



# NKANGALA DISTRICT MUNICIPALITY

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**ATMOSPHERIC EMISSION LICENCE HOLDER: ESKOM HOLDING SOC LIMITED KRIEL POWER STATION**

**ATMOSPHERIC EMISSION LICENCE NO.: 17/AEL/MP312/11/09**

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

I, ET Zulu, in my capacity as the General Manager: Community Development Services 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 40 (1) (a) of the Act, hereby grant the authorisation of the above-mentioned Atmospheric Emission Licence subject to Section 43 of the Act to the conditions specified herein.

This Atmospheric Emission Licence is issued to **Eskom Holding SOC Limited Kriel Power Station** in terms of Section 42 of the Act as amended, in respect of 21 Listed Activity **Subcategory 1.1; 2.4 and 5.1**. The Atmospheric Emission Licence is issued on the basis of information provided in the company's application dated **19 March 2024** and information that became available during processing of the application, as well as the site visit conducted on **06 May 2024**.

The Atmospheric Emission Licence is valid for five (05) years, until **05 August 2029**. This Atmospheric Emission Licence is a renewal initiated by the facility according to Section 47 (1) of the Act and is issued subject to the conditions and requirements set out below which form part of the Atmospheric Emission Licence, and which are binding on **Eskom Holding SOC Limited Kriel Power Station**, (hereinafter referred to as "the Licence Holder").

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## 1. ATMOSPHERIC EMISSION LICENCE ADMINISTRATION

Name of the Licensing Authority	Nkangala District Municipality
Atmospheric Emission Licence Number	17/AEL/MP312/11/09
1 <sup>st</sup> Atmospheric Emission Licence Issue Date	25 March 2019
2 <sup>nd</sup> Atmospheric Emission Licence Issue Date (variation)	31 March 2021
3 <sup>rd</sup> Atmospheric Emission Licence Issue Date (variation)	05 August 2024
Atmospheric Emission Licence Type	Atmospheric Emission Licence
Atmospheric Emission Licence Review Date	As advised by Licensing Authority
Atmospheric Emission Licence Renewal Date	As per the Minister's Appeal Decision, dated 22 May 2024, power plants due to be decommissioned by 2030, under <u>no circumstance</u> , can operate beyond this date. This Atmospheric Emission Licence will not be renewed beyond the suspension date which is 31 March 2030.

## 2. ATMOSPHERIC EMISSION LICENCE HOLDER DETAILS

Enterprise Name	Eskom Holding SOC limited
Trading As	Kriel Power Station
Type of Enterprise	State Owned Company
Enterprise Registration Number (Registration Numbers if Joint Venture)	2002/015527/30
Registered Address	Bethal/Ogies Road, Emalahleni, 2271
Postal Address	Private Bag X5009, Kriel, 2271
Telephone Number (General)	017 615 2000
Fax Number (General)	017 615 2326
Industry Sector	Power Generation (Electricity Generation)
Contact Name (General Manager)	Morongwe Raphasha
Telephone number	013 296 3792
Cell phone Number	082 439 0324
Fax Number	017 615 2326
E-mail Address	<a href="mailto:RaphasMO@eskom.co.za">RaphasMO@eskom.co.za</a>
After Hours Contact Details	082 439 0324

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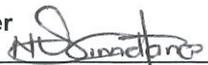
### 3. SITUATION AND EXTENT OF THE PLANT

#### 3.1. Location and extent of the plant

Physical Address of the Plant	Bethal/Ogies Road, Emalahleni, 2271
Description of Site (Erf)	Kriel Power Station is situated 4.7 km South-West of Matla Power Station. Kriel ash dam is situated 1.7 km South-East of the Kriel Power Station and Matla ash dam is situated 2.7 km South. Kriel Power Station coal stockyard is situated South of the Station. There is a small settlement 1.4 km South-East of Kriel Power Station, and the boundary of Kriel town is 7km East of the Power Station. The farm households are scattered throughout the area with livestock farming (primarily cattle and game) representing the main agricultural use in the area.
Coordinates of Approximate Centre of Operations	26°15'15 S 29°10'40.E
Extent (km <sup>2</sup> )	18.94
Elevation Above Mean Sea Level (m)	1,626
Province	Mpumalanga
Metropolitan/District Municipality	Nkangala District Municipality
Local Municipality	eMalahleni Local Municipality
Designated Priority Area	Highveld Priority Area

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

Kriel Power Station is situated 4.7 km South-West of Matla Power Station. Kriel ash dam is situated 1.7 km South-East of the Kriel Power Station and Matla ash dam is situated 2.7 km South. Kriel Power Station coal stockyard is situated South of the Station. There is a small settlement 1.4 km South-East of Kriel Power Station, and the boundary of Kriel town is 7km East of the Power Station. The farm households are scattered throughout the area with livestock farming (primarily cattle and <sub>game</sub>) representing the main agricultural use in the area.

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Figure 1: Locality Map – Aerial view of Eskom Holding SOC Limited Kriel Power Station

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## 4. GENERAL CONDITIONS

### 4.1. Process and ownership changes

- (a) 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.
- (b) 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. The investigation, assessment, and communication of potential impact of such an activity must follow the assessment procedure 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.
- (c) Any changes in processes or production increases, by the licence holder, will require prior approval by the licensing authority.
- (d) 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.
- (e) 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 thirty (30) working days after the change of ownership.
- (f) 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

- (a) The holder of the Licence must, when undertaking the listed activity, adhere to the duty of care obligations as set out in section 28 of the NEMA.
- (b) 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 as amended.
- (c) 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 as amended.

### 4.3. Sampling and/or analysis requirements

- (a) 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.
- (b) The licence holder is responsible for quality assurance of methods and performance. Where the holder of the licence uses internal or external laboratories for sampling or analysis, accredited laboratories and personnel shall be used. The certified copy of accreditation of the internal or external laboratory must be submitted to the license authority annually including its external audits certification.

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- (c) The licence holder must provide the licensing authority on request with raw data obtained during sampling and /or analysis including methodology used to reach to the final results submitted to the Licensing Authority.

#### 4.4. General requirements for licence holder

- (a) 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.
- (b) 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.
- (c) 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.
- (d) The licence holder must inform, in writing, the licensing authority of any change to its details including the name of the contact person, postal address and/or telephonic details within fourteen (14) working days after such change has been effected.

#### Special Conditions

- (e) The licence holder must attend and participate quarterly in the Highveld Priority Area Implementation Task Team and Air Quality Stakeholder Forum Meetings for the implementation of the Highveld Priority Air Quality Management Plan.
- (f) The licence holder must annually report atmospheric emissions on the National Atmospheric Emission Inventory System (NAEIS) <https://saelip.environment.gov.za> for the preceding year in terms of GNR 283 in Government Gazette 38633 of 02 April 2015.

#### 4.5. Statutory obligations

The licence holder must comply with the obligations as set out in Chapter 5 of NEMAQA (Act no. 39 of 2004) as amended.

### 5. NATURE OF PROCESS

#### 5.1. Process Description

The planning and design of Kriel Power Station began in the early seventies. Construction also started in the early seventies and the station began operating at full capacity early 1979. The first unit was commissioned in 1974 and the last unit was commissioned in 1979. When Kriel Power Station was completed in 1979, it was the largest coal-fired station in the Southern Hemisphere. The power station was designed to run on Usutu Water but currently the station is Interchanging between Usutu and Vaal Water. Kriel Power Station was one of the first stations to be supplied with

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coal from fully mechanised coal mined, with coal arriving at the boilers from the mines-untouched by hand. Kriel is unique in that each turbine generator set is separate whereas in Eskom other stations, all the turbines are housed in a single turbine hall, all placed along the same axis.

### **Fuel Handling**

Kriel Power Station uses coal from underground and opencast mining methods. As received from the mines, the coal can be sent to the station at a rate of 1800 tons per hour per side of the station both Southern and Northern units or stored at the coal stockpile area (Coal stockyard) which has the following three compartments: live stockpile which is uncompacted, seasonal stockpile which is partially compacted as well as strategic stockpile which is fully compacted. The storage capacity is 1 700 000 tons. Coal can also be fed directly from the live stockpile to the power station's coal staitthes at the rates of up 1 100 tons per hour per side of the station both Southern and Northern units. From the coal staitthes, the coal is conveyed via under staithe belts and incline conveyors to seven (07) coal bunkers with a capacity of eight hours full load coal supply to each of the mills served by that bunker. The six boilers are each served by two coal bunkers with the capacities of 9950 tons respectively.

The power station is equipped with bulk fuel oil plant which is used during cold and hot unit light ups as well as to support combustion when needed. The station has four (04) main fuel oil tanks with each having a storage capacity of 25 000 litres. Two tanks service the Northern side (Unit 1 to 3) and the other two service the Southern side (Unit 4 to 6), using catlight and diesel.

### **Boiler Plant**

Boilers 1 to 3, associated with North Stack, are designed to used coal from underground workings (due to supply constraints, the aforementioned boilers use mixture of coal from underground and opencast workings). Boilers 4 to 6, associated with South Stack, are designed to use coal from opencast workings. Kriel Power Station has six (06) Steinmuller boiler units with a design installed output capacity of 3000MW, each unit designed to produce 500 megawatts respectively. The output from unit 1 to 3 has been derated to 430 MW due to coal quantity. The design boiler efficiency, at a cycle efficiency of 34.89%, of units 1 to 3 is 89.55% and units 4 to 6 is 88.85%. Each boiler has thirty six (36) fuel and PF oil burners with six (06) mills and six (06) PA fans. Each unit requires five (05) mills to sustain full load.

The mills at Kriel Power Station are at medium speed, vertical spindle type manufactured by Babcock and Wilcox. There are two (02) varieties in use. Unit 1 to 3 are fitted with 10.8 E mills with maximum throughput of 50 tons/hour. Unit 4 to 6 are fitted with 12.0 E mills with maximum grinding capacity of 60 tons/hour. The pulverised (milled) coal is transported from mills by means of primary air into the boiler. Combustion air is then supplied by forced draught fans

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through the air heater into the boiler, it then mixes with pulverised fuel and then combustion happens. Subsequent to combustion, particulate matter (coarse and fine ash) and gases (SO<sub>x</sub> and NO<sub>x</sub>) are then produced. The by-products from burning of coal are fly ash and coarse ash. The fly ash is collected in the dust hoppers and coarse ash is collected in the ash sumps and transferred to the ash dam.

### Precipitators

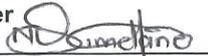
Unit 1 to 3 are fitted with three (03) fields Electrostatic Precipitators (ESPs) per pass (12 fields in total per Unit) while unit 4 to 6 are fitted with four (04) fields Electrostatic precipitators per pass (16 fields in total per Unit). Electrostatic Precipitator plant removes dust in the flue gas stream before the gas passes through the Induced Draught (ID) fan and exhausted to atmosphere via stack. Each unit is served by a Precipitator Plant equipped with precipitator fields that are installed between air heater outlet and the ID fans. The dust particles that are removed from the flue gas is collected in the hoppers at the base of the electro-filter plant and this dust is transported via a pneumatic (air-filled) conveying system to ash silos from where it is conditioned and conveyed to the wet ash dams.

### Sulphur Trioxide Injection Plant (SO<sub>3</sub>)

The sulphur trioxide injection plant is installed on all units. The plant enhances the performance of the ESPs by modifying the electrical properties of the dust particles in the flue gas thus reducing the amount of particulate matter emitted in the atmosphere. The SO<sub>3</sub> Injection assist to modify the electrical properties of the dust particles with high resistivity when burning coal with a Sulphur content of 1% or less. In this case Sulphur content is far lower for optimum performance of the ESP fields, the injection of the SO<sub>3</sub> improves the dust particle resistivity thus increasing electrostatic precipitator efficiency.

### 5.2. Facility Wide Listed Activities with Regulatory Applicability

Category	Subcategory	Description of the Listed Activity
Category 1: Combustion Installations	Subcategory 1.1: Solid Fuel Combustion Installation	Solid fuels combustion installations used primarily for steam raising or electricity generation.
Category 2: Petroleum Industry, the production of gaseous and liquid fuels as well as petrochemicals from crude oil, coal, gas or biomass	Subcategory 2.4: storage and Handling of Petroleum Products	Petroleum products storage tanks and product transfer facilities.

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5.5. Graphical Process Information

The following diagrams depicting the graphical operation for the entire operation at Eskom Kriel Power Station:

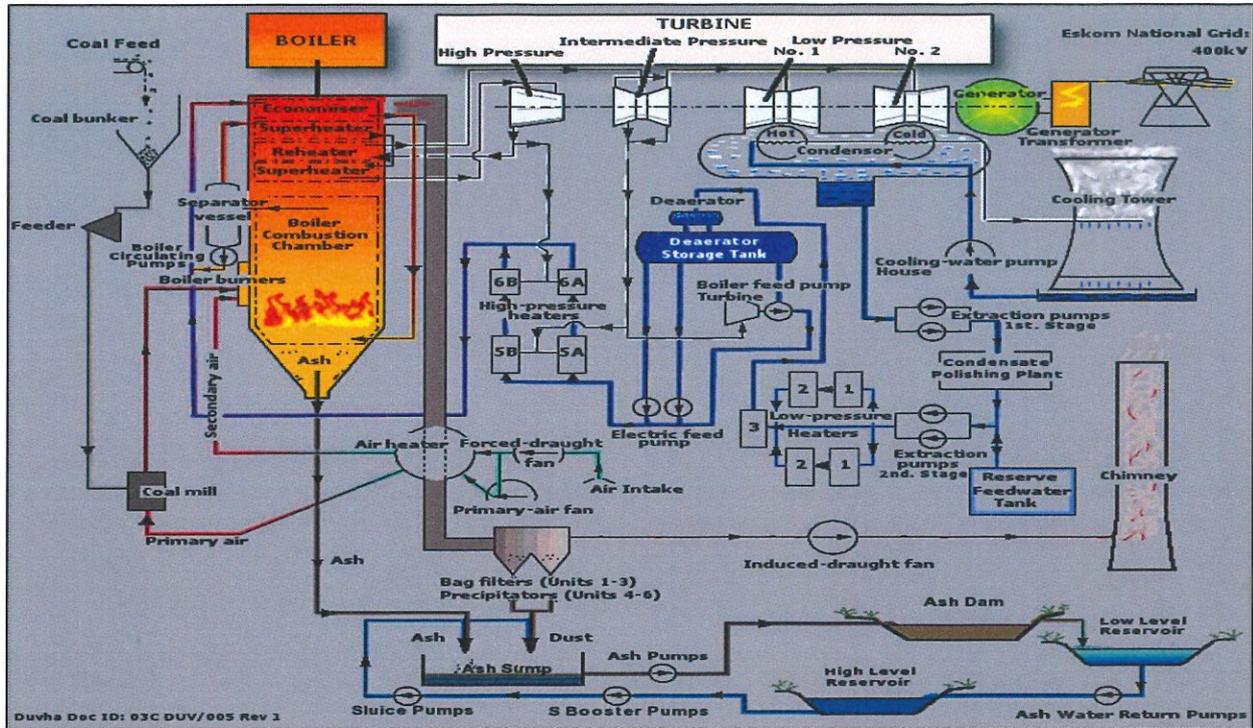


Figure 2: Detailed process flow diagram

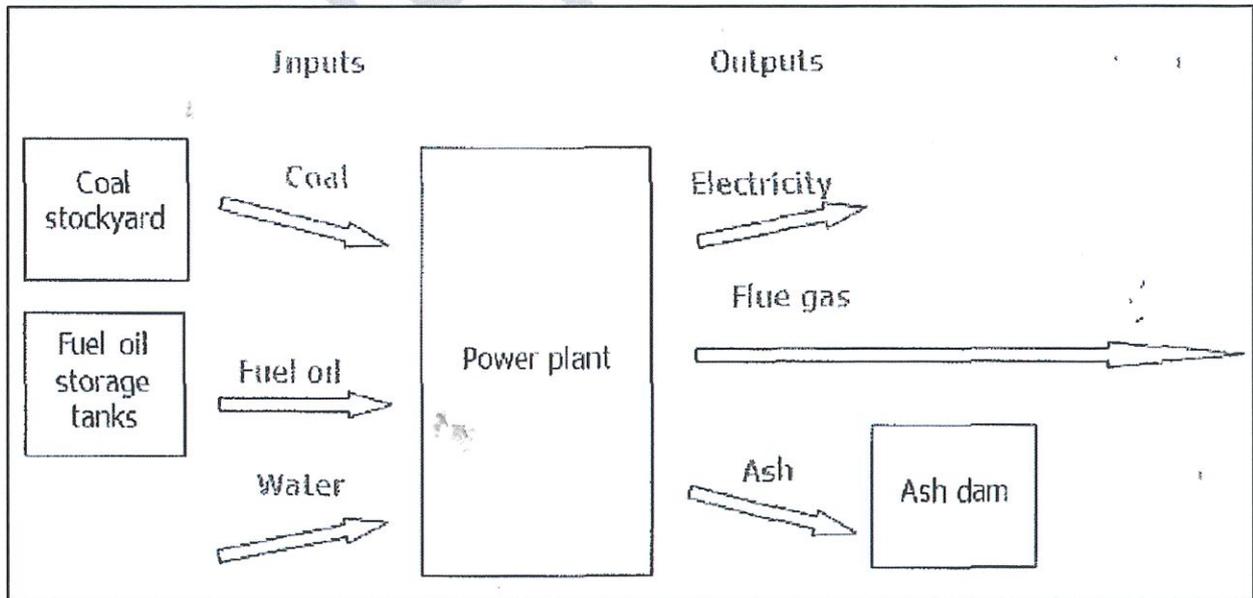


Figure 3: Simplified process flow diagram

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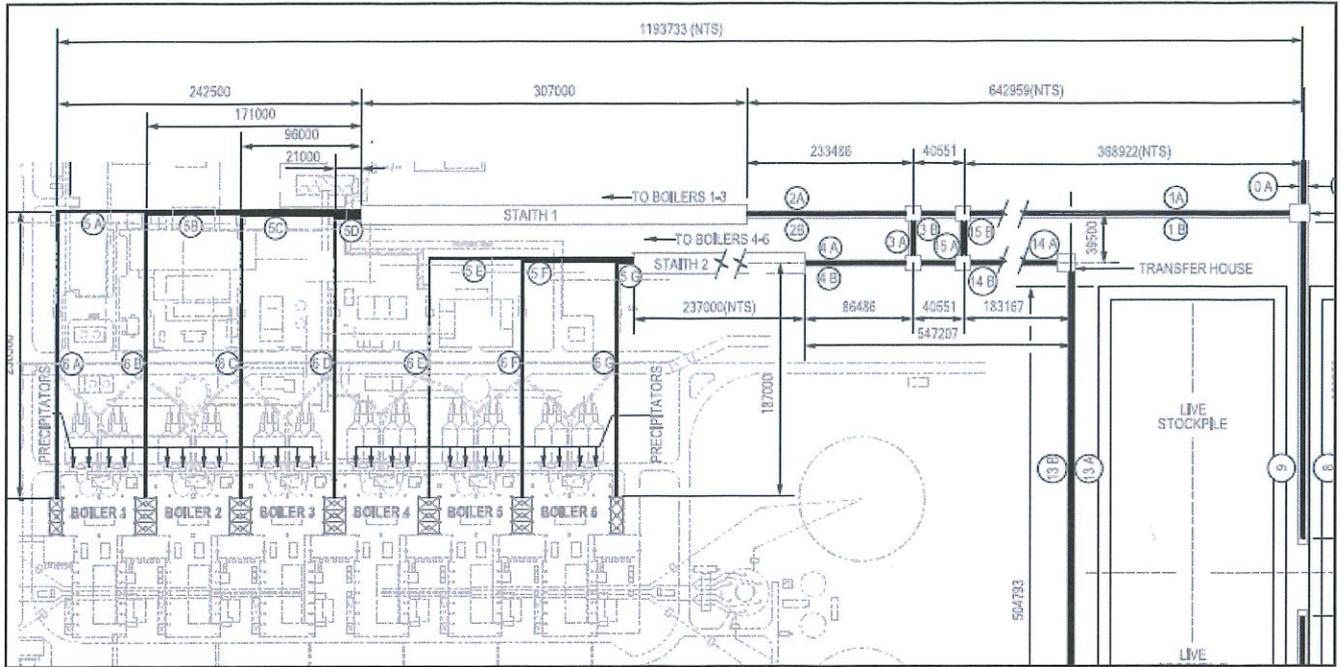


Figure 4: Layout of coal plant

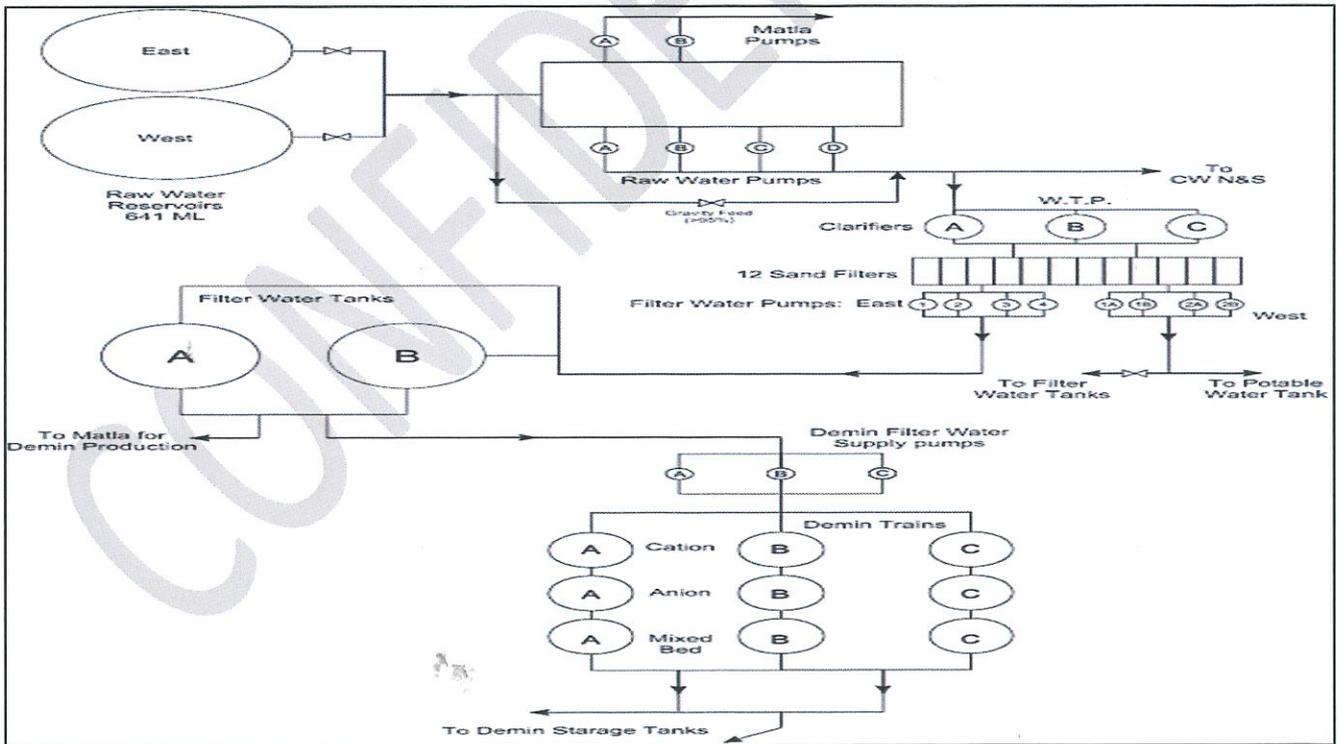


Figure 5: Layout of water plant

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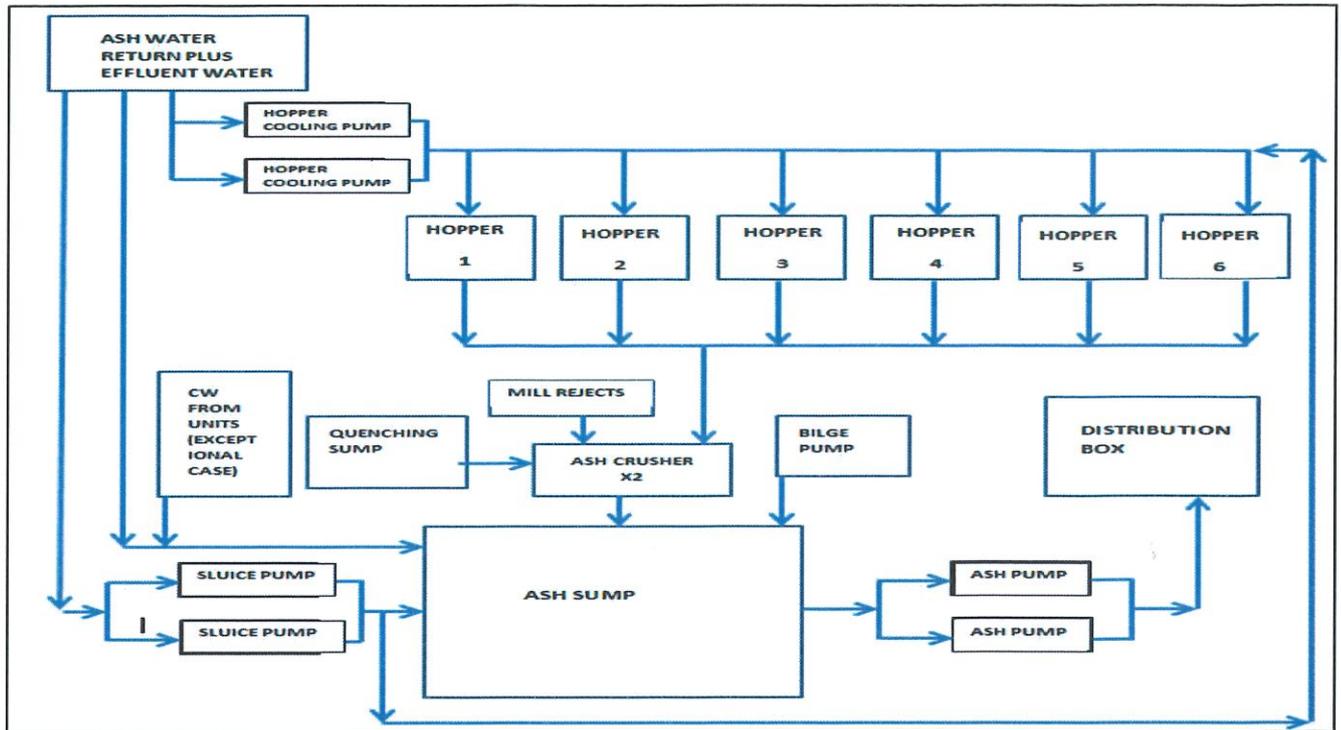


Figure 6: Layout of ash plant

## 6. RAW MATERIALS AND PRODUCTS

### 6.1. Raw Materials used

Raw Material Type	Maximum Permitted Consumption Rate (Quantity)	Units (quantity/period)
Coal	1 227 600	tons/month
Fuel oil	8 000	tons/month

### 6.2. Production Rates

Product Name	Maximum Permitted Production Capacity (Quantity)	Units (quantity/period)
Electricity	3 000 / 2 232	Megawatts (MW)/ Gigawatts Hour (GWh) per month

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6.3. By Product Rates

Product Name	Actual Production Capacity (Quantity)	Units (quantity/period)
Ash	320 000	tons/month

6.4. Materials used in energy sources

Materials for Energy Source	Maximum Permitted Consumption Rate	Designed Consumption Rate	Actual Consumption Rate	Sulphur Content %	Ash Content %
Coal	1 071 360	1 227 600	800 000 (Average)	Not less than 1.2%	Not more than 34%
Fuel Oil	5 000	5 000	5 000	less than 1.2 %	less than 0.1 %

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## 6.5 Emission Units

### 6.5.1. Emission Unit - Stack Parameters (Point Source)

EU Code	Stack Name	Latitude (decimal degrees) South	Longitude (decimal degrees) East	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)
SV0001	Stack 1 (Units 1, 2 and 3) North Stack	26°15'10"S	29° 10'40"E	213	79.2	14.3	130	3 000	18.68	24	Continuous
SV0002	Stack 2 (Units 4, 5 and 6) South Stack	26°15'17"S	29° 10'44"E	213	79.2	14.3	130	3 000	18.68	24	Continuous

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6.5.2. Emission Unit - Area/Line Source

EU Code	Source Name	Source Description	Latitude	Longitude	Height of release Above Ground (m)	Length of Area (m)	Width of Area (m)	Emission Hours	Type of Emissions
EU0001	Live Coal Stockpile	<b>Emission Unit Type:</b> Storage of coal <b>Description:</b> Storage and coal handling area	26°15'48.02"S	29°10'55.70"E	3.00	520	155	24	Continuous
EU0002	Seasonal and Strategic Coal Stockpile	<b>Emission Unit Type:</b> Storage of coal <b>Description:</b> Storage and coal handling area	26°15'48.02"S	29°10'55.70"E	3.00	490	330	24	Batch
EU0003	Fuel Oil Tank 1 (North Side)	<b>Emission Unit Type:</b> Fuel oil tanks vents <b>Description:</b> Emissions of VOCs	26°25'25.11"S	29°17'77.04"E	12	6.01 (Outer Diameter)	6.01 (Outer diameter)	24	Continuous
EU0004	Fuel Oil Tank 2 (South Side)	<b>Emission Unit Type:</b> Fuel oil tanks vents <b>Description:</b> Emissions of VOCs	26°5'35.23"S	29°17'89.65"E	10	8.1 (Outer Diameter)	8.1 (Out Diameter)	24	Continuous

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EU0005	Coal conveyor belts	<b>Emission Unit Type:</b> Coal transportation <b>Description:</b> Fugitive dust emissions from the conveyor belts	26° 15'56.4" S	29° 10'52.0" E	275	532	527	24	Continuous
EU0006	Ash Plant (per Unit)	<b>Emission Unit Type:</b> Handling and containment of fly Ash <b>Description:</b> Fugitive dust emissions from the ash plant and dust hoppers.	26° 15'15.53" S	29° 10'41.80" E	56	55	30	24	Continuous
EU0007	Ash conveyor	<b>Emission Unit Type:</b> Ash transportation <b>Description:</b> Fugitive dust emissions from the conveyors that contain ash	26° 15'55.54" S	29° 11'13.66" E	0.50	1820	3	24	Continuous
EU0008	Ash Dam	<b>Emission Unit Type:</b> Handling and storage of fly and coarse ash. <b>Description:</b> Fugitive emissions arising from ash transportation and storage	26° 16'02.8" S	29° 11'40.7" E	80	2720	1380	24	Continuous

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EU0009	Fly Ash Silo	<b>Emission Unit Type:</b> Fly ash storage <b>Description:</b> Fugitive emissions from storage and handling of fly ash	26° 15'11. 23" S	29° 10'47.77" E	60	46	20	24	Continuous
EU0010	Unpaved Roads	<b>Emission Unit Type:</b> Transportation of raw materials – Road used to transport coal and ash to and from the coal stockyard and ash dam <b>Description:</b> Fugitive dust emission from unpaved roads at Kriel Power Station including roads around the coal stockyard, ash dams and the station	N/A	N/A	N/A	N/A	N/A	24	Continuous

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7. CONTROL DEVICES, EMISSION UNITS, AND REPORTING GROUPS

7.1. Control Devices

Emission Unit		Control Device										
Associated Source Code	Appliance / Process Equipment Number	Appliance Serial Number	Appliance Type / Description	Control devices Name and Model	Control Devices Manufacture Date	Commission Date	Date of Significant Modification / Upgrade	Device Type	Design Capacity Control Efficiency (%)	Minimum Control Efficiency (%)	Minimum Utilisation (%)	
SV/0001 (Stack 1)	Boiler Unit 1	Steinmuller Benson once through type boilers	U1 - 7610	Electrostatic Precipitator (ESP) refurbishment and HFPS Retrofit	1974	1976	2023-2024	ESP	98%	80%	100	
	Boiler Unit 2		U2 - 7611									
	Boiler Unit 3	U3 - 7612	Flue Gas Recirculation (FGR), HFPS Retrofit	1984	1984	2010,2022	FGR	98%	80%	100		
	SV/0002 (Stack 2)	Boiler Unit 4	Steinmuller Benson once through type boilers	U4 - 7610	Electrostatic Precipitator (ESP)	1974	1976	2005	ESP	98%	80%	100
		Boiler Unit 5		U5 - 7611								
		Boiler Unit 6	U6 - 7612	Flue Gas Recirculation (FGR)	1984	1984	2010	FGR	98%	80%	100	

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7.2. Reporting / Emission Unit – Maximum Emission Rates (Under Normal Working Conditions)

RG/EU Code	Listed Activity	Pollutant Name	Maximum Release Rate (mg/Nm <sup>3</sup> )	Date to be Achieved By	Average Period (Shut-down: Instantaneous, Hourly, Daily, Monthly, Annually)	Duration of Emissions (Hours)
SV0001	Subcategory 1.1	Particulate Matter (PM)	100	01 April 2020 – 31 March 2030	Daily	24 hours
		Sulphur Dioxide (SO <sub>2</sub> )	2800	01 April 2020 – 31 March 2025	Daily	24 hours
		Oxides of Nitrogen (NO <sub>x</sub> expressed as NO <sub>2</sub> )	1100	01 April 2020 – 31 March 2030	Daily	24 hours
SV0002	Subcategory 1.1	Particulate Matter (PM)	100	01 April 2020 – 31 March 2030	Daily	24 hours
		Sulphur Dioxide (SO <sub>2</sub> )	2800	01 April 2020 – 31 March 2025	Daily	24 hours
		Oxides of Nitrogen (NO <sub>x</sub> expressed as NO <sub>2</sub> )	1100	01 April 2020 – 31 March 2030	Daily	24 hours

**Point source – Operating Requirements**

- 7.2.1. Eskom Kriel Power Station must report all non – compliance with the conditions stipulated in this Atmospheric Emission Licence.
- 7.2.2. A copy of this AEL shall be retained at a place convenient to be produced in case the authorities would like to view it.
- 7.2.3. The Licence holder shall notify the Licensing Authority in writing pertaining to any upgrades or building alterations associated with the listed activity, prior taking the action.
- 7.2.4. The Licence holder must comply with the National Greenhouse Gas Emission Reporting Regulations No. 40762 Government Gazette 03 April 2017.

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- 7.2.5. All units must be fitted with continuous emission monitoring equipment for PM; SO<sub>2</sub> and NO<sub>x</sub>.
- 7.2.6. Any abnormalities (operation plant failures or emergency incidents) experienced shall be part on the normal monthly reporting and be forwarded to the Licensing Authority.
- 7.2.7. In the event where there is an equipment failure, malfunction or break down, the responsible person/licence holder shall reduce the load to the extent that non-compliance to the licence conditions are avoided and if it still continues, the operation shall be halted.
- 7.2.8. The number of hours for which emissions exceeded the limit shall be reported immediately to the Licensing Authority.
- 7.2.9. Emissions must be measured and reported to Licensing Authority as per condition 7.4 of the Atmospheric Emission Licence.
- 7.2.10. The licence holder must at all times prevent any deviation from the normal conditions of operations that may result in emission exceedances from the specified limit values. In case there is potential of such, the loading shall be scaled down or operations shall be halted completely if there is a likelihood that continued operation may result in harm to human health and well-being or otherwise be detrimental to the environment.
- 7.2.11. The licence holder shall be liable to prevent and mitigate against the risk of harm to human health and the environment and shall put in place measures necessary to prevent and/ or mitigate against such risks.
- 7.2.12. Where continuous emission monitoring is required for a listed activity-
- (a) The averaging period for the purpose of compliance monitoring shall be expressed on a daily average basis or as prescribed in the Atmospheric Emission License.
  - (b) The emission monitoring system must be maintained to yield a minimum of 80% valid hourly average values during the reporting period.
  - (c) The emission monitoring system must be maintained and calibrated as per the original equipment manufacture's specifications.
  - (d) Continuous emission monitoring systems must be calibrated by a SANAS accredited laboratory at least every two (2) years.
- 7.2.13. The coal specifications shall not be lowered in regards to Service Level Agreements with coal supply contractors and has to undergo pre-qualification, i.e. has to be tested by an accredited laboratory in order to ascertain that it complies with the sulphur and ash content specified in condition 6.4, prior it being used by the facility.
- 7.2.14. The licence holder must ensure that the rehabilitation of the ash dam is in effect in order to manage and minimise dust emanating from the ash dam. The licence holder must submit an annual progress report on the implementation of the Ash Dam Rehabilitation Plan to the National Air Quality Officer and Licensing Authority.

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**7. 2.15. Special Minimum Emission Standards Suspension of Compliance time-frames relating to the National Environmental Management: Air Quality Act 39 of 2004 Conditions of 30 October 2021.**

- (a) The licence holder must submit a quarterly progress report on the implementation of the facility's compliance road map and commitments made in support of the suspension application for Eskom Kriel Power Station to the National Air Quality Officer and Licensing Authority.
- (b) The licence holder must provide a progress report on the implementation of offset projects which must be submitted annually to the National Air Quality Officer and the Licensing Authority.
- (c) Failure to implement the offset project around Eskom Kriel Power Station communities will be deemed as a non-compliance.
- (d) The licence holder must implement an offset programme to reduce PM pollution in the ambient/receiving environment and submit an annual report on the implementation of the offset programme to reduce PM pollution to the National Air Quality Officer and Licensing Authority.

**7.2.16. Special Appeal Minister's Decision Conditions dated 22 May 2024**

- (a) The licence holder must submit a decommission plan to the National Air Quality Officer and Licensing Authority within twelve (12) months of the appeal decision and the plan must include the following:
  - 1. General information about the power plant;
  - 2. Engineering/activity plan;
  - 3. Cost of decommissioning and fully funded financing plan;
  - 4. Rehabilitation and / or repurposing plan;
  - 5. Public consultation and stakeholder engagement strategy / plan – A part of this needs to be specific to directly affected parties (employees, contractors, suppliers, service providers, etc.). Organised labour needs to be engaged noting that Eskom is not alone in ending the life of projects and dealing with the consequences, workforce downscaling, etc. There are lessons to be learned from other sectors and operations, two of which are: (i) how to avoid genuine efforts at finding resolutions being hijacked by special interest groups (ii) how to moderate expectations, especially because Eskom is an SOE, with many citizens viewing SOEs as having an infinite pool of resources (money) to meet every need, demand, etc. The point is that this is not 'ordinary'/'run-of-the-mill' stakeholder engagement (it is tailored, specific, focused, and extremely complex because there will be many competing needs and desires);
  - 6. A socio-economic conditions and impact assessment report (local economic development; employment, health; diversification plan);
  - 7. Health and safety risk assessment;
  - 8. Air quality impact assessment;
  - 9. Geotechnical assessment (restoration of land; water waste);

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10. Local economic development and diversification plan; and
11. Alternatives to decommissioning

7.2.16. The licence holder's failure to comply with these conditions may result in the licensing authority revoking or suspending the licence in terms of Section 47A of NEM: AQA.

**7.3. Reporting Group / Emission Unit – maximum emission rates (under start-up, maintenance and shut-down conditions)**  
 there are no abnormal limit, therefore exceedance above maximum release rate shall be reported to the licensing authority.

RG/EU Code	Listed Activity	Pollutant Name	Maximum Release Rate (mg/Nm <sup>3</sup> )	Average Period (Shut-down: Instantaneous, Hourly, Daily, Monthly, Annually)	Maximum Gas Volumetric Flow (m <sup>3</sup> /hr)	Maximum Gas Exit Velocity (m/s)	Emission Hours	Permitted Duration of Emissions
SV0001	Subcategory 1.1	PM	100	Daily	3 000	18.68	24	Continuous
		SO <sub>2</sub>	2800					
		NO <sub>x</sub>	1100					
SV0002	Subcategory 1.1	PM	100	Daily	3 000	18.68	24	Continuous
		SO <sub>2</sub>	2800					
		NO <sub>x</sub>	1100					

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

- 7.3.1. The Licence Holder must take all reasonable measures to control atmospheric emissions during start-up, maintenance and shutdown operations.
- 7.3.2. Normal start-up, break-down/maintenance/upset and shut-down conditions shall not exceed a period of 48 hours.
- 7.3.3. In order to put into effect section 42 of the Act, the licence holder shall, on receipt of the Atmospheric Emission Licence, undertake an investigation to measure, monitor and report on point source emissions released during start-up, maintenance, and shut-down conditions.
- 7.3.4. In order to put into effect the provision of section 42 of the Act, the licensing Authority may from time to time review the conditions set herein and may set maximum emission limits to be adhered to by the licence holder during start-up, maintenance, and shutdown conditions.

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- 7.3.5. The licence holder shall be liable to prevent and mitigate against the risk of harm to human health and the environment and shall put in place measures necessary to prevent and/ or mitigate against such risks.
- 7.3.6. PM, SO<sub>2</sub> and NO<sub>x</sub> emissions should be below the limit value within 24 hours of synchronizing with the grid.
- 7.3.7. Reporting on particulate emissions to commence 24 hours after the unit has synchronized with the grid during start-up.
- 7.3.8. During start –up, maintenance and shut-down, or in the event where there is an indication of adverse impacts to human health and/ or the environment the licence holder must take appropriate measures to avoid such adverse impacts from occurring and/ or recurring.
- 7.3.9. The licence holder must report on abatement utilization and efficiency monthly.
- 7.3.10. Abatement equipment must be maintained to ensure that is operational when the associated boilers are under normal operating conditions. The utilization values stated in Table 7.1 are applicable when the associated boilers are under normal operating conditions.

#### 7.4. Reporting Group / Emission Unit – emission monitoring and reporting requirements

RG/EU Code	Listed Activity	Pollutant	Emission Sampling/ Monitoring Method	Sampling Testing Frequency	Monitoring Duration)	Parameters to be Measured	Parameters to be Reported	Reporting Frequency
SV0001 & SV0002	Subcategory 1.1	PM	Isokinetic sampling (Correlation and parallel tests) as per Annexure A of GN893 of 22 November 2013	Every two yearly	As per Annexure A of GN893 of 22 November 2013	PM, SO <sub>2</sub> , NO <sub>x</sub>	PM, SO <sub>2</sub> , NO <sub>x</sub>	Annual
		SO <sub>2</sub>						
		NO <sub>x</sub>						
SV0001 & SV0002	Subcategory 1.1	PM	Continuous Emissions Monitoring as per Annexure A of GN893 of 22 November 2013	Continuous Emissions Monitoring	Continuous, min. 80% valid hourly averages.	PM, SO <sub>2</sub> , NO <sub>x</sub>	PM, SO <sub>2</sub> , NO <sub>x</sub>	Monthly
		SO <sub>2</sub>						
		NO <sub>x</sub>						

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7.5. Reporting Group / Emission Unit (Area and/or line source) – management and mitigation measures

RG/EU Code	Area and/or Line Source Description	Description of Specific Measures	Timeframe for Achieving Required Control Efficiency	Method of Monitoring Measures Effectiveness	Contingency Measures
EU001	Live Coal Stockpile	<ul style="list-style-type: none"> <li>• Compaction of coal stockpiles to minimise dust fall out</li> <li>• Dust suppression by spraying water at the coal stock yard area and associated access routes</li> <li>• Adherence to speed limits to minimise dust fall out</li> </ul>	Immediately	<ul style="list-style-type: none"> <li>• Visual inspections</li> <li>• Monthly Fall Out Dust Monitoring and report on or before 30<sup>th</sup> of every month to the licensing authority</li> <li>• Dust suppression by spraying water</li> </ul>	<ul style="list-style-type: none"> <li>• In line with the facility's approved Environmental Management Plan.</li> <li>• In line with the facility's approved Fugitive and Atmospheric Emission Management Plan.</li> <li>• In line with Emissions Management Procedure.</li> <li>• Increase frequency of dust suppression</li> </ul>
EU002	Live Coal Stockpile				
EU003	Fuel Oil Storage North Side	<ul style="list-style-type: none"> <li>• Enclosed tanks and visual inspection</li> <li>• Daily operator inspection</li> <li>• Monthly Engineering inspection</li> <li>• Adherence to plant and procedure philosophies.</li> <li>• Tanks maintenance philosophy</li> </ul>	Immediately	<ul style="list-style-type: none"> <li>• Visual inspections</li> <li>• Audits</li> <li>• Annual LDAR Reports</li> <li>• Quarterly TVOC and BTEX Monitoring Reports (including determination of TVOCs and BTEX emission through calculations of throughput of the tanks)</li> </ul>	<ul style="list-style-type: none"> <li>• In line with the facility's approved Environmental Management Plan</li> <li>• In line with the facility's approved Fugitive and Atmospheric Emission Management Plan.</li> <li>• In line with Emissions Management Procedure.</li> <li>• In line with Kriel Power Station's Environmental Objectives and Targets Documents (Objective 8: Management of Fuel Usage).</li> </ul>
EU004	Fuel Oil Storage South Side				

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				<ul style="list-style-type: none"> <li>• Annual wall thickness test report</li> </ul>	<ul style="list-style-type: none"> <li>• In line with the facility's maintenance plan</li> <li>• In line with the approved Leak Detection and Repair Program.</li> <li>• Monitoring of VOC (BTEX)</li> </ul>
EU0005	Coal Conveyor	<ul style="list-style-type: none"> <li>• Ensure that conveyors are covered</li> <li>• Dust suppression by spraying water at the coal conveyors and associated areas</li> </ul>	Immediately	<ul style="list-style-type: none"> <li>• Visual inspections</li> <li>• Monthly Fall Out Dust Monitoring and report on or before 30<sup>th</sup> of every month to the licensing authority</li> </ul>	<ul style="list-style-type: none"> <li>• In line with the facility's approved Environmental Management Plan</li> <li>• In line with the facility's approved Fugitive and Atmospheric Emission Management Plan.</li> <li>• Increase frequency of dust suppression</li> </ul>
EU0006	Ash Plant	<ul style="list-style-type: none"> <li>• Dusting once every 24 hours (Manual agitation of dust hoppers)</li> <li>• Adherence to the facility's Dust Handling Plant Action Plan</li> </ul>	Immediately	<ul style="list-style-type: none"> <li>• Visual inspections</li> </ul>	<ul style="list-style-type: none"> <li>• In line with the facility's approved Environmental Management Plan</li> <li>• In line with the facility's approved Fugitive and Atmospheric Emission Management Plan.</li> <li>• In line with Emissions Management Procedure</li> <li>• In line with the facility's maintenance plan</li> </ul>

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EU0007	Ash conveyor	<ul style="list-style-type: none"> <li>• Ensure that conveyors are covered</li> <li>• Dust suppression by spraying water at the ash conveyors and associated areas.</li> </ul>	Immediately	<ul style="list-style-type: none"> <li>• Visual inspections</li> <li>• Monthly Fall Out Dust Monitoring and report on or before 30<sup>th</sup> of every month to the licensing authority</li> </ul>	<ul style="list-style-type: none"> <li>• In line with the facility's approved Environmental Management Plan</li> <li>• In line with the facility's approved Fugitive and Atmospheric Emission Management Plan.</li> <li>• In line with the facility's maintenance plan</li> <li>• Dust suppression</li> </ul>
EU0008	Ash Dam	<ul style="list-style-type: none"> <li>• Fly ash is conditioned with water before disposal at the ash dam</li> <li>• The coarse and fly ash from the boiler is collected into the hoppers which are filled with water and then pumped via the ash lines to the Ash Dams</li> <li>• Dust suppression at the ash dam area and associated access routes by watering sufficiently to minimise dust fall out.</li> </ul>	Immediately	<ul style="list-style-type: none"> <li>• Visual Inspections</li> <li>• Monthly Fall Out Dust Monitoring and report on or before 30<sup>th</sup> of every month to the licensing authority</li> <li>• Dust suppression by spraying water</li> <li>• Ash dam rehabilitation.</li> </ul>	<ul style="list-style-type: none"> <li>• In line with the facility's approved Environmental Management Plan</li> <li>• In line with the facility's approved Fugitive and Atmospheric Emission Management Plan</li> <li>• Rehabilitation of the Ash Dam slope by means of topsoil and growing of vegetation</li> <li>• Increase frequency of dust suppression by water spraying on affected areas using water bowzers across the ash dam</li> </ul>

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EU0009	Fly Ash Silos	<ul style="list-style-type: none"> <li>Adherence to maintenance plan</li> <li>Provide maintenance plan of silos within 60 days of issue of the licence</li> <li>Dust suppression by spraying water at the fly ash storage silo area.</li> <li>Ensure paving of area and access routes within and around the fly ash storage silos.</li> </ul>	Immediately	<ul style="list-style-type: none"> <li>Visual Inspections</li> <li>Monthly Fall Out Dust Monitoring and report on or before 30<sup>th</sup> of every month to the licensing authority</li> <li>Provide maintenance plan of silos within sixty (60) days of issue of the licence</li> </ul>	<ul style="list-style-type: none"> <li>In line with the facility's approved maintenance Plan</li> <li>In line with the facility's approved Environmental Management Plan</li> <li>In line with the facility's approved Fugitive and Atmospheric Emission Management Plan</li> <li>Dust suppression</li> </ul>
EU0010	Unpaved roads	<ul style="list-style-type: none"> <li>Compaction of coal stockpiles to minimise dust fall out</li> <li>Dust suppression by spraying water at the coal stock yard area and associated access routes</li> <li>Adherence to speed limits to minimise dust fall out</li> </ul>	Immediately	<ul style="list-style-type: none"> <li>Visual Inspections</li> <li>Monthly Fall Out Dust Monitoring and report on or before 30<sup>th</sup> of every month to the licensing authority</li> <li>Dust suppression by spraying water</li> </ul>	<ul style="list-style-type: none"> <li>In line with the facility's approved Environmental Management Plan</li> <li>In line with the facility's approved Fugitive and Atmospheric Emission Management Plan</li> <li>In line with the facility's Traffic Management Plan.</li> <li>In line with the facility's maintenance plan</li> <li>Dust suppression</li> </ul>

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a) The following special arrangement shall apply for the storage and handling of raw material, intermediate and final products with a vapour pressure greater than 14 kPa at operating temperature: - Leak detection and repair (LDAR) program approved by licensing authority must be instituted.

(b) The following transitional and special arrangement shall apply for control of TVOC's from storage of raw materials, intermediate and final products with vapour pressure of up to 14kPa at operating temperature, except during loading and offloading. (Alternative control measures that can achieve the same or better results may be used) – (i) storage vessels for liquids must be of the following type:

Application	All permanent immobile liquid storage facilities at a single site with a combined storage capacity of greater than 1 000 cubic metres
True vapour of contents at product storage temperature	type of tank or vessels
Type 1: Up to 14 kPa	Fixed roof tank vented to atmosphere, or as per type 2 and 3
Type 2: Above 14 kPa and up to 91 kPa with a throughput of less than 50 000 m <sup>3</sup> per annum	Fixed roof tank with pressure vacuum vents fitted as a minimum to prevent "breathing" losses or as per Type 3
Type 3: Above 14 kPa and up to 91 kPa with a throughput of greater than 50 000 m <sup>3</sup> per annum	(a) External floating roof tank with primary rim seal and secondary rim seal for tank with a diameter greater than 20 m, or (b) Fixed roof tank with internal floating deck/roof fitted with primary seal, or (c) Fixed roof tank with vapour recovery system.
Type 4: Above 91 kPa	Pressure vessel

- (i) The roof legs, slotted pipes and/ or dipping well on floating roof tanks (except for domed floating roof tanks or internal floating roof tanks) shall have sleeves fitted to minimize emissions
- (ii) Relief valves on pressurised storage should undergo periodic checks for internal leaks. This can be carried out using portable acoustic monitors or if venting to atmosphere with an accessible open end tested with a hydrocarbon analyser as part of the LDAR programme.

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(c) The following special arrangement shall apply for the 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 of 1996:

(d) Three months running average of dust fall not to exceed limit value for adjacent land use according to Dust Control Regulations promulgated in section 32 of the NEM: AQA, 2004, in eight principal wind directions.

## 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 complaint 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 05 (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);

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- (d) Action taken to address complaints received, and
- (e) Annual report on implementation of Highveld Priority Areas Air Quality Management Plan, projects and / or offset programs.

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

**Greenhouse gas Reporting**

Reporting in terms of Section 43 (1) (l) shall be done in accordance with the National Greenhouse Gas Reporting Regulations.

**7.7. Investigation**

The following investigations are required:

Investigation	Purpose	Completion Date
Submit an Emission Reduction Management Plan (ERMP) for approval to the licensing authority. The ERMP must be implemented immediately upon approval by the National Air Quality Officer and licensing authority.	To ensure that the facility has effective measures to reduce its emissions within the High Priority Area (HPA).	Six (06) months after receipt of this licence.
To investigate and submit report on high emission of PM and SO <sub>2</sub> in order for the facility to be in compliance with Minimum Emission Standards (MES) for new plant to the National air Quality Officer and Licensing Authority.	To ensure that the facility is in compliance with Minimum Emission Standards (MES) as stipulated in the NEM:AQA	Six (06) months after receipt of this licence.
Develop and submit an Ash Dam Rehabilitation Plan for approval to the National Air Quality Officer and licensing authority. The Ash Dam Rehabilitation Plan must be implemented immediately upon approval by National Air Quality Officer and the licensing authority	To ensure that the facility rehabilitates the Ash Dam in order to reduce fugitive emissions from the emanating from the storage of ash.	Six (06) months after receipt of this licence.
Submit a quarterly progress report on the implementation of the facility's compliance road map and commitments made in support of the suspension application for Eskom Kriel Power Station to the National Air Quality Officer and Licensing Authority.	To ensure that the facility complies with the National Minimum Emission Standards to reduce pollution in the ambient/ receiving environment.	Three (03) months after receipt of the licence.
Submit the decommission plan to the National Air Quality Officer and Licensing Authority.	To ensure that issues of socio economic and environmental conditions are attended to.	Twelve (12) months after receipt of the licence.

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Middelburg,  
1050

Tel No. 013 249 2000,  
Fax No. 013 249 2173

and

10.2.4 Specify the date on which the Atmospheric Emission licence was issued.



MS ET ZULU

GENERAL MANAGER: COMMUNITY DEVELOPMENT SERVICES

NKANGALA DISTRICT MUNICIPALITY

Air Quality Officer  
Signature: 

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