HERNIC FERROCHROME (PTY) LTD

MORULA OPERATIONS: WASTE MANAGEMENT LICENSE APPLICATION

BACKGROUND INFORMATION DOCUMENT

APRIL 2014

INTRODUCTION

Hernic Ferrochrome (Pty) Ltd (Hernic) owns and operates Morula Chrome Mine and Ferrochrome Plant (Morula Operation) (previously known as Hernic Maroelabult Chrome Mine).

The Morula Operation is located on the farms De Kroon 444 JQ and Elandsfontein 440 JQ, to the south of the town of Brits (refer to Figure 1 for a locality map). The operation falls within the Madibeng Local Municipality and Bojanala Platinum District Municipality in the North West Province. The Morula Operation has been approved by the Department of Mineral Resources (DMR) and the Department of Economic Development, Environment and Tourism (DEDECT) of the North West Province where relevant.

As per the above-mentioned approvals, the Morula Operation has been undertaking a waste-related activity within its mining right area since 1998. Due to the proclamation of the list of waste management activities in terms of Government Notice 718 of 2009 of the Environmental Management: Waste Act No. 59 of 2008 (NEM-WA), this existing waste activity now requires a waste management license. The Morula Operation is therefore applying for a waste management license for the following activity:

- The recycling and reuse of hazardous waste (slag) in excess of 1 ton per day.

PURPOSE OF THIS DOCUMENT

This document has been prepared by SLR Consulting (Africa) (Pty) Ltd (SLR) to inform you about:

* The proposed project
* To provide information on the baseline environment
* The environmental assessment process to be followed
* Possible environmental impacts
* How you can have input into the environmental authorisation process.

ENVIRONMENTAL AUTHORISATION PROCESS

In order for a waste management license to be issued, an environmental assessment is required. The assessment will be conducted in terms of the National Environmental Management Act No. 107 of 1998 (NEMA) and NEM-WA. Both laws apply because the above-mentioned waste activity at Morula Operations incorporates a listed activity in terms of Category B of the NEM-WA.

The NEM-WA process requires an application phase, scoping phase, and an environmental impact assessment and environmental management programme (EIA and EMP) phase as set out the Environmental Impact Assessment Regulations made under section 24(5) of NEMA.

SLR, an independent firm of environmental consultants, has been appointed by Hernic to manage the environmental assessment process for Morula Operations.

PROJECT MOTIVATION

The recycling and reuse of waste at the operation serves as part of waste minimisation strategy at the mine.

YOUR ROLE

You have been identified as an interested and affected party (IAP) who may want to be informed about the proposed project and have input into the environmental process and reports. You will be given the opportunity to provide input at public meetings, and also to review and comment on the following reports:

* Scoping Report
* EIA/EMP Report

All comments will be recorded and included in the application to the relevant department for decision-making.

HOW TO RESPOND

Responses to this document can be submitted by means of the attached comments sheet and/or through communication with the person listed below.

WHO TO CONTACT

Stella Moeketse on
(011) 467 0945 (Tel) or (011) 467 0978 (Fax) or
E-mail: smoeketse@slrconsulting.com

DEA Ref No.: 12/9/11/L1419/1

Please ensure that all reference numbers are included on all correspondence.

The closing date for comments is **Friday 16 May 2014**

Figure 1: Locality Map

PROJECT OVERVIEW – RE-CYCLING AND REUSE OF SLAG AT MORULA OPERATIONS

The Morula Operation seeks a waste management license for the recycling of slag at the chrome recovery plant as well as for the various uses of slag at the operation.

At the chrome recovery plant, a mixture of slag from old dumps and freshly produced slag is crushed to recover ferrochrome metal from the slag. A minimum of 60 000t/month of slag is currently reprocessed and approximately 3000t/month of ferrochrome is recovered. Morula plans to upgrade the re-processing plant in order to allow the processing of 100 000t/month of slag and recovery of approximately 5000t/month of ferrochrome.

Slag is currently used as follows:

- Slag is placed on the existing dirt roads and parking areas to provide a dry road surface during the rainy season, and for dust minimisation
- Slag is used at the furnaces for slag runner preparation prior to tapping process
- Slag is sold to third parties for aggregate business.

The remainder of the slag is stored on site, with approximately 800 000 tonnes currently stored in slag dumps.

ENVIRONMENTAL AUTHORISATION PROCESS

The environmental process provides information on the project and environment in which it is being undertaken; identifies, in consultation with interested and/or affected parties (IAPs), the potential negative as well as positive impacts of the project; and reports on management measures required to mitigate impacts to an acceptable level. The likely process steps and timeframes are provided below. IAPs and other stakeholders registered on the project's database will receive notification of information-sharing meetings and report review periods in advance.

STEPS IN THE ASSESSMENT PROCESS
PHASE 1 – Initiation (March 2014)
• Submit application to the Department of Environmental Affairs (DEA)
PHASE II – Scoping (April- September 2014)
• Notify other regulatory authorities and IAPs of the waste management license *(via newspaper advertisements, this document and site notices)* • Regulatory authority meeting • Key stakeholder meetings • Compile the minutes of all the meetings held for the scoping phase • Compile scoping report and make it available for comment to DEA, other regulatory authorities and IAPs • Update and submit the final scoping report to the DEA.
PHASE III – EIA / EMP (May 2014- January 2015)
▪ Commission the specialist studies where required ▪ Assess impacts of the project and compile EIA/EMP report ▪ Address all comments from the scoping report public and authority review ▪ Make the draft EIA/EMP report available to DEA, other regulatory authorities and IAPs for review ▪ Update and submit the final EIA/EMP report to the DEA.
PHASE IV- EIA/EMP Decision Making (April 2015) **END**
▪ Circulate notification of record of decision to IAPs.

Parties involved in the environmental assessment process

IAPs

* Surrounding landowners, land users and communities
* Surrounding mines and industries
* Non-governmental organisations and associations

REGULATORY AUTHORITIES

* National Department of Environment Affairs (DEA)
* Department of Economic Development, Environment , Conservation and Tourism (DEDECT)
* Department of Mineral Resources (DMR)
* Department of Water Affairs (DWA)
* Department of Agriculture, Land Reform and Rural Development (DALRRD)
* Department of Roads and Public Works (DRPW)
* South Africa Heritage Resource Agency (SAHRA)
* North West Parks and Tourism

LOCAL AUTHORITIES

* Bojanala Platinum District Municipality
* Madibeng Local Municipality

Please let us know if there are any additional parties that should be involved.

STATUS OF THE EXISTING ENVIRONMENT

This section provides a basic description of the existing status of the environment.

Geology: the mine is situated within the western limb of the Bushveld Igneous Complex. The western limb extends for approximately 200 km along an arc from near Thabazimbi to near Pretoria. The mineral deposit on site is that of the middle group (MG) chromite seams. The Chrome Middle Group (MGO, MG1 and MG2) seams currently being exploited by the approved mining operations on site. The seams have an east-west strike. There are faults and dykes within the mine area.

Climate: the mine is located in the Highveld climatic zone; summer rain occurs mainly in the form of thunderstorms, the majority of rain falls between October and March. Winter is cool and dry. Rainfall in the area both on a monthly and annual basis greatly exceeds evaporation. Temperatures in the region tend to be warm to mild. The average maximum temperature is 25^{o}C and the average minimum temperature is 9^{o}C. The predominant wind direction in the Brits region is east, south-east and south.

Topography: the mine is situated in a region of gently undulating plains, approximately 6km north of Hartbeespoort dam. The average elevation of land in the area is about 1170 metres above mean sea level (mamsl). The topography is dominated by the Magaliesberg Mountain Range (MMR) to the south which peaks at approximately 1 490 mamsl.

Soils: the dominant soils on site are Arcadia. These soils are classified as black turf soils, which are sticky when wet and crack when dry . Soil fertility ranges from moderate to high levels of some of the nutrients required for good plant growth. The agricultural potential of the black turf soils is limited by their high clay content, which causes the soils to become difficult to till. The use of heavy agricultural machinery is limited by the stickiness of soils when they are wet during the rainy season. These limitations may be mitigated by the implementation of appropriate soil management practices, and therefore agricultural potential is generally regarded as being high.

Biodiversity: the vegetation around Brits is known as the Bankeveld, which is a type of open savanna vegetation. The dominant veld type is Veld Type 13b Norite Black Turfveld (Acocks 1975 as cited in Environmental Assurance, 2010) or Acacia Karoo Cymbopogan Veld (Irvine as cited in Environmental Assurance, 2010). This is an open savannah type of veld associated with turf soils such as Arcadia. The natural vegetation in the area has been disturbed by mining and cultivation, although some patches of relatively undisturbed veld occur in between the cultivated areas. The conservation status of the natural vegetation is considered to be moderate to low due to the fragmentation of habitats by agricultural development. No threatened plant species are expected to occur in the area.

Given the disturbed nature of the site from agricultural and mining activities, no large and/or significant mammals occur on site. Mammal biodiversity is therefore limited to the smaller mammals. Large reptiles are not common and no evidence of such was found on the site. Bird biodiversity is high with many sightings of small, medium and large specimens. No threatened animal species are expected to occur in the area.

The Magaliesberg Mountain Range is situated to the south of the site and is a protected nature area.

Surface water: There are no surface water resources within the mining area, however two non-perennial watercourses flow to the north and south of the site. These are tributaries of the Kareespruit, which at its closest point is 900 m from any mine infrastructure, and flows in a westerly direction towards Crocodile River. The Crocodile River flows from the Hartbeespoort dam in a north-westerly direction past the mining area about 2-4km to the west. There are no wetlands in the project area.

Natural drainage patterns in the area have been significantly altered by the construction of canals to supply farmers with water for irrigation. An irrigation canal system from Hartebeespoort Dam crosses to the north and west of the site. The Kareespruit, Crocodile River and Rooikoppies dam are sources of domestic and also for agricultural (livestock and irrigation) water use. Surface water in the area is generally of a good quality and fit for domestic use.

Groundwater: the main aquifers supplying groundwater in the area are a semi-confined aquifer within the weathered zone of norites and anorthosites and a deeper, confined aquifer system. The water quality is generally good with neutral to slightly alkaline pH. Groundwater in the project area is typically between 8.87 and 17.36 metres below ground level (mbgl). The dykes and faults in the area have a compartmentalising effect on water levels. Most of the boreholes are used for domestic and agricultural (irrigation) purposes. Groundwater flow is generally influenced by the topography in the area and therefore the flow is from the higher ground in the south to lower lying areas towards the north and north east of the project area.

Air Quality: the most significant sources of emissions located within the Rustenburg-Brits region include: stack, vent and fugitive emissions from industrial operations, stack emissions from boiler and incineration operations, fugitive emissions from quarrying and mining operations, fugitive dust emissions from tailings impoundments which are associated with Anglo, Impala and Lonmin mineral processing operations, vehicle tailpipe emissions, household fuel combustion (coal, wood), biomass burning, dust generated by agricultural activities, wind erosion of open areas, vehicle-entrainment of dust along paved and unpaved roads. Dust fallout concentrations within the mine generally fall within the South African National Standards (SANS) dust fallout guideline limit for industrial areas, however some exceedances are recorded from time to time.

Noise: current noise levels within the area are representative of a combination of rural and mining activities. Existing significant noise sources include: mining activities, mechanized farming activities (for example tractors), and vehicles driving on nearby tar roads (e.g. the R566 Rosslyn road, R511 road between Sandton and Brits and the N4).

Visual: the Magaliesberg is the dominant feature in the area however; the aesthetic quality of the project area has already been extensively transformed by existing mining and agricultural operations as well as residential developments in the area. Morula Mine is visible from the communities in the area and the road network connecting these communities. It is also visible to the general public that travel on the N4 between Pretoria and Rustenburg, people visiting parts of the Magaliesberg and people travelling on R511 road between Sandton and Brits.

Heritage: there are burial sites that are located to the west of the mining right area. However, no known heritage sites occur within the project area.

Socio economic structure/profile: As indicated previously, the Morula operation is within the Local Municipality of Madibeng (LMM) and the Bojanala Platinum District Municipality (BPDM) of the North West Province. Approximately 58% of the population at both the provincial and local municipality is of a working age between 19 and 65 years. The economically active population of Madibeng is estimated at 38.3% compared to the 35.4% of the North West Province.

The main contributors to employment in the province are construction, mining, wholesale retail and agriculture. The majority of the population in Madibeng is employed in elementary occupations and craft and related trades. Approximately 64% of residents reside in informal and backyard structures. Services such as water, sanitation and electricity are relatively good.

POTENTIAL ENVIRONMENTAL IMPACTS

This section outlines potential impacts associated with the above-mentioned activities. The slag recycling facility and the reuse of slag activities are already in existence as per the afore-mentioned approvals. The potential impacts therefore relate to existing activities, as well as the proposed upgrade to the re-processing plant.

Safety – the proposed upgrade of the re-processing plant presents potential safety risks for both people and animals.

Soil and land capability – the proposed upgrade of the re-processing plant has the potential to compromise soil resources through physical disturbance (erosion and compaction) and/or pollution. In addition, the current re-use of slag has the potential to pollute soils resources. Loss of soil resources has a direct impact on the natural capability of the land.

Surface water – the proposed upgrade of the re-processing plant has the potential to alter surface drainage patterns through the placement of infrastructure. The current re-processing of and re-use of slag has the potential to pollute surface water resources.

Groundwater – the proposed upgrade of the re-processing plant and the current re-use of slag has the potential to contaminate groundwater resources.

Air – the proposed upgrade of the re-processing plant and current re-use of slag has the potential to generate dust.

Noise – the current re-processing of slag and the proposed upgrade of the re-processing plant has the potential to generate noise.

Visual – the current re-processing of slag and the proposed upgrade of the re-processing plant has the potential to negatively impact on the visual landscape.

Heritage resources – the proposed upgrade of the re-processing plant has the potential to damage heritage resources if not well planned.

Socio-economic – the current re-processing of slag and the proposed upgrade of the re-processing plant has the potential to contribute towards positive and negative socio-economic impacts. Positive impacts include continued employment opportunities at Morula and stimulation of local and regional economy.

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REGISTRATION AND RESPONSE FORM FOR INTERESTED AND AFFECTED PARTIES

DATE		**TIME**	
PROJECT NUMBER: DEA Ref No.: 12/9/11/L1419/1			
PARTICULARS OF THE INTERESTED AND AFFECTED PARTY			
NAME			
POSTAL ADDRESS			
		POSTAL CODE	
STREET ADDRESS			
		POSTAL CODE	
WORK/ DAY TELEPHONE NUMBER		**WORK/ DAY FAX NUMBER**	
CELL PHONE NUMBER		**E-MAIL ADDRESS**	

PLEASE IDENTIFY YOUR INTEREST IN THE PROPOSED PROJECT
PLEASE WRITE YOUR COMMENTS AND QUESTIONS HERE

Please return completed forms to:

Stella Moeketse
SLR Consulting (Africa) (Pty) Ltd
(011) 467 0945 (Tel) and/or(011) 467 0978 (Fax)
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