



**ETHEKWINI MUNICIPALITY**  
Community Services Cluster  
Health Unit

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**Ref: AEL005/W2**

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**Date: 24/10/2018**

This Atmospheric Emission Licence is issued to **Assmang Limited Cato Ridge Works-1 Eddie Hagan Drive, Cato Ridge**, 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 **Activity Sub-Category 4.9,4.11 & 5.1**. The Atmospheric Emission Licence is issued on the basis of information provided in the company's application dated **27 November 2017** and information that became available during processing of the application.

Licence Holder	<b>Assmang Limited Cato Ridge Alloys (Pty) Ltd</b>
Industry Sector	<b>Manufacture of high, Medium and low carbon Ferro manganese.</b>
Physical Address	<b>1 Eddie Hagan Drive, Cato Ridge</b>
Validity Period	<b>31 October 2023</b>

  
**Senior Environmental Health Practitioner**  
**eThekwini Municipality: Licensing Authority**

Date: 30/10/2018

  
**Air Quality Officer: eThekwini Municipality**  
**Mr. B.G Dale**

Date: 31/10/2018

For Enquiries Contact Details: (031) 311 3575/3531

Email: [bruce.dale@durban.gov.za](mailto:bruce.dale@durban.gov.za)

Ref: AEL005/W2

Enquiries: Clinton Camelio

031 311 3656




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

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This Atmospheric Emission Licence is issued to **Assmang Limited Cato Ridge Works-1 Eddie Hagan Drive, Cato Ridge**, in terms of section 47(1) the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) ("the Act"), in respect of **Listed Activities under Sub-Categories 4.9, 4.11 & 5.1** The Atmospheric Emission Licence is issued on the basis of information provided in the company's application dated **27 November 2017** and information that became available during processing of the application.

The Atmospheric Emission Licence is valid until **31 October 2023**.

The reason for issuing the licence is that it is a renewal of an Atmospheric Emission Licence for an existing premises.

The Atmospheric Emission Licence is issued subject to the conditions and requirements set out below and which forms part of the Atmospheric Emission Licence and which are binding on the holder of the Atmospheric Emission Licence ("the holder").

**1. ATMOSPHERIC EMISSION LICENCE ADMINISTRATION**

Name of the Licensing Authority	eThekweni Municipality
Atmospheric Emission Licence Number	AEL005/W2
Atmospheric Emission Licence Issue Date	1 November 2018
Atmospheric Emission Licence Type	Final
Renewal Date, not later than	31 May 2022
Version	2-Renewal of an existing AEL

Air Quality Officer

Date

31/10/2018.

## 2. ATMOSPHERIC EMISSION LICENCE HOLDER DETAILS

Enterprise Name	Assmang Limited Cato Ridge Alloys (PTY) Ltd
Trading as	Assmang manganese Cato Ridge works
Enterprise Registration Number (Registration Numbers if Joint Venture)	Assmang Manganese Cato Ridge 1935/007343/06 Cato Ridge Alloys (PTY) Ltd 97/00755/07
Registered Address	1 Eddie Hagan Drive, Cato Ridge
Postal Address	P.O Box 21, Cato Ridge KwaZulu Natal
Telephone Number (General)	031 7825165
Industry Sector	Manufacture of high, Medium and low carbon Ferro manganese.
Name of Responsible Officer	Mr Paul Botha
Name of Emission Control Officer	Wessel Oosthuizen
Telephone Number	0317825000
Cell Phone Number	082 453 6361
Fax Number	0866325077
Email Address	wesselo@feralloys.co.za
After Hours Contact Details	082 453 6361
Land Use Zoning as per Town Planning Scheme	General Industry 2

## 3. LOCATION AND EXTENT OF PLANT

Physical Address of the Premises	1 Eddie Hagan Drive, Cato Ridge
Description of Site (Erf)	Assmang Manganese Cato Ridge Works – 1935/007343/06 Cato Ridge Alloys (Pty) Ltd. – 97/00755/07
Coordinates of Approximate Centre of Operations	North-south: 29.715 S East-west: 30.613 E
Extent (km <sup>2</sup> )	0.840
Elevation Above Mean Sea Level (m)	790
Province	KwaZulu Natal
Metropolitan/District Municipality	eThekweni
Local Municipality	N/A
Designated Priority Area	N/A

Air Quality Officer

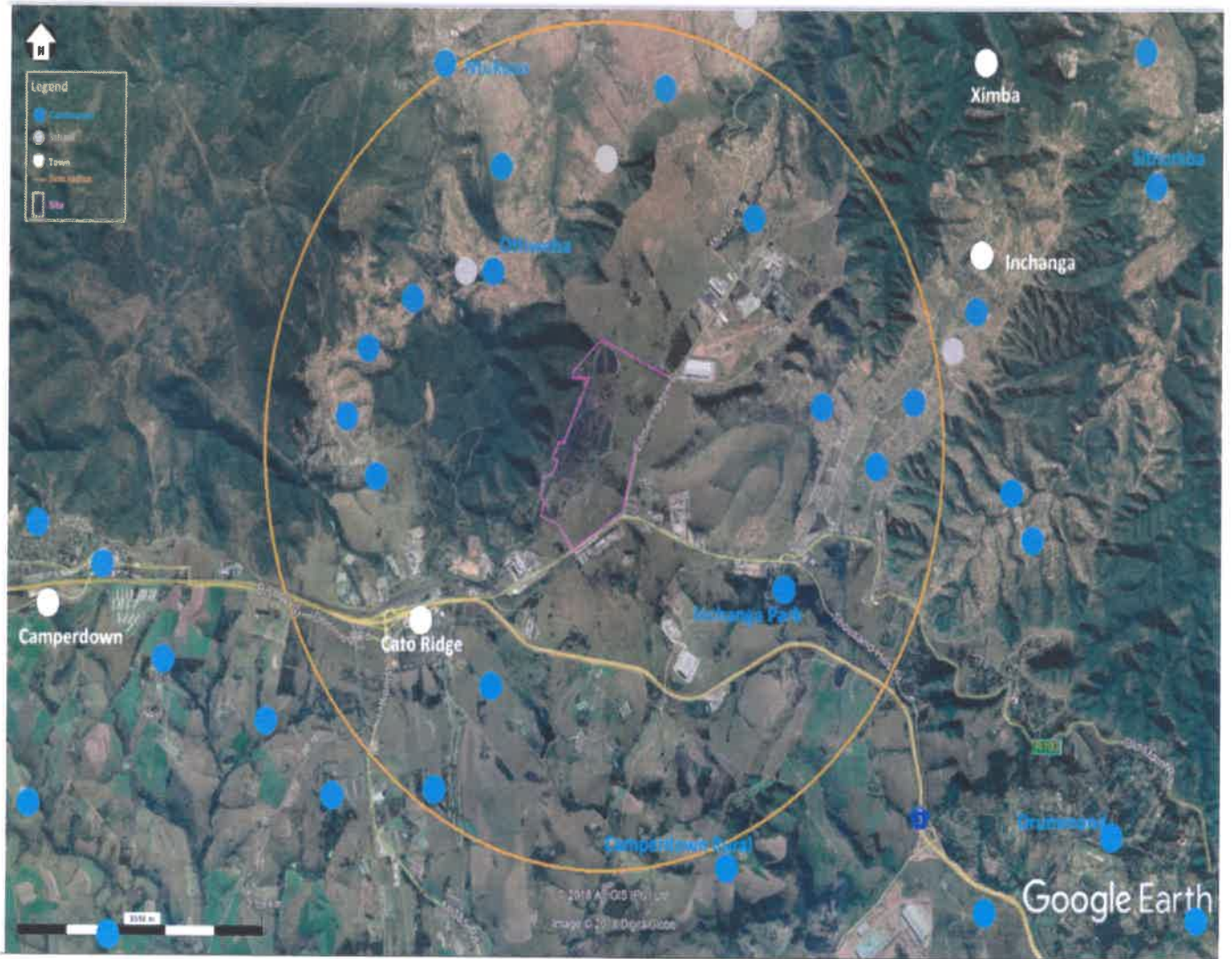


Date

31/10/2018

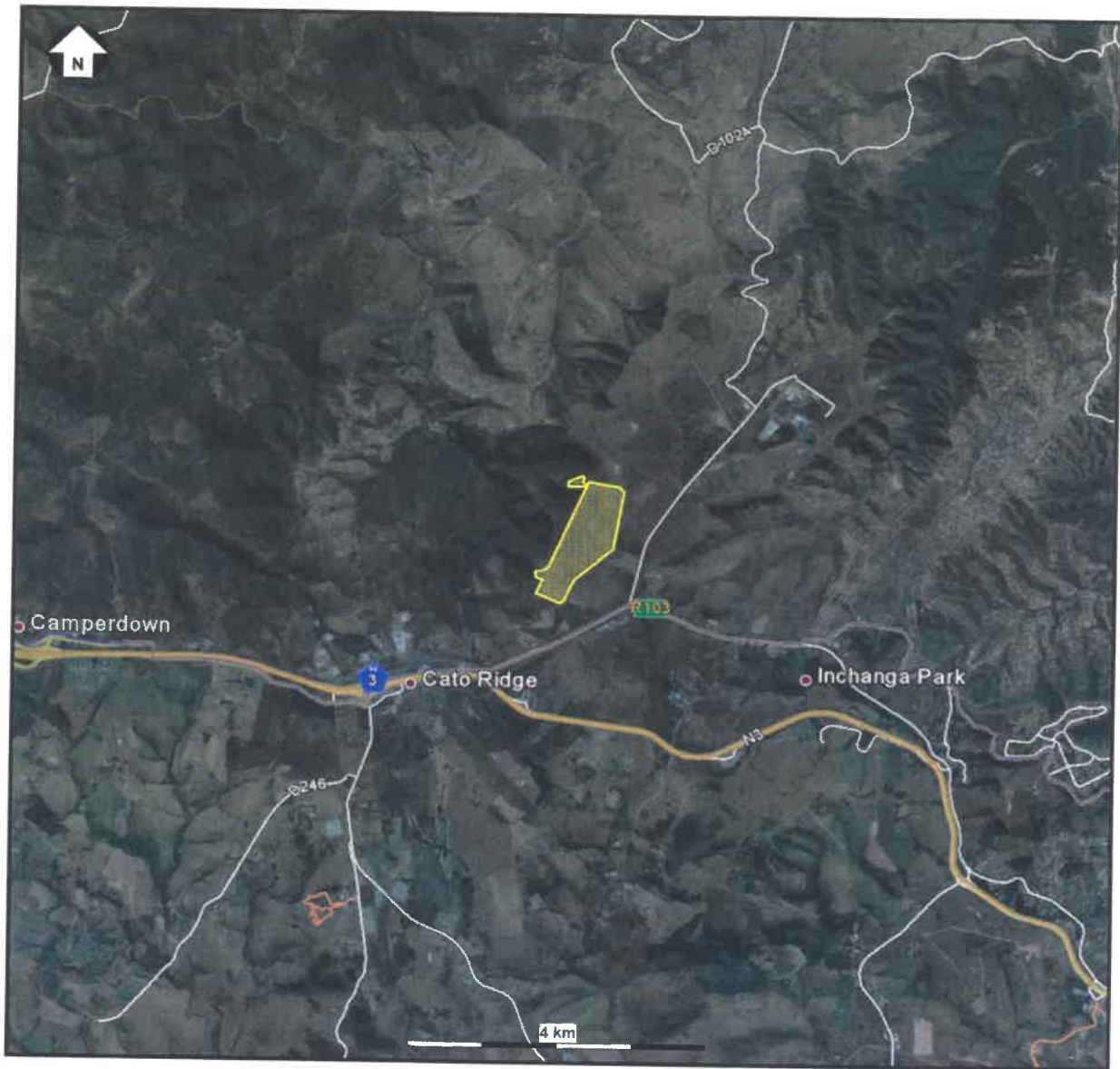


### 3.1 Description of surrounding land use (within 5 km radius)



Air Quality Officer     *Ryd*    

Date     31/10/2018



Assmang Manganese Cato Ridge Works is located to the north of the N3 between Durban and Pietermaritzburg in the Cato Ridge area of the eThekweni Municipality, KwaZulu Natal. The most densely populated formal residential area of Cato Ridge lies 3km to the south-west. Other less populated residential areas or isolated informal or formal residential properties are: Radnor Old Age Home, located 1km to the south-east; Inchanga, located 4km (and beyond) to the south-east of Assmang Manganese Cato Ridge Works; Other less formal residential areas and schools are located in the hills less than 5km away to the north-east, north-west and west. Several commercial and or industrial properties are located between 1km and 3km to the north-east of Assmang in the direction / vicinity of the Cato Ridge Abattoir, 1km to 2km to the south south-east / south-east of Assmang in the vicinity of the R103 / Eddie Hagan Drive intersection (e.g. Metallica and Sangio Pipes), 1km to the south-west (Safal Steel), and 2km to the south-west (e.g. Gosswell Developments).

Air Quality Officer

Date

#### 4. GENERAL CONDITIONS

##### 4.1. Process and ownership changes

The holder of the Atmospheric Emission Licence 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 materially extended, altered or added to the listed activity without the prior approval by the Licensing Authority. The investigation, assessment and communication of potential impact of an activity that triggers a listed activity as prescribed in the Environmental Impact Assessment Regulations published in terms of section 24(5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), as amended, must follow the necessary assessment procedures as prescribed.

Any changes in processes or production increases, by the Licence Holder, will require prior approval by the Licensing Authority. (This condition will not be imposed for what the Licensing Authority regard as minor changes where there will be insignificant impact on the environment).

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. (This condition will not be imposed for what the Licensing Authority regard as minor changes where there will be insignificant impact on the environment).

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 to the Licensing Authority.

##### 4.2 Duty to Evaluate Substances and Use Lower Hazard Substitutes

The Licence Holder has a duty to evaluate, understand the composition of and have an awareness of the dangers of harmful effects on the internal and external environment caused by chemicals and raw materials used or products manufactured. This should include knowledge of the bio-degradability, toxicity, bio-accumulation and sensitising properties of each substance.

##### 4.3 Cleaner Production

The Licence Holder shall investigate cleaner production processes and practices that are relevant to its operations with a view towards reducing water and energy consumption, waste production, chemicals usage and emissions related to the process. A brief progress summary on the application of Cleaner Production initiatives is to be included in the annual report.

Air Quality Officer



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#### 4.4 Energy Conservation

The Licence Holder shall evaluate its activities to improve energy utilisation and efficiency.

#### 4.5 General duty of care

The holder of the license 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.

#### 4.6 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 analyses.

The Licence Holder is responsible for quality assurance of methods and performance. Where the holder of the licence uses external laboratories for sampling or analysis, accredited laboratories (where possible and with prior consultation with the Licensing Authority) shall be used.

#### 4.7 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/ Air Quality Officer 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.

The Licensing Authority reserves the right to set and adjust the Licence conditions after consultation with the Licence Holder and taking into consideration information submitted, what is technically achievable, not involving excessive cost to the Licence Holder, and justifiable on environmental grounds.

Air Quality Officer



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Where excessive emissions occur, which could cause adverse health or environmental impacts or nuisance, urgent corrective measures must be taken to contain or minimise the emissions through operational interventions. Remediation, if required shall be carried out to the satisfaction of the Licensing Authority and/or any other governmental agencies. Any incident which has the potential to create significant health, safety or environmental risk or nuisance needs to be reported immediately to the Licensing Authority.

The Licensing Authority indemnifies itself from any claim, loss or damage arising from the Licence Holders operations in relation to this licence.

The Licence Holder is required to apply best available techniques (BAT) so that its total pollution is minimised. Best available technique (BAT) shall mean the most effective and advanced stage in the development of activities and their methods of operation which indicate the practical suitability of particular techniques for providing in principle the basis for emission limit values designed to prevent and, where that is not practicable, generally to reduce emissions and the impact on the environment as a whole.

#### **4.8 Statutory obligations**

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

The principles and legal requirements as set out in section 2 of the NEMA are also applicable to the Atmospheric Emission Licence.

The Licensing Authority reserves the right to set and adjust the licence conditions, emission limit values or standards after consultation with the Licence Holder and taking into consideration information submitted, what is technically achievable, not involving excessive cost to the Licence Holder, and justifiable on environmental grounds (*It is noted that Section 21 Listed Activities together with the associated Minimum Emission Standards is currently being reviewed and may be amended during the licensing period. This may require an amendment to this licence once this process is finalized*).

The Licensing Authority reserves the right to request an Atmospheric Impact Report as contemplated in Section 30 of NEM: AQA. in the event of any excursion of the Legislative Conditions including the Section 21 Notice promulgated under the National Environmental Management: Air Quality Act 2004 (Act 39 of 2004) NEM;AQA.

#### **4.9 Payment of Atmospheric Emission Licence processing fee**

The Licence Holder must, for the period of validity of the licence, pay the prescribed fees to the Licensing Authority (an invoice will be generated by the Licencing Authority upon receipt of application for the amount payable).

Air Quality Officer



Date

31/10/2015





collected with a tractor and taken to their respective stockpiles. From the stockpiles, the product is weighed and trucked or railed out to the clients.

### **Slag Movement**

Slag is currently removed from plant via a locomotive and tipped into "slag ponds". It is recovered from the ponds with an excavator and then stored at the slag storage facility.

### **Metal Recovery Plant (MRP)**

The slag from the slag storage facility is taken to the metal recovery plant (MRP). Here the slag is crushed in order to mechanically separate the remaining metal from the slag. **The MRP is a wet process without the application of heat to recover metal.** The metal is brought back into the plant where it is stockpiled to await export. The remainder of the processed slag is sold.

### **Gas Plants**

The type of gas plant varies with each furnace type.

The semi-closed furnaces (Furnaces 1, 2 and 5) each have a baghouse. A Baghouse has compartments that are filled with bags with a fine weave. The dust and fumes from the furnace enter the baghouse, are sucked through the bags. This results in cleaned gas leaving the baghouse while the dust remains in the bags. Two of the three baghouse are closed (Furnace 1 and 2), with the cleaned gas being emitted through individual stacks. The Furnace 5 baghouse is an open baghouse with no stack. Dust from the baghouse are removed via a tractor and taken to an onsite blocking plant.

The Closed furnaces (Furnaces 3, 4 and 6) each have a gas scrubbing plant. Water, in a closed circuit, is used to wash the dust out of the off-gas. The clean gas exits each of the gas plants via a stack where it is flared. The effluent (sludge) from the scrubbing plants is pumped to the effluent treatment plant. The converter (ACP plant) also has a closed baghouse and a stack.

### **Effluent treatment plant**

The effluent (sludge) from the closed furnace gas plants enter a thickener where the sludge is thickened. The clear water overflow of the thickener is returned to the gas plants. The thickened sludge is pumped to slimes dams where sludge settles and the clear water overflow is returned to filter plant. The sludge in the dams dries out and is later used in the blocking plant.

### **Dust and fume extraction systems**

In accordance with the authorisation received from the Department of Agriculture, Environmental Affairs and Rural Development of KwaZulu-Natal, dated 12 September 2008 for these systems, dust and fume capturing and treatment systems are installed for the following sections:

- Installed: At the Furnace tapping fumes, and
- At the High Carbon (HC) & Low Carbon (LC) Crushing and Screening (C&S) Plants

### **Furnace tapping fume treatment system**

A dust and fume extraction system was installed at the tap holes, launder and ladle for Furnaces No. 1 – 6. The system assists with reducing the emissions inside the furnace buildings. It also assists with limiting exposure of personnel to manganese containing dust and fumes.

The extraction systems contain dust and fume canopy hoods for the tap holes, launders and ladle for all six furnaces. Furnaces No. 1 - 4 have a common ducting that joins with the common ducting for Furnaces No. 5 - 6 prior to entering a baghouse. Cleaned air from the baghouse is emitted through a stack next to the baghouse.

**Dust extraction and suppression systems at the Crushing and Screening Plants**

Dust alleviation systems are located at the following sections:

- the High Carbon Ferromanganese Crushing and Screening Plant (HC C&S); and
- the Low Carbon Ferromanganese Crushing and Screening Plant (LC C&S) located at the CRA Plant

**High Carbon Ferromanganese Crushing and Screening Plant (HC C&S)**

The dust extraction system for the HC C&S Plant is as follows:

- At the static grizzly / feed bin area:
  - Access for the front-end loader to load cooled ingots onto the static grizzly is limited to the southern side only;
  - Water sprays are installed at the eastern and western walls of the static grizzly building; and
  - The tunnel underneath the static grizzly housing with the feed conveyor is enclosed with an industrial strip curtain.
- At the following areas all the components are enclosed and dust extraction systems installed:
  - At the primary crusher area: the vibrating grizzly and primary crusher
  - The primary screening and secondary crusher area:
  - The secondary and tertiary screening area:
  - The final product bin
- The load-out points from the vibrating feeders at the final product section are equipped with dust suppression.

**Low Carbon Ferromanganese Crushing and Screening Plant**

The dust extraction system for the LC C&S Plant is as follows:

- The load in and load out stations will be equipped with dust suppression;
- At the following areas all the components are enclosed and dust extraction systems installed:
  - At the primary crusher area: the vibrating grizzly feeding into the primary crusher, it's outlet chute and the primary crusher inlet and discharge;
  - The primary screen and the conveyor feeding it;
  - At the secondary crusher area: the conveyors feeding over-size material back to the secondary crusher, the secondary crusher itself, and its discharge;
  - At the product screening and bin area: the conveyor feeding into the secondary screen, and the secondary and tertiary screens.

Each section is serviced by a baghouse which emits the cleaned air to the atmosphere via a stack.

**Briquetting plant**

Dry dust from the furnaces and converter baghouses is stockpiled along with dried sludge and metal recovery plant middlings. It is then be combined and mixed with a binding agent through a wet process in order to be formed into briquettes. The briquettes are stockpiled for reprocessing in the furnaces.

### **Export ore stockpile**

Assmang Manganese Cato Ridge Works is used as an intermediate storage location for export ore from other Assmang mining operations. The ore are delivered to the Site of Works by train, and dispatched to the Durban Harbour by road, or alternatively by rail. The new infrastructure installed at the Site of Works is as follows:

- Export ore are received via rail transport at Tippler 1 (which will be upgraded to facilitate a higher throughput) and from there they are conveyed and stockpiled;
- The conveyor system to the Export ore stockpile includes a Road Receiving section which ties in with the conveyor system to the storage area;
- The export ore received by road or rail, are conveyed to a Screening section where fines are recovered before it is conveyed to the storage area. The fines recovered from the export ore are stored in bins for use as raw material in the furnaces at the Site of Works;
- The export ore are stored on two conical shaped stockpiles with a capacity of 40 000 tonnes each;
- The export ore are reclaimed from the stockpiles by frontend loaders which deposit the ore into one of three frontend loader reclaim hoppers located next to the stockpile area and are conveyed to one of two dispatching areas;
- The export ore are conveyed to storage bins at either a Road load-out section or a Rail load-out section, depending on the transport method;

Dust suppression is assisted as follows:

- Road receiving - Reverse and Side tipping trucks dump ore on an enclosed grizzly;
- Conveyor transfer towers – are enclosed chute transfer systems, but are 100% dust tight;
- Conical stockpile – Screened ore are deposited by an open spiral chute;
- Frontend loader reclaim hopper – Material is dumped at the machine's dump height into the reclaim hoppers;
- Road Load-out – A shuttle conveyor fills the trucks with ore from the storage bins;
- Rail load-out – A shuttle conveyor fills the rail trucks with ore from the storage bins;

Air Quality Officer



Date

31/10/2018



## 5.2 Listed Activities

<b>Facility Wide Listed Activities with Regulatory Applicability</b>			
<b>List of all Rules associated with Listed Activities, as published in terms of Section 21 of the AQA, authorised to be conducted at the premises by the licence holder:</b>			
<b>Rule Category</b>	<b>Rule Number</b>	<b>Listed Activity Name</b>	<b>Rule Name &amp; Description of the Listed Activity</b>
Category 4.9 Metallurgical industry	SA0409	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.
Category 4.11 Metallurgical industry	SA0411	Agglomeration operations	Production and pellets or briquettes using presses, inclined discs or rotating drums.
Category 5.1 Mineral processing ,Storage and Handling	SA0501	Storage and handling of ore and coal	Storage and handling of ore and coal not situated on the premises of a mine or works as defined in the Mines Health and Safety Act 29/1996.

**Note :** \*The MRP plant does not apply heat during the recovery process of slag, hence the MRP plant does not trigger "Slag Processes" as defined under Subcategory 4.20 of the promulgated Listed Activities of Section 21 of the NEM: AQA.

Air Quality Officer



Date



## 5.3. Unit process or processes

Unit Process	Unit Process Function	Batch or Continuous Process
Furnace 1	Carbon (coke and anthracite) is used as a reductant. Quartz and dolomite are used as flux. The ore, carbon and flux are fed into the furnace (semi-closed submerged arc type furnace) from where the liquid metal is tapped. The by-product from the electric furnaces is slag.	Continuous
Furnace 2	Carbon (coke and anthracite) is used as a reductant. Quartz and dolomite are used as flux. The ore, carbon and flux are fed into the furnace (semi-closed submerged arc type furnace) from where the liquid metal is tapped. The by-product from the electric furnaces is slag.	Continuous
Furnace 3	Carbon (coke or anthracite) is used as a reductant. Quartz and dolomite are used as flux. The ore, carbon and flux are fed into the furnace (closed submerged arc type furnace) from where the liquid metal is tapped. The by-product from the electric furnaces is slag.	Continuous
Furnace 4	Carbon (coke or anthracite) is used as a reductant. Quartz and dolomite are used as flux. The ore, carbon and flux are fed into the furnace (closed submerged arc type furnace) from where the liquid metal is tapped. The by-product from the electric furnaces is slag.	Continuous
Furnace 5	Carbon (coke and anthracite) is used as a reductant. Quartz and dolomite are used as flux. The ore, carbon and flux are fed into the furnace (semi-closed submerged arc type furnace) from where the liquid metal is tapped. The by-product from the electric furnaces is slag.	Continuous
Furnace 6	Carbon (coke or anthracite) is used as a reductant. Quartz and dolomite are used as flux. The ore, carbon and flux are fed into the furnace (closed submerged arc type furnace) from where the liquid metal is tapped. The by-product from the electric furnaces is slag.	Continuous
Manganese alloy refining(converter) plant (CRA plant)	This section allows the company to produce a medium and low carbon FeMn (MC & LC FeMn) product from the high carbon FeMn (HC FeMn) produced in the furnaces.	Continuous
Furnace Fugitive & Tapping Fume Capture System	Fugitive emission sources emanating from the furnaces are captured and sent to this section for cleaning before being emitted to the atmosphere.	Continuous
High Carbon/Low Carbon Crushing & Screening plant Fugitive Capture Systems (one for each C&S plant)	The fugitive dust sources emanating from each of the crushing and screening plants (HC & LC) are captured and the dust removed before the cleaned air is emitted to the atmosphere.	Continuous
Briquetting plant	Dry dust from the furnaces and converter baghouses is stockpiled along with dried sludge and metal recovery plant middling. They are combined and mixed with a binding agent in order to form briquettes. The briquettes are stockpiled for reprocessing in the furnaces.	Continuous
Export ore stockpile	The Site of Works is used as intermediate storage location for export ore from other Assmang mining operations. The ore are delivered to the Site of Works by train, and dispatched to the Durban Harbour by road, or alternatively by rail.	Continuous

Air Quality Officer



Date

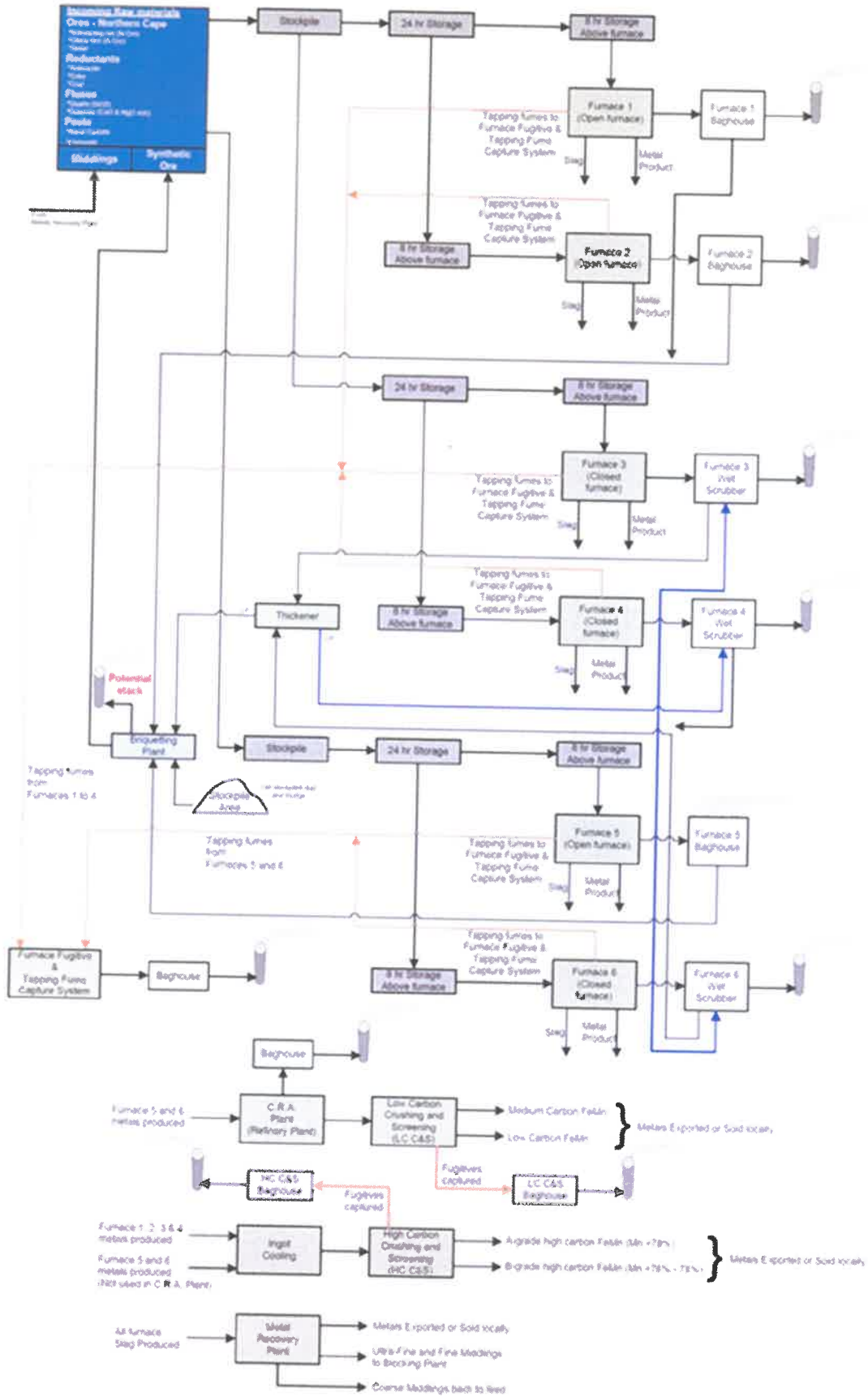
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6.4 Sources of Atmospheric Emission  
 6.4.1 Graphical Depiction of Emission Unit- Point Sources



Air Quality Officer Byd

Date 31/10/2022

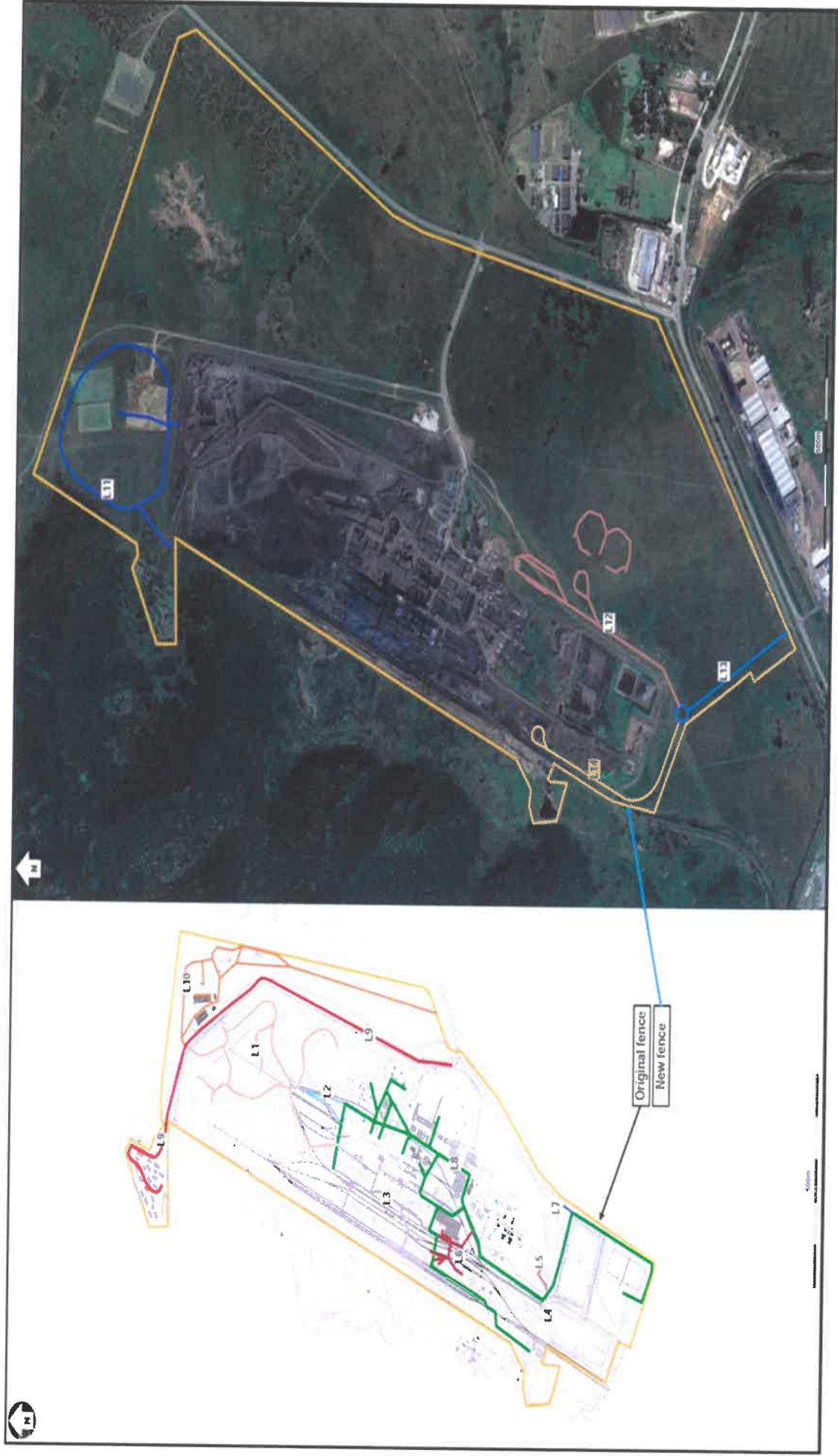
6.4.2. Graphical Depiction of Emission Unit- Area Sources



Air Quality Officer Byg

Date 31/10/2018

6.4.3. Graphical Depiction of Emission Unit- Line Source



Air Quality Officer Syd

Date 31/10/2028



6.4.4 Graphical Depiction of Emission Unit- Point Sources.



Air Quality Officer lys

Date 21/10/2018



## 6.4.5 Emission Unit- Point Source Parameters

Point Source Code	Source Name	Latitude (decimal degrees)		Longitude (decimal degrees)		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 <sup>3</sup> /hr)	Actual Gas Exit Velocity (m/s)	Emission Hours	Type of Emission (Continuous / Batch)
		South	East	South	East								
SVP1	Furnace 1	29.7161 S	30.6131 E	36.6	14.6	2.200	105	240 453.79	17.6	24	Continuous		
SVP2	Furnace 2	29.7157 S	30.6132 E	36.6	14.6	2.700	105	236 838.65	11.5	24	Continuous		
SVP3	Furnace 3	29.7153 S	30.6125 E	39	7	0.430	45	7 413.59	14.2	24	Continuous		
SVP4	Furnace 4	29.715 S	30.6127 E	39	7	0.430	45	6 779.67	13.0	24	Continuous		
SVP5	Furnace 3 and 4 VAI (Standby)	29.7148 S	30.6127 E	39	7	0.500	70	15 308.56	21.7	24	Continuous		
SVP6	Furnace 5	29.715 S	30.6141 E	22	0	11.193	70	885 064.26	2.5	24	Continuous		
SVP7	Furnace 6 VAI (Standby)	29.7141 S	30.6132 E	45.4	5.4	0.500	70	16 654.32	23.6	24	Continuous		
SVP8	Furnace 6 Old gas plant	29.7141 S	30.6132 E	45.4	5.4	0.470	45	15 440.98	24.7	24	Continuous		
SVP9	Converter section (CRA process)	29.7145 S	30.6144 E	28.175	6.2	2.838	105	305 284.85	13.4	24	Continuous		
SVP10	Furnace tapping fumes	29.7146 S	30.614 E	56.534	24.5	3.500	25	761 993.30	22.0	24	Continuous		
SVP11	High carbon metal Crushing & Screening	29.7156 S	30.6147 E	20	0	1.300	25	72 000.00	15.1	24	Continuous		
SVP12	Low carbon metal Crushing & Screening	29.7139 S	30.6146 E	20	0	1.300	25	72 000.00	15.1	24	Continuous		

Air Quality Officer



Date 3/10/2018

**EMERGENCY STACKS**

<b>SVP14</b>	Furnace 1 – Vent 1	29.7158 S	30.6124 E	36.6	6.6	1.70	250	39 696.80	4.9	Emergency	Intermittent
<b>SVP15</b>	Furnace 1 – Vent 2	29.7157 S	30.6125 E	36.6	6.6	1.70	250	39 696.80	4.9	Emergency	Intermittent
<b>SVP16</b>	Furnace 2 – Vent 1	29.7156 S	30.6125 E	36.6	6.6	1.70	250	39 099.98	4.8	Emergency	Intermittent
<b>SVP17</b>	Furnace 2 – Vent 2	29.7155 S	30.6126 E	36.6	6.6	1.70	250	39 099.98	4.8	Emergency	Intermittent
<b>SVP18</b>	Furnace 3 – Vent	29.7153 S	30.6125 E	34.5	3.4	0.78	250	12 190.53	7.1	Emergency	Intermittent
<b>SVP19</b>	Furnace 4 – Vent	29.7151 S	30.6126 E	34.5	3.4	0.78	250	11 148.16	6.5	Emergency	Intermittent
<b>SVP20</b>	Furnace 5 – Vent 1	29.7146 S	30.6129 E	47	7	2.65	250	39 696.80	4.9	Emergency	Intermittent
<b>SVP21</b>	Furnace 5 – Vent 2	29.7144 S	30.6129 E	47	7	2.65	250	39 696.80	4.9	Emergency	Intermittent
<b>SVP22</b>	Furnace 5 – Vent 3	29.7146 S	30.6131 E	47	7	2.65	250	21 469.28	1.1	Emergency	Intermittent
<b>SVP23</b>	Furnace 6 – Vent	29.7141 S	30.6131 E	44.3	4.3	0.90	250	21 469.28	1.1	Emergency	Intermittent

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## 6.4.6 Emission Unit-Area Source Parameters.

Area Source Code	Source Name	Source Description	Latitude (decimal degrees)	Longitude (decimal degrees)	Height of Release Above Ground (m)	Length of Area (m)	Width of Area (m)	Emission Hours	Type of Emission (Continuous / Intermittent)
EUA1	Slag Disposal Facility	Active Storage Area 1/2/3	29.711905 S	30.613093 E	30	339.3	160.7	24	Continuous
			29.712028 S	30.616955 E	30	230.8	159.1		
			29.713377 S	30.616348 E	30	230.8	155.8		
EUA2	Slag Pond	Active Storage	29.713586 S	30.613868 E	0	159.5	50.3	24	Continuous
EUA3	Raw Material storage	Active Storage Area 1&2	29.716204 S	30.610591 E	3	437.7	54.8	24	Continuous
			29.716017 S	30.611872 E	3	292.3	31.6		
EUA4	Bag House dust storage (Old)	Storage Area	29.719461 S	30.609126 E	3	162.3	63.9	24	Continuous
EUA5	Bag House dust storage(New)	Storage Area	29.719947 S	30.610551 E	3	109.3	62.7	24	Continuous
EUA6	Product storage	Storage Area	29.717335 S	30.610513 E	3	103.1	84.0	24	Continuous
EUA7	Tailings Storage Facility	Active Storage Area	29.720448 S	30.611663 E	3	106.9	68.1	24	Continuous
EUA8	MRP - Storage areas	Transfer points and active storage areas 1 & 2	29.710761 S	30.617592 E	3	189	52.2	24	Continuous
			29.709170 S	30.617443 E	3	301.9	40.3		
EUA9	High carbon C&S plant	Historical transfer points and storage areas	29.715569 S	30.614720 E	3	60.8	4.9	24	Continuous
EUA10	Low carbon C&S plant	Historical transfer points and storage areas	29.714129 S	30.614653 E	3	60.8	4.9	24	Continuous
EUA11	New slag storage facility	Active storage area	29.708607 S	24.616652 E	30	345.2	219.2	24	Continuous

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Area Source Code	Source Name	Source Description	Latitude (decimal degrees)	Longitude (decimal degrees)	Height of Release Above Ground (m)	Length of Area (m)	Width of Area (m)	Emission Hours	Type of Emission (Continuous / Intermittent)
EUA12	Export ore storage area and infrastructure	Transfer points and active storage for area 1, 2 & 3	29.721935 S	24.613424 E	3	172.2	59.4	24	Continuous
			29.719449 S	30.613757 E	3	63.2	26.1		
			29.718954 S	30.613409 E	3	60.0	29.0		
EUA13	New Product and Raw material Load-in and Load-out	Active storage area	29.719069 S	30.609183 E	3	10.0	5.0	24	Continuous

#### 6.4.7 Emission Unit- Line Source Parameters.

Line Source Code	Source Name	Source Description	Latitude (decimal degrees)	Longitude (decimal degrees)	Height of Release Above Ground (m)	Length of Area (m)	Width of Area (m)	Emission Hours	Type of Emission (Continuous / Intermittent)
EUL1	Road: Slag Disposal	Access road	29.712262 S	30.61454 E	0	988.87	7.50	24	Continuous
EUL2	Road: Slag Pond	Access road	29.713651 S	30.6132 E	0	658.04	3.45	24	Continuous
EUL3	Road: Raw Material storage	Access road	29.71576 S	30.611085 E	0	1 072.59	2.28	24	Continuous
EUL4	Road: Bag House dust storage (Old)	Access road	29.719659 S	30.609333 E	0	17.71	3.47	24	Continuous
EUL5	Road: Bag House dust storage (New)	Access road	29.71979 S	30.609563 E	0	69.11	3.45	24	Continuous



Line Source Code	Source Name	Source Description	Latitude (decimal degrees)	Longitude (decimal degrees)	Height of Release Above Ground (m)	Length of Area (m)	Width of Area (m)	Emission Hours	Type of Emission (Continuous / Intermittent)
EUL6	Road: Product storage	Access road	29.716763 S	30.611108 E	0	289.10	3.45	24	Continuous
EUL7	Road: Tailings Storage Facility	Access road	29.71998 S	30.611171 E	0	15.65	3.45	24	Continuous
EUL8	Main road	Access road	29.716668 S	30.61386 E	0	4 014.12	4.71	24	Continuous
EUL9	Road: Hostel	Access road	29.717059 S	30.61515 E	0	1 232.90	6.93	24	Continuous
EUL10	Road: MRP - Storage areas	Access road	29.70947 S	30.615584 E	0	1 675.73	4.12	24	Continuous
EUL11	New slag storage facility roads	Access road	29.708813 S	24.616654 E	0	1 488.81	7.10	24	Continuous
EUL12	Export ore storage area roads	Access road	29.721919 S	24.612954 E	0	1 805.43	5.02	24	Continuous
EUL 13	New southern access road	Access road	29.726634 S	24.611403 E	0	394.30	7.00	24	Continuous
EUL14	Access road to Raw materials	Access road	29.723546 S	24.609386 E	0	731.67	6.71	24	Continuous

## 6.4.8 Emission Unit-Information

Emission Unit ID	Emission Unit Name	Emission Unit Type	New Emission Unit?	Installation Date	Description	Batch/Continuous Specification
EU0001	EU-Furnace 1	Furnace	Existing	01/01/1959	Furnace 1: High carbon ferromanganese semi-closed furnace	Continuous
EU0002	EU-Furnace 2	Furnace	Existing	01/01/1959	Furnace 2: High carbon ferromanganese semi-closed furnace	Continuous
EU0005	EU-Furnace 5	Furnace	Existing	01/01/1975	Furnace 5: High carbon ferromanganese semi-closed furnace	Continuous
EU0006	EU-Furnace 6 OGP	Furnace	Existing	01/01/1989	Furnace 6: High carbon ferromanganese closed furnace (OGP Scrubber for Furnace 6)	Continuous
EU0007	EU-CRA	Furnace	Existing	01/01/1997	CRA: High carbon to Medium/Low carbon Converter	Continuous
EU0008	EU-FES (FBFF& D)	Other fugitive	Existing	01/01/2010	FF&D: Fugitive Extraction System (FES) for Furnace Building Fugitive Fume & Dust Extraction (FB-FF&D)	Continuous
EU0009	EU-HC C&S	Crusher	Existing	01/01/2012	HC C&S: High carbon ferromanganese crushing & screening	Continuous
EU0010	EU-LC C&S	Crusher	Existing	01/01/2013	LC C&S: Low/Medium carbon ferromanganese crushing & screening	Continuous
EU0011	EU-Briquetting	Unclassified	New	07/01/2014	Briquetting: Briquetting plant for the agglomeration of materials to serve as Furnace feed material.	Continuous
EU0012	EU-Furnace 6 VAI	Furnace	Existing	04/18/2003	Furnace 6: High carbon ferromanganese closed furnace (VAI Scrubber for Furnace 6)	Continuous

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Emission Unit ID	Emission Unit Name	Emission Unit Type	New Emission Unit?	Installation Date	Description	Batch/Continuous Specification
EU0013	EU-Furnace 3 OGP	Furnace	Existing	11/21/1963	Furnace 3: High carbon ferromanganese closed furnace (OGP Scrubber for Furnace 3) (Placed under Care & Maintenance from 26Jun2012, i.e. not operational since then)	Continuous
EU0014	EU-Furnace 4 OGP	Furnace	Existing	11/21/1963	Furnace 4: High carbon ferromanganese closed furnace (OGP Scrubber for Furnace 4) (Placed under Care & Maintenance from 26Jun/2012, i.e. not operational since then)	Continuous
EU0015	EU Furnace 3 & 4VAI	Furnace	Existing	01/01/2003	Furnace 3 & 4: High carbon ferromanganese closed furnace (Shared VAI Scrubber for Furnaces 3 & 4) (Placed under Care & Maintenance from 26Jun2012, i.e. not operational since then)	Continuous
EU0111	A1-1: Slag Disposal Facility Area 1 of 3	Open Storage Pile	Existing	01/01/1956	A1-1: Slag Disposal Facility Area 1 of 3	Continuous
EU0112	A1-2: Slag Disposal Facility Area 2 of 3	Open Storage Pile	Existing	01/01/1959	A1-2: Slag Disposal Facility Area 2 of 3	Continuous
EU0113	A1-3: Slag Disposal Facility Area 3 of 3	Open Storage Pile	Existing	01/01/1956	A1-3: Slag Disposal Facility Area 3 of 3	Continuous
EU0120	A2: Slag Pond	Open Storage Pile	Existing	01/01/1956	A2: Slag Pond	Continuous
EU0131	A3-1: Raw Material Storage Area 1 of 2	Open Storage Pile	Existing	01/01/1959	A3-1: Raw Material Storage Area 1 of 2	Continuous

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Emission Unit ID	Emission Unit Name	Emission Unit Type	New Emission Unit?	Installation Date	Description	Batch/Continuous Specification
EU0132	A3_2: Raw Material Storage Area 2 of 2	Open Storage Pile	Existing	01/01/1959	A3_2: Raw Material Storage Area 2of2	Continuous
EU0140	A4: BH Dust Storage (old)	Open Storage Pile	Existing	01/01/1959	A4: BH Dust Storage (Old)	Continuous
EU0150	A5: BH Dust Storage (New)	Open Storage	Existing	01/01/1959	A5: BH Dust Storage (New)	Continuous
EU0160	A6: Product Storage	Pile	Existing	01/01/1959	A6: Product Storage	Continuous
EU0170	A7: Tailings Storage Facility	Open Storage	Existing	01/01/1959	A7: Tailings Storage Facility	Continuous
EU0181	A8_1: MRP Storage Area 1of2	Pile	Existing	01/01/2005	A8_1: MRP Storage Area 1of2	Continuous
EU0182	A8_2: MRP Storage Area 2of2	Open Storage	Existing	01/01/2005	A8_2: MRP Storage Area 2of2	Continuous
EU0190	A9: HC C&S Area	Pile	Existing	01/01/1959	A9: HC C&S Area	Continuous
EU0210	A10: LC C&S Area	Open Storage	Existing	01/01/1959	A10: LC C&S Area	Continuous
EU0220	A11: New Slag Storage Facility	Open Storage	Existing	01/01/2011	A11: New Slag Storage Facility	Continuous
EU0231	A12_1: Export Ore Storage Area 1of3	Pile	Existing	01/01/2013	A12_1: Export Ore Storage Area 1of3	Continuous
EU0232	A12_2: Export Ore Storage Area 2of3	Open Storage	Existing	01/01/2013	A12_1: Export Ore Storage Area 2of3	Continuous

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Emission Unit ID	Emission Unit Name	Emission Unit Type	New Emission Unit?	Installation Date	Description	Batch/Continuous Specification
EU0233	A12_3: Export Ore Storage Area 3of3	Pile	Existing	01/01/2013	A12_1: Export Ore Storage Area 3of3	Continuous
EU0240	A13: New Product & RM Load Area	Open Storage Pile	Existing	01/01/2013	A13: New Product & RM Load Area	Continuous
EU0501	L1: Road: Slag Disposal	Other fugitive	Existing	01/01/1959	L1: Road: Slag Disposal	Continuous
EU0502	L2: Road: Slag Pond	Other fugitive	Existing	01/01/1959	L2: Road: Slag Pond	Continuous
EU0503	L3: Road: Raw Material Storage	Other fugitive	Existing	01/01/1959	L3: Road: Raw Material Storage	Continuous
EU0504	L4: Road: BH Dust Storage (Old)	Other fugitive	Existing	01/01/1959	L4: Road: BH Dust Storage (Old)	Continuous
EU0505	L5: Road: BH Dust Storage (New)	Other fugitive	Existing	01/01/1959	L5: Road: BH Dust Storage (New)	Continuous
EU0506	L6: Road: Product Storage	Other fugitive	Existing	01/01/1959	L6: Road: Product Storage	Continuous
EU0507	L7: Road: Tailings Storage Facility	Other fugitive	Existing	01/01/1959	L7: Road: Tailings Storage Facility	Continuous
EU0508	L8: Road: Main Road	Other fugitive	Existing	01/01/1959	L8: Road: Main Road	Continuous
EU0509	L9: Road: Hostel	Other fugitive	Existing	01/01/1959	L9: Road: Hostel	Continuous
EU0510	L10: Road: MRP Storage Areas	Other fugitive	Existing	01/01/1959	L10: Road: MRP Storage Areas	Continuous

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Emission Unit ID	Emission Unit Name	Emission Unit Type	New Emission Unit?	Installation Date	Description	Batch/Continuous Specification
EU0511	L11: Road: New Slag Storage Facility	Other fugitive	Existing	01/01/1959	L11: Road: New Slag Storage Facility	Continuous
EU0512	L12: Road: Export Storage Area	Other fugitive	Existing	01/01/1959	L12: Road: Export Storage Area	Continuous
EU0513	L13: Road: New Southern Access	Other fugitive	Existing	01/01/1959	L13: Road: New Southern Access	Continuous
EU0514	L14: Road: Access to Raw Materials	Other fugitive	Existing	01/01/1959	L14: Road: Access to Raw Materials	Continuous

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## 7. APPLIANCES AND MEASURES TO PREVENT AIR POLLUTION

### 7.1 Appliances and control measures

Appliances		Abatement Equipment Control Technology									
Point Source Code	Appliance / Process Equipment Number	Appliance Description	Appliance Type / Description	Appliance Serial Number *	Abatement Equipment Manufacture Date	Abatement Equipment Technology Type	Commission Date	Date of Significant Modification / Upgrade	Design Capacity ** (Tons/Hr)	Minimum Control Efficiency (%)	Minimum Utilization
SVP1	GCP-BH-F1	Furnace	Furnace	GCP-BH-F1	2006	Baghouse	16/06/2006	No Modification	6.64	97.3%	98%
SVP2	GCP-BH-F2	Furnace	Furnace	GCP-BH-F2	1996	Baghouse	08/08/1996	No Modification	6.64	97.3%	98%
SVP3	GCP-CG-F3	Furnace	Furnace	GCP-CG-F3	1963	Wet scrubber	21/11/1963	No Modification	4.11	98.3%	98%
SVP4	GCP-CG-F4	Furnace	Furnace	GCP-CG-F4	1663	Wet scrubber	21/11/1963	No Modification	4.11	98.3%	98%
SVP5	GCP-VAI-F3&4	Common Standby Gas plant for Furnaces 3 & 4	Common Standby Gas Furnaces 3 & 4	GCP-VAI-F34	1963	Wet scrubber	21/11/1963	No Modification	8.22	98.3%	98%
SVP6	GCP-BH-F5	Furnace	Furnace	GCP-BH-F5	1975	Baghouse	1975	No Modification	8.22	97.0%	98%
SVP7	GCP-VAI-F6	VAI Plant	VAI Plant	GCP-VAI-F6	15/11/2002	Wet scrubber (VAI)	18/04/2003	No Modification	8.22	98.5%	98%
SVP8	GCP-CG-F6	Standby Old Gas plant for Furnace 6	Standby Old Gas plant for Furnace 6	GCP-CG-F6	1989	Wet scrubber (Old Gas Plant)	1989	No Modification	8.22	98.5%	98%

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Appliances		Abatement Equipment Control Technology									
Point Source Code	Appliance / Process Equipment Number	Appliance Description	Appliance Type / Serial Number *	Abatement Equipment Manufacture Date	Abatement Equipment Technology Type	Commission Date	Date of Significant Modification / Upgrade	Design Capacity ** (Tons/Hr)	Minimum Control Efficiency (%)	Minimum Utilization	
SVP9	GCP-BH-CRA	Convertor	GCP-BH-CRA	1997	Howden Baghouse	1997	No Modification	8.90	99.0%	99.0%	
SVP10	GCP-BH-FTF	Furnace	GCP-BH-FTF	2010	Baghouse	2010	No Modification	37.92	85.0%	98%	
SVP11	GCP-BH-HC	HC Crushing Plant	GCP-BH-HC	2012	Baghouse	2012	No Modification	37.92	98.0%	98.0%	
SVP12	GCP-BH-LC	LC Crushing Plant	GCP-BH-LC	2012	Baghouse	2013	No Modification	8.90	98.0%	98.0%	

Notes: 1. \* Appliance Process Equipment Number is used as the Appliance Serial Number as each appliance comprises of many individual component serial numbers which cannot all be listed.

2. \*\* Design Capacity is expressed in terms of the Production Design Capacity which the equipment is designed against

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

EU Code	Sub-Category	Pollutant Name	Maximum Release Rate		Duration of Emissions
			(mg/Nm <sup>3</sup> )	Average Period	
SVP1 SVP2 SVP3 SVP4	4.9	SO <sub>2</sub>	500	Immediate	Continuous
		NO <sub>2</sub>	750	Immediate	
			400	1 April 2020	
SVP5 Closed	4.9	PM	100	Immediate	Continuous
			30	1 April 2020	
SVP5 Closed	4.9	SO <sub>2</sub>	500	Immediate	Continuous
		NO <sub>2</sub>	750	Immediate	
			400	1 April 2020	
SVP5 Closed	4.9	PM	100	Immediate	Continuous
			50	1 April 2020	

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SVP6 Semi Closed	4.9	SO <sub>2</sub>	500	Immediate	24 Hours	Continuous
		NO <sub>x</sub>	750	Immediate	24 Hours	Continuous
			400	1 April 2020		
		PM	100	Immediate	24 Hours	Continuous
30	1 April 2020					
SVP7 Closed	4.9	SO <sub>2</sub>	500	Immediate	24 Hours	Continuous
		NO <sub>2</sub>	750	Immediate	24 Hours	Continuous
			400	1 April 2020		
		PM	100	Immediate	24 Hours	Continuous
			50	1 April 2020		
SVP8 Closed Standby Scrubber	4.9	SO <sub>2</sub>	500	Immediate	24 Hours	Continuous
		NO <sub>2</sub>	750	Immediate	24 Hours	Continuous
			400	1 April 2020		
		PM	100	Immediate	24 Hours	Continuous
			50	1 April 2020		

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SVP9 SVP10 SVP11 SVP12	SO <sub>2</sub>	500	Immediate	24 Hours	Continuous	
		NO <sub>2</sub>	750	Immediate	24 Hours	Continuous
			400	1 April 2020		
	PM	100	Immediate	24 Hours	Continuous	
		50	1 April 2020			
	<hr/>					
SVP13	PM	100	Immediate	24 Hours	Continuous	
		30	1 April 2020			
	NH <sub>3</sub>	50	Immediate	24 hours	Continuous	
		30	1 April 2020			

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**7.3 Point Source – Special Requirements****7.3.1 Subcategory 4.9 Ferro-alloy production**

- (i) Secondary fume capture installation shall be fitted to all new furnace installations.
- (ii) Emission of Cr (VI), Mn, and V from primary fume captures system of ferrochrome, ferromanganese and ferrovandium furnaces respectively to be measured and reported to Licensing Authority annually.

**7.3.2 Subcategory 5.1 Storage and Handling of Ore and Coal**

<b>Description:</b>		Storage and handling of ore and coal not situated on the premises of a mine or works as defined in the Mines Health and Safety Act 29/1996.	
<b>Application:</b>		Locations designed to hold more than 100 000 tons.	
<b>Substance or mixture of substances</b>		<b>Plant status</b>	<b>Mg/Nm<sup>3</sup> under normal conditions of 273 Kelvin and 101.3 kPa.</b>
<b>Common name</b>	<b>Chemical symbol</b>		
Dustfall	N/A	New	a
		Existing	a
a- three months running average not to exceed limit value for adjacent land use according to dust control regulations promulgated in terms of section 32 of NEM:AQA, 2004 (Act No. 39 of 2004), in eight principle wind directions.			

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## 8. START UP, SHUTDOWN AND MAINTENANCE CONDITIONS

### 8.1 Point source –Specific conditions relating to start-up, maintenance and shut-down.

Unit Process	Description of Occurrence of Potential Releases	Pollutants and associated amount of emissions	Briefly Outline Back Up Plan
SVP1(Furnace 1)	Technology or process upsets	PM, SO <sub>2</sub> & NO <sub>x</sub>	Off-gas vented to emergency vent stacks and load reduced until power can be restored or the plant shut down.
SVP2 (Furnace 2)	Technology or process upsets	PM, SO <sub>2</sub> & NO <sub>x</sub>	Off-gas vented to emergency vent stacks and load reduced until power can be restored or the plant shut down.
SVP3 &5 (Furnace 3)	Technology or process upsets	PM, SO <sub>2</sub> & NO <sub>x</sub>	Off-gas vented to emergency vent stacks and load reduced until power can be restored or the plant shut down.
SVP4&5(Furnace 4)	Technology or process upsets	PM, SO <sub>2</sub> & NO <sub>x</sub>	Off-gas vented to emergency vent stacks and load reduced until power can be restored or the plant shut down.
SVP6(Furnace 5)	Technology or process upsets	PM, SO <sub>2</sub> & NO <sub>x</sub>	Off-gas vented to emergency vent stacks and load reduced until power can be restored or the plant shut down.
SVP7&8Furnace 6)	Technology or process upsets	PM, SO <sub>2</sub> & NO <sub>x</sub>	Off-gas vented to emergency vent stacks and load reduced until power can be restored or the plant shut down.
SVP9(CRA)	Technology or process upsets	PM, SO <sub>2</sub> & NO <sub>x</sub>	Off-gas vented to emergency vent stacks and load reduced until power can be restored or the plant shut down.
SVP10 (Furnace tapping fume extractor)	Technology or process upsets	PM, SO <sub>2</sub> & NO <sub>x</sub>	Fugitive emissions during tapping cycles will not be able to be captured until the problem has been resolved
SVP11 &12 (High carbon and Low carbon metal crushing & screening respectively)	Technology or process upsets	PM	Emissions from these sources will be fugitive and the load will be reduced until the problem can be restored or the plant will be shut down if the problem persists

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## 9. POINT SOURCE – EMISSION MONITORING AND REPORTING REQUIREMENTS

Point Source Code	Emission Sampling / Monitoring Method	Sampling Frequency	Sampling Duration	Parameters to be Measured	Parameters to be Reported	Reporting Frequency
SVP1	As per Schedule A of NEM;AQA	Annually	As per prescribed method	SO <sub>2</sub> ,PM & NO <sub>2</sub>	SO <sub>2</sub> ,PM & NO <sub>2</sub>	Annually or earlier at the discretion of the Licensing Authority
SVP2	As per Schedule A of NEM;AQA	Annually	As per prescribed method	SO <sub>2</sub> ,PM & NO <sub>2</sub>	SO <sub>2</sub> ,PM & NO <sub>2</sub>	Annually or earlier at the discretion of the Licensing Authority
SVP3	As per Schedule A of NEM;AQA	Annually	As per prescribed method	SO <sub>2</sub> ,PM & NO <sub>2</sub>	SO <sub>2</sub> ,PM & NO <sub>2</sub>	Annually or earlier at the discretion of the Licensing Authority
SVP4	As per Schedule A of NEM;AQA	Annually	As per prescribed method	SO <sub>2</sub> ,PM & NO <sub>2</sub>	SO <sub>2</sub> ,PM & NO <sub>2</sub>	Annually or earlier at the discretion of the Licensing Authority
SVP5	As per Schedule A of NEM;AQA	Annually	As per prescribed method	SO <sub>2</sub> ,PM & NO <sub>2</sub>	SO <sub>2</sub> ,PM & NO <sub>2</sub>	Annually or earlier at the discretion of the Licensing Authority
SVP6	As per Schedule A of NEM;AQA	Annually	As per prescribed method	SO <sub>2</sub> ,PM & NO <sub>2</sub>	SO <sub>2</sub> ,PM & NO <sub>2</sub>	Annually or earlier at the discretion of the Licensing Authority
SVP7	As per Schedule A of NEM;AQA	Annually	As per prescribed method	SO <sub>2</sub> ,PM & NO <sub>2</sub>	SO <sub>2</sub> ,PM & NO <sub>2</sub>	Annually or earlier at the discretion of the Licensing Authority
SVP8	As per Schedule A of NEM;AQA	Annually	As per prescribed method	SO <sub>2</sub> ,PM & NO <sub>2</sub>	SO <sub>2</sub> ,PM & NO <sub>2</sub>	Annually or earlier at the discretion of the Licensing Authority

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<b>SVP9</b>	As per Schedule A of NEM;AQA	Annually	As per prescribed method	SO <sub>2</sub> ,PM & NO <sub>2</sub>	SO <sub>2</sub> , PM & NO <sub>2</sub>	Annually or earlier at the discretion of the Licensing Authority
<b>SVP10</b>	As per Schedule A of NEM;AQA	Annually	As per prescribed method	SO <sub>2</sub> ,PM & NO <sub>2</sub>	SO <sub>2</sub> ,PM & NO <sub>2</sub>	Annually or earlier at the discretion of the Licensing Authority
<b>SVP11</b>	As per Schedule A of NEM;AQA	Annually	As per prescribed method	PM	PM	Annually or earlier at the discretion of the Licensing Authority
<b>SVP12</b>	As per Schedule A of NEM;AQA	Annually	As per prescribed method	PM	PM	Annually or earlier at the discretion of the Licensing Authority
<b>SVP13</b>	As per Schedule A of NEM;AQA	Annually	As per prescribed method	PM, NH <sub>3</sub>	PM, NH <sub>3</sub>	Annually or earlier at the discretion of the Licensing Authority

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10. AREA AND/ OR LINE SOURCES- MANAGEMENT AND MITIGATION MEASURES

Area and Line Source Codes	Description of Specific Measures	Timeframe for Implementation of Specific Measures	Method of Monitoring Measure Effectiveness
EU A1/A3/A8/A9/A10/A11/A12	For conveyor belt transport, use of wind protection (e.g. covering of the conveyor belt and transfer points) techniques and keeping discharge heights as low as possible.	Current	Dust Fallout measurements
EU L1/L2/L3/L4/L5/L6/L7/L9/L10/11/L12 / L13 & L14	Scheduled cleaning of the roads. Transportation of dust raising materials in closed body vehicles or covering material with a tarpaulin where applicable.	Current	Dust Fallout measurements
EU A4/A5/A7/A12	The Briquetting plant will enable the recycling of baghouse dust and sludge stored on stockpiles and new material generated by the processes (i.e. at the export ore screening section), and is therefore expected to assist in mitigating potential wind generated dust from these areas.	Authorization for the Briquetting plant received (dated 18 June 2010) Current	Dust Fallout measurements Emission monitoring
EU A9 & A10	Fugitive dust capturing system for transfer points, crushers and screens at both HC and LC C&S plants.	Current	Dust Fallout measurements

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**11. EMISSIONS FROM SITE**

- 11.1 Assmang Cato Ridge Works** must submit a plan with timeframes to Licensing Authority by **28 February 2019** demonstrating the improvements of the availability of air pollution control equipment and to reduce the frequency and duration of uncontrolled emission.
- 11.2** All ambient air quality standard exceedances to be investigated and the findings to be reported to the Licensing Authority on a **monthly basis**.
- 11.3 Assmang Cato Ridge Works** must submit an updated action plan with timeframes to reduce dust emission from plant's roads to Licensing Authority by **28 February 2019**.
- 11.4** The Licence Holder must establish Point Source emission monitoring in the **briquetting plant** to determine compliance with the Minimum Emission Standards by **31 May 2019**. The Licence Holder must ensure the commissioning of an approved extraction system, installed by a **Professional Registered Engineer (Pr. Eng)**, which complies with Best Available Technology.
- 11.5** The manner in which measurements of minimum emissions standards, as required by Section 21 (3) (a) (ii) of the NEM;AQA, shall be carried out must be in accordance with the standard sampling and analysis methods listed in Annexure A of GNR893 of 22 November 2013.
- 11.6** The Licence Holder may be required to install approved Abatement Control Technology that complies with Best Available Technology to achieve the Minimum Emission Standard.
- 11.7** The Licence Holder must establish a **Fugitive Emissions Management Plan** for fugitive dust capturing from the furnaces building, processing areas and raw material storage areas which must be submitted to the Licensing Authority by **31 January 2019**.
- 11.8 Fence line / Off-site Dust Fallout Monitoring**  
Assmang Cato Ridge Works is required to continue with the current dust fallout (DFO) monitoring programme to determine the annual averages for dust fallout and submit a report to the Licensing Authority on **quarterly basis**.
- 11.9** The Licensing Authority reserves the right to request Assmang manganese Cato Ridge Works to take remedial measures to reduce emissions should the emissions be continuously above the limits prescribed in the table below:

Restriction Areas	Dust fall rate (D) (mg/m <sup>2</sup> /day, 30 days average)	Permitted frequency of exceeding dust fall rate
Residential area.	<b>D &lt; 600</b>	Two within a year, not sequential months
Non-residential area.	<b>600 &lt; D &lt; 1200</b>	Two within a year, not sequential months

The method to be used for measuring Dust fall rate and the guideline for locating sampling points shall be ASTM D1739: 1970, or equivalent method approved by any internationally recognized body.

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Date: \_\_\_\_\_



## 12.1 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. The report must be submitted to the Licensing Authority not later than **60 (sixty) days** after the end of each reporting period.

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

## 12.2 National Atmospheric Emission Inventory System (NAEIS)

In terms of Government Notice (GN) 283 promulgated on 2 April 2015, the licence holder is required to submit all emission inventory reports in the format required for the internet based National Atmospheric Emissions Inventory System (**NAEIS**) on an annual basis by **31<sup>st</sup> March of each year**.

## 12.3 Compliance Reporting on SAAELIP

The Licence Holder is required to submit an online compliance report by **31 October 2019** and thereafter annually in the format required by the **South African Atmospheric Emission Licensing and Inventory Portal (SAAELIP)**.

## 12.4 Special Conditions

**12.4.1** The Licence holder is required to identify and prioritize environmental projects and formulate a 5 year environmental improvement plan in line with the philosophy of continuous improvement and the optimisation of **Assmang manganese Cato Ridge Works** operations. The environmental improvement project plan with associated timeframes must be submitted to the Licencing Authority by **1 March 2019**.

**12.4.2** The Licence holder is required to submit all sampling plans inclusive of sampling and analysis strategies/methodologies to the Licensing Authority on **an annual basis**.

## 13. SPECIFIC CONDITIONS


### 13.1 Routine reporting and record keeping

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 complaint was registered. The register should also provide space for dust and offensive odour complaints.

Furthermore, the Licence Holder is to investigate and report monthly 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:

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

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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.

#### 14. INVESTIGATIONS

The following investigations are required:

No.	Investigation	Purpose	Completion Date
1	Compliance project plans	To effectively monitor progress of emission management	31 January 2019
2	Contingency plan	Prepare a contingency plan	30 November 2018, Thereafter Reviewed annually
3	Fugitive Dust Management Plan	Prepare a Fugitive Dust Management Plan	1 March 2019, Thereafter Reviewed Annually.
4	Control Devices	Submission of maintenance programme to the Licensing Authority	1 April 2019, Thereafter Reviewed Annually.
5	Control Devices	Investigate efficiency of design efficiency, measurement & utilisation of the existing control devices	30 November 2019
6.	Briquetting plant stack SVP13	To establish point source for emission monitoring as per Category 4.11	1 June 2019

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Date: \_\_\_\_\_

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