# DWS Correspondence in terms of The Design Report

water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

K. Legge/K Mnisi
Tel: 012 336 8677/8944
Ref: 16/2/7/C231/B18/Y1/1

**ACTING CHIEF DIRECTOR: COMPLIANCE MONITORING**

For attention Director: Resource Protection and Waste and Ms W Moolman

**WASTE LICENCE APPLICATION: ENGINEERING SERVICES COMMENT: FERROMETALS SAMANCOR WITBANK CLOSURE SLIMES DAM AND STORMWATER**

## 1. Presentation

On Thursday 13 November 2014 at 08h00 the project background and detail were presented by JMA Consulting and REDCO under the auspices of Ms W Moolman.

## 2. Documentation

The following reports, drawings and correspondence were presented for consideration:
a) Samancor Ferrometals Rehabilitation of Historical Slimes Dams Design Report (Concept Designs), includes drawings, having reference IPC/100/01 dated August 2014.
b) Samancor Ferrometals Storm Water Management Plan Detail Designs Technical Report (including drawings) having reference JMA/10427 dated September 2014.
c) Copy of the Power Point presentation by Samancor.
d) Minutes of the meeting e-mailed by JMA Consulting (Pty) Ltd on 14 November 2014.

## 3. Consideration

The pre application is for the capping closure of 2 existing historic TSFs plus a 3rd partly remediated TSF whose remnants will be transported to the southern TSF for shaping the plateau. Furthermore 5 PCDs are to be considered being numbers 3, 5 and 6 for combinations of process and storm water and 2 and 4 for potentially polluted rain water run-off.

The proposed capping closure for the hazardous historic TSFs comprises a non infiltration composite liner of GM plus GCL, with a capillary break and drainage layer

between it and the waste of screened slag protected by an A4 GTon either side, and covered with 450mm soil cap. The side slopes are flattened to 1v:5h for maintainance and erosion resistance.

The polluted water PCDs are double composite liners of 150mm base prep/150mm CCL/2mm GM/A4 GT which may be omitted/cuspated drain/GCL/2mm GM/ballast soil layer which is a marginal amendment of the presented design in which the ballast was above the upper GCL.

The potentially polluted water PCDs 2 and 4 are a single composite liner of 1,5mm GM over a base preparation with GT protection of the GM from foundation protrusions at the discretion of the CQA Engineer. These two facilities provide containment although not equal to Class C but are not required to be.

**4. Recommendation**

It is recommended that the design is accepted with allowable amendment.

Keith Mnisi
Candidate Scientist: Engineering Geology
Date: 24/11/2014

**CHIEF DIRECTOR: ENGINEERING SERVICES**
Letter signed by KR Legge
Chief Engineer: Integrated Environmental Engineering
Date 2014/11/24

Attachment: List of Acronyms

DWA ENGINEERING SERVICES REVIEW OF LICENCE APPLICATIONS
Date: 13 November 2014
Time: 08h00

Subject (Project): Ferrometals Witbank Closure
Name of Company:

| Name | Company | Telephone | E-mail | Signature |
|---|---|---|---|---|
| Kelvin Legge | DWA/ES | 012 336 8677 | leggek@dwa.gov.za | |
| Claire Fricker | DWA/ES | 012 336 6656 | frickerc@dwa.gov.za | |
| Keith Mnisi | DWA/ES | 012 336 8944 | mnisikk@dwa.gov.za | |
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| Riaan Grobbelaar | JMA | 0136651788 | riaan@jmaconsult.co.za | |
| Pierre du Toit | Inprocon | 0129932423 | pierre@inprocon.co.za | |
| Prenisha Chetty | Samancor Chrome Ferrometals | 013 693 7438 | prenisha.chetty@samancorcr.com | |
| DP vd MERWE | REDCO | 0829031428 | dpv@redcoservices.co.za | |
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# APPENDIX 2.2

## EXISTING ENVIRONMENTAL AUTHORIZATIONS

**ECA Section 20 Permit (12/9/11/P106)**

*Issued on 30 June 2009*

environment & tourism
Department:
Environmental Affairs and Tourism
REPUBLIC OF SOUTH AFRICA
Private Bag X 447· PRETORIA · 0001· Fedsure Building · 315 Pretorius Street · PRETORIA
Tel (+ 27 12) 310 3911 · Fax (+ 2712) 322 2682

**Ref: 12/9/11/P106**

**Enquiries**: Ms K. Ntoampe

**Tel**. 012 310 3920 **Fax:** 12 310 3753 **Email Address**: kntoampe@deat.gov.zA

Samancor Chrome Ferromentals
Private Bag X 7228
Witbank
1035

**Fax: 013 249 4405**

Dear permit holder

Please find hereto attached a permit issued in terms of S.20 of the ECA (act 73 of 1989) as amended.
The Department hereby notifies you that future permit amendment applications should be addressed to:

The Director: Authorisations and Waste Disposal Management
Department of Environmental Affairs
Private Bag X447
Pretoria
0001

This is also to advise you that applications for authorization of permit amendment, exemptions, waste delisting, emergency and or once off authorizations will be processed only if the Department of Water and Environmental Affairs is in receipt of the latest external audit report, annexure III of the permit or any other documents specified in the permit/ authorisation that needs to be submitted to the Department annually or at frequencies stipulated in the permit.

Furthermore, please note that the **minimum** time for processing any application regardless of details required is four and half months. You are therefore advised to apply well in advance.

Yours Sincerely

**Ms Nosipho Ngcaba**
**Director-General**
**Department of Environmental Affairs**
**Letter signed by Ms K Ntoampe**
**Designation: Director: Authorisations and Waste Disposal Management**
**Date:** 30 JUNE 2009

environment & tourism
Department:
Environmental Affairs and Tourism
REPUBLIC OF SOUTH AFRICA

Private Bag X447, Pretoria, 0001 • Fedsure Building, 315 Pretorius Street, Pretoria, 0002. Tel: (+27 12) 310 3911 Fax: (+27 12) 322 2682

**Ref.** 12/9/11/106
**Enquiries:** Kelello Ntoampe
**Tel:** (012) 310-3920 **Fax:** (012) 320-3753 **Email:** kntoampe@deat.gov.za
www.deat.gov.za

| | |
|---|---|
| **PERMIT NUMBER:** | 12/9/11/P106 |
| **CLASS:** | H:H |
| **WASTE DISPOSAL SITE:** | SAMANCOR FERROMETALS SLAG SITE |
| **LOCATION:** | PORTION 9, 12 AND 27 OF THE FARM DRIEFONTEIN 297 JS, AT FERROMETALS WITBANK, MPUMALANGA PROVINCE |
| **PERMIT HOLDER:** | SAMANCOR CHROME-FERROMETALS |
| **ADDRESS:** | P/ BAG X 7228, WITBANK, 1035 |

# PERMIT IN TERMS OF SECTION 20 OF THE ENVIRONMENT CONSERVATION ACT, 1989 (ACT NO. 73 OF 1989) AS AMENDED

I, Joanne Yawitch, in my capacity as Deputy Director-General: Environmental Quality Protection of the National Department of Environmental Affairs and Tourism (hereinafter referred to as "the Department"), in terms of section 20(1) of the Environment Conservation Act, 1989 (Act No. 73 of 1989) (as amended), hereby authorise the abovementioned permit holder to operate the abovementioned waste disposal site, subject to the conditions specified herein.

## PERMIT CONDITIONS

In this permit, "Director" means the Director: Authorisations and Waste Disposal Management of the National Department of Water and Environmental Affairs who may be contacted at the address below:

Director: Authorisations and Waste Disposal Management
Department of Water and Environmental Affairs
Private Bag X447
PRETORIA
0001

In this Permit, "Director: RPW" means the Director: Resource Protection and Waste of the National Department of Water and Environmental Affairs who may be contacted at the address below:

The Director: Resource Protection and Waste
Private Bag X313
PRETORIA
0001

## 1. SITE DETAILS

### 1.1 LOCATION

1.1.1 This permit authorises the operation of a waste disposal site on, Portion ,9,12 and 27 of the Farm Driefontein 297 JS, at Ferrometals Witbank, Emalahleni Local Municipality, Nkangala Magisterial District, Mpumalamga Province (hereinafter referred to as "the Site") according to the Samancor Chrome Slag Permitting of FMT Slag Dump, Ferrometals Permit Motivation Report compiled Kwezi V3 Engineers, dated September 2007 (hereinafter referred to as "the Report") and the Environmental Impact Assessment Record of Decision (RoD), issued by Mpumalanga Department of Agriculture and Land Administration with authorisation registration number: 17/2/1/25MP-5, dated 14 February 2008.

1.1.2 The location of the site must be according to the co-ordinates indicated on the permit application form, submitted by the permit holder which is defined as follows:

| NUMBER OF CORNER | LATITUDE X | LONGITUDE Y |
|---|---|---|
| 1 | 25° 50' 41.0" | 29° 10' 37.2" |
| 2 | 25° 51' 29.6" | 29° 10' 43.9" |
| 3 | 25° 51' 21.9" | 29° 10' 33.7" |
| 4 | 25° 51' 12.3" | 29° 10' 33.6" |
| 5 | 25° 50' 49.3" | 29° 10' 13.3" |
| 6 | 25° 50' 43.5" | 29° 10' 14.1" |

1.2 DOCUMENTS CONSIDERED

1.2.1 Samancor Chrome Slag Permitting of FMT slag dump, Ferrometals Permit Motivation Report, compiled by Kwezi V3 Engineers, dated September 2007.

1.2.2 Permit application form, dated 11 September 2007

"Hereafter referred as the report "

1.2.3 Environmental Authorisation issued by the Mpumalanga Department of Agriculture and Land Administration with authorisation registration number 17/2/1/25MP-5, dated 14 February 2008.

1.2.4 Record of Decision (RoD) issued by the Department of Water Affairs and Forestry, dated 07 May 2008.

1.3 SITE SECURITY AND ACCESS CONTROL

1.3.1 The permit holder must ensure effective access control on the site by having it fenced to a minimum height of 1.8 metres fence, with gates of the same height at all entrances, to reasonably prevent unauthorised entry.

1.3.2 The permit holder must ensure that all entrance gates are manned during the hours of operation and locked outside the hours of operation.

1.3.3 The permit holder must prevent the acceptance of waste not authorised at the site as per condition 3.1 below.

1.3.4 Notices prohibiting unauthorised persons from entering the disposal Site, as well as an internationally acceptable sign indicating the risks involved in unauthorised entry must be displayed at the gate and at practicable intervals along the boundary of the disposal Site.

1.3.5 Weatherproof, durable and legible notices in at least three official languages applicable in the area, shall be displayed at each entrance to the site. These notices shall prohibit unauthorised entry and state the hours of operation, the name, address and telephone number of the permit holder and the person responsible for the operation of the site

## 2. MANAGEMENT

### 2.1 GENERAL MANAGEMENT

2.1.1 The activities must be managed and operated:

a) in accordance with a documented environmental management system, and an updated site operating plan that inter alia identifies and minimises risks of pollution, including those arising from operations, accidents, incidents and non-conformances and those drawn to the attention of the permit holder as a result of complaints;

b) in accordance with the relevant minimum requirements (where applicable);

c) in accordance with an updated Environmental Management Plan drawn from Samancor Chrome Slag Permitting of FMT slag dump, Ferrometals Permit Motivation Report compiled by Kwezi V3 Engineers, dated September 2007.

d) in accordance with conditions of this permit;

e) in accordance with any other written instruction by the Director; and

f) by sufficient persons who are competent in respect of the responsibilities to be undertaken by them in connection with the operation of the activities.

2.1.3 Any persons having duties that are or may be affected by the matters set out in this permit must have convenient access to a copy of it, kept at or near the place where those duties are carried out.

### 2.2 EMERGENCY PREPAREDNESS PLAN

2.2.1 The Permit Holder must maintain and implement a documented emergency preparedness plan and review it annually and after each emergency and or major accident. The plan must, amongst others, include:

a) Vehicle/Machinery Fire & Malfunction
b) Landfill Site Fire
c) Spillage on route
d) Slope Failure
e) Natural disaster such as floods
f) Industrial action

## 3. PERMISSIBLE WASTE

3.1 Any portion of the Site, which has been constructed or developed according to condition 4, may be used for the disposal of ferrochrome slag.

3.2 Any other waste generated as part of the operation at Samanchor Ferrometals may be stored in leak proof containers and away from the rain for disposal at permitted waste disposal sites.

## 4. CONSTRUCTION

4.1 The site or any portion thereof may only be used for the disposal of permissible waste if the site or any such portion has been constructed or developed according to the conditions listed under condition 4 of this permit.

4.2 Construction at the site must carried out under the supervision of a registered professional engineer appointed by the permit holder according to the drawing numbers 221030PWO-D04-0 and 221030PWO-D05-1, dated June 2007 (Annexure V hereafter) and to ensure stability.

4.3 The Construction of the site must be carried out under the supervision of an Environmental Practitioner who should submit a declaration to the Director upon completion of each phase that all possible mitigation measures have been put in place and highlight likely deficiencies.

4.4 Waste deposition on areas where slag has been previously deposited may continue only to the nearest stable formation and height.

4.5 Waste deposition on areas where slag has been previously deposited may continue only on condition that there is no impact on the ground water.

4.6 Construction of the new disposal areas or cells must be in line with the 1998 DWAF minimum requirements design for high hazardous waste disposal sites.

4.7 A registered professional engineer must supervise construction and submit a certificate or alternatively a letter to the Director that the construction of the site, has been in accordance with recognised civil engineering practice and the plan number stipulated 4.2.

4.8 Works must be constructed and maintained on a continuous basis by the permit holder to divert and drain from the Site in a legal manner, all runoff water arising from land adjacent to the site, which could be expected as a result of the estimated maximum precipitation during a period of 24 hours with an average frequency of once in fifty years (50) (hereinafter referred to as the "estimated maximum precipitation"). Such works must, under the said rainfall event, maintain a freeboard of half a metre.

4.9 Works shall be constructed and maintained on a continuous basis by the permit holder to divert and drain from the working face of the site, all runoff water arising from the site, which could be expected as a result of the estimated maximum precipitation and to prevent such runoff water from coming into contact with leachate from the site. Such works shall, under the said rainfall event, maintain a freeboard of half a metre.

4.10 Runoff water referred to in condition 4.9 that does not comply with national water quality guidelines for the natural environment must be collected for treatment prior to disposal or channelled to sewer provided permission is granted by the relevant local municipality.

4.11 Permit Holder must ensure a generic 500 metres "buffer zone" around the foot print of the waste body as recommended in the Air Quality Impact Assessment Report compiled by Margot Saner & Associates (Pty) Ltd.

4.12 The permit holder shall make provision for sanitation facilities on site in line with the Occupational Health and Safety Act, 1993 (Act 85 of 1993).

## 5. GENERAL OPERATION AND IMPACT MANAGEMENT

### 5.1 OPERATION

5.1.1 Permit holder must ensure that records in terms of volume, source and the nature of all the wastes received and landfilled are maintained and reported as per Annexure III hereafter on an annual basis;

5.1.2 Permit holder must ensure that fugitive emissions of substances (excluding odour and noise) shall not cause pollution.

5.1.3 Permit holder must ensure that litter and mud arising from the activities shall not cause pollution.

5.1.4 Permit holder must ensure that all liquid wastes, whose emissions to water or land could cause pollution, shall be provided with secondary containment and or diverted to sewer only after receiving approval from the relevant municipality;

5.1.5 Permit holder must ensure that emissions from the activities shall be free from odour at levels likely to cause annoyance outside the site, as perceived by an authorised officer of the Department and interested and affected parties;

5.1.6 Permit holder must ensure that emissions from the activities shall be free from noise at levels likely to cause annoyance, harm or disturb the peace of interested and affected parties;

5.1.7 Permit holder must ensure that scavenging animals, scavenging birds and other pests shall not cause pollution.

5.2 IMPACT MANAGEMENT

5.2.1 Permit Holder must ensure that the site is operated in such a manner that nuisance conditions or health hazards, or the potential creation of nuisance conditions or health hazards, are prevented.

5.2.2 Permit Holder must ensure the health and safety of workers and employees on site, in terms of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993).

5.2.3 Waste deposited on the site may not be allowed to burn and fire prevention measures must be implemented to prevent fires on the site or extinguish fires which may occur; paying attention to blending with the natural environs of the area.

5.2.4 Suitable fencing and indigenous vegetation must be established around the site to effectively screen the site from nearby roads and residential areas.

5.2.5 All storm water runoff from the plant and disposal site must be collected into lined stormwater drains and be diverted to the pollution control dams for treatment and reuse in the process.

5.2.6 Uncontaminated runoff water must under no circumstances be used to dilute leachate emanating from the Site.

## 6. MONITORING

6.1 MONITORING METHODS AND PARAMETERS

6.1.1 Permit Holder must carry out all tests required in terms of this permit in accordance with methods prescribed by and obtainable from the South African Bureau of Standards (SABS), referred to in the Standards Act, 1982 (Act 30 of 1982).

6.1.2 The Permit Holder must put in place a monitoring and measurement plan that must amongst others include:

a) Ground water, Storm water and leachate quality monitoring;
b) Leak detection;
c) Air Space;
d) Tonnages and type of waste received, landfilled and transferred;
e) Noise assessment;
f) Air quality monitoring; and
g) Assessments of potential exposure to employees in terms of OHS Act.

6.2 WATER MONITORING

6.2.1 A monitoring borehole network for the site must be maintained by the permit holder accordingly and to the satisfaction of the Director and the Director: RPW so that unobstructed sampling, as required in terms of this permit, can be undertaken. The monitoring borehole network for the site must be according to the co-ordinates indicated in Annexure VI hereafter, submitted by the permit holder.

6.2.2 Permit Holder must install additional shallow and deep monitoring boreholes to monitor the shallow perched aquifer and deep weathered sandstone aquifer at the following locations:

a) Two boreholes along the southern end of the dump area.
b) One borehole along the western boundary of the dump site.
c) Two boreholes along the northern boundary of the dump site.
d) One borehole along the eastern boundary of the dump area near the current sport fields.

6.2.3 Monitoring boreholes must be equipped with lockable caps. The Department reserves the right to take water samples at any time and to analyse these samples or have them analysed.

6.2.4 Surface water monitoring must be performed within the first hour of rain in all storm water drains outlets that discharges to the natural environment.

6.2.5 Additional samples must be taken and analysed for the most common elements involved in ferrochrome processing (potential harmful elements like Hexavalent Chrome etc) at the following points:

a) The first sample must be outside any potential area of the Samancor Plant.
b) The second sample must be taken just before the water enters the Brug spruit Water treatment Plant.
c) The third sample must be taken at the point of exit at the Water Treatment Plant.

6.2.6 Quality and quantity of treated leachate must be monitored and there must be written approval from the Director: RPW before discharging into a water course.

6.2.7 Groundwater and surface water monitoring must be conducted for the water quality variables listed in Annexure II below.

6.2.8 Monitoring for treated leachate, including contaminated runoff water, which is discharged into sewer according to condition 4.10, must be conducted at the following locations:
a) at the point where the leachate exits the treatment facility; and or
b) at the point just before the point where the leachate enters the sewer network, according to requirements of condition 4.10 .

6.2.9 Permit Holder must conduct geohydrological investigation detailing historical water quality in the

area within six months in order to determine pollution emanating from the site and where there is evidence implement corrective action.

6.3 BACKGROUND MONITORING

6.3.1 Samples from the borehole as required above, where the groundwater in the borehole is at an expected higher hydraulic pressure level as the hydraulic pressure level of the groundwater under the site, must be considered as background monitoring. Background groundwater monitoring must be conducted for the water quality variables listed in Annexure I or Annexure II.

6.4 DETECTION MONITORING

6.4.1 Monitoring must be conducted bi-annually or such frequency as may be determined by the Director for the water quality variables listed in Annexure II (a and b).

6.5 INVESTIGATIVE MONITORING

6.5.1 If, in the opinion of the Director, a water quality variable listed under the detection monitoring programme, as referred to in condition 6.4, shows an increasing trend, the permit holder must initiate a monthly monitoring programme for the water quality variables listed in Annexure I.

6.6 AIR QUALITY AND DUST MONITORING

6.6.1 Permit Holder must install ambient air monitoring stations within 6 months of the date of this permit to monitor the following pollutants: metals chrome, manganese, cobalt, nickel and especially PM10 as part of air quality management plan to confirm that compliance with ambient air quality standards is achieved.

6.6.2 In the event that the outcome of the monitoring conducted in accordance with condition 6.6.1 above, indicates the concentration of the pollutants to be above the ambient air quality standards, the permit holder must submit an air quality and dust monitoring program to the Department for approval by the Director that must address the following aspects:

a) location of air quality and dust monitoring positions
b) on and off site monitoring of air quality variables including dust
c) a monitoring procedure for the effective and accurate monitoring of air quality on the site ;
d) frequency of monitoring ; and
e) post closure monitoring.

## 7. INVESTIGATIONS

7.1 If, in the opinion of the Director, environmental pollution, nuisances or health risks may be or is occurring on the Site, the Permit Holder must initiate an investigation into the cause of the problem or suspected problem.

7.2 If, in the opinion of the Director and Director: RPW, water pollution may be or is occurring the permit holder must initiate an investigation into the cause of the problem or suspected problem. Such investigation must include the monitoring of the water quality variables, at those monitoring points and such frequency as may be specified by Director.

7.3 Investigations carried out in terms of conditions 7.1 and 7.2 above must include the monitoring of the relevant environmental pollution, nuisance and health risk variables, at those monitoring points and such frequency to be determined in consultation with the Director.

7.4 Should the investigation carried out as per conditions 7.1 and 7.2 above reveal any unacceptable levels of pollution, the Permit Holder must submit mitigation measures to the satisfaction of the Director.

## 8. AUDITING

8.1 INTERNAL AUDITS

8.1.1 Internal audits must be conducted quarterly by the permit holder and on each audit occasion an official report must be compiled by the relevant auditor to report the findings of the audits, which must be made available to the external auditor specified in condition 8.2.1.

8.2 EXTERNAL AUDITS

8.2.1 Permit Holder must appoint an independent external auditor to audit the site annually and this auditor must compile an audit report documenting the findings of his audit, which must be submitted by the permit holder according to condition 10.9, below.

8.2.2 The audit report must:

a) specifically state whether conditions of this permit are adhered to;

b) include an interpretation of all available data and test results regarding the operation of the site and all its impacts on the environment;

c) Specify target dates for the implementation of the recommendations by the permit holder to achieve compliance;

d) contain recommendations regarding non-compliance or potential non-compliance and must specify target dates for the implementation of the recommendations by the permit holder and whether corrective action taken for the previous audit non conformities was adequate; and

e) show monitoring results graphically and conduct trend analysis.

8.3 DEPARTMENTAL AUDITS AND INSPECTIONS

8.3.1 The Department reserves the right to audit and/or inspect the site at any time and at such a frequency as the Director may decide, or to have the site audited or inspected.

8.3.2 Permit Holder must make any records or documentation available to the Director upon request, as well as any other information the Director may require.

8.3.3 The findings of these audits or inspections must be made available to the permit holder within 30 days of the end of the audit or inspection. Information from the audits must be treated in accordance with the Promotion of Access to Information Act, 2000 (Act 2 of 2000).

## 9. RECORDING

9.1 Permit Holder must keep records in terms of volume and reported as per Annexure III and submit this information to the Director and the Director: RPW on an annual basis.

9.2 All records required or resulting from activities required by this permit must:

(a) be legible;

(b) be made as soon as reasonably practicable and should form part of the external audit report;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible and are easily retrievable; and

(d) be retained in accordance with a documented procedures which is approved by the Department.

9.3 Permit Holder must record all borehole data and chemical analyses in the format attached as Annexure IV.

9.4 Records demonstrating compliance with condition 2.1.1 must be maintained.

## 10 REPORTING

10.1 Permit Holder must, within 24 hours notify the Director and the Director: RPW of the occurrence or detection of any incident on the Site, or incidental to the operation of the site, which has the potential to cause, or has caused pollution of the environment, health risks, nuisance conditions or water pollution.

10.2 Permit Holder must, within 14 days, or a shorter period of time, if specified by the Director and/or the Director: RPW, from the occurrence or detection of any incident referred to in condition 10.1, submit an action plan, which must include a detailed time schedule, and resource allocation signed off by top management, to the satisfaction of the Director and/or the Director: RPW of measures taken to –

a) correct the impact resulting from the incident;
b) prevent the incident from causing any further impact; and
c) prevent a recurrence of a similar incident.

10.3 In the event that measures have not been implemented within 21 days of the incident to address impacts caused by the incident referred to in condition 10.1, or measures which have been implemented are inadequate, the Director and/or the Director: RPW may implement the necessary measures at the cost and risk of the Permit Holder.

10.4 Permit Holder must keep an incident report and complaints register, which must be made available to external auditor, Departmental auditors for the purpose of audit.

10.5 The Department must be notified without delay in the case of the following:

a) any malfunction, breakdown or failure of equipment or techniques, accident or fugitive emission which has caused, is causing or may cause significant pollution;
b) the breach of this permit; and
c) any significant adverse environmental and health effects.

10.6 Prior written notification must be given to the Director of the following events and in the specified timescales:

a) as soon as practicable prior to the permanent cessation of any operational activities;
b) full or partial cessation of the operational activities for a period likely to exceed 3 months;
c) full or partial resumption of the operation of all or part of the activities after a cessation notified under (b) above; and
d) the professional engineer appointed by the permit holder in line with condition 4.2 must make a signed declaration that condition 4.2, above have been adhered to.

10.7 The Department must be notified within 7 days of any changes to the management of the site including the name of the incoming person together with evidence that such person has the required technical competence.

10.8 The Department must be notified within 14 days of the following changes:

a) Permit holder's trading name, registered name or registered office address;
b) Particular's of the permit holder's ultimate holding company (including details of an ultimate holding where a permit holder has become a subsidiary;
c) steps taken with a view to the permit holder, or any one of them, going into bankruptcy, entering into composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

10.9 Each external audit report referred to in condition 8.2 must be submitted to the Director within 30 days from the date on which the external auditor finalised the audit.

## 11. MONITORING COMMITTEE

11.1 Permit Holder must establish and take all reasonable steps to maintain and ensure the continued functioning of a Monitoring Committee for the normal operative lifetime of the site and for a period of at least two years after the closure of the site, or such longer period as may be determined by the Director.

11.2 The Monitoring Committee must formulate a terms of reference and code of conduct, according to the Minimum Requirements, Second Edition 1998 by DWAF.

11.3 The Monitoring Committee must be representative of relevant interested and affected persons as recommended in the Minimum Requirements and must have representatives elected by the local community.

11.4 The Monitoring Committee must meet at least twice a year and not later than 30 days after the external audit report specified in condition 8.2 has been submitted according to condition 10.9.

11.5 Permit Holder must keep minutes of all meetings of the Monitoring Committee and distribute these minutes to all members of the Monitoring Committee within 14 days after the meeting.

## 12. REHABILITATION AND CLOSURE OF THE SITE

### 12.1 CLOSURE OF THE SITE

12.1.1 Immediately following the cessation of operations with the intention to close the site, or any portion thereof, the surface of the site must be covered and the site must be maintained in such a way that:

a) the formation of pools due to rain is prevented;
b) free surface runoff of rain-water is ensured;
c) contamination of storm water is prevented;
d) no objects or material which may hamper the rehabilitation of the site are present; and
e) little or no erosion occurs, until the approved end use plan referred to in condition 12.3 below is completely implemented.

12.2.2 The permit holder shall remain responsible for the site, or any of its impacts on the environment, after operations on the site have ceased.

### 12.2 POST-CLOSURE MONITORING

12.2.1 Groundwater monitoring by the permit holder, in accordance with condition 6.3 or 6.4 above, must continue after closure of the Site and be maintained for a period of 30 years, or such lesser period as may be determined by the Director.

### 12.3 REHABILITATION PLAN

12.3.1 Permit Holder must rehabilitate the site and water pollution control dams or any portion thereof, in accordance with a closure report and the approved end use layout plan to be submitted for approval by the Director.

12.3.2 Permit Holder must ensure that the final rehabilitated slopes are covered by 450mm of natural clay and 300mm topsoil.

12.3.3 Permit Holder must ensure that once the site is rehabilitated, all storm water from the top of the site is controlled via control berms on the crests of the site to flow into the concrete water channels from where clean water will be released into the natural environment in consultation with the Director RPW

12.3.4 Permit Holder must ensure that the inspection and subsequent maintenance of the topsoil layer is undertaken after every thunderstorm to maintain the integrity of the capping system for all capped areas during operation and post closure of the site.

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## 13. LEASING AND ALIENATION OF THE SITE

13.1 Should the permit holder want to alienate or lease the site, he/she shall notify the Director in writing of such an intention at least 120 days prior to the said transaction.

13.2 Should the permit holder want to transfer holder-ship of this, he/she shall notify and obtain approval from the Director for such a transfer, at least 120 days prior to the said transfer.

13.3 Any subsequent permit holder shall be bound by the conditions of this permit.

## 14. GENERAL

14.1 This permit shall not be transferable unless such transfer is subject to condition 13.2.

14.2 This permit shall not be construed as exempting the permit holder from compliance with the provisions of the National and Provincial Legislation and any relevant Ordinance, Regulation, By-laws and relevant National Standards and norms.

14.3 Transgression of any condition of this permit could result in the validity of the permit being terminated by the Department.

14.4 This permit is valid for a period of twenty (20) years. The permit holder must initiate a permit review process five years from the date of this permit. However, any time before or after that date the Department may amended or withdraw this permit based on compliance to permit conditions, recommendations from audit reports and or changing legislation.

J. Yawitch

**Ms Joanne Yawitch**
**DEPUTY DIRECTOR- GENERAL**
**DATE:** 25/06/2009

## ANNEXURE I

## WATER QUALITY VARIABLES REQUIRED FOR BACKGROUND MONITORING AND INVESTIGATIVE MONITORING: CONDITIONS 6.3 and 6.5

Alkalinity (P.Alk)
Calcium (Ca)
Chromium (hexavalent) ($Cr^{6+}$)
Chromium (Total) (Cr)
Chemical oxygen demand (COD)
Cyanide (CN)
Mercury (Hg)
Lead (Pb)
Nitrate (as N) ($NO_3$-N)
Phenolic compounds (Phen)
Potassium (K)
Total dissolved solids (TDS)
Free & saline ammonia as N ($NH_4$-N)
Boron (B)
Magnesium (Mg)
Cadmium (Cd)
Chloride (Cl)
Fluoride (F)
pH
Sodium (Na)
Electrical conductivity (EC)
Sulphate ($SO_4$)

## ANNEXURE II

## WATER QUALITY VARIABLES REQUIRED FOR BACKGROUND MONITORING AND DETECTION MONITORING: CONDITIONS 6.3 AND 6.4

(a) Bi-annually for:

Alkalinity (P.Alk)
Chemical oxygen demand (COD)
pH
Total dissolved solids (TDS)
Chlorides (Cl)
Nitrate ($NO_3$-N)
Potassium (K)

(b) Annually for:

Electrical conductivity (EC)
Calcium (Ca)
Magnesium (Mg)
Sodium (Na)
Sulphate ($SO_4$)
Fluoride (F)

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## ANNEXURE III: INFORMATION TO BE SUBMITTED ON AN ANNUAL BASIS: CONDITION 5.1.1 & 9.1

NAME OF SITE: _____ DATE OF REPORT: _____(y/m/d)

1. **Registered owner(s) of property on which disposal site is situated:**

| | | |
|---|---|---|
| Name | Telephone | |
| Postal Address | Fax | |
| | Postal Code | |

2. **Operator in control of storage site:**

| | | | |
|---|---|---|---|
| **Name** | | Telephone | |
| Identity number | | Tel. After hours | |
| Educational Qualifications | | | |
| Other Relevant competencies: | | | |

3. **Indicate quantities of waste produced by the company as a whole:**

| Type of waste | Quantity ($m^3$ $annum^{-1}$) | reused, recycled, recovered, treated, or disposed |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| **TOTAL** | | |

**5. Attach Emergency preparedness & business Continuity plan for the current year.**

**6. Attach summarised water and air quality monitoring reports for the year.**

**7. Attach Risk assessment matrix for the site.**

I, the undersigned, declare that the information stated above and the risk assessment below is to my knowledge a true reflection of the status at the _____waste disposal site.

Signature: _____
Name: _____
Capacity: _____
Place: _____
Date_____

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## ANNEXURE IV

## FORM TO BE USED FOR CHEMICAL INFORMATION: CONDITION 9.3

| | | | | |
|---|---|---|---|---|
| Name of Site | | | | |
| Borehole/observation- point name/number | | | | |
| Sampling date (y-m-d ): | | Method: | Bail | |
| Sampling Time | | | Pump | |
| Time after start of pump: | h min | Depth of sample | | m |
| Date of analysis (y-m-d) | | Laboratory | | |

General chemistry

| Constituent | Unit | Required standard | Value | Constituent | Unit | Required standard | Value |
|---|---|---|---|---|---|---|---|
| pH | (-log[$H^+$]) | | | As (III) | (mg/l) | | |
| EC | (mS/m) | | | B | (mg/l) | | |
| TDS | (mg/l) | | | Cd | (mg/l) | | |
| Ca | (mg/l) | | | Free CN | (mg/l) | | |
| Mg | (mg/l) | | | Cr (Total) | (mg/l) | | |
| Na | (mg/l) | | | Cr (VI)I | (mg/l) | | |
| K | (mg/l) | | | Cu | (mg/l) | | |
| Alkalinity | (mg $CaCO_3$/l) | | | Mn | (mg/l) | | |
| Cl | (mg/l) | | | Pb | (mg/l) | | |
| SO4 | (mg/l) | | | Hg | (mg/l) | | |
| NO3-N | (mg/l) | | | S- | (mg/l) | | |
| F | (mg/l) | | | | | | |
| COD | (mg/l) | | | | | | |
| NH4-N | (mg/l) | | | | | | |
| Phenol | (mg/l) | | | | | | |
| PO4 | (mg/l) | | | | | | |
| TOX | (µg/l) | | | | | | |
| TOC | (mg/l) | | | | | | |
| Ba | (mg/l) | | | | | | |

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# H:H Permit – Samancor Ferrometals Slag Site

## ANNEXURE V: LAYOUT PLAN CONDITION: 4.2

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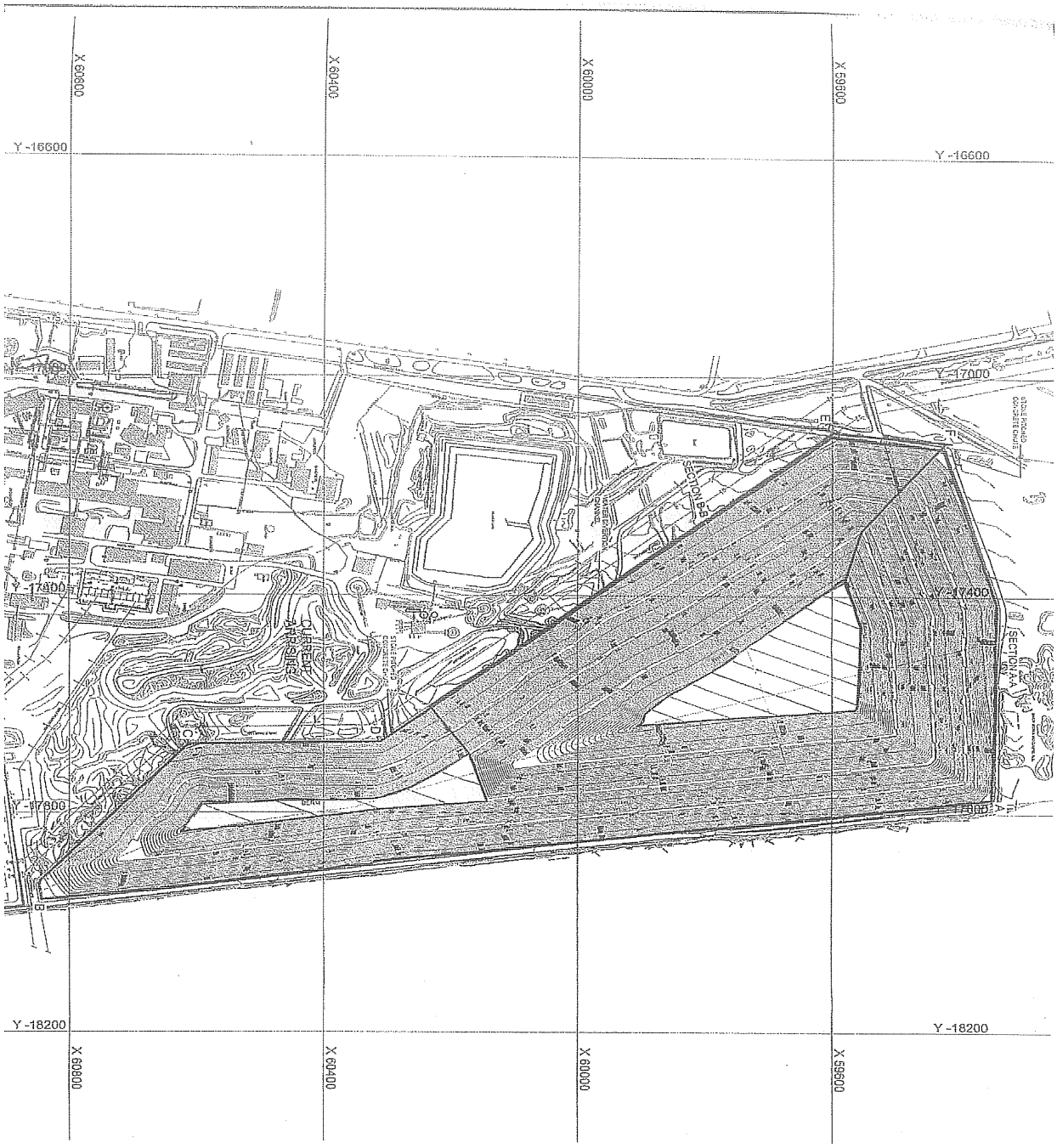
# H:H Permit – Samancor Ferrometals Slag Site



## ANNEXURE VI
## WATER MONITORING CO-ORDINATES: CONDITION 6.2.1

### EXISTING WATER MONITORING BOREHOLES

| Borehole Number | Latitude | Longitude | Borehole locality |
|---|---|---|---|
| FSS 6 | 25.84929 | 29.16974 | Downstream |
| FSD6 | 25.84934 | 29.16974 | Downstream |
| FSS 7 | 25.84639 | 29.17196 | Downstream |
| FSD7 | 25.84635 | 29.17194 | Downstream |
| FSS 8 | 25.84474 | 29.17649 | Upstream |
| FSD 8 | 25.84474 | 29.17655 | Upstream |
| FSS 10 | 25.85591 | 29.17377 | Downstream |
| FSD 10 | 25.85592 | 29.17383 | Downstream |
| FSS 23 | 25.84994 | 29.17167 | Downstream |
| FSD 23 | 25.84996 | 29.17172 | Downstream |
| FSS 24 | 25.84479 | 29.17361 | Downstream |
| FSD 24 | 25.84473 | 29.17362 | Downstream |
| FSD 25 | 25.84845 | 29.17732 | Upstream |
| FSD 25 | 25.8484 | 29.17734 | Upstream |
| FSS 26 | 25.8582 | 29.17646 | Upstream |
| FSD 26 | 25.85821 | 29.1765 | Upstream |

**Waste Management License Variation (12/9/11P106V1)**

*Issued on 09 March 2012*

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

Private Bag X447, PRETORIA, 0001 Fedsure Building, 315 Pretorius Street, PRETORIA

**Ref.:**12/9/11/P106/V1
**Enquiries:**Mr. Mpho Tshitangoni
**Tel:** (012) 310- 3380**Fax:** (012) 310-3753**Email:**mtshitangoni@environment.gov.za/
www.environment.gov.za

Samancor Chrome Ferrometals Slag Disposal Site
Postnet Suit 803
Private Bag X 9
**BENMORE**
2010

Fax:(011) 2451200

Attention: Ms Heather Booysen

**WASTE MANAGEMENT LICENCE VARIATION IN TERMS OF SECTION 54 (1)(e) OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, ACT NO. 59 OF 2008**

Your application for a waste management licence variationrefers,

Please note the reference number for this authorisation is 12/9/11/P106/V1. After careful consideration of your application, the Department amends your Licence as follows:

1. Condition 1.3.5
   This condition is not deleted and remain as is in your Licence (12/9/11/P106)

2. Condition 6.2.5 (b & c)
   Deleted

3. Condition 6.6
   Deleted

All other conditions in the existing Licence are still applicable and must be fully complied with.

Yours sincerely,

**Mr. Ishaam Abader**
**Deputy Director-General: Environmental Quality & Protection**
**Department Environmental Affairs**
**Date:** 19/3/2012

**Waste Management License (12/9/11/L670/6)**

*Issued on 14 November 2014*

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

Private Bag X447, Pretoria, 0001• Environment House, 473 Steve Biko Road, Pretoria, 0002.Tel: +27 12 399 9000, Fax: +27 86 625 1042

**File Reference.** 12/9/11/L670/6
**EDMS Reference:** WL138930
**Enquiries:** Mr Bonginkosi Dlamini
**Tel:** (012) 399 9778 **Fax:** (012) 359 3625 **Email:** brdlamini@environment.gov.za
www.environment.gov.za

| | | |
|---|---|---|
| **LICENCE NUMBER** | : | 12/9/11/L670/6 |
| **CLASS** | : | H:H (DECOMMISSIONING OF SLIMES DAM) |
| **WASTE MANAGEMENT FACILITY** | : | FERROMETALS SAMANCOR CHROME WASTE MANAGEMENT FACILITY |
| **LOCATION** | : | PORTION`S 9 & 12 OF THE FARM DRIEFONTEIN 297 JS, 1 MOSES KOTANE DRIVE, EMALAHLENI LOCAL MUNICIPALITY, MPUMALANGA PROVINCE |
| **LICENCE HOLDER** | : | FERROMETALS- A BUSINESS UNIT OF SAMONCOR CHROME LIMITED |
| **ADDRESS** | : | PRIVATE BAG X 7228, WITBANK, 1035 |
| **CONTACT PERSON** | : | MR BRIAN GIBSON |
| **CONTACT DETAILS** | : | TEL: 013 693 7206, FAX: 013 696 2800 |

## WASTE MANAGEMENT LICENCE IN TERMS OF SECTION 49(1)(a) OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO. 59 OF 2008)

In terms of National Environmental Management: Waste Act, 2008 (Act No.59 of 2008), the Deputy Director General: Chemicals and Waste Management, acting under delegation, hereby grants Ferrometals- A Business Unit of Samancor Chrome Division Limited, a Waste Management Licence for the following waste management activities as listed in Category A of Government Notice No 921 dated 29 November 2013:

**Category A**

(14) The decommissioning of a facility for a waste management activity listed in Category A or B of this schedule.

In this Licence, "Director" means the Director: Licensing of the National Department of Environmental Affairs who may be contacted at the address below:
Director: Licensing
Department of Environmental Affairs
Private Bag X 447
**PRETORIA**
0001

In this Licence, "Director: CMI" means the Director: Compliance and Monitoring of the National Department of Water and Sanitation (DWS) who may be contacted at the address below:
Director: Compliance and Monitoring Institutions
Department of Water and Sanitation
Private Bag X 313
**PRETORIA**
0001

## 1. SITE DETAILS

### 1.1 LOCATION

1.1.1 This Licence authorises Decommissioning of Northern Slime Dam at Ferrometals Samancor Chrome located on Portion's 9 &12 of the Farm Driefontein 297 JS, 1 Moses Kotane Drive, Witbank within the jurisdiction of eMalahleni Local Municipality in Mpumalanga Province (hereafter referred to as" the Site").

1.1.2 The location of the Site must be according to the co-ordinates indicated on the licence application form, which are defined as follows:

| Number of corners | Latitude | Longitude |
|---|---|---|
| A | 25° 51' 2.77" | 29° 10' 14.08" |
| B | 25° 51' 3.17" | 29° 10' 17.56" |
| C | 25° 51' 3.77" | 29° 10' 19.41" |
| D | 25° 51' 3.51" | 29° 10' 20.43" |
| E | 25° 51' 5.59" | 29° 10' 23.71" |
| F | 25° 51' 8.36" | 29° 10' 24.43" |
| G | 25° 51' 11.25" | 29° 10' 23.48" |
| H | 25° 51' 10.93" | 29° 10' 20.01" |
| I | 25° 51' 9.98" | 29° 10' 18.75" |
| J | 25° 51' 9.76" | 29° 10' 13.08" |

1.2 DOCUMENTS CONSIDERED

1.2.1 The Waste management licence application form dated 25 July 2011;

1.2.2 The Final Scoping Report and Plan of Study Samancor Chrome Ferrometals, Closure of the existing Slimes Disposal Facility and Construction of new Slimes Disposal Facility, compiled by JMA Consulting dated 23 August 2013; and

1.2.3 The Final Environmental Impact Assessment Report and Environmental Management Programme for Samancor Chrome Ferrometals, Closure of the existing Slimes Disposal Facility and Construction of new Slimes Disposal Facility, compiled by JMA Consulting dated 25 June 2014 and hereinafter referred to as "Report"; and

1.2.4 The Record of decision issued by the Department of Water Affairs dated 18 September 2014.

LICENCE CONDITIONS

1.3 SITE SECURITY AND ACCESS CONTROL

1.3.1 The Licence Holder must ensure effective access control of the Waste Management Site to prevent unauthorised entry. Weatherproof, durable and legible signs in at least three official languages applicable in the area must be displayed at each entrance to the site. The signs must indicate the risks involved in entering the Site, warn against the use of water containing waste and must include the name, address and telephone number of the Licence Holder and the person responsible for the operation of the Site.

1.3.2 The Licence Holder must prevent storage or disposal of waste at the capped Disposal Site.

## 2. MANAGEMENT

2.1 GENERAL MANAGEMENT

2.1.1 The closure and rehabilitation activities shall be managed and operated:

a) In accordance with a documented Environmental Management System (EMS), that, *inter alia*, identifies and minimises the risk of pollution, including those arising from operations, maintenance, accidents, incidents and non-conformance as well as those drawn to the attention of the Licence Holder as a result of complaints;

b) In accordance with conditions of this Licence and any other written instruction by the Director; and

c) By an adequate, competent staff complement.

2.1.2 Any persons having duties that are or may be affected by this Licence must have convenient access to a copy thereof, which copy must be kept at or near the place where those duties are carried out.

2.1.3 A copy of this Licence may be published by the Department, in its discretion, on any website or other media.

2.2 DESIGNATION OF WASTE MANAGEMENT CONTROL OFFICER

2.2.1 A Waste Management Control Officer (WMCO) must be designated to monitor and ensure compliance and correct implementation of all mitigation measures and provisions as stipulated in the licence and standard operation procedures. The WMCO must:

(a) Report any non-compliance with any Licence conditions or requirements or provisions of NEM:WA to the licencing authority.

2.2.2 The duties and responsibility of the WMCO should not be seen as exempting the Licence Holder from any other legal obligations in terms of the NEM:WA

2.3 EMERGENCY PREPAREDNESS PLAN

2.3.1 The Licence Holder must maintain and implement an emergency preparedness plan and review it annually when conducting audit, after each emergency incident and major accident. The plan must, amongst others, include measures to address:

a) Power failure;
b) Equipment malfunction;
c) Site fires;
d) Spillage (on Site);
e) Natural disasters such as floods; and
f) The plan must include contact details of the nearest police station, ambulance services and the emergency centre.

## 3. DECOMMISSIONING OF THE WASTE DISPOSAL SITE

3.1 The construction of the site must be according to design in the Ferrometals Samancor Chrome Ltd Final Closure Plan and Design Report, project number ECO/2011/5/01 with file reference: ECO/2011/5 compiled by Ecosys Consulting Engineer cc dated April 2014

3.2 Construction within the Site must be carried out under supervision of a Professional Civil Engineer, registered under Engineering Profession of South Africa Act, 1990 (Act 114 of 1990).

3.3 The Site, or any portion thereof must be covered and the Site must be maintained in such a way that-

3.3.1 the formation of pool, and or damming due to rain is prevented;

3.3.2 free surface runoff of rain-water is ensured;

3.3.3 contamination of stormwater is prevented

3.3.4 no objects or material which may hamper the rehabilitation of the Site are present, and

3.3.5 little or no erosion occurs

3.4 The closure of the site must be constructed in accordance with recognised civil engineering practice, with special consideration to stability.

3.5 The side slope of the slimes dam must have a factor of safety of at least 1:50 against sliding and must not be steeper that 1V:3H.

3.6 Any development which occurs within 1:100 year flood line and/or within 500m from the boundary of a wetland would require a water use licence in terms of section 21 of the National Water Act, 1998.

3.7 The final footprint are shaping and contouring of the dam must not impede the existing buildings or infrastructure still in use, the final foot print area must be minimised to allow other activities around the slimes dam to continue.

## 4 REHABILITATION AND CLOSURE OF THE SITE

4.1 The site slope must be shaped and flattened for long term slope stability and erosion control.

4.2 The top surface must be filled with suitable material and contoured to prevent ponding of surface water.

4.3 Rehabilitation and closure of the slimes dam must line with the applicable South African legislation and the Environmental Policy of Ferrometals, which are incorporated in the final design of the capping of the slimes dam.

4.4 The Licence Holder must apply for a waste management license for re-use of waste should the slag be used as part of the capping material. Approval of such license must be granted by this Department before the slag can be re-used.

## 5 GENERAL IMPACT MANAGEMENT AND OPERATION

### 5.1 IMPACT MANAGEMENT

5.1.1 Waste, which is not permissible on Site, must be dealt with according to relevant legislation or the Department's policies and practices.

5.1.2 The Licence Holder must prevent spillages. Where they happen nonetheless, condition 2.3.1 above shall apply and the Licence Holder must ensure the effective and safe cleaning of such spillages.

5.1.3 The Licence Holder must ensure that emissions from the activities shall be free from odour at levels likely to cause annoyance.

5.1.4 The Licence Holder must prevent the occurrence of nuisance conditions or health hazards.

5.1.5 The Licence Holder must ensure that all personnel who work with hazardous waste are trained to deal with these potential hazardous situations so as to minimise the risks involved. Records of training and verification of competence must be kept by the Licence Holder.

## 6. WATER QUALITY MANAGEMENT

### 6.1 Runoff Management

6.1.1 All runoff water (stormwater) arising as a result of precipitation on land adjacent to the Site must be prevented from entering the Site and must be diverted and drained from the Site.

6.1.2 Uncontaminated runoff water must under no circumstances be used to dilute leachate emanating from the Site but must be diverted to and discharged into the nearest stormwater channel.

### 6.2 Leachate Management

6.2.1 Leachate from the Site shall, by means of works which shall be constructed and maintained on a continuous basis by the Licence Holder and be lined as approved by the Director, to prevent pollution to groundwater-

6.2.1.1 with the rewritten approval from the Director be evaporated in lined dams as approved by the Director; and/or,

6.2.1.2 be discharged into any convenient sewer if accepted by the authority in control of that sewer.

6.1.5 The Licence Holder must ensure that there is no escape of contaminants or waste into the environment with the necessary treatment and authorization in terms of the National Water Act, 1998.

## 7 MONITORING

### 7.1 MONITORING METHODS AND PARAMETERS

7.1.1 The Licence Holder must carry out all tests required in terms of this Licence in accordance with published laboratory analysis methods or those prescribed by and obtainable from the South African Bureau of Standards (SABS), referred to in the Standards Act, 1982 (Act 30 of 1982).

7.1.2 The Licence Holder may only use another method of analysis if approved by the Department.

7.2 WATER QUALITY MONITORING

7.2.1 Location of points and specifications for water quality monitoring network.

7.2.1.1 Monitoring of groundwater and surface water must be conducted at the locations specified in condition 7.2.1.2 and 7.2.1.3 and at any other location or locations that may from time to time be specified by the Responsible Authority.

7.2.1.2 GROUNDWATER QUALITY MONITORING NETWORK

7.2.1.2.1 A monitoring borehole network for the site must be maintained by the Licence Holder according to the Samancor Chrome Ferrometals (Pty) Ltd Environmental Management Programme, Ferrometals Groundwater Monitoring Systems compiled by JMA Consulting Pty (Ltd) dated 25 June 2014, and to the satisfaction of the Responsible Authority so that unobstructed sampling, as required in terms of the Licence, can be undertaken.

7.2.1.2.2 Monitoring boreholes must be equipped with lockable caps. The Responsible Authority reserves the right to take water samples at any time and to analyse these samples, or to have them taken and analysed.

7.2.1.3 SURFACE WATER QUALITY MONITORING NETWORK

7.2.1.3.1 Monitoring for contaminated storm-water, shall be conducted at FSW 13 FSW 14 location as indicated in the Samancor Ferrometals Environmental Management Plan Report compiled by JMA Consulting (Pty) Ltd dated 25 June 2014

7.2.2 BACKGROUND MONITORING

7.2.2.1 Sample from the boreholes where the groundwater in the boreholes in the borehole is at an expected higher hydraulic pressure level than the hydraulic pressure level of the groundwater under the site, shall be considered as background monitoring

7.2.2.2 Background groundwater monitoring must be conducted during each monitoring occasion as condition 7.3, 7.4 and/or 7.5 for the water quality variables listed in annexure II.

7.3 DETECTION MONITORING

7.3.1 Frequency of water quality monitoring and variables for analysis:

7.3.1.1 Ground water monitoring must be conducted for variables listed in Annexure II on a quarterly basis.

7.4 INVESTIGATIVE MONITORING

7.4.1 If, in the opinion of the Director or Director: RPW, a water quality variable at any monitoring point listed under the detection monitoring programme, as referred to in condition 7.3 shows an increasing trend, the Licence Holder shall initiate a monthly monitoring programme for the water quality variables listed in Annexure II

7.5 FURTHER MONITORING INVESTIGATION.

7.5.1 If, in the option of the Director or Director RPW, groundwater and/or surface water pollution have occurred or may possibly occur, the licence holder must conduct and/or appoint specialist to conduct the necessary investigations and implement additional monitoring and rehabilitation measures to the satisfaction of the Director.

## 8. INVESTIGATIONS

8.1 If, in the opinion of the Director, environmental pollution, nuisances or health risks may be occurring or are occurring on the Site, the Licence Holder must initiate an investigation into the cause of the problem or suspected problem.

8.2 If, in the opinion of the Director and/or Director: RPW, water pollution may be occurring or is occurring, the Licence Holder must initiate an investigation into the cause of the problem or suspected problem. Such investigation must include the monitoring of the water quality variables at those monitoring points and at such frequency as may be specified by Director: RPW.

8.3 Should the investigation carried out as per conditions 8.1 and 8.2 above reveal any unacceptable levels of pollution, the Licence Holder must submit mitigation measures to the satisfaction of the Director.

## 9. RECORDS

9.1 The Licence Holder must keep records and update all the information referred to in Annexure II and submit this information to the Director on an annual basis.

9.2 All records required or resulting from activities required by this Licence must:

a) Be legible;

b) Be made as soon as reasonably practicable and should form part of the external audit report;

c) If amended, be amended in such a way that the original and any subsequent amendments remain legible and are easily retrievable; and

d) Be retained in accordance with documented procedures.

9.3 Records demonstrating compliance with condition 2.1.1 must be maintained for five years.

## 10. REPORTING

10.1 The Licence Holder must, within 24 hours, notify the Director of the occurrence or detection of any incident on the Site, or incidental to the operation of the site, which has the potential to cause, or has caused pollution of the environment, health risks, nuisance conditions or water pollution.

10.2 The Licence Holder must, within 14 days, or a shorter period of time, if specified by the Director, from the occurrence or detection of any incident referred to in condition 10.1, submit an action plan, which must include a detailed time schedule, and resource allocation, signed off by top management, to the satisfaction of the Director and/or the Director: RPW of measures taken to –

a) Correct the impact resulting from the incident;
b) Prevent the incident from causing any further impact; and
c) Prevent a recurrence of a similar incident.

10.3 In the event that measures have not been implemented within 21 days of the incident to address impacts caused by the incident referred to in condition 10.1, or measures which have been implemented are inadequate, the Director may implement the necessary measures at the cost and risk of the Licence Holder.

10.4 The Licence Holder must keep an incident and complaints register, which must be attached to the external audit report, as well as the Department and DWA for audit purposes.

10.5 The Department must be notified without delay in the case of the following:

a) Any malfunction, breakdown or failure of equipment or techniques, accident or fugitive emission which has caused, is causing or may cause significant pollution;
b) The breach of this Licence; and
c) Any significant adverse environmental and health effects.

10.6 The Department must be notified within 14 days of the following changes:

a) Licence Holder's trading name, registered name or registered office address;

b) Particulars of the licence Holder's ultimate holding company (including details of an ultimate holding where a licence holder has become a subsidiary; and

c) Steps taken with a view to the Licence Holder, or any one of them, going into bankruptcy, entering into arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

10.7 The information required in terms of condition 7 must be reported to the Director in a yearly report. The information must also be included into a trend report, which must contain a graphical presentation of all results obtained previously at any specific point, as well as an interpretation and discussion of the results of each monitoring occasion

10.8 The Licence Holder must submit a detailed numerical groundwater flow model, mass transport models including the remediation plan of the contaminated groundwater six months after issuance of the waste licence.

10.9 Each external audit report referred to in condition 11.2 below must be submitted to the Director within 30 days from the date on which the external auditor finalised the audit report.

## 11. AUDITING

11.1 INTERNAL AUDITS

11.1.1 Internal audits must be conducted annually by the Licence Holder and on each audit occasion an official report must be compiled by the relevant auditor to report the findings of the audits, which must be made available to the external auditor specified in condition 10.2.1.

11.2 EXTERNAL AUDITS

11.2.1 The Licence Holder must appoint an independent external auditor to audit the site biennially and the auditor must compile an audit report documenting the findings of the audit, which must be submitted by the licence holder according to condition 9.8 above.

11.2.2 The audit report must:

a) Specifically state whether conditions of this licence are adhered to;

b) Include an interpretation of all available data and test results regarding the operation of the site and all its impacts on the environment;

c) Specify target dates for the implementation of the recommendations by the Licence Holder to achieve compliance;

d) Contain recommendations regarding non-compliance or potential non-compliance and must specify target dates for the implementation of the recommendations by the Licence Holder and whether corrective action taken for the previous audit non conformities was adequate; and

e) Show monitoring results graphically and conduct trend analysis.

11.3 DEPARTMENTAL AUDITS AND INSPECTIONS

11.3.1 The Department reserves the right to audit and/or inspect the Site without prior notification at any time and at such frequency as may be determined by the Director.

11.3.2 The Licence Holder must make any records or documentation available to the Director upon request, as well as any other information he/she may require.

## 12. LEASING AND ALIENATION OF THE SITE

12.1 Should the Licence Holder want to alienate or lease the Site, he/she must notify the Director in writing of such an intention at least 120 days prior to the said transaction for approval.

12.2 Should the approval be granted, the subsequent Licence Holder shall remain liable for compliance with all licence conditions.

## 13. TRANSFER OF WASTE MANAGEMENT LICENCE

13.1.1 Should the Licence Holder want to transfer the Licence, he/she must apply in terms of Section 52 of the National Environmental Management: Waste Act, 2008 (Act No 59 of 2008).

13.1.2 Any subsequent Licence Holder shall be bound by conditions of the Licence.

## 14. GENERAL

14.1 Should the Licence Holder be notified by the Minister in writing of a suspension of the Licence pending any appeals decision, you may not commence with the activities licenced by the Minister.

14.2 After the appeal period has expired and no good cause to extend the appeal period has been submitted, the activity may commence provided a notice has been submitted to the Department. The notice must include a date on which it is anticipated that the activity will commence.

14.3 This Licence shall not be transferable unless such transfer is subject to condition 13.1.

14.4 This Licence shall not be construed as exempting the Licence Holder from compliance with the provisions of National and Provincial Legislation and any relevant Ordinance, Regulation, By-law or relevant National Norms and Standards. Transgression of any condition of this Licence could result in the Licence being withdrawn by the Department.

14.5 Non-compliance with a condition of this Licence may result in criminal prosecution or other actions provided for in Section 67 (1) of the National Environmental Management: Waste Act, 2008.

14.6 In terms of section 28 and 30 of the NEMA and section 19 and 20 of the National Water Act No.36 of 1998, any costs incurred to remedy environmental damage must be borne by the person responsible for the damage. It is therefore imperative that the Licence Holder reads through and understands the legislative requirements pertaining to the project. It is the Applicant's responsibility to take reasonable measures which include informing and educating contractors and employees about the environmental risks of their work and training them to operate in an environmentally acceptable manner.

14.7 The activity must commence within a period of two (2) years from the date of issue. If commencement of the activity does not occur within that period, the Licence lapses and a new application for a Licence must be made in order for the activity to be undertaken.

14.8 If the Licence Holder anticipates that decommissioning and rehabilitation of the activity would not occur within two (2) year period, he/she must apply and show good cause for an extension of the licence six (6) months prior to its expiry date.

## 15 APPEAL OF LICENCE

15.1 The Licence Holder must notify every registered interested and affected party, in writing and within twelve (12) days, of receiving the Department's decision.

15.2.1 The notification referred to in 15.1. must –

15.2.2 Specify the date on which the Licence was issued;

15.2.2 An appeal against the decision must be lodged in terms of Section 43(1) of NEMA 1998, as amended to the Minister against the decision, from the date of this license, with: The Minister, Department of Environmental Affairs, Private Bag X 447, PRETORIA, 0001, Email: AppealsDirectorate@environment.gov.za.

Gordon

**Mr Mark Gordon**
**DEPUTY DIRECTOR-GENERAL: CHEMICALS AND WASTE MANAGEMENT**
**DATE:** 14/11/2014

## ANNEXURE I

## APPEALS PROCEDURE IN TERMS OF CHAPTER 7 OF R. 543 OF 2010 TO BE FOLLOWED BY THE APPLICANT AND INTERESTED AND AFFECTED PARTIES UPON RECEIPT OF NOTIFICATION OF A WASTE MANAGEMENT LICENCE

| APPLICANT | INTERESTED AND AFFECTED PARTIES (IAPs) |
|---|---|
| 1. Receive a notification of a Waste Management Licence from the relevant Competent Authority | 1. Receive a notification of a Waste Management Licence from Applicant/Consultant |
| 2. Within 12 days of receipt of notification, notify the relevant Competent Authority and all IAPs of intention to appeal | 2. Within 20 days of receipt of notification, notify the relevant Competent Authority of intention to appeal |
| 3. Notification served by the Applicant must include:<br>3.1. A copy of the notice of intention to appeal; and<br>3.2. A notice indicating where and for what period the appeal submission will be available for inspection by all IAPs | 3. Appellant must serve on the Applicant<br>3.1. A copy of the notice of intention to appeal<br>3.2. A notice indicating where and for what period the appeal submission will be available for inspection by the applicant |
| 4. The appeal must be submitted to the relevant Competent Authority or delegated organ of State within 30 days of lodging of the notice of intention to appeal | 4. The appeal must be submitted to the relevant Competent Authority or delegated organ of State within 30 days of lodging of the notice of intention to appeal |
| 5. A person or organ of state that receives notice of an appeal may submit a responding statement to the relevant Competent Authority or delegated organ of state within 30 days from the date that the appeal submission was made available for inspection by the appellant | 5. An Applicant that receives notice of an appeal may submit a responding statement to the relevant Competent Authority or delegated organ of State within 30 days from the date the appeal submission was made available for inspection by the appellant |

**NOTES:**

1. **An appeal against a decision must be lodged with:-**
   a) the Minister of Water and Environmental Affairs if the decision was issued by the Director-General of the Department of Environmental Affairs (or another official) acting in his/ her capacity as the delegated Competent Authority;
   b) The delegated organ of state where relevant.

2. **An appeal lodged with:-**
   a) The Minister of Water and Environmental Affairs must be submitted to the Department of Environmental Affairs by means of one of the following methods:

   By facsimile: (012) 359 3625
   By post: Private Bag X447, Pretoria, 0001; or
   By hand: Environment House, 473 Steve Biko Road ·Arcadia, Pretoria.

b) The delegated organ of state, where relevant, must be submitted to the delegated organ of state.

3. **An appeal must be:-**
   a) On an official form obtainable or published by the relevant department.
   b) Accompanied by:
      - a statement setting out the grounds of appeal;
      - supporting documentation which is referred to in the appeal and is not available to the relevant Competent Authority;
      - a statement that the appellant has complied with regulation 62 (2) or (3) together with copies of the notices referred to in regulation 62;
      - The prescribed appeal fee, if any.

4. **A copy of the official appeal form can be obtained from:**

Hassam Ziyaad
Director (Appeals)
Tel: 012 399 9356
zhassam @environment.gov.za; or

Tebogo Sibanyoni
Assistant Director (Appeals)
Tel: 012 399 9361
tsibanyoni@environment.gov.za

## ANNEXURE II

## WATER QUALITY VARIABLES REQUIRED FOR QUARTELY DETECTION MONITORING

Alkalinity (P Alk)
Boron (B)
Biological Oxygen Demand (BOD)
Calcium (Ca)
Chloride (Cl)
Chromium (hexavalent) ($Cr^{+6}$)
Chromium (Total) ($Cr^{total}$)
Cyanide (CN)
Chemical Oxygen Demand (COD)
Electric Conductivity (EC)
Fluoride (F)
Free and Saline ammonia as N ($NH_4$-N)
Iron (Fe)
Lead (Pb)
Nitrate ($NO_3$-N)
Magnesium (Mg)
Mercury (Hg)
pH
Phenolic compound (phen)
Potassium (K)
Silicon (Si)
Sodium (Na)
Sulphate ($SO_4$)
Total Dissolved Solids (TDS)
Total Organic Carbon (TOC)
Total Alkalinity
Total Organic Halogen (TOX)
Volatile Organic Compounds
Cadmium (Cd)

**Waste Management License (12/9/11/L700/6)**

*Issued on 14 November 2014*

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

Private Bag X 447· PRETORIA · 0001 Environment House, 473 Steve Biko Road ·Arcadia Tel (+ 27 12) 399 8511/2

**File Reference.** 12/9/11/L700/6
**EDMS Reference:** WL138943
**Enquiries:** Mr Bonginkosi Dlamini
**Tel:** (012) 399 9778 **Fax:** (012) 359 3625 **Email:** brdlamini@environment.gov.za
www.environment.gov.za

| | | |
|---|---|---|
| **LICENCE NUMBER** | : | 12/9/11/L700/6 |
| **CLASS** | : | H:H (CONSTRUCTION OF NEW SLIMES DAM) |
| **WASTE MANAGEMENT FACILITY** | : | FERROMETALS SAMANCOR CHROME WASTE MANAGEMENT FACILITY |
| **LOCATION** | : | PORTION`S 9 & 12 OF THE FARM DRIEFONTEIN 297 JS, 1 MOSES KOTANE DRIVE, WITBANK, EMALAHLENI LOCAL MUNICIPALITY, MPUMALANGA PROVINCE |
| **LICENCE HOLDER** | : | FERROMETALS- A BUSINESS UNIT OF SAMONCOR CHROME LIMITED |
| **ADDRESS** | : | PRIVATE BAG X 7228, WITBANK, 1035 |
| **CONTACT PERSON** | : | MR BRIAN GIBSON |
| **CONTACT DETAILS** | : | TEL: 013 693 7206, FAX: 013 696 2800 |

## WASTE MANAGEMENT LICENCE IN TERMS OF SECTION 49(1)(a) OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO. 59 OF 2008)

In terms of National Environmental Management: Waste Act, 2008 (Act No.59 of 2008), the Deputy Director General: Chemicals and Waste Management, acting under delegation, hereby grants Ferrometals- A Business Unit of Samancor Chrome Limited a Waste Management Licence for the following waste management activities as listed in Category B of Government Notice No 921 dated 29 November 2013:

**Category B**

(2) The disposal of any quantity of hazardous waste to land.

(10) The construction of a facility for a waste management activity listed in Category B of this Schedule (not in isolation to associated waste management activity)

In this Licence, "Director" means the Director: Licensing of the National Department of Environmental Affairs who may be contacted at the address below:
Director: Licensing
Department of Environmental Affairs
Private Bag X 447
**PRETORIA**
0001

In this Licence, "Director: CMI" means the Director: Compliance and Monitoring Institutions of the National Department of Water Affairs (DWA) who may be contacted at the address below:
Director: Compliance and Monitoring Institutions
Department of Water and Sanitation
Private Bag X 313
**PRETORIA**
0001

## 1. SITE DETAILS

1.1 LOCATION

1.1.1 This Licence authorises the construction of hazardous waste disposal facility (slimes dam) at Ferrometals Samancor Chrome located on Portion's 9 &12 of the Farm Driefontein 297 JS, 1 Moses Kotane Drive, Witbank within the jurisdiction of eMalahleni Local Municipality in Mpumalanga Province (hereafter referred to as" the Site").

1.1.2 The location of the Site must be according to the co-ordinates indicated on the licence application form, which is defined as follows:

| Number of corners | Latitude | Longitude |
|---|---|---|
| A | 25° 50' 29.62" | 29° 10' 27.19" |
| B | 25° 50' 29.22" | 29° 10' 35.51" |
| C | 25° 50' 40.00" | 29° 10' 36.79" |
| D | 25° 50' 39.86" | 29° 10' 25.44" |

1.2 DOCUMENTS CONSIDERED

1.2.1 Final Environmental Impact Assessment Report and Environmental Management Programme for Samancor Chrome Ferrometals, Closure of the existing Slimes Disposal Facility and Construction of new Slimes Disposal Facility, compiled by JMA Consulting dated 25 June 2014;

1.2.2 Final Scoping Report and Plan of Study Samancor Chrome Ferrometals, Closure of the existing Slimes Disposal Facility and Construction of new Slimes Disposal Facility, compiled by JMA Consulting dated 23 August 2013 and hereinafter referred to as "Report";

1.2.3 Record of decision issued by the Department of Water Affairs dated 18 September 2014; and

1.2.4 The Waste Management License Application Form dated 28 July 2011.

## LICENCE CONDITIONS

1.3 SITE SECURITY AND ACCESS CONTROL

1.3.1 The Licence Holder must ensure effective access control of the Waste Management Site to prevent unauthorised entry. Weatherproof, durable and legible signs in at least three official languages applicable in the area must be displayed at each entrance to the site. The signs must indicate the risks involved in entering the Site, include the name, address and telephone number of the Licence Holder and the person responsible for the operation of the Site.

1.3.2 The Licence Holder must prevent disposal of waste that is not authorised at the Site.

## 2. MANAGEMENT

2.1 GENERAL MANAGEMENT

2.1.1 The activities shall be managed and operated:

a) In accordance with a documented Environmental Management System (EMS), that, *inter alia*, identifies and minimises the risk of pollution, including those arising from operations, maintenance, accidents, incidents and non-conformance as well as those drawn to the attention of the Licence Holder as a result of complaints;

b) In accordance with conditions of this Licence and any other written instruction by the Director; and

c) By an adequate, competent staff complement.

2.1.2 Any persons having duties that are or may be affected by this Licence must have convenient access to a copy thereof, which copy must be kept at or near the place where those duties are carried out.

2.1.3 A copy of this Licence may be published by the Department, in its discretion, on any website or other media.

2.2 DESIGNATION OF WASTE MANAGEMENT CONTROL OFFICER

2.2.1 A Waste Management Control Officer (WMCO) must be designated to monitor and ensure compliance and correct implementation of all mitigation measures and provisions as stipulated in the licence and standard operation procedures. The WMCO must:

(a) Report any non-compliance with any Licence conditions or requirements or provisions of NEM:WA to the licencing authority.

2.2.2 The duties and responsibility of the WMCO should not be seen as exempting the Licence Holder from any other legal obligations in terms of the NEM:WA

2.3 EMERGENCY PREPAREDNESS PLAN

2.3.1 The Licence Holder must maintain and implement an emergency preparedness plan and review it annually when conducting audit, after each emergency incident and major accident. The plan must, amongst others, include measures to address:

a) Power failure;
b) Equipment malfunction;
c) Site fires;
d) Spillage (on Site);
e) Natural disasters such as floods; and
f) The plan must include contact details of the nearest police station, ambulance services and the emergency centre.

## 3. PERMISSIBLE WASTE

3.1 Any portion of the Site which has been constructed or developed according to condition 4 below may be used for disposal of slimes.

3.2 The classification, acceptance and disposal criteria as listed in the latest edition of the document "Minimum Requirements for Handling, Classification and Disposal of Hazardous Waste, Waste Management Series, Department of Water Affairs and Forestry" or its successor must be conformed to.

## 4. CONSTRUCTION OF THE FACILITY

4.1 The construction of the new slimes disposal facility must be in accordance approved engineering designs starting from the excavation level the liner barriers must consist of the following: a 150mm base preparation layer consisting of a compacted layer of reworked in-situ soil constructed soil constructed to the same compaction standards as the 200mm clay layer above it, a 200mm clay layer compacted to a minimum density of 95% standard Proctor maximum dry density at a water content of -1% to +2% of the Proctor optimum, the tertiary liner consisting of a textured 1,5 mm HDPE geomembrane in intimate with the clay layer below it. The leakage detection layer consisting of 3.5 thick leakdrain S3U standard and placed with the dimple side down. Secondary liner consisting of geosynthetic clay liner (GCL X 1000) placed directly on top of the leakdrain. The primary liner consisting of a textured 2mm HDPE geomembrane and placed on top of the GCL secondary liner. A 100mm cushion layer consisting of the fine aggregate to protect the primary liner.

4.2 The Licence Holder may only use fine slag to protect the primary liner once a waste management license for reuse of slag has been lodged with this Department and approval for reuse of slag has been granted.

4.3 Construction and further development within the Site must be carried out under supervision of a Professional Civil Engineer, registered under Engineering Profession of South Africa Act, 1990.

4.4 After construction of the Site and further development within the Site, the Licence Holder shall notify the Director thereof and the person referred to in condition 4.3 must submit a certificate or alternatively a letter to the Director that the construction of the Site or further development within the Site, as proposed by the Licence Holder and approved by the Director, is in accordance with recognised civil engineering practice and the requirements in this Licence, before the disposal may commence on the Site. If the Director is satisfied with the construction of the Site or any further development within the Site and has given written permission, the Licence Holder may use the Site or any further development within the Site for the disposal of waste.

4.5 The Licence Holder must take all reasonable step to ensure that the storage area have a firm, waterproof base and drainage system. It must be designed and managed that there are no escape of contaminants into the environment. All runoff, if any, must be prevented from entering local watercourses including wetlands.

4.6 The Licence Holder must ensure that the integrity of the waterproof base and walls are routinely monitored and corrective action taken before containment integrity is breached.

4.7 Any development which occurs within 1:100 year flood line and/or within 500m from the boundary of the wetland would require a water use licence in terms of section 21 of the National Water Act, 1998.

## 5. GENERAL IMPACT MANAGEMENT AND OPERATION

### 5.1 IMPACT MANAGEMENT

5.1.1 Waste, which is not permissible on Site, must be dealt with according to relevant legislation or the Department's policies and practices and this Licence does not exempt the Licence Holder from compliance with any other legislation including Section 21 of the National Water Act, 1998..

5.1.2 The Licence Holder must prevent spillages. Where they happen nonetheless, condition 2.3.1 above shall apply and the Licence Holder must ensure the effective and safe cleaning of such spillages.

5.1.3 The leachate must not impact on a water resource or on any other person's water use, property or land and must not be detrimental to the health and safety of the public in the vicinity of the activity.

5.1.4 The Licence Holder must prevent the occurrence of nuisance conditions or health hazards.

5.1.5 The Licence Holder must ensure that all personnel who work with hazardous waste are trained to deal with these potential hazardous situations so as to minimise the risks involved. Records of training and verification of competence must be kept by the Licence Holder.

### 5.2 WATER QUALITY MANAGEMENT

5.2.1 Works shall be constructed and maintained on a continuous basis by Licence Holder to divert and drain from the Site in a legal manner, all runoff water arising on **land adjacent to the Site**, which could be expected as a results of the estimated maximum precipitation during a period of 24 hour with an average frequency of once in fifty (50) years (hereinafter referred to as the estimated maximum precipitation"). Such work shall, under the said rainfall event, maintain a freeboard of 800mm

5.2.2 Works shall be constructed and maintained on continuous basis by the Licence Holder to divert and drain from the **working face of the Site**, all runoff water arising from the Site, which could be expected as a results of the estimated maximum precipitation and to prevent such runoff water from coming into contact with leachate from the Site. Such work shall, under a said rainfall event, maintain a freeboard of 800mm.

5.2.3 Runoff water referred to in condition 5.2.2 shall comply with quality requirements of the General and Special Standard, as published in Government Notice 991 of 18 May 1984, or with such quality requirements as may from time to time be determined by the Responsible authority and shall be drained from the Site in a legal manner.

5.2.4 Runoff water referred to in condition 5.2.2 which does not comply with the quality requirements applicable in terms of condition 5.2.3 shall, by means of works, lined to the satisfaction of the Director, which shall be constructed and maintained on a continuous basis by the Licence Holder-

5.2.4.1 be treated to comply with the aforementioned standard and discharge in a legal manner and/or

5.2.4.2 be discharged into any convenient sewer if accepted by the authority in control of that sewer.

## 6. MONITORING

### 6.1 MONITORING METHODS AND PARAMETERS

6.1.1 The Licence Holder must carry out all tests required in terms of this Licence in accordance with published laboratory analysis methods or those prescribed by and obtainable from the South African Bureau of Standards (SABS), referred to in the Standards Act, 2008 (Act 08 of 2008).

6.1.2 The Licence Holder may only use another method of analysis if approved by the Department.

## 6.2 WATER QUALITY MONITORING

### 6.2.1 LOCATION OF POINTS AND SPECIFICATIONS FOR WATER QUALITY MONITORING NETWORK

6.2.1.1 General Requirements

6.2.1.1.1 Monitoring of groundwater and surface water must be conducted at the locations specified in conditions 6.2.1.2 and 6.2.1.3 and any other location or locations that may from time to time be specified by the Director: CMI.

6.2.1.2 Groundwater quality monitoring network:

6.2.1.2.1 A monitoring borehole network for the Site must be maintained by the Licence Holder according to the Samancor Chrome Ferrometals compiled by JMA Consulting Pty Ltd dated June 2014 and to the satisfaction of the CMI so that unobstructed sampling, as requires in terms of the Licence, can be undertaken.

6.2.1.2.2 Monitoring boreholes must be equipped with lockable caps. Responsible Authority reserves the right to take water samples at any time and to analyse these samples, or to have them taken and analysed.

6.2.1.3 Surface water quality monitoring network:

6.2.1.3.1 Monitoring of surface water, shall be conducted at locations FSW-15 as indicated in the Samancor Chrome Ferrometals Environmental Management Plan, Surface water monitoring System compiled by JMA Consulting (Pty) Ltd dated 25 June 2014.

**6.2.2 BACKGROUND MONITORING**

6.2.2.1 Sample from the borehole where the groundwater in the borehole is at an expected higher hydraulic pressure level that the hydraulic pressure level of the ground water under the Site, shall be considered as a background monitoring.

6.2.2.2 Background groundwater monitoring must be conducted during each monitoring occasion in terms of conditions 6.2.1.3, 6.2.3 and 6.2.4 for the water quality variables listed in Annexure II.

**6.2.3 DETECTION MONITORING**

6.2.3.1 Frequency of water quality monitoring and variables for analysis

6.2.3.1.1 Monitoring for surface and groundwater quality must be conducted for variables listed in Annexure II on a quarterly basis

**6.2.4 INVESTIGATIVE MONITORING**

6.4.1 If, in the opinion of the Director or Director: CMI, a water quality variable at any monitoring point referred to in condition 6.2.3 above shows an increasing trend, the Licence Holder shall report in terms of condition 9 below and/or shall initiate a monthly monitoring programme for the water quality variables listed in Annexure II.

**7. INVESTIGATIONS**

7.1 If, in the opinion of the Director, environmental pollution, nuisances or health risks may be occurring or are occurring on the Site, the Licence Holder must initiate an investigation into the cause of the problem or suspected problem.

7.2 If, in the opinion of the Director and/or Director: CMI, water pollution may be occurring or is occurring, the Licence Holder conduct and/or appoint specialists to conduct the necessary investigations and implement additional monitoring and rehabilitation measures to the satisfaction of the Director and/or Director: CMI.

7.3 Should the investigation carried out as per conditions 7.1 and 7.2 above reveal any unacceptable levels of pollution, the Licence Holder must submit mitigation measures to the satisfaction of the Director.

## 8. RECORDS

8.1 The Licence Holder must keep records and update all the information referred to in Annexure III and submit this information to the Director on an annual basis.

8.2 All records required or resulting from activities required by this Licence must:

a) Be legible;
b) Be made as soon as reasonably practicable and should form part of the external audit report;
c) If amended, be amended in such a way that the original and any subsequent amendments remain legible and are easily retrievable; and
d) Be retained in accordance with documented procedures.

8.3 Records demonstrating compliance with condition 2.1.1 must be maintained for five years.

## 9. REPORTING

9.1 The Licence Holder must, within 24 hours, notify the Director of the occurrence or detection of any incident on the Site, or incidental to the operation of the site, which has the potential to cause, or has caused pollution of the environment, health risks, nuisance conditions or water pollution.

9.2 The Licence Holder must, within 14 days, or a shorter period of time, if specified by the Director, from the occurrence or detection of any incident referred to in condition 9.1, submit an action plan, which must include a detailed time schedule, and resource allocation, signed off by top management, to the satisfaction of the Director and/or the Director: RPW of measures taken to –

a) Correct the impact resulting from the incident;

b) Prevent the incident from causing any further impact; and

c) Prevent a recurrence of a similar incident.

9.3 In the event that measures have not been implemented within 21 days of the incident to address impacts caused by the incident referred to in condition 9.1, or measures which have been implemented are inadequate, the Director may implement the necessary measures at the cost and risk of the Licence Holder.

9.4 The Licence Holder must keep an incident and complaints register, which must be attached to the external audit report, as well as the Department and DWA for audit purposes.

9.5 The Department must be notified without delay in the case of the following:

a) Any malfunction, breakdown or failure of equipment or techniques, accident or fugitive emission which has caused, is causing or may cause significant pollution;

b) The breach of this Licence; and

c) Any significant adverse environmental and health effects.

9.6 The Department must be notified within 14 days of the following changes:

a) Licence Holder's trading name, registered name or registered office address;

b) Particulars of the licence Holder's ultimate holding company (including details of an ultimate holding where a licence holder has become a subsidiary; and

c) Steps taken with a view to the Licence Holder, or any one of them, going into bankruptcy, entering into arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

9.7 Each external audit report referred to in condition 10.2 below must be submitted to the Director within 30 days from the date on which the external auditor finalised the audit report.

## 10. AUDITING

10.1 INTERNAL AUDITS

10.1.1 Internal audits must be conducted quarterly by the Licence Holder and on each audit occasion an official report must be compiled by the relevant auditor to report the findings of the audits, which must be made available to the external auditor specified in condition 10.2.1.

10.2 EXTERNAL AUDITS

10.2.1 The Licence Holder must appoint an independent external auditor to audit the site biannually and the auditor must compile an audit report documenting the findings of the audit, which must be submitted by the licence holder according to condition 9.7 above.

10.2.2 The audit report must:

a) Specifically state whether conditions of this licence are adhered to;
b) Include an interpretation of all available data and test results regarding the operation of the site and all its impacts on the environment;
c) Specify target dates for the implementation of the recommendations by the Licence Holder to achieve compliance;

d) Contain recommendations regarding non-compliance or potential non-compliance and must specify target dates for the implementation of the recommendations by the Licence Holder and whether corrective action taken for the previous audit non conformities was adequate; and

e) Show monitoring results graphically and conduct trend analysis.

10.3 DEPARTMENTAL AUDITS AND INSPECTIONS

10.3.1 The Department reserves the right to audit and/or inspect the Site without prior notification at any time and at such frequency as may be determined by the Director.

10.3.2 The Licence Holder must make any records or documentation available to the Director upon request, as well as any other information he/she may require.

## 11. LEASING AND ALIENATION OF THE SITE

11.1 Should the Licence Holder want to alienate or lease the Site, he/she must notify the Director in writing of such an intention at least 120 days prior to the said transaction for approval.

11.2 Should the approval be granted, the subsequent Licence Holder shall remain liable for compliance with all licence conditions.

## 12. TRANSFER OF WASTE MANAGEMENT LICENCE

12.1 Should the Licence Holder want to transfer the Licence, he/she must apply in terms of Section 52 of the National Environmental Management: Waste Act, 2008 (Act No 59 of 2008).

12.2 Any subsequent Licence Holder shall be bound by conditions of the Licence.

## 13. GENERAL

13.1 The construction of the licenced activity may not commence within twenty (20) days of the date of signature of this Licence.

13.2 Should the Licence Holder be notified by the Minister in writing of a suspension of the Licence pending any appeals decision, you may not commence with the activities licenced by the Minister.

13.3 After the appeal period has expired and no good cause to extend the appeal period has been submitted, the activity may commence provided a notice has been submitted to the Department. The notice must include a date on which it is anticipated that the activity will commence.

13.4 This Licence shall not be transferable unless such transfer is subject to condition 12.1.

13.5 This Licence shall not be construed as exempting the Licence Holder from compliance with the provisions of National and Provincial Legislation and any relevant Ordinance, Regulation, By-law or relevant National Norms and Standards. Transgression of any condition of this Licence could result in the Licence being withdrawn by the Department.

13.6 Non-compliance with a condition of this Licence may result in criminal prosecution or other actions provided for in Section 67 (1) of the National Environmental Management: Waste Act, 2008.

13.7 In terms of section 28 and 30 of the NEMA and section 19 and 20 of the National Water Act No.36 of 1998, any costs incurred to remedy environmental damage must be borne by the person responsible for the damage. It is therefore imperative that the Licence Holder reads through and understands the legislative requirements pertaining to the project. It is the Applicant's responsibility to take reasonable measures which include informing and educating contractors and employees about the environmental risks of their work and training them to operate in an environmentally acceptable manner.

13.8 This Licence is valid for a period of ten (10) years and shall be reviewed every five (05) years from the date of issue or at any time before or after that date. Based on the results of the review, especially compliance to Licence conditions or recommendations from the audit reports and or changing legislation, the Licence could be amended or withdrawn or the validity thereof extended.

## 14 APPEAL OF LICENCE

14.1 The Licence Holder must notify every registered interested and affected party, in writing and within twelve (12) days, of receiving the Department's decision.

14.2 The notification referred to in 14.1. must –

14.2.1 Specify the date on which the Licence was issued;

14.2.2 An appeal against the decision must be lodged in terms of Section 43(1) of NEMA 1998, as amended to the Minister against the decision, from the date of this license, with: The Minister, Department of Environmental Affairs, Private Bag X 447, PRETORIA, 0001, Email: AppealsDirectorate@environment.gov.za.

**MR MARK GORDON**
**DEPUTY DIRECTOR-GENERAL: CHEMICALS AND WASTE MANAGEMENT**
**DATE:** 14/11/2014

## ANNEXURE I

## APPEALS PROCEDURE IN TERMS OF CHAPTER 7 OF R. 543 OF 2010 TO BE FOLLOWED BY THE APPLICANT AND INTERESTED AND AFFECTED PARTIES UPON RECEIPT OF NOTIFICATION OF A WASTE MANAGEMENT LICENCE

| APPLICANT | INTERESTED AND AFFECTED PARTIES (IAPs) |
|---|---|
| 1. Receive a notification of a Waste Management Licence from the relevant Competent Authority | 1. Receive a notification of a Waste Management Licence from Applicant/Consultant |
| 2. Within 12 days of receipt of notification, notify the relevant Competent Authority and all IAPs of intention to appeal | 2. Within 20 days of receipt of notification, notify the relevant Competent Authority of intention to appeal |
| 3. Notification served by the Applicant must include:<br>3.1. A copy of the notice of intention to appeal; and<br>3.2. A notice indicating where and for what period the appeal submission will be available for inspection by all IAPs | 3. Appellant must serve on the Applicant<br>3.1. A copy of the notice of intention to appeal<br>3.2. A notice indicating where and for what period the appeal submission will be available for inspection by the applicant |
| 4. The appeal must be submitted to the relevant Competent Authority or delegated organ of State within 30 days of lodging of the notice of intention to appeal | 4. The appeal must be submitted to the relevant Competent Authority or delegated organ of State within 30 days of lodging of the notice of intention to appeal |
| 5. A person or organ of state that receives notice of an appeal may submit a responding statement to the relevant Competent Authority or delegated organ of state within 30 days from the date that the appeal submission was made available for inspection by the appellant | 5. An Applicant that receives notice of an appeal may submit a responding statement to the relevant Competent Authority or delegated organ of State within 30 days from the date the appeal submission was made available for inspection by the appellant |

**NOTES:**

1. **An appeal against a decision must be lodged with:-**
   a) the Minister of Water and Environmental Affairs if the decision was issued by the Director- General of the Department of Environmental Affairs (or another official) acting in his/ her capacity as the delegated Competent Authority;
   b) The delegated organ of state where relevant.

2. **An appeal lodged with:-**
   a) The Minister of Water and Environmental Affairs must be submitted to the Department of Environmental Affairs by means of one of the following methods:

By facsimile: (012) 359 3625
By post: Private Bag X447, Pretoria, 0001; or
By hand: Environment House, 473 Steve Biko Road ·Arcadia,Pretoria.

b) The delegated organ of state, where relevant, must be submitted to the delegated organ of state.

**3. An appeal must be:-**

a) On an official form obtainable or published by the relevant department.
b) Accompanied by:
- a statement setting out the grounds of appeal;
- supporting documentation which is referred to in the appeal and is not available to the relevant Competent Authority;
- a statement that the appellant has complied with regulation 62 (2) or (3) together with copies of the notices referred to in regulation 62;
- The prescribed appeal fee, if any.

**4. A copy of the official appeal form can be obtained from:**

Hassam Ziyaad
Director (Appeals)
Tel: 012 399 9356
zhassam @environment.gov.za; or

Tebogo Sibanyoni
Assistant Director (Appeals)
Tel: 012 399 9361
tsibanyoni@environment.gov.za

## ANNEXURE II

## WATER QUALITY VARIABLES REQUIRED FOR QUARTELY DETECTION MONITORING

Alkalinity (P Alk)
Boron (B)
Biological Oxygen Demand (BOD)
Calcium (Ca)
Chloride (Cl)
Chromium (hexavalent) ($Cr^{+6}$)
Chromium (Total) ($Cr^{total}$)
Cyanide (CN)
Chemical Oxygen Demand (COD)
Electric Conductivity (EC)
Fluoride (F)
Free and Saline ammonia as N ($NH_4$-N)
Iron (Fe)
Lead (Pb)
Nitrate ($NO_3$-N)
Magnesium (Mg)
Mercury (Hg)
pH
Phenolic compound (phen)
Potassium (K)
Silicon (Si)
Sodium (Na)
Sulphate ($SO_4$)
Total Dissolved Solids (TDS)
Total Organic Carbon (TOC)
Total Alkalinity
Total Organic Halogen (TOX)
Volatile Organic Compounds
Cadmium (Cd)

## ANNEXURE III

## INFORMATION WHICH SHALL BE SUBMITTED ON AN ANNUAL BASIS: CONDITION 8.1

** = Indicate with an X. Please print legibly.*

NAME OF SITE: _____ DATE OF REPORT: _____(y/m/d)

**1. Registered owner(s) of property on which the waste management facility is situated:**

| | | |
|---|---|---|
| Name | Telephone | |
| Postal Address | Fax | |
| | Postal Code | |

**2. Operator in control of disposal facility:**

| | | |
|---|---|---|
| **Name** | Telephone | |
| Identity number | Tel. After hours | |
| | Email address | |
| Educational Qualifications | | |
| Other Relevant competencies: | | |

**3. Indicate the approximate quantities of waste reused and disposal at the facility during the year:**

| Type of waste (Specify) | Quantity ($m^3$ $annum^{-1}$) | Source |
|---|---|---|
| | | |
| | | |
| | | |
| **TOTAL** | | |

**4. Indicate approximate quantities of waste disposed during the year:**

| Type of waste | Quantity ($m^3$ $annum^{-1}$) | Treated/Disposed |
|---|---|---|
| | | |
| | | |
| | | |
| **TOTAL** | | |

I, the undersigned, declare that the information stated above is to my knowledge a true reflection of the status at Ferrometals Samancor Chrome Limited, Slimes Dam waste disposal facility.

Signature: _____

Name: _____

Capacity: _____

Place: _____ Date _____

**Air Emissions License (17/04/AEL/MP312/11/03)**

*Issued on 30 September 2014*

NKANGALA DISTRICT MUNICIPALITY
DISTRIKSMUNISIPALITEIT NKANGALA

☎ 013-249-2000
✉ 437 or 2032
Middelburg 1050
www.nkangaladm.gov.za

FAX 013-249-2087 (Corporate Services)
FAX 013-249-2114 (Finance)
FAX 013-249-2145 (Technical Services)
FAX 013-249-2136 (Social Services)

My Verw./My Ref:
U Verw./Your Ref:

**Enquiries:** E K Tshabalala **Ref.** 17/04/AEL/MP312/11/03 **Tel:** 013 249 2016 **Email:** tsabalalaek@nkangaladm.gov.za

**ATMOSPHERIC EMISSION LICENCE HOLDER:**
SAMANCOR CHROME LTD –FERROMETALS

**ATMOSPHERIC EMISSION LICENCE NO.: 17/04/AEL/MP312/11/03**

# ATMOSPHERIC EMISSION LICENCE AS CONTEMPLATED IN SECTION 43 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT, 2004, (ACT NO. 39 OF 2004)

I, M M Skosana in my capacity as Municipal Manager of Nkangala District Municipality, (hereinafter referred to as "the Licensing Authority "), in terms of section 36(1) of the National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004, hereinafter referred to as the "Act"), and as provided for in section 39 read with section 40(1), hereby grant an Atmospheric Emission Licence subject to the conditions specified herein.

This Atmospheric Emission Licence issued to **Samancor Chrome Ltd - Ferrometals** in terms of section 47(1) of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) ("the Act"), in respect of Listed Activities No. **4.5 & 4.9.** This Atmospheric Emission Licence is issued on the basis of information provided in the company's application to the Department of Economic Development, Environment and Tourism dated **13 July 2011** and the request subsequently sent to the Municipality on the 11th of April 2014 in respect the omission of some activities and information that became available during processing of the application.

This Atmospheric Emission Licence is valid until **31 January 2019** or for five years (5) from the date of the initial signature of this licence.

This current licence replaces the Registration Certificate previously issued in terms of the Atmospheric Poilution Prevention Act,1965 (Act No. 45 of 1965) ,and the atmospheric emission licence issued by the Mpumalanga Department of Economic Development Environment and Tourism.

This Atmospheric Emission Licence is issued subject to the conditions and requirements set out below which form part of the Atmospheric Emission Licence and which are binding on **Samancor Chrome Ltd - Ferrometals** (hereinafter referred to as "the Licence Holder")

Air Quality Officer Signature: _____ Date: 2014/09/30

## 1. ATMOSPHERIC EMISSION LICENCE ADMINISTRATION

| | |
|---|---|
| Name of the Licensing Authority | Nkangala District Municipality |
| Atmospheric Emission Licence Number | 17/04/AEL/MP312/11/03 |
| Atmospheric Emission Licence Re-Issue Date | 30 September 2014 |
| Atmospheric Emission Licence Type | Atmospheric Emission License |
| Review Date, not later than | 31 January 2019 |

## 2. ATMOSPHERIC EMISSION LICENCE HOLDERDETAILS

| | |
|---|---|
| Enterprise Name | Samancor Chrome Ltd |
| Trading as | Ferrometals |
| Enterprise Registration Number (Registration Numbers if Joint Venture) | 1926\008883\06 |
| Registered Address | Moses Kotane Drive, Ferrobank, Emalahleni<br>Mpumalanga<br>South Africa<br>1035 |
| Postal Address | P\Bag X 7228, Ferrobank, Emalahleni<br>Mpumalanga, South Africa, 1035 |
| Telephone Number (General) | +27 13693 7000 |
| Industry Sector | Smelter |
| Name of Responsible Officer | Ellie Wheal |
| Name of Emission Control Officer | Prenisha Chetty |
| Telephone Number | +27 13 693 7205 |
| Cell Phone Number | +27 82 4672145 |
| Fax Number | +27 13 696 2800 |
| Email Address | ellie.wheal@samancorcr.com |
| After Hours Contact Details | +27 82 449 8725 |
| Land Use Zoning as per Town Planning Scheme | Industrial 2 |

## 3. LOCATION AND EXTENT OF PLANT

| | |
|---|---|
| Physical Address of the Premises | Moses Kotane Drive, Ferrobank, Emalahleni<br>Mpumalanga<br>South Africa<br>1035 |
| Description of Site (Erf) | Portion 9 of Driefontein Erf 297 JS, Ferrobank, eMalahleni, Mpumalanga |

Air Quality Officer Signature: _____ Date: 2014/09/30

| | |
|---|---|
| Coordinates of Approximate Centre of Operations | Latitude: S 25$^0$ 50' 55,0 and Longitude: E 29$^0$ 10'39,2 |
| Extent (km$^2$) | 3,75 km$^2$ |
| Elevation Above Mean Sea Level (m) | 1550 m |
| Province | Mpumalanga |
| Metropolitan/District Municipality | Nkangala District Municipality |
| Local Municipality | Emalahleni Municipality |
| Designated Priority Area | 2$^{nd}$ Priority Area |

## 4. GENERAL CONDITIONS

### 4.1. Process and ownership changes

The Licence Holder must ensure that all unit processes and apparatus used for the purpose of undertaking the listed activity in question, and all appliances and mitigation measures for preventing or reducing atmospheric emissions, are at all times properly maintained and operated.

No building, plant or site of works related to the listed activity or activities used by the Licence Holder shall be extended, altered or added to the listed activity without an environmental authorisation from the competent authority.

Any changes in processes or production increases, by the Licence Holder, will require prior approval by the Licensing Authority.

Any changes to the type and quantities of input materials and products, or to production equipment and treatment facilities will require prior written approval by the Licensing Authority.

The Licence Holder must, in writing, inform the Licensing Authority of any change of ownership of the enterprise. The Licensing Authority must be informed within 30 (thirty) days after the change of ownership.

The Licence Holder must immediately on cessation or decommissioning of the listed activity inform, in writing, the licensing authority.

### 4.2. General duty of care

The Licence Holder must, when undertaking the listed activity, adhere to the duty of care obligations as set out in section 28 of the NEMA.

The Licence Holder must undertake the necessary measures to minimize or contain the atmospheric emissions. The measures are set out in section 28(3) of the NEMA.

Failure to comply with the above condition is a breach of the duty of care, and the Licence Holder will be subject to the sanctions set out in section 28 of the NEMA.

### 4.3. Sampling and/or analysis requirements

Measurement, calculation and/or sampling and analysis shall be carried out in accordance with any nationally or internationally acceptable standard. A different method may be acceptable to the Licensing Authority as long as it has been consulted and agreed to the satisfactory documentation necessary in confirming the equivalent test reliability, quality and equivalence of analysis.

The Licence Holder is responsible for quality assurance of methods and performance. Where the Licence Holder uses external laboratories for sampling or analysis, accredited laboratories shall be used.

### 4.4. General requirements for Licence Holder

The Licence Holder is responsible for ensuring compliance with the conditions of this licence by any person acting on his, her or its behalf, including but not limited to, an employee, agent, sub-contractor or person rendering a service to the holder of the licence.

The licence does not relieve the Licence Holder to comply with any other statutory requirements that may be applicable to the carrying on of the listed activity.

A copy of the licence must be kept at the premises where the listed activity is undertaken. The licence must be made available to the environmental management inspector representing the Licensing Authority who requests to see it.

The Licence Holder must inform, in writing, the Licensing Authority of any change to its details including the name of the emission control officer, postal address and/or telephonic details.

### 4.5. Statutory obligations

The Licence Holder must comply with the obligations as set out in Chapter 5 of the Act.

### 4.6. Payment of atmospheric emission licence processing fee

The licence holder will pay the licencing Authority the processing fee on receipt of the invoice. This will be after the processing fee regulations are finalised by the National Department of Environmental Affairs

## 5. NATURE OF PROCESS

### 5.1. Process description

Ferrometals situated on the outskirts of Emalahleni, is a division of Samancor Chrome, which is a global producer and marketer of chrome ores and alloys. This plant dates back to 1959 when African Metals Corporation Limited (Amcor) purchased a ten-year old two-furnace ferrosilicon producing plant. The plant currently consist of three 63 MVA and three smaller furnaces. Ferrometals also has a pelletizing and sintering plant, utilizing Outokumpu technology with a pre-heating kiln, a metal separation plant known as CRP, and an intermediate carbon ferrochrome plant known as IC3. In November 2009 International Mineral Resources (IMR) became the majority shareholder in Samancor Chrome Limited with a 70% direct shareholding in the holding company, Samancor Chrome Holdings (Pty) Limited.

Ferrometals uses various types of raw materials that are received by road and rail transport. The logistics section is responsible for obtaining and supplying the required quality and quantity of raw materials to the production units.

Raw materials and products produced are analysed in Ferrometals laboratory. The laboratory is equipped with sophisticated and modern equipment and uses international standards and methods to deliver the service.

The ferrochrome furnaces at Ferrometals produce high carbon charge chrome. The most important form in which chrome is used is in stainless steel production. Chrome ore, which contains oxides of chrome and iron, is reduced by the carbon in the form of coke and coal to form a chrome-iron alloy called ferrochrome.

Ferrochrome production is a carbo-thermic reduction process, which takes place at very high temperatures of up to 1750°C. The liquid ferrochrome is cast into ingots or granulated in water or transferred to the IC3 plant where it is converted into medium carbon ferrochrome.
With technological progress in specialised steel production, the need for intermediate carbon ferrochrome gave rise to the development of a new concept at Ferrometals. In 1986, the commissioning of IC3 took place. This plant concentrated on altering the chemical composition of the metal extracted by the furnaces. The resultant product of this plant is intermediate carbon ferrochrome.

The process of metal extraction from the ore results in losses of metal still trapped in slag that has accumulated on site. A separation plant was commissioned in 1995, which crushes material from the slag dumps and through a process of jigging recovers 95% of the metal contained in the slag. This process delivers clean slag suitable for concrete or road building applications. More importantly, it delivers clean ferrochrome that can be exported.

In June 1998 the Pelletising and Sintering Plant was commissioned. In mining chrome ore, a large percentage of ore fines are generated. Pelletising technology agglomerate the ore fines to form pellets.

### 5.2. Listed activity or activities

List of all Listed Activities, as published in terms of Section 21 of the AQA, authorised to be conducted at the premises by the licence holder:

| Category of Listed Activity | Sub-category of the Listed Activity | Listed Activity Name | Description of the Listed Activity |
|---|---|---|---|
| 4 | 4.9 | Ferro-Alloy Production | Production of alloys of iron with chromium, manganese, silicon or vanadium, the separation of titanium slag from iron-containing minerals using heat. |
| 4 | 4.5 | Sinter Plants | Sinter plants for agglomeration of fine ores using a heating process, including sinter cooling where applicable. |

### 5.3. Unit process or processes

List of all unit processes associated with the listed activities to be undertaken at the site of work.

| Unit Process | Unit Process Function | Batch or Continuous Process |
|---|---|---|
| F1-F6 | Smelting of chrome ore | Continuous |
| Intermediate Carbon Charge Chrome (IC3) | High Carbon Molten material put in converter to reduce Carbon content. | Continuous |
| Pelletizing and Sintering | Milling, pelletizing, sintering in furnace. | Continuous |

## 5.4. Hours of operations

Indicate the hours of operation of all unit processes associated with the listed activities at the site of work.

| Unit Process | Operating Hours | Days of Operation per Year |
|---|---|---|
| F1-F6 | 24 | 365 |
| IC3 | 24 | 365 |
| Pelletizing and Sintering | 24 | 365 |

## 5.5. Graphical process information

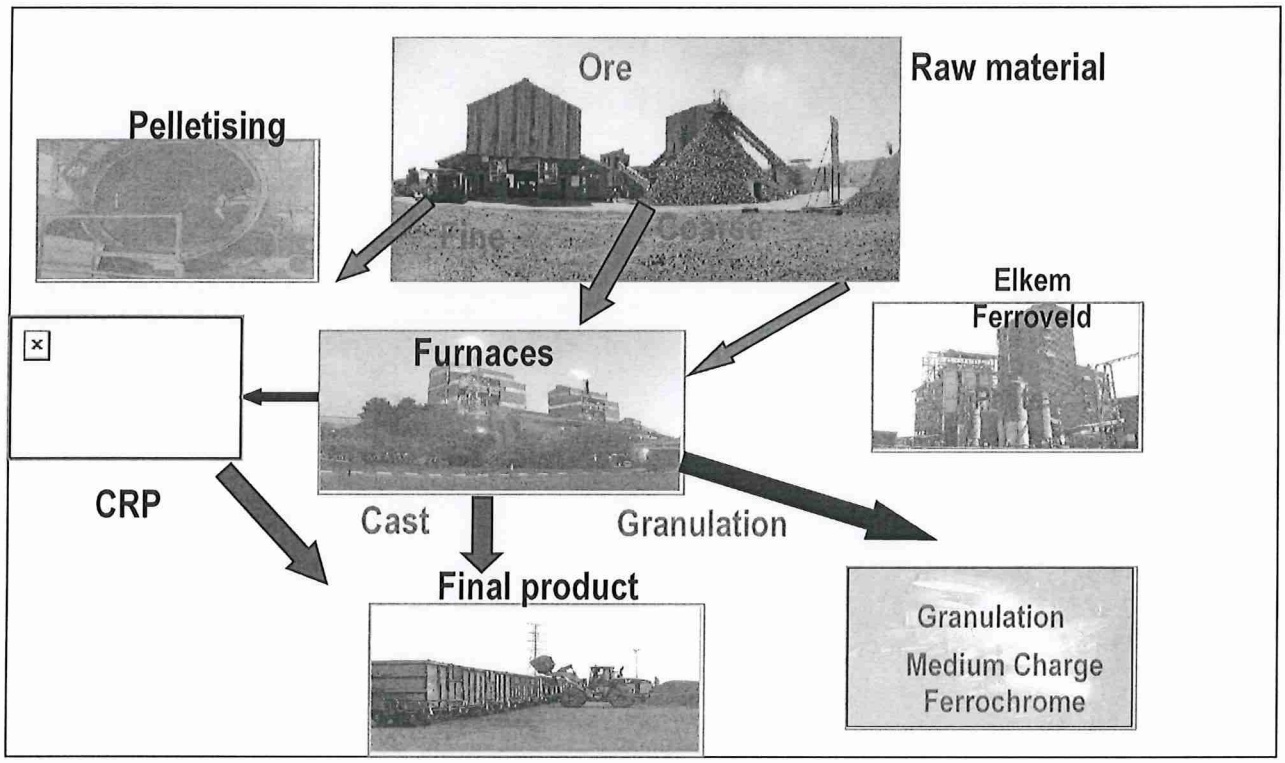



**Figure 1: Site layout plan**

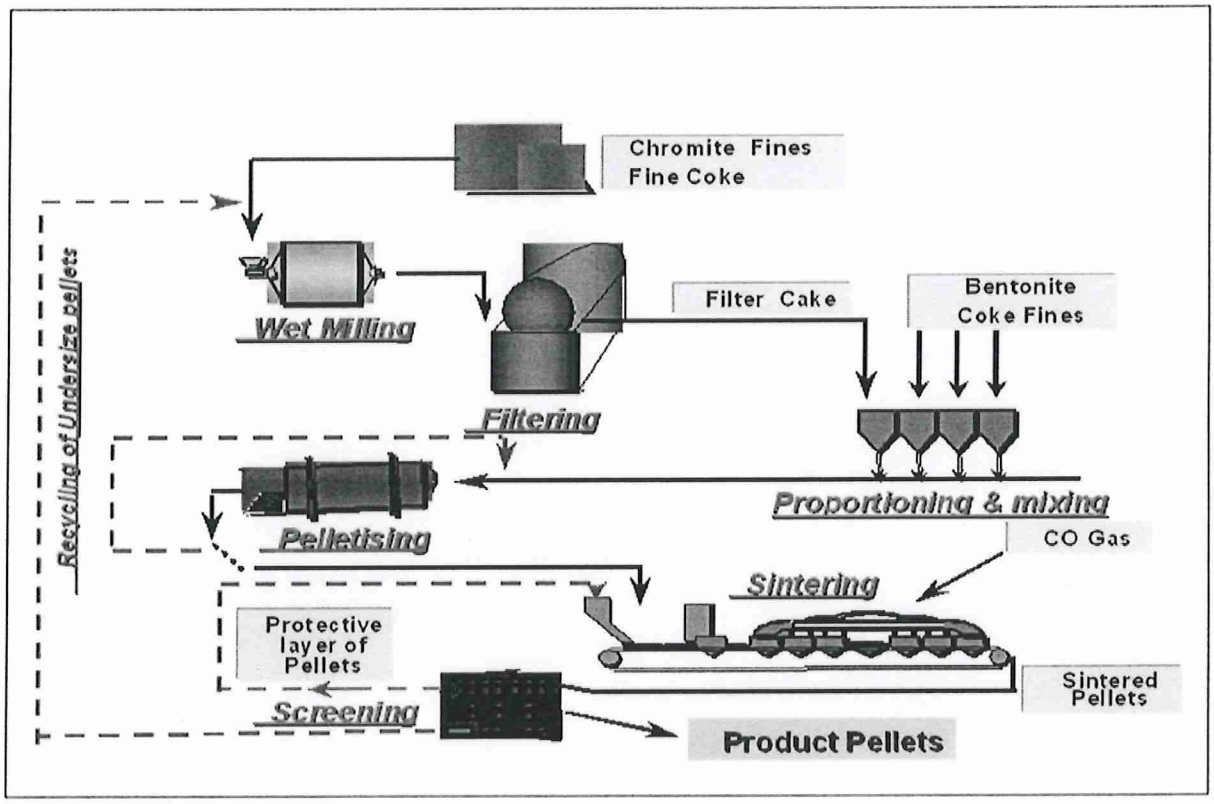



**Figure 2: Pelletizing and Sintering Process**

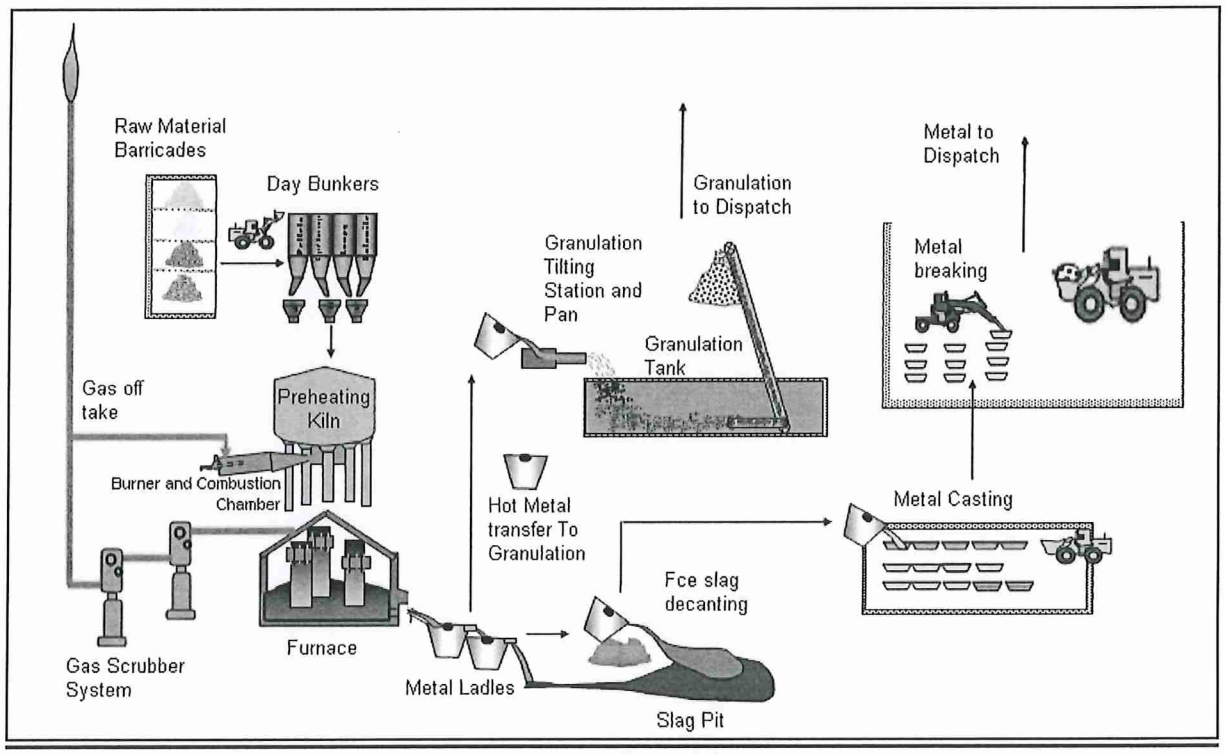



**Figure 3: Ferrochrome Process Flow Closed Furnace (F4 & F5)**

Air Quality Officer Signature: _____ Date: 2014/09/30

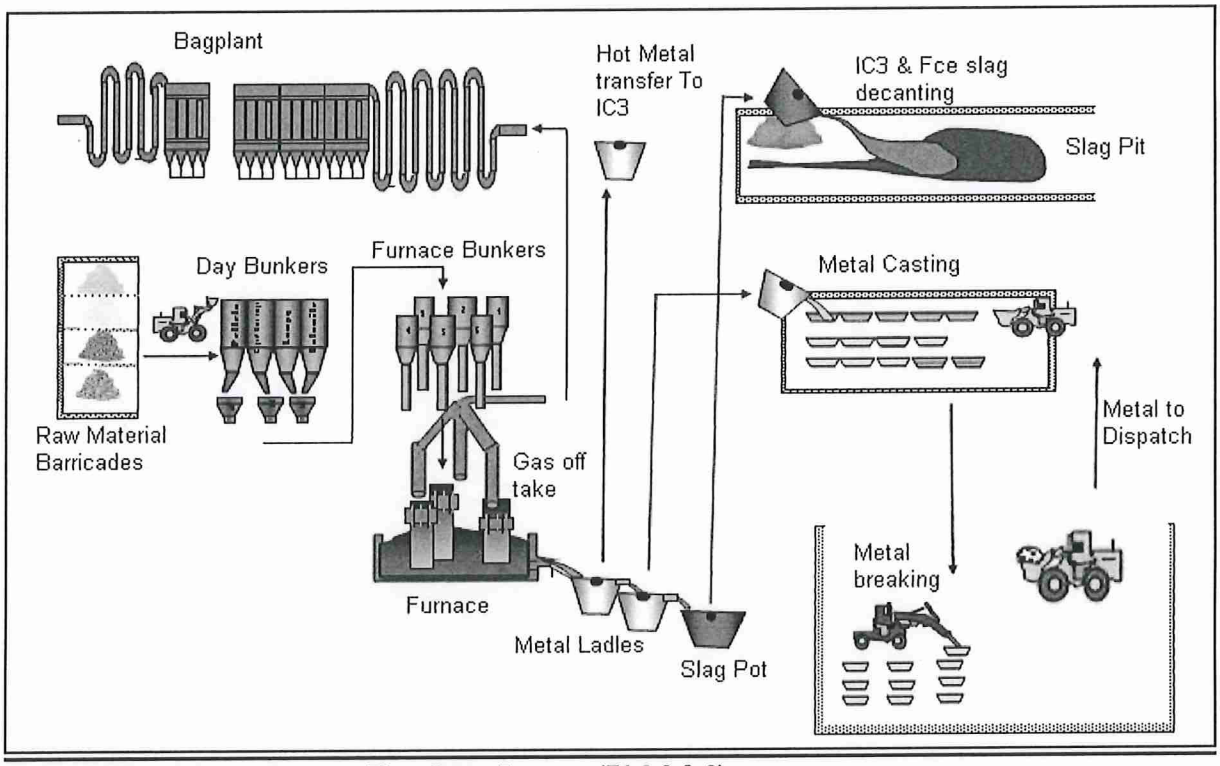



**Figure 4: Ferrochrome Process Flow Open Furnace (F1,2,3 & 6)**

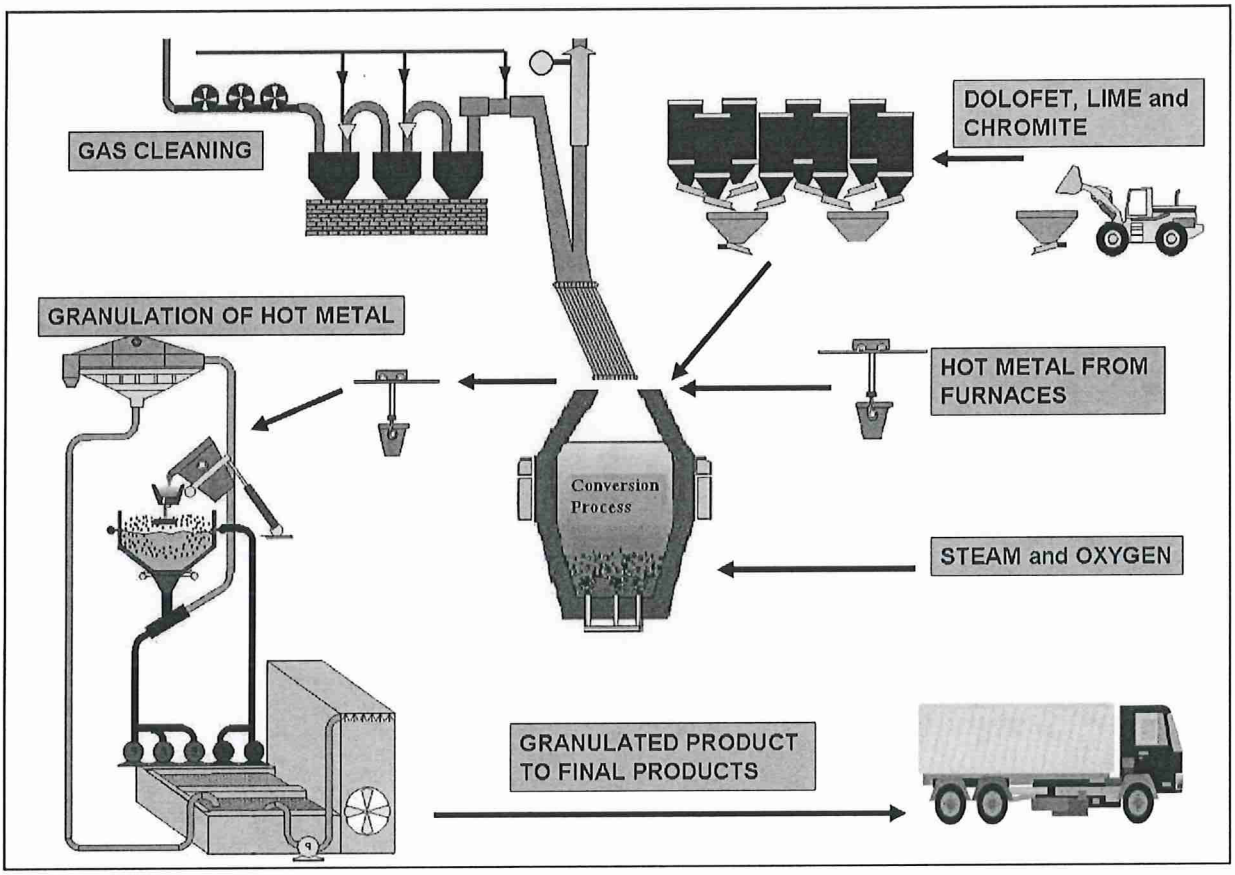



**Figure 4: Intermediate Carbon Charge Chrome (IC3) Process flow diagram**

Air Quality Officer Signature: _____ Date: 2014/09/30

## 6. RAW MATERIALS AND PRODUCTS

### 6.1. Raw materials used

| Regulated Raw Materials | | |
|---|---|---|
| **Raw Material Type** | **Maximum Permitted Consumption Rate (Quantity)** | **Units (quantity/period)** |
| **F1, F2 and F3** | | |
| Reductants | 126 000 | Tons/annum |
| Fluxes | 105 840 | Tons/annum |
| Chrome ore | 516 000 | Tons/annum |
| **F4 and F5** | | |
| Chrome ore | 740 000 | Tons/annum |
| Fluxes | 188 000 | Tons/annum |
| Reductants | 151 000 | Tons/annum |
| **F6** | | |
| Chrome ore | 396 000 | Tons/annum |
| Reductants | 79 000 | Tons/annum |
| Fluxes | 49 000 | Tons/annum |
| **Pelletizing and Sintering** | | |
| Chrome ore fines | 740 000 | Tons/annum |
| Reducing agent | 13 000 | Tons/annum |
| Reductants | 21 000 | Tons/annum |
| **IC3** | | |
| Charge Chrome | 99 000 | Tons/annum |
| Ferro-Silicon | 161 | Tons/annum |
| Dolomite ore | 9 500 | Tons/annum |
| Chrome ore | 9600 | Tons/annum |
| Oxygen | 4 260 956 | $M^3$/annum |
| Nitrogen | 1 443 500 | $M^3$/annum |
| CRP | 990 000 | Tons/annum |

## 6.2. Production rates

| Product Name | Maximum Permitted Production Capacity (Quantity) | Units (quantity/period) |
|---|---|---|
| **F1, F2 and F3** | | |
| Ferrochrome | 180 000 | Tons/annum |
| **F4 and F5** | | |
| Ferrochrome | 275 000 | Tons/annum |
| **F6** | | |
| Ferrochrome | 150 000 | Tons/annum |
| **Pelletizing and Sintering** | | |
| Sintered Pellets | 740 000 | Tons/annum |
| **IC3** | | |
| Ferrochrome | 75 000 | Tons/annum |

## 6.3. Materials used in energy sources

| Materials for Energy Source | Actual Consumption Rate (Quantity) | Units (quantity/period) | Materials Characteristics |
|---|---|---|---|
| Electricity | 1 255 526.31 | MWh/annum | N/A |

## 6.4. Sources of atmospheric emission

### 6.4.1. Point source parameters

| Point Source Code | Source Name | Latitude (decimal degrees) East | Longitude (decimal degrees) South | Height of Release Above Ground (m) | Height Above Nearby Building (m) | Diameter at Stack Tip / Vent Exit (m) | Actual Gas Exit Temperature (°C) | Actual Gas Volumetric Flow ($m^3/hr$) | Actual Gas Exit Velocity (m/s) | Emission Hours | Type of Emission (Continuous / Batch) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| P15 | F1 | E29 10.359 | S25 51.557 | 36.65 | 10 | 2.01 x 3 | n/a | n/a | n/a | 24 | Continuous |
| P14 | F2 | E29 10.347 | S25 51.555 | 36.65 | 10 | 2.01 x 3 | n/a | n/a | n/a | 24 | Continuous |
| P13 | F3 | E29 10.345 | S25 51.578 | 36.65 | 10 | 2.01 x 3 | n/a | n/a | n/a | 24 | Continuous |
| P2 | F6 | E29 10.353 | S25 51.462 | 45 | 10 | 35.324 | 138.0 | 2 248 092 | 0.6 | 24 | Continuous |
| P16 | F6 | E29 10.365 | S25 51.524 | 45 | 10 | 2.51 x 2 | n/a | n/a | n/a | 24 | Continuous |
| P5 | IC3 Road (area source) | E29 10.330 | S25 51.607 | 0 | 20 | n/a | n/a | n/a | n/a | 24 | Continuous |
| P5 | IC3 Scrubber Stack | E29 10.295 | S25 51.620 | 29 | 15 | 0.908 | 64.2 | 64 079 | 27.5 | 24 | Continuous |
| P7 | Drying and Bag House Stack | E29 10.213 | S25 51.499 | 37 | 10 | 2.500 | 33.5 | 281 268 | 16.847 | 24 | Continuous |
| P8 | Heating and Sintering Stack | E29 10.208 | S25 51.502 | 37 | 10 | 2.100 | 44.4 | 237 600 | 19.053 | 24 | Continuous |
| P10 | Chem plant Scrubber Stack | E29 10.217 | S25 51.496 | 70 | 10 | 1.400 | 21.5 | 84 600 | 15.269 | 24 | Continuous |
| P1 | Samancor Ferrometals F1-3 | E29 10.386 | S25 51.548 | 36.65 | 10 | 31.107 | 97.0 | 1 797 411 | 0.7 | 24 | Continuous |

Air Quality Officer Signature: VM Date: 2014/09/30

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| P11 | Furnace 4 (Closed Furnace) | E29 10.364 | S25 51.520 | 75 | 20 | 0.61 | 50.8 | 15131 | 21.4 | 24 | Continuous |
| P12 | Furnace 5 (Closed Furnace) | E29 10.364 | S25 51.519 | 75 | 20 | 0.61 | 36 | 17394 | 20.3 | 24 | Continuous |

### 6.4.2. Area and/or line source parameters

| Area Source Code | Source Name | Source Description | Latitude (decimal degrees) of SW corner | Longitude (decimal degrees) of SW corner | Height of Release Above Ground (m) | Length of Area (m) | Width of Area (m) | Emission Hours | Type of Emission (Continuous / Intermittent) |
|---|---|---|---|---|---|---|---|---|---|
| 5 | IC3 | IC3 building | E29 10.330 | S25 51.607 | 20 | 30 | 30 | 24 | Intermittent |
| 15 | Furnace 1 | Furnace 1 building | E29 10.359 | S25 51.557 | 36.6 | 30 | 30 | 24 | Intermittent |
| 14 | Furnace 2 | Furnace 2 building | E29 10.347 | S25 51.555 | 36.6 | 30 | 30 | 24 | Intermittent |
| 13 | Furnace 3 | Furnace 3 building | E29 10.345 | S25 51.578 | 36.6 | 30 | 30 | 24 | Intermittent |
| 16 | Furnace 6 | Furnace 6 building | E29 10.365 | S25 51.524 | 45 | 30 | 30 | 24 | Intermittent |
| 7 | Pelletizing Plant | Pelletizing plant building | E29 10.212 | S25 1.525 | 20 | 100 | 30 | 24 | Intermittent |

Air Quality Officer Signature: _____ Date: 2014/09/30

## 7. APPLIANCES AND MEASURES TO PREVENT AIR POLLUTION

### 7.1. Appliances and control measures

| Associated Source Code | Appliances | | | Abatement Equipment Control Technology | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Appliance / Process Equipment Number | Appliance Serial Number | Appliance Type / Description | Abatement Equipment Technology Name and Model | Abatement Equipment Technology Manufacture Date | Commission Date | Date of Significant Modification / Upgrade | Technology Type | Design Capacity | Minimum Control Efficiency (%) | Minimum Utilisation (%) |
| P1 | Furnace 1, 2 & 3 | Open Furnace | n/a | ELB | 1959 | 1959 | n/a | Trombone Cooler and Bag Filter | 246.17 $Am^3/s$ | 98 | 98 |
| P2 | Furnace 6 | Open Furnace | n/a | Samancor | 1970 | 1970 | n/a | Bag house | 9200 $m^3/min$ | 98 | 98 |
| P5 | IC3 Scrubber Stack | Converter | n/a | Outokumpu | 1986 | 1986 | n/a | Venturi Scrubber | 48 500 $Am^3/hr$ | 98 | 98 |
| P7 | Drying and Bag house stack | Pelletiser | n/a | Outokumpu | 1997 | 1997 | n/a | Venturi scrubber | 78.13$Am^3/s$ | 98 | 98 |
| P8 | Heating and Sintering stack | Pelletiser | n/a | Outokumpu | 1997 | 2003 | n/a | Venturi scrubber | 66$Am^3/s$ | 98 | 98 |
| P10 | Chem plant Scrubber Stack | Pelletiser | n/a | Outokumpu | 1997 | 1997 | n/a | Venturi Scrubber | 23.5$Am^3/s$ | 98 | 98 |
| P11 | Furnace 4 | Closed Furnace | n/a | Outokumpu | - | To be submitted as soon it`s available | n/a | Venturi Scrubber | To be submitted as soon as it`s available | 98 | 98 |
| P12 | Furnace 5 | Closed Furnace | n/a | Outokumpu | - | To be submitted as soon as it`s available. | n/a | Venturi Scrubber | To be submitted as soon as it`s available | 98 | 98 |

*** Note: $Am^3/s$ – Actual cubic meters per second**

Air Quality Officer Signature: VM Date: 2014/09/30

## 7.2. Point source – maximum emission rates (under normal working conditions)

| Point Source Code | Pollutant Name | Maximum Release Rate | | | Duration of Emissions |
|---|---|---|---|---|---|
| | | (mg/Nm³) | Date to be Achieved By | Average Period | |
| F1-F3 | PM | 100 | Immediately | 24 Hours | 00:00-24:00 |
| | | 100 | 2015 | 24 Hours | 00:00-24:00 |
| | | 30 | 2020 | 24 Hours | 00:00-24:00 |
| | $NO_X$ expressed as $NO_2$ | 750 | Immediately | 24 Hours | 00:00-24:00 |
| | | 750 | 2015 | 24 Hours | 00:00-24:00 |
| | | 400 | 2020 | 24 Hours | 00:00-24:00 |
| | $SO_2$ | 500 | Immediately | 24 Hours | 00:00-24:00 |
| | | 500 | 2015 | 24 Hours | 00:00-24:00 |
| | | 500 | 2020 | 24 Hours | 00:00-24:00 |
| F4 | PM | 100 | Immediately | 24 Hours | 00:00-24:00 |
| | | 100 | 2015 | 24 Hours | 00:00-24:00 |
| | | 50 | 2020 | 24 Hours | 00:00-24:00 |
| | $NO_X$ expressed as $NO_2$ | 750 | Immediately | 24 Hours | 00:00-24:00 |
| | | 750 | 2015 | 24 Hours | 00:00-24:00 |
| | | 400 | 2020 | 24 Hours | 00:00-24:00 |
| | $SO_2$ | 500 | Immediately | 24 Hours | 00:00-24:00 |
| | | 500 | 2015 | 24 Hours | 00:00-24:00 |
| | | 500 | 2020 | 24 Hours | 00:00-24:00 |
| F5 | PM | 100 | Immediately | 24 Hours | 00:00-24:00 |
| | | 100 | 2015 | 24 Hours | 00:00-24:00 |

Air Quality Officer Signature:  Date: 2014/09/30

| | | | | | |
|---|---|---|---|---|---|
| | | 50 | 2020 | 24 Hours | 00:00-24:00 |
| | $NO_X$ expressed as $NO_2$ | 750 | Immediately | 24 Hours | 00:00-24:00 |
| | | 750 | 2015 | 24 Hours | 00:00-24:00 |
| | | 400 | 2020 | 24 Hours | 00:00-24:00 |
| | $SO_2$ | 500 | Immediately | 24 Hours | 00:00-24:00 |
| | | 500 | 2015 | 24 Hours | 00:00-24:00 |
| | | 500 | 2020 | 24 Hours | 00:00-24:00 |
| **F6** | PM | 100 | Immediately | 24 Hours | 00:00-24:00 |
| | | 100 | 2015 | 24 Hours | 00:00-24:00 |
| | | 30 | 2020 | 24 Hours | 00:00-24:00 |
| | $NO_X$ expressed as $NO_2$ | 750 | Immediately | 24 Hours | 00:00-24:00 |
| | | 750 | 2015 | 24 Hours | 00:00-24:00 |
| | | 400 | 2020 | 24 Hours | 00:00-24:00 |
| | $SO_2$ | 500 | Immediately | 24 Hours | 00:00-24:00 |
| | | 500 | 2015 | 24 Hours | 00:00-24:00 |
| | | 500 | 2020 | 24 Hours | 00:00-24:00 |
| **Pelletizing & Sinter Plant Scrubber stack** | PM | 100 | Immediately | 24 Hours | 00:00-24:00 |
| | | 100 | 2015 | 24 Hours | 00:00-24:00 |
| | | 50 | 2020 | 24 Hours | 00:00-24:00 |
| | $NO_X$ expressed as $NO_2$ | 750 | Immediately | 24 Hours | 00:00-24:00 |
| | | 750 | 2015 | 24 Hours | 00:00-24:00 |
| | | 400 | 2020 | 24 Hours | 00:00-24:00 |
| | $SO_2$ | 500 | Immediately | 24 Hours | 00:00-24:00 |

Air Quality Officer Signature: VM Date: 2014/09/30

| | | | | | |
|---|---|---|---|---|---|
| | | 500 | 2015 | 24 Hours | 00:00-24:00 |
| | | 500 | 2020 | 24 Hours | 00:00-24:00 |
| **IC3 Scrubber** | PM | 100 | Immediately | 24 Hours | 00:00-24:00 |
| | | 100 | 2015 | 24 Hours | 00:00-24:00 |
| | | 50 | 2020 | 24 Hours | 00:00-24:00 |
| | $NO_X$ expressed as $NO_2$ | 750 | Immediately | 24 Hours | 00:00-24:00 |
| | | 750 | 2015 | 24 Hours | 00:00-24:00 |
| | | 400 | 2020 | 24 Hours | 00:00-24:00 |
| | $SO_2$ | 500 | Immediately | 24 Hours | 00:00-24:00 |
| | | 500 | 2015 | 24 Hours | 00:00-24:00 |
| | | 500 | 2020 | 24 Hours | 00:00-24:00 |
| **Chemplant Scrubber Stack** | PM | 100 | Immediately | 24 Hours | 00:00-24:00 |
| | | 100 | 2015 | 24 Hours | 00:00-24:00 |
| | | 50 | 2020 | 24 Hours | 00:00-24:00 |
| | $NO_X$ expressed as $NO_2$ | 750 | Immediately | 24 Hours | 00:00-24:00 |
| | | 750 | 2015 | 24 Hours | 00:00-24:00 |
| | | 400 | 2020 | 24 Hours | 00:00-24:00 |
| | $SO_2$ | 500 | Immediately | 24 Hours | 00:00-24:00 |
| | | 500 | 2015 | 24 Hours | 00:00-24:00 |
| | | 500 | 2020 | 24 Hours | 00:00-24:00 |

Air Quality Officer Signature:  Date: 30/09/2014

**Point source – operating requirements**

7.2.1. This operation is located in the HPA designated area, hence, further stricter conditions may be introduced.
7.2.2. The Licence Holder shall notify the Licensing Authority in writing pertaining to amendments to any of the conditions stipulated in this AEL.
7.2.3. The Licence Holder is responsible for ensuring compliance with the conditions stipulated in this AEL, including a person acting on behalf of the Licence Holder.
7.2.4. All records demonstrating compliance & non-compliance must be maintained and be kept for at least five (5) years.
7.2.5. Any abnormalities experienced shall be reported on the normal monthly Reporting and be forwarded to the Licensing Authority.
7.2.6. In the event where there is an equipment failure, malfunction or break down, the responsible person/license holder shall reduce the load and if it still continues, longer than 48 hours ,the operation shall be halted.
7.2.7. An official Air Quality Complaints Register must be developed, maintained and made available during inspections.
7.2.8. The number of hours for which emissions exceeded the limit shall be reported on a monthly basis to the Licensing Authority.
**7.2.9. The following special arrangements shall apply:**
7.2.9.1. Secondary fume capture installations shall be fitted to all new furnace installations by 2015.
7.2.9.2. Emissions of Chrome VI (Cr(VI) from primary point sources of ferrochrome furnaces and sinter plants respectively to be measured and reported to Licensing Authority annually.

## 7.3. Point Source – Maximum Emission Rates (Under Start-up, Maintenance and Shut-down Conditions)

**The following conditions must be adhered to at a minimum during start-up, maintenance and shut-down conditions:**

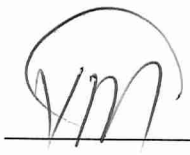
7.3.1.1. The following timeframes shall apply during start-up, maintenance and shut-down conditions. Should any of these timeframes be exceeded then Section 30 of the National Environmental Management Act (No 107 of 1998), as amended, shall apply:

| Activity | Down time of point source | Start-up duration (max) | Availability of fume abatement equipment | |
|---|---|---|---|---|
| | | | Open Furnace | Closed Furnace |
| Planned maintenance | 1 day (24 hours) | 48 hours | Immediately | Immediately |
| Annual Winter shutdown | 5 – 7 days (120 – 168 hours) | 96 hours | 48 hours | 48 hours |
| Furnace re-line | 6 weeks | 120 hours | 120 hours | 72 hours |
| Down time of Furnace due to market conditions | <12 Months | 120 hours | 120 hours | 96 hours |

Air Quality Officer Signature: VM Date: 2014/09/30

## 7.4. Point source – Emission monitoring and reporting requirements

| Point Source Code | Emission Sampling / Monitoring Method | Sampling Frequency | Sampling Duration | Parameters to be Measured & Reported | Reporting Frequency |
|---|---|---|---|---|---|
| F1 – F3 | As indicated in Section 21 of the Listed Activities | Bi annual | 24 hours (3 tests runs) | PM, $SO_2$ and $NO_2$ | Annually |
| F4-F5 | As indicated in Section 21 of the Listed Activities | Bi annual | 24 hours (3 tests runs) | PM, $SO_2$ and $NO_2$ | Annually |
| F6 | As indicated in Section 21 of the Listed Activities | Bi annual | 24 hours (3 tests runs) | PM, $SO_2$ and $NO_2$ | Annually |
| IC3 Raw Gas Stack | As indicated in Section 21 of the Listed Activities | Bi annual | 24 hours (3 tests runs) | PM, $SO_2$ and $NO_2$ | Annually |
| Pelletizing Plant Scrubber Stack | As indicated in Section 21 of the Listed Activities | Bi annual | 24 hours (3 tests runs) | PM, $SO_2$ and $NO_2$ | Annually |
| Chemical Plant Scrubber Stack | As indicated in Section 21 of the Listed Activities | Bi annual | 24 hours (3 tests runs) | PM, $SO_2$ and $NO_2$ | Annually |
| PSP Scrubber Wet Stack | As indicated in Section 21 of the Listed Activities | Bi annual | 24 hours (3 tests runs) | PM, $SO_2$ and $NO_2$ | Annually |

Air Quality Officer Signature:  Date: 2014/09/30

## 7.5. Area and/or line source – management and mitigation measures

| Area and/or Line Source Code | Area and/or Line Source Description | Description of Specific Measures | Timeframe for Achieving Required Control Efficiency | Method of Monitoring Measures Effectiveness | Contingency Measures |
|---|---|---|---|---|---|
| Slag Disposal Site | Internal haulage roads | Dust Suppression with Water | 2015 | Dust Fall out monitoring | Increased frequency of spraying of roads when required |

Air Quality Officer Signature: _____ Date: 2014/09/30

## 7.6. Routine reporting and record-keeping

***Complaints register***

The Licence Holder must maintain a complaints register at its premises, and such register must be made available for inspections. The complaints register must include the following information on the complainant, namely, the name, physical address, telephone number, date and the time when the complain was registered. The register should also provide space for noise, dust and offensive odours complaints.

Furthermore, the Licence Holder is to investigate and, monthly, report to the Licensing Authority in a summarised format on the total number of complaints logged. The complaints must be reported in the following format with each component indicated as may be necessary:

(a) Source code / name;
(b) Root cause analysis;
(c) Calculation of impacts / emissions associated with incidents and dispersion modelling of pollutants, where applicable;
(d) Measures implemented or to be implemented to prevent recurrence; and
(e) Date by which measure will be implemented.

The Licensing Authority must also be provided with a copy of the complaints register. The record of a complaint must be kept for at least 5 (five) years after the complaint was made.

**Annual reporting**

The Licence Holder must complete and submit to the Licensing Authority an annual report. The report must include information for the year under review (i.e. annual year end of the company). The report must be submitted to the licensing authority not later than 60 (sixty) days after the end of each reporting period. The annual report must include, amongst others, the following items:

(a) Pollutant emissions trend;

(b) Compliance audit report(s);

(c) Major upgrades projects (i.e. abatement equipment or process equipment); and

(d) Greenhouse gas emissions.

The Licence Holder must keep a copy of the annual report for a period of at least 5 (five) years.

## 7.7 Investigation

The following investigations are required:

| Investigation | Purpose | Completion Date |
|---|---|---|
| Atmospheric Emission Management Plan | An Atmospheric Emission Management Plan must be submitted in twelve (12) months time after the signature of the AEL, giving details of measures and specific activities to be adopted in order to achieve the set atmospheric emission standards. The plan must also include the management of point-source; fugitive emission (including dust) sources and impacts thereof, as well as all sources and impacts of nuisance-causing activities. | 31 January 2015 (or twelve months after the issuance of the AEL, whichever happens first) |

## 8. DISPOSAL OF WASTE AND EFFLUENT ARISING FROM ABATEMENT EQUIPMENT CONTROL TECHNOLOGY

The disposal of any waste and effluent arising from the abatement equipment control technology must comply with the relevant legislation and requirements of the relevant authorities.

| Source Code / Name | Waste / Effluent Type | Hazardous Components Present | Method of Disposal |
|---|---|---|---|
| Furnace 1; 2; 3 and 6 - bag filter dust | Hazardous waste | Heavy Metals, Salts | Disposal in Slimes dam and Holfontein |
| Furnace 4; 5; IC3 Plant and Pelletizing Plant - scrubber sludge | Hazardous waste | Heavy Metals, Salts | Disposal in Slimes dam and Holfontein |

## 9. PENALTIES FOR NON-COMPLIANCE WITH LICENCE AND STATUTORY CONDITIONS OR REQUIREMENTS

Failure to comply with any of the licence and relevant statutory conditions and/or requirements is an offence, and licence holder, if convicted, will be subjected to those penalties as set out in section 52 of the AQA.

## 10. APPEAL OF LICENCE

10.1 The Licence Holder must notify every registered interested and affected party in writing and within ten (10) days, of receiving the Department's decision;

10.2 The notification referred to in 10.1 must: –

a) Inform the registered interested and affected parties of the appeal procedure provided for in section 43 of the National Environmental Management Act, 1998, as amended;
b) Advise the interested and affected parties that a copy of the Atmospheric Emission Licence and reasons for the decision will be furnished on request; and
c) Specify the date on which the licence was issued.

10.3 An appeal against the decision must be lodged in terms of section 43 of the NEMA 1998, as amended, from the date of this license, with: The Member of Executive Council, Department of Economic Development, Environment and Tourism, Private Bag X 11215, NELSPRUIT, 1200, Tel No. 013 766 4004, Fax No. 013 766 4614.

**MM SKOSANA**
**MUNICIPAL MANAGER**

**DATE:**

Air Quality Officer Signature: _____ Date: 30/09/2014

**Water Use Permit (1464N)**

*Issued on 08 August 1985*

DE' RTEMENT VAN WATERWESE EN BO' OU
DEPARTMENT OF WATER AFFAIRS AND FORESTRY
TRANSVAALSTREEK
SDR-sentrum, John Vorsterrylaan-Suid,
Verwoerdburg
TRANSVAAL REGION
CCS Centre, John Vorster Drive South,
Verwoerdburg
DW

Faks: (012) 672-2936
Privaatsak X7420
Private Bag
Hennopsmeer
0046

djs/rm/2714I/3

Navrae:
Enquiries: D.J. Steyn
672-2943
Verwysing:
Reference: B33/2/210/45

PERMIT NUMBER: 1464N

PERMIT HOLDER: FERROMETALS DIVISION OF SAMANCOR LIMITED

LOCALITY OF PREMISES WHERE WATER WILL BE USED: WITBANK

PERMIT ISSUED IN TERMS OF SECTION 12(1) OF THE WATER ACT, 1956 (ACT 54 OF 1956) FOR THE USE OF WATER FOR INDUSTRIAL PURPOSES

A. By virtue of the powers delegated to me in terms of Government Notice 966 of 19 May 1989, I, Hendrik Bernardus Heymans Rossouw, in my capacity as Regional Director: Transvaal in the Department of Water Affairs and Forestry, hereby, in terms of section 12(1) of the Water Act, 1956, authorise the abovementioned Permit Holder to use for industrial purposes, at the premises to which it applies, the quantity of water specified hereunder, subject to the conditions specified herein.

B. DEFINITIONS

In this Permit -

"Act" means the Water Act, 1956 (Act 54 of 1956), as amended;
"Minister" means the Minister of Water Affairs;
"Department" means the Department of Water Affairs and Forestry;
"Director-General" means the Director-General: Water Affairs and Forestry;
"Regional Director" means the Regional Director: Transvaal, Department of Water Affairs and Forestry, Private Bag X7420, Hennopsmeer, 0046.

C. PERMIT CONDITIONS

1. QUANTITY OF WATER

1.1 This Permit authorises the use for industrial purposes, at the premises to which it applies, of a maximum quantity of 1 644 000 (one million six hundred and forty four thousand) cubic metres ($m^3$) of water per annum, supplied by the Town Council of Witbank, based on an average daily use of 4 500 $m^3$ during 365 working days per annum.

1.2 The quantity of water authorised to be used for industrial purposes in terms of this Permit may not be exceeded without prior authorisation by the Minister.

2. MONITORING AND REPORTING

2.1 The Permit Holder shall meter and record the quantity of water used daily, in cubic metres.

2.2 A summary of the records required in terms of condition 2.1, shall be submitted to the Regional Director, under reference B33/2/210/45, within one month of the close of the quarter concerned, using the attached form.

2.3 The Permit Holder shall submit annually before 31 January of the ensuing year, the following to the Regional Director:

2.3.1 A record of the number of days on which the plant was operating;

2.3.2 a list of all sources of water supply; and

2.3.3 a statement showing the projected increase in the quantity of water to be used annually for the ensuing five (5) years in cubic metres.

3. WATER METERS

3.1 The Permit Holder shall arrange to have the bulk water meters on intake supply lines maintained in a sound state of repair and calibrated at least once every two years by a competent person. Copies of current calibration certificates shall be retained for inspection by the Regional Director or his representative upon request.

4. WATER-SAVING

4.1 The Permit Holder shall, if so directed by the Director-General, investigate and put into practice water-saving devices or apply techniques for the reuse of water or effluent in an endeavour to conserve water at all times.

5. STORMWATER DISPOSAL

5.1 The domestic sewer, process water, drains and stormwater drains shall be completely separate systems. All reasonable precautions shall be taken to prevent the infiltration of stormwater into the influent of the sewage purification works.

5.2 No effluent occasioned by the use of water for industrial purposes shall be discharged into any stormwater drain, domestic sewer or discharged from the Permit Holder's property.

5.3 Stormwater leaving the Permit Holder's premises shall in no way be contaminated by any substance, whether such substance is a solid, liquid, vapour or gas or a combination thereof which is produced, used, stored, dumped or spilled on the premises.

6. PROTECTION WORKS AGAINST HYDROLOGICAL EVENTS

6.1 Works such as -

6.1.1 containment dams;

6.1.2 contour walls;

6.1.3 cut-off dams; and

6.1.4 any other run-off, deviation or collection structure;

shall be so designed, constructed and maintained as to ensure a freeboard of at least 0,5 metres above the maximum water level which could be reached as a result of the estimated maximum precipitation that may be expected during a period of 24 hours with an average frequency of recurrence of one (1) in fifty (50) years.

7. MALFUNCTIONS

7.1 Accurate and up-to-date records shall be kept of all system malfunctions which may result in the use of water in excess of the quantity authorised in terms of this Permit and the records shall be kept available for inspection by the Regional Director or his representative upon request. Such malfunctions shall be tabulated under the following headings with a full explanation of all the contributory circumstances:

7.1.1 Operating errors;

7.1.2 mechanical failures (including design, installation or maintenance);

7.1.3 environmental factors (e.g. flood);

7.1.4 loss of supply services (e.g. power failure); and

7.1.5 other causes.

7.2 The occurrence of any incident, including accidents with delivery vehicles, which causes or may cause water pollution, shall immediately be reported to the Regional Director, using facsimile number (012) 672-2936.

8. GENERAL

8.1 This Permit shall not be construed as exempting the Permit Holder from compliance with the provisions of the Health Act, 1977 (Act 63 of 1977), or any other applicable act, ordinance, regulation or by-law.

D. This Permit supersedes Permit 901N issued to Ferrometals Limited on 8 August 1985.

H.B.H. Rossouw.

REGIONAL DIRECTOR
p.p. MINISTER OF WATER AFFAIRS

**Water Use License (04/B11K/709)**

*Issued on 02 April 2011*

water affairs
Department:
Water Affairs
**REPUBLIC OF SOUTH AFRICA**

Private Bag X313, Pretoria, 0001, Sedibeng Building, 185 Schoeman Street, Pretoria, Tel: (012) 336-7500 Fax: (012) 323-4472/ (012) 326-2715

**LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT, 1998 (ACT NO. 36 OF 1998) (THE ACT)**

I, ***Deborah Gabaakelwe Mochotlhi,*** in my capacity as Project Manager: Letsema in the Department of Water Affairs and acting under authority of the powers delegated to me by the Minister of Water and Environmental Affairs, hereby authorise the following water use in respect of this licence.

SIGNED: .....

DATE: 2011 -04- 0 2 .....

**LICENCE NO: 04/B11K/709**
**FILE NO: 16/2/7/B100/B49**

1. **Water User:** **Samancor Chrome Ferrometals (Pty) Ltd**
   **Postal Address of appli** Private Bag X7228
   Emalahleni
   1035

2. **Water Uses**

2.1 Section 21(g) of the Act: Disposing of waste in a manner which may detrimentally impact on a water resource, subject to the conditions as set out in Appendices I and II.

3. **Properties on which the use will be exercised**

3.1 Section 21(g) of the / **Driefontein Erf 297 JS**

4. **Registered owners of the Properties**

4.1 Samancor Chrome Ferrometals (Pty) Ltd

5. **Licence and Review Period**

5.1 This licence is valid for a period of ten (10) years from the date of issuance and it will be reviewed every five (5) years.

B 2818

## 6. Definitions

" Any terms, words and expressions as defined in the National Water Act, 1998 (Act 36 of 1998) shall bear the same meaning when used in this licence."

"The Regional Head" means the Regional Head: Mpumalanga Region, Department of Water Affairs, Private Bag X11259, Nelspruit, 1200.

"Report" refers to the report entitled "Integrated Water and Waste Management Plan Volume I and Volume II" dated December 2008 and the Integrated Water and Waste Management Application dated February 2009 for "Samancor Chrome Ferrometals" as compiled by Golder Associates for Samancor as well as all other related documentations and communication (emails, letters, verbal, etc) thereto.

## 7. Description of Activity

Samancor Chrome Ferrometals has been in operation since 1959 as a manufacturer of steel making products. The industry produces a waste such as slag and slimes, arising from the manufacturing processes

D.G. MOCHOTLHI

## APPENDIX I

### General Condition for the licence

1. This licence is subject to all applicable provisions of the National Water Act, 1998 (Act 36 of 1998).

2. The responsibility for complying with the provisions of the licence is vested in the Licensee and not any other person or body.

3. The Licensee must immediately inform the Regional Head of any change of name, address, premises and/or legal status.

4. If the property in respect of which this licence is issued is subdivided or consolidated, the Licensee must provide full details of all changes in respect of the properties to the Regional Head of the Department within sixty (60) days of the said change taking place.

5. If a water user association is established in the area to manage the resource, membership of the Licensee to this association is compulsory.

6. The Licensee shall be responsible for any water use charges or levies imposed by a responsible authority.

7. While effect must be given to the Reserve as determined in terms of the Act, where a desktop determination of the Reserve has been used in issuance of a licence, when a comprehensive determination of the Reserve has finally been made; it shall be given effect to.

8. When compulsory licensing is implemented for the water resource in respect of which this licence was issued, the water use authorized in this licence could be subject to appropriate reduction.

9. The licence shall not be construed as exempting the Licensee from compliance with the provisions of any other applicable Act, Ordinance, Regulation or By-law.

10. The licence and amendment of this licence are also subject to all the applicable procedural requirements and other applicable provisions of the Act, as amended from time to time.

11. The Licensee shall conduct an annual internal audit on compliance with the conditions of licence. A report on the audit shall be submitted to the Regional Head within one month of the finalisation of the audit.

12. The Licensee shall appoint an independent external auditor to conduct an annual audit on compliance with the conditions of this licence. The first audit must be conducted within three (3) months of the date this license and a report on the audit shall be submitted to the Regional Head within one (1) month of finalisation of the report.

13. Flow metering, recording and integrating devices shall be maintained in a sound state of repair and calibrated by a competent person at intervals of not more than two years. Calibration certificates shall be available for inspection by the Regional Head or his representative upon request.

14. Any incident that causes or may cause water pollution shall be reported to the Regional Head or his/her designated representative within twenty four (24) hours.

D.G. MOCHOTLHI

## APPENDIX II

**Section 21(g) of the Act: Disposing of waste in a manner which may detrimentally impact on a water resource**

## 1. CONSTRUCTION AND OPERATION

1.1 The shall carry out and complete all the activities, including the construction and/or upgrading and operation of the following water and waste management facilities:-

1.1.1 Coal discard dump with the secondary area;
1.1.2 Ferrochrome slag at old village;
1.1.3 Southern historical slimes dam;
1.1.4 Small historical slimes dam at stores;
1.1.5 Historical processed slag dump;
1.1.6 Historical manganese dump;
1.1.7 Eastern historical slimes dam;
1.1.8 Washed slag dump;
1.1.9 Slag (fine) being recovered;
1.1.10 Fine washed slag – Afrigrit dump;
1.1.11 Historical co-disposal dump;
1.1.12 Slag from furnaces and other fine waste;
1.1.13 Northern slimes dam and process water dam;
1.1.14 Stormwater channel (lean and dirty) and process water dam.

According to the Report and according to the engineering designs to be submitted within 6 months of the issuance of this license for approval by the Regional Head.

1.2 The construction of the facility mentioned in 1.1 must be carried out under the supervision of a professional Civil Engineer, registered under the Engineering Profession of South Africa Act, 1990 (Act 114 of 1990), as approved by the designer.

1.3 Within 30 days after the completion of the activities referred here in accordance with the relevant provisions of this licence, the Licensee shall in writing, under reference 16/2/7/B100/B45 inform the Regional Head thereof. This shall be accompanied by a signature of approval from the designer referred to above that the construction was done according to the design plans referred to in the Report.

1.4 The Licensee must ensure that the disposal of the Slag waste and the operation and maintenance of the system are done according to the provisions in the Report.

1.5 The Licensee shall as well submit a set of as-built drawings to the Regional Head after the completion of the waste and waste water management facility mentioned in 1.1.

1.6 The waste and waste water management facilities mentioned in 1.1 shall be operated and maintained to have a minimum freeboard of 0.8 metres above full supply level and all other water systems related thereto shall be operated in such a manner that it is at all times capable of handling the 1:50 year flood-event on top of its mean operating level.

1.7 The Licensee shall use acknowledged methods for sampling and the date, time and sampler must be indicated for each sample.

D.G. MOCHOTLHI

## 2. STORAGE OF WATER CONTAINING WASTE

2.1 The is authorised to dispose the following:

| Water Uses | Activity | Quantity (per |
|---|---|---|
| 2.1 Section 21(g) | Coal discard dump within secondary area | 700000 tons |
| 2.2 Section 21(g) | Ferrochrome slag at old village | Has been cleared of all rubble |
| 2.3 Section 21(g) | Southern historical slimes dam at stores | 40 000 tons |
| 2.4 Section 21(g) | Small historical slimes dams at stores. | 20 000 tons |
| 2.5 Section 21(g) | Northern slimes dam and process water dam | 101 610 tons |
| 2.6 Section 21(g) | Historical processed slag dump | 3 million tons |
| 2.7 Section 21(g) | Stormwater channel (clean & dirty) and process water dam | 12 000 $m^3$ |
| 2.8 Section 21(g) | Raw materials and final product stockpile | 848 408 tons |
| 2.9 Section 21(g) | Historical Manganese dump | 15 000 tons |
| 2.10 Section 21(g) | Eastern historical slimes dam | 33 000 tons |
| 2.11 Section 21(g) | Washed slag dump | 898 277 tons |
| 2.12 Section 21(g) | Fine washed slag-Afrigrit dump | 35 425 tons |
| 2.13 Section 21(g) | Slag from furnace and other fine waste | 510 997 tons |

## 3. QUALITY OF WASTE WATER TO BE DISPOSED

3.1 The quality of storm water (clean and dirty) disposed of into the Storm water channel shall not exceed the following limits of the general standards indicated below:

Table 1

| Variables and substances | General Effluent Standards |
|---|---|
| Chemical oxygen demand | 65 mg/l |
| Colour, odour or taste | No substance capable of producing the variables listed |
| Cyanide (as Cn) | 0,03 mg/l |
| Dissolved oxygen concentration | At least 75% saturation |
| Fluoride (as F) | 1,0 mg/l |
| Increase in electrical conductivity | Not by more than 75 milli-Siemens/m above that of the receiving water |
| Increase in sodium (as Na) concentration | Not by more than 90 mg/l above the receiving water |
| Ionised and unionised ammonia (free and saline ammonia) | 3,0 mg/l |
| Nitrate (as N) | 15 mg/l |
| Oil or grease | 0 mg/l |
| PH | Between 5,5 and 9,5 |
| Phenol index | 0,1 mg/l |
| Residual chlorine (as Cl) | 0,1 mg/l |
| Soap or detergents | 0 mg/l |
| Soluble ortho phosphate (as P) | 1,0 mg/l |
| Sulphides (as S) | 1,0 mg/l |
| Suspended solids | 18 mg/l |
| Temperature | Not more than 25°C |
| Total aluminium | 0,05 mg/l |

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| | |
|---|---|
| Total arsenic (as As) | 0,06 mg/l |
| Total boron (as B) | 0,5 mg/l |
| Total cadmium (as Cd) | 0,008 mg/l |
| Total chromium III (as $Cr_{III}$) | 0,11 mg/l |
| Total chromium VI (as $Cr_{VI}$) | 0,02 mg/l |
| Total copper (as Cu) | 0,006 mg/l |
| Total iron (as Fe) | 0,3 mg/l |
| Total lead (as Pb) | 0,01 mg/l |
| Total manganese (as Mn) | 0,4 mg/l |
| Total mercury (as Hg) | 0,002 mg/l |
| Total selenium (as Se) | 0,05 mg/l |
| Total zinc (as Zn) | 0,05 mg/l |
| Typical faecal coli per 100 ml | 0 |

## 4. MONITORING

### 4.1. GROUNDWATER MONITORING

4.1.1 The Licensee shall compile a groundwater monitoring programme within twelve (12) months after the issuance of this licence. A report shall be submitted to the Regional Head within one month of finalisation of the report for evaluation and approval.

4.1.2 Monitoring boreholes shall be clearly marked and numbered, and must be equipped with lockable caps. The Department reserves the right to sample monitoring boreholes at any time and to analyse these samples, or to have samples taken and analysed.

4.1.3 The shall maintain the groundwater quality monitoring network to the satisfaction of the Regional Head, so that unobstructed sampling, as required in terms of this Licence, can be undertaken.

4.1.4 Groundwater monitoring shall be conducted at a quarterly basis and report the outcome to the Regional Head.

4.1.5 Groundwater monitoring results shall be compiled in a report and submitted to the Department within one month of its finalisation.

4.1.6 Monitoring boreholes shall be established around the defunct Duiker shaft for estimating mine fill-up and possible decant rates in the other shafts.

4.1.7 Monitoring boreholes shall be established around the plant infrastructure and workshop areas

**Table 2: Groundwater Monitoring Points**

| Monitoring point | X Co-ordinate | Y Co-ordinate |
|---|---|---|
| FSD/FSS-1 | 25.857478 | 28.822804 |
| FSD/FSS-5 | 25.849490 | 28.830453 |
| FSD/FSS-6 | 25.846601 | 28.829949 |
| FSD/FSS-7 | 25.843701 | 28.827723 |
| FSD/FSS-9 | 25.847092 | 28.825165 |
| FSD/FSS-10 | 25.823231 | 28.825919 |
| FSD/FSS-15 | 25.850460 | 28.826705 |
| FSD/FSS-16 | 25.848913 | 28.831004 |
| FSD/FSS-17 | 25.858347 | 28.831919 |

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| Monitoring point | X Co-ordinate | Y Co-ordinate |
|---|---|---|
| 8807-01D | 25.83979 | 29.17078 |
| 8807-02S | 25.83937 | 29.17081 |
| 8807-03D | 25.84392 | 29.17473 |
| 8807-04D | 25.83784 | 29.17062 |
| 8807-05D | 25.85170 | 29.16939 |
| 8807-06D | 25.85390 | 29.17835 |
| 8807-07S | 25.85427 | 29.17847 |
| 8807-08S | 25.86446 | 29.17607 |
| 8807-09D | 25.86291 | 29.16998 |
| 8807-10S | 25.86290 | 29.16995 |
| 8807-11D | 25.86288 | 29.16992 |
| 8807-12S | 25.83785 | 29.17068 |
| 8807-13S- | 25.85164 | 29.16941 |
| FSMS3 | 25.857553 | 29.178631 |
| FSM3 | 25.857533 | 29.178674 |
| FSM4 | 25.855089 | 29.173032 |
| FSM4-1 | 25.855138 | 29.173026 |
| FSD23 | 25.849959 | 29.171717 |
| FSS23 | 25.849937 | 29.171665 |
| FSS24 | 25.844733 | 29.173615 |
| FSD24 | 25.844788 | 29.173612 |
| FSS25 | 25.848445 | 29.177321 |
| FSD25 | 25.848401 | 29.177337 |
| FSD26 | 25.858215 | 29.176501 |
| FSS26 | 25.858203 | 29.176456 |

**Water Quality**

Physical

| Constituent | Unit | Frequency |
|---|---|---|
| Electrical conductivity | mS/m | Quarterly |
| pH | pH units | Quarterly |

Chemical

| Constituent | Unit | Frequency |
|---|---|---|
| Total Dissolved Solids | *mg/l* | Quarterly |
| Suspended solids(SS) | *mg/l* | Quarterly |
| Sulphates(as S04) | *mg/l* | Quarterly |
| Chlorine (as Cl) | *mg/l* | Quarterly |
| Nitrate(as N) | *mg/l* | Quarterly |
| Ortho-phosphate (as P) | *mg/l* | Quarterly |
| Boron (as B) | *mg/l* | Quarterly |
| Ammonia(as N) | *mg/l* | Quarterly |
| Fluoride(as F) | *mg/l* | Quarterly |
| Aluminium(Soluble) | *mg/l* | Quarterly |
| Manganese(soluble) | *mg/l* | Quarterly |
| Vanadium (soluble) | *mg/l* | Quarterly |
| Iron (soluble) | *mg/l* | Quarterly |

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## 4.2 SURFACE WATER QUALITY MONITORING

4.2.1 The Licensee shall monitor water resources at Brugspruit and Blesbokspruit to determine the impact of the facility and other activities on the water quality by taking samples at the monitoring points described in Table 3:

**Table 3: Surface Water Monitoring points**

| Locality | Description | X Co-ordinate | Y Co-ordinate |
|---|---|---|---|
| | | | |
| SW 1 | Spillway at new north-eastern stormwater dam | 25.845685 | 29.170704 |
| SW 2 | Water contained within the new north eastern stormwater dam | 25.847082 | 29.171106 |
| SW 3 | Spillway at new south-eastern stormwater dam | 25.862132 | 29.168024 |
| SW 4 | Water contained within the new south eastern stormwater dam | 25.861525 | 29.168395 |
| SW 5 | Water contained within the process water dam | 25.848958 | 29.170408 |
| SW 6 | Municipal stormwater network, located at the south eastern plant boundary | 25.862653 | 29.168034 |
| SW 7 | Stormwater network, located outside the eastern plant boundary | 25.851088 | 29.169573 |

**Water Quality**

Physical

| Constituent | Unit | Frequency |
|---|---|---|
| Electrical conductivity | mS/m | Weekly |
| pH | pH units | Weekly |

Chemical

| Constituent | Unit | Frequency |
|---|---|---|
| Total Dissolved Solids | *mg/l* | Monthly |
| Suspended solids(SS) | *mg/l* | Monthly |
| Sulphates(as S04) | *mg/l* | Monthly |
| Chlorine (as Cl) | *mg/l* | Monthly |
| Nitrate(as N) | *mg/l* | Monthly |
| Ortho-phosphate (as P) | *mg/l* | Monthly |
| Boron (as B) | *mg/l* | Monthly |
| Ammonia(as N) | *mg/l* | Monthly |
| Fluoride(as F) | *mg/l* | Monthly |
| Aluminium(Soluble) | *mg/l* | Monthly |
| Manganese(soluble) | *mg/l* | Monthly |
| Vanadium (soluble) | *mg/l* | Monthly |
| Iron (soluble) | *mg/l* | Monthly |

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4.2 The date, time and monitoring point in respect of each sample taken shall be recorded together with the results of the analysis.

4.3 Monitoring points shall not be changed prior to notification to and written approval by the Regional Head.

4.4 An Aquatic Scientist approved by the Regional Head must establish a monitoring programme for the following indices: Invertebrate Habitat Assessment System (IHAS) and the latest SASS (South African Scoring System). Sampling must be done once during the summer season and once during the winter season, annually, to reflect the status of the river upstream and downstream of the mining activities.

4.5 Toxicity testing to be performed on the waste and waste water facilities on a quarterly basis in order to determine the risks to the receiving environment. The data gathered in the investigation must be reported annually during March of each year to the Regional Head. If any toxicity levels as specified is exceeded, the Licensee must institute an investigation to determine the cause of toxicity.

4.6 Toxicity testing must be conducted quarterly on the wastewater stream from the waste and waste water facilities when returned back to the mine for use as process water.

4.7 The Licensee shall participate in any initiative such as Direct Estimation of Ecological Effect Potential (DEEEP) to determine the toxicity of complex tailings waste discharges. Both acute and chronic toxicity must be addressed and at least three taxonomic groups must be present when toxicity tests are performed.

4.8 Analysis shall be carried out in accordance with methods prescribed by and obtainable from the South African Bureau of Standards (SABS), in terms of the Standards Act, 1982 (Act 30 of 1982).

4.9 The methods of analysis shall not be changed without prior notification to and written approval by the Minister.

## 5. WATER RESOURCE PROTECTION

5.1 The impact of the activities of the industry on the Brugspruit and Blesbokspruit shall not exceed the following in-stream water quality objectives (or resource quality objectives) for the area:

**Table 4**

| Parameter | RQOs |
|---|---|
| pH | 6 - 9.5 |
| Electrical conductivity (Ec) in mS/m | 98.40 |
| Sodium (Na) in mg/l | 32.01 |
| Magnesium (mg) in mg/l | 78.76 |
| Calcium (ca) in mg/l | 41.46 |
| Chloride (mg/l) | 47.94 |
| Sulphate (mg/l) | 32.10 |
| Nitrate (mg/l) | 7.17 |
| Fluoride (mg/l) | 0.14 |

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## 6. REPORTING

5.1 The Licensee shall update the water balance annually and calculate the loads of waste emanating from the activities. The Licensee shall determine the contribution of their activities to the mass balance for the water resource and must furthermore co-operate with other water users in the catchment to determine the mass balance for the water resource reserve compliance point.

5.2 The Licensee shall submit the results of analysis for the monitoring requirements to the Regional Head on a quarterly basis under Reference number 16/2/7/B100/B45.

## 7. STORM WATER MANAGEMENT

7.1 Storm water leaving the 's premises shall in no way be contaminated by any substance, whether such substance is a solid, liquid, vapour or gas or a combination thereof which is produced, used, stored, dumped or spilled on the premises.

7.2 Increase runoff due to vegetation clearance and/or soil compaction must be managed, and steps must be taken to ensure that storm water does not lead to bank instability and excessive levels of silt entering the stream.

7.3 Storm water shall be diverted from Samancor complex site and roads and shall be managed in such a manner as to disperse runoff and concentrating the storm-water flow.

7.4 Where necessary works must be constructed to attenuate the velocity of any storm-water discharge and to protect the banks of the affected watercourses.

7.5 Storm water control works must be constructed, operated and maintained in a sustainable manner throughout the impacted area.

7.6 Increased runoff due to vegetation clearance and/or soil compaction must be managed, and steps must be taken to ensure that storm-water does not lead to bank instability and excessive levels of silt entering the streams.

7.7 All storm water that would naturally run across the pollution areas shall be diverted via channels and trapezoidal drains designed to contain the 1:50 year flood.

7.8 The polluted storm water system shall be designed and implemented to provide suitable routing and pumping capacity for contaminated storm water from the individual facilities to the respective storm water dams in accordance with the design specifications as contained in the Report to be submitted within six month for approval.

7.9 The polluted storm water captured in the storm water control dams shall be pumped to the process water treatment plant for reuse and recycling.

## 8. PLANT AREAS AND CONVEYANCES

8.1 Pollution caused by spills from the conveyances must be prevented through proper maintenance and effective protective measures especially near all stream crossings.

8.2 All reagent storage tanks and reaction units must be supplied with a bunded area built to the capacity of the facility and provided with sumps and pumps to return the spilled material

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back into the system. The system shall be maintained in a state of good repair and standby pumps must be provided.

8.3 Any hazardous substances must be handled according to the relevant legislation relating to the transport, storage and use of the substance.

8.4 Any access roads or temporary crossings must be:

8.4.1 non-erosive, structurally stable and shall not induce any flooding or safety hazard; and
8.4.2 be repaired immediately to prevent further damage.

## 9. ACCESS CONTROL

9.1 Strict access procedures must be followed in order to gain access to the property. Access to the slimes dam, slag dumps, processed water dam, storm water channel must be limited to authorised people only.

9.2 Notices prohibiting unauthorised persons from entering the areas referred to in condition 9.1, as well as internationally acceptable signs indicating the risks involved in case of an unauthorised entry must be displayed along the boundary fence of these areas.

## 10. CONTINGENCIES

10.1 Accurate and up-to-date records shall be kept of all system malfunctions resulting in non-compliance with the requirements of this licence. The records shall be available for inspection by the Regional Head upon request. Such malfunctions shall be tabulated under the following headings with a full explanation of all the contributory circumstances:
10.1.1 operating errors;
10.1.2 mechanical failures (including design, installation or maintenance);
10.1.3 environmental factors (e.g. flood);
10.1.4 loss of supply services (e.g. power failure); and
10.1.5 other causes.

10.2 The Licensee must, within 24 hours, notify the Regional Head of the occurrence or potential occurrence of any incident which has the potential to cause, or has caused water pollution, pollution of the environment, health risks or which is a contravention of the licence conditions.

10.3 The Licensee must, within 14 days, or a shorter period of time, as specified by the Regional Head, from the occurrence or detection of any incident referred above, submit an action plan, which must include a detailed time schedule, to the satisfaction of the Regional Head of measures taken to: –
10.3.1 correct the impacts resulting from the incident;
10.3.2 prevent the incident from causing any further impacts; and
10.3.3 prevent a recurrence of a similar incident.

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## 11. AUDITING

11.1 The Licensee shall conduct an annual internal audit on compliance with the conditions of this licence. A report on the audit shall be submitted to the Regional Head within one month of finalisation of the report, and shall be made available to an external auditor should the need arise.

11.2 The Licensee shall appoint an independent external auditor to conduct an annual audit on compliance with the conditions of this licence. The first audit must be conducted within 3 (three) months of the date this license was issued and a report on the audit shall be submitted to the Regional Head within one month of finalisation of the report.

## 12. INTEGRATED WATER AND WASTE MANAGEMENT

12.1 The Licensee must update an Integrated Water and Waste Management Plan (IWWMP), which must together with the Rehabilitation Strategy and Implementation Programme (RSIP), be submitted to the Regional Head for review and approval within one (1) year from the date of issuance of this licence.

12.2 The IWWMP and RSIP shall thereafter be updated and submitted to the Regional Head for approval, annually.

12.3 The Licensee must, at least 180 days prior to the intended closure of any facility, or any portion thereof, notify the Regional Head of such intention and submit any final amendments to the IWWMP and RSIP as well as a final *Closure Plan,* for approval.

12.4 The Licensee shall make full financial provision for all investigations, designs, construction, operation and maintenance for a water treatment plant should it become a requirement as a long-term water management strategy.

12.5 The Licensee must implement the Integrated Water and Waste Management Plan Volume I and Volume II dated December 2008 most important the measures envisaged to mitigate the existing unacceptable pollution at the works.

12.6 The Licensee must submit the engineering design for all dams and storm water management including the upgrading of the existing facilities/dams within 6 months from the date of the issuance of this licence.

12.7 The Licensee must work towards contributing to the need to redress the results of the past racial and gender discrimination, including the equitable access to the water resources and the benefits derived from the use of such resources.

**END OF LICENCE**

**Environmental Authorisation (Ref: 17/2/1/25 MP-5)**

*Issued on 06 December 2011*

# Mpumalanga Provincial Government

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## DEPARTMENT OF AGRICULTURE AND LAND ADMINISTRATION
### DIRECTORATE: ENVIRONMENTAL IMPACT MANAGEMENT

| Litiko Letekulima Kanye Nekuphatfwa Kwemhlaba | Departement van Landbou, en Grondadministrasie | Umnyango Wezokulima, Nebhoduluko KweNarha |
|---|---|---|


# Environmental Authorisation

**Authorisation register number** : 17/2/1/25 MP-5

**Holder of Authorisation** : FERROMETALS

**Location of activity** : Portion 8, 9, 12 AND 13 OF THE FARM DRIEFONTEIN 297 JS,FERROMETALS, WITBANK.

## 1. Decision

The Department is satisfied on the basis of the information available to it and subject to compliance with the conditions of this Environmental Authorisation, that the applicant should be authorised to undertake the activity as specified below.

Details regarding the basis on which the Department reached this decision are set out in Annexture 1.

## 2. Activities authorised

By virtue of the powers conferred on it by the National Environmental Management Act, 1998 (Act 107 of 1998) and the Environmental Impact Assessment Regulations 2006, the Department hereby authorises:

Ferrometals
Private Bag x 7228
Witbank
1035

Contact person: Mr. Johann Kirsten

to undertake the following activity (hereafter referred to as "the activity"): The permitting of the existing slag waste disposal facility on portion 8, 9, 12 and 13 of the farm Driefontein 297 JS, Emalahleni Local Municipality at the following co-ordinates: 25° 861 S, 29° 173' E: **Item 25 as identified in terms of Chapter 5 of the National Environmental Management Act, 1998 and Government Notice R 386 of 21 April 2006**

The granting of this environmental authorisation is subject to the conditions set out below.

**Scope of authorization**

1. Authorization of the activity is subject to the conditions contained in this authorisation, which form part of the environmental authorisation and are binding on the holder of the authorisation.
2. The holder of the authorisation must ensure compliance with the conditions by any person acting on his or her behalf, including but not limited to, an agent, sub-contractor, employee or person rendering a service to the holder of the authorization.
3. The activity which is authorized may only be carried out at the property indicated above.
4. Any changes to, or deviations from, the project description set out in this authorisation must be approved, in writing, by the Department before such changes or deviations may be effected. In assessing whether to grant such approval or not, the Department may request such information as it deems necessary to evaluate the significance and impacts of such changes or

deviations and it may be necessary for the holder of the authorisation to apply for further authorisation in terms of the regulations.

5. This activity must commence within a period of two (2) years from the date of issue. If commencement of the activity does not occur within that period, the authorisation lapses and a new application for environmental authorisation must be made in order for the activity to be undertaken.
6. This authorization does not negate the holder of the authorization of the responsibility to comply with any other statutory requirements that may be applicable to the undertaking of the activity.

**Appeal of authorization**

7. The holder of the authorisation must notify every registered interested and affected party, in writing and within 10 (Ten) calendar days, of receiving notice of the Department's decision to authorize the activity.
8. The notification referred to in 1.7 must –

    8.1 specify the date on which the authorisation was issued;
    8.2 inform the interested and affected party of the appeal procedure provided for in Chapter 7 of the regulations; and
    8.3 advise the interested and affected party that a copy of the authorisation and reasons for the decision will be furnished on request.

**Management of the activity**

9. The Environmental Management Plan ("EMP"), which fulfills the requirements of this authorization, must be complied and submitted to the Department for approval. The EMP must:

    9.1 contain all the information specified in regulation 34 of the regulation;
    9.2 be approved by the Department before the commencement of any construction activities and
    9.3 be adhered to during the commencement, operation and closure of the activity.

**Commissioning and Operation of the activity**

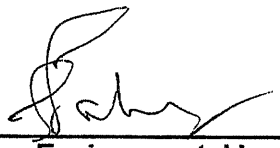
10. Fourteen (14) days written notice must be given to the Department that the activity will commence. Commencement for the purposes of this condition includes site preparation. The notice must include a date on which it is anticipated that the activity will commence.
11. All construction activities must be limited to the said site. No activities must be allowed on adjacent agricultural land.
12. Chemical toilets must be provided to be used by site workers. These must be serviced on a regular basis. No pit latrines are allowed.
13. Portable water must be made available to site workers.
14. The stormwater management system must allow the containment of all storm water from the disposal site and the working areas.
15. The storm water retention dams must be sized to accommodate a storm with a recurrence interval of 1:100 years with a duration of 24 hours.

16. Soil contaminated by oil from leaking vehicles must be collected and disposed of at a hazardous waste disposal site.
17. Prescribed medical tests must be done on all workers exposed to the dust from the processes.
18. Noise must be kept on acceptable levels and must not affect the general population.
19. The few additional trucks delivering material and removing rubble must not have a noticeable impact on the general traffic in the area.
20. An APPA registration certificate must be obtained before operations may start and stipulations in the certificates be adhered too at all times.
21. A consistent water quality analysis must be conducted by an accredited Laboratory as stipulated by the Department of Water and Forestry.
22. Soil areas between the canals and the existing slag dump must be shaped in such a manner that surface water can flow as quickly as possible.
23. The surrounding environment must be protected from any impact that may arise from plant operation and applying the principle of sustainable development.
24. The health and safety of all persons working for and on behalf of the organization must be protected and maintained.
25. Ferrometals must ensure that all risks and impacts are identified, evaluated and controlled according to a well-maintained management plan.
26. The quantity and quality of leachate should be monitored so as to propose mitigation measures if there is potential environmental impacts.
27. Once the heavy machinery has cleared the bulk of these material stockpiles, the disturbed areas must be leveled and cleared of any foreign material.
28. In case alternatives to the disposal of the slag are considered to reduce the capacity of the slag waste disposal facility, proper mitigation measures must be taken in terms of transporting Hazardous waste.
29. A post-construction audit must be conducted to ensure that any shortcomings are identified and addressed.
30. Ferrometals must maintain a database for all records and information generated for the slag waste disposal facility.
31. Ferrometals must ensure that the site is inspected at frequent intervals to determine the need for maintenance

**General**

32. A copy of this authorization must be kept at the property where the activity will be undertaken. The authorisation must be produced to any authorised official of the Department who requests to see it 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.
33. Where any of the applicant's contact details change, including the name of the responsible person, the physical or postal address and/ or telephonic details, the applicant must notify the Department as soon as the applicant knows the new details.
34. The holder of the authorisation must notify the Department, in writing and within 24 (twenty four) hours, if conditions of this authorisation are not adhered to. Any notification in terms of this condition must be accompanied by reasons for the non-compliance.

35. Non-compliance with a condition of this authorization may result in criminal prosecution or other actions provided for in the National Environmental Management Act, 1998 and the regulations.



**Director: Environmental Impact Management**
**For HOD: Agriculture and Land Administration**

2008/02/14
**Date**

# Annexure 1: Reasons for the Decision

## 1. Background

1.1 The applicant, Ferrometals, applied for authorisation to continue with the following activity:

**Item 25 of Government Notice R 386 of 21 April 2006** – The permitting of the existing slag waste disposal facility on portion 8, 9, 12 and 13 of the farm Driefontein 297 JS, Emalahleni Local Municipality at the following co-ordinates: 25° 861 S, 29° 173' E:

1.2 The applicant appointed the following Environmental Assessment Practitioner to undertake a basic assessment process:

Kwezi V3 Engineers
P.O Box 36155
Manlo Park
0102

Contact person: Gerda Bothma
Tel: (012) 425 6300
Fax: (012) 460 1336

## 2. Information considered in making the decision.

In reaching its decision, the Department took the following into consideration:

a) The information contained in the Basic Assessment Report.
b) The comments received from the basic assessment report and those received by hand on 09 July 2007.
c) The objective and requirements of relevant legislation, policies and guidelines, including Section 2 of the National Environmental Management Act, 1998 (Act No. 107 of 1998); and
d) The findings of the site visit undertaken by Musa Mondlane from the Department on 24 July 2007.

## 3. Key factors considered in making the decision.

All information presented to the Department was taken into account in the Department's consideration of the application. A summary of the issues, which, in the Department's view, were of the utmost significance, is set out below:

a) Access to the site will be through the existing road that passes through the main gate leading to the plant.
b) The existing waste disposal facility only requires limited upgrades in order to bring it in line with the requirements for the permit application.
c) It is preferable to rather permit existing sites, which require minimal upgrades

than to establish new sites in a possibly undisturbed area.

d) The proper management of a solid waste disposal facility in accordance with the approved design and operational management plan will ensure that the society in general will not be adversely affected.

## 4. Findings

After consideration of the information and factors listed above, the Department made the following findings:

a) The proposed development will take place on a previously disturbed area; therefore there is no fauna and flora that will be negatively affected by the proposed development.

b) No significant detrimental environmental impacts are anticipated, should the mitigation measures stipulated in the basic assessment report and conditions of this environmental authorisation be implemented and adhered to.

c) There will be no impacts thus anything to mitigate or manage.

In view of the above, the Department is satisfied that, subject to compliance with the conditions contained in the environmental authorisation, the proposed activity will not conflict with the general objectives of integrated environmental management as laid down in Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and that any potentially detrimental environmental impacts resulting from the proposed activity can be mitigated for to acceptable levels. The application is accordingly granted.

# Mpumalanga Provincial Government

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## DEPARTMENT OF AGRICULTURE AND LAND ADMINISTRATION
### DIRECTORATE: ENVIRONMENTAL IMPACT MANAGEMENT

| Litiko Letekulima Kanye Nekuphatfwa Kwemhlaba | Departement van Landbou, en Grondadministrasie | Umnyango Wezokulima, Nebhoduluko KweNarha |
|---|---|---|

**Enquiries: Musa Mondlane**

Ferrometals
Private Bag x 7228
Witbank
1035

**Fax no:** (013) 693 7460

**Attention:** Mr. Johann Kirsten

**PER FACSIMILE/REGISTERED MAIL**

Dear Madam:

**APPLICATION FOR ENVIRONMENTAL AUTHORISATION FOR THE PROPOSED PERMITTING OF THE EXISTING SLAG WASTE DISPOSAL FACILITY ON PORTION 8, 9, 12 AND 13 OF THE FARM DRIEFONTEIN 297 JS, AT FERROMETALS WITBANK, MPUMALANGA.**

With reference to the abovementioned application, please be advised that the Department has decided to grant authorisation. The environmental authorisation and reasons for the decision are attached herewith.

In terms of regulation 10(2) of the Environmental Impact Assessment Regulations, 2006, you are instructed to notify all registered interested and affected parties, in writing and within 7 (SEVEN) calendar days of the date of this letter, of the Department's decision in respect of your application as well as the provisions regarding the making of appeals that are provided for in the regulations.

Your attention is drawn to Chapter 7 of the Regulations, which regulates appeal procedures. Should you wish to appeal any aspect of the decision, you must, *inter alia,* lodge a notice of intention to appeal with the MEC, within 10 days of receiving this letter, by means of one of the following methods:

**By facsimile:** (013) 7668 445
**By post:** Private Bag x 11219
Nelspruit
1200
**By hand:** Building 6, Government Boulevard,
Riverside Park Extension 2
Nelspruit
1200

Should you decide to appeal, you must serve a copy of your notice of intention to appeal on all registered interested and affected parties as well as a notice indicating where, and for what period, the appeal submission will be available for inspection.

Yours faithfully,

**Director: Environmental Impact Management**

2008/02/14
**Date**

**Environmental Authorisation (Ref: 17/2/3/9(1) N-6)**

*Issued on 06 December 2011*

# MPUMALANGA PROVINCIAL GOVERNMENT

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## Department of Economic Development, Environment and Tourism

Litiko Letekutfutfukiswa Kwetemnotfo, Simondzwo neteku Vakasha | Umngango WezokuThuthukiswa KoMnotho, iBhoduluko nezamaVakatjho | Departement van Ekonomiese Ontwikkeling, Omgewing en Toerisme


Enquiries: Thulisile Nkonyana
Tel. (013) 690 2595
Ref. No. 17/2/3/9(1) N – 6

**Mr. Roark Rawheath**
Samancor Chrome
Ferrometals
Private Bag X 7228
**Witbank**
1035
Fax: (013) 693 7460

Dear Sir/Madam

**APPLICATION FOR ENVIRONMENTAL AUTHORISATION FOR THE PROPOSED STORM WATER DAMS AT FERROMETALS ON DRIEFONTEIN 297-JS, COMPRISING OF PORTION 9, 12, 19 AND 27 , EMALAHLENI.**

With reference to the abovementioned application, please be advised that the Department has decided to grant authorisation. The environmental authorisation and reasons for the decision are attached herewith.

In terms of regulation 10(2) of the Environmental Impact Assessment Regulations, 2010, you are instructed to notify all registered interested and affected parties, in writing and within 7 (SEVEN) calendar days of the date of this letter, of the Department's decision in respect of your application as well as the provisions regarding the making of appeals that are provided for in the regulations.

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Yours faithfully,

DV

**Dr V. DLAMINI**
**HEAD OF DEPARTMENT**
**DATE:** 12/06/2011

MPUMALANGA
A Pioneering Spirit

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Departement van Ekonomiese
Ontwikkeling, Omgewing en Toerisme


## ENVIRONMENTAL AUTHORISATION

**Authorization register number** : **17/2/3/9(1) N-6**

**Holder of Authorization** : **Samancor Chrome**

**Location of activity** : **Portion 9, 12, 19 and 27**
**Driefontein 297- JS**

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## 1. Decision

The Department is satisfied on the basis of the information available to it and subject to compliance with the conditions of this Environmental Authorisation, that the applicant should be authorised to undertake the activity as specified below.

Details regarding the basis on which the Department reached this decision are set out in Annexture 1.

## 2. Activities authorised

By virtue of the powers conferred on it by the National Environmental Management Act, 1998 (Act 107 of 1998) and the Environmental Impact Assessment Regulations 2006, the Department hereby authorises:

Mr.Roark Rawheath
Samancor Chrome
Ferrometals
Private Bag X 7228
Witbank
1035
Tel: (013) 693 7273
Fax no: (013) 693 7460

To undertake the following activity (hereafter referred to as "the activity"): The proposed storm water dams at Ferrometals on Driefontein 297-JS, comprising of Portion 9, 12, 19 and 27. The site falls within Emalahleni Local Municipality at the following Co-ordinates:

$25^0$ 50' 55, 0 S $29^0$ 10' 39, 2 E

**Item 12, 13 and 55 as identified in terms of Chapter 5 of the National Environmental Management Act, 1998 and Government Notice R 544 of 18 June 2010.**

**The project will entail the following:**

- Construction and upgrading of storm water channels and storm water diversions
- Modification of the current storm water channels and berm/cut-off trenches
- Construction and upgrading of existing storm water dams and the construction of a new storm water dam

The granting of this environmental authorisation is subject to the conditions set out below.

## 3. Conditions of Auithorisation

**Scope of authorization**

3.1 Authorization of the activity is subject to the conditions contained in this authorisation, which form part of the environmental authorisation and are binding on the holder of the authorisation.

3.2 The holder of the authorisation must ensure compliance with the conditions by any person acting on his or her behalf, including but not limited to, an agent, sub-contractor, employee or person rendering a service to the holder of the authorization.

3.3 The activity which is authorized may only be carried out at the property indicated above.

3.4 Any changes to, or deviations from, the project description set out in this authorisation must be approved, in writing, by the Department before such changes or deviations may be effected. In assessing whether to grant such approval or not, the Department may request such information as it deems necessary to evaluate the significance and impacts of such changes or deviations and it may be necessary for the holder of the authorisation to apply for further authorisation in terms of the regulations.

3.5 This activity must commence within a period of two (2) years from the date of issue. If commencement of the activity does not occur within that period, the authorisation lapses and a new application for environmental authorisation must be made in order for the activity to be undertaken.

3.6 This authorization does not negate the holder of the authorization, responsibility to comply with any other statutory requirements that may be applicable to the undertaking of the activity.

**Appeal of authorization**

3.7 The holder of the authorisation must notify every registered interested and affected party, in writing and within 10 (Ten) calendar days, of receiving notice of the Department's decision to authorize the activity.

3.8 The notification referred to above must –

3.8.1 specify the date on which the authorisation was issued;

3.8.2 inform the interested and affected party of the appeal procedure provided for in Chapter 7 of the regulations; and

3.8.3 Advise the interested and affected party that a copy of the authorisation and reasons for the decision will be furnished on request.

**Management of the activity**

3.9 The Final Environmental Management Plan ("EMP"), which fulfills the requirements of this authorization, must be compiled and submitted to the Department for approval. The EMP must :

3.9.1 Contain all the information specified in regulation 34 of the regulations.

3.9.2 Be approved by the Department before the commencement of any construction activities and

3.9.3 Must be adhered to during the commencement, operation and closure of the activity.

3.10 An independent Environmental Control Officer must be appointed to ensure compliance with the conditions of this Environmental Authorisation.

3.11 The holder of the authorization must submit a post-construction environmental audit report to the department. The audit report must be compiled by an independent auditor.
3.12 The Department retains the right to monitor and/or inspect the proposed project during both construction and operational phases.
3.13 The Environmental Control Officer must ensure that all environmental activities delegated to contractors operating on site are implemented and ensure that all conditions of the Environmental management Plan are adhered to.
3.14 The contact details of the Environmental Control Officer and a graphic illustration of the construction programme must be published in a local newspaper and the appointed person must be contactable on daily basis throughout the construction period.
3.15 The applicant, Samancor Chrome must ensure that there is an induction to all contractors in relation to environmental and social issues and awareness training to build capacity of staff regarding the management of the environment.

**Commissioning and Operation of the activity**

3.16 Fourteen (14) days written notice must be given to the Department that the activity will commence. Commencement for the purposes of this condition includes site preparation. The notice must include a date on which it is anticipated that the activity will commence.
3.17 An Environmental Control Officer must be appointed to induct all contractors and subcontractors as well as personnel working on the project on the contents of the Environmental Management plan and inform the applicant of any penalties arising from non-compliance.
3.18 The Environmental Control Officer must ensure that all site personnel have a basic level of environmental awareness training and the training must be submitted to the Environmental Consultant for approval.
3.19 All construction activities must be limited to the said sites and only stated listed activities may be undertaken in terms of this Environmental Authorisation.
3.20 Construction and travel times must be restricted between 06:00 and 18:00.
3.21 No dumping of any kind of waste (domestic, general, building rubble, etc) must take place on the adjacent properties.
3.22 The applicant is responsible for compliance with the provisions for "Duty of Care" and remediation of damage contained in Section 28 of the National Environmental Management Act
3.23 During the construction of storm water dams and channels, the allowed construction vehicles must be limited
3.24 During construction, the Contractor must protect areas susceptible to erosion by installing necessary temporary or permanent drainage works and take suitable measures to prevent surface water concentration into nearby watercourses.
3.25 Storm water dams must be lined and be able to hold sufficient capacity and a return water system must be constructed.
3.26 Silt and oil traps must be constructed before the entrance of water into the storm water dam
3.27 Storm water berms must be constructed on the Northern and Southern boundaries of the site

3.28 Sub-soil cut-off trenches of up to 6m deep must be constructed and maintained where possible
3.29 To prevent pollution on site, separate clean and dirty water where possible
3.30 Minimise impacts by keeping dirty areas as small as possible
3.31 Do not contain more clean water that can be used in a reasonable time, storm water must be recycled as much as possible
3.32 Soil stability on the proposed sites for the dams must be investigated before construction commences.

**General**

3.33 A copy of this authorization must be kept at the property where the activity will be undertaken. The authorisation must be produced to any authorised official of the Department who requests to see it 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.
3.34 Where any of the applicant's contact details change, including the name of the responsible person, the physical or postal address and/ or telephonic details, the applicant must notify the Department as soon as the applicant knows the new details.
3.35 The holder of the authorisation must notify the Department, in writing and within 24 (twenty four) hours, if conditions of this authorisation are not adhered to. Any notification in terms of this condition must be accompanied by reasons for the non-compliance.
3.36 Non-compliance with a condition of this authorization may result in criminal prosecution or other actions provided for in the National Environmental Management Act, 1998 and the regulations.

**Environmental Authorisation approved by:**

**Dr V. DLAMINI**
**HEAD OF DEPARTMENT**
**DATE:** 17/06/2011

## Annexure 1: Reasons for the Decision

### 1. Background

The applicant, Samancor Chrome applied for authorization to continue with the following activity:

To undertake the following activity (hereafter referred to as "the activity"): The proposed storm water dams at Ferrometals on Driefontein 297-JS, comprising of Portion 9, 12, 19 and 27. The site falls within Emalahleni Local Municipality at the following Co-ordinates:

25$^0$ 50' 55, 0 S 29$^0$ 10' 39, 2 E

**Item 12, 13 and 55 as identified in terms of Chapter 5 of the National Environmental Management Act, 1998 and Government Notice R 544 of 18 June 2010.**

**The project will entail the following:**

- Construction and upgrading of storm water channels and storm water diversions
- Modification of the current storm water channels and berm/cut-off trenches
- Construction and upgrading of existing storm water dams and the construction of a new storm water dam

1.2 The applicant appointed the following Environmental Assessment Practitioner to Undertake Basic Assessment Report:

Ptersa Environmental Management Consultants
P.O Box 915751
Faerie Glen
0043

Contact person: Dr. P.J Aucamp

Tel: (012) 365 1025
Fax: 086 648 3149

### 2. Information considered in making the decision.

In reaching its decision, the Department took the following into consideration:

a) The information contained in the Basic Assessment report.
b) The comments received from interested and affected parties as included in the Basic Assessment Report.
c) The layout plan that properly indicates the proposed sites, location of the dams and their capacities.
d) The objective and requirements of relevant legislation, policies and guidelines, including Section 2 of the National Environmental Management Act, 1998 (Act No. 107 of 1998); and

3. **Key factors considered in making the decision.**

All information presented to the Department was taken into account in the Department's consideration of the application. A summary of the issues, which, in the Department's view, were of the utmost significance, is set out below:

a) The problems that the surrounding communities and industries experience with storm water runoff from Ferrometals site will cease.
b) The construction of storm water dams and channels will reduce ground water contamination.
c) The proposed activities will reduce overall water use since more water will be recycled.

**4. Findings**

After consideration of the information and factors listed above, the Department made the following findings:

a) The proposed site for the first dam will be located in previous raw material storage area that is totally denuded of any vegetation. For the second dam, the vegetation of this site is totally transformed and for the third dam, the site is currently severely disturbed by dumps of soil and rubble
b) No significant detrimental environmental impacts are anticipated, should the mitigation measures stipulated in the Basic Assessment report and conditions of this environmental authorisation be implemented and adhered to.
c) The site is currently used for industrial.

In view of the above, the Department is satisfied that, subject to compliance with the conditions contained in the environmental authorisation, the proposed activity will not conflict with the general objectives of integrated environmental management as laid down in Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and that any potentially detrimental environmental impacts resulting from the proposed activity can be mitigated for to acceptable levels. Authorisation is accordingly granted.