DFFE Reference Number: 12/9/11/L240416122208/6/N/FFS

FFS Refiners (Pty) Ltd

HYDROCARBON WASTE PROCESSING AT THE FFS EVANDER FACILITY

Final Environmental Management Programme

12/9/11/L240416122208/6/N
OCTOBER 2024

CONFIDENTIAL

FFS Refiners (Pty) Ltd

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Final Environmental Management Programme

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ACRONYMS AND ABBREVIATIONS

Abbreviation	Definition
AEL	Atmospheric Emissions License
AIA	Approved Inspection Authority
AIS	Alien and Invasive Species
AQI	Air Quality Impact Assessment
BTEX	A group of Benzene, Toluene, Ethylbenzene and Xylenes chemical compounds.
CA	Competent Authority
CARA	The Conservation of Agricultural Resources Act (No. 43 of 1983)
CBA	Critical Biodiversity Areas
COD	Chemical Oxygen Demand
CRR	Comments and Responses Report
CV	Curriculum Vitae
DARDLEA	Department of Agriculture, Rural Development, Land and Environmental Affairs
DFFE	Department of Forestry, Fisheries and the Environment
DSR	Draft Scoping Report
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA Regulations	Environmental Impact Assessment Regulations, 2014, as amended (GNR 326)
ESAs	Ecological Support Areas
FSR	Final Scoping Report
GA	General Authorisation
GNR	Government Notice Regulation
Ha	Hectares

Abbreviation	Definition
MBCP	Mpumalanga Biodiversity Conservation Plan
MEGDP	Mpumalanga Economic Growth and Development Path
MIT	Matter in Toluene
NDP	National Development Plan of 2030
NEMBA	National Environmental Management: Biodiversity Act, 2004 (No. 10 of 2004)
NEMA	National Environmental Management Act (No. 107 of 1998)
NEM:AQA	National Environmental Management: Air Quality Act
NEM:BA	National Environmental Management: Biodiversity Act
NHRA	The National Heritage Resource Act (No. 25 of 1999)
NFEPA	National Freshwater Ecosystem Priority Areas
NWA	The National Water Act (No. 36 of 1998)
ONAs	Other Natural Areas
PPP	Public Participation Process
RO	Reverse Osmosis
RWQ	Receiving Water Quality
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information
SANBI	South African National Biodiversity Institute
S&EIR	Scoping and Environmental Impact Reporting
SR	Scoping Report
WMA	Water Management Area
WML	Waste Management Licence
WUL	Water Use License
WULA	Water Use License Application

1 INTRODUCTION

FFS Refiners (Pty) Ltd (FFS) operates an existing facility in Evander that is authorised to process tar and liquid hydrocarbon fuels, blending, production of wood preservative compounds, and receiving, storing and re-distribution of various liquid hydrocarbon fuels.

FFS intends to process and store hydrocarbon waste streams at the existing facility. The existing authorised production and storage capacities will not be increased, and no new infrastructure will be constructed.

The facility is proposed to be situated at the current site located at 3 Brunel Rd, Evander, Mpumalanga Province, within the Govan Mbeki Local Municipality and Gert Sibande District Municipality, Mpumalanga province.

The proposed development requires a Waste Management Licence (WML), supported by a Scoping and Environmental Impact Reporting (S&EIR) Process in accordance with the National Environmental Management Act (No. 107 of 1998) (NEMA), Environmental Impact Assessment Regulations, 2014 as amended (GNR 982) (EIA Regulations) and the National Environmental Management: Waste Act (No. 59 of 2008) (NEM:WA).

WSP Group Africa (Pty) Ltd (WSP) has been appointed to undertake the S&EIR as the Environmental Assessment Practitioner (EAP). This Draft EIAR has been compiled as part of the S&EIR process.

1.1 BACKGROUND INFORMATION

FFS is the largest supplier of industrial heating fuels in South Africa. The company markets products for a wide variety of uses, including glass making, brick making, steam raising in boilers, billet re-heating, baking incineration, road-mix heating, lime kilns, sand and stone drying. The company's head office is situated in Durban, with three process plants and seven storage depots situated throughout South Africa, all branches operate under stringent environmental management systems and processing plants are ISO 14001 certified.

FFS has owned and operated the FFS Evander Depot since 2006. The original Environmental Authorisation (EA) was issued by the Department of Agriculture, Rural Development, Land and Environmental Affairs (DARDLEA), formally known as the Provincial Department of Agriculture and Land Administration, for the construction and operation of a Tar Processing Facility (Reference number: 17.2.25.16 H 45). In 2011, FFS were issued with an EA (reference number: 17/2/2/1 (c) MP-07) for the construction of 12 additional onsite tanks for the storage of petroleum products.

In 2014, DARDLEA issued FFS with an EA (Reference number: 17/2/3/GS-175) for the construction of a waxy oil processing facility and storage of oil and petroleum products.

FFS intends to process and store hydrocarbon waste streams at the existing facility. The existing authorised production and storage capacities will not be increased, and no new infrastructure will be constructed.

1.2 PURPOSE OF THE EMPR

An Environmental Management Programme (EMPr) is defined as "*an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction,*

operation and decommissioning of a project are prevented or mitigated, and that the positive benefits of the projects are enhanced."

This EMPr has been compiled in accordance with Appendix 4 of the EIA Regulations, in compliance with section 24N of NEMA, with the purpose of ensuring that negative impacts are reduced, and positive effects are enhanced through a process of continual improvement, during the operational and decommissioning phases of the proposed project.

To facilitate compliance to the EMPr by appointed contractors and sub-contractors, it is required that all onsite personnel are aware of the requirements of the EMPr as well as the prescribed penalties should a non-conformance be identified during the operation and decommissioning activities.

Further to the above, appointed contractors and sub-contractors will also be required to comply with all relevant legislation and standards.

An electronic copy of the EMPr must always available at the site and made available to officials on request.

1.2.1 EMPR OBJECTIVES

The EMPr has the following objectives:

- Identify mitigation measures and environmental specifications which are required to be implemented for the planning, oepration and rehabilitation, operation, and decommissioning phases of the project in order to manage and minimise the extent of potential environmental impacts associated with the facility;
- Ensure that all the phases of the proposed project do not result in undue or reasonably avoidable adverse environmental impacts, and ensure that any potential environmental benefits are enhanced;
- Identify entities responsible for the implementation of the measures and outline functions and responsibilities;
- Create management structures that address the concerns and complaints of interested and affected parties (I&APs) with regards to the proposed project;
- Propose mechanisms and frequency for monitoring compliance, and preventing long-term or permanent environmental degradation; Comply with all applicable laws, regulations, standards and guidelines for the protection of the environment;
- Train onsite personnel with regard to their environmental obligations; and
- Facilitate appropriate and proactive responses to unforeseen events or changes in project implementation that was not considered in the S&EIR process.

1.2.2 ENVIRONMENTAL OBJECTIVES AND TARGETS

To facilitate compliance to the EMPr, the project proponent must comply with all relevant legislation and standards and make all personnel aware of the requirements of the EMPr, as well as the prescribed penalties should a non-conformance be identified during the different phases of the proposed Project.

It is recommended that environmental objectives (as outlined in this document) be emphasised as minimum requirements. Objectives include:

- Encourage good management practices through planning and commitment to environmental issues; and provide rational and practical environmental guidelines to:

- Minimise disturbance of the natural environment;
- Minimise fugitive emissions;
- Minimise impact of added traffic into the area;
- Ensure surface and groundwater resource protection;
- Prevent or minimise all forms of pollution;
- Protect indigenous flora and fauna;
- Prevent soil erosion;
- Promote sustainable use of resources;
- Adopt the best practical means available to prevent or minimise adverse environmental impacts;
- Comply with all applicable laws, regulations, standards and guidelines for the protection of the environment;
- Promote the reduction, reuse, recycling and recovery of waste;
- Develop waste management practices based on prevention, minimisation, recycling, treatment or disposal of waste;

- Describe all monitoring procedures required to identify impacts on the environment;
- Define how the management of the environment is reported and performance evaluated; and
- Train onsite personnel on their environmental obligations.

1.3 STRUCTURE OF THE EMPR

For the purposes of demonstrating legal compliance, **Table 1-1** cross-references the sections within the EMPr with the requirements as per Appendix 4 of the EIA Regulations.

Table 1-1 – Legislation Requirements as detailed in Appendix 4 of the EIA Regulations

Appendix 4	Legislated Requirements as detailed in Appendix 4 of GNR 326	Relevant Report Section
(a)	details of-	
	(i) the EAP who prepared the EMPr; and	**Section 2.2**
	(ii) the expertise of that EAP to prepare an EMPr, including a curriculum vitae;	**Section 2.2** **Appendix A**
(b)	a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	**Section 3**
(c)	a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers;	**Section 3.1** **Section 4**
(d)	A description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including-	**Section 4** **Section 7** **Section 8**
	(i) planning and design;	

Appendix 4	Legislated Requirements as detailed in Appendix 4 of GNR 326	Relevant Report Section
	(ii) pre-construction activities;	
	(iii) construction activities;	
	(iv) rehabilitation of the environment after construction and where applicable post closure; and	
	(v) where relevant, operation activities;	
(f)	a description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraphs (d) will be achieved, and must, where applicable, include actions to -	**Section 7** **Section 8**
	(i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;	
	(ii) comply with any prescribed environmental management standards or practices;	
	(iii) comply with any applicable provisions of the Act regarding closure, where applicable; and	
	(iv) comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable	
(g)	the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	**Section 6.3** **Section 7** **Section 8**
(h)	the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	**Section 6.3**
(i)	an indication of the persons who will be responsible for the implementation of the impact management actions;	**Section 6.1** **Section 7**
(j)	the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	**Section 7** **Section 8**
(k)	the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	**Section 7** **Section 8**
(l)	a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations	**Section 6.3**
(m)	an environmental awareness plan describing the manner in which-	**Section 6.2**
	(i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and	

Appendix 4	Legislated Requirements as detailed in Appendix 4 of GNR 326	Relevant Report Section
	(ii) risks must be dealt with in order to avoid pollution or the degradation of the environment; and	
(n)	any specific information that may be required by the competent authority	

2 KEY ROLE PLAYERS

2.1 PROJECT PROPONENT

FFS is the project proponent (Applicant) with regards to this application to process and store hydrocarbons waste at the existing facility in Evander Mpumalanga. **Table 2-1** provides the relevant details of the project proponent.

Table 2-1 - Details of Project Proponent

Proponent:	**FFS**
Contact Person:	Barry Visagie
Postal Address	PO Box 562, Machadodorp, 1170
Telephone:	+27 17 632 9100
Email:	BarryV@ffs.co.za

2.2 ENVIRONMENTAL ASSESSMENT PRACTITIONER

WSP was appointed in the role of Independent EAP to undertake the S&EIR process for the proposed project. The CV of the EAP is available in **Appendix A,** and the relevant contact details of the EAP are provided in **Table 2-2**.

Table 2-2 – Details of the EAP

EAP	**WSP Group Africa (Pty) Ltd**
Contact Person:	Tshepho Mamashela
Physical Address:	Building 1, Maxwell Office Park, Magwa Cres, Midrand, 1685
Postal Address:	P.O. Box 98867, Sloane Park 2151, Johannesburg
Telephone:	011 361 1300
Email:	Tshepho.Mamashela@wsp.com
EAP Qualification:	▪ BSc (Hons) Environmental Management ▪ BSc (Geography)
EAPASA Registration No:	2019/1846

2.2.1 STATEMENT OF INDEPENDENCE

Neither WSP nor any of the authors of this Report have any material present or contingent interest in the outcome of this Report, nor do they have any business, financial, personal or other interest that could be reasonably regarded as being capable of affecting their independence. WSP has no beneficial interest in the outcome of the assessment.

3 PROJECT DESCRIPTION

3.1 LOCATION OF THE PROPOSED PROJECT

FFS waste facility is located on 3 Brunel Road Evander Industrial, Evander Mpumalanga. The site can is accessed via R546 (Regional Road), with R580 approximately 870m northeast of the facility. The locality of the site is depicted in **Figure 3-1.**

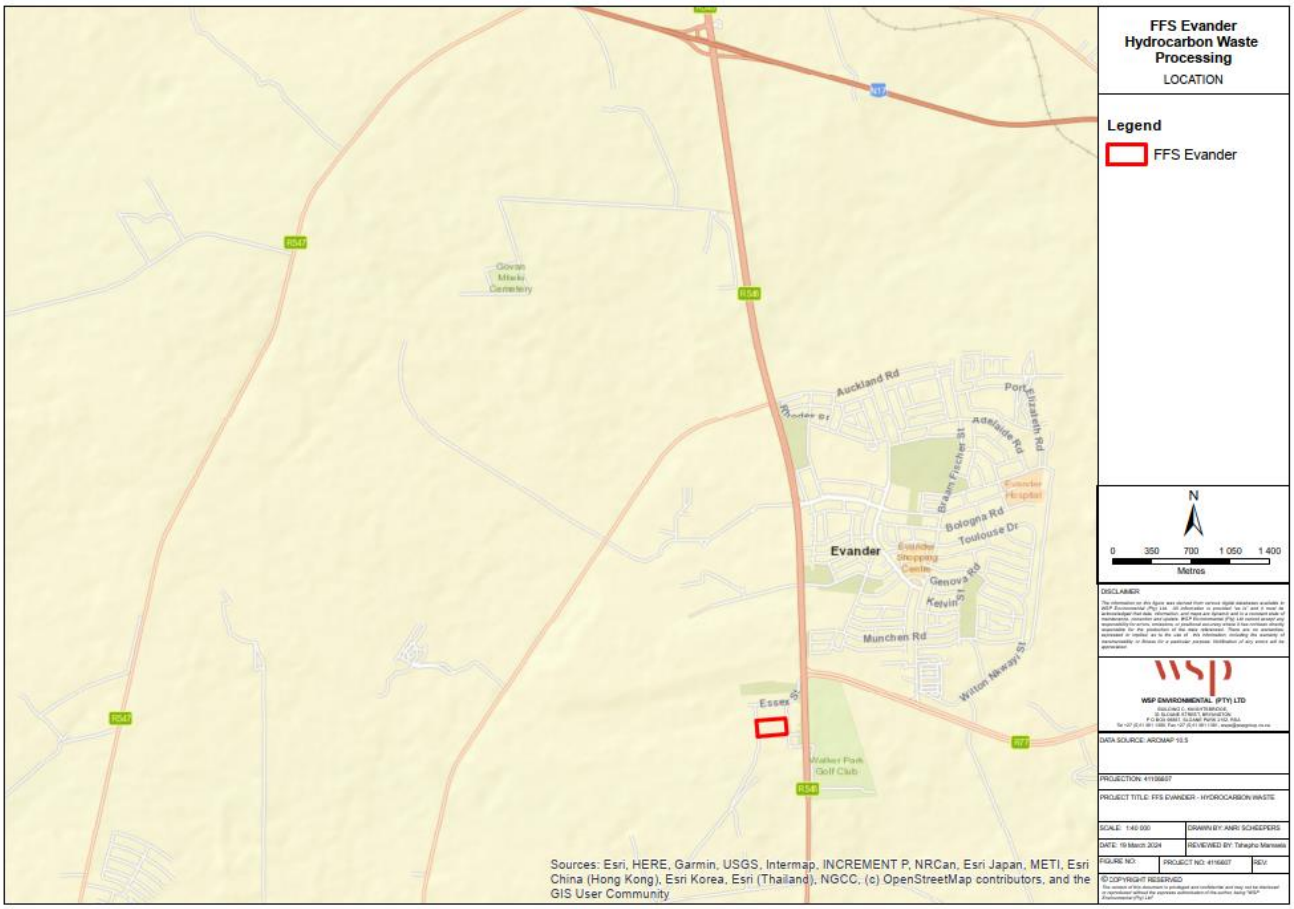


Figure 3-1 - FFS Evander Location

Table 3-1 – Cadastral Information of the Site

Details required as per GNR 326 Annex 1 (3)	Details
21 Digit Surveyor General Code of each Cadastral Land Parcel	T0IS00000000193500000 T0IS00000000193500054
Physical Address and Farm Name	3 Brunel Road, Evander, 2280 Portion 0 of Farm Winkelhaak 135 JT Portion 54 of Farm Winkelhaak 135 JT
Land use Zoning	Industrial
Municipality	Gert Sibande District and Govan Mbeki Local Municipality

Table 3-2 - Coordinate Points of the Cadastral Land Parcel

Point	Latitude	Longitude	Area/dimensions
Corner A	26°29'8.06"S	29° 5'47.44"E	4 Hectares
Corner B	26°29'7.48"S	29° 5'56.89"E	
Corner C	26°29'11.92"S	29° 5'57.31"E	
Corner D	26°29'12.60"S	29° 5'48.23"E	
Central Point	26°29'10.32"S	29° 5'52.41"E	

Point	Latitude	Longitude	Area/dimensions

3.2 CURRENT PROCESS

3.2.1 PRODUCT STORAGE

Liquid hydrocarbons are received at the processing facility via road tanker, quantified and sampled for commercial purposes. The liquid hydrocarbons are off-loaded and stored according to their true vapour pressure (TVP) at product storage temperature as Type 1, 2, 3 or 4 liquids as defined in the NEM:AQA.

These are stored in a total of 22 storage tanks with a combined volume of 26 878 m^3 and FFS currently have an environmental authorisation to build a further 12 920 m^3 of storage tanks, of which 8 have been built and are operational and 4 have plinths already constructed but no tanks erected yet. Hard-surfacing and bunding complies with SANS 10089-1:2008.

Tanks E1 to E14 are linked via a common vapour space manifold to a VOC scrubber while Tanks TF1 to TF4 and TF6 to TF8 have air cooled vent radiators while TF5 has a vacuum pressure vent to minimise tank operating and standing vapour losses.

After processing the products, are certified and loaded from the storage tanks via bottom loading into road tankers and quantified for commercial purposes.

3.2.2 COAL TAR PROCESSING PLANT

Coal Tar products are offloaded into conical bottom processing tanks or feedstock storage tanks during which time a running (or drip) sample is taken. From the conical bottom processing tanks the product is circulated through heat exchangers to maintain a temperature of approximately 90°C and a homogeneous mixture. Feed to the liquid-solid phase separation equipment (typically filters, centrifugal separators and similar devices) are drawn off this circulating load via flow control valves that are set by the operator based on Matter in Toluene (MIT) and ash loading of the feedstock. This is done to obtain the best separation of ash and carbon particulate from the tar stream. The ash and carbon particulate report to the high MIT product, while tar reduced in MIT and ash is pumped to the force feed evaporator (FFE). The high MIT product is either further processed to a solid combustion fuel in-house or at third party premises.

Tar is pumped from the FFE tank to the FFE where it is circulated through a heat exchanger and heated to above 125°C. This results in the water and light ends boiling off. The water vapour and light ends are then condensed in a water cooled condenser and separated in a static separator with condensed water going to the water storage tank and the light ends going to the light ends storage tank. Light ends are used to blend back into the wood preserve and CTF to adjust viscosity or are sold as an industrial heating fuel. Condensed water is sent through the FFS effluent water treatment plant and then sent back to the suppliers who reuse the water in the charring process for quenching.

The dry tar exiting the FFE is then returned for further liquid-solid phase separation using similar systems as described above for final MIT trimming and ash reduction at temperatures up to 100°C. The product is then pumped to intermediate process storage tanks where quality control is again done to determine what additives the tar requires in order to meet the SANS specification for wood preserve or the internal customer specification for industrial heating fuel (CTF).

From these storage tanks the product is then sent to the onsite batch blending plant and blended into the correct specification with enriching and viscosity cutting materials. After blending the product is stored in finished goods tanks awaiting transportation to customers over the weighbridge.

Should the intermediate quality control reveal a low flash point then the tar is sent to a vacuum stripper to adjust this and then return to the intermediate storage tanks.

The processing equipment is linked to a wet scrubber to control emissions that may occur during operations.

Refer to **Figure 3-2** for an illustration of the process.

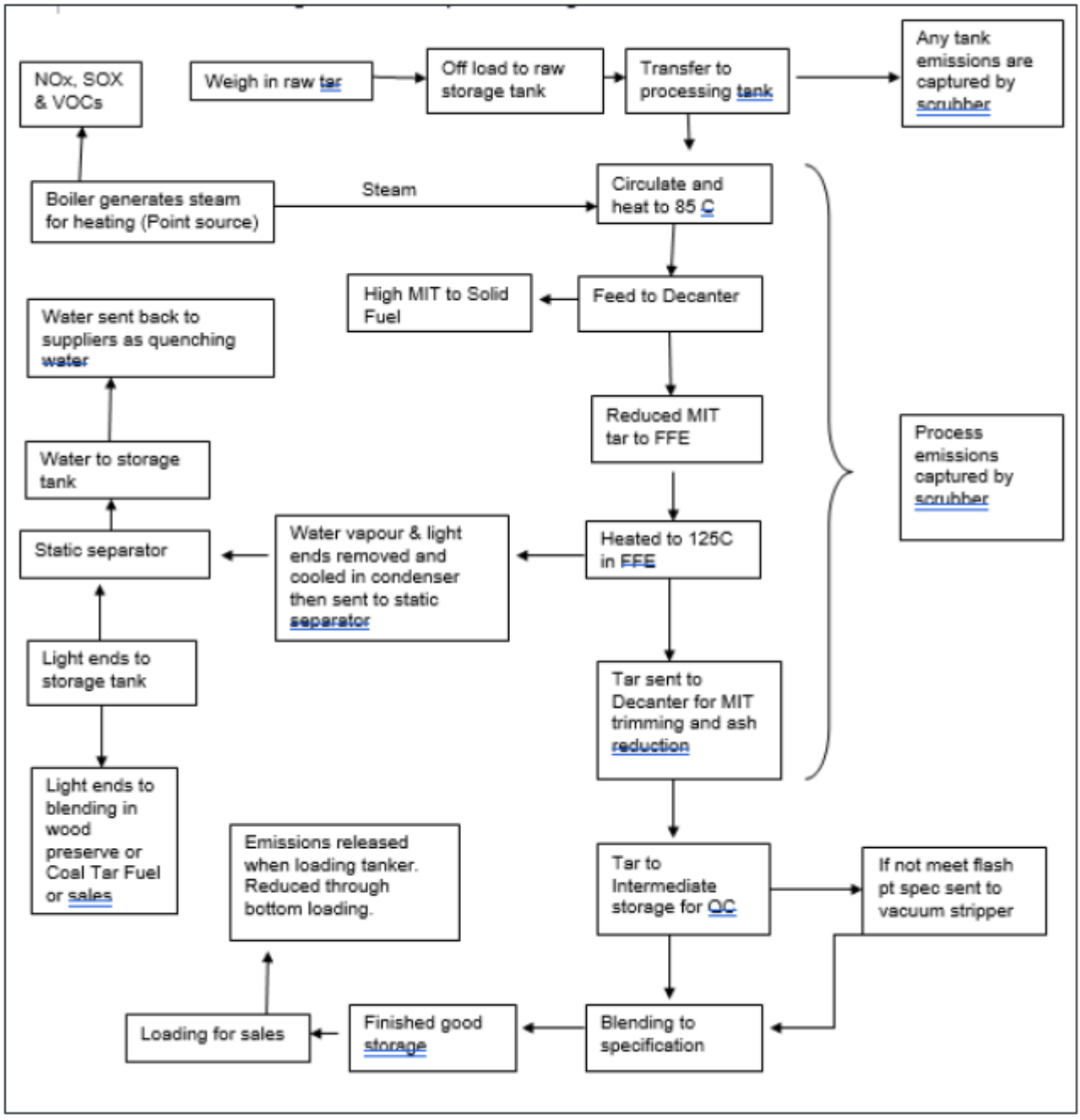


Figure 3-2 - Current Tar and Creosote Production Process

3.2.3 WAXY OIL PROCESS

The aim of the proposed processing facility is to remove particulates and contaminates of varying sizes from the liquid hydrocarbon oils.

Liquid hydrocarbons that can go directly to filtration without pretreatment are blended and heated, the hydrocarbons are then passed through a filter to remove the ash particulates. Once the filtration rate is reduced then the filter is stopped, the filter cake removed and blended into a solid fuel for use in the boiler to generate steam. After filtration, the processed filtrate is stored in blend tank. It will then be blended into an industrial heating fuel with various other fuel oils before final storage if required. Hence the process is of a batch nature.

Hydrocarbon feed materials that cannot go directly to the filtration unit are fed into the distillation unit. Vapours generated under closed conditions are then cooled back into liquid hydrocarbons while the remaining residual ashes are placed in skips for blending into solid fuel, sale as iron or dumping as inert ash.

As the process requirements grow the following processing steps will be followed:

- The viscosity of the waxy oil is reduced by using a fired oil heater. The product will be heated to around 450^{o}C under pressure. Further “trimming” of the viscosity is done with additives.
- Once the viscosity is reduced, the large particles within the material are separated using a static separator. This process is assisted by the temporary reduction of viscosity by means of heat (120^{o}C), reduction of pH and surface tension through the addition of proprietary chemicals.
- From the static separator, material containing high content of solids is fed into the de-ashing vessel where wash water is used to facilitate the removal of ash in a liquid phase.
- The water is then removed and recovered by using an FFE and multistage evaporator.
- Further removal of solids may be required using centrifugal separation. Any carbon particulate is then removed by filtration. However, excessive waxes in the process stream may blind filter media requiring the chilling of the stratum which will result in the separation and removal of waxes prior to filtration. This stream of wax could be retreated in the de ashing plant and re-constituted with the oil after the filtration stage.

Refer to **Figure 3-3** for an illustration of the process.

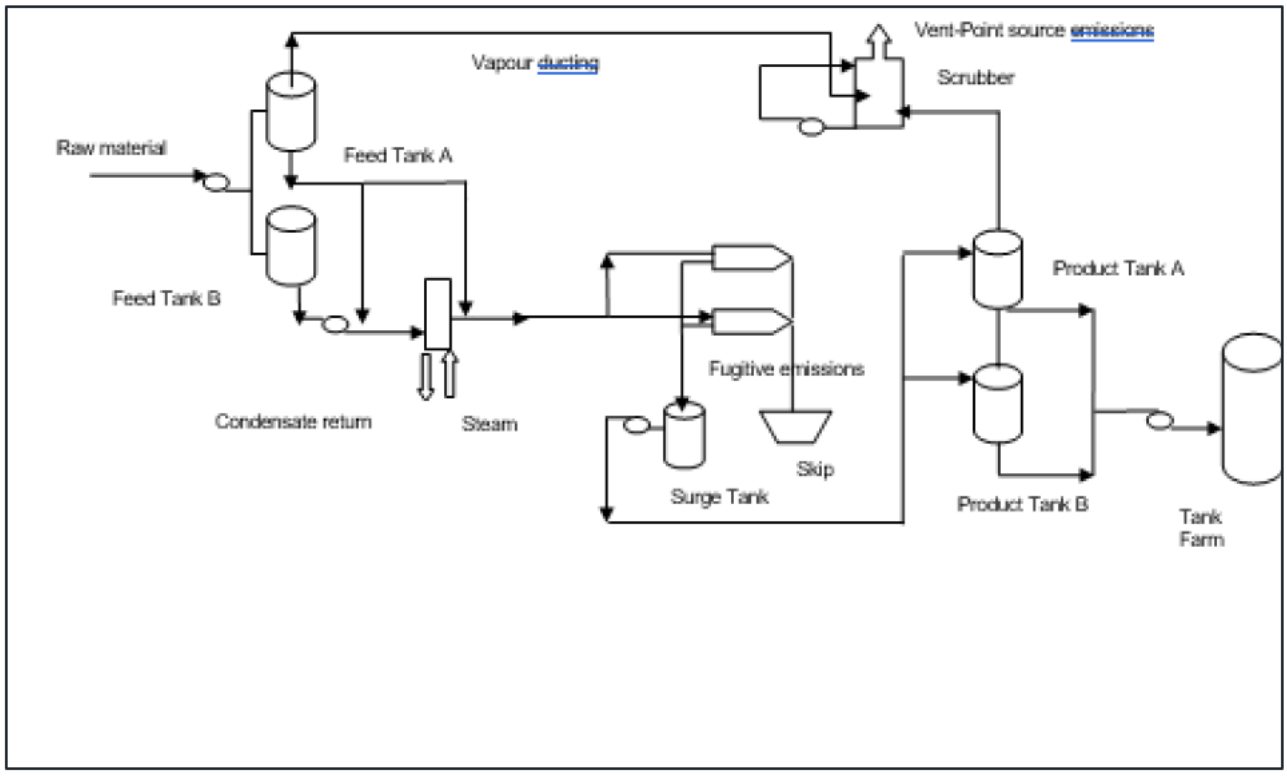


Figure 3-3 - Waxy Oil Process in addition to Tar and Creosote Manufacture

3.2.4 ANCILLARY EQUIPMENT AND SERVICES

The site is authorised to operate a 20 ton/hour coal fired and a 15 ton/hour (F&A) oil fired boiler to provide steam for the facility to raise heat and purge the filter cake. At present the site operates a 12 ton/hr coal fired and a 4t/hr oil fired boiler. Air compressors and air dryers provide instrument air, filter cake drying medium and truck tyre compressed air. Cooling towers and chillers ensure products and vapours are cooled and condensed. VOC scrubbers remove VOC's to meet the emissions limits as set down for point source emission legislation limits as per NEM:AQA.

3.3 PROPOSED PROCESS

FFS proposes to use the existing infrastructure and facilities for the processing of hydrocarbon waste. The waste will be stored and processed in adjunction to the existing operations. The existing authorised production and storage capacities will not be increased. The site will operate within its existing production capacities with no increase. The layout of the site is provided in **Appendix B**.

The used oils will be sampled to ascertain which process would best suit the ultimate product specification for a customer. Based on the sample results the used oil will either go through the normal process or the deash process (process whereby ash (solids) are removed from oil) or a combination of the two may be used.

The proposed hydrocarbon waste streams to be process will include the following: tank bottoms, contaminated HFO/Fuel Oil, slops, used lube oil, contaminated tar, contaminated creosote and contaminated diesel/paraffin.

3.4 PROJECT ACTIVITIES

3.4.1 CONSTRUCTION PHASE

No construction will take place, and no additional tri-canters will be added to the existing facility.

Table 3-3 – Construction activities

Activity	Description
Establishment of an access road	Access to the proposed site will be via the existing road network therefore no additional access roads are required.
Site preparation and establishment	No site establishment will be required.
Transport of components and equipment to site	No construction will take place and no additional tri-canters will be added to the existing facility.

3.4.2 OPERATIONAL PHASE

During operation the key activities will include the storage and processing of hydrocarbons at the waste facility. Key activities associated with the construction phase are described in Section 3.2 of this report and in **Table 3-4** below.

Table 3-4 - Operational Phase Activities

Activity	Description
Transport of hydrocarbons	Access to the proposed site will be via the existing road network therefore no additional access roads are required.
Loading and offloading of material	The material will be offloaded / loaded from trucks and no hydrocarbons will be handled outside the process facility.
Storage of material	Hydrocarbons will be stored inside designated storage area. All hydrocarbons will be handled in sealed containers. In addition, the inside of the storage area will be bunded with a lined hardstanding
Processing of material	Processing of material will happen at the process plant. Two processes, namely Coal tar processing and waxy oil process will take place will be taking place.

3.4.3 DECOMMISSIONING PHASE

The decommissioning phase will include the cessation of operation and demolition of the process plant and removal of its material from site. The phase will also include:

- Plant to be demolished and materials to be removed;
- Termination of all services to the area; and
- Rehabilitation of all areas to be completed sufficiently to meet relevant commitments of the closure plan.

Note: The current state of this report does not consider decommissioning activities as this is not part of this authorisation process and a WML for decommissioning will be sought prior to commencing with the associated activities.

3.5 NEED AND DESIRABILITY

A wide range of hydrocarbon waste streams are available in the immediate and surrounding area, and are currently being taken to landfill or undergo other processes which do not effectively utilise the energy capacity still present within the waste. In addition, disposal to landfill increases the chances of soil, surface and ground water contamination through spills and leaks of hydrocarbon sludge at the landfill. FFS has the capability and expertise to process hydrocarbon waste streams thereby enabling the recovery, reuse, recycling and treatment of waste streams which is the preferred waste management strategy in South Africa. This is part of FFS's operational model to grow their business. By processing the waste, they are not only meeting Best Practicable Environmental Option, but finding a financially viable alternative to disposing hydrocarbon waste to landfill.

The Needs and Desirability Guidelines, in terms of the EIA regulations, highlights the need to consider how the proposed project may impact ecosystems and biological diversity; pollution; and renewable and non-renewable resources. It should also consider how the development may affect or promote justifiable economic and social development. The Need and Desirability is assessed in **Table 3-5**.

Table 3-5: Need and Desirability Assessment

PART 1 - NEED

Is the land use associated with the activity being applied for considered within the timeframe intended by the existing approved SDF agreed to be the relevant environmental authority?	Based on the SDF, the site is located within the Evander Industrial Park area which is earmarked for industrial activities. The site is zoned as industrial.
Should the development, or if applicable, expansion of the town/area concerned in terms of this land use occurs here at this point in time?	
Does the community/area need the activity and the associated land use concerned? This refers to the strategic as well as local level.	The Municipality's strategic location has supported the establishment of a very strong industrial base.
Are the necessary services with adequate capacity currently available (at the time of application) or must additional capacity be created to cater for the development?	The site is situated in an area that has existing service delivery by the municipality. No additional electricity or water will be required.
Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of the services and opportunity cost)?	

Is the project part of a national programme to address an issue of national concern or importance?	The proposed project does not form part of a national programme.
Part 2 - Desirability	
Is the development the best practicable environmental option for this land/site?	The site is already used as an industrial site and no additional construction will be required. The site is situated in an industrial area and will fit with the characteristics of the surrounding area.
Would the approval of this application compromise the integrity of the existing approved and credible IDP and SDF as agreed to by the relevant authorities?	No, the project is aligned with the SDF and IDP.
Would the approval of this application compromise the integrity of the existing environmental management priorities for the area (e.g. as defined in EMFs), and if so, can it be justified in terms of sustainability considerations?	No, limited additional impacts will occur and an existing industrial operation will be optimized.
Do location factors favour this land use at this place? (this relates to the contextualization of the proposed land use on this site within its broader context).	The preferred location was chosen based on the following factors: The property is owned by FFS. The surrounding area is classified as and suitable for industrial activity. The site has already been transformed and is currently used for dangerous goods storage and processing. No new structures will need to be constructed. The site is located a fair distance from the nearest river/stream, therefore the chances of affecting surface water resources are minor. The site is situated in close proximity to major export/import routes.
How will the activity of the land use associated with the activity being applied for, impact on sensitive natural and cultural areas (built and rural/natural environment)?	Limited additional impacts will occur and an existing industrial operation will be optimize. An Air Quality Impact Assessment will be undertaken during the EIA phase.
How will the development impact on people's health and well-being? (E.g. In terms of noise, odours, visual character and sense of place, etc.)?	Based on the impact significant screening, the impacts will range from very low to low without mitigation measures. The specialist studies to be undertaken during the EIA Phase will assess the potential impacts and provide recommendations to be included in the EMPr.
Will the proposed activity or the land use associated with the activity being applied for, result in unacceptable opportunity costs?	No.

Will the proposed land use result in unacceptable cumulative impacts?	Cumulative impacts will be assessed during the EIA Phase.

4 ENVIRONMENTAL SENSITIVITY

4.1 IMPACT ASSESSMENT OUTCOMES

It is anticipated that all impacts associated with the proposed project can be reduced to low significance provided the recommended mitigation measures as presented within this EIAR and the associated specialist studies are implemented. The table below is a summary of the impacts associated with the proposed project.

Table 4-1 – Summary of impacts associated with the proposed project

Aspect	Impact Description	Character	Without Mitigation	With Mitigation
Construction Phase				
No construction will take place, therefore no impacts anticipated.				
Operational Phase				
Air Quality	Impact on ambient air quality	Negative	**Moderate**	**Low**
Surface Water	Contamination of watercourse/aquatic environments	Negative	**Low**	**Low**
Groundwater	Groundwater Contamination	Negative	**Low**	**Low**
Noise	Noise and Vibration Emissions	Negative	**Low**	**Low**
Terrestrial Biodiversity	Establishment and Spread of Alien Invasive Species	Negative	**Low**	**Very Low**
Aquatic Biodiversity	Change in surface water quality on aquatic habitats	Negative	**Low**	**Low**
Social Economic	Creation of employment and business opportunities	Positive	**Low**	**Low**
Health and safety	Health and safety	Negative	**Low**	**Low**

Considering the findings of the atmospheric impact assessment, no fatal flaws were identified for the proposed project. Should the prescribed avoidance and mitigation measures be implemented, the post-mitigation significance of the considered impacts for the negative aspects pertaining to the environmental aspects is expected to be medium to low.

4.2 SITE SENSITIVITY

There are no sensitive sites or no-go areas identified on the proposed site.

4.3 APPLICABLE DOCUMENTATION

The following documents are to be read in conjunction with the EMPr:

- EA issued by the DFFE in terms of the NEMA (once issued).

5 GOVERNANCE FRAMEWORK

5.1 NATIONAL LEGAL AND REGULATORY FRAMEWORK

The South African regulatory framework establishes well-defined requirements and standards for environmental and social management of industrial and civil infrastructure developments. Different authorities at both national and regional levels carry out environmental protection functions. The applicable legislation and policies are shown in **Table 5-1**

Table 5-1 – Applicable Legislation and Policy

Legislation	Description of Legislation and Applicability
The Constitution of South Africa (No. 108 of 1996)	The constitution of South Africa (No. 108 of 1996) (the Constitution) provides for Environmental rights in the Bill of Rights (Chapter 2, Section 24) stating: "Everyone has the right- ▪ To an environment that is not harmful to their health or well-being; and ▪ To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that: ▪ Prevent pollution and ecological degradation; ▪ Promote conservation; and ▪ Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development." The Constitution cannot manage environmental resources as a stand-alone piece of legislation hence additional legislation has been promulgated in order to manage the various spheres of both the social and natural environment. Each promulgated Act and associated Regulations are designed to focus on various industries or components of the environment to ensure that the objectives of the Constitution are effectively implemented and upheld on an on-going basis throughout the country. In terms of Section 7 of the Constitution, a positive obligation is placed on the State to give effect to the environmental rights. FFS has a duty to ensure that all aspects of its operations respond to this context by addressing environmental management and protection as an integrated part of its operations and activities.
National Environmental Management Act (No. 107 of 1998)	The NEMA provides the environmental legislative framework for South Africa and establishes a set of principles, which all authorities have to consider when exercising their powers. These include the following: ▪ Development must be sustainable; ▪ Pollution must be avoided or minimised and remedied; ▪ Waste must be avoided or minimised, reused or recycled; ▪ Negative impacts must be minimised; and ▪ Responsibility for the environmental consequences of a policy, project, product or service applies throughout its life cycle. Section 28(1) states that "every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring". If such degradation/pollution cannot be prevented, then appropriate measures must be taken to minimise or rectify such pollution." These measures may include: ▪ Assessing the impact on the environment;

Legislation	Description of Legislation and Applicability
	▪ Informing and educating employees about the environmental risks of their work and ways of minimising these risks; ▪ Ceasing, modifying or controlling actions which cause pollution/degradation; ▪ Containing pollutants or preventing movement of pollutants; ▪ Eliminating the source of pollution; and ▪ Remedying the effects of the pollution. FFS has a general duty of care and a responsibility to take actions to prevent pollution or degradation of the Environment in terms of Section 28 of NEMA, and to ensure that the environmental impacts associated with the construction and operation of the Sludge Processing Facility and associated storage are mitigated where possible. In terms of Section 24(2) of the NEMA, the Minister may identify activities which may not commence without prior authorisation. The Minister thus published GNR 327 (Listing Notice 1), 325 (Listing Notice 2) and 324 (Listing Notice 3) listing activities that may not commence prior to authorisation (7 April 2017). The regulations outlining the procedures required for authorisation are published in GNR 326, EIA Regulations of 7 April 2017, as amended. Listing Notice 1 identifies activities that require a Basic Assessment (BA) process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. Listing Notice 2 identifies activities that require an S&EIR process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. Listing Notice 3 identifies activities within specific areas that require a BA process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. WSP undertook a legal review of the listed activities according to the proposed project description to conclude that no listed activities are considered applicable to the development
Listing Notice 1: GNR 983	**Activity 34:** The expansion of existing facilities or infrastructure for any process or activity where such expansion will result in the need for a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the release of emissions, effluent or pollution, excluding— (i) where the facility, infrastructure, process or activity is included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies; **Description:** **The proposed activity is included in the list of waste management activities and therefore will not trigger this activity.**
National Environmental Management: Waste Act 59 of 2008 (Act No. 59 of 2008).	The NEM:WA is subsidiary and supporting legislation to the NEMA. The NEM:WA is a framework legislation that provides the basis for the regulation of waste management in South Africa. The Act also contains policy elements and gives a mandate for further regulations to be promulgated. On 29 November 2013, GNR 921 was promulgated (repealing GNR 718) which contains a list of waste management activities that if triggered require a Waste

Legislation	Description of Legislation and Applicability
	Management License (WML) and in turn a BA (Category A activities) or S&EIR (Category B activities) process to be undertaken in terms of NEMA. Category C activities are required to comply with the National Norms and Standards for Storage of Waste, 2013 (GN. 926) and do not require authorisation. FFS do not currently undertake any waste processing activities on the Evander site and therefore do not have a WML. In terms of section 19 of the NEM:WA, a list of waste management activities that have, or are likely to have a detrimental effect on the environment were published in GNR 921 (November 2013). WSP undertook a review of the listed activities according to the proposed project description to conclude that Listed Activities 2, 3 and 4 under Category B and Listed Activity 2 under Category are considered applicable. A WML is required and will be applied for with the DFFE.
GNR 921: Category B **The DFFE is the competent authority**	**Activity 2:** The reuse or recycling of hazardous waste in excess of 1 ton per day, excluding reuse or recycling that takes place as an integral part of an internal manufacturing process within the same premises. **Description**: Hydrocarbon waste streams, in excess of 1 ton per day will be recycled at the existing facility.
GNR 921: Category B **The DFFE is the competent authority**	**Activity 3** The recovery of waste including the refining, utilisation, or co-processing of the waste at a facility that processes in excess of 100 tons of general waste per day or in excess of 1 ton of hazardous waste per day, excluding recovery that takes place as an integral part of an internal manufacturing process within the same premises. **Description:** Hydrocarbon waste in excess of 1 ton per day will be recovered at the existing facility.
GNR 921: Category B **The DFFE is the competent authority**	**Activity 4** The treatment of hazardous waste in excess of 1 ton per day calculated as a monthly average; using any form of treatment excluding the treatment of effluent, wastewater or sewage. **Description:** Hydrocarbon waste in excess of 1 ton per day will be recovered at the existing facility.
GNR 921: Category B **The DFFE is the competent authority**	**Activity 10** The construction of a facility for a waste management activity listed in Category B of this Schedule (not in isolation to associated waste management activity). **Description:**

Legislation	Description of Legislation and Applicability
	No construction will take place, only existing facilities and infrastructure will be used as such this activity is not applicable
GNR 921: Category C ***The DFFE is the competent authority***	**Activity 2** The storage of hazardous waste at a facility that has the capacity to store in excess of 80m^3 of hazardous waste at any one time, excluding the storage of hazardous waste in lagoons or temporary storage of such waste. **Description:** Hydrocarbon waste in excess of 80m^3 will be stored at site.
National Environment Management: Air Quality Act (No. 39 of 2004)	The National Environmental Management Air Quality Act (NEM:AQA) came into effect on 11 September 2005. A staged approach to promulgation that iteratively replaced sections of the Atmospheric Pollution Prevention Act (No. 45 of 1965) (APPA) saw the former Act fully repealed by 01 April 2010. Key features of the current legislation include: ▪ a decentralisation of air quality management responsibilities; ▪ the identification and quantification of significant emission sources that then need to be addressed; ▪ the development of ambient air quality targets as goals for driving emission reductions; ▪ the use of source-based (command-and-control) measures in addition to alternative measures, including market incentives and disincentives, voluntary programmes, and education and awareness; ▪ the promotion of cost-optimized mitigation and management measures; ▪ air quality management planning by authorities, and emission management planning by sources; and ▪ access to information and public consultation. NEM:AQA introduced a management system based on ambient air quality standards and corresponding emission limits to achieve them. Two significant regulations stemming from NEM:AQA have been published as Government Notices, namely: ▪ Government Notice 1210 of 2009 (Government Gazette 32816): NEM:AQA National Ambient Air Quality Standards (NAAQS). ▪ Government Notice 248 of 2010 (Government Gazette 33064): National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) List of Activities Which Result in Atmospheric Emissions Which Have or May Have a Significant Detrimental Effect on the Environment, Including Health, Social Conditions, Economic Conditions, Ecological Conditions or Cultural Heritage. Amendments were published in Government Notice 893 on the 22nd of November 2013 (Government Gazette 37054). No specific activities undertaken at the proposed sites are mentioned in this listing notice. ▪ NAAQS were based primarily on guidance offered by four standards set by the South African National Standards (SANS), namely: ▪ SANS 69:2004 Framework for implementing national ambient air quality standards. ▪ SANS 1929:2005 Ambient air quality – Limits for common pollutants. ▪ SANS 69:2004 makes provision for the establishment of air quality objectives for the protection of human health and the environment as a whole. These air quality objectives include limit values, alert thresholds and target values.

Legislation	Description of Legislation and Applicability
	SANS1929:2005 uses the provisions of SANS 69 to establish air quality objectives for the protection of human According to Section 22 of the NEM: AQA, no person may, without An Atmospheric Emission Licence (AEL), conduct an activity that is - ▪ Listed on the national list anywhere in the Republic; or ▪ Listed on the list applicable in a province anywhere in that province. Listed activities and associated minimum emission standards (MES) were published in Government Notice 248 of 2010, Government Gazette 33064 in-line with Section 21 of NEM: AQA. An amended list of activities was published in Government Notice 893 of 2013, Government Gazette 37054, in Government Notice 551 of 2015, Government Gazette 38863 and further in Government Notice 1207 of 2018, Government Gazette 42013. FFS holds an existing AEL (Govan Mbeki/FFS (Pty) Ltd/0007/2020/F04) for: ▪ Activity 2.4: Storage and Handling of Petroleum Products; and ▪ Activity 3.3: Tar Processing. According to the listed activities and associated minimum emission standards, the proposed processing of hydrocarbon waste streams will trigger the following listed activities: Activity 2.5: Industrial Fuel Oil Recyclers An AEL will be applied for due to the associated triggers.
The Hazardous Substances Act (No. 15 Of 1973)	The Hazardous Substances Act (No. 15 of 1973) provides measures for the control of substances and certain electronic products that may be toxic, corrosive, irritant, strongly sensitizing or flammable in nature which may cause injury or ill-health to or death of human beings. The Act divides the substances or products into groups in relation to the degree of danger and makes provision for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances and products. The existing FFS plant in Evander is classified as a Major Hazard Installation (MHI). With an MHI the incidental explosive risks have the potential to adversely affect the health and safety of employees and the public. The project will not increase the dangerous goods stored or processed at the site.
Occupational Health and Safety Act (No. 85 of 1993)	Definitions in the regulations state that a MHI is an installation where a substance is stored that is listed in Schedule A of the General Machinery regulations of the Occupational Health and Safety Act and the quantity exceeds those stipulated. It is an installation where a substance is produced, processed, used, handled or stored in such a form and quantity that it has the potential to cause a major incident. A Major Incident is an event or occurrence of catastrophic proportions resulting from the use of plant and machinery, or from activities at a workplace. This may be interpreted in technical terms as follows: ▪ Catastrophic relates to the effects on the general public i.e. persons outside the boundary of the premises of the installation. ▪ People entering the premises through gates, although members of the public will be regarded as employees for the duration they remain on the premises.

Legislation	Description of Legislation and Applicability
	▪ A fatality to one or more members of the public may be regarded as catastrophic. ▪ Exposing a member of the public to hazard effects which exceeds the following thresholds: • Thermal radiation: 12 kW / m2 for 1 minute. • Engulfed in a flash fire • Blast overpressure: 14 kPa. • Toxic gas dose: Equivalent Emergency Planning Response Guideline ERPG 3 for 1 hour and chance of fatality > 1 %. • Toxic liquid drench: More than 50 % body coverage [severe injuries or fatalities]. The regulation requires that a risk assessment be carried out by a Department of Labour Approved Inspection Authority (AIA). For this installation a Quantitative Risk Assessment is required and is aligned with the standards for Major Hazard Installation Risk Assessments. The existing FFS plant in Evander is classified as a MHI. With an MHI the incidental explosive risks have the potential to adversely affect the health and safety of employees and the public. The project will not increase the dangerous goods stored or processed at the site.

5.2 PROVINCIAL AND MUNICIPAL POLICIES AND PLANS

Table 5-2 summarised key policies and plans as an outline of the governance framework for the project.

Table 5-2 – Applicable Policies and Plans

Applicable Plan	Description of Plan
Mpumalanga Growth and Development Path	The primary objective of the Mpumalanga Economic Growth and Development Path (MEGDP) (2011) is to foster economic growth that creates jobs, reduce poverty and inequality in the Province. The MEGDP identifies supporting the development of clean forms of energy such as wind and hydro power generation opportunities, as well as opportunities including gas production from landfill and organic waste, as one of the key interventions to facilitate growth and job creation in the manufacturing sector. A focal point of the MEGDP is massive investments in infrastructure as a key driver of job creation across the economy, with alternative energy production identified as one of the key opportunities in the Mpumalanga Economic sectors.
Mpumalanga Spatial Development Framework (MSDF), 2019	The Mpumalanga Spatial Development Framework (SDF) (2019) identifies that tourism is an important economic sector and has emerged as a robust driver of growth for emerging economies. The SDF also notes that a significant portion of Mpumalanga's land area is classified as Moderate to High-Very High agricultural potential which can be utilised for agricultural production. However, there are other factors affecting the agricultural sector including loss of agricultural land to other activities, availability of water, contamination of the water used for

Applicable Plan	Description of Plan
	irrigation by other economic activities, and access to the market. The SDF further notes that mining is the largest economic sector in the province and has assisted other sectors such as manufacturing and power generation, to grow in the province. However, the mining sector has posed some key challenges, including soil and water contamination and environmental pollution, development of mines on good agricultural soil thus threatening food security, restriction of animal movement due to open cast mining thus affecting the ecosystem etc. It also notes that Mpumalanga's manufacturing plants and coal fired power plants are the key polluters of air, with climate change also identified as a key challenge in the province. Therefore, the province must carefully design interventions that provide a gradual shift from mining oriented sectors to the sustainable economic sectors to maintain sustained growth of the provincial economy. The SDF notes that a significant amount of the country's electricity comes from coal-fired stations in Mpumalanga. It also observes that there is a steady increase in the demand for electricity in the province, mostly attributed to residential, commercial and industrial development, including mining and heavy industry. The Provincial SDF also notes that the abundance of coal has led to the development of many coal-fired power stations in the province, however these coalfields are depleting, therefore making it necessary to consider renewable power sources in Mpumalanga. The SDF also recognises that Mpumalanga's Coal Mining and Coal Fired Power Plant region (mainly the Highveld area) will be under immense pressure for environmental considerations and as a result, the region will witness a possible decline in demand of coal and large-scale employment. The SDF proposes to diversify the regional economy and facilitate the gradual transition of economic activities in the region.
Mpumalanga Industrial Development Plan	In terms of industry, the purpose of the Mpumalanga Industrial Development Plan (MIDP) (2015) is to promote the establishment of new industries and promote growth of existing industries in the province.
Mpumalanga Environmental Implementation Plan (2016)	The Mpumalanga Environmental Implementation Plan (EIP) is required in terms of Section 11 of the National Environmental Management Act (Act 107 of 1998, as Amended), and is intended to facilitate co-operative environmental governance to promote environmental sustainability within the province. The EIP identifies the policies, plans and programmes within each of the provincial and relevant national departments operating within the province that could have significant impacts on the environment, and indicates measures that the departments are putting into place, or plan to put into place, to improve their environmental performance and co-operative governance.
Mpumalanga Integrated Waste Management Plan	Better waste management reduces environmental pollution; diversion of waste from landfill decreases the need for additional landfills; waste recovery, reuse and recycling reduce the consumption of natural resources, likewise the minimisation of waste.

Applicable Plan	Description of Plan
Gert Sibande Municipality Integrated Development Plan	According to the Municipal Systems Act (No. 32 of 2000) (MSA), all municipalities have to undertake an Integrated Development Plan (IDP) process. The IDP is a legislative requirement thus it has legal status and supersedes all other plans that guide development at local government level. The Gert Sibande Municipality (GSM) IDP Review (2019/ 2020) and Final IDP (2020/2021) has identified the following development priorities: ▪ Municipal Transformation and Organisational Development ▪ Basic Service Delivery and Infrastructure Development ▪ Local Economic Development ▪ Municipal Financial Viability and Management ▪ Good Governance and Public Participation ▪ Spatial Development Analysis and Rationale The main goal and strategic objective of the Basic Service Delivery and Infrastructure Development priority is a reliable and sustainable service. One of the main strategic objectives for reaching the goal is the provision of basic services such as water and electricity to an approved minimum level of standards in a sustainable manner; as per the national guidelines.
Govan Mbeki Local Municipality IDP	The GMM Revised IDP (2020/2021) has identified the following key Municipal priorities: ▪ Providing sustainable, quality services; ▪ Enabling diversified local economic development and job creation; ▪ Ensuring the financial sustainability of the Municipality; ▪ Working together with our stakeholders; ▪ Empowering our workforce; and ▪ Ensuring sound corporate governance. The Vision, Mission and Values are informed by six Key Strategic objectives of which Strategic Objective 3, To facilitate and create an enabling environment for diversified local economic development, social cohesion, and job creation and Strategic Objective 5, To develop spatially integrated, safe communities and a protected environment, are relevant to the proposed development. The IDP of the Govan Mbeki Local Municipality is aligned with the National Development Plan of 2030 (NDP). The NDP identified 12 outcomes which must be considered during the planning process for each municipality. Outcome 10 will be considered during the S&EIR Process: *Outcome 10: Protection and enhancement of environment, assets and national resources.* Section 7.4 of the IDP places emphasis on the legal compliance to the environmental management.
Govan Mbeki Spatial Development Framework	The GMM SDF is informed by six strategic objectives, including: ▪ Strategic Objective 1: Economic development and job creation supporting and guiding development;

Applicable Plan	Description of Plan
	▪ Strategic Objective 2: Promoting education, training, and innovation; ▪ Strategic Objective 3: Accommodating urbanisation and transforming human settlements; ▪ Strategic Objective 4: Promote the development of the rural areas within GMM that can support sustainable economic, social, and engineering infrastructure; ▪ Strategic Objective 5: Protect biodiversity, water, and agricultural resources; and ▪ Strategic Objective 6: Infrastructure Investment. Strategic Objective 1 and 6 are relevant to the proposed development:

5.2.1 ADDITIONAL PERMITS AND AUTHORISATIONS

Table 5-3 – Additional permits and authorisations required for the proposed project

Permits / Authorisation	Legislation	Relevant Authority	Status
Amended AEL	NEM:AQA	DFFE	Current AEL valid until 24 May 2029.

6 MANAGEMENT PROCEDURES AND ADMINISTRATIVE REQUIREMENTS

6.1 ORGANISATIONAL STRUCTURE AND RESPONSIBILITIES

Formal responsibilities are necessary to ensure that key management measures/procedures are executed. FFS will be responsible for the overall control of the project site during all phases of the project. FFS' responsibilities will include the following:

- Appointing an independent environmental control officer (ECO) as specified by the DFFE during operation;
- Being fully familiar with the EIAR, WML conditions and the EMPr;
- Applying for an amendment of the WML from the DFFE as and when required in line with the prevailing legislation
- The overall implementation of the EMPr;
- Ensuring compliance, by all parties, and the imposition of penalties for noncompliance;
- Implementing corrective and preventive actions, where required;
- Ensuring that any other necessary permits or licences are obtained and complied with;
- Preventing pollution and actions that will harm or may cause harm to the environment;
- and
- Notifying the DFFE 14 days prior to commencement of the operational phase.

Table 6-1 provides a high-level outline of the various roles and responsibilities of the project.

Table 6-1 – Roles and Responsibilities

Designation	Roles and Responsibilities
DFFE	▪ Is the designated authority responsible for authorising this EMPr and has overall responsibility for ensuring that FFS complies with this EMPr, and any conditions listed in the EA. ▪ Shall also be responsible for approving any significant amendments that may be required to the EMPr. ▪ May further perform random site inspections to check compliance with the EMPr.
Project Applicant - FFS	▪ Ensure that FFS and the relevant contractor/s are aware of all specifications, legal constraints pertaining to the project, specifically with regards to the environment. ▪ Ensure that all stipulations within the EMPr and conditions of the environmental authorisation are communicated and adhered to by FFS and its contractor(s). ▪ Monitor the implementation of the EMPr and conditions of the environmental authorisation throughout the project by means of site inspections and meetings. This will be documented as part of the site meeting minutes. ▪ Be fully conversant with the EIAR for the project, the conditions of environmental authorisation and all relevant environmental legislation. ▪ Be fully conversant with the EIAR, the conditions of the WML and the EMPr. ▪ Approve method statements. ▪ Provide support to the ECO. ▪ Be fully conversant with all relevant environmental legislation and ensure compliance thereof. ▪ Have overall responsibility for the implementation of the EMPr and conditions of the environmental authorisation ▪ Ensure that audits are conducted to ensure compliance to the EMPr and conditions of the environmental authorisation.

Designation	Roles and Responsibilities
	▪ Liaise with the Project Manager or his delegate, the EO and others on matters concerning the environment ▪ Prevent actions that will harm or may cause harm to the environment and take steps to prevent pollution and unnecessary degradation onsite. ▪ Confine activities to demarcated areas.
Environmental Officer (EO)	The EO must be appointed by FFS and is responsible for managing the day-to-day onsite implementation of the EMPr, and for the compilation of monthly environmental monitoring reports during decommissioning. During the operational phase environmental monitoring reports may be as specified by the DFFE (such as annually) by the EO or external ECO. In addition, the EO must act as liaison and advisor on all environmental and related issues, seek advice from the ECO when necessary, and ensure that any complaints received from I&APs are duly processed and addressed and that conflicts are resolved in an acceptable manner. The EO may be either part of FFS or of the Contractor's team on a full time basis. The following qualifications, qualities and experience are recommended for the individual appointed as the EO: ▪ Relevant experience in construction site monitoring and environmental management, excluding health and safety; ▪ A level-headed and firm person with above-average communication and negotiating skills. The ability to handle and address conflict management situations will be an advantage; and ▪ Relevant experience in environmental site management and EMPr compliance monitoring. The EO's responsibilities include, but not limited to: ▪ Monitoring, on a daily basis, environmental specifications on site and compliance with the conditions of the EA, environmental legislation and EMPr; ▪ Keeping a register of compliance / non-compliance with the environmental specifications; ▪ Identifying and assessing previously unforeseen, actual, or potential impacts on the environment; ▪ Conducting site inspections during the defect's liability period, and bringing any environmental concerns to the attention of the Contractor; ▪ Advising the Contractor on the rectification of any pollution, contamination or damage to the site, rights of way and adjacent land; ▪ Attending site meetings (scheduled and ad hoc); ▪ Presenting the environmental awareness training course to all staff, Contractors and Sub contractors, and monitoring the environmental awareness training for all new personnel on-site, as undertaken by the Contractor; ▪ Ensuring that a copy of the WML and the latest version of the EMPr are available on site at all times, and maintaining a records-keeping system of all compliance and environmental documentation; ▪ Ensuring that the Contractor is made aware of all applicable changes to the EMPr that are approved by the DEA; ▪ Assisting the Contractor in drafting environmental method statements and/or the Environmental Policy where such knowledge/expertise is lacking; ▪ Undertaking monthly environmental monitoring to ensure the Contractor's activities do not impact upon the receiving environment. Such monitoring shall include dust, noise and water monitoring; and ▪ Maintaining the following on site: • A monthly site diary. • A non-conformance register (NCR). • An I&AP communications register, and • A register of audits. • Records of all communication received in relation to compliance actions.

Designation	Roles and Responsibilities
Independent ECO	A suitably qualified ECO must be appointed by FFS to monitor the project compliance with the EMPr and conditions of the environmental authorisation on a monthly basis during decommissioning. During the operational phase environmental monitoring may be undertaken as specified by the DFFE by an external ECO. Proof of external ECO appointment must be maintained onsite. Responsibilities of the ECO include: ▪ Be fully conversant with the EIR, the conditions of environmental authorisation and the EMPr; ▪ Be fully conversant with all relevant environmental legislation and ensure compliance thereof; ▪ Approve method statements; ▪ Remain employed until the completion of the decommissioning activities; and ▪ Report to the Project Manager, including all findings identified onsite. In addition, the ECO will: ▪ Undertake independent monthly inspections of the site and surrounding areas in order to audit compliance with the EMPr and conditions of the WML during decommissioning; ▪ Take appropriate action if the specifications contained in the EMPr and conditions of the environmental authorisation are not followed; ▪ Monitor and verify that environmental impacts are kept to a minimum, as far as possible; and ▪ Ensure that activities onsite comply with all relevant environmental legislation.
Contractors, Staff and Service Providers	▪ Complying with the conditions of the WML and EMPr; ▪ Ensuring all staff are trained on the requirements of the WML and EMPr; ▪ Preventing pollution and actions that will harm or may cause harm to the environment; ▪ Maintaining relevant documentation for review by the EO; and ▪ Adhering to FFS Health, Safety and Environmental Policies and Procedures.

6.2 ENVIRONMENTAL AWARENESS PLAN

Legislation requires that FFS must develop an environmental awareness plan that describes the manner in which FFS intends to inform employees of any environmental risks which may result from their work and the manner in which the risks must be dealt with in order to avoid pollution or the degradation of the environment. In recognition of the need to protect our environment, environmental management should not only be seen as a legal obligation but also as a moral obligation.

It is important to ensure that all relevant personnel have the appropriate level of environmental awareness and competence to ensure continued environmental due diligence and ongoing minimisation of environmental degradation and harm.

To achieve effective environmental management, it is important that employees, contractors (including subcontractors) are aware of the responsibilities in terms of the relevant environmental legislation and the contents of the EMPr, and conditions of the EA.

FFS will provide appropriate resources to facilitate social and environmental awareness training during the operational and decommissioning phases of the project. FFS will require that all managers associated with the project adhere to the mitigation/management measures detailed in the EMPr and identify, evaluate, and minimise risks to the social, physical and biophysical environments. This will be implemented by educating employees in social and environmental

matters and responsibilities relating to performance of their assigned tasks. Furthermore, employees will be entrusted to maintain the necessary level of environmental performance for their activities. Contractors, and their associated sub-contractors, will also need to demonstrate compliance to mitigation/ management measures included in the EMPr.

The following methodology described must be used to implement and ensure environmental and social awareness and competence:

6.2.1 INTERNAL COMMUNICATION

Internal communication of environmental issues to ensure environmental awareness will be achieved by using any combination of the following means:

- Meetings;
- Memos;
- Notice boards;
- Briefs;
- Reports;
- Monthly themes;
- Daily operational bulletins;
- Newsletter;
- E-mail;
- Telephone; and
- Induction training.

6.2.2 STANDARD MEETINGS

The following standard meetings will be held at specific times to ensure that environmental and social awareness; potential problems; complaints etc. are heard and addressed proactively:

- Safety, Health and Environmental Meetings will be held monthly by the Senior Management;
- Safety, Health and Environmental Meetings will be held monthly (during operation) by the relevant personnel, environmental and social issues will form part of the agenda; and
- Communication between all personnel and Senior Management will be facilitated through the appropriate reporting lines, or by using complaint and incident forms.

6.2.3 ENVIRONMENTAL AND SOCIAL TALK TOPICS

Monthly environmental and social talk topics must be compiled and distributed/shared to relevant personnel and may be displayed on appropriate notice boards or shared by whatever means established on site. As a minimum, the following topics may be considered:

- Water Quality;
- Water Use and Consumption;
- Air Quality i.e. dust;
- Power Consumption and Energy Efficiency;
- Waste Management;
- Fauna and Flora;
- Emergency Procedures;
- Incidents Reporting;
- Systems;

- Noise;
- Landowner Etiquette;
- Speed Limits;
- Health Risks (such as HIV/ Aids); and
- General Awareness (e.g. World Environment Day, National Arbour Day).

6.2.4 GENERAL COMMUNICATIONS

Communication to the community, government, landowners, neighbouring farmers, environmental groups, non-government organisations and other stakeholders will be communicated to ensure environmental and social awareness by means of the following:

- E-mail;
- Telephone; or
- Formal meetings.

6.2.5 TRAINING

It is important to ensure that all personnel, contractors and their sub-contractors have the appropriate level of environmental awareness and competence to ensure continued environmental due diligence and on-going minimisation of environmental harm. As a minimum environmental training must include the following:

- Employees must have a basic understanding of the key environmental features of the site and the surrounding environment.
- Employees will be thoroughly familiar with the requirements of the EMPr and the environmental specifications as they apply to the project.
- Employees must undergo training for the operation and maintenance activities associated with project and have a basic knowledge of the potential environmental impacts that could occur and how they can be minimised and mitigated.
- Awareness of any other environmental matters, which are deemed to be necessary by the Environmental Officer.
- Training must include the environment, health and safety as well as basic HIV/AIDS education.

The following facets to training form part of this Environmental and Social Awareness Plan:

- **Induction:** Induction training will also be given to visitors entering the site. Induction training will include, inter alia:
    - A discussion on the environment concept, what does it comprise of and how do we interact with it;
    - A description on the components and phases of the specific renewable power generation facility;
    - A general account of how the facility and its associated activities can affect the environment, giving rise to what are called environmental impacts;
    - A discussion on what staff can do in order to help prevent the negative environmental impacts from degrading the environment i.e. environmental impact management.
- **Job Specific Training:** Job specific training programmes will be developed as and when required. The programs will be based on the significant environmental and social aspects/ impacts that are identified during audits and site inspections. Supervisory staff will be equipped

with the necessary knowledge and information to guide their employees on environmental and social aspects applicable to performing a specific task.

- **Competency Training:** The EO and/or FFS designated responsible person will be responsible for the environmental and social competency and awareness training of Middle Management and supervisors. This training may be performed both on a one-on-one basis and through workshops and presentations. Competence and the effectiveness of training and development initiatives may be determined through the following methods:

  - Trend analysis of incidents reported;
  - Analysis of work areas during visits and audits; or
  - Any other effective means.

  The process to declare competency of personnel is documented in the FFS's ISO 14001 Procedure. This plan will be amended periodically in light of operational changes, learning experienced during its implementation and other activities that can affect the risk profiles.

- **Training Records**: Training can be done either in a written or verbal format but will be in an appropriate format for the receiving audience. Persons having received training must indicate in writing that they have indeed attended a training session and have been notified in detail of the contents and requirements of the EMPr. The attendance registers must be kept on file.

6.3 MONITORING

The EO will monitor the day-to-day site activities on an ongoing basis and will produce monthly monitoring reports during decommissioning. The independent, external ECO will undertake monthly audits, during decommissioning. to ensure compliance with the EMPr and conditions of the environmental authorisation during the decommissioning activities and will report to the Site Manager should any non-compliance be identified, or corrective action deemed necessary.

During the operational phase, FFS will monitor and measure, the key characteristics of the operations that may have a significant environmental impact through annual auditing. These audits will cover, documenting of information to monitor performance, applicable operational controls and conformity with the operation's environmental objectives and targets.

FFS will ensure that all instruments and devices used for the measurement or monitoring are calibrated and appropriately operated and maintained. Calibration records must be kept on site or in close proximity to the equipment for ease of availability.

All the conditions outlined in the EMPr will be subject to required internal monitoring and external compliance monitoring.

In order to determine implementation of the EMPr the following audits need to be undertaken:

- Annual internal audits.
- External compliance audits every two years.

6.4 NON-CONFORMANCE AND CORRECTIVE ACTION

The auditing of the operational activities may identify non-conformances to the EMPr and conditions of the EA. Non-conformances may also be identified through incidents, emergencies or complaints recorded. In order to correct non-conformances, the source must be determined, and corrective actions must be identified and implemented.

6.4.1 COMPLIANCE WITH THE EMPR AND CONDITIONS OF THE ENVIRONMENTAL AUTHORISATION

- A copy of the EMPr and conditions of the environmental authorisation will be available onsite at all times for the duration of the operational activities;
- All persons employed by a contractor, or their sub-contractors will abide by the requirements of the EMPr and conditions of the environmental authorisation;
- Any members of the workforce found to be in breach of any of the specifications contained within the EMPr and conditions of the environmental authorisation may be ordered by the Site Manager to leave the site. A contractor will not direct a person to undertake any activity which would place them in contravention of the specifications contained within the EMPr and conditions of the environmental authorisation;
- Should a contractor be in breach of any of the specifications contained in the EMPr and conditions of the environmental authorisation, the Site Manager will, in writing, instruct the contractor responsible for the incident of non-compliance regarding corrective and/or remedial action required, specify a timeframe for implementation of these actions, implement a penalty and/or indicate that work will be suspended should non-compliance continue;
- Should non-compliance continue, further written notification will be forwarded to the contractor responsible for the incident of non-compliance outlining the required corrective and/or remedial action, the timeframe for implementation, penalties and/or work will be suspended as specified previously; and
- Departmental officials will be given access to the property referred to in the EIAR and EMPr for the purpose of assessing and/or monitoring compliance with the EMPr and conditions of the environmental authorisation, at all reasonable times.

6.4.2 DUTY OF CARE

Under Section 28 of the NEMA, all personnel involved with the operational and decommissioning activities onsite will be responsible for implementing measures to prevent pollution or degradation of the environment from occurring, continuing or recurring. Failure to comply with the above conditions is a breach of the duty of care. If such harm is unavoidable, steps must be taken to minimise and rectify such pollution or degradation of the environment.

6.5 DOCUMENTATION AND REPORTING

The following documentation must be kept onsite in order to record compliance with the EMPr and conditions of the environmental authorisation:

- Record of complaints; and
- Record of emergencies and incidents.

The contractor will be required to report on the following:

- Environmental incidents involving contractor/ employees and/or the public;
- Environmental complaints and correspondence received from the public; and
- Incidents that cause harm or may cause harm to the environment.

The above records will form an integral part of the EO's reports and records thereof maintained for the duration of the project. These records will be kept with the EMPr and conditions of the EA, and will be made available for scrutiny if so, requested by the Site Manager or his delegate and the EO.

The contractor will ensure that the following information is recorded for all environmental complaints/incidents/emergencies:

- Date of complaint/incident/emergency;
- Location of complaint/incident/emergency;
- Nature of complaint/incident/emergency;
- Causes of complaint/incident/emergency;
- Party/parties responsible for causing complaint/incident/emergency;
- Immediate actions undertaken to stop/reduce/contain the causes of the complaint/incident/emergency;
- Additional corrective or remedial action taken and/or to be taken to address and to prevent reoccurrence of the complaint/incident/emergency;
- Timeframes and the parties responsible for the implementation of the corrective or remedial actions;
- Procedures to be undertaken and/or penalties to be applied if corrective or remedial actions are not implemented; and
- Copies of all correspondence received regarding complaints/incidents/emergency.

6.6 PUBLIC COMPLAINTS

The Contractor and/or FFS shall keep a Complaints Register on site to allow the general public to document any comments on or complaints regarding the activities of the site.

The Complaints Register must:

- Have numbered pages – any missing pages must be accounted for by the Contractor;
- Be tabled during monthly site meetings;
- Be made available to the SE/Contract Manager, the EO, the Project Company, and/or any authority at any time if requested; and
- Include a section for the documentation of the action taken to address the complaint.

All complaints must be investigated, responded to, and recorded in the Complaints Register within 28 calendar days.

7 SITE SPECIFIC ENVIRONMENTAL CONTROLS

The EMPr contains guidelines, operating procedures, rehabilitation, and pollution control requirements which will be binding to the onsite personnel working for, or on behalf of the proposed project. It is essential that the EMPr be carefully studied, understood, implemented and adhered to at all times.

In instances where the method statements provided by the contractor conflict with the EMPr, such conflicts will be discussed between the Site Manager, EO and contractor and if unresolved the EMPr will take precedent.

The EMPr identifies various actions which are undertaken throughout the operational phases of the proposed project. Not every action will be required during the entire course of activities. Therefore, the actions identified in the EMPr have been given priority timeframes for proposed implementation. The columns in the structure of the EMPr have been described **Table 7-1** below.

Table 7-1 – Structure of EMPr

Column	Description
Activity/Aspect	Highlights the various activities/aspects associated with the project i.e. the contractors' activities that will interact with the environment.
Impact Management Outcome	The desired outcomes from effectively minimising negative impacts and/or enhancing positive impacts.
Impact Management Actions/Measures	Indicates the actions required to prevent and /or minimise the potential impacts on the environment that are associated with the project.
Indicator and Compliance Management	Items that will assist with determining compliance against management actions.
Responsibility	Indicates the party responsible for implementing the environmental measures and action plans laid out in the EMPr. Please note that the Site Manager will have authority to stop works if/as necessary.
Priority Timeframe	Indicates when the actions for the specific aspect must be implemented and/or monitored.

The following assumptions have been made in the development of the environmental specification in this EMPr:

- An environmental file containing the information/documentation required by this EMPr is to remain onsite and to be made available at the request of the auditor or similar monitoring body; and
- For ease of reference, any person(s) employed to assist in the project i.e. contractors, sub-contractor and permanent and temporary staff, will be collectively referred to as 'onsite personnel'.

Table 7-2 – General Environmental Management: EMPr Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
7.1 GENERAL ENVIRONMENTAL MANAGEMENT			
Impact Management Outcome: ▪ To implement measures to minimise impacts on the environment from the initiation of operation through to decommissioning			
Indicator and Compliance Mechanism: ▪ Authority Reporting ▪ Close-out on incidents. ▪ Monitoring and audit reports. ▪ Inductions training and register.			
Environmental Management and Monitoring	Compliance with the EMPr and conditions of the WML must be undertaken in terms of Section 6.	▪ Project Manager ▪ EO ▪ Contractor (Site Manager)	▪ Operation ▪ Decommissioning
	The DFFE must be notified 14 days prior to commencement of the operational phase.		
	A suitably qualified EO must be appointed by FFS to monitor the project compliance with the EMPr and conditions of the environmental authorisation on an annual basis during operation.		
	A complaints register in terms of Section 6.6 must be maintained		
	An emergencies and incidents register must be maintained		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	Implement the management plans outlined in Section 8: ■ Emergency Response Plan. ■ Alien Invasive Plant Management Plan.		
	Annual internal audits must be undertaken.		
	External compliance audits must be undertaken every two years.		

Table 7-3 – Contractor laydown area and site access: EMPr Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
7.2 SITE ACCESS			
Impact Management Outcome: ■ To implement measures to minimise impacts on the environment from the initiation of activities through planning, careful site access route selection and implementation of mitigation measures.			
Indicator and Compliance Mechanism: ■ Health, safety, environmental and community incident and complaints management system register. ■ Visual inspection of the signage indicating the 'no-go' areas. ■ Close-out on incidents. ■ Monitoring and audit reports. ■ Inductions training and register. ■ Environmental awareness programme/toolbox talks.			

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
Project initiation Activities	Appoint an EO to manage and verify compliance with the WML and EMPr. Compliance will be monitored every 6 months during operation.	▪ Project Manager ▪ EO ▪ Contractor (Site Manager)	▪ Operation ▪ Decommissioning
	All personnel who will be operating the waste processing plant must undergo Environmental Awareness Training (as per Section 6.2 of this EMPr), including awareness of the surrounding area to inform importance of these areas and their conservation. A signed register of attendance must be kept for proof.		▪ Operation ▪ Decommissioning
	Implement the Environmental Awareness Plan outlined in Section 6.2.		▪ Operation ▪ Decommissioning
	Firefighting equipment must be securely placed and inspected monthly.		▪ Operation ▪ Decommissioning
	Any materials may not be stored for extended periods of time and must be removed from the project area once the decommission phase has been concluded.		

Table 7-4 – Vehicle, Equipment and Machinery Management: EMPr Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
7.3 VEHICLE, EQUIPMENT AND MACHINERY MANAGEMENT			
Impact Management Outcome: ▪ To implement measures to minimise impacts on the environment from poorly maintained equipment, machinery and vehicles onsite.			
Indicator and Compliance Mechanism:			

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
▪ Health, safety, environmental and community incident and complaints management system register. ▪ Close-out on incidents. ▪ Monitoring and audit reports. ▪ Equipment, machinery and vehicle checklists. ▪ Incident classification and reporting procedure.			
Operation of Equipment, Machinery and Vehicles	Ensure that the equipment, machinery and vehicles are maintained so as to: ▪ Reduce the potential for spillages of oil, diesel, fuel or hydraulic fluid. ▪ Ensure road-worthiness. ▪ Reduce emissions. Evidence of such maintenance must be recorded and maintained onsite for verification.	▪ EO ▪ Contractor	▪ Operation ▪ Decommissioning
	The movement of vehicles into and out of the site must be managed to ensure that there is no impact on the surrounding landowners. Routes will be planned as per the NRTA and SANS code requirements using existing road infrastructure.		
	Management measures includes ensuring that abnormal loads are moved outside of peak traffic hours, and reasonable measures are taken to ensure that public and staff safety is managed.		
	All motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limits, to respect all forms of life. Speed limits must be enforced to ensure that erosion is limited.	▪ Site Manager ▪ Contractor	▪ Operation ▪ Decommissioning
	No storage of vehicles or equipment must be allowed outside of the designated areas.		
	All vehicles and personnel must make use of the existing roads and walking paths.		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	No servicing of plant and equipment should take place on site unless an emergency. Drip trays must be utilized if emergency servicing/repairs are required.		

Table 7-5 – Hazardous Substances and Pollutants: EMPr Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
7.4 HAZARDOUS SUBSTANCES AND POLLUTANTS MANAGEMENT			
Impact Management Outcome: ▪ To ensure the correct storage, handling and disposal of fuels and chemicals in order to prevent impacts to the surrounding environment.			
Indicator and Compliance Mechanism: ▪ Maintenance records ▪ Safe disposal certificates (if applicable) ▪ Material safety data sheets (MSDS) (if applicable) ▪ Health, safety, environmental and community incident and complaints management system register. ▪ Chemicals management procedure (to be developed). ▪ Monitoring and audit reports. ▪ Training records.			
Fuel and Chemical Management	Fuel, oil, chemicals and other hazardous materials that will be required for the duration of the operation process must be stored within the area designated for the storage of such hazardous materials.	▪ Site Manager ▪ EO	▪ Operation ▪ Decommissioning

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	Label all liquids (chemicals and hydrocarbons) stored onsite for easy identification. MSDS for onsite chemicals, hydrocarbon materials and hazardous substances must be readily available. MSDS must include mitigation measures to ameliorate potential environmental impacts which may result from a spill, incorporating health and safety mitigation measures.		
	A spill management plan must be in place to ensure that should there be any spill out or over that it does not run into the surrounding areas. Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use.		
	No servicing of equipment on site unless an emergency. All contaminated soil / yard stone shall be treated in situ or removed and be placed in containers for safe disposal.		
	In cases where a surface leak occurs during loading and off-loading of materials, the spill material will be cleaned using a spill kit.		
	Leaking equipment and vehicles must be repaired immediately or be removed from project area to facilitate repair.		
	All machinery and equipment should be inspected as per manufacturers recommendations for faults and possible leaks; these should be serviced off-site or in appropriately bunded areas.	▪ EO ▪ Operator	▪ Operation ▪ Decommissioning
	Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use.		
	All contaminated soil / yard stone shall be treated in situ or removed and be placed in containers.		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	Chemicals, hydrocarbon materials and hazardous substances maintained onsite must be managed in accordance with the Hazardous Substances Act (No. 15 of 1973) and its relevant regulations.	▪ Site Manager ▪ EO ▪ Operator	▪ Operation ▪ Decommissioning
	Spill kits must be available at all locations where hazardous substances are stored, handled or used, and spills must be cleaned up immediately in accordance with an established protocol applicable to the material.		
	Provide secure storage for fuel, oil, chemicals and other waste materials to prevent contamination of stormwater runoff.		
	A spill management schedule must be in place to prevent any incompatible chemicals ending up in the same pit.	▪ Site Manager	▪ Operation
	Ensure product segregation and containment as per SANS 10263.		
	All hydrocarbon waste must be stored within the bunded area.		
	Decanting of chemicals to be undertaken in designated areas and appropriate PPE to be worn.		
	Undertake monthly visual inspections of pipelines, tanks and pumps for leaks and mechanical failure. Undertake maintenance when flagged during an inspection.	▪ EO	▪ Operation
	Offloading of the waste materials and loading of the product onto road tankers should not be carried out where there is the potential for a spill/leak to come into direct contact with the soil (i.e. in a bunded area or soil protected by a drip tray). The loading hoses are to be tested and inspected 6 monthly for leaks.	▪ Site Manager ▪ Contractor ▪ EO	▪ Operation
	Oily sludges should not be stored on the site for longer than six months. A reputable, experienced company is to be used to transport the oily sludge to the landfill to ensure that there are no spillages on route.		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
Health and Safety	Display “no smoking” and “no naked flame” signs in and around the project area, as well as near the hazardous material store (if any).	▪ EO ▪ Contractor	▪ Operation ▪ Decommissioning
	Strategically place the correct types of fire extinguishers onsite and near the hazardous material store. Train key personnel on basic firefighting skills		
	Annual Emergency drills are required.	▪ Site Manager ▪ HSE Representative	Operation
	FFS properties should have segregation of incompatible materials for any accidental mixes and a natural ventilation system in place.		
	The bunding must be inspected annually and maintained.		

Table 7-6 – Waste Management: EMPr Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
7.5 WASTE MANAGEMENT			
Impact Management Outcome: ▪ To ensure the correct handling, storage, transportation and disposal of general waste and hazardous waste.			
Indicator and Compliance Mechanism: ▪ Induction training and records. ▪ Waste Management Protocol ▪ Relevant SANS Codes of Practice. ▪ Waste manifests and safety disposal certificates (all waste streams).			

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
▪ Emergency preparedness and response procedure. ▪ Incident classification and reporting management procedure (to be developed). ▪ Health, safety, environmental and community incident and complaints management system register. ▪ Monitoring and audit reports.			
General Waste Management	General waste generated as a result of operational activities must be managed in accordance with the FFS Waste Management Procedure.	▪ EO	▪ Operation ▪ Decommissioning
	Train and inform all onsite personnel regarding general waste minimisation, management and disposal.		
	General waste will be kept in labelled wheelie bins and placed in the general waste skip on a weekly basis. The waste skip will be collected once full and the contents will be disposed at a licenced disposal facility.		
	Temporary storage of general waste shall be in covered waste skips.		
	Retain records such as waybills and waste manifests associated with waste removal, transportation and disposal (safe disposal certificates).		
	Should general waste be mixed with hazardous waste, it will be considered hazardous waste.		
	Waste may never be stored in an open pit where it is susceptible to the elements such as wind and rain.		
	Any recyclable waste such as un contaminated paper, cans will be taken to licensed recyclers. No general waste will be recovered, recycled or reused on site.		
Hazardous Waste Management	Hazardous waste generated as a result of operational and decommissioning activities must be disposed of to a licenced facility.	▪ ECO ▪ EO	▪ Operation ▪ Decommissioning

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	Train and inform all onsite personnel regarding hazardous waste minimisation, management and disposal.	▪ Contractor	
	Ensure that all hazardous wastes temporarily stored on site are stored in a covered sealed skip.		
	Clean areas where hazardous waste spills have occurred and dispose of the hazardous material at a licenced facility. Key personnel must be trained on handling spillages.		
	Retain records of appropriate safety disposal certificates associated with hazardous waste removal, transportation and disposal.		
	Ensure that waste manifest documentation (as per the Waste Classification and Management Regulations – GNR 634) is prepared and maintained for the generation, transportation and disposal of waste.		
	All significant spills should be reported to the authorities as per the emergency preparedness and response frequencies / specifications.		

Table 7-7 – Health and Safety: EMPr Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
7.6 HEALTH AND SAFETY			
Impact Management Outcome: ▪ To ensure communication with members of the public and Contractor Personnel to promote safety awareness. ▪ To prevent public access to storage areas. ▪ To ensure safety for all onsite personnel.			

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
▪ To ensure the health and safety of all site personnel, landowners and communities that may emanate from proposed Receiver Station			
Indicator and Compliance Mechanism: ▪ Induction training and records. ▪ Health, safety, environmental and community incident and complaints management system register. ▪ Monitoring and audit reports. ▪ Incident classification and reporting management procedure (to be developed). ▪ PPE Register. ▪ Competency certification. ▪ Health and safety file for Developer and contractors. ▪ Compliance with OSHACT, Act 85 of 1993. ▪ Legal Register. ▪ Legal Appointments as per OSHACT.			
Health and Safety	All onsite personnel are required to undergo induction training and monthly toolbox talks in order to raise awareness of health and safety requirements.	▪ Site Manager ▪ EO	▪ Operation ▪ Decommissioning
	Existing Occupational Health and Safety System and Safety Health Environment Risk & Quality (SHERQ) policy to be adhered to.	▪ Operator ▪ Site Manager	▪ Operation
	Emergency response plan to be in place prior to beginning operation and to include aspects such as appointment of emergency controller, provision of first aid, first responder contact numbers.	▪ Contractor	▪ Operation ▪ Decommissioning
	Provide and wear required PPE onsite.	▪ Contractor/Operator ▪ Site Manager	▪ Operation ▪ Decommissioning
	Compile detailed Risk Assessments for all operational activities prior to work.		
	Ensure all contractor's safety files are in place and up to date prior to commencement of their work.		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	All necessary good hygiene practices to be in place, e.g., provision of toilets, eating areas, infectious disease controls.	▪ Site Manager ▪ Contractor ▪ EO	▪ Operation ▪ Decommissioning
	Train all onsite personnel handling chemical or hazardous substances in the use of such substances and the environmental, health and safety consequences of incidents.	▪ Site Manager ▪ Contractor ▪ EO	▪ Operation ▪ Decommissioning
Facility emergencies	Emergency Response Plan for full operation and maintenance phase to be updated if required prior to beginning commissioning and to include aspects such as: ▪ appointment of emergency controller, ▪ provision of PPE for hazardous materials response, ▪ provision of first aid facilities, ▪ first responder contact numbers ▪ Anti-venom, snake bite treatment and facilities	▪ Operator	▪ Operation
Fire risk	Suitable fire-fighting equipment on site near source of fuel.	▪ Site Manager ▪ Contractor ▪ Operator ▪ EO	▪ Operation ▪ Decommissioning
	Safety integrity level rating of equipment (failure probably) with suitable redundancy if required.		
	Ensure testing of emergency alarm systems are undertaken every 6 months.		
	A fire management plan needs to be compiled and implemented to restrict the impact that fire would have on remaining natural and newly rehabilitated areas. Natural areas remaining adjacent to the development footprint should be left to naturally regenerate, fire and cutting control methods are not to be used to clear areas containing natural indigenous vegetation.		
Public Safety	Restrict public access to the site.	▪ Site Manager ▪ EO	▪ Operation ▪ Decommissioning

Table 7-8 – Water Management: EMPr Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
7.7 WATER MANAGEMENT			
Impact Management Outcome: ▪ To implement measures to prevent the contamination on surface and groundwater resources. ▪ To prevent erosion.			
Indicator and Compliance Mechanism: ▪ Induction training and records. ▪ Incident classification and reporting management procedure (to be developed). ▪ Environmental awareness programme/toolbox talks. ▪			
Water Management	Containment of all contaminated water by means of careful run-off management on site.	▪ Site Manager ▪ Contractor ▪ EO	▪ Operation ▪ Decommissioning
	Acquire spill kits to clean up any hydrocarbon or chemical spills during operation and closure to prevent seepage. All significant spillage incidents must be reported to the responsible site officer as soon as they occur.		
	Onsite staff are to be provided with an appropriate potable water supply, safe and healthy sanitary facilities and protection against exposure to environmentally dangerous or unhealthy situations or conditions.		▪ Decommissioning
	Decommissioning should be undertaken during the dry period to minimise soil erosion by overland flow and subsequent sedimentation in nearby watercourses since there will be minimal to no occurrence of rainfall during this period.		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	Install effective sediment and erosion control measures before starting work to minimise sediment entry into the watercourse, such as erosion berms or silt traps.		
	Appropriate ablution facilities should be provided.		▪ Operation ▪ Decommissioning
	The existing stormwater management system will be maintained.		
	Acquire spill kits to clean up any hydrocarbon or chemical spills during operation.		
	Ensure that the site is paved or has impermeable surface to limit the infiltration of contaminants if the individual activity allows it.		
	All incidents must be reported to the responsible site officer as soon as they occur.		
	Material Safety Data Sheets will be updated annually and be available on site.		
	Oils, greases, diesel and other chemicals will be stored in accordance with the safety data sheet requirements and within bunded areas to prevent soil contamination.		
	Dirty and clean water will be separated by implementing clean and dirty water systems/structures to prevent pollution of clean water runoff. The clean and dirty water systems and structures will be properly designed (according to Regulation 704 of the National Water Act).		
	Administer clean-ups in the event of spillages occurring.		
	Washing and servicing of vehicles and machinery should be undertaken at designated, appropriately designed areas		

Table 7-9 – Air Quality: EMPr Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
7.8 AIR QUALITY			
Impact Management Outcome: ▪ To ensure that impacts to air quality of the surrounding environment are minimised.			
Indicator and Compliance Mechanism: ▪ Complaints register. ▪ Incident reporting system. ▪ Health, safety, environmental and community incident and complaints management system register. ▪ FFS Incident classification and reporting management procedure. ▪ Equipment, machinery and vehicle maintenance.			
Dust Management	Excavation activities have the potential to generate large amounts of dust. Pre-planning of earth-moving works can reduce dust emissions by limiting the time the site is exposed. Options for dust control can include the following: ▪ Plan excavation activities so that they are completed just prior to the time they are needed; ▪ Observe weather conditions and do not commence or continue excavation activities if conditions are unsuitable e.g., under conditions of strong winds; and Pre-water areas to be disturbed.	▪ EO ▪ Contractor	▪ Decommissioning
	Cover trucks hauling any loose material that could produce dust when travelling. Minimise transfer points.		
	Re-vegetate disturbed areas as soon as possible to prevent excessive dust from occurring.		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	Dampen exposed soil to suppress dust if required. Use watering sprays on materials to be loaded and during loading. No non-environmentally friendly dust suppressants may be used.		
	Where possible, minimise speed limits and vehicle weights.		
	Limit the duration of the decommissioning phase to as short a timeframe as possible.		
	Make use of wet suppression techniques to minimise dust entrainment during periods of high wind speeds.		
	Where possible, minimise speed limits.		
	Dust-reducing mitigation measures must be put in place and must be strictly adhered to soil/material stockpiles. This includes wetting of exposed soft soil surfaces and not conducting activities during high wind periods which will increase the likelihood of dust being generated.		
	Ensure that all vehicles, machines and equipment are maintained to minimise emissions.		
	All materials transported to, or from, site must be transported in such a manner that they do not fly or fall off the vehicle. This may necessitate covering or wetting friable materials.		
Emissions	Trucks offloading or receiving product should not be permitted to idle unnecessarily on the site for long periods of time. Fugitive dust emissions from vehicular traffic can also be reduced by sealing or paving roadways.	▪ Site Manager ▪ Contractor ▪ EO	▪ Operation ▪ Decommissioning
	Stack monitoring must be undertaken as per the AEL.	▪ Site Manager ▪ EO	▪ Operation
	Ambient air monitoring is to be undertaken on a 6 monthly basis.		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	Maintaining stable tank pressure and vapour space.		
	All tank lines should remain charged (i.e. liquid full), and only emptied for maintenance or product change.		
	Coordinating filling and withdrawal schedules and implementing vapour balancing between tanks (a process whereby vapour displaced during filling activities is transferred to the vapour space of the tank being emptied or to other containment in preparation for vapour recovery).		
	Thermal relief valves should be present to protect the pipes against overpressure due to solar heating.		
	Reducing breathing losses, where possible, by using white or other reflective colour paints with low heat absorption properties on the exteriors of storage tanks for lighter distillates or by insulating tanks.		
	Use of bottom loading truck filling systems.		
	The annual fugitive emissions survey should be ongoing, and pipes, pumps, tanks must be maintained through the central maintenance management system to reduce fugitive emissions.		
	The instrument used for recording the concentration of this vapour should be of an approved design and calibrated as per manufacturer specifications		
	Tanks should be periodically inspected internally. An inspection frequency based on the condition of the tank at the previous internal inspection should be established (typically 10 years or less).		
	During the operational phase, benzene, toluene, ethylbenzene and xylene (BTEX), SO_2 and NO_2 passive monitoring campaign should be ongoing.		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	During the operational phase, stack emissions testing should be ongoing on an annual basis.		

Table 7-10 – Noise: EMPr Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
7.9 NOISE			
Impact Management Outcome: ▪ To ensure that noise impacts to the surrounding environment are minimal or mitigated.			
Indicator and Compliance Mechanism: ▪ Complaints register. ▪ Incident reporting system. ▪ Health, safety, environmental and community incident and complaints management system register. ▪ Incident classification and reporting management procedure (to be developed). ▪ Equipment, machinery and vehicle maintenance.			
Noise	Fit equipment, machinery and vehicles generating excessive noise with appropriate noise abatement measures.	▪ EO ▪ Operator	▪ Operation ▪ Decommissioning
	All maintenance activities will be undertaken as the FFS central maintenance management system and these are determined either by manufacturers recommendation and/or best practice.		
	Retrofit silencers if possible to any machinery that has the potential to emit noise at levels higher than the acceptable emissions limits.		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	Conduct occupational hygiene surveys to ensure that the noise emissions do not exceed the acceptable occupational limits.		
	Provide complaints register to report any excessive noise incidents. Manage all complaints as per the Incident Classification and Reporting Management Procedure.		
	Noise zones should be clearly demarcated by affixing symbolic safety signs (SANS 1186-1 Fig. B.1) for hearing protection at all entrances and exits.		
	Use of hearing protective equipment must be compulsory in noise zones (the decanter platform and the area in front of the boilers) until exposures are reduced below the noise rating limit.		
	Decommissioning activities must be restricted to weekdays and daylight.		

Table 7-11 – Soil, Land Use and Agriculture: EMPr Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
7.10 SOIL, LAND USE AND AGRICULUTURE			
Impact Management Outcome: ▪ To prevent any disturbance, erosion or contamination of soil resources.			
Indicator and Compliance Mechanism: ▪ Induction training and records. ▪ Incident classification and reporting management procedure (to be developed). ▪ Health, safety, environmental and community incident and complaints management system register. ▪ Monitoring and audit reports. ▪ Stormwater Management Plan (SWMP) (to be developed).			
Soil and Land Management	Limit earthworks and vehicle movement to demarcated paths and areas.	▪ Site Manager ▪ Contractor ▪ EO	▪ Operation ▪ Decommissioning
	All maintenance activities will be undertaken as the FFS central maintenance management system and these are determined either by manufacturers recommendation and/or best practice.		
	Drip trays should be placed under stationary vehicles / plant.		
	On-site pollutants/hazardous materials should be contained in a bunded area and on an impermeable surface.		
	Hazardous substances will be stored and handled as per their safety data sheet and best practice.		
	Hazardous substances will be stored in a flammable store where required by the safety data sheet.		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	When the site is decommissioned, the surface profile thereof can be altered to more closely resemble its current profile through earthworks		
	Ensure all spills are cleaned up.		
	Ensure that the site is paved or has impermeable surface to limit the infiltration of contaminants if the individual activity allows it.		
	Hydrocarbons and other chemicals will be stored in the in accordance with the safety data sheet requirements and within bunded areas to prevent soil contamination.		
	Chemicals should be stored in fully enclosed areas and the car park area should be covered. Both should be on impermeable hardstanding.	▪ Operator ▪ Site Manager	▪ Operation
	Hardstanding should be monitored for cracks on a 6 monthly basis.		
	If chemicals are kept outside of the enclosed area temporarily, this area should be on hardstanding and bunded.		
	Reasonable measures (e.g. storing waste in skip that is covered and in a bunded area, all spills cleaned up as quickly as possible should they occur, using drip trays for loading and offloading etc) will be implemented to prevent spills and harm to the environment.		
Erosion Management	When the site is decommissioned, the surface profile thereof can be altered to more closely resemble its current profile through earthworks.	▪ Site Manager ▪ Contractor ▪ Operator/Developer ▪ EO	▪ Decommissioning
	Limit earthworks and vehicle movement to demarcated paths and areas.		
	Limit the duration of decommissioning activities where possible, especially those involving earthwork / excavations within the development footprint.		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	During periods of strong winds, stockpiles should be covered with appropriate material (e.g. cloth, tarpaulin).		
	Exposed surfaces should be re-vegetated or stabilised as soon as is practically possible.		
	A storm water management plan should be designed for the site and adhered-to.	▪ Operator ▪ Site Manager	▪ Operation
	The site should be monitored for signs of erosion.	▪ Operator ▪ Site Manager	▪ Operation

Table 7-12 – Terrestrial Biodiversity: EMPr Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
7.11 TERRESTRIAL BIODIVERSITY			
Impact Management Outcome: ▪ Prevent the unnecessary destruction of, and fragmentation of the biodiversity of the area. ▪ No excess habitat loss within sensitive areas. ▪ Revegetation of cleared areas. ▪ Alien vegetation clearing & control. ▪ Reduce erosion.			
Indicator and Compliance Mechanism: ▪ Induction training and records. ▪ Incident classification and reporting management procedure (to be developed). ▪ Environmental awareness programme/toolbox talks. ▪ Monitoring and audit reports. ▪ Alien Invasive Management Plan.			
Rehabilitation	All disturbed areas are to be rehabilitated and appropriately landscaped where applicable. Topsoil must also be utilised, and any disturbed area must be re-vegetated with plant and grass species which are endemic to the project area vegetation type if applicable. Progressive rehabilitation of cleared areas will enable topsoil to be returned more rapidly, thus ensuring more recruitment from the existing seedbank.	▪ Contractor ▪ EO ▪ Applicant	▪ Decommissioning
Alien Vegetation Management	An alien invasive species control programme must be developed, or any existing AIS management programmes expanded, to include the active control of alien invasive species that may establish/spread as a result of proposed Project activities.	▪ Site Manager ▪ Contractor ▪ EO ▪ Operator	▪ Operation ▪ Decommissioning

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	The Alien and invasive species management to be prioritised for the following alien and invasive species control areas: ▪ Areas where soils imported from external sources are applied. ▪ All rehabilitated areas. ▪ Areas within the development area that are already invaded by alien species. ▪ Road fringes.		
	All alien vegetation occurring within operational areas must be removed and monitored for re-growth.		

Table 7-13 – Palaeontology: EMPr Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
7.12 PALAEONTOLOGY			
Impact Management Outcome: ▪ To ensure that palaeontological material is identified and protected.			
Indicator and Compliance Mechanism: ▪ Health, safety, environmental and community incident and complaints management system register. ▪ Incident classification and reporting management procedure (to be developed). ▪ Monitoring and audit reports.			
Chance Finds	If any palaeontological material is exposed during digging, excavating, drilling or blasting Implement the finds must be reported and the Chance Find Protocol must be implemented (**Section 8.8.1**).	▪ Site Manager ▪ Contractor ▪ EO	▪ Decommissioning

Table 7-14 – Traffic: EMPr Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
7.13 TRAFFIC			
Impact Management Outcome: ▪ To ensure that the traffic impacts of the project are mitigated and managed.			
Indicator and Compliance Mechanism: ▪ Induction training and records. ▪ Health, safety, environmental and community incident and complaints management system register. ▪ Monitoring and audit reports. ▪ Incident classification and reporting management procedure (to be developed). ▪ PPE Register. ▪ Occupational health and safety plan (to be developed). ▪ Health and safety protocol (to be developed). ▪ Traffic and transportation management plan			
Management Plan	FFS will ensure that all transportation is undertaken in terms of the requirements of the National Road Traffic Act, 93 of 1996 (NRTA) and applicable South African National Standards (SANS).	▪ Site Manager ▪ Contractor ▪ Developer ▪ EO	▪ Operation ▪ Decommissioning
Records	A photographic record of the road condition should be maintained throughout the various phases of the project development. This provides an objective assessment and mitigates any subjective views from road users.	▪ Contractor ▪ Developer ▪ EO	▪ Operation ▪ Decommissioning
Signage and Notifications	Post relevant road signage along affected routes.	▪ Site Manager ▪ EO	▪ Decommissioning ▪ Decommissioning
Vehicle Management	Ensure all vehicles are roadworthy, visible, marked, and operated by an appropriately licenced operator.	▪ Site Manager ▪ Contractor	▪ Operation ▪ Decommissioning

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
		▪ EO	
	Ensure that the access roads are left in the same or better condition.	▪ Site Manager ▪ Contractor ▪ EO	▪ Operation ▪ Decommissioning
	All remedial work to any of the public roads shall be done in consultation with and have the approval of the local road's authority (as is standard practice, this will be finalised during and be a requirement of the municipal planning approval process.	▪ Site Manager ▪ Contractor ▪ Developer	
Permits	A permit must be obtained from the relevant authority for any abnormal loads transported.	▪ Site Manager ▪ Contractor ▪ EO ▪ Operator	▪ Operation ▪ Decommissioning

Table 7-15 – Socio-Economic: EMPr Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
7.14 SOCIO-ECONOMIC			
Impact Management Outcome: ▪ To ensure that the negative socio-economic impacts are mitigated and managed. ▪ To ensure that the positive socio-economic impacts are enhanced.			
Indicator and Compliance Mechanism: ▪ Induction training and records. ▪ Health, safety, environmental and community incident and complaints management system register. ▪ Monitoring and audit reports.			

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
▪ Incident classification and reporting management procedure (to be developed). ▪ PPE Register. ▪ Occupational health and safety plan (to be developed). ▪ Health and safety protocol (to be developed). ▪ Employment records and community engagement local enterprise development records.			
Employment	Opportunities for the training of unskilled and skilled workers from local communities should be maximized.	▪ Site Manager ▪ Contractor ▪ Developer	▪ Operation ▪ Decommissioning
	Exploring ways to enhance local community benefits with a focus on broad-based BEE and preferential procurement.		
	A 'locals first' policy with regard to operational labour needs.		
	Using local sub-contractors where possible and requiring that contractors from outside the local area that tender also meet targets for how many locals are given employment.		
	The local authorities, community representatives, and organisations on the interested and affected party database should be informed of the final decision regarding the project.		
Complaints	A complaints register should be available on site to any individual who may have a particular complaint with regards to the decommissioning or operations processes.	▪ Site Manager ▪ Contractor ▪ EO	▪ Operation ▪ Decommissioning
	Surrounding businesses should be able to contact the site manager to report any issues which they may have. The site manager should be stationed within the area and should therefore be available on hand to deal with and address any concerns which may be raised.		

8 MANAGEMENT PLANS

A number of generic management plans have been included in the EMPr. The plans included below provide an indication of the requirements that must be followed on the operation of the waste facility. It must be noted that many of these plans can be updated at any stage depending on any changes that may occur on the site.

The following specific plans have been compiled:

- Emergency Response Plan (ERP); and
- Alien Invasive Plant Management Plan.

8.1 EMERGENCY RESPONSE PLAN

The existing FFS Emergency Plan must be implemented. The current emergency plan is attached in **Appendix C**, however the plan should be revised as and when required and the updated version should be implemented.

8.2 ALIEN INVASIVE PLANT MANAGEMENT PLAN

The purpose of this Plan is to provide a framework for the management of alien and invasive plant species during the operation and decommissioning of the project, which in turn serves to manage open spaces, as required. The broad objectives of the plan include the following:

- Ensure alien plants do not become dominant in parts or the whole site through the control and management of alien and invasive species presence, dispersal and encroachment.
- Develop and implement a monitoring and eradication programme for alien and invasive species.

Mitigation and management measures include, but are not limited to the following:

- Monitor for early detection, to find species when they first appear on site. This should be as per the frequency specified in the management plan, and should be conducted. Summer (vegetation maximum growth period) is usually the most appropriate time, but monitoring can be adaptable, depending on local conditions.
- Monitor for the effect of management actions on target species, which provides information on the effectiveness of management actions. Such monitoring depends on the management actions taking place. It should take place after each management action.
- Monitor for the effect of management actions on non-target species.
- Stockpiles must be kept clear of weeds and alien vegetation growth by undertaking weeding.
- Alien vegetation and the spread of exotic species on the site will need to be controlled.
- Herbicide use shall only be allowed according to contract specifications. The application shall be according to set specifications and under supervision of a qualified technician. The possibility of leaching into the surrounding environment shall be properly investigated and only suitable herbicides shall be used.
- The use of pesticides and herbicides on the site must be discouraged as these can impact on important pollinator species of indigenous vegetation. Use of these should only be permitted where absolutely necessary.
- Monitoring programme to ensure that rehabilitation efforts are successful.

8.3 TRAFFIC AND TRANSPORT MANAGEMENT PLAN

The purpose of a Traffic and Transportation Management Plan is to address regulatory compliance, traffic management practices, and protection measures to help reduce impacts related to transportation. The objectives of this plan include the following:

- To ensure compliance with all legislation regulating traffic and transportation within South Africa National, Provincial, Local and associated guidelines.
- To avoid incidents and accidents while vehicles are being driven and while transporting personnel, materials, and equipment to and from the project site.
- To raise greater safety awareness in each driver and to ensure the compliance of all safe driving provisions for all the vehicles.
- To raise awareness to ensure drivers respect and follow traffic regulations.
- To avoid the deterioration of access roads and the pollution that can be created due to noise and emissions produced by equipment, machinery, and vehicles.

Mitigation and management measures include, but are not limited to the following:

- All vehicles used during the transport of materials are required to be roadworthy per the NRTA and display all pertinent certificates as required.
- All vehicles travelling to and from the site shall adhere to all laws imposed by the law enforcement agencies and shall comply with any requests made by the law enforcement officials.
- For each convoy of abnormal vehicles/loads a designated safety officer shall be nominated. All abnormal vehicles and loads to be transported are required to have a valid permit before any trip is begun.
- The route must be assessed to determine if any structures or vegetation need to be temporarily or permanently relocated so as to avoid damage to the load as well as public and private property during the trips.
- All vehicles shall comply with the posted speed limits on public roads as well as the speed limits within the development. For additional speed limits that are imposed on the decommissioning traffic, refer to the South African Road Traffic Signs Manual (SARTSM), Volume 2, June 1999 for the restrictions.

8.4 GRIEVANCE MECHANISM

8.4.1 GRIEVANCE MECHANISM - EXTERNAL

A grievance mechanism is a tool used to address affected communities' concerns and complaints and is an important pillar of the stakeholder engagement process, since it creates opportunities for companies and communities to identify problems and discover solutions together. The Project proponent can benefit from understanding community concerns and complaints and addressing them through all stages of project development.

Use will be made of the existing grievance structures in FFS.

8.4.2 OBJECTIVES

The objectives of the grievance mechanism include:

- To be respectful of complainant culture, values, traditions and views;
- To resolve grievances at the local level and in a timely manner;
- To identify the root causes of grievances and address systemic issues;

- To provide a process that is dialogue based, with the complainant and the Proponent cooperating in the investigation, discussion, resolution and announcement of the grievance and result;
- To ensure fair, equitable and consistent outcomes to resolve grievances;
- To enhance and continuously improve the ability of the Proponent to fairly address community concerns.

9 CONCLUSION

The EIA process for the proposed project considered the biophysical location of the proposed project, as well as the nature of the activity which was assessed by the relevant specialists and the EAP.

It is therefore the opinion of the EAP that provided this project is mitigated, as per the mitigation and management measures outlined in this EMPr, the project will result in impacts that should not significantly impact the receiving environment. It is the applicant's responsibility to ensure that this EMPr is made binding on the contractor by including the EMPr in the contract documentation. The contractor must thoroughly familiarise himself with the requirements of the EMPr. An EO to be appointed by FFS to oversee the implementation of the EMPr on a day-to-day basis.

Parties responsible for transgression of this EMPr must be held responsible for any corrective actions that may need to be undertaken. Parties responsible for environmental degradation through irresponsible behaviour/negligence must receive penalties.

WSP is of the opinion that the project can proceed, provided that the outlined mitigation measures of the EIA process and this EMPr are implemented effectively.

In terms of NEMA, everyone (i.e., all persons engaging in any component of this project) is required to take reasonable measures to ensure that they do not pollute the environment. 'Reasonable measures' includes informing and educating employees about the environmental risks associated with their work and training them to operate in an environmentally responsible manner.

FFS also recognises that, in terms of NEMA, the cost to repair any environmental damage will be borne by the person responsible for the damage. Should the above-mentioned environmental guidelines and mitigation measures be adopted, it is anticipated that the negative environmental impacts of the Proposed Project will be mitigated to a low significance.

Appendix A

EAP CV

Tshepho Mamashela

Earth & Environment - Environmental Consultant

CAREER SUMMARY

Tshepho Mamashela is an Environmental Consultant currently working for WSP Group Africa at the Johannesburg, Waterfall office in the Environmental Planning and Advisory Department. She is an Environmental Management professional with over 5 years' experience in the private and public sector. Tshepho has experience in environmental management field with expertise in environmental impact assessment, environmental auditing, environmental management plans.

<1 years with WSP

6 years of experience

Area of expertise

Environmental Management

Environmental Impact Assessment

Compliance Auditing

Language

English

EDUCATION

Bachelor of Science (Honours), Environmental Management, University of South Africa	2019
Bachelor of Science, Geography, University of Pretoria	2017

ADDITIONAL TRAINING

Esri ArcGIS Basic	2019
Esri ArcGIS Standard	2019

PROFESSIONAL MEMBERSHIPS

EAPASA – Environmental Assessment Practitioner Association of South Africa- Registration No. 2019/18 2022

SACNASP – South African Council for Natural Scientific Professional - Certified Natural Scientist – Registration No. 120878 2021

PROFESSIONAL HISTORY

WSP Group Africa (Pty) Ltd	2023 - present
Mills and Otten	2023 – 2023
Environmental Consultant International	2021 -2022
Esri South Africa	2019 -2020
Limpopo Department of Economic Development Environment and Tourism	2018 -2019

Tshepho Mamashela

Earth & Environment - Environmental Consultant

Mabyoko Environmental Projects 2017 -2018

PROFESSIONAL EXPERIENCE

Environmental Impact Assessment Process

McCormick Property Development, Development of a New Shopping Centre, Motor City, Private Hospital and Housing in Dan Limpopo Province, South Africa
2023
EAP
Compile the Scoping Report and the Environmental Impact Report.

Cubisol Investments, Replacement of an existing sewer pipeline BA Gauteng Province, South Africa
2023
EAP
Compile the BA report and conduct public participation.

L Gromer, Expansion of egg processing facility, North West, South Africa
2023
EAP
Compile the BA.

Engen Petroleum, Upgrade and Expansion of the Engen Impala Filling Station, Limpopo, South Africa
2023
EAP
Compile the BA report, application forms and conduct public participation.

African Realty Trust, Construction of six in-stream storage dams at Letaba Estate, Limpopo, South Africa
2022
EAP
Assisted with compiling scoping report, application and related public participation documents.

Garonga Safari Camp, S24G Application for Garonga Safari Camp, Limpopo, South Africa
2021/2022
EAP
Assisted with compiling scoping report, application and related public participation documents.

McCormick Property Developers, Development of shopping centre and filling station at Madombizha, Limpopo Province, South Africa
2018/2019
Case officer
Review the BA for decision making process.

KHPJ Property Developers, Mixed-use development at Tiyani-B, Limpopo Province, South Africa
2018
Case Officer
Review the Scoping Report and Environmental Impact Report for decision making process.

Thulamela Local Municipality, Demarcation of 500 sites at Maphefeni, Limpopo Province, South Africa
Year from/to
2018
Review the Scoping Report and Environmental Impact Report for decision making process.

Tshepho Mamashela

Earth & Environment - Environmental Consultant

L. P Mogobobye Hydraulics, Filling station at Sifikile Village, Bojanala, North West Province, South Africa
2017/2018
EAP
Assisted in compiling the BA and supporting documentation including application forms and public participation material.

Compliance Auditing

Total Energies, Filling Moutse Mall Filling Station, Limpopo Province, South Africa
2023
Environmental Control Officer
Provided Environmental Control Officer (ECO) services by conducting monthly EMPr and EA audit for the construction of the filling station.

Sasol, Sasol Ammonia Storage Facility Upgrade, Free State Province, South Africa
2023
Environmental Control Officer
Provided Environmental Control Officer (ECO) services by conducting monthly EMPr and EA audit for the construction of the ammonia storage facility.

Cubusol Investment, Soshanguve Mall Upgrade, Gauteng Province, South Africa
2023
Environmental Control Officer
Provided Environmental Control Officer (ECO) services by conducting monthly EMPr and EA audit for the construction of the mall.

Alley Road, Residential Construction at Meyerton, Gauteng Province, South Africa
2023
Environmental Control Officer
Provided Environmental Control Officer (ECO) services by conducting monthly EMPr and EA audit for the construction of the residential complex.

Lynx Construction Group, Thatchfield Mall Constrution, Gauteng, South Africa
2023
Environmental Control Officer
Provided Environmental Control Officer (ECO) services by conducting monthly EMPr and EA audit for the construction of the mall.

Emfuleni Estate Homeowners Association, Annual Water Use License Compliance, Free State Province, South Africa
2023
Environmental Control Officer
Provided Environmental Control Officer (ECO) services by conducting annual WUL audit.

Engen Petroleum, Annual Compliance Audit for Gauteng Site, Gauteng Province, South Africa
2023
Environmental Control Officer
Provided Environmental Control Officer (ECO) services by conducting monthly EMPr and EA audit for the operation of the filling stations. The following filling station were audited:

- Engen Hazeldene Convenience
- Engen Vega Service Station
- Engen Silver Lakes Convenience

Tshepho Mamashela

Earth & Environment - Environmental Consultant

- Engen R511 Tanganani
- Engen Wierda Park Motors
- Engen Lombardy Convenience Centre
- Engen Country View Service

Environmental Assessment Practitioners Association of South Africa

Registration No. 2019/1846

Herewith certifies that

Malose Minah Tshepho Mamashela

is registered as an

Environmental Assessment Practitioner

Registered in accordance with the prescribed criteria of Regulation 15. (1) of the Section 24H Registration Authority Regulations (Regulation No. 849, Gazette No. 40154 of 22 July 2016, of the National Environmental Management Act (NEMA), Act No. 107 of 1998, as amended).

Effective: 01 March 2024 Expires: 28 February 2025

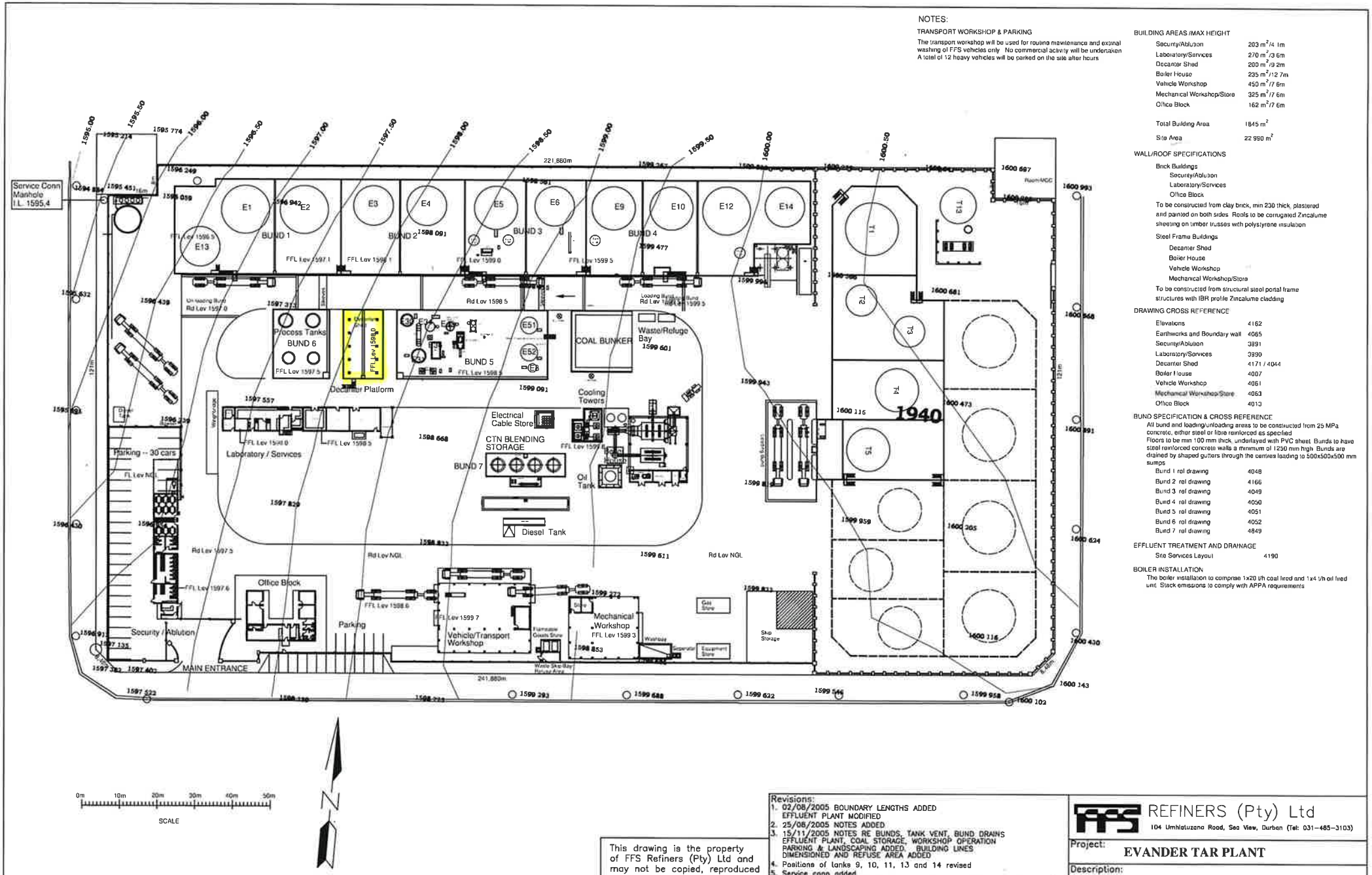
Chairperson

Registrar

SAQA
SOUTH AFRICAN QUALIFICATIONS AUTHORITY

Appendix B

SITE LAYOUT



NOTES:

TRANSPORT WORKSHOP & PARKING

The transport workshop will be used for routine maintenance and external washing of FFS vehicles only No commercial activity will be undertaken
A total of 12 heavy vehicles will be parked on the site after hours

BUILDING AREAS /MAX HEIGHT

Security/Ablution	203 m^2/4 1m
Laboratory/Services	270 m^2/3 6m
Decanter Shed	200 m^2/9 2m
Boiler House	235 m^2/12 7m
Vehicle Workshop	450 m^2/7 6m
Mechanical Workshop/Store	325 m^2/7 6m
Office Block	162 m^2/7 6m
Total Building Area	1845 m^2
Site Area	22 950 m^2

WALL/ROOF SPECIFICATIONS

Brick Buildings
- Security/Ablution
- Laboratory/Services
- Office Block

To be constructed from clay brick, min 230 thick, plastered and painted on both sides Roofs to be corrugated Zincalume sheeting on timber trusses with polystyrene insulation

Steel Frame Buildings
- Decanter Shed
- Boiler House
- Vehicle Workshop
- Mechanical Workshop/Store

To be constructed from structural steel portal frame structures with IBR profile Zincalume cladding

DRAWING CROSS REFERENCE

Elevations	4162
Earthworks and Boundary wall	4065
Security/Ablution	3891
Laboratory/Services	3890
Decanter Shed	4171 / 4044
Boiler House	4007
Vehicle Workshop	4061
Mechanical Workshop/Store	4063
Office Block	4010

BUND SPECIFICATION & CROSS REFERENCE

All bund and loading/unloading areas to be constructed from 25 MPa concrete, either steel or fibre reinforced as specified
Floors to be min 100 mm thick, underlayed with PVC sheet Bunds to have steel reinforced concrete walls a minimum of 1250 mm high Bunds are drained by shaped gutters through the centres leading to 500x500x500 mm sumps

Bund 1 ref drawing	4048
Bund 2 ref drawing	4166
Bund 3 ref drawing	4049
Bund 4 ref drawing	4050
Bund 5 ref drawing	4051
Bund 6 ref drawing	4052
Bund 7 ref drawing	4849

EFFLUENT TREATMENT AND DRAINAGE

Site Services Layout	4190

BOILER INSTALLATION

The boiler installation to comprise 1x20 t/h coal fired and 1x4 t/h oil fired unit Stack emissions to comply with APPA requirements

Revisions:
1. 02/08/2005 BOUNDARY LENGTHS ADDED EFFLUENT PLANT MODIFIED
2. 25/08/2005 NOTES ADDED
3. 15/11/2005 NOTES RE BUNDS, TANK VENT, BUND DRAINS EFFLUENT PLANT, COAL STORAGE, WORKSHOP OPERATION PARKING & LANDSCAPING ADDED, BUILDING LINES DIMENSIONED AND REFUSE AREA ADDED
4. Positions of tanks 9, 10, 11, 13 and 14 revised
5. Service conn added
6. Office, Vehicle W/shop, Washbay and Mechanical W/shop positions revised
7. Effluent plant and associated bund deleted
8. Layout updated to as constructed, Tank no's updated
9. Boiler house lean to and wash bay added
10. Drawing updated, reference drawings corrected
11. CTN blending added
12. Coal bunker added
13. As Built

REFINERS (Pty) Ltd
104 Umhlatuzana Road, Sea View, Durban (Tel: 031-485-3103)

Project: **EVANDER TAR PLANT**

Description: **NEW TAR PLANT**

Date:	By:	Scale:
08/06/2004	SGN	NTS

Drawing Number: **3277** Revision: **13**

Appendix C

EMERGENCY RESPONSE PLAN

DOC#WI-7E

ON-SITE EMERGENCY PLAN

FFS Refiners (PTY) LTD.

at

Evander

Revision No.:04

Date: 31 October 2023

INDEX

Introduction

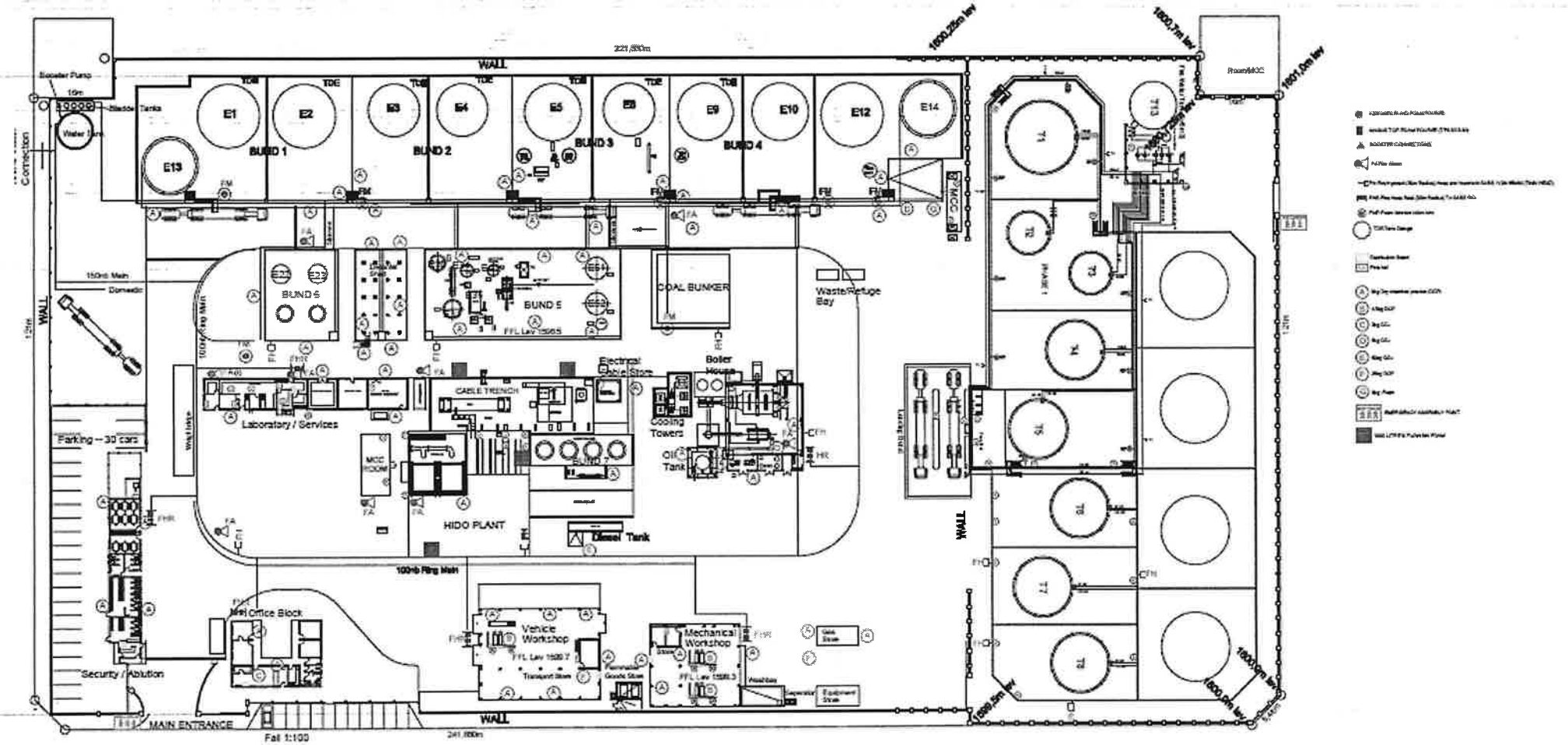
FFS Refiners Evander branch processes industrial furnace fuels, wood preservatives and specialized hydrocarbon products, as well as used oil for recovery purposes.

The company, whose head office is in Durban, operates four processing plants situated throughout South Africa, and has five used oil storage depots.

The main focus of the Evander site is the collection, storage and processing of coal tar waste streams into wood preservative products and dispatching of these product oils to clients. The raw material oils are collected from various sources and delivered to the site on a regular basis, using road tankers. Road tankers also collect and transport the oil-based products to clients. The new tank farm on the site is used solely as rented storage for client tar products.

Approximately 30100 tonnes of tar are processed on the site annually, while another 5000 tonnes are stored for clients on a rental basis.

Figure 1 – FFS Evander site and surrounding areas


WALL
E1
E2
E3
E4
E5
E8
E9
E10
E12
E14
E13
BUND 1
BUND 2
BUND 3
BUND 4
BUND 5
BUND 6
COAL BUNKER
Waste/Refuge Bay
Laboratory / Services
Electrical Cable Store
Boiler House
Cooling Towers
Oil Tank
HIDO PLANT
Diesel Tank
Parking – 30 cars
Security / Ablution
Office Block
Vehicle Workshop
Mechanical Workshop
MAIN ENTRANCE
Fall 1:100
T1
T2
T3
T4
T5
T6
T7
T8
T9
T10
T11
T12
T13
1600.25m lev
1600.71m lev
1601.0m lev
1599.2m lev
1600.0m lev

Emergency Telephone Numbers

AUTHORITY	CONTACT	TEL. NO.	SPEED DIAL
AMBULANCE		10177/017-6321894	*06726 *06727
FLYING SQUAD		10111	*06728
EVANDER POLICE		017-6323333	*06729
SASOL FIRE DEPT	FIRE (Emergency Only)	017-6102444	*06659
SAS SHER DEPT 24HR EMERGENCY	ALL EMERGENCIES	017-6104444	*06679
CAER FIRE/RESCUE	FIRE/RESCUE	0176310155	*06552
EVANDER FIRE DEPT	FIRE	017-6206308	*06730
	OIL SPILL	017-6206011	*06731
SPILLTECH	OIL SPILL	011 396 3939/ Lisa.hansen@spilltech .co.za	
EFFLUENT DISCHARGE GOVAN MBEKI MUNICIPALITY	Manager Water & Sewer Govan Mbeki Municipality	017-6206077	*06581
FFS MANAGEMENT			
CHIEF EXECUTIVE OFFICER	A CANNING	031-4595300 (W) 0836445675	304
ENVIRONMENTAL, HEALTH & SAFETY MANAGER	A OSBORN	031-4595300(W) 0826539828	334
OPERATIONS MANAGER	B VISAGIE	0836455260	*06655
MAINTENANCE MANAGER	B NKOSI	0729541835	*06762
PRODUCTION MANAGER	A DEWRAJ	0798885515	*06764

HSE OFFICER	**N BIYASE**	**0734728061**	*06508
POLLUTION AUTHORITIES			
D.O.T. (Dangerous goods)	**MURIEL TSWAING** **TswaiM@DOT.GOV.ZA**	**012-3093810**	*06733
Dept Of Transport	**info@dot.gov.za**	**0137666696**	
Dept Of Economic Development and Tourism	**MEC – Ms Nompumelelo Hlophe** **masangos@mpg.gov.za**	**013-7664595**	*06734
Dept of Agriculture Rural Development and Land Administration	**MEc – MS.B.P Shiba** **sibanyonipc@mpg.gov.za**	**013-7666074**	*06756
DEPT OF AGRICULTURE & LAND ADMINISTRATION	**SWITCHBOARD**	**013-7666068**	*06736
Dept of Agric, rural development land & Environmental Affairs (DARDLEA) – Compliance Monitoring & Enforcement Section – Head Office	**Switchboard**	**013-7664000**	*06654
Dept of Agric, rural development land & Environmental Affairs (DARDLEA) – Compliance Monitoring & Enforcement Section – Regional office Ermelo	**Switchboard**	**017-8114830**	*06653
Dept of Water Affairs (National)	**M Makwanga**	**012-3367500/ Customercare@dws.gov.za**	
POLLUTION AUTHORITIES		**TEL. NO.**	SPEED DIAL

DEA – Dept Director Section 30	**Oarabile Magapa**	**012-3999446** **E mail-omagapa@environment.gov.za**	*06624
Environmental Inspector - Ermelo	**Musa luhlanga**	**0827694478** **E mail** **mmluhlanga@mpg.gov.za**	

Aim and Objectives

The aim and objective of this Emergency Plan is to determine the various emergencies on site and how to notify employees and public if an incident / accident that triggered the emergency plan and how to control the incident / accident to prevent minimum impact to FFS site and public.

Hazardous Substance Description & Volumes

Table 1 - Classes of dangerous substances

Class #	Details
Class 1	**Explosives** (covered by explosives act and not considered in MHI Regs.).
Class 2	**Gases** (only flammable or toxic gases could impact on the public)
Class 3	**Flammable liquids** (these could form large pools fires, or release flammable vapour clouds)
Class 4	**Flammable solids** (could contribute to warehouse fires etc.)
Class 5	**Oxidising substances and peroxides** (possible explosions)
Class 6	**Toxic and infectious substances** (only MHI if emit vapours that can affect persons outside the boundary, or liquids are extremely close to site boundary with no containment)
Class 7	**Radioactive** materials (excluded from MHI, covered by other regulations)
Class 8	**Corrosives** (general not a major hazard unless very close to public at the boundary)

Class 9	Miscellaneous, materials that are **combustible** and can lead to escalation of fires or toxic products of combustion

The following compounds (or groups of compounds) are used / produced / handled on the site. Note that only the largest or most hazardous (from an MHI perspective) materials are mentioned individually in this table, whilst the rest are grouped together.

Table 2 – List of dangerous substances

Materials	Class	Potential MHI accidental impact off-site.	Total Storage on Site (as per annual average per month) Tonnes	Maximum Single Storage Unit (Tonnes)	Physical Form
Light ends	3 Flammable	Yes	70	50	Liquid
Used Lube Oil	3 Flammable	Yes	5	2	Liquid
Toluene	3 Flammable	Yes	0.44	Drums	Liquid
HFO	3 Flammable	Yes	6500	6500	Liquid
Light Oils (LCO/MIBK)	3 Flammable	Yes	100	100	Liquid
Diesel	3 Flammable	no	1	1	Liquid
Materials	**Class**	**Potential MHI accidental impact off-site.**	**Total Storage on Site (as per annual average per month) Tonnes**	**Maximum Single Storage Unit (Tonnes)**	**Physical Form**
Acetone	3 Flammable	Yes	0.44	Drums	Liquid
LPG	2 Flammable	Yes	0.24	Cylinders	Liquid
Miscellaneous gasses	2 Flammable	Yes	0.07	Cylinders	Liquid
Tar (contains Phenol, Cresol and Tar Volatiles)	3 Flammable	Yes	10100	10100	Liquid
Tar additives (HHBTA/DTA)	3 Flammable	Yes	0	0	Liquid
Sodium Hydroxide (Caustic Soda)	8 Corrosives	No	0	15	Liquid
Total			**16814.19**	**16790**	-

Incident and Accident History

There have been no major hazardous incidents / accidents related to the processes at the FFS Evander site.

Emergency Scenarios as per MHI Risk Assessment

An MHI risk assessment focus is only on events that could impact on the public or numerous employees on site. The possibilities of the following hazards were considered in each of the areas where hazardous materials are handled. Only the relevant hazards were considered:

1. Fire – external (jet, pool, flash)
2. Explosions – internal, confined within a building, unconfined & BLEVE
3. Toxic release - acute

Level of Emergency

The above listed scenarios level of emergency were based on the combination of frequency or likelihood of events and their severity, taking into account ignition probabilities and the distribution of the weather conditions in terms of stability, wind speed and direction.

The level of emergency is classed within the following levels:

1. **Confined Level** – An emergency where the impacts on people, property and environment are expected to be confined to a specific location within the facility and no escalation is expected. Emergency services may be required.
2. **Site Level** – An emergency where the impacts on people, property and the environment are expected to spread to or affect all parts of the facility, but not off-site. Emergency services should be required.
3. **Site and External Level** – An emergency where the impacts on people, property and the environment are expected to impact both within the facility and beyond the boundary (public). Emergency services will be required.

FFS Refiners Evander branch processes industrial furnace fuels, wood preservatives and specialized hydrocarbon products, as well as used oil for recovery purposes.

The company, whose head office is in Durban, operates four processing plants situated throughout South Africa, and has five used oil storage depots.

The main focus of the Evander site is the collection, storage and processing of coal tar waste streams into wood preservative products and dispatching of these product oils to clients. The raw material oils are collected from various sources and delivered to the site on a regular basis, using road tankers. Road tankers also collect and transport the oil-based products to clients. The new tank farm on the site is used solely as rented storage for client tar products.

Approximately tonnes of tar are processed on the site annually, while another 5000 tonnes are stored for clients on a rental basis.

Table 3 – Emergency Scenarios (for further details refer to the MHI RA report – J2698B):

Plant / Section	Event Incident Causes	Consequences / Impact Level	Preventative Measures	Protective Measures (Mitigation)
Oils	**Tank or tanker leak or rupture due to loss of integrity, tank overfilling**	• Spillage • Pool of liquid may burn or materials spraying from pipe may form a jet fire or flash fire • Possible explosions of vapour clouds • Possible domino failures of the near-by equipment, buildings and facilities **<u>Overall Consequences</u>** • Radiation or explosion damage to equipment • Possible radiation or overpressure injuries to persons in the area • Possible fatalities • Possible impact on adjacent facilities and equipment installations • Possible pollution/contamination of water sources	• Maintenance and inspection plan • Regular audits – internal and external to ensure plan is followed • Safety signs and notices. • Training of operators • Procedures • Ignition sources controlled on the site. • Level alarm • Earthing • Temperature control • Steam heating	• Emergency procedures • Fire hydrants • Fire extinguishers • Foam injection monitors if rupture is within the bunded areas • Operators at site should notice leak and stop transfer • Access to site controlled. • External emergency services • Employee fire fighting training • Fire alarm • First aid training • Deluge system

		• Thermal radiation Fire ball 1% fatalities = 12.5kW/sqm. • 100% fatalities = 37.5kW/sqm. • Vapour cloud explosion.		
Plant / Section	**Event Incident Causes**	**Consequences / Impact Level**	**Preventative Measures**	**Protective Measures (Mitigation)**
Oils	**Pipeline rupture or leak due to loss of integrity, mechanical damage, e.g. Vehicle.**	• Spillage • Pool of liquid may burn or materials spraying from pipe may form a jet fire or flash fire • Possible explosions of vapour clouds • Possible domino failures of the near-by quipment, buildings and facilities **<u>Overall Consequences</u>** • Radiation or explosion damage to equipment • Possible radiation or overpressure injuries to persons in the area • Possible fatalities • Possible impact on adjacent facilities and equipment installations • Possible • pollution/contamination of water sources	• Maintenance and inspection plan • Regular audits – internal and external to ensure plan is followed • Safety signs and notices. • Training of operators • Procedures • Ignition sources controlled on the site. • Level alarm • Earthing • Temperature control • Steam heating	• Emergency procedures • Fire hydrants • Fire extinguishers • Foam injection monitors if rupture is within the bunded areas • Operators at site should notice leak and stop transfer • Access to site controlled • External emergency services • Employee fire fighting training • Fire alarm • First aid training

Plant / Section	Event Incident Causes	Consequences / Impact Level	Preventative Measures	Protective Measures (Mitigation)
Oils	**Offloading hose rupture or leak due to loss of integrity or tanker pulled away with hose still connected, or incorrect coupling or maintenance**	• Spillage • Pool of liquid may burn or materials spraying from pipe may form a jet fire or flash fire • Possible explosions of vapour clouds • Possible domino failures of the near-by equipment, buildings and facilities **<u>Overall Consequences</u>** • Radiation or explosion damage to equipment • Possible radiation or overpressure injuries to persons in the area • Possible fatalities • Possible impact on adjacent facilities and equipment installations • Possible pollution/ contamination of water sources. • Toxic release and no ignition	• Supervision • Safety signs and notices • Training of operators • Procedures • Ignition sources controlled on the site • Earthing	• Emergency procedures • Fire hydrants • Fire extinguishers • Foam injection monitors if rupture is within the bunded areas • Operators at site should notice leak and stop transfer • Access to site controlled • External emergency services • Employee fire fighting training • Fire alarm • First aid training

Plant / Section	Event Incident Causes	Consequences / Impact Level	Preventative Measures	Protective Measures (Mitigation)
LPG -	**Cylinder leak or rupture due to loss of integrity, BLEVE**	• Release • Jet fire or flash fire • Possible explosions of vapour clouds • Possible domino failures of the near-by equipment, buildings and facilities <u>Overall Consequences</u> • Radiation or explosion damage to equipment • Possible radiation or overpressure injuries to persons in the area • Possible fatalities • Possible impact on adjacent • Installations • Toxic release and no ignition	• Maintenance and inspection plan • Regular audits – internal and external to ensure plan is followed • Safety signs and notices • Training of operators • Procedures • Ignition sources controlled on the site • Earthing	• Emergency procedures • Fire hydrants • Fire extinguishers • Operators at site should notice leak and stop transfer • Access to site controlled • External emergency services • Employee fire fighting training • Fire alarm • First aid training

Nature of emergency

A. Major Fire at loading/offloading point

1. The person who identified the fire must sound the fire alarm and press the emergency stop button to stop all the operations on site.
2. And quickly head to the assembly point. If trained in the use of fire extinguishers, and if safe to do so, attack the fire with correct type of fire extinguisher.
3. Every personnel to evacuate calmly and does not panic following the evacuation errows to the assembly point.
4. The appointed emergency Controller to sweep the factory and call all the emergency departments for assistance.
5. Emergency telephone list is available at all notice boards.
6. Trained firefighting team to attempt to fight the fire, only if it is safe to do so.
7. First aiders must be on standby in case an injury occurs.

B. Fire inside a bunded area.

1. The person who identified the fire must shout 'fire', sound the fire alarm and press the emergency stop button to stop all the operations on site.
2. Head to the assembly point immediately.
3. Firefighting team to attend the fire.
4. The EC to do the procedure as per CP-12.
5. Notify the emergency services if required.
6. Report the incident to the relevant authorities.

C. Major CHEMICAL SPILL outside a bunded area

1. Sound the emergency alarm on discovering the spill.
2. Isolate valves and stop the pump immediately.
3. Contain the spill using absorbent, spill kit found in the maintenance workshop.
4. Notify the Emergency Controller on site, if after hours notify the senior personnel available.
5. Notify the emergency services as soon as possible. Emergency telephone list is displayed in all the notice boards.
6. On site spill team to scoop the oil into the spill buckets and clean up Do not allow the oil to enter the storm water drain.
7. Notify relevant authorities within 12 hours of the incident.

D. Chemical spill during loading/offloading process. (Tanker Overflow/loading pipe rupture)

1. Isolate supply valves and stop the pump immediately.
2. Contain the spill using absorbent and booms within the containment area.
3. Do not allow the oil to spread on the soft ground.
4. On site spill team to attend and recover the product by scooping into the spill buckets
5. Report the incident to the team leader on duty or emergency controller.
6. Notify relevant authorities (environmental department).

E. Major spill inside a bunded area during product transfer (tank Overflow/pipe rupture)

1. Sound the emergency alarm.
2. Isolate the supply valve and stop the transferring pump immediately.
3. Report the incident to the operations/ production manager.
4. The senior supervisor/manager on site to assess the situation and call spill response if needed.
5. Spill team to recover the spill product by directing the product to the drain using squeegees.

F. Accidental release of HCS outside FFS Premises

1. Contain the spill by blocking the gaps in the gate in N.W perimeter wall using booms and sandbags.
2. Call an operations/production manager or team leader on duty.
3. Notify the emergency services.
4. On site spill team to contain the spill until the spill response team arrives and takes over.
5. Recover any contaminated oil back into the plant. Any contaminated soil to be excavated and disposed in a certified landfill.
6. Notify relevant authorities (Environmental department) as Section 30 reportable incidents procedure, CP-16.

G. electrical fire (Rotating Machines like pumps)

1. Upon discovering of the fire, the personnel must shout "Fire".
2. Sound the nearest fire alarm.
3. Stop the equipment immediately.
4. Notify the superior on duty.
5. The electrician to isolate the power supply from the distribution Board.
6. Fire team to fight the fire with relevant fire extinguisher.
7. **UNDER NO CIRCUMSTANCES CAN WATER BE USED TO FIGHT THE FIRE.**

8. The superior to assess the incident and notify emergency services if needed.
9. Notify relevant authorities.

H. Natural disasters (floods, storm, earthquake)

1. Listen to a weather Radio or a local news station for the latest information.
2. Follow instructions given by public safety officials.
3. All electrical equipment to be isolated by the electrician before area is flooded.
4. Ensure sump pumps are operational.
5. Vacate employees until safe to return.
6. Emergency Controller to notify the emergency or rescue services in case of injuries.

I. Injury on duty

1. Make area safe in vicinity of the injured person.
2. Stop machinery immediately if necessary.
3. Call First-aider to assist.
4. Make employee comfortable – do not move the employee if you suspect the employee has sustained a neck or back injury.
5. First aider to apply first aid while waiting an ambulance for further medical assistance.

J. Protests, strikes

1. Striking people must be kept outside of the site.
2. Security must be on high alert and gates kept closed.
3. Non striking employees to continue operation of the plant.
4. If emergency assistance is required, must call the police.

K. Public Unrest (Outside FFS Property)

1. Close and lock all gates to premises.
2. Inform the company operations manager immediately.
3. Inform the SAPS.

L. Motor Vehicle Accident/ overturning of a road tanker transporting FFS product.

1. Call the Operations manager immediately.

2. Call first aider and ambulance to assist in case of injuries.
3. Notify the firefighting and spillage control team to assist.
4. Call external service provider (spill tech) to contain the product spill.
5. Notify the transport department immediately.

M. A Visitor or member of public injured on site.

1. Stop machinery immediately if necessary.
2. Call First-aider to assist.
3. Call Operation/Production manager on duty.
4. Make an injured person comfortable – do not move the injured person if you suspect he/she has sustained a neck or back injury.
5. First aider to apply first aid or make a call for further medical assistance.
6. If serious or major incident (loss of Consciousness, lost/broken limb, death):

- Call SAPS
- Notify Dept of Labour
- Inform FFS HR Manager
- Inform visitors next of kin.

Operations manager to complete incident forms for further investigations.

N. Subversive Activities (Bomb Threat, Vandalism, Sabotage)

Suspicious Device/Package

1. If a suspicious device/package is identified inform Supervisor/ Manager/SHE Department immediately – DO NOT tamper or attempt to move it.
2. Call Local Emergency Services and SAPS immediately (L1HO).

   DO NOT use two-way radios or cellular phones as radio signals have the potential to detonate a bomb.
3. Activate the fire alarm and Evacuate all staff to the assembly point or a safe location and conduct a roll-call to ensure all employees are accounted for.
4. Appointed 16.2 to notify Managing Director, COO & SHEQ Department.
5. Evacuate your site and inform neighbours to evacuate as soon as possible.

Bomb Threat Call Procedure

Most bomb threats are received by phone. Bomb threats are serious until proven otherwise. Act quickly but remain calm and obtain information with the checklist provided below.

1. Remain calm. DO NOT HANG UP.

2. Listen carefully. Be polite and show interest.
3. Keep the caller on the line for as long as possible.
4. Try to keep the caller talking to learn more information.
5. If possible, write a note to a colleague to call the emergency services or, as soon as the caller hangs up, immediately notify them yourself from a different phone.
6. If your phone has a display, copy the number and/or letters on the window display.
7. Complete the Bomb Threat Checklist immediately. Write down as much details as you can remember. Try to get exact words.

BOMB THREAT CHECKLIST			
Your Name:		Branch:	
Date:		Time:	
Time Caller Hung Up:		Phone number used for call:	
QUESTIONS TO ASK THE CALLER			
Where is the bomb located? (Building, Floor, Room, etc.)			
When will it go off?			
What does it look like?			
What kind of bomb is it?			
What will make it explode?			
Did you place the bomb?			
Why?			
What is your name?			
EXACT WORDS OF THREAT			
INFORMATION ABOUT THE CALLER:			
Where is the caller located? If known (local or long distance)			
Estimated age:			
IS voice familiar? If so, who does it sound like?			
Any other information that you can provide?			

Caller's Voice:					
Accent		Angry		Calm	
Clearing throat		Coughing		Cracking voice	
Crying		Deep		Deep breathing	
Disguised		Distinct		Excited	
Female		Laugher		Lisp	
Loud		**Male**		Nasal	
Normal		Ragged		Rapid	
Slow		Slurred		Soft	
Stutter					

Background Sounds:					
Animal Noises		Phone Booth		Clear	
Conversations		Factory Machinery		House Noises	
Kitchen Noises		Motor		Music	
Office Machinery		Static		Street Noises	
Threat Language:					
Incoherent		Message reader		Taped	
Irrational		Profane		Well-spoken	
ANY OTHER INFORMATION					

Emergency control centre

The emergency control point is allocated in the main security office.

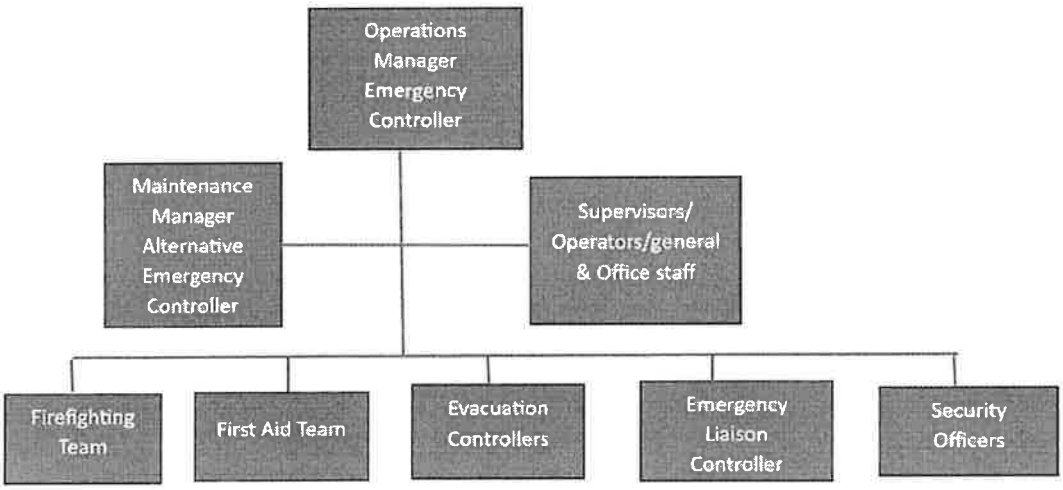
Emergency Control Centre will have the following:

- A copy of ON-SITE EMERGENCY PLAN.
- List of important telephone numbers such as Police, Fire Brigade, Hospitals, and other outside Emergency Services
- First Aid Box.

Assembly Point

In case of an EMERGENCY the employees should gather in the Assembly Point, as indicated by the green assembly point signage.

Emergency Coordinating and Planning Committee



Duties and Responsibilities

Emergency Controller:

- The appointed emergency controller shall be overall accountable for all functions performed by the on-site emergency team during an emergency.
- Ensure readiness of the site to action the Emergency Plan to cater for any foreseeable natural or man-caused emergency, disaster or production interruption.

Assess the magnitude of the situation and decide if staff needs to be evacuated from the assembly point.

- Maintain a continuous review of possible development and assess in consultation with alternative emergency Controllers as to whether shutting down of the plant or any section of the plant and evacuation of persons is required.
- Ensure that the emergency drills are undertaken, and any defects identified, corrected and re-drilled to ensure effectiveness.

Emergency liaison

- Liaise where required with government agencies such as the SAPS, local civil defence, Fire Brigade, Hospitals etc. or delegate a responsible person to assist as required.

Liaison with emergency services

- Emergency controller(s) upon assessing the situation, identify whether the external service provider is required or not. The emergency controller should contact emergency services for assistance. The external emergency services upon arrival will be directed to the scene of the incident by the emergency controller(s), who will also explain to them the situation.

Supervisor / Operators:

- If not involved in the first response to an incident, shut off pumps and close valves.
- Go to the emergency assembly point – do not run.
- Await further instruction.

Office staff

- If not involved in the first response to an incident, shut off electrical equipment i.e. computers, air-conditioning units and close doors and windows as you evacuate the building.
- Proceed to the emergency assembly point and await further instructions.

Fire Fighting Team

- On hearing the emergency alarm, all fire team members to proceed to the main assembly point if not possible then to alternate.
- Fire team leader to request information from the Emergency Controllers to establish where the fire has occurred.
- Advance to the scene fire.
- Fight the fire with appropriate firefighting medium.
- If it is unsafe to fight the fire, where possible remove all combustible materials in close proximity to prevent the fire from spreading and await assistance from the emergency services.
- Only knowledgeable and certified firefighting employees may be part of the established firefighting team.

First Aid Team

- On hearing the fire alarm, or after being called to assist, first aid team members must proceed to the main assembly point, if not possible then to alternate.
- Collect the first aid kits and medical emergency equipment.
- First aid team members to assess the situation to establish the nature of injuries.
- Attend to injuries and hand over to emergency services and assist where required.
- Only knowledgeable and certified first aiders may assist as a first aider.

Security Officer

- On hearing the alarm security shall open the gate and stand by to direct the emergency services to the incident area.
- Do not allow any vehicle or visitors to come inside the factory.

Emergency Response Procedure

Each incident scenario's response is set out focussing on the important steps that should be taken to first minimise (or contain) the hazard, deal with the consequences in terms of pre-determined tasks that staff have been trained to perform (control), and then to stand down after the emergency has been reduced to a controlled situation.
"Stand down" generally refers to the phase when the clean-up, disposal, inspection, rehabilitation and repair phase starts before normal operations can resume without further safety concerns.

Emergency Response Resources

Emergency Alarming Systems

Two fire alarm systems exist on the Evander site. One for the old site and a second for the new tank farm site.

The first is for the old Evander site. The alarm is an electrical system with the horn situated at the original substation. If the alarm is activated an intermitted loud sound is audibly.
The second is for the new tank farm. The alarm is an electrical system with the horn situated at the new tank farm substation. Testing is done weekly.

Onsite Emergencies

These are emergencies that result from a fire, an explosion and toxic releases which usually only has an effect on the installation itself and any other surrounding installation within the boundaries of the site.

The emergency procedures for the site were evaluated with regards to its perceived effectiveness in mitigating major hazard events, and recommendations for possible improvements were made. The plan needs to be updated in anticipation of the implementation of SANS 1514:2018 (Ref.S15). Suggestions for improvements:

SANS 1514:2018- MHI emergency response Planning (Ref.S15): High level evaluation					
No	Aspect	Not Addressed	Partially addresses	Fully Compliant	Notes (paragraph reference are for this report)
1.	Emergency Coordinating and Planning Committees (ECPC)- reciprocal representation			X	Available in par
2.	Documented ERP- document controlled			X	
3.	Owner/Operator/Occupier identified			X	
4.	Site location identified			X	
5.	EPR development process summary flow chart- interactions, inputs stated		X		
6.	Command structure- organogram, personnel appointments, roles, responsibilities, duties-transfer of command to emergency services			X	
7	Emergency controller and functional personnel authorisation			X	
8.	Contact details of functional personnel, emergency services and neighbours			X	
9.	Operations flow diagrams/description			X	
10.	Hazardous substances inventory and location		X		
11	Detailed site map			X	

12	Table of content			X	
13	Aims and objectives			X	
14.	Hazard ID- MHI and other inputs used		X		
15	Hazchem table- name, UN No, GHS class, quantity, location, safety critical equipment- isolation and containment		X		
16	Emergency defined			X	
17	Levels and types emergency table			X	
18	Key stakeholder analysis- roles, responsibilities, functions, needs.			X	
19.	Physical method of identification of ER personnel		X		
20	Procedure: raising the on-site alarm		X		
21	Procedure: receiving and responding to the alarm.			X	
22	Procedure: activation of the on-site or off-site emergency response		X		
23	Procedure: notifying the emergency services		X		
24.	Procedure: safe evacuation and sheltering			X	
25.	Procedure: control points for utilities listed with location or on map.			X	
26.	Procedure: decontamination following an incident			X	
27	Procedure: Health and safety functions- first aid, firefighting, roll call, search and rescue			X	
28.	Procedure: Termination of an emergency			X	
29.	Emergency shut-down (EDS) procedures			X	
30	Emergency resource, equipment and maintenance plan			XX	
31	Supporting information package- SHE information, location map, site layout map, emergency contact details, SDSs, other relevant information			X	

32.	Documented evidence of drills/simulations			X	
33	Documented evidence of ERP audits, reviews, and updates			X	
34	Evidence of training- interview employees		X		
35	Evidence of awareness- interview neighbour	X			
36.	Evidence of available and maintained emergency equipment.		X		

Emergency Equipment

There is emergency equipment available on site to be used as the first response in the event of an emergency. Only trained and certified employees may operate the emergency equipment. All equipment on site is under a service and monitoring procedure to ensure it is operational and in good working condition.

Fire

First responders to a fire emergency to only try and get the fire under control if it is safe to do so. Where the emergency services arrives on site the fire fighters must hand over but stay in close proximity in the event where assistance may be required in order to get the fire emergency under control.

- 74 x DCP Fire Extinguishers
- 15 x CO^2 Fire extinguishers
- 12 x Foam Fire Extinguishers
- 6 x Fire hose reels
- 21 x Fire hydrants
- 16 x Foam cannons and Pourers
- 1 x 5000 Litre Foam (Jojo tank)
- 2 x Fire Water Tanks

Spill

All storage tanks are bunded this indicates that in the event of any spill that may take place on site that it will be contained on site and not spill out of site boundary exposing the public. Employees are trained to control and clean up spills with readily available spill kits which are available at Maintenance workshop. Each kit contains the following:

Wheelie bin spill kit

- 1 x Bechem wheelie bin
- 1 x Chemical gloves (1pair)

- 1 x High dencity plastic bags (1pack of bags)
- 1 x Pack of cable ties
- 1 x Bechem absorbent fibre (large 92 bags)
- 1 x Bechem absorbent brooms (2 per bin)
- 1 x Spark proof shovel
- 1 x Broom
- 1 x Squeezes

Safe Emergency Shutdown Systems

The following emergency shutdown system has been implemented in the event of an emergency on site.

- Plant shutdown – there is a main breaker switch located at transformer 1 on site, that will be tripped by an electrician should we have an emergency on site. This would stop all power coming in to the site. However, this action will be carried out depending on the nature and severity of the emergency.

- Emergency Stops
  - 1 x Decanter bund
  - 1 x Bund 1
  - 1 x Bund 2
  - 1 x Bund 3
  - 1 x Bund 4
- Overfill protection – feed to the tanks would stop once a predetermined high level point has been reached.

Identification number	Description	Period	Test & Inspect By Whom
3276-7-LSH701	Tank E1 High Level	Yearly	Electrician
3276-7-LSH702	Tank E2 High Level	Yearly	Electrician
3276-8-LSH703	Tank E3 High Level	Yearly	Electrician
3276-8-LSH704	Tank E4 High Level	Yearly	Electrician
4976-1-LSH705	Tank E5 High Level	Yearly	Electrician
5262-2-LSH706	Tank E6 High Level	Yearly	Electrician
5262-2-LSH709	Tank E9 High Level	Yearly	Electrician
5262-2-LSH710	Tank E10 High Level	Yearly	Electrician
Identification number	**Description**	**Period**	**Test & Inspect By**
5262-2-LSH711	Tank E11 High Level	Yearly	Electrician
5262-2-LSH712	Tank E12 High Level	Yearly	Electrician
5262-2-LSH708	Tank E13 High Level	Yearly	Electrician
3276-7-LSH799	Tank E14 High Level	Yearly	Electrician
3276-9-LSH722	Tank E22 Level Switch High	Yearly	Electrician
3276-9-LSH723	Tank E23 Level Switch High	Yearly	Electrician
3276-9-LSH724	Tank E24 Level Switch High	Yearly	Electrician
3276-9-LSH725	Tank E25 Level Switch High	Yearly	Electrician
3276-10-LSH730	TANK E30 LEVEL SWITCH HIGH	Yearly	Electrician

3276-10-LSH731	TANK E31 LEVEL SWITCH HIGH	Yearly	Electrician
3276-10-LSH734	FFE E34 Level Switch High	Yearly	Electrician
5104-1-LSH2301	Tank TF1 High Level Switch	Yearly	Electrician
5104-1-LSH2302	Tank TF2 High Level Switch	Yearly	Electrician
5104-1-LSH2303	Tank TF3 High Level Switch	Yearly	Electrician
5104-1-LSH2304	Tank TF4 High Level Switch	Yearly	Electrician
5104-1-LSH2305	Tank TF5 High Level Switch	Yearly	Electrician

Maintenance Programme

A maintenance program is implemented to ensure the emergency equipment is readily available in the event of a real emergency.

- Site emergency alarm system tested weekly
- Fire fighting equipment is inspected internally on a monthly basis and any defects reported for corrective action.
- An appointed external service provider also conducts annual inspections, testing and servicing of fire extinguishers, hose reels and hydrants to ensure it is ready for use.
- Internal inspections are conducted weekly to ensure all Spill kits are fully stocked and available in the event of any possible spills on site.
- Foam trolley is serviced on monthly basis by an appointed service provider.
- Foam samples is taken annually and send externally for analysing to ensure the foam quality is still acceptable, depending on the results the foam will be replaced as and when required.
- All emergency shutdown systems inspection and testing conducted on a weekly and monthly basis to ensure that it is in good working order in the event of an emergency.
- 2 Yearly COC conducted on site to ensure electrical compliance is in order.

Notification of key FFS staff

Daytime

The person reporting the incident should contact the Production Manager/Maintenance manager, who should without delay contact FFS Operations Manager and/or Durban Head Office using the appropriate communications means.

After-hours

Depending on the type of incident (safety or production/quality), the person reporting the incident should contact the Production Manager/Maintenance, who should without delay contact FFS Operations Manager) and/or Durban Head Office using the appropriate communications means.

Preferred Means

- Telephone,

- Cell phone,
- Electronic mail.

A dedicated emergency phone line is available, and the number is not publicly advertised or listed. This phone is at reception and shall be used for emergency communications.

Emergency Services Communication details

In the event of an emergency when the alarm is raised, and the emergency services are contacted it is important to lease the correct information in order for the emergency services to know how to respond in terms of ensuring that the correct equipment will be available when on the emergency site.

- Name of the person reporting the emergency
- Company name
- Physical Address / Location of the emergency
- Contact number of Emergency Controller
- Type of emergency (e.g. Fire – Chemical Fire what chemical, hazard and fire equipment required – if known) & quantity involved.
- Cause of emergency (e.g. Electrical motor spark – if known)
- If any employees is unaccounted for – total count

NOTE: The employee delegated to lease with the emergency services must not end the call but let the emergency services that the individual is talking to end the call as there might be additional information that may be required.

Termination of an Emergency

After an Incident occurred and the incident was brought under control the following steps will be taken in order to close out the incident and return to normal operation.
The Emergency controller / Production Manager / Emergency Service representative will be responsible to declare the incident as controlled.

- Recover spilled HCS as far as possible for removal and re-refining;
- Clean up HCS and debris as applicable;
- Recover equipment and/or materials as far as possible;
- Ensure that all contaminated materials are disposed of as per hazardous disposal procedure in EMS;
- Re-commission equipment and facilities (in case of a fire or structural damage to equipment, facilities, or buildings, experts must assess and repair damage first);
- Replace/restock any emergency equipment/materials used for the emergency as soon as possible;
- Replenish hand-held/ mobile fire extinguishers as soon as possible if used;
- Re-commission fixed fire fighting system if needed;

- Return/replace/replenish outside resources' equipment if used;
- Ensure continuation of operations and customer service;
- Complete incident investigation and analysis, and final reports as per EMS;
- Forward reports to FFS Head Office Company Environmental Officer.
- After input from Head Office, forward reports to relevant Government Departments if a major incident occurred within legally required time periods (internal and external reports to be dispatched as applicable).
- Take all necessary steps to prevent a similar incident from recurring.

Reporting of Incidents

All incidents resulting in pollution by HCS and Hydro-Carbons (Oil), Injury or fatal injury to employee's or Major hazardous Installation incident exposure on site or public are required to be reported under various South African legislation as per the described time frame.

Refer to the following company procedures for full detail on reporting:

- 27 / 27-1 Non-Conformance Report
- CP-16 Section 30 Reportable Incidents
- CP- 8 - Incident Non-Conformance Reporting Investigation and follow up Rev 0

Exercise Programme – Mock Drill

The listed Emergency Response Plan Scenarios must be drilled on a scheduled approved basis and be acted out as per procedure requirements, reported and documented as "Drills".

A drill can be conducted in 3 formats Tabletop Drill, Functional Drill or Full-Scale Drill.

Tabletop drill is an exercise to determine if the responsible employees are following proper procedures in a safe setting where mistakes can be a learning experience. Running a tabletop exercise can assist to identify any gaps or overlaps that may occur in the plan.

Functional drill is a type of drill simulating an emergency in the most realistic manner possible short of moving real people and equipment to an actual location of the simulated emergency in order to test or evaluate the capability of one or more functions in the written emergency event.

Full-Scale drill is as close to the real emergency as possible. A full-scale drill is a comparatively lengthy event that takes place in the selected location using as much as possible equipment and personnel that would be called upon in a real emergency event.

A schedule is drawn up of all the above mentioned Emergency Response Plan Scenarios and scheduled to be drilled throughout each year either **Quarterly, Annually or Biennial.**

Table 4 – Emergency response exercise programme:

Emergency Scenario	Type of Exercise	Frequency
Offloading and loading area – Rupture of the pipe work on the site	Functional drill	Biennial
Offloading and loading area – Leak on the pipe work	Functional drill	Biennial
Offloading and loading area – Rupture of the loading hose	Functional drill	Biennial
Offloading and loading area – Leak on the loading hose	Functional drill	Biennial
Offloading and loading area – Road tanker rupture	Functional drill	Biennial
Offloading and loading area – Road tanker leak	Functional drill	Biennial
Offloading and loading area Road tanker overflow	Functional drill	Biennial
Storage tank – Rupture of storage tank	Functional drill	Biennial
Storage tank – Leak on a storage tank	Functional drill	Biennial
Storage tank – Storage tank overflow	Functional drill	Biennial

Other Scenario's as per Procedure #64E		
Emergency Scenario	**Type of Exercise**	**Frequency**
Fire at bulk tanker loading area (Secondary incident after spill of HCS)	Full-Scale drill	Bi-annually
Electrical fire (Rotating machines)	Functional drill	Bi-annually
Fire inside bund (Secondary incident after spill of HCS)	Functional drill	Bi-annually
Auto-ignition of Coal (Boiler Area)	Functional drill	Bi-annually
Backfire from petrol engine in a designated hazardous zone – Fire	Functional drill	Bi-annually
Tank rupture, equipment failure/malfunction	Functional drill	Bi-annually
Flooding	Tabletop drill	Annually
Power failure	Functional drill	Annually
Industrial action	Tabletop drill	Annually
Bomb Threats		Annually

Note: Review consequences listed in Table 3 for the Emergency Scenarios in order to understand the control requirements for the scheduled drills.

Emergency plan review

The emergency plan must be reviewed and updated when the following occurs:

- Testing of the plan identified that the plan is insufficient as per emergency requirements.
- Modifications or alterations occur on site.
- Hazardous chemical substances volume changes or alternative HCS is implemented on site.
- In the event of an incident or near miss that occur, and the plan was insufficient.
- Additional major hazardous installations take place onsite or direct neighbouring companies.
- Emergency equipment, service providers, contact details change on site.

Documentation control

FFS employees who have been appointed to perform tasks as per requirements set on the emergency plan must keep all documented drills, inspection records and testing certifications on file and the documents must be made available for internal and external audit purpose.

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