

ENVIRONMENTAL MANAGEMENT PROGRAM

CONTENTS

LIST OF ANNEXURES

DEFINITIONS

1. BACKGROUND

- 1.1 Introduction
- 1.2 Project Description
- 1.3 Environmental Impact Assessment
- 1.4 Dangerous Goods
 - 1.4.1 Petroleum
 - 1.4.2 Diesel
- 1.5 Fuel Retailers
- 1.6 Key role players
- 1.7 EMPr Objectives
- 1.8 Mitigation
- 1.9 Implementation of the EMPr
 - 1.9.1 Training and Environmental Awareness

2. MONITORING, REPORTING & CORRECTIVE ACTION

- 2.1 Documentation and Record Keeping
- 2.2 Reporting procedures

3. ENVIRONMENTAL MANAGEMENT

- 3.1 Environmental Management Structure and Responsibility
- 3.2 Emergency Plan
- 3.3 Fire Prevention and Control

4. ENVIRONMENTAL MANAGEMENT ACTIVITIES AND CONTROLS

- 4.1 Construction Phase Impacts

4.2 Operational Phase Impacts

4.3 The Decommissioning Phase Environmental Management Program

5. CONCLUDING REMARKS

**ENVIRONMENTAL MANAGEMENT PROGRAM FOR A DIESEL DEPOT ON ERF 2289 TZANEEN
EXT 5**

LIST OF ANNEXURES

- Annexure A - Complaints Register
- Annexure B - Register of Responses to Complainants
- Annexure C - Environmental Incident Report Sheet
- Annexure D - Emergency Response Plan

DEFINITIONS

Construction:

Construction means the building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity but excludes any modification, alteration or expansion of such a facility, structure or infrastructure and excluding the reconstruction of the same facility in the same location, with the same capacity and footprint.

Dangerous Goods:

Dangerous goods means goods as contemplated in South African National Standard No. 10234, supplement 2008 1.00: designated "List of classification and labelling of chemicals in accordance with the globally Harmonized System (GHS)" published by Standards South Africa.

Disturbance:

Any event or series of events that disrupts ecosystem, community, or population structure and changes resources, substrate availability, or the physical environment.

Earth Works:

This involves construction machinery, dampening and general preparation of the site for construction purposes.

Environmental Incident:

- Any action undertaken (or omitted) by the proponent or his duly appointed representatives (e.g. contractors) that results in overly/unnecessary disturbance or damage to the environment.
- Any action undertaken (or omitted) by the proponent or his duly appointed representatives (e.g. contractors) that could lead to (has potential for) overly/unnecessary disturbance or damage to the environment.
- Non adherence to environmental legal requirements/laws (including the stipulations of authorisations issued in respect of a proposed activity e.g. those contained in a Record of Decision).

Environmental Management Program:

A guideline document/directive outlining the Program (EMPr) for mitigation, monitoring and institutional measures to be taken during project implementation and operation to avoid or control

adverse environmental impacts, as well as the actions needed to implement these measures (World Bank, 1999:1).

Environmental Officer:

Person/party appointed to monitor compliance with the Environmental Management Program.

Filling Station

A filling station, also known as a garage or a petrol station is a facility which sells fuel and lubricants for motor vehicles.

Interested & Affected party:

A person, group of people, an organisation (public or private), a business, or other party that has an interest or is affected in terms of their health, property rights, or economy by a proposed activity.

Impact:

A description of the potential effect or consequence of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space.

Mitigation measures:

Mitigation measures encompass all actions taken to eliminate, offset or reduce potentially adverse environmental impacts to acceptable levels (World Bank, 1999:1).

Oil, fuel and lubricants on site:

Appropriate safety measures for accidental spillages are covered as well as appropriate storage of oil and lubricants. Used oil containers must be recycled and not dumped at the municipal waste site.

Project (life) cycle:

Represents the various stages of which a project/activity consists including project identification, design, construction, operation as well as decommissioning.

ENVIRONMENTAL MANAGEMENT PROGRAM FOR A DIESEL DEPOT ON ERF 2289 TZANEEN EXT 5

1. BACKGROUND

1.1 Introduction

Devenco Investments 63 (Pty) Ltd trade as *PPS Petroleum Supplier* is of the intention to expand a diesel depot in Tzaneen in the Limpopo Province.

EMPr's provide a link between the impacts predicted and mitigation measures specified and the implementation and operational activities of the project.

This EMPr was compiled for the expansion of the diesel depot in Tzaneen. The proposed expansion will take place on Erf 2289 Tzaneen Ext 5 in the Limpopo Province.

The co-ordinates of the site is as follows: S 23° 49' 41.2" E 30° 10' 29.8"

1.2 Project Description

The proposed activity involves the expansion of a diesel depot with the storage capacity of 92 cubic metres. There is already a 23 cubic metre tank on site.

1.3 Environmental Impact Assessment

In terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014 an environmental impact assessment study is only necessary when facilities or infrastructure are constructed for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of more than 30 cubic metres.

In this instance the diesel depot consists of a combined capacity of 92 cubic metres, which requires an Environmental Impact Assessment Study.

The storage tanks are designed in accordance with the South Africa Bureau of Standards (SABS) requirements.

The proposed site is disturbed by previous development that took place in the surrounding area and is clear of large trees. No protected trees occur on the site.

1.4 Dangerous Goods

1.4.1 Petroleum

Petroleum or crude oil is a naturally occurring, flammable liquid consisting of a complex mixture of hydrocarbons of various molecular weights and other liquid organic compounds, that are found in geologic formations beneath the earth's surface. A fossil fuel is formed when large quantities of dead organisms, usually zooplankton and algae, are buried underneath sedimentary rock and undergo intense heat and pressure. Petroleum is recovered mostly through oil drilling. This latter stage comes after the studies of structural geology (at the reservoir scale), sedimentary basin analysis, reservoir characterization (mainly in terms of porosity and permeable structures). It is refined and separated, most easily by boiling point, into a large number of consumer products, from petrol and kerosene to asphalt and chemical reagents used to make plastics and pharmaceuticals. Petroleum is used in manufacturing a wide variety of materials, and it is estimated that the world consumes about 88 million barrels each day. The use of fossil fuels such as petroleum can have a negative impact on Earth's biosphere, releasing pollutants and greenhouse gases into the air and damaging ecosystems through events such as oil spills.

Why is petrol dangerous?

- Petrol is a highly flammable liquid.
- Petrol gives off a flammable vapour at low temperatures. Flammable vapour will be present immediately after any petrol has been spilt within a tent or on a workshop floor.
- There is always a risk of fire or explosion if there is a source of ignition, e.g. someone smoking, having a barbecue or welding, in the presence of petrol or petrol vapour.
- A flammable atmosphere exists when the proportion of petrol vapour in the air is as little as 1%; it only needs a minute quantity, e.g. a teaspoonful, of petrol to create a flammable atmosphere.
- Petrol floats on the surface of water and may, therefore, increase the risk of fire or explosion well away from where it escapes by travelling long distances along a water course e.g. a drain.

- The presence of petrol vapour increases the risk of fire or explosion in places where there is little movement of air, e.g. within tents, inspection pits or enclosed spaces, as it does not disperse easily and tends to sink to the lowest possible level.
- Petrol vapour may increase the risk of fire or explosion well away from where it escapes by travelling long distances, e.g. between tanks or across a workshop floor.
- A flammable atmosphere may be present in any empty vessel, e.g. a fuel tank or a jerry can, in which petrol has been kept.
- Petrol or petrol vapour may flash back over long distances to where it has escaped from, e.g. between tanks or across a workshop floor.
- Contaminating clothing or anything else that is absorbent with petrol, e.g. rags, a towel or sand, increases the risk of fire or explosion.

1.4.2 Diesel

Petroleum diesel, also called petrodiesel or fossil diesel is produced from the fractional distillation of crude oil between 200°C and 350°C at atmospheric pressure, resulting in a mixture of carbon chains that typically contain between 8 and 21 carbon atoms per molecule.

Environment hazards of sulfur:

High levels of sulfur in diesel are harmful for the environment because they prevent the use of catalytic diesel particulate filters to control diesel particulate emissions, as well as more advanced technologies, such as nitrogen oxide (NO_x) adsorbers (still under development), to reduce emissions. Moreover, sulfur in the fuel is oxidized during combustion, producing sulfur dioxide and sulfur trioxide, that in presence of water rapidly convert to sulfuric acid, one of the chemical processes that results in acid rain. However, the process for lowering sulfur also reduces the lubricity of the fuel, meaning that additives must be put into the fuel to help lubricate engines. Biodiesel and biodiesel/petrodiesel blends, with their higher lubricity levels, are increasingly being utilized as an alternative.

Diesel and petrol are both produced from mineral oil, but using different refining methods. While diesel is in principle easier to refine than gasoline, it needs to be cleaned from more pollutants to ensure that tailpipe emissions remain as low as possible. However, diesel contains more energy than petrol and the vehicle's engine combustion process is more efficient, adding up to higher fuel efficiency and lower CO₂ emissions when using diesel.

1.5 Fuel Retailers

The Fuel Retailer Association of Southern Africa (FRA) is a registered employer's organization under the provisions of the Labour Relations Act, 66 of 1995.

The FRA is a financially independent and fully autonomous association that ensures the survival and success for all its members who are fuel service station owners in the retailing of fuel in South Africa.

The Association monitors and becomes involved wherever necessary with all aspects of retail fuel governance, distribution and sales in South Africa in order to protect and enhance fuel retailer's interest.

The Association's income base is through membership fees.

Vision

To create a robust, sustainable environment that provides a reasonable return on investment for all efficient fuel retailers. The primary objective of the FRA is to promote and protect the best interests of fuel retailers and its members in particular.

Mission

To engage with all stakeholders to facilitate and promote open and transparent communications to ensure the industry is prepared for 2010 and beyond.

1.6 Key Role Players

Environmental Consultant:

Mr. Anton von Well	Cell: 082 872 5258
Tekplan Environmental	Tel: 015 291 4177
P.O. Box 55714	Fax: 086 218 3267
POLOKWANE	E-mail: tecoplan@mweb.co.za
0700	

Applicant (owner):

Mr. Muis Joubert	Cell: 082 904 2383
Devenco Investments 63 (Pty) Ltd t/a PPS	Tel: (015) 307 3561
P.O. Box 4106	Fax: (015) 307 3562
Tzaneen	Email: muis@ppstzn.co.za
0850	

1.7 EMPr Objectives

WHAT IS AN EMPr?

An Environmental Management Program (EMPr) can be defined as “*an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation and decommissioning of a project are prevented; and that the positive benefits of the projects are enhanced*”.

EMPr's provide an essential tool for ensuring that the mitigation of negative impacts and enhancement of positive impacts is carried out effectively during the project life-cycle.

It is essential to develop measures to eliminate, offset or reduce impacts on the environment, to acceptable levels before the operational phases of a project commence. The integration of such measures to protect the environment during the operational phase of a project can be done by clearly defining environmental requirements within an Environmental Management Program (or EMPr) (World Bank, 1999:1).

EMPr's provide a link between 1) the predicted environmental impacts (that will be induced by a certain development/project), and 2) implementation and operational activities.

Generally an EMPr performs the following functions:

- it outlines the anticipated environmental impacts of a project,
- it outlines the measures to be taken to mitigate these impacts,
- it outlines responsibilities for mitigation of impacts.

Definition of an “Environmental Management Program” (EMPr):

An EMrP is a guideline document/directive outlining the mitigation, monitoring and institutional measures to be taken during project implementation, construction and operation to avoid or control adverse environmental impacts, as well as the actions needed to implement these measures.

The key to the success of an EMPr lies in its effective implementation. Compliance monitoring is therefore crucial. Monitoring ensures that the environmental requirements stipulated in the EMPr are being complied with.

This EMPr addresses the management of environmental impacts related to the operation of a diesel depot on Erf 2289 Tzaneen Ext 5. The document should be used as a basis for managing, mitigating and monitoring the environmental impacts associated with the pre-construction (design), construction and operational phases.

Definition of “mitigation measures”:

Mitigation measures encompass all actions taken to eliminate, offset or reduce potentially adverse environmental impacts to acceptable levels (World Bank, 1999:1).

1.8 Mitigation

Mitigation seeks to find better ways of doing things, minimise or eliminate negative impacts, enhance project benefits and protect public and individual rights. The applicant/proponent has a responsibility to avoid or minimise impacts, and plan for managing impacts.

This section of the report serves to prescribe measures to reduce, limit, eliminate or compensate for impacts, to acceptable/insignificant levels. The term ‘mitigate’ means to ‘allay, moderate, palliate, temper and intensify’. In environmental terminology this term is used as follows:

- mitigation of a negative impact;
- to reduce the significance of an impact;
- mitigation/optimisation of a positive impact;

Hereunder the potential to mitigate identified negative impacts will be discussed. Certain mitigation measures will be proposed and an indication will be given of how these proposed mitigation measures will influence the significance and status of each identified impact. Recommendations are arranged in order of sequence i.e. Planning/construction and Operational phases.

Mitigation should permeate through all stages of the development process. It is essential that the mitigation plan be monitored during the operational phase, so as to ensure compliance.

The site exhibits a risk that hazardous petrol and petrol vapour can leak from the tanks. The following precautionary measures are recommended to prevent any leakage effects at the diesel depot:

- Conduct scheduled periodic checks of all tanks and pipes for any leakages,
- No open fires to be permitted on site,
- Mandatory training of new personnel, and
- Ensure qualified / certified people conduct maintenance on equipment.

Several negative impacts will occur during the construction period - these are relatively well known and easy to predict. Also, mitigation actions to prevent or reduce impacts are well known. Most of the mitigation actions are likely to be applied during the construction period - site supervision and monitoring are key criteria to ensure the successful implementation of mitigatory measures.

The stipulations of this EMPr should be conveyed to contractors prior to the commencement of construction. During the project planning and design stage the proponents should take into account the recommendations of this EMPr, so that it is positively utilised on a pro-active basis to aid in the mitigation of impacts.

It is also deemed essential that contract documents be audited to ensure compliance with conditions and that this is monitored and reviewed on a continual basis.

1.9 Implementation of the EMPr

1.9.1 Training and environmental awareness

Training is essential for ensuring that the EMPr provisions are implemented efficiently and effectively. Training needs should be identified based on the available and existing capacity of site and project personnel (including the Project Proponent, Contractors and Sub-contractors) to undertake the required EMPr management actions and monitoring activities. It is vital that all personnel are adequately trained to perform their designated tasks to an acceptable standard.

In addition to training, general environmental awareness must be fostered among the project's workforce to encourage the implementation of environmentally sound practices throughout its duration. This ensures that environmental accidents are minimized and environmental compliance maximized. The onus is on the different parties involved in the various stages of the life-cycle of the project to be environmentally conscious. Contractors should forward internal environmental awareness and training procedures to the Project Manager and Environmental Control officer for comment prior to the commencement of the project.

Environmental awareness could be fostered in the following manner:

- Induction course for all workers on site, before commencing work on site.
- Refresher courses as and when required.
- Daily toolbox talks at the start of each day with all workers coming on site, where workers might be alerted to particular environmental concerns associated with their tasks for that day or the area/habitat in which they are working.
- Courses must be given by suitably qualified personnel and in a language and medium understood by workers/employees.

2. MONITORING, REPORTING & CORRECTIVE ACTION

The owner shall monitor compliance with this EMP and shall conduct monthly inspections of the diesel depot and shall document the findings of his monitoring actions in a *monitoring report*.

The owner shall keep a documented complaints register. The nature of complaints that are received shall be brought to the attention of the owner. The owner shall give a suitable written response, to complainants, where required. The reader is referred to Annexure A (draft complaints register). The reader is also referred to Annexure B - Register of Responses to Complainants.

The proponent contractor shall document "environmental incidents" on an "Environmental Incident Report Sheet" (EIRS) within 1 day (24 hours) from the time that the incident has occurred (see Annexure C - "Environmental Incident Report Sheet").

Definition: Environmental incident

- Any action undertaken (or omitted) by the owner or his duly appointed representatives (e.g. contractors) that results in overly/unnecessary disturbance or damage to the environment.
- Any action undertaken (or omitted) by the owner or his duly appointed representatives (e.g. contractors) that could lead to (has potential for) overly/unnecessary disturbance or damage to the environment.
- Non adherence to environmental legal requirements/laws.

In an instance where an "environmental incident" is recorded, the owner shall take appropriate action to correct the "environmental incident". Such action shall be in accordance with the nature and scale of the recorded incident. Such corrective action shall be implemented as soon as possible after the occurrence of the incident. "Corrective action" that is undertaken shall also include the rehabilitation of secondary environmental disturbance/damage resulting from undertaking corrective action. The re-occurrence of an environmental incident shall be avoided through the implementing of suitable precautionary measures to prevent the recurrence of such. During maintenance and/or upgrading activities, external contractors shall report environmental incidents to the owner on a daily basis. A course of action shall then be decided upon jointly (as a precautionary measure to avoid the re-occurrence of these types of incidents).

2.1 Documentation and Record Keeping

A document handling system must be established to ensure accurate updating of EMPr documents, and availability of all documents required for the effective functioning of the EMPr. The document handling system must be devised by the Project Proponent and/or Contractor, and agreed upon by all key parties. Responsibilities must be assigned to relevant personnel for ensuring that the EMPr documentation system is maintained and that document control is ensured through access by, and distribution to, identified personnel. Where an adequate document management system already exists, then the environmental documentation should be integrated into this system rather than creating a new system.

Supplementary EMPr documentation could include:

- EMPr implementation activity specifications (including Method Statements);
- site instructions;
- emergency preparedness and response procedures;
- incident reports;
- training records;
- site inspection reports;
- monitoring reports; and
- auditing reports.

The Environmental Control Officer is usually responsible for ensuring that the registration and updating of all relevant EMPr documentation is carried out. It is usually the responsibility of the Project Manager to ensure that all personnel are performing according to the requirements of this procedure and to initiate the revision of controlled documents, when required by changes in process, operating procedures, legislation, specifications, audit findings or any other circumstances, by informing the Environmental Control Officer of the changes. A controlled document is official only if the issue/revision has been approved.

The EMPr documents must be numbered and only distributed according to a distribution list compiled by the Environmental Control Officer. These documents should be marked "controlled copy". Holders of controlled documents should sign the distribution list when they receive a new or revised document and must destroy the old version. Copies of all EMPr documentation should be kept on site or at the nearest project office. The documents should be kept as hardcopies as well as in electronic format.

Documents must be revised as required by changing circumstances. Clear procedures must be specified in the EMPr for making changes to EMPr documents, circulating updated documents, and destroying obsolete versions. Distribution lists and document change control sheets must be kept for all documents. Records must be kept for at least five years.

2.2 Reporting Procedures

Reporting procedures for conveying information from the monitoring activities must be developed in order to ensure that management is able to take rapid corrective action should certain thresholds be exceeded.

This EMPr should include the following reporting procedures:

- Inspections;
- Accidents and emergencies;
- Measuring performance indicators and interpreting and acting on the indicators;
- Records of monitoring activities to test the effectiveness of mitigation measures and impact controls, as well as for compliance auditing purposes; and
- Training programmes and evidence of appropriate levels/amount of skills/capacities created.

3. ENVIRONMENTAL MANAGEMENT

3.1 Environmental Management Structure and Responsibility

Site owner/Applicant:

Mr. Muis Joubert	Cell: 082 904 2383
Devenco Investments 63 (Pty) Ltd t/a PPS	Tel: (015) 307 3561
P.O. Box 4106	Fax: (015) 307 3562
Tzaneen	Email: muis@ppstzn.co.za
0850	

The person/party responsible for overall management (as well as ongoing implementation of this EMP) is Mr. Muis Joubert. It is also Mr. Muis Joubert's duty to ensure that this EMP is implemented.

The site owner shall annually train all personnel employed the contents of this EMP, so as to ensure effective ongoing implementation.

3.2 Emergency Plan

1. An emergency plan should be available for major / minor spills and fire fighting at the service station during construction activities (with consideration of air, groundwater, soil and surface water).
2. All pollution incidents must be reported to the Department of Water and Sanitation (DWS) and other relevant authorities within 24 hours of occurrence. Record(s) of environmental related incidents should be maintained and communicated.
3. An emergency plan should be available for major / minor spills at the service station during operation activities (with consideration of air, groundwater, soil and surface water) and during the transportation of the product(s) to the service station, and appropriate training must be provided therein.

3.3 Fire Prevention and Control

1. Smoking must be prohibited in the vicinity of flammable substances.
2. The availability of sufficient firewater tie-in points, fire extinguishers and requirements of Local Authorities must be ensured.
3. Any welding or other sources of heating of materials should be done in a controlled environment and under appropriate supervision, in such a manner as to minimise the risk of fires and/or injury to staff.
4. Training should be provided to the staff members in the use of the appropriate firefighting equipment.
5. There should be close co-operation with the local fire authority to ensure that they know the layout of the facility, what equipment and facilities are available, where they are located, and how they are used.

The actions and procedures to handle these emergencies are detailed in the emergency response plan in Annexure D attached to this report.

4. ENVIRONMENTAL MANAGEMENT ACTIVITIES AND CONTROLS

Environmental impacts are associated with air quality, water quality, soil conditions, biodiversity, and safety & security. The aspects that cause the environmental impacts, the specific impacts as well as a set of mitigation measures to apply during the construction and operational phase were identified.

4.1 Construction Phase Impacts

A. Impact Description:

Erosion of cleared areas.

When will the impact occur and when should it be addressed?

During construction phase.

Where should mitigation measures be implemented?

On the site.

Mitigation Measures/Interventions:

- No protected trees were identified on site.
- When soil is cleared of vegetation, management techniques to prevent water and wind erosion should be employed e.g. paving of area (to reduce water velocity and divert surface water runoff downslope).
- Care should be taken to prevent an increase in stream flow velocity in localised areas (i.e.: along access roads or next to paved areas), as this may lead to limited surface erosion.

Responsible Party:

Proponent and site engineer.

Notes:

This impact is not deemed significant - effective mitigation thereof is possible due to the small size of the area that is to be developed and the fact that surface water courses are located far away from the site.

B. Impact Description:

Heavy (construction) vehicles moving into and from site onto public roads, thereby causing congestion, poor flow of traffic, reduced accessibility to the area, etc.

When will the impact occur and when should it be addressed?

Entire construction period.

Where should mitigation measures be implemented?

Construction site - during site preparation & undertaking of earthworks.

Mitigation Measures/Interventions:

- Contracts to stipulate that no construction vehicles be parked on public roads.
- Points men to be used to regulate traffic flow to and from the site.
- Work instructions to be issued to drivers of construction/delivery vehicles.
- Dedicated access routes to be identified and communicated to drivers of construction/delivery vehicles.
- Movement of construction vehicles potentially impacting on urban infrastructure should be mitigated through the use of appropriate warning signs, and not entering or leaving the site during peak traffic hours.

Responsible Party:

Proponent and site engineer.

Notes:

This impact can easily be mitigated. A possible secondary impact that could arise is that motorists could start using other routes to avoid the construction area, thus causing heavier traffic in other normally quiet areas.

C. Impact Description:

Construction activities might lead to increased noise levels.

When will the impact occur and when should it be addressed?

Construction period.

Where should mitigation measures be implemented?

Construction site.

Mitigation Measures/Interventions:

- Maintenance of construction vehicles.
- Fit construction vehicles and equipment with noise suppression equipment.
- Dedicated access routes to be identified and communicated to drivers of construction/delivery vehicles.
- Adjacent residents to be informed of unusually noisy activities that will be undertaken.
- Construction to be restricted to limited working hours (07h00 to 18h00). No work to be conducted on Sundays.
- Works instructions to be issued regarding minimisation of noise to all workers (especially those using noisy equipment).

Responsible Party:

Proponent, site engineer and contractors.

Notes:

This impact can be mitigated through effective site management. Noise levels decrease at approximately 1 decibel per 13 meters.

D. Impact Description:

Increased traffic volumes due to delivery activities (i.e. more vehicles, and different types of vehicles, using the road network).

When will the impact occur and when should it be addressed?

Construction period.

Where should mitigation measures be implemented?

Diesel depot and all roads used.

Mitigation Measures/Interventions:

- Dedicated access routes to be identified for delivery vehicles.
- All drivers of vehicles involved in delivery activities should adhere to traffic regulations.
- Local authority to determine where existing adjacent roads will need to be extended/upgraded.

Responsible Party:

Suppliers and contractors (and local authority).

Notes:

The site engineer can mitigate this impact through effective management. Construction will necessitate frequent delivery of material and delivery and removal of equipment & machinery - thus resulting in an impact on existing patterns of circulation.

E. Impact Description:

Destruction/removal of vegetation (existing trees on the site).

When will the impact occur and when should it be addressed?

During construction.

Where should mitigation measures be implemented?

On the site.

Mitigation Measures/Interventions:

- No protected trees were identified on site.

Responsible Party:

Proponent

F. Impact Description:

Construction activities could create larger amounts of atmospheric dust, thus causing a nuisance to adjacent properties. Operational activities could also create larger amounts of air pollution.

When will the impact occur and when should it be addressed?

During construction phase (clearing of site and earthworks).

Where should mitigation measures be implemented?

On the site.

Mitigation Measures/Interventions:

- The development should not cause dust fall-out (deposition) to exceed *Slight fall-out (i. e. less than 0, 25g/sq. m./day)*.
- Control measures such as wet-suppression (watering) should be implemented to reduce dust arising from construction activities. Such requirements should be included into the contracts of the individual contractors that will be performing construction activities.
- Where excessive dust is created due to excavations, stripping of topsoils, etc. continual wetting down of surfaces shall be undertaken. Suitable water sources shall be identified and designated, prior to the commencement of construction.

Responsible Party:

Proponent and site engineer

Notes:

Air quality can be impacted upon through dust blow-off, especially during the construction phase. The development should not cause the ambient PM-10 to exceed: *24 hour average: 980microgram/cubic metre.*

G. Impact Description:

Construction activities could create larger amounts of solid waste, thus causing a nuisance to adjacent properties.

When will the impact occur and when should it be addressed?

During construction phase.

Where should mitigation measures be implemented?

On the site.

Mitigation Measures/Interventions:

- In general, no littering, discarding or burying of any materials are allowed on site and roadways and sidewalks shall be left clear of waste materials.
- All waste material must be contained and disposed of according to the relevant legal requirements.
- Waste must be stored in such a manner that no pollution of the environment occurs at any time.
- All domestic waste generated must be disposed of in a proper manner at the Local Authorities Municipal Landfill site (i.e. no burial on site).
- All accumulated and surplus material must be disposed of in a suitable place and manner to prevent translocation of invasive plant species, modification of drainage and contamination of surface water.
- Hydrocarbon (oil, diesel, petrol) waste as well as all hydrocarbon contaminated material must be regarded as hazardous waste and separated from general waste. It must be removed from site and disposed of at the Local Authorities Municipal Landfill site.
- Spill cleanup kits and absorbent material must be kept on site to assist in immediate cleanup of any hazardous material spills.
- All building rubble must be either:
 - removed from site and disposed of at the Local Authorities Municipal Landfill site, subject to all relevant regulations and approval by the Managing contractor; or
 - temporarily stored in a clearly demarcated area on site for future use.

Responsible Party:

Proponent and site engineer

H. Impact Description:

Effluent handling.

When will the impact occur and when should it be addressed?

During construction phase.

Where should mitigation measures be implemented?

On the site.

Mitigation Measures/Interventions:

- Dirty water areas must be lined by an impermeable material such as concrete to prevent infiltration and contamination of the soils within these areas.
- All waste material must be contained and disposed of according to the relevant legal requirements.
- The site must be serviced by properly managed and maintained toilet facilities. One toilet should be provided per 1-15 staff members (male/female) on site. The contractor is to ensure that permanent on-site toilet facilities are properly maintained and are in working order. No disposal, or leakage, of sewage should occur. The managing contractor should verify if the necessary services are available for the operational phase.

Responsible Party:

Proponent and site engineer

4.2 Operational Phase Impacts

A. Impact Description:

Increased traffic volumes due to delivery activities (i.e. more vehicles, and different types of vehicles, using the road network).

When will the impact occur and when should it be addressed?

Operational period.

Where should mitigation measures be implemented?

Diesel depot and all roads used.

Mitigation Measures/Interventions:

- Dedicated access routes to be identified for delivery vehicles.
- All drivers of vehicles involved in delivery activities should adhere to traffic regulations.
- Local authority to determine where existing adjacent roads will need to be extended/upgraded.

Responsible Party:

Suppliers and contractors (and local authority).

Notes:

The owner can mitigate this impact through effective management. Periodic delivery of fuel will have an impact on existing patterns of circulation.

B. Impact Description:

Operational activities could create larger amounts of air pollution and dust.

When will the impact occur and when should it be addressed?

During operational phase.

Where should mitigation measures be implemented?

On the site.

Mitigation Measures/Interventions:

- Always check caps, flanges and sealed connections for any leakages.
- Check the vent pipes are not blocked.
- The impact of vent gases from vent pipes and the interceptor chamber is minimised through positioning of the vent pipes at a point remote from all buildings and neighbouring property boundaries.
- Supervise fuel deliveries.
- The site must be paved to prevent dust pollution.

Responsible Party:

Proponent

Notes:

Air quality can be impacted during the storage of fuel on site.

C. Impact Description:

Operational activities might lead to increased noise levels.

When will the impact occur and when should it be addressed?

Operational period.

Where should mitigation measures be implemented?

On site.

Mitigation Measures/Interventions:

- Dedicated access routes to be identified and communicated to drivers of construction/delivery vehicles.
- Adjacent residents to be informed of unusually noisy activities that will be undertaken.
- Works instructions to be issued regarding minimisation of noise to all workers (especially those using noisy equipment).

Responsible Party:

Site owner.

Notes:

This impact can be mitigated through effective site management. Noise levels decrease at approximately 1 decibel per 13 meters.

D. Impact Description:

Operational activities could create larger amounts of solid waste, thus causing a nuisance to adjacent properties.

When will the impact occur and when should it be addressed?

During operational phase.

Where should mitigation measures be implemented?

On site.

Mitigation Measures/Interventions:

- All waste material must be contained and disposed off according to the relevant legal requirements.
- Waste must be stored in such a manner that no pollution of the environment occurs at any time.
- All domestic waste generated must be disposed of in a proper manner at the Local Authorities Municipal Landfill site (i.e. no burial on site).
- All accumulated and surplus material must be disposed of in a suitable place and manner to prevent translocation of invasive plant species, modification of drainage and contamination of surface water.
- Hydrocarbon (oil, diesel, petrol) waste as well as all hydrocarbon contaminated material must be regarded as hazardous waste and separated from general waste. It must be removed from site and disposed of at the Local Authorities Municipal Landfill site.
- Spill cleanup kits and absorbent material must be kept on site to assist in immediate cleanup of any hazardous material spills.

Responsible Party:

Proponent and site engineer

E. Impact Description:

Underground storage tanks and equipment could have negative impacts on the underground water quality.

When will the impact occur and when should it be addressed?

During operational phase.

Where should mitigation measures be implemented?

On the site.

Mitigation Measures/Interventions:

- Check the fuel in all underground fuel tanks and report suspected leaks immediately.
- Check if water has entered underground tank.
- Regular monitoring (three-monthly) of the monitoring wells must be undertaken to prevent pollution. Records of monitoring must be kept and made available to the DWS on request. Should contamination be detected, monitoring must be extended to the monitoring boreholes as identified during the hydro census. If contamination is detected in the extended borehole survey, a rehabilitation plan must be compiled and executed.
- There is a borehole on site and special care must be taken for any negative impacts on the underground water.
- Monthly stock reconciliations must be taken and reported monthly to DWS.
- The leak detectors must be regularly tested and records kept.
- All machinery must be maintained in good working order as to prevent soil or water pollution from oil, fuel or other leaks.

Responsible Party:

Proponent and site engineer

Notes:

Regular monitoring must take place to prevent leakage from the tanks.

F. Impact Description:

Effluent handling.

When will the impact occur and when should it be addressed?

During operational phase.

Where should mitigation measures be implemented?

On the site.

Mitigation Measures/Interventions:

- Clean and dirty water systems must be separated to prevent contaminated run-off from entering the surface and groundwater and soil.
- The effluent from the driveway area around the diesel dispensers / dispensing pumps must not flow to the street, or into watercourses or into storm water systems without first passing through a gravity-separator.
- All waste oils, greases, fuels etc. must be collected and disposed of in an appropriate manner off site. The contents of grease traps or other waste oil, grease and/or fuel disposal/storage containers must under no circumstances be voided to the surrounding area.
- Provide clean-up equipment specifically designed to deal with regular, small spills that occur.
- Develop a step-by-step clean-up guide to using the spill kit.
- Train all staff in the emergency response procedure. Make sure all staff know where the written procedure is kept. Train all staff in the emergency response procedure. Make sure all staff know where the written procedure is kept.
- All waste from the workshop must be disposed of in a suitable manner at a registered disposal site.
- Should an accidental spill event occur, the effluent must be contained as far as possible in the separator pit. If there is a risk that the sump could overflow (such as in a storm event) then the spilled material must be stored in a tanker or other appropriate container until it can be treated and disposed of.

Responsible Party:

Proponent and site engineer

4.3 The Decommissioning Phase Environmental Management Program

As the final phase in the project cycle, decommissioning may present positive environmental opportunities associated with the return of the land for alternative use and the cessation of impacts associated with operational activity, the need to manage risks and potential residual impacts may remain well after operations have ceased. Examples of potential residual impacts and risks include contamination of soil and groundwater, stock that has been abandoned (e.g. scrap equipment, old chemicals) and old (unserviceable) structures. All structures must be removed, and the site must be rehabilitated as it was prior the development.

- Contaminated metal must be steam-cleaned prior to disposal. Routing of effluent dependant on contaminants.
- If any metal, including piping, have future value it may be moved, after cleaning, to a storage area for redundant materials.
- Reference to the existing procedure for the disposal of metal to the scrap metal dealer.
- On the day of excavation, the site engineer, contractor and environmental consultant (contamination expert) must be present either as the tanks are being removed or immediately afterwards.
- The area to be excavated must be cordoned off with red danger tape and no smoking signs displayed around the site.
- All fuel inside the tank must be removed and the tank degassed, with the site then excavated to expose the tank. In order to ensure the tank is not damaged during excavation especially in areas of limited space, a small back actor must be used or the area must be manually excavated, with the removed soil stockpiled in a demarcated area on site.
- All other electrical, storm water or water pipelines must be located prior to excavation to ensure they are not damaged in the excavation process. All pipes and vents connected to the tank must be disconnected and sealed before the tank is removed.
- If there are no suspected leaks or contamination, the new tank can be installed.
- If a leak is suspected, soil samples must be taken from a number of points in the excavation as well as from the stockpiled soil. Water samples must also be taken if there are free-standing pools in the excavated pit. Background soil and water samples must also be taken off-site.
- The pit must be left open while the samples are sent to an appropriate laboratory for analysis. Should the analysis indicate the soil to be contaminated, soil must be removed from the pit until all of the contaminated material has been removed. Contaminated water must be pumped out,

collected and disposed of in an appropriate manner. Further soil samples must be taken and sent for analysis with the process repeated until analysis shows contamination to be within acceptable levels.

- The contaminated soil must be stockpiled separately and remediated on site or removed to an appropriate landfill site.
- The new tank can then be placed in the existing hole.
- The removed tank will be loaded onto a flat-bed trailer and taken to the contractor's storage yard. The tank will be flushed to remove any remaining residues with the flushed water either stored for future flushing or processed to remove the fuel.

5. CONCLUDING REMARKS

The purpose of this Environmental Management Program is to describe how potential negative environmental impacts/effects resulting from activities undertaken at/by the diesel depot located on Erf 2289 Tzaneen Ext 5 can be managed, eliminated, offset or reduced.

This document has attempts to organise and coordinate the required mitigation measures into a single structured plan that will guide the management of the diesel depot in such a way as to minimize the impact of the depot on the environment.

This document should be viewed as a dynamic document and additions should be made to it as other impacts/issues are identified during the operation of the diesel depot. Where additions or alterations are made, the parties responsible for upgrading, decommissioning, maintenance etc. should be informed of this in writing – such parties should acknowledge receipt of such additions/amendments in writing.

In conclusion it can be stated that several negative and positive impacts/effects can potentially arise from the diesel depot. These can however be mitigated through the implementation of a number of mitigation measures (as contained in this Environmental Management Program).
