETTE

Name of Firm:	Geo Pollution Technologies (Pty) Ltd.
Name of Staff:	HENRI CHRISTIAN BRUNETTE
Profession:	Hydrogeologist
Nationality:	Namibian
Position:	Environmental Scientist
Specialisation:	Geology, Groundwater, Geophysics, GIS
Languages:	Afrikaans – speaking, reading, writing English – speaking, reading, writing

EDUCATION AND PROFESSIONAL STATUS:

B.Sc. Geology/Geography:	University of the Free State (UFS), 2015.
B.Sc. (Hons.) Geology:	University of Namibia (UNAM), 2016.

AREAS OF EXPERTISE:

Knowledge and expertise in:

- Geology
- Groundwater
- Geophysics
- Mineralogy
- Geographic Information Systems

EMPLOYMENT:

Jan 2017 onwards:	Geo Pollution Technologies (Pty) Ltd	(Hydrogeologist)
Jan 2016 – Aug 2016:	Environmental Engineering Services CC	(Drilling Supervisor)
Nov 2014 – Jan 2015:	Geo Pollution Technologies (Pty) Ltd	(Part-Time)
Jun 2014 – Jul 2014:	Geo Pollution Technologies (Pty) Ltd	(Part-Time)
Nov 2013 – Dec 2013:	Geo Pollution Technologies (Pty) Ltd	(Part-Time)

PUBLICATIONS:

Contract Reports:	20 +