2023

DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE APPLICATION FOR AN ENVIRONMENTAL AUTHORISATION FOR THE PROPOSED FOUNDRY ACTIVITIES AT A SITE LOCATED ON EX-MAIN PUMP HOUSE BUILDING, CORNER FRIKKIE MEYER ROAD AND ROGER DAYSON ROAD, PRETORIA, CITY OF TSHWANE METROPOLITAN MUNICIPALITY, GAUTENG PROVINCE.

GDARDE Reference Number:
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IEN-P-23147

Report Number:
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Compiled by Environmental Edge (Pty) Ltd
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Report:	Environmental Management Programme
Project Title:	Environmental Management Programme for the Application for an Environmental Authorisation for the Proposed Foundry Activities at a Site Located on Ex-Main Pump House Building, Corner Frikkie Meyer Road and Roger Dayson Road, Pretoria, City of Tshwane Metropolitan Municipality, Gauteng Province.
Location:	Ex-Main Pump House Building, Corner Frikkie Meyer and Roger Dayson Road, Pretoria, City of Tshwane Metropolitan Municipality, Gauteng Province.
Client Name:	Intervention Engineering
Environmental Edge Project Number:	IEN-P-23147
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Declaration of Interest:

Environmental Edge (Pty) Ltd, or any of its representatives (we) hereby declare:

1. we have no vested interest (present or prospective) in the project that is the subject of this report as well as its attachments. We have no personal interest with respect to the parties involved in this project.
2. we have no bias with regard to this project or towards the various stakeholders involved in this project.
3. we have not received, nor have we been offered, any significant form of inappropriate reward for compiling this report.

Compiler:

This report was compiled by:

Draft

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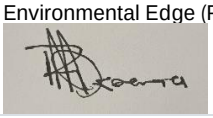

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This report was reviewed by:

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LIST OF ABBREVIATIONS

AEL	Atmospheric Emissions Licence
AQIA	Air Quality Impact Assessment
BA	Basic Assessment
CoT	City of Tshwane
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EAPASA	Environmental Assessment Practitioners Association of South Africa
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
ERP	Emergency Response Procedure/Plan
GDARDE	Gauteng Department of Agriculture, Rural Development and Environment
GHG	Greenhouse Gas
MSDS	Material Safety Data Sheet
NAEIS	National Atmospheric Emissions Inventory System
NEM: AQA	National Environmental Management: Air Quality Act
NEM: WA	National Environmental Management: Waste Act
NEMA	National Environmental Management Act
NRTA	National Road Traffic Act
OHSA	Occupational Health and Safety Act
PPE	Personal Protective Equipment
SACNASP	South African Council for Natural Scientific Professions
SANS	South African National Standards
SOP	Standard Operating Procedure
SWMP	Storm Water Management Plan

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1. INTRODUCTION

Appointment Background Purpose

Intervention Engineering (Pty) Ltd (hereafter referred to as "Intervention Engineering" or the Applicant), have appointed Environmental Edge (Pty) Ltd (hereafter referred to as "Environmental Edge") as an independent Environmental Assessment Practitioner (EAP) to prepare, undertake, and lodge, on their behalf, a Waste Management Licence (WML) application in terms of Section 49(1)(a) of the National Environmental Management: Waste Act (NEM: WA), 2008 (Act no. 59 of 2008) with the Gauteng Department of Agriculture, Rural Development and Environment (GDARDE), for their proposed foundry activities, on a site located at Ex-Main Pump House Building, Corner Frikkie Meyer and Roger Dayson Road, Pretoria, City of Tshwane Metropolitan Municipality, Gauteng Province.

In terms of the list of waste management activities that have, or are likely to have, a detrimental effect on the environment, published under NEM: WA in GN R.921 as amended, the proposed activities trigger Activities (3) and (12) of Category A.:

3. *The recycling of general waste at a facility that has an operational area in excess of 500m^2, excluding recycling that takes place as an integral part of an internal manufacturing process within the same premises.*

12. *The construction of a facility for a waste management activity listed in Category A of this Schedule (not in isolation to associated waste management activity).*

The proposed activities would also trigger sub-categories 4.4 (Secondary Aluminium Production) and 4.10 (Foundries) of Category 4 (Metallurgical Industry) in terms of Section 21 of the National Environmental Management: Air Quality Act (NEM: AQA) (Act No. 39 of 2004):

4.4. Secondary aluminium production and alloying through the application of heat (excluding metal recovery, covered under subcategory 4.21).

4.10. Production and/or casting of iron, iron ores, steel or ferro-alloys, including the cleaning of castings and handling of casting mould materials.

As such, the development requires both a WML in terms of NEM: WA and an Atmospheric Emissions Licence (AEL) in terms of NEM:AQA. The AEL application shall be submitted to the City of Tshwane Metropolitan Municipality in terms of Section 41(1) (a) of NEM: AQA.

1.1. Project Applicant

Intervention Engineering
Responsible Person: Velona McCall (Manager)
Ex-Main Pump House Building,
Corner Frikkie Meyer Road and Roger Dayson Road,
Pretoria,
City of Tshwane Metropolitan Municipality,
Gauteng Province

Tel: 011 8946761/2
Email: Velona@interventioneng.co.za

1.2. Environmental Assessment Practitioners

Mr Ramatladi Owen Mokoena (EAP/Environmental Scientist)

B.Sc. (Hons) Environmental Sciences (Univ. of Venda)

Mr Ramatladi Mokoena is an EAP at Environmental Edge with experience in the environmental management field. He has been involved in various projects that include but are not limited to EIA, BA, AEL compliance, Waste Management Licensing and others including the reviewing of various EIA and BA. He has attended

training in environmental and environmental related fields. Trainings include; introduction to GIS, Project management and herbarium training. Ramatladi has also been involved in environmental education and alien invasive species eradication programmes.

Mr Cyril Kamogelo Legong (EAP)

B.Sc. (Hons) Environmental and Resource Studies (Univ. of Limpopo)

Kamogelo Legong is a registered EAP (Reg. 2021/3159) with the Environmental Assessment Practitioners Association of South Africa (EAPASA) and is also a Candidate Scientist (Reg. 125866) with the South African Council for Natural Scientific Professions (SACNASP).

Mr Kamogelo Legong is an EAP and has experience in the environmental management field. Furthermore, he has been involved in various projects concerning Environmental Impact Assessments (EIAs), Basic Assessments (BAs), AEL compliance, as well as the reviewing of various EIAs and BAs. He has also participated in several environmental training programmes.

Mr Sindiso Lubisi (Senior EAP)
B.Sc. (Hons) Environmental Science (Univ. of Pretoria)

Sindiso Lubisi is a registered EAP (Reg. 2020/1401) with the Environmental Assessment Practitioners Association of South Africa (EAPASA) and is also a Professional Natural Scientist (Reg. 122081) with the South African Council for Natural Scientific Professions (SACNASP).

Mr Lubisi is a Senior EAP at Environmental Edge with vast experience in the environmental assessment and management field. His experience spans various projects including: EIAs, BAs, AEL applications and audits, Environmental Assessments (EAs) as well as implementation programmes. Furthermore, Mr Lubisi is experienced in Section 22A applications and reporting, Section 24G applications and reporting, waste management licence applications and audits, environmental management programmes (EMPrs), waste management plans, EA compliance audits, environmental and social management systems development and implementation, and offering environmental management training.

Abouts and whereabouts of project.

2. PROJECT DESCRIPTION

2.1. Project Background

Intervention Engineering has acquired the rights to a facility located at Ex-Main Pump House Building, Corner Frikkie Meyer and Roger Dayson Road, City of Tshwane Metropolitan Municipality, Gauteng Province, with the intention to undertake foundry activities at the facility. The facility is situated on a pre-existing ArcelorMittal site which is mainly used for manufacturing activities.

The proposed foundry activities by Intervention Engineering trigger Activity (3) and Activity (12) of Category A in terms of the NEM: WA as well as Subcategory 4.4 (Secondary Aluminium Production) and 4.10 (Foundries) of Category 4 (Metallurgical Industry) of Section 21 in terms of NEM: AQA, and therefore must obtain a WML and an AEL through a BA process in terms of the EIA Regulations from GDARDE and the City of Tshwane Metropolitan Municipality (CoT), respectively to legally operate.

The foundry will further embark in the production and casting of Copper and some Bronze. However, their production rates will be less than ten (10) tons per day, which is below the minimum thresholds that would trigger Subcategory 4.19 of Category 4 of Section 21 of the NEM: AQA. All activities related to the commissioning and preparation of the facility for the proposed foundry activities have not commenced pending the required approvals/authorisations.

2.2. Project Technical Description

The following is the technical process description as undertaken on-site:

Wooden patterns and core boxes will be manufactured and repaired by hand. The patternmaker makes a template, which is called a pattern. The core box is the inside shape of the mold. These patterns and core boxes will then be used to make the sand molds. Sand will be reclaimed from casted molds for re-use for the next batch of molds. The molding boxes, which contain sand and castings, are to be put on a shakeout and the sand and the castings are separated. The shakeout is a vibrating table where the sand will fall through. The sand will then be transferred onto a conveyer belt. The sand will then be crushed into smaller pieces and conveyed by a sealed vibrating belt to a reclamation plant. The dust will be extracted into a bag house and the sand will then be pneumatically pumped into an attrition unit with sieves.

From this hopper it will be pumped into other hoppers for use at the continuous mixers by means of gravity feed. This process is where the molds will be made. The patterns will be placed inside a molding box, or a loose frame and the sand will be poured over the patterns. Once the sand is set, the molding box will be turned over and the patterns will be removed by means of hand or machine. The sand will be painted with a heat resisting coat of Mold paint. Cores will be placed into the mold to form the inside cavities. The mold top and bottom halves will then be closed, and the mold will then be ready to be poured.

For the molding process, a continuous sand mixer to mix silica sand with resins and hardeners will be used. Two percent resin will be added and 20% of the resin weight with a hardener will be used for the mold to set. Alkaline fenolic foundry resins will be used.

Silica sand (by weight) will be mixed with 1-3% Bentanite and 1-2% Coal dust. The sand product is called “Green sand”. Between 2-3% of water will be added and mixed in a batch mixer to form a clay mixture. This clay mixture will be poured into a molding box and squeezed by a molding machine to achieve the desired strength. This sand will also be reclaimed for future use. Mold coat may be used, but often rarely in this process. This process is where sand forms are made to create the inside cavities of molds.

The same process as resin bonded sand will be used for larger cores. Ecolotec may be used, which is also a resin. Where used, it will be mixed into the sand by means of a small batch mixer. This sand will be hardened by a very small percentage of carbon dioxide gas. The cores will then be painted with mold coats and will then be ready for use.

Melting is basically a process where metal is transformed using energy from a solid to a liquid state. All melting shall take place in induction furnaces. Here scrap with a mix of ingots of aluminium, bronze as well as iron and steel will be melted.

Once the castings and sand are separated, the castings will be transferred from the shake out to the shot blast machine. Here the rest of the sand will be removed, and the castings will be cleaned by means of small steel balls which are called steel shot. The steel shot will be thrown at a very high velocity against the castings on a rotating table. This process then cleans the casting. Grit blasting will be used instead of sand blasting. Both grit blasting and shot blasting will be done in concealed areas.

The dust and sand will be extracted into a bag filter house. Once shot blasted, the castings will be transferred to the fettling bays (fettling means to clean and remove excess metal). Here, by hand-operated angle grinders and pedestal grinders, all the excess and unwanted material (runners, risers and fins) are removed, and the castings will be dressed and cleaned. Runners are excess materials where the metal enters the mold but does not form part of the castings and must be removed. This material (runners, risers and fins) will be re-melted again.

2.3. Triggered Listed Activities

The listed activities triggered by Intervention Engineering’s facility include Activity 3 and Activity 12 of Category A of NEM: WA, 2008 (Act No. 59 of 2008) as amended. Furthermore, the activities trigger Sub-category 4.4 and Sub-category 4.10 of Category 4 of Section 21 of NEM: AQA, 2004 (Act No. 39 of 2004) as amended.

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Table 1: Listed activities in terms of Category A of NEM:WA.

Listed activities in terms of NEM:WA			
Category of Listed Activity	Name of the Listed Activity	Activity Number	Description of the Listed Activity
Category A	Recycling or recovery of waste	(3)	The recycling of general waste at a facility that has an operational area in excess of 500m², excluding recycling that takes place as an integral part of an internal manufacturing process within the premises.
	Construction, expansion or decommissioning of facilities and associated structures and infrastructure	(12)	The construction of a facility for a waste management activity listed in Category A of this Schedule (not in isolation to associated waste management activity).

Table 2: Listed activities in terms of Section 21 of NEM:AQA

Listed activities in terms of NEM:AQA			
Category of Listed Activity	Sub-category of the Listed Activity	Name of the Listed Activity	Description of the Listed Activity
4. Metallurgical Industry	4.4	Secondary Aluminium Production	Secondary aluminium production and alloying through the application of heat (excluding metal recovery, covered under Subcategory 4.21).
	4.10	Foundries	Production and or casting of iron ores, steel or ferro-alloys, including the clearing of castings and handling of casting mould materials.

2.4. Site Description and Locality

The proposed development site is located at Ex-Main pump house building, Corner Frikkie Meyer road and Roger Dayson Road, Pretoria, City of Tshwane Metropolitan Municipality, Gauteng Province. It is situated within an already built-up industrial area. It is immediately surrounded by industrial establishments located within a 2km radius from the site.

The immediate surrounding area is already characterized by industrial activities undertaken by various companies, including Intercape Mainliner (bus company), which is located an approximately 0.7 km to the west; ArcerlorMittal Small Section Mill (manufacturing company), which is located an approximately 0.4 km to the east; the South African Iron and Steel Institute (manufacturing institute), which is located an approximately 0.3 km north of the facility; the African Rail and Traction Services (Pty) (manufacturing company), which is located approximately 0.5 km northeast of the facility, and RCL Foods Consumer Beverages (food manufacturing), which is located an approximately 0.8 km northwest of the proposed site.

The residential areas situated nearest to the proposed site include Kwaggasrand (northwet), West Park (north) and Proclamation Hill (north east) situated at an approximately 1.4 km, 1.2 km and 1.4 km, from the site, respectively. Additional notable residential areas located within a 5 km radius of the site include Laudium which is located at an approximately 3 km southwest; Thaba Tshwane which is located at an approximately 2.5 km southeast; Pretoria West which is located at an approximately 3.5 km northeast; Danville which is located an approximately 3.5 km north as well as Atteridgeville which is located an approximately 5 km west of the proposed Intervention Engineering Site.

The closest schools to the proposed site include West Park rimary School which is an approximately 1.5km north-west from the site and Kwaggasrand Special School which is an approximately 1.4km north-west from the site. The proposed facility is located within a 5 km radius (approximately 1.07 km) to the R55

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Regional Route. The Road runs from the north direction towards the south (in the northern parts of the site) and it turns towards the western direction and curves to continue running towards the southern direction.

Please refer to Figure 2 and Figure 3 below for Intervention Engineering's site layout map and five (5) km radius locality map, respectively.

Table 3: Cadastre Information

ERF	Portion name
351	Pretoria Town and Townlands

Table 4: Approximate corner points of Intervention Engineering's facility

Corner	Latitude	Longitude
Corner 1	25º46'14.70"S	28º7'45.14"E
Corner 2	25°46'16.31"S	28°7'44.99"E
Corner 3	25°46'16.77"S	28°7'50.69"E
Corner 4	25°46'17.73"S	28°7'56.91"E
Corner 5	25°46'16.75"S	28°7'57.42"E
Corner 6	25°46'15.06"S	28°7'54.92"E
Corner 7	25°46'14.94"S	28°7'50.69"E

Table 5: Centre point coordinates of Intervention Engineering's facility

Point	Latitude	Longitude
Centre Point	25°46'15.51"S	28° 7'50.03"E

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Figure 2: Intervention Engineering's site layout

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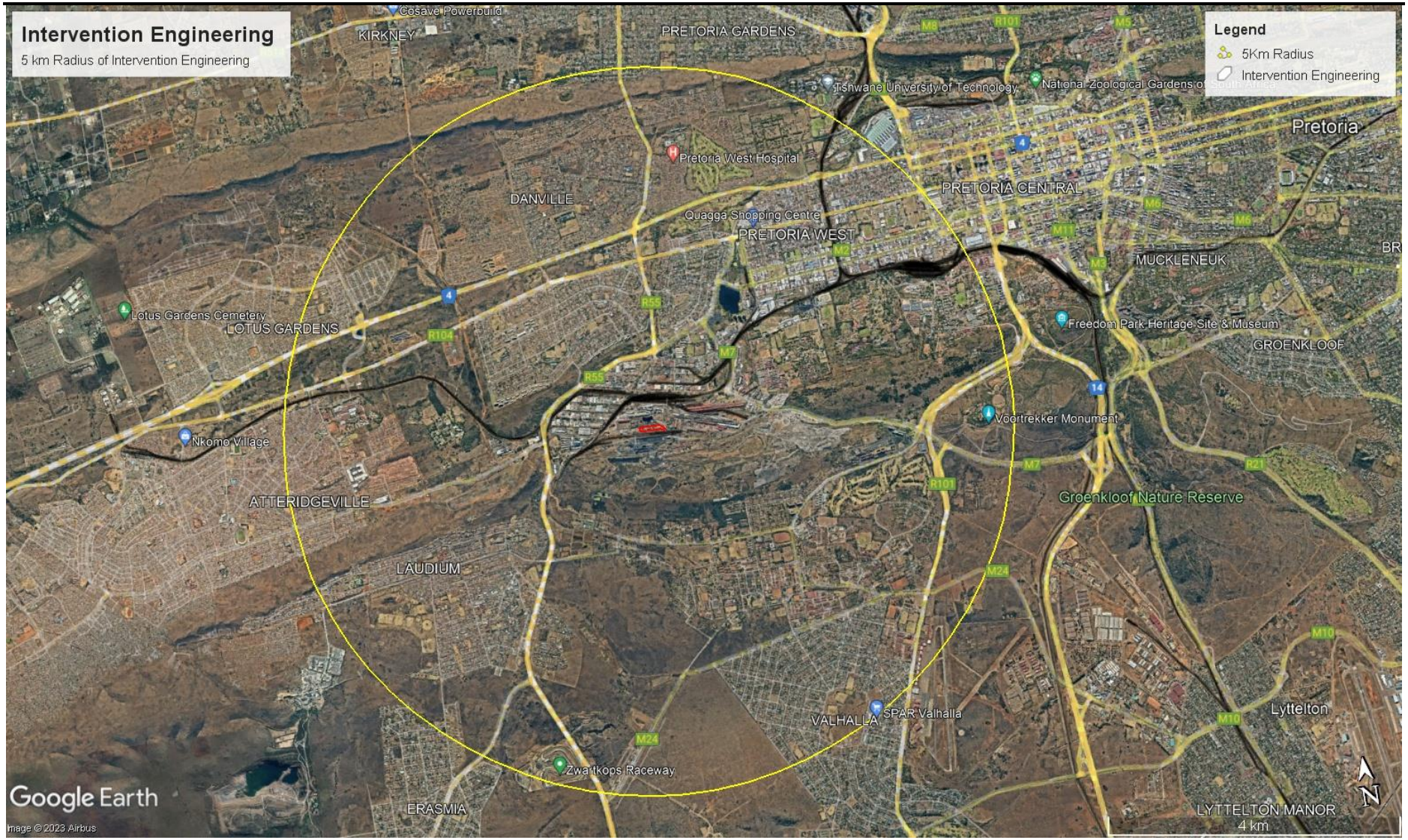

Figure 3: Intervention Engineering's locality map: five km radius

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Impacts evaluation and mitigation.

3. IMPACT ASSESSMENT

Intervention Engineering's proposed activities will have environmental impacts which vary in terms of extent, nature, and significance amongst other variations. The impacts that are identified and expected from the activities of the facility include those relating to air quality, noise generation, solid waste, surface water contamination, as well as fire and explosion hazards. This EMPr aims to identify and mitigate the environmental impacts associated with the activities that will be carried out at the Intervention Engineering facility.

It is also important to note that the facility will have positive socio-economic impacts, that is to say that the facility will contribute to the local economy through job creation and trade. The impact assessment addresses the significance of the impacts in detail and further recommends, in support of the EMPr, mitigation measures for the identified negative impacts. The facility is proposed to be situated within pre-existing infrastructures and will not have any impacts associated with construction activities, only impacts associated with the commissioning of the activities are expected. Section 7 of this EMPr outlines the expected impacts from the facility's activities as well as the mitigation measures of the expected impacts.

Table 3-1: Summary of Environmental Impact Significance Ratings.

Assessed Impact	Rating before Mitigation	Rating Post-Mitigation
Air quality	Negative Low Impact	Negative Low Impact
Socio-economic	Positive Medium Impact	N/A
Solid waste	Negative Low Impact	Negative Low Impact
Resource usage	Negative Medium Impact	Negative Low Impact
Fire Hazard	Negative Medium Impact	Negative Low Impact

Objectives

4. OBJECTIVES OF THIS EMPr

This EMPr has been compiled to provide recommendations and guidelines according to which compliance monitoring can be done during the operational and decommissioning phases, as well as to ensure that all relevant factors are considered to ensure an environmentally responsible development. The purpose of the EMPr is to provide specifications for "good environmental practice" for application.

This EMPr is to inform all relevant parties and all other staff employed by Intervention Engineering at the site as to their duties in the fulfilment of the legal requirements for the operation and maintenance of the facility with particular reference to the prevention and mitigation of anticipated potential environmental impacts.

All parties must note that obligations imposed by the EMPr become legally binding once the Environmental Authorisation (EA) is granted by the relevant environmental permitting authority (GDARDE).

The objectives of this EMPr are to:

- Ensure compliance with provincial, national and/or international regulatory authority stipulations and guidelines;
- Ensure that there is sufficient allocation of resources on the project budget so that the scale of EMPr-related activities is consistent with the significance of project impacts;
- Verify environmental performance through information on impacts as they occur;
- Respond to unforeseen events;
- Provide feedback for continual improvement in environmental performance;
- Identify a range of mitigation measures which could reduce and mitigate the potential impacts to minimal or insignificant levels;

- Detail specific actions deemed necessary to assist in mitigating the environmental impact of the project/development;
- Identify measures that could optimize beneficial impacts;
- Create management structures that addresses the concerns and complaints of I&APs with regards to the project/development;
- Establish a method of monitoring and auditing environmental management practices during all phases of the activity;
- Ensure that safety recommendations are complied with; and
- Specify time periods, where appropriate, within which the measures contemplated in the final EMPr must be implemented.

This EMPr seeks to highlight the following:

- Avoid impacts as a result of not performing certain actions;
- Minimise impacts by limiting aspects of an action;
- Rectify impacts through rehabilitation, restoration, etc. of the affected environment;
- Compensate for impacts by providing substitute resources or environments;
- Minimise impacts by optimising processes, structural elements and other design features;
- Provide on-going monitoring and management of environmental impacts of a development and documenting of any transgressions /good performances; and
- The EMPr is a binding document that all parties involved in the project must be made aware of.

Phases of development

5. DEVELOPMENT PHASES

5.1. Pre-Construction Phase (Planning)

The applicant is proposing and therefore, require an EA. As such, commissioning activities will be undertaken to accommodate the activities proposed by the applicant. It is, therefore, important that all plans must consider the environment and accommodate any potential mitigations required to be in place prior to commencement.

5.2. Construction/Commissioning Phase

Works for the constructions phase will only involve the commissioning of the equipment required for the operation of the facility. The equipment will be commissioned within an existing building structure. During the proposed commissioning, it is empirical that measures to remedy the potential environmental impacts associated with the commissioning activities and subsequent operational activities be considered to reduce the potential impacts on the receiving environment. However, given that the site was acquired with building structures in place, the impacts of this phase are expected to be very minimal.

5.3. Operational Phase

The impacts imparted upon the environment during the operational phase of the project generally take place over time. Compliance with the requirements and measures detailed in this EMPr will reduce the possibility of such impacts occurring and should they occur, reduce their severity through the mitigation measures presented.

Section 7.1 of this report gives a comprehensive description of all recommended measures identified as effective mitigations for the identified significant environmental impacts.

5.4. Decommissioning Phase

The site infrastructure is perceived as permanent with the operations planned to take place indefinitely. As such, the decommissioning phase will only involve the decommissioning of the equipment required for the operation of the facility. The current applicant is only leasing the infrastructure and therefore, cannot demolish the infrastructure.

However, should it be deemed, at any point or any time for any reason, that the development is no longer relevant, and decommissioning of the building structure be planned, then Activity 14 of the List of Waste Management Activities That Have, Or Are Likely to Have, a Detrimental Effect on the Environment published under Government Notice No. 921 of NEM:WA , (Act No. 59 of 2008), as well as the EIA Regulations published under GN R.983 of 4 December 2014 as amended by GN R.327 of 7 April 2017 of the EIA Regulations in terms of NEMA shall apply and therefore an impact assessment through the Basic Assessment process must be followed.

Impacts encountered during the decommissioning phase are mainly as a result of site closure activities. All recommendations will be discussed on an objective basis and implemented by the Applicant. This would include remediation measures suggested to remediate and rehabilitate the site to an acceptable level.

Roles and responsibilities

6. RESPONSIBLE ENTITIES

Intervention Engineering must ensure that all its employees and/or sub-contractors conducting any type of work onsite are familiar with the requirements of this EMPr and conditions stipulated in the associated EIA Impact report as well as the EA conditions and any other conditions of any report that forms part of this application.

Intervention Engineering should implement a management system to review and ensure compliance with the contents of these documents. Furthermore, Intervention Engineering should appoint relevant people to monitor the site and submit regular reports regarding the environmental compliance of the facility.

The monitoring reports should thereafter be sent to the relevant authorities as per the requirements of the environmental documents and authorisation.

The facility shall comply with the emergency preparedness and accident-reporting requirements, as required by the Occupational Health and Safety Act (OHSA), 1993 (Act No 85 of 1993), the National Water Act, 1998 (Act No 36 of 1998), National Environmental Management Act (NEMA), NEM: WA, and NEM: AQA, as amended and/or any other relevant legislation.

6.1. Applicant

Intervention Engineering will be responsible for the appointment of various contractors, as well as the services of an Environmental Control Officer (ECO) to manage the operational and decommissioning phase of the project. Intervention Engineering must ensure that all mitigation measures presented in this EMPr are implemented onsite, together with the required forms of monitoring. Intervention Engineering will, in terms of NEMA, be responsible for all possible contaminations onsite, their investigation, as well as subsequent remediation. This includes the reporting of hazardous substance spillages and/or related incidents to the relevant authorities.

6.2. Site Operator/Manager

The site operator/manager acts as a representative of Intervention Engineering and will be responsible for the efficient management of the facility. This will include the implementation of the EMPr where relevant. The Site Operator/Manager will also be required to communicate any incidents, problems or concerns to Intervention Engineering management.

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6.3. Environmental Control Officer

The Environmental Control Officer (ECO) will be responsible for ensuring compliance with the contents of the EMPr and for liaising with contractor(s) and Intervention Engineering, as well as the Relevant Authority where required. The ECO must also be responsible for the compilation of environmental audit reports as and when required by the Relevant Authority.

6.4. Contractor(s)

The contractor(s), as required, will receive the work order for the relevant activities needed during the operation and decommissioning phases from the Applicant. The contractor(s) is/are required to comply with the relevant sections of the EMPr, together with the assistance and input of the appointed ECO.

6.5. Emergency Preparedness

Throughout the Commissioning, operational and decommission phases, emergency procedures must be compiled and adhered to, to ensure that there will be an appropriate response to unexpected or accidental actions or incidents that will cause environmental impacts. Such unexpected or accidental actions or incidents include, inter alia:

- Accidental discharges to water and land;
- Accidental exposure of employees to hazardous substances;
- Accidental fires and explosions;
- Accidental spillage of hazardous substances;
- Accidental toxic emissions into the air; and
- Specific environmental and ecosystem effects from accidental releases or incidents.


Impact mitigations

7. ENVIRONMENTAL MANAGEMENT PROGRAMME

This EMPr was compiled in terms of Section 24N of NEMA (Act No. 107 of 1998), as amended. The methodology employed was that of the Significance Assessment Methodology, which highlights impacts requiring mitigation in order to reduce the probable negative impacts upon the receiving environment.

Impacts identified are based on previous consultation experience with similar development design, activity processes and the nature of the receiving environment. Impacts were further considered in terms of what could possibly be released to the environment during normal facility operations and during the decommissioning phase, and whether these could be prevented or minimised through successful mitigations.

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7.1. EMPr – Operational Phase

POTENTIAL IMPACTS	OBJECTIVES	MITIGATION INTENDED	MONITORING		RESPONSIBLE PERSON
		Process and Ownership Changes			
Surface Water Contamination and Effluent	• To ensure that accidental spillages are avoided. • To ensure that accidental spillages are addressed sufficiently and prevented from entering the receiving environment. • To ensure that effluent is managed in accordance with relevant procedures and municipal requirements.	• Effective clean and dirty water management must take place to prevent contaminated storm water from the Intervention Engineering facility into the storm water drainage and/or nearby wetlands. • Suitable waste disposal facilities onsite should be provided. These facilities should be covered to avoid contact with rainwater. • The Applicant is to ensure that sufficient training is presented to the operator of the facility. Training is to include general facility operation, chemical handling, spill response and emergency procedures, as well as site safety. • A spill response kit composed of absorbent fibres and associated waste containers must be made available onsite. All material used for mopping up of surface spillages must be removed on a regular basis by an approved hazardous waste disposal contractor, to a registered hazardous waste disposal site. • Chemicals and dangerous goods should be stored appropriately, including the use of bund walls that conform to South African National Standards (SANS). • Concrete containment slabs should be constructed in areas of chemical dispersing. • No chemicals should be dispersed over bare soils. All spillages must be cleaned as and when they occur. • The Material Safety Data Sheets (MSDS) for all chemicals stored onsite must be kept onsite at all times and updated regularly. • Water used during housekeeping activities should be kept to a minimum.	• Records of spillages (volumes, date, reason, etc.) and the methods in which they were addressed should be kept onsite.	• Ongoing during operation.	• Intervention Engineering Manager
			• Correspondence regarding problems onsite.	• As required	• Intervention Engineering Manager
			• Records of staff training (both initial and refresher) should be kept.	• Ongoing during operation	• Intervention Engineering Manager
			• Maintenance records on site infrastructure should be kept.	• Ongoing during operation	• Intervention Engineering Manager
			• Visual monitoring.	• Ongoing during operation	• Intervention Engineering Manager

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Solid Waste Generation & Storage	• To ensure that all waste (general and hazardous) generated during this phase is stored and disposed of in the correct manner.	• Appropriately labelled waste receptacles should be made available throughout the site. • Non-hazardous solid waste generated from the normal operation of the site should be disposed of in the correct manner and at a registered general waste disposal site. Such waste can be collected by the Municipality as part of its regular service or removed by a reputable registered contractor. • Recycling of general waste should be encouraged with the use of appropriately labelled recycling receptacles according to waste types in terms of Section 26 of the NEM:WA. • Solid waste deemed to be contaminated and non-recyclable must be stored and handled in accordance with appropriate regulations and removed to an appropriate hazardous waste disposal facility. • All material used for mopping up of surface spillages should be stored in a container labelled “used material” and removed on a regular basis by an approved hazardous waste disposal contractor. • In terms of Section 11 of Part 2 of the Norms and Standards of the storage of waste specified in GN No. 926 of 29 November 2013 as promulgated in terms of NEM:WA (No. 59 of 2008) , a hazardous waste container resting on the ground must be underlain by barriers, which will not deteriorate with the permeable rate of the waste stored. • Bottoms of the container in contact with soil are subject to corrosion. Therefore, all containers must be protected from external corrosion either by ensuring that used containers are made of corrosion resistant materials or that the containers have a cathodic protection system. • Waste containers must be of sufficient strength and structural integrity to ensure that it is unlikely to burst or leak in its ordinary use. • Waste containers must be covered to prevent rainwater from coming into contact with the waste. • The stockpile area must be paved and bunded to prevent waste sand from being washed into the drainage system during rainy periods and to prevent it from being blown into the drainage system by winds. • No waste stockpile should be allowed to accumulate at the facility. All stockpiles must be removed immediately to prevent any potential soil and/or groundwater contamination. • All facility waste (general and hazardous) must be separated and stored on impermeable surfaces at designated areas and frequently removed to prevent the accumulation of waste onsite. • All waste collected by extraction equipment must be regarded as hazardous and it must be collected by a registered waste collector to be disposed of at an appropriate waste disposal site. • Where effluent is produced onsite, it must be treated as per the standard operating procedures (SOPs) and removed by approved waste contractors.	• Visual monitoring. • Hazardous waste must be disposed of at a registered hazardous waste disposal site by an approved waste disposal contractor. Waste disposal certificates must be kept available. • General waste must be disposed of at a registered waste disposal site by an approved waste disposal contractor. Waste disposal certificates must be kept available. • Annual Audit Reports for compliance with WMP and Norms & Standards.	• Weekly • As required • Annual Audit	• Intervention Engineering Site Manager, Intervention Engineering, Contractors

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POTENTIAL IMPACTS	OBJECTIVES	MITIGATION INTENDED	MONITORING		RESPONSIBLE PERSON
		• Intervention Engineering facility is a waste recycling facility and must register on the national and provincial waste information systems i.e., the South African Waste Information System (SAWIS) and the Gauteng Waste Information System (GWIS) as per the requirements of the National Waste Information Regulations of 13 August 2012 published under Government Notice R625.			
Fire and Explosion Hazards	• To ensure that the risk of fire or explosions is minimised	• All equipment associated with the storage of dangerous goods must be installed and maintained as required using approved contractors. • Intervention Engineering must ensure that sufficient training is presented to the operators of the facility. Training should include general site operation, spill response, environmental requirements and emergency procedures and site safety. • In case of an incident Intervention Engineering's Emergency Response Procedure (ERP) must be followed. • All firefighting equipment must be maintained and serviced as required. • Safety signage must be present onsite. These should include, "no naked flames; no smoking; no cellular phones", etc. as per requirements of the OHS Act, 1993 (Act No. 85 of 1993). • Materials that release large quantities of dust and fine particles to the surrounding air can lead to explosions in the facility, particularly those areas dealing with handling bulk particulate materials and powders. Where possible, install water sprays to help effectively suppress formation of dust. Also install proper ventilation and air refreshment at high risk areas • All spillages onsite must be addressed immediately. • The site must be inspected and approved by the local fire department to obtain a fire safety certificate. • The fire department must immediately be informed of any fires that occur onsite. • Emergency numbers for local police, emergency medical services, the fire department, etc. must be placed in prominent areas around the facility. • Intervention Engineering must make sure that relevant employees are provided with adequate personal protective equipment (PPE) to prevent exposure to hazards within the facility. PPE must be worn at all times by all persons conducting any type of work onsite. • The facility must ensure that a spill kit is available onsite and must be used to timely clean any spillages which may occur. All spillages must be cleaned as and when they occur. • Records of incidents must be kept onsite for a minimum period of five years. • An ERP must be developed for the facility, such an ERP must be submitted to the municipal emergency department for approval. copies of the ERP and its approval must be kept on site for the duration of the operations of the facility. • The ERP must be reviewed every five (5) years and each review must be sent to the municipal emergency services for comment and or approval.	• Records of all near misses and fire hazards on the site must be kept	• As required	• Intervention Engineering Manager
			• Records on the maintenance of all firefighting equipment must be kept	• Annually	• Intervention Engineering Manager
			• Visual monitoring • Valid fire and Emergency Certificate	• Ongoing during operation	• Intervention Engineering Manager

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Air Pollution	• To reduce the potential negative effects of the facility of air quality	• Facility emissions are regulated by NEM:AQA (Act 39 of 2004) and require an AEL. • Once the AEL is issued, the facility must comply with its findings including the mitigation and monitoring stipulated therein. • Abatement equipment must be maintained to ensure optimum efficiency. In case of a breakdown, the equipment must be immediately repaired and/or replaced to ensure optimum efficiency. • Stack emissions monitoring on all point sources is required annually, as a minimum. Compliance with the minimum emission standards is required for the relevant listed activity/ies in terms of Section 21 of NEM:AQA, as amended. • Fugitive emissions from facility operations can be reduced through the implementation of a fugitive emissions management plan. Mitigation measures outlined in the Air Quality Impact Assessment (AQIA) must be implemented where possible. • Burning of material or waste onsite is strictly prohibited. • A monthly complaints register must be maintained onsite. Information reported on the complaints register must at least include the date of complaint, name of complainant, type of complaint (air, noise, etc.), and action taken. In the event where a complaint is made, the complaint must be investigated and reported to the relevant authorities. • Regular maintenance of all equipment onsite must be conducted. • Intervention Engineering must register and report on the National Atmospheric Emissions Inventory System (NAEIS). Category A (listed activities) are required to report their emissions on the NAEIS annually. • Ensure that all unit processes & apparatus used for undertaking the listed activity/ies in question, and all appliances and mitigation measures for preventing or reducing emissions, are at all times properly maintained and operated. • Ensure that all surfaces inside and outside the facility are paved and/or repair any damage to paved areas. • Restrict the distribution of materials to paved surfaces thus preventing dust entrainment during material handling activities. • For outdoor stockpiles, make use of surfactants, water sprays, stockpile management techniques, windbreaks, etc. to minimise fugitive emissions from exposure to wind fields; • Avoid outdoor material stockpiles. Where unavoidable, store materials under a roof and on an impermeable surface to reduce the accumulation of dust and associated windblown dust, as well as dust entrainment on unpaved surfaces during the handling of materials. Bunds must be placed around such stockpiles to prevent the washing away of stockpiled material. • Where possible, ensure that stockpiles are placed in bins and are covered. • An annual AEL report must be submitted to the relevant authorities within the required timeframes. Such report should include: o Compliance audit report; o Summary of major upgrades;	• Complaints Register • NAEIS • Records on all maintenance conducted must be kept.	• Monitoring Schedule	• Contractor – Air quality specialist

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POTENTIAL IMPACTS	OBJECTIVES	MITIGATION INTENDED	MONITORING		RESPONSIBLE PERSON
		○ Pollutant monitoring trends; ○ Green House Gases (GHG) emissions; ○ Summary of complaints; ○ Any other required documentation.			
Noise Generation	• To reduce the possible negative effects of vehicle and operational noise on the surrounding area and adjacent land users where and when necessary.	• Signs prohibiting boisterous noise such as hooting or loud music, must be put up onsite. • The site manager and facility personnel must be aware of the noise levels onsite and inform people to reduce noise where necessary. • No noise generating work must be conducted outside of normal working hours as approved by the National, and Local Authority. • Noise complaints must also be recorded on the complaints register. Any noise complaint should be reported to the authorities. • All noise mitigation recommendations contained in the Noise Impact Assessment Report must be implemented; including night noise reduction mitigation measures, where necessary, through: ○ eliminating the noise source where possible at night; ○ the installation of one or more acoustical silencer(s) or enclosures; ○ acoustical treatment of ducts and exhaust stacks (where installed); ○ moving the noise source further from sensitive receptors (if possible). • Noise levels must comply with the Noise Regulations promulgated in terms of the Environment Conservation Act (Act No. 73 of 1989), as amended.	• Auditory monitoring	• Ongoing during operation	• Intervention Engineering manager
Traffic Congestion and Problems	• To reduce or eliminate the probability of traffic congestion at the site or on the access roads when necessary.	• All the requirements stipulated in the National Road Traffic Act (NRTA), 1996 (Act No. 93 of 1996)) will need to be complied with during operation of the development. • It must be ensured that there is sufficient space onsite for vehicles and, as such, delivery vehicles should not obstruct the access roads. • It must be ensured that the access road is in good condition and that all forms of damage are reported to the local authority. • A traffic safety officer should be nominated to make all the necessary arrangements to maintain the required traffic measures for the duration of the facility. • During periods of high traffic entering and exiting the site, it is recommended that flagmen should help direct the traffic. This will enable the safe movement of facility and public traffic at the entrance and reduce the number of potential conflicts. • Only the planned access routes should be used. No new access routes should be created without necessary approval.	• Visual monitoring	• Ongoing during operation	• Intervention Engineering manager

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POTENTIAL IMPACTS	OBJECTIVES	MITIGATION INTENDED	MONITORING		RESPONSIBLE PERSON
Visual Impact	• To reduce the level of visual impact imparted upon the surrounding land users and passers-by.	• Lighting must be inward and downward-pointing to reduce glare in surrounding areas. • Lighting must be kept to a minimum and restricted to low level, downward facing lights to reduce light spill. • The facility area and surroundings must be kept clean, tidy and well maintained to reduce negative visual impacts. • Regular maintenance of exteriors and associated infrastructure must be undertaken. • Facility waste materials must be properly stored in appropriate containers and designated areas. • It is recommended that routine maintenance on buildings and other structures be implemented, to ensure that the paint of buildings do not weather and that they fit into the colour palette of the surroundings. • If a green open space is demarcated and landscaped, it must be ensured that the vegetation be maintained and controlled to reduce the risk of potential alien floral species proliferation and to keep it aesthetically appealing to the receiving environment. • It is recommended that maintenance activities should not take place at night or on weekends, unless absolutely essential. • No naked / unshielded light sources are to be directly visible from a distance. • Intervention Engineering should ensure that their fence and walls are well maintained so to have a tidy appearance and for security purposes.	• Visual monitoring	• Ongoing during operation	• Intervention Engineering site manager
Safety and Security Threats	• To ensure all decommissioning activities take place in a safe and secure manner with no threat to human life or property.	• The facility staff must be kept informed and up to date in terms of all relevant codes and procedures for safe practise at the site. • The site operator shall make provision for the possibility of an accident or emergency onsite to staff. This would include the provision for a trained company first aid representative, a suitable first aid kit and details of the nearest medical facility. • All contact details for emergency personnel must be kept onsite. This would include contact details for the police, security services, ambulance services and the fire department. • The fencing surrounding the site should be inspected regularly to ensure structural integrity and minimise opportunities for breaching the property. • No vagrants are allowed to loiter or congregate on or around the site. • In case of an incident, Intervention Engineering's ERP must be followed. • Material Safety Data Sheets (MSDS) for all hazardous materials stored onsite must be present onsite and updated regularly.	• Visual monitoring	• Ongoing during operation	• Intervention Engineering site manager
			• Site audits must be conducted. Audit reports must be kept available onsite	• As acquired	• Intervention Engineering site manager
			• Records should be kept in terms of staff training (both initial and refresher)	• As acquired	• Intervention Engineering site manger

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POTENTIAL IMPACTS	OBJECTIVES	MITIGATION INTENDED	MONITORING		RESPONSIBLE PERSON
Soil and Land	• To reduce the probability of activities leading to soil compaction (including untarred/unpaved surfaces which consist of soil material) • To reduce the possibility of contamination of the surrounding soils	• All vehicles must remain within demarcated roads as far as practically possible. • Effective storm water management must take place to prevent contaminating runoff from the Intervention Engineering facility. • Waste products should be recycled as best as practically possible to minimise sources of soil contamination.	• Records of spillages (volumes, date, reason, etc.) and the methods in which they were addressed should be kept onsite.	• Ongoing during operation	• Intervention Engineering site manger
			• Correspondence regarding problems onsite.	• As required	• Intervention Engineering site manager
			• Waste disposal certificates must be kept available.	• As required	• Intervention Engineering site manager, Intervention Engineering, contractor(s)
			• Visual monitoring	• Ongoing during operation	• Intervention Engineering site manager
Resource usage	To reduce the cumulative impacts associated with resource usage and ensure the lowest carbon footprint possible.	• Rainwater should be harvested and used for dust suppression, especially during the dry/water scares seasons. • The use of solar energy as well as energy efficient equipment and lighting should be investigated and implemented as far as practicable. • Should an alternative energy source be sought and/or used, such a source must be more eco-friendly and/or have a lower carbon footprint than the current energy source used. • Ensure that there is no leakage of oil, Liquefied petroleum gas (LPG), water, etc. to avoid wastage of resources. Any leakage that is detected must be considered an emergency and repaired immediately. • Emissions trends must be reported as per Section 21 of NEM:AQA as well as the NAEIS requirements.	• Visual monitoring	• Ongoing during operation	• Intervention Engineering site manager
			• Emissions monitoring	• Annually	• Intervention Engineering, contractor(s)

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7.2. EMPr – Decommissioning Phase

The site infrastructure is perceived as permanent with the operations planned to take place indefinitely. As such, the decommissioning phase will only involve the decommissioning of the equipment required for the operation of the facility, with no expected environmental impacts. It must be noted that the current applicant is only leasing the building structure and therefore, cannot demolish it.

However, should it be deemed, at any point or any time for any reason, that the development is no longer relevant, and decommissioning of the building structure be planned, then Activity 14 of the List of Waste Management Activities That Have, Or Are Likely to Have, a Detrimental Effect on the Environment published under Government Notice No. 921 of NEM:WA , (Act No. 59 of 2008), as well as the EIA Regulations published under GN R.983 of 4 December 2014 as amended by GN R.327 of 7 April 2017 of the EIA Regulations in terms of NEMA shall apply and therefore an impact assessment through the Basic Assessment process must be followed.

In addition to this, the site must be remediated and rehabilitated to an acceptable level if required. Should soil or groundwater contamination be suspected, an independent geohydrologist must be commissioned to conduct a contamination assessment at the site. Impacts encountered during the decommissioning phase are mainly as a result of site closure activities. All recommendations will be discussed on an objective basis and implemented by the Applicant. This would include remediation measures suggested to remediate and rehabilitate the site to an acceptable level.

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8. PROPOSED MANAGEMENT AND REPORTING CALENDAR PLAN

8.1. Environmental and Air Quality Management Plan

Conditions		Conducted	Send Documents to Authority?	Person Accountable	Monthly Checklist												Completed
					J	F	M	A	M	J	J	A	S	O	N	D	
REGISTERS AND COMPLAINTS																	
Complaints Register	All complaints resulting from the operation of the facility and actions taken to remediate the incidents must be recorded in this register.	Monthly	Only send to GDARDE & CoT when complaints have been made. Otherwise, file and keep onsite.	Environmental Officer													
Incident Reporting	All incidents resulting from the operation of the facility and actions taken to remediate the incidents must be recorded in this register in terms of section 30(5) of the NEMA (Act No. 107 of 1998).	Monthly	Only send to GDARDE & CoT when incidents have occurred. Otherwise, file and keep onsite.														
Waste Register/ Waste Management Checklists	Records of volume, source and the nature of all waste received, recovered and transferred must be kept.	Monthly	Do not send. File and keep onsite.	Environmental Officer													
Emergency Response Plan	Details of any emergency incidence regarding the operation of the facility that occurred during the period under review.	Monthly	Only send to GDARDE & CoT when incidents have occurred. Otherwise, file and keep onsite.	Environmental & Safety Officer													
EMPr	Check compliance to the recommendations of the plant's EMPr.	Monthly	Only send to GDARDE & CoT when incidents have occurred. Otherwise, file and keep onsite.	Environmental & Safety Officer													
NAEIS	Register and report on the NAEIS. The emissions of Category A (listed activities) must be reported on the NAEIS annually. The NAEIS is a national emissions inventory.	Annually	NAEIS	ECO can assist – must request a quote yearly.	Must be completed between Jan-End March each year Request quote from ECO in December												

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Conditions	Conducted	Send Documents to Authority	Authority Details	Person Accountable	Checklist				Completed
MONITORING AND AUDITING									
Stack Monitoring	Conduct stack emissions monitoring on all stacks for the relevant listed activities and ensure compliance with the minimum emission standards, with the use of abatement equipment. Ensure that monitoring is undertaken in accordance with nationally or internationally acceptable methods.	At least once a year	CoT	ECO can assist – must request a quote yearly	Must be completed between Jan-Dec each year				
Occupational Health and Safety	Conduct an Occupational Hygiene Survey (including noise impact) and a Health Risk Assessment in accordance with the requirements of the OHSA, 1993 (Act No.85 of 1993) and the Noise Regulations promulgated in terms of the Environmental Conservation Act (Act No.73 of 1989, as amended).	At least once a year	Department of Health and Labour	ECO can assist – must request a quote yearly					
Internal Audit	Internal audits must be conducted by the holder of the authorisation and a report must be compiled on the findings of the audit. The results of the audit must be kept onsite. The report must cover the following: • Compliance with the conditions of the EA. • Details of any emergency incidence regarding the operation of the facility that occurred during the period under review. • Records in terms of volume, source and the nature of all waste received, recovered, and transferred. • Records confirming appropriate disposal of waste generated from the facility. • Discussions of emergency procedures and fire drills undertaken during this period. • Discussions on the adequacy of PPE to further mitigate against exposure of workers to hazards within the facility and onsite. • Storm water and effluent management onsite and adequacy thereof. • Compliance with the recommendations of the EMPr.	Quarterly	GDARDE	Environmental Officer	Q1	Q2	Q3	Q4	

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Conditions	Conducted	Send Documents to Authority	Authority Details	Person Accountable	Completed	Conditions
External Audit	The holder of authorisation must appoint an independent external auditor to conduct annual environmental audits and the resulting report must be made available to the Competent authority upon request. The annual report should include discussions on, but not limited to, the following: • Maintenance of equipment that has been undertaken according to a maintenance register. • There are updates of emergency procedures and fire drills. • There is conformance of operation to industry standards and SANS codes. • There are records of waste and effluent disposed/removed from the site in terms of the manifest system being kept by Intervention Engineering. • The personnel are trained prior to the commissioning of equipment installation. • Compliance with the conditions of the authorisation. • Compliance with the conditions of the AEL issued by the relevant Local Municipality, once the licence has been issued. • Requirements of the OHSA, 1993 (Act No. 85 of 1993). • Compliance with the EMPr and ERP.	At least once a year	GDARDE	ECO can assist – must request a quote annually		
ATMOSPHERIC EMISSIONS LICENCE REPORT						
Annual AEL Report	Compile and complete annual AEL report. The report must include the following: • Compliance audit report; • Summary of major upgrades; • Pollutant monitoring trends; • GHG emissions; • Summary of complaints; • Any other required documentation.	At least once a year	CoT	ECO can assist – must request a quote annually		
AEL Conditions	General conditions: • Informing the authority of any changes to ownership, unit processes, apparatus or production equipment, changes to type and quantities of input materials and products, etc. • No building, plant or site of works related to the listed activities must be undertaken without an EA. • Inform the authority should normal start-up, maintenance, upset and shut-down conditions exceed a period of 48 hours. ** Keep in mind that you still need to request permission to undertake any changes, prior to doing anything **for which you don't already have permissi**on.	As and when required	CoT	Owner		
Maintenance plan	Ensure that all unit processes & apparatus used for undertaking the listed activity in question, and all appliances and mitigation measures for preventing or reducing emissions, are at all times properly maintained and operated.	Daily/ weekly/ monthly/	CoT	Owner		

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Maintenance checklists	**maintenance should be carried out as per the requirements in the maintenance plan.*	quarterly/ annually				

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