

APP-003303

**WESCO WASTE MANAGEMENT'S WASTE OIL STORAGE,
HANDLING AND REFINING OPERATIONS IN BRAKWATER,
WINDHOEK**

ENVIRONMENTAL ASSESSMENT SCOPING REPORT



Assessed by:



Assessed for:




April 2022

Project:	WESCO WASTE MANAGEMENT'S WASTE OIL STORAGE, HANDLING AND REFINING OPERATIONS IN BRAKWATER, WINDHOEK: ENVIRONMENTAL ASSESSMENT SCOPING REPORT	
Report Version/Date:	Final April 2022	
Application Number:	APP-003303	
Prepared for: (Proponent)	Wesco Waste Management (Pty) Ltd PO Box 157 Walvis Bay	
Lead Consultant	Geo Pollution Technologies (Pty) Ltd PO Box 11073 Windhoek Namibia	TEL.: (+264-61) 257411 FAX.: (+264) 88626368
Main Project Team:	Pierre Botha (B.Sc. Geology/Geography); (B.Sc. (Hons) Hydrology/Hydrogeology) Quzette Bosman (BA. Geography/Sociology); (BA (Hons.) Environmental Management) André Faul (B.Sc. Zoology/Biochemistry); (B.Sc. (Hons.) Zoology); M.Sc. (For Conservation Ecology);(Ph.D. Medical Biosciences) Stefan Short Health and Safety Supervisor / GIS Technician	
Cite this document as:	Bosman Q, Botha P, Faul A, Short S; 2022 April; Wesco Waste Management's Waste Oil Storage, Handling and Refining Operations in Brakwater, Windhoek: Environmental Assessment Scoping Report	
Copyright	Copyright on this document is reserved. No part of this document may be utilised without the written permission of Geo Pollution Technologies (Pty) Ltd.	
Report Approval	 Pierre Botha Managing Director	

I LAMRON LANGENHOUEN acting as the Proponent's representative (Wesco Waste Management (Pty) Ltd), hereby confirm that the project description contained in this report is a true reflection of the information which the Proponent has 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.

Signed at WALVIS BAY on the 25 day of APRIL 2022.


Wesco Waste Management (Pty) Ltd

CY/2008/0090
Company Registration Number

EXECUTIVE SUMMARY

Wesco Waste Management (Pty) Ltd requested Geo Pollution Technologies (Pty) Ltd to undertake an environmental assessment for the operations of existing waste oil storage, handling and refining facilities situated within Brakwater, Windhoek. The operations span two erven, 14 and 15, in Nubu Industrial Park, Brakwater, within an industrial area of Windhoek. Erf 14 is mostly used for the receipt of waste oil collected countrywide and hosts the facility offices. Refining of waste oil takes place on erf 15, through various processes of filtering, separation and cleaning.

The environmental assessment is conducted to determine all environmental, safety, health and socio-economic impacts associated with the operations of the facilities. Relevant environmental data has been compiled by making use of secondary data and from a reconnaissance site visit. Potential environmental impacts and associated social impacts were identified and are addressed in this report.

Due to the nature and location of the facility, some impacts can be expected on the surrounding environment, see summary impacts table below. These impacts can however be successfully mitigated. The facility is surrounded by industrial properties, however, all adjacent properties were vacant during the compilation of the report. It is recommended that environmental performance be monitored regularly to ensure regulatory compliance to the environmental management plan and that corrective measures be taken if necessary. The operations of the waste oil refining facility plays an important role in terms of an approved waste oil disposal facility for various industries throughout Namibia.

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

The environmental management plan included in Section 10 of this document should be used as an on-site reference document during all phases (planning, construction (care and maintenance), operations and decommissioning) of the facility. All monitoring and records kept should be included in a report to ensure compliance with the environmental management plan. Parties responsible for transgression of the environmental management plan should be held responsible for any rehabilitation that may need to be undertaken. A Health, Safety, Environment and Quality policy as well as Environmental Policy could be used in conjunction with the environmental management plan. Operators and responsible personnel must be taught the contents of these documents. Municipal or national regulations and guidelines must be adhered to and monitored regularly as outlined in the environmental management plan.

Impact Summary Class Values

Impact Category	Impact Type	Construction		Operations	
<i>Positive Rating Scale: Maximum Value</i>		5		5	
<i>Negative Rating Scale: Maximum Value</i>			-5		-5
EO	Skills, Technology and Development	3		3	
EO	Revenue Generation, Employment and Economic Resilience	2		3	
PC	Waste Oil Handling	3		2	
SC	Traffic	-2		-2	
SC	Health, Safety and Security	-2		-2	
PC	Fire	-3		-3	
PC	Air Quality		-1	-3	
PC	Noise		-1		-1
PC	Waste Production		-2		-3
BE	Ecosystem and Biodiversity Impact		-1		-1
PC	Groundwater, Surface Water and Soil Contamination		-2		-2
SC	Visual Impact		-1		-1
	Cumulative Impact				-3

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

TABLE OF CONTENTS

1	BACKGROUND AND INTRODUCTION	1
2	SCOPE.....	2
3	METHODOLOGY	2
4	FACILITY OPERATIONS AND RELATED ACTIVITIES	2
4.1	OPERATIONAL COMPONENTS.....	2
4.2	EXISTING INFRASTRUCTURE	4
5	ALTERNATIVES TO THE PROPOSED PLANT	5
5.1	LOCATION ALTERNATIVES	5
5.2	PROJECT IMPLEMENTATION AND DESIGN ALTERNATIVES.....	5
5.3	NO-GO ALTERNATIVE.....	5
6	ADMINISTRATIVE, LEGAL AND POLICY REQUIREMENTS.....	5
7	ENVIRONMENTAL CHARACTERISTICS	9
7.1	LOCALITY AND SURROUNDING LAND USE	9
7.2	CLIMATE.....	10
7.3	TOPOGRAPHY AND DRAINAGE.....	11
7.4	GEOLOGY AND HYDROGEOLOGY	11
7.5	PUBLIC WATER SUPPLY.....	15
7.6	FAUNA AND FLORA.....	15
7.7	DEMOGRAPHIC AND ECONOMIC CHARACTERISTICS	16
7.8	CULTURAL, HERITAGE AND ARCHAEOLOGICAL ASPECTS	17
8	PUBLIC CONSULTATION.....	17
9	MAJOR IDENTIFIED IMPACTS	17
9.1	HYDROCARBON POLLUTION	17
9.2	NOISE IMPACTS.....	18
9.3	AIR QUALITY.....	18
9.4	FIRE	19
9.5	HEALTH AND SAFETY IMPACTS	19
9.6	EFFLUENT.....	19
9.7	TRAFFIC.....	19
10	ASSESSMENT AND MANAGEMENT OF IMPACTS	19
10.1	RISK ASSESSMENT AND ENVIRONMENTAL MANAGEMENT PLAN	21
10.1.1	Planning.....	21
10.1.2	Skills, Technology and Development.....	23
10.1.3	Revenue Generation, Employment and Economic Resilience	24
10.1.4	Waste Oil Handling.....	25
10.1.5	Traffic.....	26
10.1.6	Health, Safety and Security	27
10.1.7	Fire.....	28
10.1.8	Air Quality.....	29
10.1.9	Noise.....	31
10.1.10	Waste production	32
10.1.11	Ecosystem and Biodiversity Impact.....	33
10.1.12	Groundwater, Surface Water and Soil Contamination	34
10.1.13	Visual Impact	36
10.1.14	Cumulative Impact	37
10.2	DECOMMISSIONING AND REHABILITATION.....	38
10.3	ENVIRONMENTAL MANAGEMENT SYSTEM	38
11	CONCLUSION.....	38
12	REFERENCES	39

LIST OF APPENDICES

APPENDIX A: PROOF OF PUBLIC CONSULTATION	40
APPENDIX B: PERMITS.....	47
APPENDIX C: CONSULTANTS' CURRICULUM VITAE	51

LIST OF FIGURES

FIGURE 1-1 PROJECT LOCATION.....	1
FIGURE 4-1 SITE LAY OUT.....	4
FIGURE 7-1 LAND ZONING	9
FIGURE 7-2 DRAINAGE DIRECTION AND SLOPE.....	11
FIGURE 7-3 WATER CONTROL AREA AND GROUNDWATER FLOW	13
FIGURE 7-4 GEOLOGICAL SENSITIVITY	14
FIGURE 9-1. CONCEPTUAL LNAPL RELEASE TO THE VADOSE ZONE	18

LIST OF TABLES

TABLE 4-1 TANK DETAILS	4
TABLE 6-1 NAMIBIAN LAW APPLICABLE TO THE WASTE OIL STORAGE, HANDLING AND REFINING FACILITY	5
TABLE 6-2 MUNICIPAL BY-LAWS, GUIDELINES AND REGULATIONS.....	7
TABLE 6-3 RELEVANT MULTILATERAL ENVIRONMENTAL AGREEMENTS FOR NAMIBIA AND THE DEVELOPMENT	7
TABLE 7-1 NEIGHBOURING PROPERTY DETAILS.....	9
TABLE 7-2 SUMMARY OF CLIMATE DATA FOR WINDHOEK (ATLAS OF NAMIBIA)	10
TABLE 7-3 GROUNDWATER STATISTICS	14
TABLE 7-4 GENERAL FLORA DATA (ATLAS OF NAMIBIA)	15
TABLE 7-5 GENERAL FAUNA DATA (ATLAS OF NAMIBIA)	16
TABLE 7-6. DEMOGRAPHIC CHARACTERISTICS OF WINDHOEK, THE KHOMAS REGION AND NATIONALLY (NAMIBIA STATISTICS AGENCY, 2014; NAMIBIA STATISTICS AGENCY, 2009/2010).....	16
TABLE 10-1 ENVIRONMENTAL CLASSIFICATION OF IMPACTS ACCORDING TO THE RAPID IMPACT ASSESSMENT METHOD OF PASTAKIA 1998.....	20
TABLE 10-2 ASSESSMENT CRITERIA	20
TABLE 11-1 IMPACT SUMMARY CLASS VALUES	39

LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
AST	Aboveground Storage Tank
BE	Biological/Ecological
DWA	Department of Water Affairs
EA	Environmental Assessment
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
EMA	Environmental Management Act No 7 of 2007
EMP	Environmental Management Plan
EMS	Environmental Management System
EO	Economic/Operational
ES	Environmental Classification
GPT	Geo Pollution Technologies
HCs	Hydrocarbons
HFO	Heavy fuel oil
HIV	Human Immunodeficiency Virus
H₂S	Hydrogen Sulfide
HT	Heating tank
IBC	Intermediate Bulk Container
IAPs	Interested and Affected Parties
IUCN	International Union for Conservation of Nature
km/h	Kilometre per hour
LFO	Light fuel oil
LNAPL	Light Non-Aqueous Phase Liquids
mm/a	Millimetres per annum
Ma	Million years
mbs	Meters below surface
MEFT	Ministry of Environment, Forestry and Tourism
m/s	Meters per second
MSDS	Material Safety Data Sheet
MTBE	Methyl tert-butyl ether
N/A	Not applicable
NaCl	Sodium chloride
NO_x	Nitrogen oxides
OF	Over flow
PC	Physical/Chemical
PM	Particulate Matter
PPE	Personal Protective Equipment
ppm	Parts per million
SANS	South African National Standards
SC	Sociological/Cultural
SO₂	Sulfur dioxide
T	Tank
UNFCCC	United Nations Framework Convention on Climate Change
UST	Underground Storage Tank
WHO	World Health Organization

GLOSSARY OF TERMS

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

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

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

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

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

Environment - As defined in the Environmental Assessment Policy and Environmental Management Act - “land, water and air; all organic and inorganic matter and living organisms as well as biological diversity; the interacting natural systems that include components referred to in sub-paragraphs, the human environment insofar as it represents archaeological, aesthetic, cultural, historic, economic, palaeontological or social values”.

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

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

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

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

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

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

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

Polyvinyl alcohol (PVA) - is a water-soluble synthetic polymer. It is used in papermaking, textiles, and a variety of coatings. It is white (colourless) and odourless and is occasionally supplied as beads or as solutions in water.

Proponent (Applicant) - Any person who has submitted or intends to submit an application for an authorisation, as legislated by the Environmental Management Act no. 7 of 2007, to undertake an activity

or activities identified as a listed activity or listed activities; or in any other notice published by the Minister or Ministry of Environment and Tourism.

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

Scoping Process - process of identifying: issues that will be relevant for consideration of the application; the potential environmental impacts of the proposed activity; and alternatives to the proposed activity that are feasible and reasonable.

Significant Effect/Impact - means an impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment.

Stakeholder Engagement - The process of engagement between stakeholders (the proponent, authorities and IAPs) during the planning, assessment, implementation and/or management of proposals or activities. The level of stakeholder engagement varies depending on the nature of the proposal or activity as well as the level of commitment by stakeholders to the process. Stakeholder engagement can therefore be described by a spectrum or continuum of increasing levels of engagement in the decision-making process. The term is considered to be more appropriate than the term “public participation”.

Stakeholders - A sub-group of the public whose interests may be positively or negatively affected by a proposal or activity and/or who are concerned with a proposal or activity and its consequences. The term therefore includes the proponent, authorities (both the lead authority and other authorities) and all interested and affected parties (IAPs). The principle that environmental consultants and stakeholder engagement practitioners should be independent and unbiased excludes these groups from being considered stakeholders.

Sustainable Development - “Development that meets the needs of the current generation without compromising the ability of future generations to meet their own needs and aspirations” – the definition of the World Commission on Environment and Development (1987). “Improving the quality of human life while living within the carrying capacity of supporting ecosystems” – the definition given in a publication called “Caring for the Earth: A Strategy for Sustainable Living” by the International Union for Conservation of Nature (IUCN), the United Nations Environment Programme and the World Wide Fund for Nature (1991).

1 BACKGROUND AND INTRODUCTION

Wesco Waste Management (Pty) Ltd requested Geo Pollution Technologies (Pty) Ltd to undertake an environmental assessment for the operations of existing waste oil storage, handling and refining facilities situated within Brakwater, Windhoek. The operations span two erven, 14 and 15, in Nubu Industrial Park, Brakwater, within an industrial area of Windhoek (Figure 1-1). erf 14 is mostly used for the receipt of waste oil collected countrywide and hosts the facility offices. Refining of waste oil takes place on erf 15, through various processes of filtering, separation and cleaning. In general, operations of the facilities involves:

- ◆ Receipt of waste oil collected nationwide;
- ◆ Storage of the fuel in storage tanks;
- ◆ Refining waste oil through various processes of filtering, separation and cleaning to produce light and heavy fuel oil (HFO and LFO);
- ◆ Sale of LFO to clients for use in boilers and furnaces;
- ◆ General operational activities and maintenance procedures associated with the waste oil refining facility.

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

The environmental assessment was conducted in support of an application for an environmental clearance certificate in compliance with Namibia’s Environmental Management Act (Act No 7 of 2007).

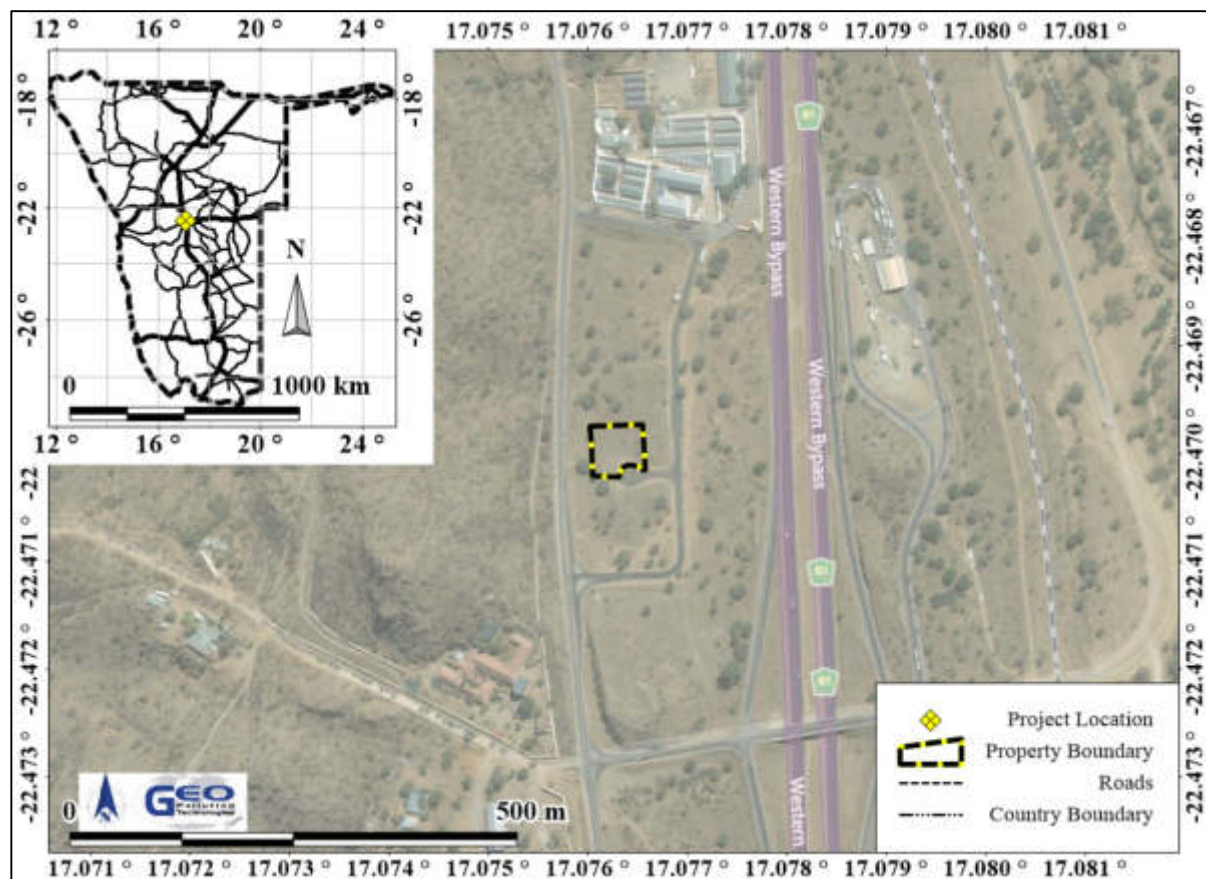


Figure 1-1 Project location

Project Justification – Waste oil is regarded as hazardous waste and its disposal is typically problematic. This is especially the case in towns where no approved hazardous waste disposal facilities are present. The collection of waste oil by Wesco, throughout Namibia, thus fulfil a very important role in prevention of waste oil being disposed of in environmentally detrimental ways. Furthermore, through refining, an otherwise unusable waste product is turned into a sought after commodity for use in boilers and furnaces. The refining facility is situated within Windhoek, a town which, based on its Integrated Urban Spatial Development Framework, is earmarked as an industrial hub in Namibia.

Benefits of the facility include:

- ◆ Availability of an approved disposal facility for waste oil,
- ◆ Production of a fuel source from a waste product (i.e. recycling),
- ◆ Revenue generation,
- ◆ Employment and skills development,
- ◆ Support for potential additional investments and development in town.

2 SCOPE

The scope of the environmental assessment is to:

1. Determine the potential environmental impacts emanating from the operational and possible construction and decommissioning activities of the waste oil storage and refining facility,
2. Identify a range of management actions which could mitigate the potential adverse impacts to acceptable levels,
3. Comply with Namibia's Environmental Management Act (2007),
4. Provide sufficient information to the Ministry of Environment and Tourism to make an informed decision regarding the operations and possible construction and decommissioning activities of the facility.

3 METHODOLOGY

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

1. Baseline information about the site and its surroundings was obtained from existing secondary information as well as from a reconnaissance site visit.
2. As part of the scoping process to determine potential environmental impacts, interested and affected parties (IAPs) were consulted about their views, comments and opinions and these are put forward in this report.
3. Based on gathered information and public and stakeholder consultation, an assessment of potential impacts was conducted and a management plan prepared.

4 FACILITY OPERATIONS AND RELATED ACTIVITIES

Operational activities take place on erf 14 and erf 15, Nubu Industrial Park, Brakwater. Erf 14, which is the western erf, mainly serves as a storage facility for waste oil and hosts the facility offices. Waste oil, collected from all over Namibia, is stored in various tanks on erf 14. Waste oil is transferred to erf 15 where it is refined. The refining process is restricted to erf 15.

OPERATIONAL COMPONENTS

Waste oil is collected throughout Namibia in intermediate bulk containers (IBCs), transported to Windhoek and pumped into eight (8) aboveground storage tanks on site. The waste oil products are collected, among others, from industrial oil-water separators, workshops, mines, fuel tank cleaning processes, spilled hydrocarbon products and various industries.

On erf 15 the waste oil is pumped into tanks for temporary storage before refining. Prior to refining, waste oil is passed through a gravity separator to remove the bulk of the water in the product. When refining is initiated, the waste oil is pumped to a heating tank where it is heated to 100 degrees Celsius (°C). The heat for the heating tank is produced by heating water circulating in pipes through a boiler, to the heating tanks, and back to the boiler. The boiler operates on light

fuel oil (LFO) which is produced on the same premises, through this refining process. Gasses and vapours from the boiler is released through a smoke stack located on the small heating tank.

The refining facility comprise two refineries (Plant 1 and Plant 2). Plant 1 (Alfa Laval MAPX309 Oil Separator), which has a larger refining capacity, can produce both LFO and heavy fuel oil (HFO) while Plant 2 only produces LFO. After the raw, used oil product is heated to 100 °C, it goes into Plant 1 which divides the raw product into the final LFO and HFO product, effluent (water) and sludge. The separator uses a vortex to separate the heavier sludge and effluent (water) from the final product. Effluent (water) makes up 15 - 20% of the raw material - depending on the composition. Solids in the form of sludge sticks to walls of vortex and is flushed out of the separator into a holding over flow tank beneath the refinery. The sludge is transported to Wesco Waste Management's Walvis Bay site for further processing.

The smaller refinery, Plant 2 can produce an average of 50,000 litres LFO per month. Plant 1 produces on average, 140,000 – 150,000 litres of LFO per month and has the capacity to produce 120,000 litres of HFO per month. Production is dependent on a combination of day and night shifts and the quality of the raw oils used in the refining process.

The smaller plant (Plant 2) works on the same principle as Plant 1. It has three smaller Alfa Laval oil separators and produces LFO only. The by-products (water and sludge) from this plant still contain useful products and is as such not disposed. Instead it is collected and refined a second time in the larger refinery. The by-products (effluent and sludge) from this plant is not disposed, but rather collected in two aboveground tanks and sent to the Wesco Waste Management Walvis Bay site where it is introduced to the heat tank/boiler of a larger refinery for further processing.

The site has a gravity separator from which water and raw used oil is separated. The water is clean enough to be released in the sewage and the raw used oil gets introduced in the refining process.

Products stored and handled include:

- ◆ Separator oil/sludge
- ◆ Oily water slops
- ◆ Old diesel
- ◆ Waste oil from car, heavy vehicle and vessel workshops
- ◆ Waste oil from machinery or engines from industries and mines
- ◆ Waste oil from other refinery and blending tank operations, and petroleum depots
- ◆ Waste oil from power stations
- ◆ Disposed HFO/LFO
- ◆ Contaminated water (MTBE water, mud water & any type of oily contamination)

All product produced on site, after the refining process, is stored in six (6) aboveground steel tanks within the larger bund area.

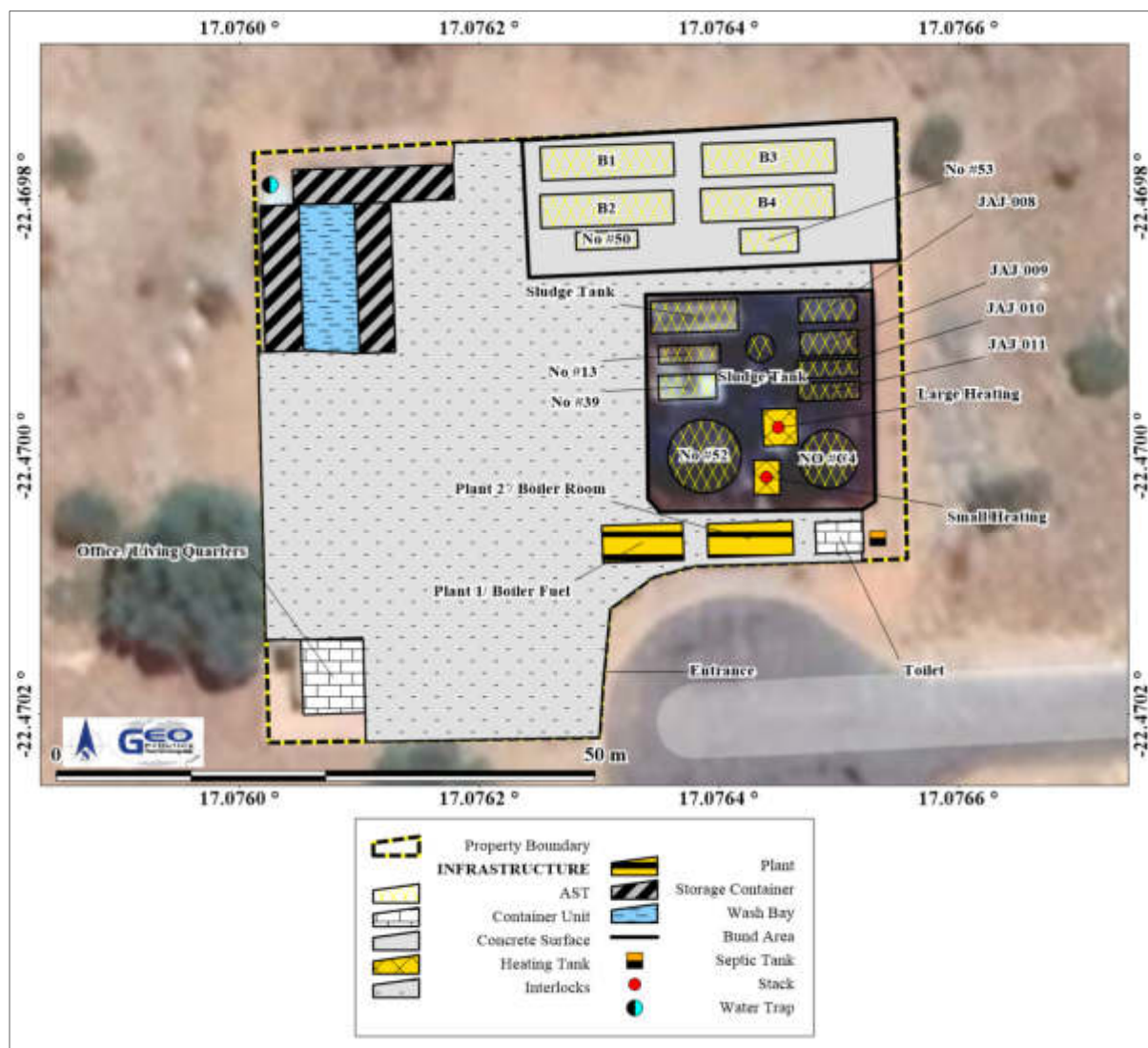


Figure 4-1 Site Lay out

EXISTING INFRASTRUCTURE

Storage is in aboveground steel storage tanks of varying capacities. The locations of these tanks are depicted in Figure 4-1 and tank number, age and product stored are indicated in Table 4-1. Steel tanker trucks are parked on the site and used as needed. Plastic intermediate bulk containers (IBC's) may be present on site and the quantity will depend on the number of IBC's, with collected waste oil, received from collection points all over Namibia. Pumps and hoses are used on site for pumping products between tanker trucks, tanks and IBC's. All tanks are located in bunded areas while the rest of the erf is covered with interlocks.

All of the tanks on the properties were installed in 2021. Wesco took ownership of, and started operating on, the sites in 2021 and has gradually increased the number of tanks and infrastructure.

Table 4-1 Tank details

Tank No.	Tank Capacity	Product Stored	Tank No.	Tank Capacity	Product Stored
NO#B1	87,000	Used Oil	SH	3,500	Used Oil
NO#B2	87,000	Used Oil	LH	12,000	Used Oil
NO#B3	75,000	Used Oil	PB	1,000	Used Oil
NO#B4	75,000	Used Oil	JAJ-008	23,000	LFO
NO#13	13,000	Used Oil	JAJ-009	23,000	LFO

Tank No.	Tank Capacity	Product Stored	Tank No.	Tank Capacity	Product Stored
NO#39	24,000	Used Oil	JAJ-010	14,000	Diesel
NO#50	11,000	Used Oil	JAJ-011	14,000	LFO
NO#53	23,000	Used Oil	NO#51	146,000	LFO
Plastic Tank	10,000	Sludge			
Sludge tanks	10,000	Sludge			

5 ALTERNATIVES TO THE PROPOSED PLANT

Various alternatives related to the project are considered and each of these discussed. The alternatives can roughly be grouped into three main categories, namely:

- ◆ Location alternatives;
- ◆ Project implementation and design alternatives;
- ◆ No-go alternative.

5.1 LOCATION ALTERNATIVES

The site has been established in an industrial area of Windhoek outside of the sensitive groundwater area, therefore no additional location alternatives were considered during this assessment. Location of the site was chosen to be close to the major client base as to minimise transport of the product to clients.

5.2 PROJECT IMPLEMENTATION AND DESIGN ALTERNATIVES

Operations are similar to existing operations conducted in Walvis Bay which have proven to be feasible and implementable. Therefore no design or technology alternatives are assessed.

5.3 NO-GO ALTERNATIVE

There are no waste oil treatment facilities of the same scale and nature located in Windhoek. The facility not only renders a service to Windhoek and Namibian businesses by taking in old oil, but also provide clients with a usable product. The value added to old oil makes it more valuable to store and sell as opposed to disposing thereof at a hazardous waste disposal site. Should the project not continue and be stopped, as part of the no-go alternative, business in Windhoek will have fewer options on what to do with their old oil while clients will have to haul or transport suitable product from Walvis Bay.

6 ADMINISTRATIVE, LEGAL AND POLICY REQUIREMENTS

To protect the environment and achieve sustainable development, all projects, plans, programmes and policies deemed to have adverse impacts on the environment require an environmental assessment, as per the Namibian legislation. The legislation and standards provided in Table 6-1 to Table 6-3 govern the environmental assessment process in Namibia and/or are relevant to the plant.

Table 6-1 Namibian law applicable to the waste oil storage, handling and refining facility

Law	Key Aspects
The Namibian Constitution	<ul style="list-style-type: none"> ◆ 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	<ul style="list-style-type: none"> ◆ 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	<ul style="list-style-type: none"> ◆ 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	<ul style="list-style-type: none"> ◆ Regulates petroleum industry ◆ Makes provision for impact assessment ◆ Controls the safe disposal of petroleum products, including the collection and discarding of used oil ◆ Petroleum Products Regulations (Government Notice No. 155 of 2000) <ul style="list-style-type: none"> ○ Prescribes South African National Standards (SANS) or equivalents for storage and distribution of petroleum products in above-ground bulk installations (refer to Government Notice No. 21 of 2002)
Petroleum Products and Energy Act, 1990 (act 13 of 1990): Regulations relating to the purchase, sale, supply, acquisition, possession, disposal, storage, transportation, recovery and re-refinement of used mineral oil Government Notice No. 48 of 1991	<ul style="list-style-type: none"> ◆ All regulations with regard to used mineral oils ◆ Provides for permits and certificates for various aspects of possession and handling of mineral oils.
The Water Act Act No. 54 of 1956	<ul style="list-style-type: none"> ◆ Remains in force until the new Water Resources Management Act comes into force ◆ Defines the interests of the state in protecting water resources ◆ Controls the disposal of effluent ◆ Numerous amendments
Water Resources Management Act Act No. 11 of 2013	<ul style="list-style-type: none"> ◆ 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	<ul style="list-style-type: none"> ◆ Define the powers, duties and functions of local authority councils ◆ Regulates discharges into sewers
Public Health Act Act No. 36 of 1919	<ul style="list-style-type: none"> ◆ 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	<ul style="list-style-type: none"> ◆ 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.

Law	Key Aspects
Labour Act Act No 11 of 2007, Government Notice No. 236 of 2007	<ul style="list-style-type: none"> ◆ 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	<ul style="list-style-type: none"> ◆ Governs the control of noxious or offensive gases ◆ Prohibits scheduled process without a registration certificate in a controlled area ◆ Requires best practical means for preventing or reducing the escape into the atmosphere of noxious or offensive gases produced by the scheduled process
Hazardous Substances Ordinance Ordinance No. 14 of 1974	<ul style="list-style-type: none"> ◆ 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)	<ul style="list-style-type: none"> ◆ Not in force yet ◆ Provides for prevention and control of pollution and waste ◆ Provides for procedures to be followed for licence applications

Table 6-2 Municipal by-laws, guidelines and regulations

Municipal By-laws, Guidelines or Regulations (City of Windhoek)	Key Aspects
Groundwater Protection Regulations	<ul style="list-style-type: none"> ◆ Provides for the protection of groundwater, landscape and vegetation sensitivity ◆ Requires an EIA and EMP for projects that may potentially impact on groundwater ◆ Identifies three groundwater control zones: medium, high and very high
Windhoek Environmental Structure Plan and Environmental Policy	<ul style="list-style-type: none"> ◆ Integrates spatial planning decision-making, environmental planning and environmental impact management
Town Planning Scheme	<ul style="list-style-type: none"> ◆ Enables the comprehensive management of all property and related public sector functions across the city ◆ Defines permitted activities for different land use zones ◆ Provides for the protection of groundwater and the environment ◆ Stipulated building restrictions: Building lines, height and side spaces
Sewerage and Drainage Regulations	<ul style="list-style-type: none"> ◆ Regulates discharges into sewer systems. ◆ Provides standards to which effluents entering a sewer system must adhere. ◆ Regulates storm water run-off

Table 6-3 Relevant multilateral environmental agreements for Namibia and the development Agreement

Agreement	Key Aspects
Stockholm Declaration on the Human Environment, Stockholm 1972.	<ul style="list-style-type: none"> ◆ 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

Agreement	Key Aspects
1985 Vienna Convention for the Protection of the Ozone Layer	<ul style="list-style-type: none"> ◆ 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)	<ul style="list-style-type: none"> ◆ 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	<ul style="list-style-type: none"> ◆ Under article 14 of The Convention, EIAs must be conducted for projects that may negatively affect biological diversity

The project 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:

- ◆ 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 Proponent requires a permit from the Ministry of Mines and Energy in terms of the Petroleum Products Act for the purchase, sale, supply, acquisition, possession, disposal, storage, transportation, recovery and re-refinement of used mineral oil as well as a wastewater discharge permit for industrial and domestic effluent discharge.
- ◆ 9.1 “The manufacturing, storage, handling or processing of a hazardous substance defined in the Hazardous Substances Ordinance, 1974.” and 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 meters at any one location.” The Environmental Management Act Regulations (EMA regulations) defines “dangerous goods” as: “goods which by reason of their nature, quantity or mode of stowage, are likely to endanger the environment or the lives or the health of persons, and which are listed in - (a) Part 4 of the Road Traffic and Transport Regulations published in Government Notice No. 53 of 30 March 2001; or (b) any other law as dangerous goods.” - The Proponent will store large volumes of fuel (HFO, LFO and used oil) on site.
- ◆ 9.5 “Construction of filling stations or any other plant for the underground and aboveground storage of dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin.” - The Proponent will store large volumes of fuel (HFO, LFO and used oil) on site.

7 ENVIRONMENTAL CHARACTERISTICS

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

7.1 LOCALITY AND SURROUNDING LAND USE

The property is situated within the Nubu Industrial Park in Brakwater. Although zoned for industrial purposes, the Nubu Industrial Park currently only has one other developed erf (erf 1). Two proposed developments are earmarked for erf 2 and erf 11. Herford Street is located directly west of the erf 14 while the St Clare Monastery owns the property directly west from Hereford Street. Access to the site is gained via a registered service road (Waldua Street), also serving Carin Park 200 m north of the site. All surrounding properties are privately owned. The A1 National Road (Western Bypass) and its related road reserve is located approximately 100 m east of the site and the Brakwater weighbridge further northeast, located on a property which is zoned for roads. Apart from the Roads Authority and City of Windhoek, the neighbours are listed in Table 7-1.

Table 7-1 Neighbouring property details

Property details	Owner / proposed development	Land use / Proposed Development
Erf 1 Nubu Industrial Park	Document Management Solutions Trust	Existing office / storage
Erf 2 Nubu Industrial Park	JF Paints (Pty) Ltd	Proposed paint manufacturing
Erf 11 Nubu Industrial Park	ELSH Cremation Services cc	Proposed crematorium
Erf 10, 12, 13, 15,17 Nubu Industrial Park	Privately owned	Vacant
Farm Nubuamis Re/15/12/37	St Clare Monastery, Windhoek	Monastery building and property

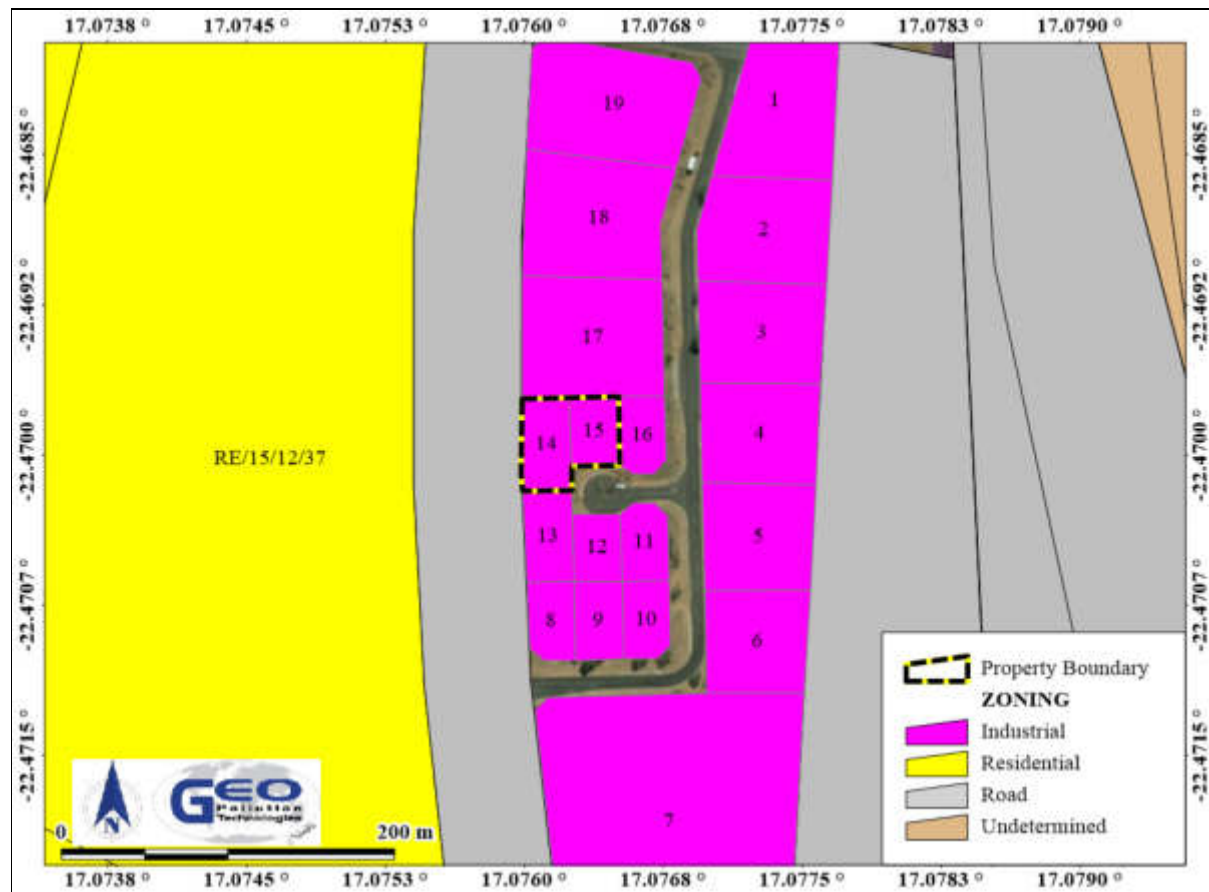


Figure 7-1 Land zoning

Implications and Impacts

The site is situated in an area zoned for industrial purposes. The site was originally designed to accommodate industrial land use while being removed from adjacent, non-industrial properties by road. The industrial site is located outside of the prohibited use area, as defined in the Windhoek Town Planning Ordinance. No impact, in terms of zoning is expected on nearby and adjacent establishments.

7.2 CLIMATE

The project is located north of Windhoek in central Namibia. It is characterised by a moderate climate and summer rainfall. The average annual rainfall for this area ranges between 300-350 mm/a, with an annual rainfall variation of 30-40%. Highest rainfall is typically recorded in February with an average of 88.3 mm/m. Rainfall events in Windhoek are typically thunderstorms with heavy rainfall that can occur in short periods of time (cloud bursts) which may result in flooding. A general summary of climatic conditions for the area is provided in Table 7-2.

The dominant wind direction is between a north-northeast and an east-northeast direction and can reach speeds in excess of 28 km/h, however, the localised topography may impact wind significantly as the site is bordered by hills west and of the site. The data has been generated by satellite data, and can thus slightly deviate onsite, due to localised topography.

Table 7-2 Summary of Climate Data for Windhoek (Atlas of Namibia)

Classification of climate	Semi-arid highland savannah
Precipitation	Average annual rainfall 300-350 mm/a. Sporadic and unpredictable, high intensity, highly localised storm events between October and April.
Variation in annual rainfall (%)	30-40
Average annual evaporation (mm/a)	3,000-3,200
Water deficit (mm/a)	1,701-1,900
Average annual temperatures (°C)	19-20
Windhoek North Wind Summary (https://www.meteoblue.com)	

Implications and Impacts

The site is located next to Hereford Street with a culvert adjacent to the property. In the event of thunderstorms, significant amounts of storm water may flow through the premises, should the diverting structures fail. Should any pollutants be spilled or incorrectly stored, surface water runoff may become polluted and this may impact on surface water downstream of the site.

7.3 TOPOGRAPHY AND DRAINAGE

The site falls within the Khomas Hochland Plateau region, having rolling hills in the west with many adjacent summit heights reflecting older land surfaces. The site is located on the eastern side of a hill within the relatively flat valley floor. The ephemeral Klein Windhoek River flows east of the A1 National Road, east of the site. The Windhoek Graben, which strikes in a northern direction, is primarily responsible for forming the broader valley side. Drainage is towards the east of the site into the Klein Windhoek River, a tributary of the Swakop River.

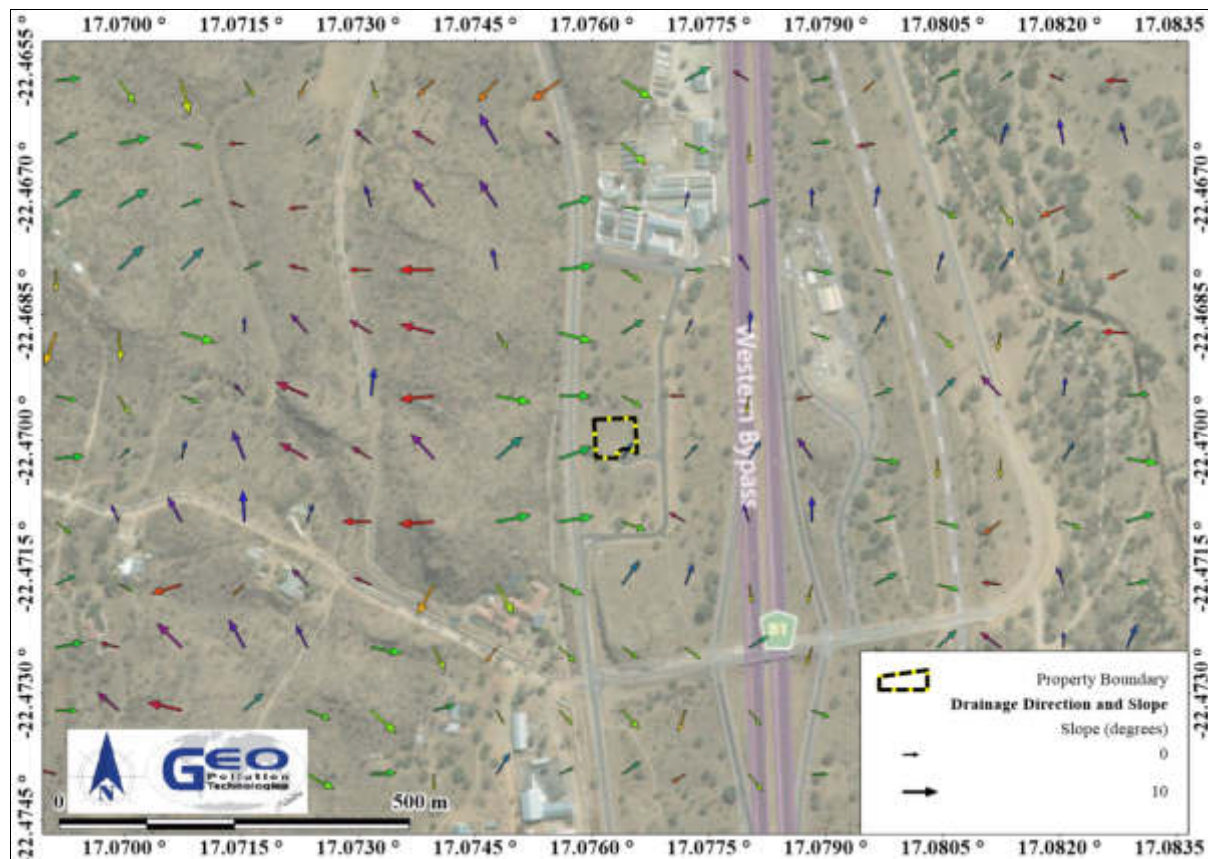


Figure 7-2 Drainage direction and slope

Implications and Impacts

The road, hill and mountainous terrain west of the site has a slope which will cause a greater velocity of storm water runoff during rainfall events. A storm water channel was constructed to divert such water away from the site. The site itself is not expected to create high velocity storm water. Any pollutants that are not contained on site and are transported via surface water flow, will flow out of the site and potentially pollute the natural environment. Cumulative effects may be considered for the Klein Windhoek River and the Swakoppoort Dam. Therefore, the safe storage and use of hazardous material must be contained to render the environment safe from any spills or leaks.

7.4 GEOLOGY AND HYDROGEOLOGY

A relative thin surficial soil cover (Qa) of the Quaternary Age is expected on site. The surficial deposits consist mainly of weathered mica schist and sand with localised deposits of quartz pebbles and large boulders. The Quaternary deposits overlie rocks from the Namibian Age. The Namibian Age geology locally comprises of the Kuiseb Formation of the Swakop Group. The Kuiseb Formation is dominated by argillaceous assemblages of mica schist and micaceous quartzite with minor graphitic schist, carbonaceous schist, calc-silicate rocks, metagreywacke, migmatite, marble and amphibolite (Killick, 2000). Outcropping of the Kuiseb Formation rocks occur about 70 m west of the project border and approximately 180 m south of the site.

Rocks of extrusive origin also make up the regional geology of the area, consisting of metabasic rocks from the Matchless Belt and also serpentinite deposits. The metabasic rocks of the Matchless Belt consist mainly amphibolite, amphibole schist, metagabbro and ultramafic schist. The Matchless Belt is a laterally continuous belt of metamorphosed mid-ocean ridge basalts within metapelitic schist (Kukla, 1992). The serpentinites are derived from mantle harzburgites which also occur within the metapelitic schist of the Kuiseb Formation (Barnes, 1982). The Matchless Belt occur rough 4 km to the southeast and serpentinite about 3.7 km north of the project area.

The complex geology of the Windhoek area is a result of numerous folding and faulting episodes, including thrusting and rifting, to which the area has been subjected. The metasedimentary formations of the study area strike in an east-northeasterly direction and dip 15-35° to the north-northwest. A number of north-northeast, northeast and northwest striking faults and joints are found in the area forming the major underground water conduits for the area. Mica schist is prone to plastic deformation rather than brittle fracturing and therefore exhibits significantly lower secondary porosity and permeability. Quartzite, and to some degree micaceous quartzite, is subject to brittle deformation and thus exhibits relatively high secondary porosity and permeability due to jointing.

Two main aquifer types are found in the area, namely secondary (fractured rock) aquifers hosted in the mica schist of the Kuiseb Formation, and primary (unconsolidated sediment) aquifers formed in the Klein Windhoek River valley alluvial (Qa). Windhoek has a regional groundwater flow from south to north. Groundwater flow is expected to take place through primary porosity in the surface cover, while it is expected to flow along fractures, faults and other geological structures (secondary porosity) present within the underlying formations (hard rock formations). Groundwater flow from the site can be expected in a northerly direction. Local flow patterns may vary due to groundwater abstraction. Water is utilized in the area, with 53 boreholes known of within a 5 km radius from the property boundary. The average borehole yield is 7 m³/h and the average groundwater level 35 m below surface. Table 7-3 presents groundwater statistics of boreholes contained in the Department of Water Affairs (DWA) database. Note that this database is generally outdated and more boreholes might be present.

No municipal production boreholes are situated closer than 2 km from the site. The usage of private boreholes is not clear, but they should be considered to be at risk if pollution of the aquifer takes place. In the greater Brakwater area, groundwater is used primarily for domestic and small scale farming activities. Water in the area is often brackish and may be contaminated by runoff from the Klein Windhoek River which flows through the city.

The project site does not fall in a water control area. The boundary of the Windhoek-Gobabis Subterranean Water Control Area (Extension) - Government Notice 47 of 26 March 1976 is roughly 400 m east of the project area. The project area thus falls outside a permit controlled area, however groundwater remains the properties of the Government of Namibia.



Figure 7-3 Water control area and groundwater flow

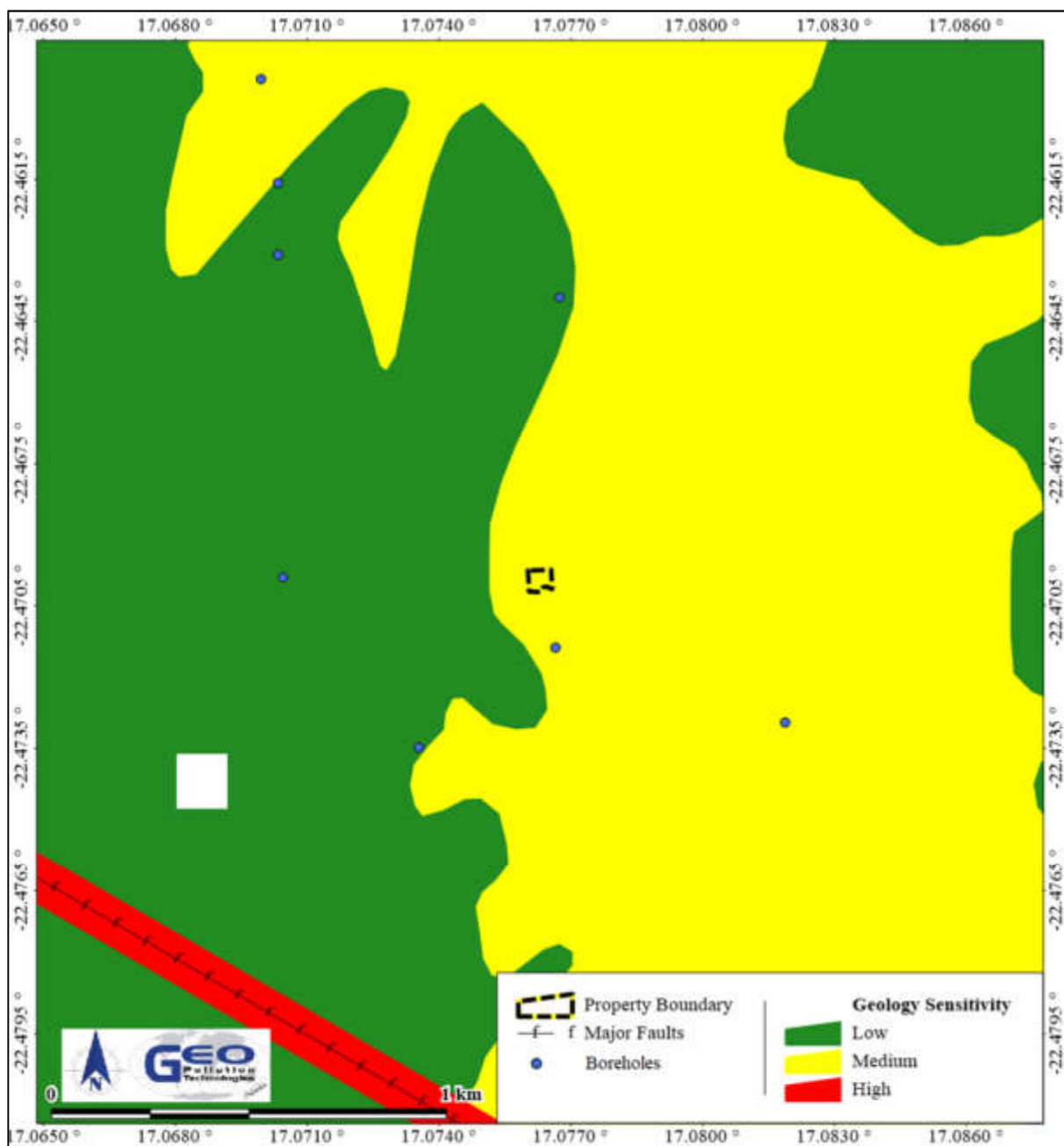


Figure 7-4 Geological sensitivity

Table 7-3 Groundwater statistics

Query Centre: Wesco Waste Management Nubu Industrial Park; -22.4699°S; 17.0763°E		Query Box Radius: 5.0km										
GEO Pollution Technologies		NUMBER OF KNOWN BOREHOLES	LATITUDE	LONGITUDE	DEPTH (m/b)	YIELD (m ³ /h)	WATER LEVEL (m/b)	WATER STRIKE (m/b)	TDS (ppm)	SULPHATE (ppm)	NITRATE (ppm)	FLUORIDE (ppm)
Data points		53			28	23	18	8	49	49	49	49
Minimum			-22.424904	17.027607	13	1	8	13	164	4	0	0
Average					91	7	35	52	1195	255	6	1
Maximum			-22.514896	17.124993	191	38	113	125	6238	2500	81	5
Group A					7.14%	21.74%	11.11%	0.00%	53.06%	61.22%	87.76%	81.63%
	<i>Limit</i>				50	>10	10	10	1000	200	10	1.5
Group B					60.71%	21.74%	66.67%	62.50%	26.53%	28.57%	4.08%	12.24%
	<i>Limit</i>				100	>5	50	50	1500	600	20	2.0
Group C					32.14%	56.52%	16.67%	25.00%	8.16%	6.12%	4.08%	2.04%
	<i>Limit</i>				200	>0.5	100	100	2000	1200	40	3.0
Group D					0.00%	0.00%	5.56%	12.50%	12.24%	4.08%	4.08%	4.08%
	<i>Limit</i>				>200	<0.5	>100	>100	>2000	>1200	>40	>3

Statistical grouping of parameters is for ease of interpretation, except for the grouping used for sulphate, nitrate and fluoride, which follow the Namibian guidelines for the evaluation of drinking-water quality for human consumption, with regard to chemical, physical and bacteriological quality. In this case the groupings has the following meaning:

Group A: Water with an excellent quality

Group B: Water with acceptable quality

Group C: Water with low health risk

Group D: Water with a high health risk, or water unsuitable for human consumption.

Implications and Impacts

A medium risk to groundwater is expected due to the geological sensitivity of the area. This is due to the surficial deposits covering the subsurface geology. Mica schist can be inferred as the subsurface geology. However, groundwater remains an important resource and would be at risk if any spills are not contained, cleaned and disposed of properly. Groundwater is the property of the Government of Namibia.

7.5 PUBLIC WATER SUPPLY

Water consumption in Windhoek is well managed by means of water demand management. Nevertheless, water is a scarce resources in Namibia and represents a constraint for sustainable development in future. Consumption increase with the soaring influx of people to the city.

Listed in order of resource development, Windhoek receives its water from boreholes in and around town, reclaimed water (New Goreangab Water Reclamation Plant), and a NamWater Scheme that transfers water from the Von Bach Dam, the Swakoppoort Dam, the Omatako Dam and the Grootfontein Karst Area. The City has also started with artificial recharge of the Windhoek aquifer and is planning to extend this scheme through the installation of new recharge boreholes as well as the development of deeper abstraction boreholes, 400 to 500 m deep. This clearly illustrates the value of the aquifer. The boreholes are the second most important water resource of the city and the sustained use of the aquifer needs to be assured. The project is located within the Swakoppoort Dam Catchment which is extremely important in terms of public water supply for the central areas of Namibia. The Swakoppoort Dam forms one of the three dams that supply water to the central areas of Namibia.

Implications and Impacts

Water pollution in terms of water security in the central areas of Namibia is considered to be a major concern. Surface runoff of pollution into the Swakoppoort Dam may impact water supply, though highly unlikely due to the distance of the site from the dam.

7.6 FAUNA AND FLORA

The site falls within the Savanna Biome with a Thornbush shrubland (Dense Shrubland) vegetation type (Mendleson et al., 2006). It is however void of vegetation. The surrounding area is known for its high plant diversity. Dense shrubland vegetation growth, including a variety of large trees and shrubs, is supported on the elevated area, west of the site and Hereford Street, which provides a habitat for a variety of animal and bird species. A number of large Camel-thorn (*Acacia erioloba*) trees, a protected species, were noted during the site visit. Black-thorn (*Acacia mellifera*), Red-thorn (*Acacia reficiens*), Sandveld acacia (*Acacia fleckii*) and Camel-thorn (*Acacia erioloba*) are some of the most common tree species noted in the area during the site visit.

Table 7-4 General flora data (Atlas of Namibia)

Biome	Savanna
Vegetation type	Thornbush shrubland
Vegetation structure type	Dense shrubland
Diversity of higher plants	Highest (Diversity rank = 1) [1 - 7 representing highest to lowest diversity]
Number of plant species	More than 500
Percentage tree cover	26-50
Percentage tree cover	2-5

Tree height (m)	26-50
Percentage shrub cover	1-2
Shrub height (m)	2-10
Percentage dwarf shrub cover	< 0.5
Dwarf shrub height (m)	51-75
Percentage grass cover	0.5-1
Grass height (m)	0.5-1
Thornbush shrubland dominant trees	<i>Acacia mellifera, Acacia reficiens, Acacia fleckii, Boscia albitrunca, Lonchocarpus nelsii, Acacia erioloba</i>

Table 7-5 General fauna data (Atlas of Namibia)

Mammal Diversity	61 - 75 Species
Rodent Diversity	20 - 23 Species
Bird Diversity	> 230 Species
Reptile Diversity	71 - 80 Species
Snake Diversity	35 - 39 Species
Lizard Diversity	> 35 Species
Frog Diversity	8 - 11 Species
Termite Diversity	7 - 9 Genera
Scorpion Diversity	18 - 21 Species

Implications and Impacts

The facility is located within an already disturbed industrial area. Thus no immediate threat to biodiversity in the area is expected, however, uncontrolled pollution may and can cause damage to any biodiversity surrounding the site.

7.7 DEMOGRAPHIC AND ECONOMIC CHARACTERISTICS

The project area falls within the Khomas Region and lies north of Windhoek. For demographic characteristics of Windhoek Rural, Windhoek, the region and Namibia as a whole, see Table 7-6 (National Planning Commission, 2012).

The facility employs six permanent persons, four of which live permanently on site. However, 30 indirect employment opportunities have been created for contractors and service providers. Collection of waste oil, and related remuneration thereof, may promote additional waste oil collection initiatives. The Proponent is helping two individuals who have identified the opportunity of waste oil collection. Tanks and suction pumps are provided to these individuals on an informal agreement basis. The arrangement allows for oil collection and related remuneration on a small scale, all of which would not have been possible without the industrial scale waste oil collection and storage on site.

Table 7-6. Demographic Characteristics of Windhoek, the Khomas Region and Nationally (Namibia Statistics Agency, 2014; Namibia Statistics Agency, 2009/2010)

	Windhoek Rural	Windhoek	Khomas Region	Namibia
Population (Males)	10,554	159,600*	164,600	1,021,912
Population (Females)	8,589	162,800*	167,800	1,091,165
Population (Total)	19,143	322,500	332,300	2,113,077
Unemployment (15+ years)	N/A	N/A	21.7%	33.8%
Literacy (15+ years)	N/A	N/A	95.7%	87.7%
Education at secondary level (15+ years)	N/A	N/A	60.4%	51.2%
Households considered poor	N/A	N/A	5.8%	19.5%

*Data available from preliminary results only (National Planning Commission, 2012)

Implications and Impacts

The development will sustain employment of people from the area. Skills development and training would be a benefit to employees and contractors or oil providers. The facility may have an influence on further stimulating economic growth of the area and region which may result in more job opportunities. The area is zoned for industry and no permanent living quarters may be allowed on site without consent use therefore as obtained by from the City of Windhoek.

7.8 CULTURAL, HERITAGE AND ARCHAEOLOGICAL ASPECTS

The St Clare Monastery of Windhoek is located west of the site with the main facility building located 200 m southwest of the site. No known archaeological resources have been noted in the vicinity since the establishment of the area. No other structures, sites or spheres of heritage of cultural significance was determined to be in close proximity to the site.

Implications and Impacts

No impacts are expected on cultural, heritage and archaeological aspects close to the site.

8 PUBLIC CONSULTATION

Consultation with the public forms an integral component of an environmental assessment and enables interested and or affected parties (IAPs) e.g. neighbouring landowners, local authorities, environmental groups, civic associations and communities, to comment on the potential environmental impacts associated with the proposed operations and to identify additional issues which they feel should be addressed in the scoping phase. Consultation was initiated and facilitated through notification letters and site- and press notices.

Public participation notices were advertised twice in two weeks in the national papers: The Namibian Sun and Republikein on 01 and 08 February 2021. A site notice was placed on site and notification letters delivered to neighbours. The City of Windhoek and the Roads Authority were also notified and responded with regards to the notification. See Appendix A for proof of the public participation processes and registered IAPs.

9 MAJOR IDENTIFIED IMPACTS

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

9.1 HYDROCARBON POLLUTION

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

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

If small volumes of spilled LNAPL enter the unsaturated zone (i.e. vadose zone), the LNAPL will flow through the central portion of the unsaturated pores until residual saturation is reached. A three-phase system consisting of water, LNAPL, and air is formed within the vadose zone. Infiltrating water dissolves the components within the LNAPL (e.g., benzene, xylene, and toluene) and transports them to the water table. These dissolved contaminants form a contaminated plume radiating from the area of the residual product. Many components found in LNAPL are volatile and can partition into soil air and be transported by molecular diffusion to

other parts of the aquifer. As these vapours diffuse into adjoining soil areas, they may partition back into the water phase and transfer contamination over wider areas. If the soil surface is relatively impermeable, vapours will not diffuse across the surface boundary and concentrations of contaminants in the soil atmosphere may build up to equilibrium conditions. However, if the surface is not covered with an impermeable material, vapours may diffuse into the atmosphere.

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

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

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

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

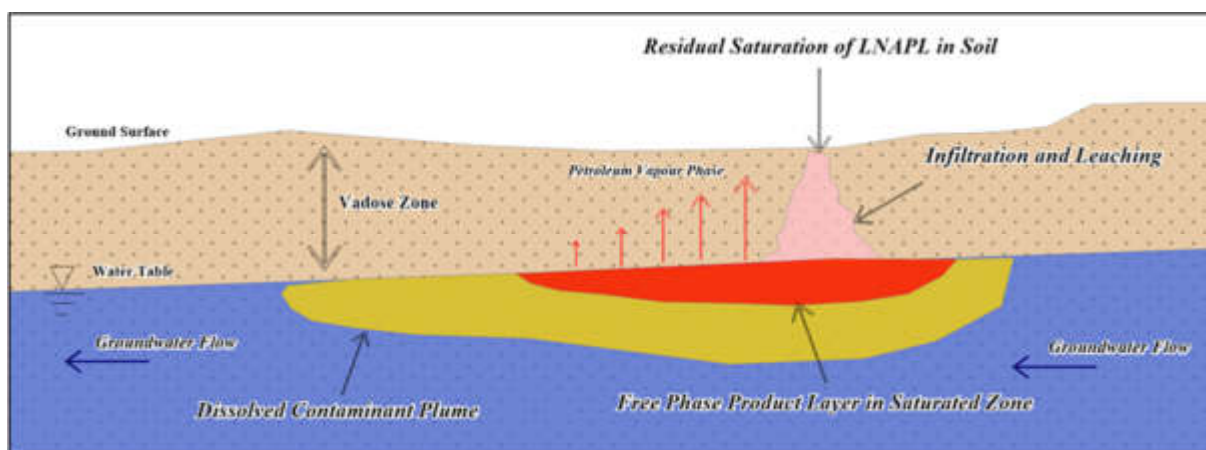


Figure 9-1. Conceptual LNAPL Release to the Vadose Zone

9.2 NOISE IMPACTS

Some noise will exist due to heavy motor vehicles accessing the site for delivery of waste oil and collection of LFO and HFO during operations. Construction related activities may result in temporary noise producing activities.

9.3 AIR QUALITY

LFO is combusted in boilers. Burning of the LFO creates gasses (carbon monoxide (CO), carbon dioxide (CO₂), sulfur dioxide (SO₂), nitrous oxides (NO_x), nitric oxide (N₂O)), volatile organic compounds and hydrocarbons. These elements are released into the atmosphere through a stack on site and are known pollutant elements, some of which are greenhouse gasses. Operations of

the processing site of the Proponent are however considered to be of a small scale and is considered to have a low contribution to the degraded airshed of Windhoek. However, it is understood that a neighbouring property is also proposing to have a stack on site for the burning of human remains. Therefore, emissions release has a greater cumulative impact. In the absence of air quality emissions standards for Namibia, the Proponent should adopt the emissions standards as advocated by the World Bank and International Finance Corporation.

9.4 FIRE

Waste oil, HFO and LFO must be heated before it will ignite. The possibility of a fire is thus lower for operations on erf 14 which may have some stored material. An increased risk is related to the two heating tanks on erf 15. The nature of the waste oils and LFO are such, that it can rapidly result in a large fire that could burn for a long time if not extinguished. Firefighting measures and equipment on site has to adhere to all fire-related regulations as per local and national standards.

9.5 HEALTH AND SAFETY IMPACTS

Hydrocarbons are carcinogenic and dermal contact and inhalation of fumes should be prevented. Injuries can occur due to incorrect lifting of heavy equipment and materials, falling from heights, getting caught in moving parts of machines, vehicles, and exposure to hot temperatures.

9.6 EFFLUENT

Effluent from the manufacturing plant will be transported to and disposed at the Walvis Bay hazardous waste site. In addition, grey and black water will be kept of onsite in a septic tank system which is proposed to be cleaned out twice a month. All waste water treatment, storage and/or disposal present pollution risks to the environment and treatment facilities.

9.7 TRAFFIC

Delivery of waste oil is mainly received via bulk waste oil carriers which may transport up to 23,000 l to the site. Deliveries are made via the entrance to the site on erf 14. In addition to delivery truck traffic, sludge and related waste which has to be transported to the Walvis Bay site is also collected with large tank carriers. Collection of LFO, the refined product, see the last type of bulk carriers entering the site. With the development of the surrounding properties, which have entrances to the cul-de-sac, the traffic and congestion risk will increase. The risk will be reduced by the Proponent which should ensure that all vehicles remain on site and are not parked in the surrounding streets. Proposed operation of the crematorium of erf 11, may see events, from time to time, and thus an increase of vehicles and therefore an increased cumulative impact on traffic.

10 ASSESSMENT AND MANAGEMENT OF IMPACTS

The purpose of this section is to assess and identify the most pertinent environmental impacts that are expected from the operational, construction (upgrades, maintenance, etc. – see glossary for “construction”) and potential decommissioning activities of the plant. An EMP based on these identified impacts are also incorporated into this section.

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

Ranking formulas are then calculated as follow:

$$\text{Environmental Classification} = A1 \times A2 \times (B1 + B2 + B3)$$

The environmental classification of impacts is provided in Table 11.

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

Table 10-1 Environmental classification of impacts according to the rapid impact assessment method of Pastakia 1998.

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

Table 10-2 Assessment criteria

Criteria	Score
Importance of condition (A1) – assessed against the spatial boundaries of human interest it will affect	
Importance to national/international interest	4
Important to regional/national interest	3
Important to areas immediately outside the local condition	2
Important only to the local condition	1
No importance	0
Magnitude of change/effect (A2) – measure of scale in terms of benefit / disbenefit of an impact or condition	
Major positive benefit	3
Significant improvement in status quo	2
Improvement in status quo	1
No change in status quo	0
Negative change in status quo	-1
Significant negative disbenefit or change	-2
Major disbenefit or change	-3
Permanence (B1) – defines whether the condition is permanent or temporary	
No change/Not applicable	1
Temporary	2
Permanent	3
Reversibility (B2) – defines whether the condition can be changed and is a measure of the control over the condition	
No change/Not applicable	1
Reversible	2
Irreversible	3
Cumulative (B3) – reflects whether the effect will be a single direct impact or will include cumulative impacts over time, or synergistic effect with other conditions. It is a means of judging the sustainability of the condition – not to be confused with the permanence criterion.	
Light or No Cumulative Character/Not applicable	1
Moderate Cumulative Character	2

10.1 RISK ASSESSMENT AND ENVIRONMENTAL MANAGEMENT PLAN

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

The objectives of the EMP are:

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

Various potential and definite impacts will emanate from the operations, construction and decommissioning phases. The majority of these impacts can be mitigated or prevented. The impacts, risk rating of impacts as well as prevention and mitigation measures are listed below.

As depicted in the tables below, impacts 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, surface water and soil contamination and traffic impacts.

10.1.1 Planning

During the phases of planning for future operations, construction and decommissioning of the facility, it is the responsibility of the 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 construction activities and operations of the project remains valid (e.g. boiler certification, used mineral oil permit, effluent discharge permit, etc.).
- ◆ 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:
 - Risk management / mitigation / EMP/ Emergency Response Plan and HSE Manuals
 - Adequate protection and indemnity insurance cover for incidents;
 - Comply with the provisions of all relevant safety standards;
 - Procedures, equipment and materials required for emergencies.

- ◆ If one has not already been established, establish and maintain a fund for future ecological restoration of the project site should project activities cease and the site is decommissioned and environmental restoration or pollution remediation is required.
- ◆ Establish and / or maintain a reporting system to report on aspects of construction activities, operations and decommissioning as outlined in the EMP.
- ◆ Submit monitoring reports every six months.
- ◆ Appoint a specialist environmental consultant to update the EA and EMP and apply for renewal of the environmental clearance certificate prior to expiry.

10.1.2 Skills, Technology and Development

During various phases of the project, training has been and will continually be provided to a portion of the workforce, to maintain and operate various features of the facility according to the required standards. Skills are transferred to an unskilled workforce for general tasks. Technology used for the plants are new to the local industry, aiding in operational efficiency. Development of people and technology are key to economic development. The employees will have emergency and evacuation plan training while the supervisors and identified employees will have fire-fighting training.

Project Activity / Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction	Employment, technological development and transfer of skills	2	2	2	3	1	24	3	Probable
Daily Operations	Employment, technological development and transfer of skills	2	2	2	3	2	28	3	Definite
Indirect Impacts	Transfer of skills and technological development	2	1	2	3	3	16	2	Definite

Desired outcome: To see an increase in skills of local Namibians, as well as development and technology advancements in the waste oil refining industry.

Actions

Mitigation:

- ◆ If the skills exist locally, contractors must first be sourced from the town, then the region and then nationally. Deviations from this practice must be justified.
- ◆ Skills development and improvement programs to be made available as identified during performance assessments.
- ◆ Employees to be informed about parameters and requirements for references upon employment.
- ◆ The Proponent must employ Namibians where possible. Deviations from this practise should be justified appropriately.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Record should be kept of training provided.
- ◆ 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 report based on records kept

10.1.3 Revenue Generation, Employment and Economic Resilience

The facility has led to changes in the way revenue is generated and paid to the local municipality. Sustaining and any increase of skilled and professional labour will continue. Employment is sourced locally while skilled labour/contractors may be sourced from other regions. A waste product is effectively recycled and reused, aiding in revenue generation while creating opportunities for waste oil collection and remuneration. Continued employment will contribute to all employees' economic resilience.

Project Activity / Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction	Employment and contribution to local economy	2	1	2	2	2	12	2	Definite
Daily Operations	Employment contribution to local economy	3	1	3	3	2	24	3	Definite
Indirect Impacts	Decrease in unemployment, contribution to local economy	3	1	3	3	3	27	3	Definite

Desired outcome: Contribution to local and 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..

10.1.4 Waste Oil Handling

Due to a lack of approved hazardous waste disposal sites in Namibia, it is likely that waste oil would be disposed of incorrectly and may then potentially cause environmental pollution. Thus, the operations of the Wesco Waste Management facility provides an avenue for the disposal of waste oil throughout Namibia. What would otherwise be hazardous waste is processed into a usable resource, with limited waste by-products, and thus a largely reduced hazardous waste component. However, handling, storage and refining of such products present a pollution risk when not conducted according to national and /or international standards and requirements.

Project Activity / Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Daily Operations	Provides a convenient and suitable avenue for waste oil disposal and a source of LFO	3	2	2	2	2	36	3	Definite
Indirect Impact	Reduction in hazardous waste. Recycle and reuse of waste products.	3	1	2	2	2	18	2	Definite

Desired Outcome: Provide suitable avenue for waste oil disposal and prevent environmental contamination.

Actions

Mitigation:

- ◆ Ensure compliance to the petroleum regulations of Namibia or with international standards where local standards are not available.
- ◆ Regularly collect waste oil throughout Namibia and ensure waste oil disposal points are available at all times.

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

- ◆ Keep record of volumes of waste oil receipt and include in figures in a bi-annual summary report

10.1.5 Traffic

Traffic to and from the site, especially linked to the transportation of waste oils and refined products, may increase congestion in the cull-de-sac and Waldua Street. The increased traffic will increase the risk of incidents and accidents. Proposed development in the Nubu Industrial Park will add to the traffic in the area, thereby contributing to the cumulative nature of the impact.

Project Activity / Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction	Delivery of equipment and building supplies	2	-1	2	2	2	-12	-2	Probable
Daily Operations	Increase traffic, road wear and tear and incidents risk due to transportation of waste oils and refined products	2	-1	2	2	2	-12	-2	Probable

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

Actions

Prevention:

- ◆ Erect clear signage regarding access and exit points at the facility.
- ◆ Trucks delivering waste oil or collecting LFO and HFO should not be allowed to obstruct any traffic of access to facilities in the cul-de-sac or at the junction with Waldua Street.

Mitigation:

- ◆ If any traffic impacts are expected, traffic management should be performed to prevent these.
- ◆ The placement of signs to warn and direct traffic will mitigate traffic impacts.

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

- ◆ Any complaints received regarding traffic issues should be recorded together with action taken to prevent impacts from repeating itself.
- ◆ A report should be compiled every 6 months of all incidents reported, complaints received, and action taken.

10.1.6 Health, Safety and Security

Every activity associated with the operational phase is reliant on human labour and therefore exposes them to health and safety risks. Activities such as the operation of machinery and handling of hazardous chemicals (inhalation and carcinogenic effect of some petroleum products), poses the main risks to employees. Security risks are related to unauthorized entry, theft and sabotage.

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

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

Actions

Prevention:

- ◆ 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.).
- ◆ 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 as well as all product Material Safety Data Sheets (MSDS).
- ◆ 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.
- ◆ Strict security that prevents unauthorised entry to the site.
- ◆ Obtain consent use from the City of Windhoek for any residential related use or accommodation of employees on site.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

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

10.1.7 Fire

During the operational phase various flammable and hazardous substances will be handled and stored on site, in varying quantities. Any waste resources contaminated with such materials further have the potential to combust when not disposed of according to safety standards. In addition to the fire risks, any operation which relies on electricity have risks associated with circuits in the electrical system. Dust accumulation, water and faulty electrical outlets or old, outdated appliances are some main factors associated with electrical fires.

Project Activity / Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction	Fire risk due to flammable products on site	2	-2	2	2	1	-20	-3	Improbable
Daily Operations	Fire risk due to flammable products on site	3	-2	2	2	2	-30	-3	Improbable

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

Actions:

Prevention:

- ◆ Ensure all hazardous substances are stored according to permit conditions, MSDS and SANS instructions.
- ◆ Maintain regular site, mechanical and electrical inspections and maintenance.
- ◆ Clean all spills / leaks.
- ◆ Special note must be taken of the relevant regulations stipulated in sections 47 and 48 of the regulations (Government Notice 155 of 2000) of the Petroleum Products and Energy Act, 1990 (Act No. 13 of 1990).
- ◆ Follow SANS standards for operation and maintenance of the facility.
- ◆ A holistic fire protection and prevention plan is needed. This plan must include an emergency response plan, firefighting plan and spill recovery plan.
- ◆ Maintain firefighting equipment, good housekeeping and personnel training (firefighting, fire prevention and responsible housekeeping practices).

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

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

10.1.8 Air Quality

The boiler is the principal emitter of air pollutants and of key concern are the “exhaust” gases: nitrous oxides, sulphurous oxides, hydrocarbons, carbon monoxide, carbon dioxide, and particulate matter, which are all considered to be significant sources of air pollution. Gases emitted from the boiler contribute to the greenhouse effect. The volume associated with these releases during the operational phase are insignificant, however may have a cumulative effect on the Windhoek airshed. Windhoek is located in a valley which accommodates air inversions especially during the winter months, when cooler air is trapped, accumulating pollution. However, the site is located outside the major urban centre (with related, elevated greenhouse gas emissions) and will contribute negligible amounts of pollution to the airshed. Vapours may also be released into the air during refilling of bulk storage tanks. Prolonged exposure may have carcinogenic effects. Dust may be generated should any construction take place.

Heating of the oil may release vapours into the air. A separate stack is fitted over the heating tank to facilitate vapour release which mainly contains water. The proposed crematorium close to the site will release gasses associated with the burning of LPG gas and human remains, thereby increasing the cumulative nature of emissions release from the area.

Project Activity / Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction	Excessive dust generated from maintenance and upgrade activities	1	-1	2	2	2	-6	-1	Definite
Daily Operations	Hazardous vapours and greenhouse gasses emissions	2	-2	2	2	2	-24	-3	Definite

Desired Outcome: To prevent health impacts, limit dust generation and greenhouse gas emissions.

Actions

Prevention:

- ◆ Personnel issued with appropriate masks where excessive dust or vapours are present.
- ◆ A complaints register should be kept for any dust related issues and mitigation steps taken to address complaints where necessary e.g. dust suppression.
- ◆ Employees should be coached on the dangers of hydrocarbon vapours.
- ◆ All infrastructure must be according to SANS requirements.
- ◆ Regular maintenance of the boiler systems should be conducted, to ensure that emissions do not become excessive.
- ◆ Develop an air quality management plan and make the necessary adjustments to the boilers to reduce emissions if required.
- ◆ Quality checks should be conducted on the LFO used in boiler operations. Good quality LFO will reduce emissions.
- ◆ Scrubbers or ceramic filters should be considered to minimise emissions from boilers.
- ◆ Increasing stack height.
- ◆ Personnel issued with appropriate masks where excessive dust or vapours are present.
- ◆ A complaints register should be kept for any dust related issues and mitigation steps taken to address complaints where necessary e.g. dust suppression.
- ◆ All fuel driven vehicles and machines to be kept in a good working order.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Any complaints received regarding dust, fuel vapours or boiler emissions should be recorded with notes on action taken.
- ◆ Air quality management plan
- ◆ All information and reporting to be included in a final report.

10.1.9 Noise

Noise will exist due to heavy motor vehicles accessing the site to offload oil and load fuel. Construction (maintenance and upgrade) may generate excessive noise. Operational activities are not inherently noisy and will mostly be related to the operations of machines and vehicles on site.

Project Activity / Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction	Noise generated from construction activities	1	-1	2	2	1	-5	-1	Definite
Daily Operations	Noise generated from the operational activities	1	-1	2	2	2	-6	-1	Definite

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

Actions**Prevention:**

- ◆ All machinery must be regularly serviced to ensure minimal noise production.
- ◆ The City of Windhoek council resolution (215/09/2006) guidelines on maximum noise levels for industrial areas should be adhered to (Noise should be limited to 70 decibels).
- ◆ All machinery employed on or around the site must be regularly serviced to ensure minimal noise production.
- ◆ Hearing protectors as standard PPE for workers in situations with elevated noise levels

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ City of Windhoek Guidelines.
- ◆ Maintain a complaints register.
- ◆ Report on complaints and actions taken to address complaints and prevent future occurrences.

10.1.10 Waste production

Various waste streams will be produced during the operational phase. Notable waste associated with the facility include: waste water effluent, sludge, domestic waste and general waste. Waste presents a contamination risk and when not removed regularly may become a fire hazard. The site has septic tank which accommodates sewage generated during all phases of the project. An application was made for a wastewater discharge license

Sludge from the refining process will be transported to the Walvis Bay hazardous waste site for disposal.

Project Activity / Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction	Waste production, littering, illegal dumping, contaminated materials	1	-2	2	2	2	-12	-2	Definite
Daily Operations	Waste production, hazardous material, contaminated materials	2	-2	2	2	2	-24	-3	Definite

Desired Outcome: To reduce the amount of waste produced, and prevent pollution, contamination 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.
- ◆ Special care must be taken to prevent spillage or leakage of fuels. Regular inspection and maintenance of equipment is required and all spillages must be cleaned up immediately.
- ◆ Hazardous substances should not be allowed to enter the environment.
- ◆ Adhere to wastewater discharge license conditions of the septic tank.
- ◆ Waste should be disposed of regularly and at appropriately classified disposal facilities, this includes hazardous material (empty chemical containers, contaminated rugs, paper water and soil).
- ◆ The spill catchment traps should be cleaned regularly and waste disposed of appropriately.
- ◆ See the material safety data sheets available from suppliers for disposal of contaminated products and empty containers.
- ◆ Liaise with the municipality regarding waste and handling of hazardous waste.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

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

10.1.11 Ecosystem and Biodiversity Impact

The site is an established industrial site and no additional impact on the biodiversity is foreseen during the operational phase. The nature of the operational activities will be such that the probability of creating a habitat for flora and fauna to establish is low. Impacts are therefore mostly related to pollution of the environment.

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

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

Actions.

Mitigation:

- ◆ Report any extraordinary sightings to the Ministry of Environment, Forestry 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.
- ◆ Ensure waste cannot be blown away by wind.
- ◆ The establishment of habitats and nesting sites at the plant should be prevented where possible.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Report on any extraordinary faunal sightings and/or bird collisions.
- ◆ All information and reporting to be included in a bi-annual report.

10.1.12 Groundwater, Surface Water and Soil Contamination

Operations entail the storage and handling of waste oil, HFO and LFO which present a contamination risk. Contamination may either result from failing storage facilities, pumps and pipelines, spills and leaks associated with overfilling or human error, or incorrect disposal of waste. Such spills may contaminate surface water, soil and groundwater.

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

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

Actions

Prevention:

- ◆ Spill control structures and procedures must be in place according to permit conditions, SANS standards or better.
- ◆ All storage of hydrocarbons must occur in suitably bunded areas with concrete floors.
- ◆ All handling of hydrocarbons should be on spill proof surfaces connected to catchment pit.
- ◆ 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).
- ◆ Any spillage of more than 200 litre must be reported to the relevant authorities.
- ◆ Spill clean-up means must be readily available on site and spills must be cleaned up immediately.
- ◆ Surfactants (soap) may not be allowed to enter the spill catchments or any oil water separation process e.g. soap usage on spill control surfaces.
- ◆ All handling should be conducted on surfaces provided for this purpose. E.g. Concrete slabs with regularly maintained seals between slabs.
- ◆ Ensure all requirements of the Labour Act are met and ensure handling and storage of chemicals to reduce risks as identified in the MSDS.
- ◆ The procedures followed to prevent environmental damage during service and maintenance, and compliance with these procedures, must be audited and corrections made where necessary.
- ◆ Any spill must be cleaned up immediately.
- ◆ The spill catchment traps and oil water separator should be cleaned regularly and waste disposed of at a suitably classified hazardous waste disposal plant.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Groundwater monitoring for petroleum hydrocarbons must be conducted annually and remediation instigated where needed.
- ◆ A report should be compiled bi-annually of all monitoring and spills or leakages reported. The report should contain the following information: date and duration of spill, product spilled, volume of spill, groundwater monitoring results, remedial action taken, etc., and a copy of documentation in which spill was reported to Ministry of Mines and Energy.

10.1.13 Visual Impact

The nature of the facility is contrary to the existing natural landscape character. However, the facility is located in an area which has been demarcated by the City of Windhoek for industrial development and close to existing industrial developments. Operations are fully visible from Hereford Street and the A1 Highway.

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

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

Actions

Prevention:

- ◆ Regular waste disposal, good housekeeping and routine maintenance on infrastructure will ensure that the longevity of structures are maximised and a low visual impact is maintained.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

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

10.1.14 Cumulative Impact

Possible cumulative impacts associated with the operational phase include air quality, health and safety, economy, wastewater and traffic. The facility is an existing operation It will contribute to pollutant emissions associated with greenhouse gasses emissions.

Positive cumulative impacts associated with the project are related to the reduced volume of waste oil within Namibia, employment and revenue generation.

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

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

Actions

Prevention:

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

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

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

10.2 DECOMMISSIONING AND REHABILITATION

Decommissioning is not foreseen during the validity of the environmental clearance certificate. Decommissioning was however assessed as construction activities include modification and decommissioning. Should decommissioning occur at any stage, rehabilitation of the area may be required. Decommissioning will entail the complete removal of all infrastructure including buildings and underground infrastructure. Any pollution present on the site must be remediated. The impacts associated with this phase include noise and waste production as structures are dismantled. Noise must be kept within City of Windhoek standards and waste should be contained and disposed of at an appropriately classified and approved waste plant and not dumped in the surrounding areas. Future land use after decommissioning should be assessed prior to decommissioning and rehabilitation. The EMP for the facility will have to be reviewed at the time of decommissioning to cater for changes made to the site and implement guidelines and mitigation measures.

10.3 ENVIRONMENTAL MANAGEMENT SYSTEM

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

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

11 CONCLUSION

The waste oil handling and refining facility benefits Namibia as a whole as it provides an avenue for waste oil disposal throughout Namibia. By refining such waste oil, LFO and HFO is produced which are resources required by many boiler and furnace operators throughout Namibia. The facility generates revenue and contributes locally to skills transfer and training which in turn develops the local workforce during operations of the facility. Negative impacts can be mitigated with adherence to related SANS standards and City of Windhoek regulations. Adequate bundling of stored material and related fire protection should be of utmost importance as well prevention of soil and ground- and surface water contamination. Waste produced must be removed from site and disposed of at an appropriate facility or re-used or recycled where possible. Hazardous waste must be disposed of at an approved hazardous waste disposal site.

The EMP (Section 10) should be used as an on-site reference document for the operations of the facility. Parties responsible for transgressing of the environmental management plan should be held responsible for any rehabilitation that may need to be undertaken. The Proponent 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) 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 Wesco Waste Management. The environmental clearance certificate issued, based on this document, will render it a legally binding document which should be adhered to. Focus should be placed on Section 10, which includes an EMP for this project. It should be noted that the

assessment process's aim is not to stop the activity, or any of its components, but to rather determine its impact and guide sustainable and responsible development as per the spirit of the EMA.

Table 11-1 Impact summary class values

Impact Category	Impact Type	Construction	Operations
<i>Positive Rating Scale: Maximum Value</i>		5	5
<i>Negative Rating Scale: Maximum Value</i>		-5	-5
EO	Skills, Technology and Development	3	3
EO	Revenue Generation, Employment and Economic Resilience	2	3
PC	Waste Oil Handling	3	2
SC	Traffic	-2	-2
SC	Health, Safety and Security	-2	-2
PC	Fire	-3	-3
PC	Air Quality	-1	-3
PC	Noise	-1	-1
PC	Waste Production	-2	-3
BE	Ecosystem and Biodiversity Impact	-1	-1
PC	Groundwater, Surface Water and Soil Contamination	-2	-2
SC	Visual Impact	-1	-1
Cumulative Impact			-3

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

12 REFERENCES

- Africon. 2004. Windhoek Environmental Structure Plan & Environmental Policy. Final Report 100382/1/2004.
- 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.
- Meteoblue. (2019, March). https://www.meteoblue.com/en/weather/forecast/modelclimate/windhoek-noord_namibia_3371346.
- Miller, R.2008. The Geology of Namibia, Volume 2. Neoproterozoic to Lower Palaeozoic, Ministry of Mines and Energy Geological Survey.
- Namibia Statistics Agency. Namibia household Income and Expenditure Survey 2009/2010.
- Namibia Statistics Agency. Namibia 2011 Population and Housing Census Main Report.
- Pastakia, C.M.R.; 1998; The Rapid Impact Assessment Matrix (RIAM) – A new tool for Environmental Impact Assessment.

Appendix A: Proof of Public Consultation

- ◆ Notified and Registered Parties
- ◆ Proof of Notification
- ◆ Press Notices

Notified and Registered Parties

Name	Organisation
Holtzhausen	Document Management Solutions Trust Erf 1, Nubuamis, Brakwater
B Diergardt	B D Panel Beating
A G Dames	Rent a Garage
B Groenewald	B J Groenewald Trucking CC
L Rousseau	Jf Paints (Pty) Ltd. Erf 2 Nubu Industrial Park
General Manager	4X4 Adventure Africa Namibia
Sr Fransiska	Poor Clare Sister Monastery, Windhoek
W Boshoff	Erf 11, 12, 16, 17 Nubu Industrial Park
G Kotze	Erf 10, Nubu Industrial Park
M Mwashindange	Namdeb Diamond Corporation (PTY) LTD (Namdeb)
D Gibson	DG Ecological Consulting cc
J Pallett	Resilient Environmental Solutions cc

Proof of Notification



Public Participation Notification: Environmental Assessment: Wesco Waste Management's Waste Oil Storage, Handling and Refining Operations in Brakwater, Windhoek

Name & Surname	Organisation/Address	Tel / Mobile	Email	Signature
Cde largen <i>In many Assesment Report</i>	DMST Nubul 40079	0813528023	delanyegmai	<i>[Handwritten Signature]</i> <i>In many Assesment Report</i>

Geo Pollution Technologies
Wesco Waste Management

February 2022



TEL.: (+264-61) 257411 ♦ FAX.: (+264) 88626368

CELL.: (+264-81) 1220082

PO BOX 11073 ♦ WINDHOEK ♦ NAMIBIA

E-Mail: gpt@thenamib.com

To: City of Windhoek
 Dept of Economic Development and Environment
 80 Independence Ave
 P O Box 59
 Windhoek

Re: Environmental Assessment for Wesco Waste Management's Waste Oil Storage, Handling and Refining Operations in Brakwater, Windhoek

1 February 2022

Dear Sir/Madam

In terms of the Environmental Management Act (No 7 of 2007) and the Environmental Impact Assessment Regulations (Government Notice No 30 of 2012), notice is hereby given to all potential interested and affected parties that an application will be made to the Environmental Commissioner for Environmental Clearance Certificates for the following project:

Project: Wesco Waste Management's Waste Oil Storage, Handling and Refining Operations in Brakwater, Windhoek

Proponent: Wesco Waste Management (Pty) Ltd

Environmental Assessment Practitioner: Geo Pollution Technologies (Pty) Ltd

Wesco Waste Management performs nationwide collection of used and waste oil for recycling purposes. Oil collected at the Windhoek site is stored on Erf No 14 & 15, Nubu Industrial Park, Brakwater, while refining through various processes of filtering, separation and cleaning occurs on the same property. Activities include the operation of a boiler for oil heating purposes. Through these processes, light fuel oil (LFO) is produced.

Geo Pollution Technologies (Pty) Ltd was appointed by the Proponent to conduct an environmental assessment for the facility. As part of the assessment we consult with interested and affected parties. You are hereby invited to register as an interested and affected party for this project. By registering you are provided with the opportunity to share with Geo Pollution Technologies, any comments, issues or concerns related to the facility, for consideration in the Environmental Assessment.

Should you require any additional information please contact Geo Pollution Technologies at telephone 061-257411. Comments for consideration during the environmental assessment should reach us by 23 February 2022.

Fax: 088-62-6368 or

E-Mail: wesco@thenamib.com

Thank you in advance,

Sincerely,

Quzette Bosman
 Social and Environmental Assessment Practitioner
 Geo Pollution Technologies

Page 1 of 2

Directors:

P. Botha (B.Sc. Hon. Hydrogeology) (Managing)

Renegotiate genocide, new German govt urged

OSONE THAGE
WINDHOEK

The OvaHerero (OTA) and Nama (NTLA) traditional authorities say the new German government must restart genocide negotiations and abandon the previous settlement reached with the Namibian government.

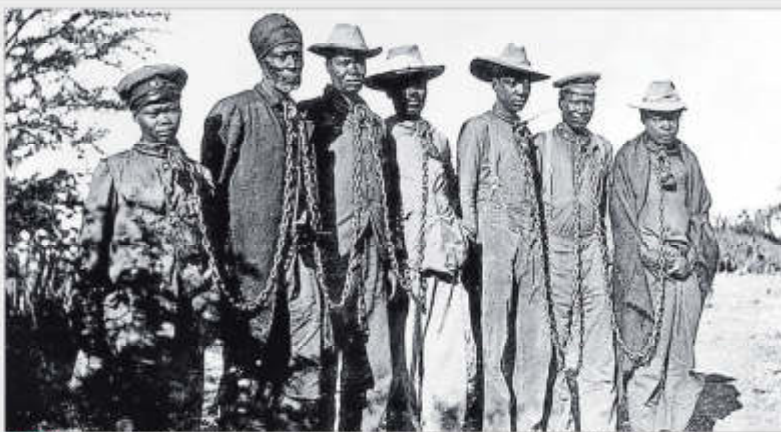
The chief and chairman of the Nama Traditional Authority, Johannes Isaacs, said the OvaHerero and Nama traditional authorities were prepared to work with the new political leadership in Germany.

"The OTA and NTLA are ready to work with the new government. We also urge the Namibian government to restart negotiations," said Isaacs. According to him, the traditional authorities had also urged the newly appointed German minister for foreign affairs, Annalena Baerbock, whom he said had expressed willingness to discuss the genocide matter.

"An initial submission was made to the foreign minister to express readiness to on the genocide matter," Isaacs said.

The designate paramount chief of the OvaHerero traditional authority, Mutjinda Katjiva, reiterated Isaacs' call, saying a fresh round of negotiations was necessary. "We have had broad discussions with government, our position is very clear. Negotiations need to be started," Katjiva said.

Katjiva added that renegotiations were his last way forward. "What we are suggesting to the German government is, unless you join in all of us, it is the only lasting solution," he said. Baerbock's office had recently suspended a request to discuss the matter in future, Katjiva said.



RESTART: The newly elected German government has been urged to restart genocide negotiations. PHOTO: GIZ

Blam chance

Despite Felix, Germany's youth ministry secretary, said Namibia had "re-announced itself" to the NSRF's 2020 package for the 1984-89 genocide, and still looks for renegotiating the much-disputed settlement.

But the settlement, Felix says, is also meant to ensure the country has had fair compensation. The Namibian government "has committed itself" to the settlement. Through the programme will be implemented in seven priority designations, regions, in which a large part of the Herero and Nama live.

"The law must be fully involved in the planning and implementation. The programme will be adjusted and a separate bilateral development operation.

"The law must be fully involved in the implementation of the programme, which is an express wish of the Namibian partners," he said. Felix also clarified that the Nama and Herero have not been represented in the negotiations.

REGIONAL DISTRIBUTOR HAS TO ABSORB BULK TARIFF HIKE

Consumers fume as Nored tariffs go up 3.3%

PUBLIC PARTICIPATION NOTICE ENVIRONMENTAL ASSESSMENT FOR THE OPERATIONS OF WESCO WASTE MANAGEMENT, WINDHOEK

Geo Pollution Technologies (Pty) Ltd was appointed by Wesco Waste Management (Pty) Ltd to undertake an Environmental Assessment for the operational activities associated with their waste of storage, handling and refining facility on Erf No 14 813, Naha Industrial Park, Erindava, Windhoek. The detailed project location may be viewed at:

<http://www.thenamib.com/projects/projects.html>

The environmental assessment will be according to the Environmental Management Act of 2007 and its regulations as published in 2012.

Wesco Waste Management collects and treats waste of the recycling process (PPE, car parts, tires, oil, car parts, etc.) and also provides a recycling service for various types of waste through the company, which is 100% profitable and a 100% environmental friendly.

All interested parties should contact the project lead, the environmental assessor, Geo Pollution Technologies (Pty) Ltd, to request a copy of the EIA report. The EIA report will be available for public participation on the 15th of February 2022.

All interested parties should be contacted by the Project Lead, Geo Pollution Technologies (Pty) Ltd, on the 15th of February 2022.

Quote: Bessan
Geo Pollution Technologies
Telephone: +264-61-257411
Fax: +264-88626368
E-Mail: wesco@thenamib.com



ELECTRICITY INCREASE: Nored's electricity tariffs are up 3.3% from today. PHOTO: KEVIN KAMBOMBE

The Electricity Control Board has approved a 3.3% tariff hike for consumers in seven northern regions.

By: [Kevin Kambombe](#)
RUNDU

The northern regional energy distributor Nored has increased its tariffs by 3.3% as mandated by many consumers demanding the financial situation in the country.

The company announced on Friday that the tariff increase had been approved by

the Electricity Control Board (ECB).

Nored spokesperson Simon Lukas said the company proposed the tariff increase after other Namibian electricity providers had increased theirs by 2.85% in January.

Nored distributes electricity to consumers in the Oshana, Ohangwena, Omasati, Oshikoto, Zambezi and two Kavango regions.

Consumers complain

The announcement was not well received by many regional consumers.

"Electricity is no longer a want but a need in this country. This is why the increase in electricity tariffs is so serious because it means we need to spend more money while our income remains the same."

"For us as a poor citizen, government, it's very serious because the prices of things are increasing while we are not getting a salary increase," a civil servant at Rundu said.

Nored said it was aware

of the economic situation in the country but the tariff increase was mandated to ensure quality and supply of electricity.

"Nored is fully aware of consumer economic situation and the impact of tariffs on our customers. However, the tariff adjustment is a general measure to ensure the sustainability and availability of quality and reliable electricity supply to its customers during these challenging times," the statement reads.

kamb@noredbessan.com

• FINALLY MADE IT ONTO LIST OF QNDONGA KINGS

Who was Nehale Lya Mpingana?

The unveiling of the Amutuni lyOmanenge Warriors Memorial completed the process of restoring Nehale's status: "A hero, not a rebel; a king, not an imposter".

DUYANO HAIDUKA
DINAAMUTONI

Nehale Lya Mpingana was known by many as a rebel, a usurper, a stand-in king, according to information minister Peta Moshabela.

However, recently, Mush Benga, MP for Gocheringa at Swakopmund, said that he did not want the Oudonga to be known as the Amutuni as a band of usurpers.

Because of the rebellious nature of the Amutuni, they were completely excluded from the changes of the Oudonga. They had fought for years with the assistance of the incumbent Government of the Orange Free State in the region of the Orange River. Nehale was a king at the time of the battle at Namutoni (Amutuni lyOmanenge).

In 2002 when the Heroes Acre was constructed, Nehale was placed among the first nine national heroes. There is also a lodge named after him, erected a stone's throw from the Nehale Gate.

The unveiling of the Amutuni lyOmanenge Warriors Memorial completed the process of restoring Nehale's status: "A hero, not a rebel, a king, not an imposter," Moshabela said.

The Battle of Amutuni

Moshabela said Nehale grew up not getting along with his overlord, Prince Kamukoko ka Mpingana. Following the coronation of King Mpingana at the time of King Gotsogo's death in 1884,

in 1884, his parents Mpinganya Shindaba and Namupanga Shinganda, advised King Gotsogo's younger brother Nkhonhela to take the throne of Oudonga to his natural claimant from the king.

In 1886, Nehale attacked him and he fled to the Orange River. Nehale, however, dedicated himself as king and left Kamukoko to rule the Oudonga waterbury system Oudonga.

"He maintained that to take the throne, he had to be a king, and to rule proved to be better than to be a rebel,"

Planting the battle

When the Germans built their military fort at 4th and 1st of November, which was completed in 1907, Nehale refused to take the land by the horns, Moshabela said.

"He was determined to resist the German invasion. Accordingly, he organised his warriors into a sophisticated formation." He added that

while many warriors were sacrificed in the battle, Nehale's warriors emerged victorious.

"The Battle of Amutuni prevented the Germans from occupying the rest of part of Namibia called Oudonga. The significance of the Battle of Amutuni led to the founding of Oudonga, the province of the Orange Free State, as a result of the plans of colonial resistance. For people of Indian and inspired to emerge as a pioneer of the struggle for the liberation of Namibia," Moshabela said.

Awarded

Colonel Gotsogo handed over heroic traditional awards to the Oudonga warrior Nehale's widow, Mrs. Doreen, in the presence of Minister Moshabela and other officials in Windhoek. Gotsogo said they are joyful and grateful to the Oudonga warriors for negotiating the peace and the battle they fought for the benefit of the Namibian people.



FOR THE ROYAL CLAN President Hage Geingob handed over heroic traditional awards to members of King Nehale's family. Here, Doreen, widow of Oudonga King Shindaba Mpingana receives the award on behalf of the royal clan.

SCHLETTWEIN HIGHLIGHTS 2021 AGRI ACHIEVEMENTS



FEEDBACK: Agriculture minister Gert Schlettwein. PHOTO FILE

ELLIANE SMIT
WINDHOEK

Namibia's cooperation with Botswana on a desalination project is well underway, with concrete project planning starting off with a rapid assessment on water demand for that country, which will lead to the sizing of a seawater intake pipeline and further project implementation envisaged this year.

At the agriculture ministry's annual general staff meeting, minister Gert Schlettwein also mentioned that Namibia's cooperation with Angola is on course, both in the formal assessment of investment and market access for most products.

"The EU is in a difficult position to support us in the beef sector under Norwegian quota arrangements.

Namibian animals and animal products, including game, continue to enjoy market access to the European Union, United States of America, Canada, China and regional markets on the African continent, Schlettwein said.

"We have revived cooperation arrangements with Egypt and envisage to enter into a Memorandum of Understanding on veterinary collaboration, water resource management systems, trade in livestock and capacity building in Egypt."

Achievements

Schlettwein further high-

lighted achievements made last year, which included the Cabinet decision to become the green value of agriculture, which now allows for the unlocking of the sector's potential in line with the second Harambee! Development Plan (HDP II).

"It is important that the institutional arrangements under which the green economy operated have not resulted in production and productivity improvements for the economy," he said.

Furthermore, the ministry unveiled the annual Food and Health Dialogue (FHD) in the Zambesi Region, marking the first of the new sector's success.

"On the natural disaster front, the minister said the nation continued to experience waves of the locust outbreaks in Zambezi, Karango East, Karango West, Ohangwena, Oshana, Oshana-Namutoni, Hardap and Karas."

The outbreaks of the brown locust in Hardap and Karas still persist.

Meanwhile, Schlettwein said they have decided that young unemployed graduates who are passionate about agriculture should be afforded the opportunity to contribute to food production. "The ministry is finalising an implementation modality for this initiative."

According to the minister, government has committed to provide funding of about N\$600 million for the water

sector over the next seven years.

This includes all the outstanding arrangements with the African Development Bank to the Water Sector Support Programme as well as KfW Development Bank projects.

Focus

He said key strategic activities to be focused on this year will be unlocking the potential of the green schemes and the dairy industry, to give greater effect to food and nutrition security by attracting investment through competitive leasing and public-private partnerships.

"This process should be completed in the first half of the year."

He added that a rebirth will start in the Namibia Agri Centre, Methlachfontein and Seed Improvement Programme should be implemented to propel grain production and help to be more productive in the sector.

"Research and development, technical experts and monitoring, to ensure it is not degraded this year to realise the intended impact and sustain it," he said.

He said the implementation of the water sector support programme and livelihoods projects, in five sub-recommunities of the Cell of Oudonga in the Water Supply Strategy, should also be accelerated for job creation as well as for the severely affected rural communities.

According to Schlettwein, the livestock policy, value chain diversification and supply chain improvements must also be articulated.

"This entails the finalisation of and stakeholder consultation on the modalities for improved market access for livestock and meat products produced in the Northern Communal Areas."

He added that key enabling legislation such as the Land Bill, the Meat Industry Amendment Bill, the Dairy Industry Act, the regulations under the Water Resources Management Act, and associated trade regulations or supply chain improvements will be finalised.

PUBLIC PARTICIPATION NOTICE
ENVIRONMENTAL ASSESSMENT FOR THE OPERATIONS OF WESCO WASTE MANAGEMENT, WINDHOEK.

Geo Pollution Technologies (Pty) Ltd was appointed by Wesco Waste Management (Pty) Ltd to undertake an Environmental Assessment for the operational activities associated with their waste of storage, handling and refining facility on Erf No 14 & 15, Naha Industrial Park, Windhoek, Windhoek. The detailed project location may be viewed at:

<http://www.thenamibia.com/projects/projects.html>

The environmental assessment will be according to the Environmental Management Act of 2007 and its regulations as published in 2012.

Wesco Waste Management collects and waste of for recycling purposes. Oil is temporarily stored, while waiting through various processes of filtering, separation and cleaning occurs on the same erf. Through these processes, light fuel oil (LFO) is produced that can be used as boilers and furnaces.

FOR ENQUIRY AND TO OBTAIN FURTHER INFORMATION, PLEASE CONTACT: DUYANO HAIDUKA, Environmental Assessment Specialist, Geo Pollution Technologies, P.O. Box 12018, Windhoek, Namibia. The telephone number provided will be answered by a member of the Geo Pollution Technologies staff. If you are unable to reach the Geo Pollution Technologies staff, please contact the Geo Pollution Technologies staff on 06-688 2344.

A public hearing will be held on the 15th of August 2022 at 10:00 AM. The hearing will be held at the Geo Pollution Technologies, P.O. Box 12018, Windhoek, Namibia.

Quote Bossman
Geo Pollution Technologies
Telephone: +264-61-257411
Fax: +264-6882344
E-Mail: wesco@thenamibia.com



150 arrested for drugs in January

ELLIANE SMIT
WINDHOEK



Various types of drugs to the value of more than N\$3.5 million were seized in the first month of this year, while the police arrested 150 suspects in connection with drugs offences.

Of these suspects 139 were Namibians, while the rest included four Zambians, three Congolese, two Russians and one Angolan. Cannabis was the most seized drug, followed by Ecstasy.

According to the drug seizure and arrest report for the month of January, more than N\$3,506 million worth of drugs were seized. This included 334 626 kg of cannabis to the value of N\$2,439 million, 987 345 kg of Ecstasy to the value of more than N\$115 000 and 230 units of crack cocaine to the value of N\$23 000. Police also confiscated 38,23 grams of cocaine powder to the value of N\$215, as well as Ecstasy in the value of N\$16 880. Last year between February and December, 1 171 suspects were arrested in connection with drug-related crimes. According to statistics

from the Namibia Police, drugs to the value of more than N\$1 million were confiscated in Namibia during that period, while 1073 Namibians were arrested. Statistics for January 2021 were not available.

elliane@thenamibia.com

KONTAKPERSONE

REDAKTEUR
Dani Baayen
081 129 3781 / 061 297 2030
dani@republikein.com.na

GENL. MURTALA MUHAMMEDRYLAAN, POSBUS 3436, WINDHOEK
TEL: 061 297 2000 | VOLG ONS OP: f t

NUUSREDAKTEUR
Ranelle Rademeyer
081 127 8159 / 061 297 2114
ranelle@republikein.com.na

SPORTNUUS
Andrew Paulman
081 247 2637 / 061 297 2011
andrew@republikein.com.na

BERAMINGSKOORDINERENDERS
Carissa Shingor
081 239 7664/061 297 2102
carissa@nmb.com.na

CRENDO
Ona Fleck 081 299 1201
ofis@eranga.com.na
Faks: 064 483 451

STREKE
Savali Kanyo Kambwe 081 724 1044
Kerensaaboo Elizabeth Joseph 081 836 9036
Ojwerango Ester Kamati 081 812 0150
Dagwediva Toyomo Harada 081 339 3182

VERKOPPE EN AFLEWERING
Erinene Katze 081 244 0029
erikaze@nmb.com.na
Tel. 061 287 2171

E-POS: REPUBLIKEIN@REPUBLIKEIN.COM.NA
'n Publikasie van NAMIBIA MEDIA HOLDINGS (Pty) Ltd, gedruk deur NEWSPRINT NAMIBIA (Pty) Ltd.

WEER

WEERWAAR: Sawaar buie kan in die oostelike en suidelike streke voorkom.
BINNELAND: Gedeeltlik bewolk en baie warm in die nootwente en wesle, andersins gedeeltlik bewolk en baie warm met paar tot geleende donderbuie maar wydverspreide donderbuie in Onaheke, Hardap en |Kharas.
KUS: Gedeeltlik bewolk en koel tot warm met paar buie oor die sentrale en suidelike kus.

Table with weather forecasts for various locations: GETYE BY WALVISBAAI, GOBABIS, KATIMA MULILO, KETEMANSHOOP, MARIENTAL, OPUWO, OSHAKATI, RUNDU, WALVISBAAI, WINDHOEK, JOHANNESBURG, KAAPSTAD, LUANDA.

Toelaatbaarheid van bewyse onder die loep

Heckmair-moordverhoor

Elf jaar ná die moord op die 25-jarige André Heckmair kan belangrike bewyse moontlik vir die voortslepende verhoor uitgegooi word.

Kristien Kruger

Die verhoor waarin twee Amerikaners vir die moord op mnr. André Heckmair tereg staan, toe die beskuldigdes in hegtenis gehou word in Windhoek heruit bevestig dat die toelaatbaarheid van bewyse wat die polisie sonder 'n visiteringslasbrief bekom het.

Heckmair is op 7 Januarie 2011 in

Eros met een koel in sy kop doodgeskiet terwyl hy in sy motor gesit het. Die staaf adj. komm. Bartholomeus de Klerk as getuie geroep. Die Klerk het getuig dat die polisie op 9 Januarie 'n boodskap ontvang het van die gastehuis waar die beskuldigdes tydens die voorval gebly het. Die polisie is versoek om die beskuldigdes se goedere uit die kamer te verwyder omdat die gastehuis die kamer vir ander gaste beskikbaar wou stel. Die kamer was reeds op 7 Januarie, toe die beskuldigdes in hegtenis geneem is, die eerste keer deursoek. Dieselfde beaampptes was die volgende dag weer daar. "In die kas was 'n bruin aktetas en binne-in was twee ysterstyppe. Ek het toe nader ondersoek ingestel en besef

dis 'n vuurwapenloop," het De Klerk getuig. Volgens sy getuie is het hy besef die vorige soektogte is nie deeglik uitgevoer nie en opdrag is gegee dat die kamer opnuut deursoek moes word. Hy het nie 'n visiteringslasbrief by 'n landdros gekry nie. "Ek was oortuig 'n landdros sou 'n visiteringslasbrief uitreik, maar dit was 'n Sondag en ek het geweet dit sou moeilik wees om 'n landdros in die hande te kry. "Ek was bang as ons nie die bewyse wat nie, son dit verdwyn of in die verkeerde hande beland," het hy getuig. Die beskuldigdes was in Daarned stadium reeds in aanhouding op aanklag van die besit van dagga en was slegs verdagtes in dié ondersoek. Een van die Amerikaanse beskuldigdes, mnr. Kevan Townsend, se verteenwoordiger, mnr. Mbang

Siyomunji, beweer dat De Klerk nooit gegaan het met die bedoeling om die twee se besittings te gaan haal nie, maar eenvoudig om die kamer te deursoek. "Jy het die aktetas gekry en jy het dit ooggemaak. Dit op sigself is 'n soektog. Jy het reeds inbreuk gemaak op iemand se privaatheid," het Siyomunji aan die getuie gestel. Hy het ook daarin geslaag om De Klerk te laat bevestig dat hy nooit eens 'n landdros in die hande probeer kry het nie. VISITERINGSLASBRIEF Vir die eerste soektog, op 7 Januarie, was ook geen visiteringslasbrief verkry nie en die rede daarvoor was volgens vorige getuies dat dit 'n dringende saak was omdat hulle lugtig was dat Townsend en sy medebeskuldigde Marcus Thomas sou vlug

Buiten vir selfoonrekords wat die beskuldigdes in die oordelede verbind, was daar volgens die verdediging geen konkrete bewyse van die beskuldigdes se betrokkenheid by die moord nie. "Daar was talle omstandighedsgetuies," het De Klerk die hof versker. Volgens De Klerk het selfoonrekords aangedui die laaste kommunikasie tussen die beskuldigdes en Heckmair was om 11:54. Die noodlose ondersoek duur daarop dat hy tussen 13:00 en 14:00 dood is. Volgens die rekords het die beskuldigdes nie weer ná Heckmair se dood 'n boodskap gestuur nie. Alle kommunikasie tussen hulle is gestaak. Die saak heruit vandag met die kruisondervraging van De Klerk.

kristien@republikein.com.na

Meunae groet Windhoek

VAN BL. 1

"Ons neem ook die ouers hier op die plan in diens en die broer sal in Maltahöhe skool gaan. Meunae is die eerste kind wat ons as nuutgestigte organisasie inasem en wil help." Meunae het toe sy drie maande oud was al oor die 10 kg gewoeg en op nege maande kon haar ouers haar nie meer optel nie. Haar ouers - wat werkloos was - kon nie gesonde voedsel bekostig nie en alhoewel hulle geweet het dat hulle vir hul kind nie was die krasse

min, "As ons vir haar gesonde kos gekoop het, het ons nie geëet nie. Ons kry my kind 'n kans op 'n nuwe lewe en sy en ons as familie gryp dit met beide hande aan. Ons wil die gesonde manier probeer en hoop dus dat sy nie 'n operasie nodig sal hê nie," het hulle sa gesê. "Ek is so gelukkig en kan nie wag nie, maar ek is ook bietjie hartseer omdat ek my vriende en alles wat ek ken, gaan agterlos. "Ek is eger opgewonde oor die geleentheid en nuwe uitdaging," het Meunae gesê.

+tanja@republikein.com.na



Die span forensiese kundiges het gister onder aanvoering van komm. Nelius Becker die huis van die egpaar gefynkam. FOTO ADAM HARTMAN

'Selfdood-pakt': Egpaar beplan sterftes noukeurig

VAN BL. 1

Die hoof van die Namibiese polisie se Instituut vir Forensiese Wetenskap (NPSFD), komm. Nelius Becker, en die nasionale forensiese deskundige, dr. Paul Ludik, was onder die forensiese beaampptes wat die egpaar se huis in Gos-hawkstraat in Swakop-mund se Vogelstrand-woonbuurt gefynkam het. Die oorledenes was steeds in hul bed waar hulle sy aan sy gesterf het nadat hulle glo "iets gedrink het". Die egpaar het ook hulle troeteldiere ('n hond en kat) by hulle in die slaapkamer om die lewe gebring. Die polisie was tot gistermiddag nog huiwerig

se name. Op 'n vraag oor wat hul dood veroorsaak het, het Ludik gesê dit moet nog bevestig word en daarom kan hy nie kommentaar lewer nie. Volgens die kollega (wie se naam nie genoem word nie) het die vrou se vriendin haar Sondag uit Suid-Afrika gebel om te vra of sy (die kollega) 'n e-pos ontvang het wat die slagoffer glo belowe het om vir dié vriendin te stuur. Sy het vir die vriendin gesê om die kollega te bel as sy nie dié e-pos kry nie. "Sy het Sondag gebel om te vra of ek die e-pos gekry het, maar ek het gesê om toegang tot die e-pos te kry, sal ek haar (die slagoffer) se rekenaarsleutel gebruik, wat by haar huis was. Die vriendin het toe vir my gesê om nie soontoe te gaan

nie, wat my agterdoegtig gemaak het. Ek het gevra hoekom nie, en toe sê sy as ek gaan, moet ek die polisie saamvat," het sy gister vertel. Met die kollega se aankoms by die huis - vanwaar die egpaar ook die onderneming bedryf het - was daa' n nota by die ingang wat gelui het: "Moenie na die slaapkamer toe kom nie. Bel die paramedici." Daar was ook 'n ondertekende testament met hul name by wat verskeie besigheidsaaktes wat geneem moet word, uitstippel. Die egpaar is dood in hulle bed gevind, met die kat en hond ook saam met hulle in die slaapkamer. "Hulle was sulke lieflike mense - plat op die aarde en gelukkig. Sy was liefvir diere, en as sy kon, sou sy waarskynlik 'n diere-tuin bestuur het," het die

republikein@republikein.com.na

PUBLIC PARTICIPATION NOTICE ENVIRONMENTAL ASSESSMENT FOR THE OPERATIONS OF WESCO WASTE MANAGEMENT, WINDHOEK. Geo Pollution Technologies (Pty) Ltd was appointed by Wesco Waste Management (Pty) Ltd to undertake an Environmental Assessment for the operational activities associated with their waste oil storage, handling and refining facility on Erf No 14 & 15, Nabo Industrial Park, Beakwater, Windhoek. The detailed project location may be viewed at: http://www.thenamib.com/projects/projects.html

Appendix B: Permits

- Fuel storage – MME
- City of Windhoek approval for site use



REPUBLIC OF NAMIBIA

MINISTRY OF MINES AND ENERGY

Tel: +264 61 284-8111
Fax: +264 61 238643 / 220386
E-mail: info@mme.gov.na
Website: www.mme.gov.na

6 Aviation Road
Private Bag 13297
WINDHOEK

PERMIT

FOR USED MINERAL OIL

PERMIT NO: 26/2021

Enquiries: I Gaingob
Reference: 10/3/2

06 October 2021

1. In terms of Section 2(1) of the Petroleum Products and Energy Act, 1990 (Act 13 of 1990) permission is hereby granted to:

Wesco Waste Management (Pty) Ltd
P O Box 157
Walvis Bay
Namibia

To perform the following act in respect of used mineral oil:

- Collect used mineral oil throughout Namibia.
- Store collected used mineral oil at the premises situated at **Erf 15, Nubu Industrial Park, Brakwater, Windhoek.**
- Refine used mineral oil.
- Sell for re-use to consumers.

2. This Permit is valid for a used mineral oil volume of up to **5 000 000 liters per year.**
3. This permit is issued subject to the conditions as laid down in Regulations No. 112 of 1991 dated 11 October 1991 relating to the purchase, sale, supply, acquisition, usage, possession, disposal, storage, transportation, recovery and re-refinement of used mineral oil as issued in terms of Section 2(1) of the Act and is **only valid until 06 October 2022.**
4. This permit is issued subject to the following further conditions:

All official correspondence must be addressed to the Executive Director

- 4.1 All Municipal and other Health Regulations to be adhered to.
- 4.2 All Transport Regulations to be followed regarding proper tankage, as laid down by the Ministry of Works and Transport.
- 4.3 All fire hazard and/or security measures to be taken in conformity with the SABS Specification 086 and 089.
5. Statistics will have to be provided before or on 28 February on an annual basis, to the:

Executive Directory
Ministry of Mines and Energy
Private Bag 13297
Windhoek
Namibia

Attention: Mr. I Nghishoongele

Re-application for this permit must occur **30 days prior to the validity date.**

Issued at Windhoek on this 06 October 2021.



- Mr. Harold Schmidt
PROMEX CC
Secretary to Oil Industry
P.O. Box 11335 Klein Windhoek,
Windhoek
- (2) Executive Director
Ministry of Works and Transport
Private Bag 13341
Windhoek
 - (3) Municipality of Walvis Bay
Health Department
Private Bag 5017
Walvis Bay

Department of Economic Development & Community Services

PO Box 59
80 Independence Avenue
WINDHOEK, NAMIBIA

Fax: (+264) 61 - 290 2331 • Tel: (+264) 61 - 290 2496 / 2603

**CERTIFICATE OF FITNESS / REGISTRATION**

REF NO: 2021/029834/252626

This is to certify that the premises as described hereunder is registered in terms of the General Health Regulations (G.N. 121 of 1969 as amended), Regulations Relating to the Registration of Businesses GN 202 of 2006, the Informal Trading Regulations 200 of 2007 and The Liquor Act, 1998 (Act No. 6 of 1998) for carrying on a business as stipulated.

TRADE NAME: WESCO WASTE MANAGEMENT (PTY) LTD

ERF NO: 15

TOWNSHIP: BRAKWATER INDUSTRIAL ESTATE

STREET NAME: UNSPECIFIED STR

OWNER/MANAGER: FRANSMAN, GEORGE DOUGLAS
ID: 74012100033

PO BOX: 157 WALVISBAY

TELEPHONE: 0811261279

CITY: WINDHOEK

MEDICALS: 0

NATURE: TREATMENT AND DISPOSAL OF HAZARDOUS WASTE

RESTRICTED TO: OIL REFINERY SERVICES

THIS CERTIFICATE EXPIRES ON: 2022-11-24



[Signature]
SECTION HEAD: BUSINESS
REGISTRATION
DATE: 2021-11-24

[Signature]
CHIEF: HEALTH SERVICES
DATE: 2021-11-24

All official correspondence must be addressed to the Chief Executive Officer

Appendix C: Consultants' Curriculum Vitae

ENVIRONMENTAL ASSESSMENT PRACTITIONER**Quzette Bosman**

Quzette Bosman has 12 years' experience in the Impact Assessment Industry, working as an Environmental Assessment Practitioner and Social Assessment practitioner mainly as per the National Environmental Legislation sets for South Africa and Namibia. Larger projects have been completed in terms of World Bank and IFC requirements. She studied Environmental Management at the Rand Afrikaans University (RAU) and University of Johannesburg (UJ), including various Energy Technology Courses. This has fuelled a passion towards the Energy and Mining Industry with various projects being undertaken for these industries. Courses in Sociology has further enabled her to specialize in Social Impact Assessments and Public Participation. Social Assessments are conducted according to international best practise and guidelines. Work has been conducted in South Africa, Swaziland and Namibia.

CURRICULUM VITAE QUZETTE BOSMAN

Name of Firm	:	Geo Pollution Technologies (Pty) Ltd.
Name of Staff	:	QUZETTE BOSMAN
Profession	:	Social Impact Assessor / Environmental Assessment Practitioner
Years' Experience	:	12
Nationality	:	South African
Position	:	Senior Environmental Consultant
Specialisation	:	ESIA & ESMP; SIA
Languages	:	Afrikaans – speaking, reading, writing – excellent English – speaking, reading, writing – excellent

EDUCATION AND PROFESSIONAL STATUS:

BA	Geography & Sociology	:	Rand Afrikaans University, 2003
BA	(Hons.) Environmental Management	:	University of Johannesburg, 2004

PROFESSIONAL SOCIETY AFFILIATION:

Namibian Environment and Wildlife Society
International Association of Impact Assessors South Africa (IAIA SA)
Member 2007 - 2012
Mpumalanga branch Treasurer 2008/2009

OTHER AFFILIATIONS

Mkhondo Catchment Management Forum (DWAF): Chairperson 2008-2010
Mkhondo Water Management Task Team (DWAF): Member 2009

AREAS OF EXPERTISE:

Knowledge and expertise in:

- ◆ environmental impact assessments
- ◆ project management
- ◆ social impact assessment
- ◆ social management planning
- ◆ community liaison and social monitoring
- ◆ public participation / consultation
- ◆ social risk management
- ◆ water use licensing
- ◆ environmental auditing and compliance
- ◆ environmental monitoring
- ◆ strategic environmental planning

EMPLOYMENT:

2015 - Present	:	Geo Pollution Technologies – Senior Environmental Practitioner
2014-2015	:	Enviro Dynamics – Senior Environmental Manager
2010 - 2012	:	GCS – Environmental Manager (Mpumalanga Office Manager)
2007 - 2009	:	KSE-uKhozi - Technical Manager: Environmental
2006 -2007	:	SEF – Environmental Manager
2004 - 2005	:	Ecosat – Environmental Manager

PUBLICATIONS:

Contract reports	:	+150
Publications	:	1