

# APPENDIX G: ENVIRONMENTAL MANAGEMENT PROGRAMME

**LONMIN WESTERN PLATINUM PRECIOUS METALS REFINERY**

**DECOMMISSIONING OF A NON-OPERATIONAL GENERAL  
WASTE INCINERATOR  
BASIC ASSESSMENT**

**FINAL ENVIRONMENTAL MANAGEMENT PROGRAM**

Report No.: JW057/18/G316-Rev2

August 2018



**Jones & Wagener**

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Report No.: JW057/18/G316-Rev2

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**APPENDICES**

*Appendix A*

WML

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LONMIN PMR STANDARD OPERATING PROCEDURES AND STORM WATER MANAGEMENT PLAN

## **ACRONYMS AND ABBREVIATIONS**

| <b>ACRONYM /<br/>ABBREVIATION</b> | <b>MEANING</b>                               |
|-----------------------------------|--|
| AEL                               | Atmospheric Emissions Licence                |
| BA                                | Basic Assessment                             |
| °C                                | Degrees Celsius                              |
| cm                                | Centimetres                                  |
| CM                                | Contractor Manager                           |
| DEA                               | Department of Environmental Affairs          |
| DWS                               | Department of Water and Sanitation           |
| EA                                | Environmental Authorisation                  |
| ECO                               | Environmental Control Officer                |
| EH&S                              | Environment, Health and Safety               |
| EIA                               | Environmental Impact Assessment              |
| EMPr                              | Environmental Management Programme           |
| EMM                               | Ekurhuleni Metropolitan Municipality         |
| g                                 | Grams  |
| GA                                | General Authorisation                        |
| GPS                               | Global Positioning System                    |
| ha                                | hectares                                     |
| HIA                               | Heritage Impact Assessment                   |
| I&AP                              | Interested and Affected Parties              |
| IWULA                             | Integrated Water Use Licence Application     |
| J&W                               | Jones & Wagener (Pty) Ltd                    |
| kg                                | Kilograms                                    |
| kg/m                              | Kilograms per metre                          |
| m                                 | Metres                                       |
| m <sup>2</sup>                    | Square metres                                |
| m <sup>3</sup>                    | Cubic metres                                 |
| m <sup>3</sup> /day               | Cubic metres per day                         |
| m/s                               | Metres per second                            |
| mm                                | Millimetres                                  |
| MM                                | Maintenance Manager                          |
| MW                                | Megawatt                                     |
| NEMA                              | National Environmental Management Act        |
| NEM:WA                            | National Environmental Management: Waste Act |
| NWA                               | National Water Act                           |
| PES                               | Present Ecological Status                    |

| ACRONYM /<br>ABBREVIATION | MEANING  |
|---------------------------|--|
| PM                        | Project Manager                                |
| PMR                       | Precious Metals Refinery                       |
| PPE                       | Personal Protective Equipment                  |
| SAHRA                     | South African Heritage Resources Agency        |
| SAICE                     | South African Institution of Civil Engineering |
| S&EIR                     | Scoping and Environmental Impact Reporting     |
| SM                        | Site Manager                                   |
| SSM                       | Site and Safety Manager                        |
| SS                        | Suspended Solids                               |
| TDS                       | Total Dissolved Solids                         |
| TLB                       | Tractor-loader-backhoe                         |
| WML                       | Waste Management Licence                       |
| WQ                        | Water Quality                                  |
| WUL                       | Water Use Licence                              |



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## LONMIN WESTERN PLATINUM PRECIOUS METALS REFINERY

### DECOMMISSIONING OF A NON-OPERATIONAL GENERAL WASTE INCINERATOR BASIC ASSESSMENT

#### FINAL ENVIRONMENTAL MANAGEMENT PROGRAM

REPORT NO: JW057/18/G316-Rev2

## 1. INTRODUCTION

### 1.1 Background

Lonmin Western Platinum's Precious Metals Refinery (PMR) is proposing to decommission their current, non-operational general waste incinerator and replace this with a new hazardous waste incinerator and associated infrastructure on the PMR premises. The new incinerator and associated infrastructure will be constructed in the same location as the current defunct general waste incinerator.

The aim of the proposed project is to treat general and hazardous waste streams that contain high levels of Platinum Group Metals (PGMs) within the PMR plant and recover precious metals that would otherwise be lost. In addition, by managing waste at the source (cradle-to-cradle), there will be very little opportunity for loss of PGMs outside of the system.

Jones & Wagener (Pty) Ltd (J&W) was appointed by Lonmin PMR to undertake a Basic Assessment in terms of the National Environmental Management Waste Act (Act 59 of 2008), for the decommissioning of the old defunct incinerator. This document serves as the Environmental Management Programme (EMPr) for the proposed decommissioning of the non-operational general waste incinerator. The EMPr prescribes the work and mitigatory measures required to protect, conserve and sustain the environment associated with the project.

### 1.2 Enforceability of the EMPr

This EMPr has to be included as part of the contractor's contract and supplemented to Lonmin PMR's specifications for the contract. The contents of the EMPr are enforceable under the general conditions of contract and the contractor should therefore ensure that the tender price submitted covers all the costs of compliance with it. This is a working document and as such will be implemented throughout the duration of the project and may be amended as the responsibility for environmental management is fulfilled and adapted.

If Lonmin PMR is granted a positive Waste Management License (WML) from DEA for the proposed project, namely the decommissioning of the defunct general waste incinerator, the various conditions contained within the EA will have to be integrated into the Post Authorisation EMPr and cross referenced to the authorisation (if required).

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### 1.3 Location

The project is located within the current Lonmin Precious Metals Refinery (PMR) in Brakpan, in the industrial suburb of Vulcania Ext 2. The site forms part of the larger Ekurhuleni Metropolitan Municipality (EMM) of Gauteng. The location of the defunct incinerator and the proposed new incinerator is shown in **Figure 1-1**.

### 1.4 Details and expertise of the EAP

#### 1.4.1 Environmental Assessment Practitioner Details

In terms of NEMA's EIA regulations, the proponent must appoint an Environmental Assessment Practitioner (EAP) to undertake the environmental assessment of an activity regulated in terms of the aforementioned Act. In this regard, Lonmin Plc. Western Platinum Refinery Ltd appointed Jones & Wagener (Pty) Ltd (J&W) to undertake the Basic Assessment for the proposed decommissioning of the old general waste incinerator in accordance with the Waste Regulations promulgated in November 2013 in terms of the NEM:WA.

J&W conducted the impact assessment and Public Participation for this project, including the compilation of this EMPr. The details of the EAP representative are listed below.

|                      |  |
|----------------------|--|
| Name:                | Mr Marius van Zyl  |
| Company represented: | Jones & Wagener (Pty) Ltd.                               |
| Address:             | P.O. Box 1434, Rivonia, 2128                             |
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| E-mail:              | <a href="mailto:vanzyl@jaws.co.za">vanzyl@jaws.co.za</a> |

**J&W has no vested interest in the proposed project and hereby declares its independence as required by the EIA Regulations.**

#### 1.4.2 Expertise of the EAP

Table 1-1 below summarises the expertise of the main J&W team members.

**Table 1-1: EAP Team Members**

| Name               | Organisation   | Highest Qualifications                                  | Experience | Professional Registrations   |
|--------------------|--|---|------------|--|
| Mr Konrad Kruger   | University of Pretoria   | B.Sc. Honours (Geography)                               | 12 years   | Member of the International Association of Impact Assessors (South African Branch)   |
| Mr. Marius van Zyl | Rand Afrikaans University and Potchefstroom University of Christian Higher Education | B.Sc. Honours (Biochemistry & Environmental Management) | 32 years   | Registered Professional Natural Scientist (Pr. Sci. Nat.)<br>Member of the Institute of Waste Management of Southern Africa<br>Member the International Association of Impact Assessors (South African |

| Name                                       | Organisation  | Highest Qualifications         | Experience | Professional Registrations   |
|--|---|--------------------------------|------------|--|
|  |   |                                |            | Branch)  |
| Ms. Anelle Lotter                          | Tshwane University of Technology, previously Pretoria Technicon | National Diploma in Journalism | 25 years   | Member of the International Association of Public Participation (IAP2) |
| CVs of the EAPs are included in Appendix A |   |                                |            |  |



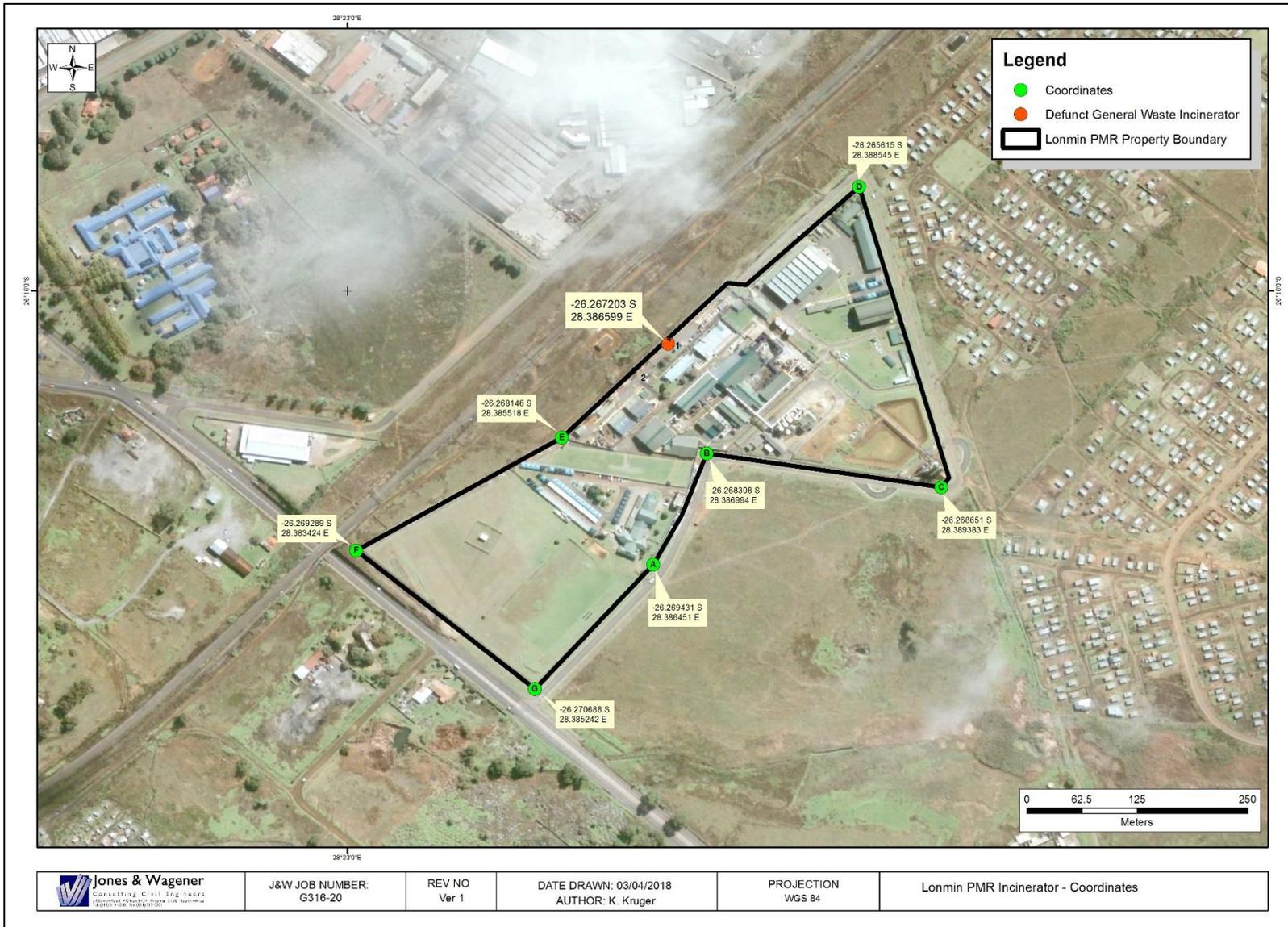


Figure 1-1: Site Map

## 2. LEGAL CONTEXT

Environmental legislation in South Africa was promulgated with the aim of, at the very least, minimising and at the most preventing environmental degradation. The following Acts and Regulations are applicable to the proposed project:

**Table 2-1: Table of Relevant Legislation.**

| Title   | Applicability to the project   | Administering authority         | Date |
|---|--|---------------------------------|------|
| Constitution of the Republic of South Africa (Act 108 of 1996)                              | Everyone has the right to an environment that is not harmful to his or her health or wellbeing and to have the environment protected, for the benefit of present and future generations. This project encourages public participation and involvement.   | National                        | 1996 |
| National Environmental Management Act (Act 107 of 1998, as amended) (NEMA)                  | The NEMA can be regarded as the most important piece of general environmental legislation. It provides a framework for environmental law reform and covers three areas, namely: <ul style="list-style-type: none"> <li>• Land, planning and development;</li> <li>• Natural and cultural resources, use and conservation; and;</li> <li>• Pollution control and waste management.</li> </ul> The act is based on the concept of sustainable development. The objective of the NEMA is to provide for co-operative environmental governance through a series of principles relating to: <ul style="list-style-type: none"> <li>• The procedures for state decision-making on the environment; and</li> <li>• The institutions of state, which make those decisions.</li> </ul> Listed activities triggered by the construction of the incinerator require authorisation to proceed. These are however superseded by the requirements of the Waste Act listed below. | National & Provincial           | 1998 |
| National Environmental Management Waste Management Act (Act 59 of 2008 as amended) (NEM:WA) | A Waste Management Licence (WML) is required for the proposed expansions. Furthermore, the project also has to conform to the National Waste Hierarchy which promotes the re-use, reduction and recycling of waste.  | National Provincial             | 2008 |
| The National Environmental Management: Biodiversity Act (Act 10 of 2004)                    | All aspects related to fauna and flora management and conservation of South Africa's biodiversity within the framework of the NEMA and the protection of species and ecosystems that warrant national protection.  | National & Provincial           | 2004 |
| National Environmental Management: Air Quality Act (Act 39 of 2004)                         | The prevention of air pollution and ecological degradation while promoting justifiable economic and social development.  | National & Provincial Municipal | 2004 |
| Occupational Health and Safety Act (Act 85 of 1993)   | Prescribes health and safety measures necessary to adhere to for all construction workers.   | National & Provincial Municipal | 1993 |



*Please Note: the above list is not exhaustive; the project owner and project contractors must ensure compliance to provincial legislation, and local by-laws applicable to this development.*

J&W was appointed to undertake the EIA Basic Assessment process in support of the proposed activities in terms of the NEM:WA. This report fulfils the requirements in terms of the EMPr content.

### **3. PROJECT SCOPE**

In addition to the requirements of the NEM:WA and conditions of the Waste Management Licence (WML) and the Atmospheric Emissions License (AEL), this document will also be used as a supplementary document to any guideline or policy developed by Lonmin PMR.

This EMPr applies to the decommissioning of the defunct general waste incinerator at the Lonmin PMR plant. This EMPr may not be used for any other project, which might generate different environmental impacts, liabilities and consequences.

#### **3.1 Decommissioning Phase**

The decommissioning phase will involve the dismantling and removal of the existing defunct incinerator (pictured below). This incinerator will be broken down for scrap metal and sold accordingly to a licenced recycler or scrap metal dealer. In addition, the site will be cleared and any waste associated with this facility will be removed.



**Figure 3-1: Existing Incinerator**

## 4. PURPOSE OF THIS DOCUMENT

This EMPr provides the management actions required to reduce environmental impacts created during the decommissioning of the defunct general waste incinerator. This document informs the environmental specification to the Lonmin PMR personnel and external contractors in terms of addressing environmental issues identified. It is the responsibility of the Project Manager (PM), the Contractor Manager (CM) and Site & Maintenance Manager (SMM) to ensure compliance with the environmental management measures in this document as well as all relevant legislation. This EMPr should also ensure the sustainable management (to avoid and / or minimise environmental damage) of the environment for the duration of the proposed project.

It should also be noted that Lonmin PMR currently operates with an existing ISO 14001 certified environmental management system. The aim is to integrate the commitments made in this EMPr into the existing system to prevent repetition and to ease the burden on the operational personnel.

### 4.1 Objectives of the EMPr

The long-term objective of the EMPr is to ensure that appropriate environmental management measures and requirements are implemented from commencement of the decommissioning of the defunct general waste incinerator.

The primary objectives of this EMPr are to:

- Integrate with the existing ISO 14001 environmental management system of Lonmin;
- Describe actions that, when implemented, will result in the mitigation of environmental impacts or improved management of activities, thus reducing the likelihood of impacts occurring;
- Define organisational and administrative arrangements for environmental management and monitoring of the proposed project, including defining the responsibilities of staff as well as co-ordination, liaison and reporting procedures;
- Ensure that discussions are held with site supervision staff, regarding pro-active environmental management, such that potential problems can be identified and mitigation measures adopted prior to impacts occurring; and
- Define procedures for environmental control, in the event of pollution (spillage) or similar events requiring action.

Thus the aim of this EMPr is to:

- Ensure that the personnel are familiar with the environmental procedures to be followed and comply with all the recommendations made within it and those associated with the EA and WML;
- Ensure that the contact details of the SHEQ Practitioners are given to the decommissioning team;
- Continue to implement the existing ISO 14001 reporting system to capture any incidents;
- Ensure that the mitigatory measures are implemented to avoid and / or minimise the identified negative environmental impacts and to enhance the positive impact of the project on the environment; and

- Ensure that a monitoring program is in place that tracks the effectiveness of the implemented mitigatory measures.

#### 4.2 Lonmin PMR and Contractor Commitment

As the environmental applicant, Lonmin PMR is to be held liable for any environmental issues that may arise on the site during the project. The decommissioning of the defunct general waste incinerator requires the following commitment from Lonmin PMR and the appointed contractor:

- Ensure compliance with environmental, health and safety requirements;
- Ensure that environmental conditions / requirements that are stipulated in the EA and WML are complied with;
- Resolve any problems and claims resulting from damage immediately, to ensure the smooth running of operations;
- Implement this EMPr for the benefit of all parties involved; and
- Preserve the natural environment by limiting destructive activities at the incinerator.

### 5. REPORTING STRUCTURE

This section outlines the various responsibilities for the duration of the incinerator project's decommissioning, construction and operational phases.

#### 5.1 Responsibility Matrix

**Table 5-1** below provides a summary of the responsible staff associated with the project.

**Table 5-1: Responsibility Matrix.**

| FUNCTION  | NAME                   | RESPONSIBILITY   |
|---|------------------------|--|
| Lonmin PMR Incinerator Project Manager (PM)                 | Tshilidzi Nemakhavhani | Overall management of project and EMPr implementation  |
| Environmental Control Officer (ECO) appointed by Lonmin PMR | Rene Booysen           | Implementation of EMPr and liaison between CM, Lonmin PMR and stakeholders<br>Ensures compliance with the EMPr and Lonmin PMR policy in terms of EH&S  |
| Contractor Manager (CM)                                     | Bongani Similane       | Implementation and compliance with recommendations and conditions of the EMPr during the decommissioning of the incinerator  |
| Site and Maintenance Manager (SMM)                          | Israel Thothela        | Implementation and compliance with recommendations and conditions of the EMPr during the decommissioning of the old incinerator, construction of the incinerator as well as the operation thereof.<br><br>Overseeing of site works at the decommissioning and construction site, managing of contractor, liaison with PM and ECO |
| Environmental practitioner and Safety Contractor (SH)       | Juandre Welgemoed      | Ensures compliance with the EMPr and Lonmin PMR policy in terms of EH&S  |

## 5.2 Responsibilities

### 5.2.1 Project Manager (PM)

The primary responsibility of the PM is to ensure that the decommissioning and construction contractor complies with the environmental management measures in this document. In addition to this, the PM shall:

- Assume overall responsibility for the effective implementation and administration of the EMPr and the conditions and requirements of the EA and WML;
- Ensure that the EMPr, EA, and the WML conditions are included in the contractor's contract; and
- Ensure that the applicable supervisor and contractors are provided with the EMPr, EA, and WML.

### 5.2.2 Environmental Control Officer (ECO)

The ECO will be responsible for the implementation of the EMPr and monitoring compliance with the EA and WML. In addition to this, the ECO shall:

- Conduct regular site inspections, in conjunction with the SMM, to ensure that the contractor is compliant with the EMPr in terms of the actions outlined in the document. Inspections must take place monthly and a copy of the inspection checklist must be kept on file
- Keep a register of all incidents (fuel spills, complaints, legal transgressions etc.) and of all documentation related to the EMPr in the existing ISO 14001/CAR system;
- Report any problems or complaints, which could not be resolved in collaboration with the SM, to the PM;
- Ensure that monitoring takes place in accordance with the management measures outlined in the EMPr and the associated authorisations;
- Implement the recommendations made as a result of the annual independent environmental audits; and
- Ensure that all personnel are trained in accordance with the environmental requirements outlined in the EMPr as well as the existing ISO 14001 system.

### 5.2.3 Contractor Manager (CM)

The contractor shall:

- Ensure that the environmental management measures of this document (including any revisions, additions and amendments) and the conditions and requirements of the EA and WML are adhered to and effectively implemented. This includes the on-site implementation of mitigation measures to minimise environmental impacts;
- Discuss the implementation of and compliance with the management measures contained in the EMPr with personnel at routine site meetings/toolbox talks;
- Monitor environmental performance and conformance with the management measures contained in the EMPr during site inspections;

- Report progress towards implementation of and non-conformances with the management measures contained in the EMPr at site meetings with the PM and / or ECO;
- Inform the ECO of any incidents or emergencies that occur on site, together with a record of action taken;
- Report and record all accidents and incidents resulting in injury or death to the ECO;
- Consider the legal rights of the communities and regional personnel;
- Ensure quality in all technical and environmental work performed; and
- Utilise this EMPr for the benefit of all parties involved.

#### 5.2.4 Site & Maintenance Manager (SMM)

The SMM will be responsible for overseeing the site works during decommissioning and ensuring compliance with the EMPr, EA and WML. In addition to this, the SMM shall:

- Conduct regular site inspections, in conjunction with the ECO, to ensure that the contractor is compliant with the EMPr in terms of the management measures outlined in the document. Inspections must take place monthly and a copy of the inspection checklist must be kept on file;
- Keep a register of all incidents (fuel spills, complaints, injuries, legal transgressions etc.) and of all documentation related to the EMPr;
- Report any problems or complaints, which could not be resolved in collaboration with the CM, to the PM;
- Make sure that regular monitoring audits are conducted to ensure compliance with the EMPr; and
- Confine activities to the demarcated construction site, prevent actions that may cause harm to the environment and take steps to prevent pollution on site.

#### 5.2.5 Safety and Health (SH) Practitioner

The SH Practitioner / ECO shall:

- Conduct regular site inspections, in conjunction with the SMM, to ensure that the contractor is compliant with the EMPr in terms of the Safety and Health (SH) related management measures outlined in the document. Inspections must take place monthly and a copy of the inspection checklist must be kept on file;
- Keep a register of all SH incidents (complaints, injuries etc.);
- Report any injuries or complaints, which could not be resolved in collaboration with the CM, to the PM or SMM; and
- Ensure that all personnel are trained in accordance with the SH requirements outlined in the EMPr.

## 6. ENVIRONMENTAL APPROVALS

The decommissioning of the old defunct incinerator may have an impact on the environment. It is thus important that precautions be taken to ensure that environmental harm is minimised.

This requires the cooperation of the project team (described in **Section 5** above) and therefore proper planning is necessary.

The ECO shall convey the contents of this EMPr document and the conditions of the EA, WML and any other possible licences and approvals from the authorities and discuss the contents in detail with the Lonmin PMR PM and CM at a meeting prior to decommissioning. A formal induction training must be undertaken for all contractors. Record of the training dates, people who attended and discussion points shall be kept by the SHEQ Practitioner.

Good relations with adjacent landowners need to be established and sustained. In order to achieve this, landowners must be informed timeously of the decommissioning program, duration and any interference with their daily activities. This will assist in preventing problems to a large degree. Lines of communication should always be open to ensure proper and timeous reaction to complaints. The contact numbers of the PM, SM and ECO should be made available to affected landowners (if any).

The SMM must take all the necessary precautions against damage by ensuring that correct, well-maintained equipment is available at all times to ensure decommissioning proceeds without damage to the environment. Should alternative methods be used, approval is required from site personnel and the PM must be informed to ensure that environmental issues are identified and addressed.

The frequency of environmental audits required during the decommissioning and construction period shall be decided by the authorities and attached as a condition of the EA. Environmental audits shall be undertaken to measure the compliance with the recommendations of the EMPr (this document), AEL and WML.

## **7. METHOD STATEMENT**

If the decommissioning work is not undertaken by Lonmin PMR's on-site personnel, the following shall apply to any contractors. The contractor that is appointed together with the Project Manager will supply the SMM with a Method Statement. The Method Statement shall cover applicable details concerning:

- Scope of work;
- Timing and location of activities;
- Decommissioning procedures;
- Materials and equipment to be used;
- Getting the equipment to and from site;
- How the equipment / material will be moved while on site;
- How and where material will be stored;
- Waste management;
- The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;
- Compliance / non-compliance with the environmental management measures; and procedures; and
- Emergency procedures.

*Please note: Any method statements generated by the contractor that contradicts the management measures of the approved EMPr must obtain prior consent from the relevant authorities.*

## 8. ENVIRONMENTAL MANAGEMENT ACTIONS

The management measures documented in each of the sections below have been compiled using the impact assessment and mitigation measures documented in the BA Report. The management measures have been divided into those applicable during the decommissioning, phase.

### 8.1 Objectives of the Specific Environmental Measures

**Table 8-1** details the objectives of the specific management activities associated with the proposed incinerator project.

**Table 8-1: Objectives of Environmental Measures.**

| ACTIVITY  | OBJECTIVE  |
|---|--|
| <b>Decommissioning of the defunct incinerator</b> | <ul style="list-style-type: none"> <li>Ensure that all necessary legal obligations, including those of the Occupational Health and Safety Act and contractual conditions have been met prior to the decommissioning commencement; and</li> <li>Ensure that all role players and stakeholders are aware of the pending decommissioning activities and have received timeous notice.</li> </ul>  |
| <b>Site Establishment and Demarcation</b>         | <p><b>Project Area</b></p> <ul style="list-style-type: none"> <li>Ensure proper demarcation of the project area prior to construction;</li> <li>Servicing vehicles (not allowed on site but proper maintained vehicles required)</li> <li>Prevention of pollution of the environment; and</li> <li>Minimise chances of breaching the pollution control measures.</li> </ul> <p><b>Sanitation</b></p> <ul style="list-style-type: none"> <li>Ensure that proper sanitation is allocated (utilise existing ablutions within the plant).</li> </ul> |
| <b>Water Management</b>                           | <p><b>Stormwater Management</b></p> <ul style="list-style-type: none"> <li>Effectively control storm water runoff to ensure that impacts to surface water resources and erosion is prevented;</li> </ul>   |
| <b>Hazardous Substance Spills</b>                 | <ul style="list-style-type: none"> <li>To ensure that hydrocarbon spills from plant and equipment occurring during the decommissioning phase are suitably managed to reduce potential impacts on the environment.</li> </ul>   |
| <b>Delivery of Materials/Equipment</b>            | <ul style="list-style-type: none"> <li>To ensure that all equipment responsible for delivering materials to site operate in an environmentally friendly manner whilst on site; and</li> <li>To ensure that the activities related to material deliveries do not create any unnecessary impacts on the environment.</li> </ul>  |
| <b>Waste Management</b>                           | <ul style="list-style-type: none"> <li>To keep the construction site neat and clean;</li> <li>Disposal of rubble and refuse in an appropriate manner;</li> <li>Prevent litigation; and</li> <li>Minimise neighbour complaints.</li> </ul>  |
| <b>Fire Prevention</b>                            | <ul style="list-style-type: none"> <li>Fire risk avoidance</li> </ul>  |
| <b>Designated Storage Areas</b>                   | <ul style="list-style-type: none"> <li>To ensure that dangerous goods, hazardous materials and waste are properly stored to avoid accidents, spillage and impacts to the environment.</li> </ul>   |



| ACTIVITY                           | OBJECTIVE   |
|------------------------------------|---|
| <b>Interaction with Landowners</b> | <ul style="list-style-type: none"> <li>• No damage to private property; and</li> <li>• Maintain good relations with neighbouring landowners.</li> </ul>   |
| <b>Noise / Working Hours</b>       | <ul style="list-style-type: none"> <li>• To ensure that noise is managed in such a way so that no legitimate complaints are received.</li> </ul>  |
| <b>Infrastructure</b>              | <ul style="list-style-type: none"> <li>• Ensure that existing infrastructure is taken into account during planning and project execution to eliminate impacts to existing infrastructure.</li> </ul>  |
| <b>Safety</b>                      | <ul style="list-style-type: none"> <li>• Ensure the safety of personnel on site by ensuring adequate safety training and the use of Personal Protective Equipment (PPE) at all times; and</li> <li>• Ensure that any construction areas are clearly demarcated to avoid injury.</li> <li>• Contractors SHEQ specifications to be discussed with Principal Contractor during the engagement process</li> </ul> |

## 8.2 Management Measures

**Table 8-2** indicates the planning measures to be undertaken prior to and during the proposed decommissioning. **Table 8-3** details the specific management activities associated with the decommissioning phase of the defunct incinerator.

*Please Note: Lonmin PMR will be held accountable for the implementation of all of the management measures below.*



**Table 8-2: Planning Phase Management Measures.**

| MITIGATION: ACTION / CONTROL   | Duration   | Frequency  | Responsibility    |
|--|--|--|-------------------|
| <b>Authorisations</b>  |  |  |                   |
| The EMPr must be seen as a dynamic document. However, any changes to the EMPr, which are environmentally defensible, must be submitted to the authorities for acceptance before such changes may be effected.  | Throughout Project                                   | When necessary   | ECO<br>PM         |
| A copy of the Waste License and other relevant permits and licences must be kept at Lonmin PMR plant site. The EA and EMPr must be produced to any authorised government official who requests to inspect them and must be made available for inspection by any employee or agent of the holder of the authorisation who works or undertakes work at the property. | Throughout Project                                   | Throughout with monthly inspection by ECO                          | ECO<br>PM<br>SMM  |
| No work shall commence until permission is granted from the Lonmin PMR ECO and approval of this EMPr from the authorities has been obtained.   | Prior to commencement                                | Once-off   | ECO<br>PM         |
| A signed agreement statement must be obtained from the contractor indicating their willingness to comply with the EMPr.  | Prior to commencement                                | Once-off   | CM<br>PM          |
| <b>Labour Issues</b>   |  |  |                   |
| The SMM shall ensure the contractor maintain the following on site:<br><ul style="list-style-type: none"> <li>• A daily site diary;</li> <li>• A non-conformance register; and</li> <li>• A public complaints register.</li> </ul>   | Throughout<br>Decommissioning                        | Daily with monthly inspection by ECO                               | SMM<br>CM<br>ECO  |
| Ensure proper supervision of employees at all times.   | Throughout Project                                   | Throughout Project   | SMM<br>CM         |
| <b>Waste Preparation</b>   |  |  |                   |
| Decontaminate any infrastructure to be demolished prior to demolition , such as draining and removal of lubricating oils, etc.   | Prior to commencement                                |  |                   |
| A current waste contractor, or if required, a new waste contractor, must be appointed to manage the removal and disposal of solid waste – both domestic and hazardous waste during the decommissioning phase.  | Prior to commencement and throughout decommissioning | Weekly with monthly inspection by EH&S                             | CM<br>EH&S        |
| Ensure that suitable spill kits and absorption materials are purchased prior to commencement with decommissioning and stored suitably in places where there is a high risk of hazardous spills occurring.  | Throughout Project                                   | Additional absorption materials to be purchased as and when needed | SMM<br>CM<br>EH&S |
| Existing PMR ablutions to be utilised.   | Throughout Project                                   | Throughout   | SMM<br>CM<br>ECO  |
| <b>Health and Safety Preparation</b>   |  |  |                   |
| A health and safety induction and Lonmin PMR medical must be prepared and must be undertaken prior to commencing decommissioning.  | Prior to commencement and throughout decommissioning | Annually   | EH&S              |
| The contractor must adhere to the Lonmin PMR Emergency Management Procedure and Risk Assessments protocols. The Risk Assessment will identify sources of fire and other hazards, and appropriate management measures to reduce the identified risk. The PM will be notified of such potential hazards.   | Prior to commencement of decommissioning             | Throughout   | CM<br>PM<br>EH&S  |
| <b>Decommissioning Site Planning</b>   |  |  |                   |
| The ECO must ensure all contractors and personnel working on the project are inducted on the contents of this EMPr.  | Prior to commencement                                | Once-off   | ECO               |

| MITIGATION: ACTION / CONTROL   | Duration              | Frequency  | Responsibility   |
|--|-----------------------|------------|------------------|
| The contractor must provide Lonmin PMR with the intended actions and programme for site establishment including the site layouts, demarcation for bunded areas for hazardous material storage, storm water management berms and access points for machinery and services. If the contractor does not require an on-site camp, this requirement falls away. | Prior to commencement | Once-off   | CM               |
| All site establishment components must be positioned to minimise the area to be disturbed.   | Throughout Project    | Throughout | SMM<br>CM<br>ECO |
| Storm water berms or channels must be established to ensure clean and dirty water separation on the decommissioning area.  | Prior to commencement | Once-off   | SMM<br>CM<br>ECO |
| <b>Contractor's Yards Establishment</b>  |                       |            |                  |
| The contractor's yards may only be established within the Lonmin PMR site at a location indicated on the site plan and approved by Lonmin PMR SM.  | Prior to commencement | Once-off   | SM<br>CM<br>ECO  |
| All dirty runoff from the dirty areas within the contractor's yard and decommissioning area must be diverted to the existing plant's dirty water containment facilities and treated before disposal as per the current procedure and licences.   | Throughout Project    | Throughout | SMM<br>CM<br>ECO |

**Table 8-3: Decommissioning Phase Management Measures.**

| <b>MITIGATION: ACTION / CONTROL</b>  | <b>Duration</b>            | <b>Frequency</b>  | <b>Responsibility</b>    |
|--|----------------------------|-------------------|--------------------------|
| <b>Safety &amp; Security</b>   |                            |                   |                          |
| All personnel must undergo a medical, induction and security clearance prior to the actual on-site decommissioning work commencing.  | Prior to commencement      | Once-off          | EH&S                     |
| All equipment used on site may only be operated by appropriately trained and / or licensed workers. PPE and safety gear appropriate to the task being undertaken is to be provided to all site personnel (e.g. hard hats, safety boots, reflective vests, masks, etc.). All people working on the project must operate in compliance with all safety measures as laid out in the Occupational Health and Safety Act (Act No. 85 of 1993) (OHSA) and its regulations. All equipment must be signed off as safe for use. | Throughout decommissioning | Throughout        | EH&S<br>SMM<br>CM        |
| Decommissioning area will be clearly demarcated at all times.  | Throughout decommissioning | Throughout        | EH&S<br>SMM<br>CM<br>PM  |
| <b>Waste</b>   |                            |                   |                          |
| The SHE induction training must address the use and management of sanitation facilities (chemical portable toilets or ablutions) and general site management.  | Prior to commencement      | Once-off          | ECO                      |
| Littering is not permitted and all solid waste and rubble must be collected in separate, demarcated skips or bins. Existing containment facilities will be utilised for disposal of wastes according to the existing Lonmin PMR waste management procedures. Skips or bins must be clearly marked to indicate the type of waste to be disposed in them.  | Throughout decommissioning | Daily             | ECO<br>SMM<br>CM         |
| All vehicles and machinery to be used during decommissioning must be properly maintained to prevent hydrocarbon leaks and spillages. Vehicles and machinery will not be serviced on site. The service area will be bunded and drip trays must be used. Spill-sorb or a similar product will be kept on site and used to clean up hydrocarbon spills in the event that they should occur. Vehicles and equipment must be checked prior to usage for leakages, safety issues, etc.                                       | Throughout decommissioning | Before being used | ECO<br>EH&S<br>SMM<br>CM |
| All waste removed from the site must be disposed off at a designated licensed waste facility. The quantities of waste must be recorded. If any waste can be recycled, the recycling must also undertaken by a licensed facility.   | Throughout decommissioning | Daily             | ECO<br>SMM<br>CM         |
| <b>Noise</b>   |                            |                   |                          |
| Site workers shall undergo site induction training to address correct conduct and keeping noise levels minimal.  | Prior to commencement      | Once-off          | ECO                      |
| Equipment and machinery must be maintained and operational hours must be controlled. As per the Ekurhuleni Metro requirements, work shall only be allowed between 8h and 17h on weekdays and with no work allowed on a weekends or public holiday  | Throughout decommissioning | Daily             | ECO<br>SMM<br>CM         |
| <b>Surface Water</b>   |                            |                   |                          |
| Surface water quality monitoring as per the monitoring programme must be undertaken at the surface water monitoring points in the existing water monitoring programme, during decommissioning.   | Throughout decommissioning | As required       | ECO                      |
| <b>Landowners</b>  |                            |                   |                          |
| Stakeholders must be consulted about the proposed activities and any potential resultant disturbance.  | Throughout decommissioning | When necessary    | ECO<br>PM                |
| <b>Security</b>  |                            |                   |                          |

| MITIGATION: ACTION / CONTROL   | Duration                   | Frequency  | Responsibility   |
|--|----------------------------|------------|------------------|
| Access to be controlled by Lonmin security and only employees of the appointed contractor to be allowed on site. Any day workers required will be interviewed/appointed/collected from the appointed contractors premises and not adjacent to the PMR. | Throughout decommissioning | Throughout | ECO<br>SMM<br>CM |

## **9. GENERAL REQUIREMENTS DURING THE PROPOSED DECOMMISSIONING PROJECT**

The following general requirements will apply during the decommissioning phase:

- Proper and continuous liaison between Lonmin PMR, the contractors and stakeholders to ensure everyone is informed when necessary;
- Where applicable, the adjacent landowners will be informed of the starting date of decommissioning, as well as the phases in which the decommissioning shall take place;
- The Contractor must adhere to all conditions of contract, including the EMPr and EA;
- All infrastructure shall be protected against damage at all times and any damage shall be rectified immediately;
- Proper decommissioning management and regular monitoring of site works;
- Proper documentation and record keeping of all complaints and actions taken;
- Regular site inspections and good control over the decommissioning process throughout the decommissioning period;
- Appointment of relevant personnel to implement this EMPr as well as deal with all stakeholder related matters; and
- Internal Environmental Audits to be carried out weekly during decommissioning. Routine inspections to be done on site.
- Ensure that the periodic site audits and document verification are conducted at intervals mutually agreed upon between the principal contractor and any contractor, but at least once every 30 days based on the Construction Regulation 7 (c) (vii)

## **10. SITE DOCUMENTATION**

Lonmin PMR site documentation shall be used to keep records on site and all non-compliances to the EMPr and EA will be reported within 48 hours to the relevant authorities. All documents shall be kept on site and be available for monitoring and auditing purposes. An Environmental Audit Team may require access to this documentation for auditing purposes when site visits are conducted. The documentation shall be signed by all parties to ensure that such documents are legitimate. Please refer to the table below for an example of typical site documentation.

Regular monitoring of all site works by the SMM, ECO and CM is imperative to ensure that any problems encountered are resolved punctually and amicably. When the SMM is unavailable, the PM / ECO shall be kept up-to-date by the CM on all works to ensure no problems arise. The following checklist may be used as an environmental performance monitoring tool.



| Person responsible for this decommissioning or construction is:  |                         |   |
|--|-------------------------|---|
| Name:  |                         |   |
| Designation:   |                         |   |
| Reporting of environmental performance, problems and priorities are as follows:  |                         |   |
|  |                         |   |
|  |                         |   |
| The following negative environmental impacts have been identified at the site:   |                         |   |
| Environmental Problem  | Location                |   |
|  |                         |   |
|  |                         |   |
|  |                         |   |
| In order to solve (mitigate) the above identified negative environmental impacts, the following plan of action is to be implemented: |                         |   |
| Problem  | Solution                | Date to be completed  |
|  |                         |   |
|  |                         |   |
|  |                         |   |
| Person responsible for environmental monitoring (follow-up) is:  |                         |   |
| Name:  |                         |   |
| Designation:   |                         |   |
| Monitoring Date:   |                         |   |
| Monitoring (follow-up) plan of implemented remedial action:  |                         |   |
| Problem  | Solution as implemented | Has the solution worked, if not, what actions are still to be taken |
|  |                         |   |
|  |                         |   |
|  |                         |   |
|  |                         |   |

## 11. MONITORING PROGRAMME

The monitoring programme allows for baseline monitoring prior to and during decommissioning. The objective of the monitoring programme is to ensure that the environmental management systems perform according to specifications, to act as an early warning system for pollution, to check compliance with licence requirements and for reporting purposes.

The development of the monitoring programme and review of monitoring plans are amongst others outlined in the Lonmin PMR ISO 14001 system and the procedures, and forms the basis for undertaking the monitoring and measurement. Due to the undertaking of the decommissioning activities whilst current operations are continuing, it is recommended that the monitoring required during the decommissioning phase be conducted simultaneously.



## 11.1 Baseline monitoring

### 11.1.1 Surface water quality baseline

The existing surface water baseline as outlined in the surface water report by Geo Pollution Technologies will be sufficient for the establishment of the surface water baseline for the proposed project.

## 11.2 Surface Water Monitoring

### 11.2.1 Objectives

The objectives of the surface water-monitoring programme are to:

- Ensure that the water management systems perform according to the stipulated management measures in the EMPr;
- Act as an early warning system for elevated measurements of any of the parameters; and
- Ensure compliance with EA conditions.

### 11.2.2 Sampling

In order for the monitoring programme to be effectively implemented, it is necessary to gather surface water data related to the environment associated with the proposed project. It is imperative that the correct sampling is performed at the correct sampling points and at the right intervals. Sampling of the surface water resources is the direct responsibility of Lonmin PMR.

### 11.2.3 Sampling points

Water quality should be measured at the same monitoring points currently utilised by the PMR.

### 11.2.4 Sampling frequency and analysis

The frequency of sampling is as per the current monitoring plan. The samples will be analysed and compared with the SANS 241 Drinking Water standards. All samples to be analysed by an accredited laboratory.

### 11.2.5 Data Management and Reporting

All information obtained during the sampling and analyses of the surface water samples will be kept on record by Lonmin PMR.

#### 11.2.5.1. Monthly

The monthly report is an internal report, which is used to keep records of changing water qualities at the site. The report will include:

- Sites that are sampled.
- Water qualities for the relevant constituents.
- The potable water intake must also be measured.

- Total volume of water pumped to the municipal sewer.
- Highlight significant issues that require immediate corrective/ preventative action.

## **12. PERFORMANCE ASSESSMENT**

Lonmin PMR strives for legal compliance, which entails continuous monitoring and auditing of environmental legal requirements. Biennial legal compliance audits are conducted by an external legal specialist. The scope of these audits includes all environmental authorisations and relevant EMP's. Once the decommissioning project has been completed, the requirements of this EMP are no longer valid and can be removed from the performance assessment.

## **13. ENVIRONMENTAL AWARENESS PLAN**

### **13.1 Objectives**

The objectives of an Environmental Awareness Plan are to:

- Inform employees and contractors of any environmental risks, which may result from their work;
- Inform employees and contractors of the manner in which the identified possible risks must be dealt with in order to prevent degradation of the environment; and
- Optimise the awareness of those involved in the incinerator decommissioning activities which have the potential to impact negatively on the environment (e.g. oil leaks or spillages from equipment), and in doing so, promote the global goal of sustainable development.

### **13.2 Implementation**

Environmental principles regarding the decommissioning of the defunct incinerator will be communicated to the contractor and their team (if decommissioning will be undertaken by an external party), and any newly appointed employees and visitors entering the decommissioning area to conduct work. The environmental awareness plan will be communicated in terms of the existing Lonmin PMR Communication Procedure (see **Appendix C**).

### **13.3 Content of environmental awareness plan**

Key elements of the environmental awareness plan that will be presented at inductions include:

- Lonmin PMR's vision and policy;
- An explanation of sustainability;
- Surface and groundwater management;
- Energy conservation;
- Waste management;
- The community and interested and affected parties;
- Reporting incidents; and
- Employee responsibilities.



It should be noted that Lonmin PMR has a number of SHEQ Procedures, which covers the listed elements to be communicated to all parties during decommissioning.

#### **14. EMERGENCY RESPONSE PLAN**

The current Lonmin PMR emergency response plan contained in **Appendix C** will remain relevant during decommissioning should any activity, not covered by this plan, be conducted by the contractor it will be the contractor's responsibility as part of his method statement to include an emergency response for that particular activity.

#### **15. CONCLUSION**

The successful implementation of this EMPr and its management actions will ensure that compliance with the environmental legislative requirements are achieved and that the likelihood of impacts occurring is reduced sufficiently. This EMPr also outlines the required environmental awareness training of employees, supervisors, contractors and visitors, which will ensure that management of the environment will occur through cooperation. The success of this EMPr and overall sustainability of the project will further increase as a result of the defined organisational and administrative arrangements for environmental management and monitoring of the proposed project as well as procedures for environmental control, in the event of pollution (spillage) or similar events requiring action.





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**LONMIN WESTERN PLATINUM PRECIOUS METALS REFINERY**  
DECOMMISSIONING OF A NON-OPERATIONAL GENERAL WASTE INCINERATOR  
BASIC ASSESSMENT

FINAL ENVIRONMENTAL MANAGEMENT PROGRAM

REPORT NO: JW057/18/G316-Rev2

## Appendix A

### WML

#### **APPENDIX A - Table of Contents**

A.1 Waste Management License (Once received)



**LONMIN WESTERN PLATINUM PRECIOUS METALS REFINERY**  
DECOMMISSIONING OF A NON-OPERATIONAL GENERAL WASTE INCINERATOR  
BASIC ASSESSMENT

FINAL ENVIRONMENTAL MANAGEMENT PROGRAM

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## Appendix B

### **LONMIN PMR STANDARD OPERATING PROCEDURES AND STORM WATER MANAGEMENT PLAN**

- C.1 Standard Operating Procedures
- C.2 Training material example
- C.3 StormwWater Management Plan



