

**Appendix F-8: Bridging Document (September 2016)**

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**REPORT**

**Medupi FGD retrofit EIA Bridging  
Document**

**Report No:** Bridging Report-Rev1

**Submitted to :**

Eskom Holdings SOC  
Megawatt Park  
Maxwell Drive  
Sunninghill  
Johannesburg 2000

30 September 2016

12949

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## LIST OF ACROYNYS

<b>Acronym</b>	<b>Description</b>
BID	Background Information Document
CRR	Comments and Response Report
DEA	Department of Environmental Affairs
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
FGM	Focus Group Meetings
GIS	Geographic Information System
IAP	Interested and Affected Party
IDP	Integrated Development Plan
IWWMP	Integrated Water and Waste Management Plan
KSW	Key Stakeholder Workshop
MCWAP	Mokolo Crocodile Water Augmentation Project
NEMA	National Environmental Management Act (Act 107 of 1998 as amended)
NEMWA	National Environmental Management: Waste Act (Act 59 of 2008 as amended)
NWA	National Water Act (Act 36 of 1998 as amended)
PP	Public Participation
PPP	Public Participation Process
SDF	Strategic Development Framework
SEA	Strategic Environmental Assessment
WML	Waste Management License
WULA	Water Use License Application
WUL	Water Use License
ZIMS	Zitholele Information Management System

## **1 INTRODUCTION**

### **1.1 Background**

Eskom Holdings SOC Limited (Eskom) obtained an Environmental Authorisation in 2006 for Medupi Power Station, with a generation capacity of up to 4800MW of electricity. According to the Environmental Authorisation (**Appendix A**), the Medupi Power Station must “install, commission and operate any required SO<sub>2</sub> abatement measures to ensure compliance with any applicable emission or ambient air quality standards published in terms of the National Environmental Management: Air Quality Act NEMAQA (Act No 39 of 2004)” (Section 3.2.1.2, **Appendix A**).

Eskom identified wet Flue Gas Desulphurisation (FGD) as the most appropriate technology for SO<sub>2</sub> abatement in accordance with the NEMAQA, particularly for the Lephalale area since it was declared a Priority Airshed. The key reason for utilising wet FGD is that it is the most effective technology to reduce SO<sub>2</sub> emissions by the required amount according to the NEMAQA. This technology will reduce SO<sub>2</sub> emissions from Medupi Power Station by more than 95%. This FGD plant would be retrofitted to the existing Medupi designs.

Zitholele Consulting was appointed to undertake the integrated Environmental Impact Assessment (EIA) process for the proposed Medupi Power Station FGD retrofit project. This process was initiated early in 2014 and the Scoping Report was accepted by the Department of Environmental Affairs (DEA) at the end of July 2015.

### **1.2 Purpose of Document**

This bridging report has three key purposes:

1. To update all registered Interested & Affected Parties (I&AP) on relevant activities that have taken place between the end of the Scoping Phase (August 2015) and current (August 2016).
2. To inform all registered IAPs of the decision to split the current integrated EIA Process into two (2) separate integrated Environmental Authorisation (EA) Processes.
3. To inform all registered I&APs that it has been observed that the current Environmental Authorisation/Waste Management License of the Ash Disposal Facility (ADF) will require amendment to include the disposal of gypsum at this facility. However, the ADF does not require a new EA or WML for this purpose.

As a means to achieve the above purposes, this document provides background to the original EIA process, and indicates the scope of this project that will be carried through to the end of the Impact Assessment Phase.

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## **2 SCOPE OF WORK FOR MEDUPI FGD EIA**

### **2.1 Original Scope of work**

The Medupi FGD retrofit project originally included the following activities within the integrated Environmental Authorisation process:

- FGD retrofit infrastructure to be constructed and operated within the Medupi Power Station footprint;
- Disposal of FGD waste at the existing authorised Ash Disposal Facility ADF from year 6 onwards;
- Railyard for the possible transport of limestone and gypsum to and from the power station, respectively.

### **2.2 Additional Activity**

During the project initiation and clarification of the scope of the project, it was indicated that the ADF would only have capacity to accommodate wastes for the first 20 years of power station operation. Therefore, the following activity was identified as additional scope for inclusion in the integrated authorisation application:

- New disposal facilities for the disposal of gypsum, ash, salts and sludge for year 21 to year 50 post commissioning.

This additional activity was identified, and a Site Screening was initiated, while the Scoping Phase was submitted for review by the competent authority. The Site Screening covered an area of 10km radius from the power station block.

### **2.3 New Disposal Facility Site**

Since the current ADF was deemed to only have capacity to accommodate the disposal of ash for the first 20 years of the Medupi Power Station operation, a second facility would need to be established. Eskom had earmarked an area to the south of the existing authorised ADF.

The proposed new facilities would be greenfield areas with a footprint of about 600 hectares to accommodate the disposal of ash, gypsum, salts and sludge.

### **2.4 Site Screening**

The Site Screening process, which was revised in early 2016, yielded 3 site alternatives. These included Site 13, Site 12 and Site 2. Site 2 and Site 12 were investigated in more detailed by specialist consultants, and were identified as highly sensitive in terms of biodiversity and surface water habitat. A meeting with the DEA and Department of Water and Sanitation (DWS) confirmed

that these sites should not be considered as feasible sites for development due to their environmental sensitivity.

At this stage it was agreed that the Site Screening process would need to be revisited. This rework would constitute a delay in the EIA process of at least 12 months. A decision needed to be made regarding the rework of the Site Screening and this was workshopped between the client and Zitholele Consulting in order to find the most effective solution. The decision took the project schedule into account as well as commitments of the power station to other authorisation and license conditions.

A decision was reached in July 2016 to review the scope of the current EIA in order to fast track the application for authorisation and licensing of the FGD retrofit.

### **3 SPLITTING OF THE INTEGRATED EIA**

The Medupi Power Station has an Atmospheric Emissions License (AEL), which was issued in March 2015, see **Appendix B**. This license provides categories of emissions standards with timelines for compliance. The Power Station must currently comply with Category 1: Combustion Installations for existing plant status. However, by April 2025, the plant must reduce SO<sub>2</sub> emissions to less than 500mg/Nm<sup>3</sup>.

Therefore, the installation of the appropriate FGD technology is time critical, and the application for an integrated authorisation must be accelerated in order for the power station to remain compliant to the AEL conditions. Should the EIA scope remain unchanged, there is a significant risk of a delay to the overall project development process, due to the site screening for disposal sites, which needs to be reinitiated. For this reason, the decision has been made to split the current EIA into two (2) separate environmental authorisation processes.

#### **3.1 Environmental Authorisation 1 (EA1) Process**

The key activities that will remain the focus of EA1 are:

- Authorisation of the FGD infrastructure within the Power Station footprint;
- Required licensing (Water Use License) of the existing Ash Disposal Facility to accommodate ash and gypsum from year 6 to year 20 of station's operation;
- Temporary trucking of salts and sludge to a designated hazardous waste facility for disposal.

This EA will continue under the current DEA reference number 14/12/16/3/3/3/110, and will follow on from the Scoping Phase completed in 2015. The Impact Assessment Phase will commence in mid to late September 2016, and the Draft Environmental Impact Report (DEIR), is expected to be provided to stakeholders in late March 2017.



The splitting of the EIA scope into separate processes means some listed activities will be removed from the application, due to their inapplicability in EA1. As per **Table 1** below, the listed activities under the National Environmental Management Act NEMA (Act 107 of 1998, as amended) remain unchanged at this time. Updated application forms will be submitted with the DEIR and FEIR and will be updated with any additional changes, as necessary.

**Table 1: Listed Activities for this project under NEMA (Act 107 of 1998 as amended) and the Environmental Impact Regulations (2010)**

Relevant Notice	Activity Number	Listed activity description
NEMA GNR 545 (2010)	3	The construction of facilities or infrastructure for the storage, or for the storage and handling, of limestone as an input into the FGD process. The limestone will be stored at a volume of more than 500 cubic metres at any one time.
NEMA GNR 545 (2010)	6	The construction of facilities of infrastructure for the bulk transportation of gypsum using conveyors with a throughput capacity of more than 50 tons per day.
NEMA GNR 545 (2010)	11	The construction of a railway yard for purposes of transport of products to the Power Station and waste products from the Power Station.
NEMA GNR 545 (2010)	15	The physical alteration of undeveloped, vacant, or derelict land for purposes of a railway yard and associated infrastructure.

In terms of the National Environmental Management: Waste Act NEMWA (Act 59 of 2008, as amended), the activities applied for in the original application form will be amended and submitted with the DEIR and FEIR. Please see Table 2 below, which indicates the activities that are no longer being applied for under EA1. These are struck through and highlighted in red.

**Table 2: Listed Activities for this project in terms of the National Environmental Management: Waste Act (Act 59 of 2008 as amended). Activities removed are struck through and highlighted in red.**

Relevant Notice	Activity Number	Listed activity description
<del>NEMWA GNR 718 Category B</del>	<del>4</del>	<del>The storage, including temporary storage, of hazardous waste in lagoons. This activity will be triggered should the sludge require separate disposal and not be co-disposed of at the Ash Disposal Facility.</del>
<del>NEMWA GNR 718 Category B</del>	<del>5</del>	<del>The treatment of sludge in lagoons. This activity will only be triggered should the preferred option of co-disposal not be supported by the waste classification assessment.</del>
NEMWA GNR 718 Category B	7	The disposal of any quantity of gypsum to the existing Ash Disposal Facility.
NEMWA GNR 718 Category B	10	The construction of facilities for activities listed in this schedule.
NEMWA GNR 718 Category C	2	The storage, including temporary storage, of hazardous waste such as gypsum, salts and sludges from the FGD process prior to disposal on or off-site. The combined storage of hazardous waste will be more than 35m <sup>3</sup> at any one time.

*Please note that the listed activities in Tables 1 and 2 are not the final activities, as the EIA process is still ongoing. Thus, the final updated application forms will be submitted with the DEIR and FEIR.*

### 3.2 Environmental Authorisation 2 (EA2) Process

Environmental Authorisation 2 (EA2) will be a new process which will apply under a new reference number and commence from project initiation, through Scoping Phase and Impact Assessment Phase. The focus of this EA2 will be to investigate a new site for the required additional disposal facility to service the rest of the station's operational life, for disposal of ash and gypsum (for years 21 to 50 post commissioning). The site may also accommodate the disposal of sludge and salts (Type 1 wastes) on the same footprint, if feasible. Alternatives for disposal of ash, gypsum, salts and sludge will be assessed within this EA2.

#### 4 ADF EXISTING AUTHORISATION TO BE AMENDED

During the splitting of the EIA, it was observed that the ADF has a separate Environmental Authorisation (EA) and Waste Management License (WML) to the Power Station (**Appendix C**). It was further noticed that the disposal of gypsum with the ash at the authorised ADF would require minimal changes to the current EA/WML. Therefore, it was decided to remove the existing authorised ADF from the scope of the current integrated EIA. Rather, an application will be submitted to have the existing EA/WML amended to accommodate the disposal of gypsum at this facility.

By removing the ADF from the current integrated EIA (iEA1), the listed activities triggered by the scope of this iEA1 has changed. While there are no changes to the NEMA listed activities, there are changes to the NEMWA activities. Please see Table 3 and Table 4 below for the amended listed activities identified under NEMA and NEMWA, respectively. Table 1

**Table 3: Listed Activities for this project under NEMA (Act 107 of 1998 as amended) and the Environmental Impact Regulations (2010)**

Relevant Notice	Activity Number	Listed activity description
NEMA GNR 545 (2010)	3	The construction of facilities or infrastructure for the storage, or for the storage and handling, of limestone as an input into the FGD process. The limestone will be stored at a volume of more than 500 cubic metres at any one time.
NEMA GNR 545 (2010)	6	The construction of facilities of infrastructure for the bulk transportation of gypsum using conveyors with a throughput capacity of more than 50 tons per day.
NEMA GNR 545 (2010)	11	The construction of a railway yard for purposes of transport of products to the Power Station and waste products from the Power Station.
NEMA GNR 545 (2010)	15	The physical alteration of undeveloped, vacant, or derelict land for purposes of a railway yard and associated infrastructure.

**Table 4: Listed Activities for this project in terms of the National Environmental Management: Waste Act (Act 59 of 2008 as amended). Activities removed are struck through and highlighted in red.**

Relevant Notice	Activity Number	Listed activity description
<del>NEMWA GNR 718 Category B</del>	<del>4</del>	<del>The storage, including temporary storage, of hazardous waste in lagoons. This activity will be triggered should the sludge require separate disposal and not be co-disposed of at the Ash Disposal Facility.</del>
<del>NEMWA GNR 718 Category B</del>	<del>5</del>	<del>The treatment of sludge in lagoons. This activity will only be triggered should the preferred option of co-disposal not be supported by the waste classification assessment.</del>
<del>NEMWA GNR 718 Category B</del>	<del>7</del>	<del>The disposal of any quantity of gypsum to the existing Ash Disposal Facility.</del>
<del>NEMWA GNR 718 Category B</del>	<del>10</del>	<del>The construction of facilities for activities listed in this schedule.</del>
NEMWA GNR 718 Category C	2	The storage, including temporary storage, of hazardous waste such as gypsum, salts and sludges from the FGD process prior to disposal on or off-site. The combined storage of hazardous waste will be more than 35m <sup>3</sup> at any one time.

## 5 WAY FORWARD

### 5.1 EA1

Zitholele Consulting will continue as the independent Environmental Assessment Practitioners for the EA1 for Medupi FGD retrofit. It is expected that the DEIR will be available for public review and comment in early 2017. All registered I&APs will be notified when the DEIR is made available. A public meeting will be held during the public review period in order for stakeholders to engage with Zitholele Consulting on the DEIR content.

### 5.1.1 EIA and Waste Management License

Currently, Zitholele Consulting is appointed for the continued undertaking of EA1. This EA1 will initiate Impact Assessment Phase in September 2016. The tasks as per **Figure 5-1** will unfold within the Impact Assessment Phase.

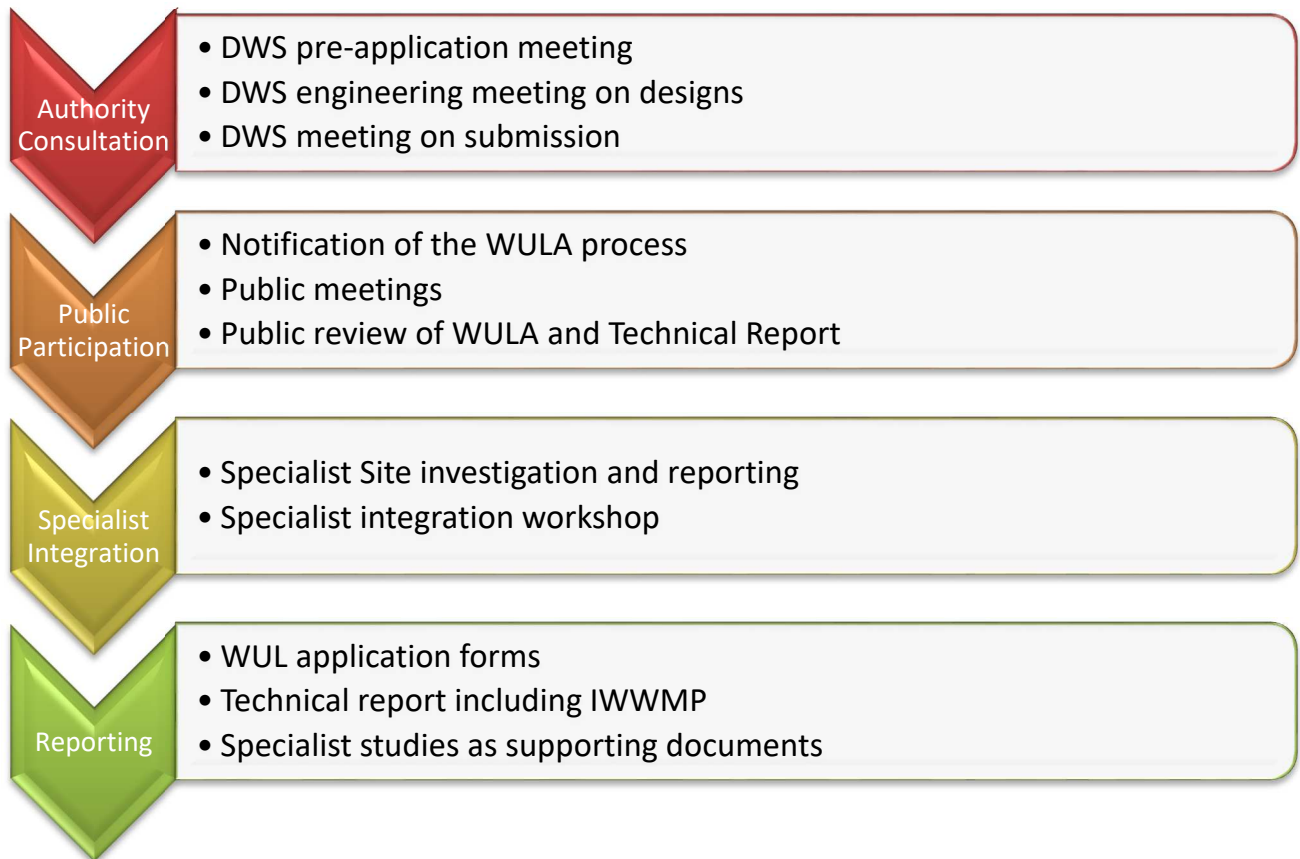


**Figure 5-1: Sequence of tasks for EIA and Waste Management License Application for EA1**

### 5.1.2 Water Use License Application

The Water Use License Application (WULA) Process for all water uses associated with the EA1 activities will be initiated in late September / early October 2016. However, this WULA will not include application for abstraction of water from MCWAP Phase 2A take-off point. This application for bulk water abstraction can only be submitted once the MCWAP Phase 2A EIA process has been completed and the project is authorised. At present, the MCWAP Phase 2A is still in the initial stages of undertaking their environmental authorisation process, and therefore cannot yet accept applications for allocation.

The tasks as per Figure 5-2 below will be carried out simultaneously with the EA1 Impact Assessment Phase.



**Figure 5-2: Tasks to be carried out for the WULA for water uses associated with EA1**

The current identified water uses that are expected to be included within this WULA are indicated in **Table 5** below.

**Table 5: List of water uses currently identified for inclusion in the Medupi FGD retrofit EA1 WULA**

Water Use	Activity
21 (b)	Storage of water in dams and reservoirs on site for purposes of the FGD operation.
21 (g)	Disposing of waste in a manner which may be detrimental to a water resource, this is associated with the disposal of waste at the Northern Ash Disposal Facility, as well as all storage areas for wastes from the FGD process and dirty water dams.
21 (e)	Engaging in a controlled activity: irrigation of any land with waste or water containing waste generated through an industrial activity or by a water work.
21 (h)	Disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process.
21 (c) and (i)	<i>Potentially for any instances where infrastructure may require the impeding, diverting or altering of a surface water body. This water use will be confirmed and is not a certainty.</i>

The water uses have been discussed at the pre-application meeting with the DWS that took place on 30 August 2016. A site visit with the DWS has taken place on 23<sup>rd</sup> September 2016 and the water uses will be confirmed prior to application. It is expected that the Water Use License Application, together with the supporting Technical Report, will be submitted to the DWS in early 2017.

### 5.1.3 ADF EA amendment

The application for the ADF EA/WML amendment will be submitted within the next 6 months. This application will undergo the process as required by the NEMA and NEMWA regulations. The amendment will include any changes to supporting infrastructure that may be required. It is anticipated that the following aspects of the ADF will remain unchanged:

- The footprint of the current authorised ADF will not change.
- The height of the current authorised ADF will not change.
- The method of transportation of waste to the ADF will not change.

- The general operational philosophy of the ADF will not change.
- The volumes of waste for disposal will not change.
- The Type of waste will remain Type 3, requiring a Class C barrier system.

## **5.2 EA2**

Zitholele Consulting has not yet been appointed for EA2. This authorisation process will commence as soon as the client has made the appointment of an Environmental Assessment Practitioner to undertake the scope of work. EA2 can be conducted concurrently with EA1. A supporting WULA will be included within this authorisation process to address the water uses associated with the EA2 scope of work.

## **5.3 Floating WULAs and BAR**

A WULA will be required for the application of water allocation from the MCWAP Phase 2. This application for bulk water allocation can only be submitted once the MCWAP Phase 2 project has received the Environmental Authorisation and Licensing required. DWS has indicated that applications for bulk allocations should be submitted separately from other water use applications.

A second WULA will be submitted for water uses associated with the transportation and storage of water between the MCWAP offtake and the point of use at Medupi Power Station. This second WULA may be supported by a Basic Assessment Process, culminating in a Basic Assessment Report (BAR) for the authorisation of associated infrastructure, such as pipelines from the take off point to the point of use at Medupi Power Station.

## **6 CONCLUSION**

This bridging document is aimed at clarifying the way forward for this environmental process (EA1) and has served to inform stakeholders of the change in scope of the current application for environmental authorisation. Confirmation of specialist studies and terms of reference thereof will be provided to the registered stakeholders prior to these studies being carried out.

Should you have any queries regarding this document, please contact the public participation office at Zitholele Consulting.

## **ZITHOLELE CONSULTING (PTY) LTD**

Sharon Meyer  
**Project Manager**

Mathys Vosloo  
**Project Associate**



## **APPENDIX A: Medupi Power Station Environmental Authorisation**

Ref: 12/12/20/685  
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Enquiries: Ms Masili Ntere

Ms D Herbst  
Eskom Holdings Limited: Generation Division  
PO Box 1091  
JOHANNESBURG  
2000

Fax: (011) 800 3501

Dear Ms Herbst

**GRANTING OF CONDITIONAL AUTHORISATION FOR PROJECT REFERENCE 12/12/20/685:  
CONSTRUCTION OF THE PROPOSED ESKOM HOLDINGS LIMITED: GENERATION DIVISION  
4800MW COAL FIRED POWER STATION AND ASSOCIATED INFRASTRUCTURE NEAR  
LEPHALALE**

Please find attached the record of decision in respect of your application for authorisation in terms of Regulations R1182 and R1183 (as amended) promulgated under sections 21, 22, 26 and 28 of the Environment Conservation Act (Act 73 of 1989).

Yours sincerely



Ms Pam Yeko  
Director-General  
Department of Environmental Affairs and Tourism

Date: 21/09/06

CC: Ms Ashlea Strong

Behlweki Environmental

Fax: (011) 465 3841

**RECORD OF DECISION FOR PROJECT REFERENCE 12/12/20/695: CONSTRUCTION OF THE PROPOSED ESKOM GENERATION 4800MW COAL FIRED POWER STATION, NEAR LEPHALALE**

By virtue of the power delegated by the Minister in terms of section 33(1) Environment Conservation Act, (Act 73 of 1989) ("the Act"), I hereby, in terms of section 22(3) of the Act, authorise Eskom Generation to undertake the activities specified/ detailed below subject to the indicated conditions.

**1. DESCRIPTION, EXTENT AND LOCATION OF THE ACTIVITY:**

As illustrated in the site layout Plan in Appendix A of the Final Environmental Impact Report dated 22 May 2006 the proposed development entails the following:

- The construction of a 4800MW coal fired power station near Lephalale, on approximately 700ha of the farm Naauwontkome 509 LQ
- The installation of ancillary infrastructure including the ashing facility on 500-1000ha of the farm Eenzaamheid 687 LQ
- The construction of a conveyor belt for coal supply on the eastern alignment
- The re-routing of the Steenbokpan Road to the northern alternative
- The construction of the overland ash conveyor belt

**2. KEY FACTORS INFORMING THE DECISION:**

2.1 In reaching its decision in respect of the application, the Department of Environmental Affairs and Tourism ("the Department") has taken, *inter alia*, the following into consideration:

a) The information contained in the:

- Final Scoping Report dated
- Final Environmental Impact Assessment Report dated 22 May 2006.
- Specialist Reports contained in the Final Environmental Impact Assessment Report.
- Addendum to the Final Environmental Impact Assessment Report dated June 2006.
- Comments on the Environmental Impact Assessment Report dated 18 July 2006 from the Department of Water Affairs and Forestry (DWAF).
- Minutes of the meeting held on 10 May 1982 in the office of the Chief Officer (Air Pollution Control) between Eskom and the Department of Health to discuss the Pollution Control conditions related to Eskom's power stations and related matters.

b) Compliance with applicable international and national legislation and departmental policies:

- The Act
- The principles set out in Section 2 of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA)
- Process 29 set out in the Scheduled processes under the Second Schedule to the Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965).
- The principles of sound management of toxic chemical set out in Chapter 19 of Agenda 21
- Minimum requirements for landfills by the Department of Water Affairs and Forestry (second edition, 1998)
- Stockholm Convention

- c) The findings of the site inspection undertaken by Mr Vincent Matabane and Mr Ndhivhuwo Netshilaphala on 6<sup>th</sup> April 2005
- d) The objections from MW De Jager Kinder Trust/Landelani Game Lodge & MW De Jager Safaris set out in the letter dated 2<sup>nd</sup> August 2006 from Ivan Pauw & Partners to Bohlweki Environmental Consultants in Midrand.

2.2 In reviewing this information, the Department made the following findings:

The existing Matimba Power Station is a dry cooled, coal fired pulverised fuel power station comprising six 665 MW units, representing a total nominal capacity of 3990 MW and a total net maximum generation capacity of 3690 MW

- The proposed power station is a dry cooled, coal fired pulverised fuel power station will have a generation capacity of 4800 MW
- Existing sources of atmospheric emission which occur in the vicinity of the proposed development sites include:
  - Existing Matimba Power Station and its associated ash dump
  - Grootgeluk coal mining operations
  - Brickworks operating at Hanglip
  - Household fuel combustion
  - Potential veld fires
  - Sewage works (Farm Nelsonkop)
  - Wind blown dust from areas and agricultural activities
  - Vehicle exhaust releases and road dust entertainment along paved and unpaved roads in the area
- The proposed power station is approximately 3 Km away from the existing Matimba Power Station and the Marapong Village
- The existing Matimba Power Station does not have SO<sub>2</sub> and NO<sub>2</sub> abatement measures in place
- The burning of coal in the proposed power station will potentially release significant amounts of air pollutants such as Sulphur Dioxide (SO<sub>2</sub>), Nitrogen oxides (NO<sub>x</sub>), Carbon Monoxide (CO), and trace amounts of mercury.

Ambient SO<sub>2</sub> levels resulting from the new power station are predicted to cause health effects in the Marapong residential area

The proposed power station will potentially release significant amounts of greenhouse gases, namely, Carbon Dioxide (CO<sub>2</sub>) and Nitrous Oxide (N<sub>2</sub>O).

Ambient SO<sub>2</sub> standards are already being exceeded in the area where the new power station is proposed.

- Ambient air quality standards in the Marapong residential area are already being exceeded
- The proposed development will result in a loss of approximately 1 500 hectares of vegetation due to the required pre construction site clearing.

Approximately 1000 ha of the above are intended for facility for disposal / storage of ash. A conventional ash dam has been proposed and assessed but mention is made of investigations into alternatives to this disposal option, including backfilling at the Grootegeluk open cast coal mine. The investigation of alternatives in this regard has not sufficiently progressed to allow for an informed decision with regard to ash disposal / storage at this stage. It is however acknowledged that an ashing facility will be required.

The proposed development is part of Eskom's new capacity installation programme and is intended to meet the future base load electricity demands of South Africa which is under severe pressure.

- The purpose of the proposed power station is to increase the Eskom Generation base load capacity to facilitate the forecast increase in demand by 2010 and to further supply this additional capacity in such a way that it improves security of supply to the national grid system and South Africa in its entirety.

Based on the information considered, the Department's conclusions are that:

- (a.) the proposed activities may lead to substantial detrimental impact on the environment;
- (b.) the need for the project have been adequately demonstrated;
- (c.) the activities will result in some socio-economic benefits, not only to the Lephalale area, but to the country as a whole;
- (d.) the implementation of the mitigation measures and conditions set out in this Record of Decision, are considered adequate to minimise detrimental impacts to acceptable levels;
- (e.) subject to successful implementation of conditions and mitigation measures, the proposed development is likely to be acceptable; and
- (f.) the principles of section 2 of NEMA can largely be upheld.

It is further the Department's conclusion that further information on alternatives for the disposal of ash produced by the facility is required before an informed decision can be made on this aspect of the application.

The Department has accordingly decided to grant Eskom Holdings Limited: Generation Division authorisation in terms of Regulations R 1182 and R 1183 (as amended), promulgated under section 21, 22 and 26 of the Environment Conservation Act (Act 73 of 1989) for the activities specified below, subject to the conditions and provisions listed below.

### 3. CONDITIONS

#### 3.1 Description of the activity

The authorisation applies in respect of the following activities as listed in Schedule 1, regulation R. 1182 and described in the final environmental impact report dated 22 May 2006 and the addendum report to the final environmental impact report dated June 2006:

Item 1: The construction, erection or upgrading of-

- ( a) facilities for commercial electricity generation with an output of at least 10 megawatts and infrastructure for bulk supply;
- ( c) with regard to any substance which is dangerous or hazardous and is controlled by national legislation-
  - (i) infrastructure, excluding road and rails, for the transportation of any such substance; and
  - (ii) manufacturing, storage, handling, treatment or processing facilities for any such substance;
- ( d) roads, railways, airfields and associated structures;
- ( n) sewerage treatment plants and associated infrastructure;

Item 2: The change of land use from-

- ( c): agricultural or zoned undetermined use or an equivalent zoning to any other land use.

Item 9: Scheduled processes listed in the Second Schedule to the Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965). (Process 29 (a) – Power Generation Processes in which fuel is burned for the generation of electricity for distribution to the public or for purposes of public transport).

The following activity applied for is not included in this authorisation and will be addressed in an amended or supplementary record of decision:

- o Item 8: The disposal of waste as defined in section 20 of the Act, excluding domestic waste, but including the establishment, expansion, upgrading or closure of facilities for all waste, ashes and building rubble

The decision contemplated above will be based on the review of the investigation and assessment of alternative ash disposal options to be submitted to the Department for consideration.

## **SPECIFIC CONDITIONS**

### **Air quality management**

- 3.2.1.1 Eskom must initiate a programme for the continuous monitoring of ambient concentrations of pollutants in the Marapong residential area as well as surrounding areas around the proposed power station and existing Matimba power station. This programme must be included in the construction EMP and the operational EMP to be submitted to the authorities for acceptance prior to construction, commissioning and operation of the power station. The programme must, among others, detail the installation of air quality monitoring equipment at an appropriate location within the Marapong residential area. The site for the air quality monitoring equipment should be such that the monitored ambient air represents a fair reflection of the ambient air the majority of Marapong residents are likely to breathe. The air quality monitoring equipment must be such as to provide continuous measurement of the following substances or mixtures of substances: Sulphur Dioxide (SO<sub>2</sub>); Nitrogen Dioxide (NO<sub>2</sub>); Carbon Monoxide (CO); Particulate Matter (PM10 and PM 2.5); Ozone (O<sub>3</sub>); and Mercury (Hg).

The installation should also include gas-sampling systems as appropriate for the parameters being monitored, meteorological equipment and data management systems that will allow the effective and reliable transfer of data. The programme must also detail the compilation of a commissioning report produced by an independent party indicating that the installations are in place, calibrated and operating to internationally acceptable standards of operation. The programme must also detail reporting procedures including, among others, the submission of quarterly reports to the department detailing the monitoring results obtained from the installation detailed above and any other monitoring results from Eskom monitoring stations in the area. The monitoring reports must provide, but are not limited to the provision of, both a numeric and graphical representation of measured concentrations of the measured pollutants with a comparison against any applicable ambient air quality standards published in terms of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004). This information should include detailed information for the 3 month period to which the report relates as well as a summary of historical trends from the commencement of monitoring activities.

- 3.2.1.2 Eskom shall install, commission and operate any required SO<sub>2</sub> abatement measures that may be necessary to ensure compliance with any applicable emission or ambient air quality standards published in terms of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004).

- 3.2.1.3 Notwithstanding the measures referred to in 3.2.8.2, should the monitoring referred to in 3.2.8.1 indicate non-compliance with ambient SO<sub>2</sub> standards, Eskom shall install, commission and operate any required SO<sub>2</sub> abatement measures in respect of the existing Matimba Power Station as may be necessary to ensure compliance with any applicable emission or ambient air quality standards published in terms of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004).
- 3.2.1.4 Eskom must initiate a programme of support for initiatives aimed at improving air quality in the Marapong residential area. This programme must be included in the construction EMP and carried through to the operational EMP.
- 3.2.1.5 The power station must be operated in compliance with any related Registration Certificate issued in terms of the Atmospheric Pollution Prevention Act, Act 45 of 1965, or any related Atmospheric Emission License issued in terms of the National Environment Management: Air Quality Act, Act 39 of 2004.
- 3.2.2 Environmental Monitoring Committee (EMC)**
- 3.2.2.1 This development is authorised on condition that the developer establishes an EMC with clear terms of reference as described in 3.2.2.6.
- 3.2.2.2 Amongst others the EMC shall consist of the following members:
- (a) A chairperson as described in 3.2.2.3,
  - (b) The ecologist that participated in the EIA process, or any other suitably qualified and experienced ecologist approved for this purpose by the department,
  - (c) Two representatives of the public, one community member from Marapong and one from Lephalele.
  - (d) Environmental Control Officer (ECO) (once appointed in terms of 3.2.4 below), and
  - (e) A senior site manager from the main contractor.
- 3.2.2.3 The EMC must appoint an independent chairperson who has appropriate people and project management skills.
- 3.2.2.4 The EMC must meet on a bi-monthly basis from the inception of the project.
- 3.2.2.5 The EMC must report to the Director-General of the Department of Environmental Affairs and Tourism on a bi-monthly basis and the report must include matters as described in 3.2.2.6 below.
- 3.2.2.6 The purpose of the EMC is to execute the following:
- (a) To monitor and audit project compliance to the conditions of this record of decision, environmental legislation and specific mitigation requirements as stipulated in the environmental impact report and the Environmental Management Plans.
  - (b) To make recommendations to the Director-General on issues related to the monitoring and auditing of the project.

(c) The EMC shall decide on the frequency of meetings should a need arise to review the prescribed frequency. This change should be communicated to the department for acceptance.

3.2.2.7 All costs associated with the EMC shall be borne by the applicant. The terms of reference for the EMC must, in addition to the scope of work as detailed in 3.2.2.6, clearly set out roles and responsibilities related to logistical arrangements, administration and financial arrangements associated with the EMC.

3.2.2.8 Upon completion of construction, the role, responsibilities and constitution of the EMC shall be re-considered and re-established with new terms of reference for the operational phase of the development.

### 3.2.3 Environmental Management Plan (EMP)

3.2.3.1 Eskom must submit a site specific construction EMP to the relevant authorities for acceptance before commencement of any of the activities related to this authorisation. The EMP must include but not be limited to the following aspects:

- Rehabilitation of all areas disturbed during the construction phase of the project excluding those areas where permanent structures are erected.
- Siting and management of construction camps, sanitation, ablution and housing facilities as well as material storage areas used by the contractor. All work areas must be supplied with proper sanitation facilities.  
Management and rehabilitation of access roads to individual construction areas that will not become permanent roads upon completion of construction. Any new road constructed for any purpose not authorised as part of this authorisation, must comply with the relevant SANS codes and permission for construction must be obtained from DEAT as required by Schedule 1, item 1 (d) of R. 1182.
- Waste avoidance, minimisation and disposal of waste at an appropriate facility.
- Protection of any heritage sites likely to be impacted by the development should such sites be found during any phase of the project to follow.  
Provisions for harvesting of any medicinal plants that may occur on site prior to site clearance.
- Protection of indigenous vegetation where such is not affected by the physical footprint of the power station plant or ancillary infrastructure and associated construction works.
- Provision for plant search and rescue of protected and endangered species which should be done before commencement of any construction related activity.
- Management of traffic during the construction phase of the development where the site access roads and other transportation networks intersect.
- Measurement, monitoring and management of noise and dust pollution levels during the construction phase.
- A fire control management plan for implementation on site.
- Implementation of site specific erosion and sediment and dust control measures during the construction phase of the project.
- Insofar as it relates to the activities hereby approved, all recommendations and mitigation measures as proposed in the final environmental impact report dated 22 May 2006 and the



addendum report to the final environmental impact report dated June 2006 forms part of this record of decision and must be implemented as part of the EMP.  
All relevant requirements emanating from 3.2.1 above.

- 3.2.3.2 Once accepted by DEAT, the revised construction EMP will be seen as a dynamic document. However, any changes to the EMP, must be submitted to DEAT for acceptance before such changes could be effected. Such a submission for consideration by DEAT must be accompanied by recommendations of the EMC.
- 3.2.3.3 Compliance with the accepted construction EMP must form part of all tender documentation for all contractors working on the project and must be endorsed contractually.
- 3.2.3.4 Eskom must submit an EMP for the operational phase of the development to DEAT and other relevant provincial and local authorities for acceptance prior to the completion of construction phase and the inception of the operational phase of the development. The revised operational EMP will be seen as a dynamic document. However, any substantial changes to the operational EMP, which is environmentally defensible, must be submitted to DEAT for acceptance before such changes could be effected.

### **3.2.4 Environmental Control Officer (ECO)**

- 3.2.4.1 The EMC in conjunction with the developer must appoint a suitably qualified Environmental Control Officer (ECO) who would on behalf of the EMC, on a daily basis monitor the project compliance with conditions of the record of decision, environmental legislation and recommendations of the EMP. The cost of the ECO shall be borne by the applicant.
- 3.2.4.2 The ECO must be appointed one month before the start of construction and the authorities must be notified of such an appointment for communication purposes.
- 3.2.4.3 The ECO shall ensure that periodic environmental performance audits are undertaken on the project implementation.
- 3.2.4.4 The ECO shall submit an environmental compliance report on a two-monthly basis, in writing, to the Director-General of the Department of Environmental Affairs and Tourism (DEAT), copied to the Limpopo Department of Economic Development, Environment and Tourism.
- 3.2.4.5 The ECO shall maintain the following on site:
- A daily site diary
  - A non-conformance register
  - A public complaint register
  - A register of audits
- 3.2.4.6 The ECO shall remain employed until all rehabilitation measures, as required for implementation due to construction damage, are completed and the site is handed over to Eskom by the contractor for operation.

3.2.4.7 The ECO shall report to and be accountable to the EMC.

#### **Monitoring and auditing**

3.2.5.1 Records relating to monitoring and auditing must be made available for inspection to any relevant authority in respect of this development.

3.2.5.2 This department reserves the right to monitor and audit the development throughout its full life cycle to ensure that it complies with the conditions stipulated in the record of decision as well as mitigation measures in the final environmental impact report dated 22 May 2006, the addendum report to the final environmental impact report and the construction and operational EMPs.

#### **Transportation and handling of hazardous materials.**

3.2.6.1 During the construction of the power station, an effective monitoring system must be put in place to ensure safety and to detect any leakage or spillage of coolants from all oil containing equipment during transportation, their handling and installation.

3.2.6.2 The transportation and handling of hazardous substances must comply with all the provisions of the Hazardous Substances Act, (Act No.15 of 1973), associated regulations as well as SABS 0228 and SABS 0229 codes.

#### **Rehabilitation after construction**

3.2.7.1 No exotic plant species may be used for rehabilitation purposes. Only indigenous plants may be utilised.

3.2.7.2 Measures aimed at controlling invasive plant species and weeds must be implemented and must form part of the relevant EMP.

3.2.7.3 No disturbance of the land at any stream or rivers edge is allowed unless such disturbance complies with legislation and conforms to strict design parameters.

#### **Compliance with other legislation**

3.2.8. Archaeological remains, artificial features and structures older than 60 years are protected by the National Heritage Resources Act, 1999 (Act No. 25 of 1999). Should any archaeological artefacts be exposed during excavation for the purpose of laying foundations, construction in the vicinity of the finding must be stopped. An archaeologist must be called to the site for inspection. Under no circumstances shall any artefacts be destroyed or removed from the site. The South African Heritage Resource Agency must be contacted to this effect. Their recommendations should be included in the construction EMP and be adhered to.

3.2.8.2 All provisions of the Occupational Health and Safety Act, 85 of 1993, and any other applicable legislation must be adhered to by the holder of this authorisation.

- 3.2.8.3 All provisions of the National Water Act, Act 36 of 1998, must be adhered to by the holder of this authorisation.
- 3.2.8.4 All provisions of the National Environment Management: Air Quality Act, Act 39 of 2004, must be adhered to by the holder of this authorisation.
- 3.2.8.5 All provisions of the Atmospheric Pollution Prevention Act, Act 45 of 1965, must be adhered to by the holder of this authorisation.
- 3.2.8.6 All provisions of the National Environment Management: Biodiversity Act, Act 10 of 2004, must be adhered to by the holder of this authorisation.
- 3.2.8.7 Should fill material be required for any purpose, the use of borrow pits must comply with the provisions of the Minerals and Petroleum Resources Development Act, 28 of 2002 administered by the Department of Minerals and Energy.
- 3.2.8.9 A permit shall be obtained from the provincial department of nature conservation for the removal of indigenous protected and endangered plant and animal species.

#### **Water quality management**

- 3.2.9.1 Eskom shall continuously monitor the ground water quality and implement measures to ensure that pollution of the resource does not occur. The monitoring programme for water quality and measures to control and prevent pollution of the resource shall be included in the operational EMP.

### **3.3 GENERAL CONDITIONS**

This authorisation is granted only in terms of section 22 of the Environment Conservation Act, 1989 (Act No.73 of 1989) and does not exempt the holder thereof from compliance with any other legislation.

This authorisation refers only to the activities as specified and described in the final environmental impact report dated 22 May 2006 and the addendum report to the final environmental impact report dated June 2006. Any other activity listed under section 21 of the Environment Conservation Act, 1989 (No. 73 of 1989) which is not specified above, is not covered by this authorisation, and must therefore comply with the requirements of the Environment Conservation Act, Government Notice R 1182 and R.1183 (as amended).

This authorisation is subject to the approval of the relevant local authorities in terms of any legislation administered by those authorities.

The applicant must, within 7 (seven) calendar days of receipt of this record of decision inform all interested and affected parties and at least include the following:

- (i) That an authorisation has been issued to the applicant to proceed with the construction and operation of the activity. If requested, provide copies of this ROD.

- (ii) That any appeals against the issuing of the authorisation must be lodged with the Minister of Environmental Affairs and Tourism within 30 (thirty) days from the date on which this ROD has been issued to the applicant at the address stipulated in this ROD.
- (iii) That an appeal questionnaire may be used in the lodging of an appeal. It is obtainable from the Department's offices at tel. (012) 310 3590 or e-mail: [cveeden@deat.gov.za](mailto:cveeden@deat.gov.za).
- (iv) The date on which the ROD was issued to the applicant in terms of regulation 10(1) and the date by which appeals must reach the Minister.

Failure to inform interested and affected parties within the stipulated time period may result in the Minister considering requests from such parties for permission to submit a late appeal favourably.

One week's written notice must be given to this Department before commencement of construction activities. Such notice shall make clear reference to the site location details and reference number given above.

One week's written notice must be given to this Department before commencement of operation activities. Such notice shall make clear reference to the site location details and reference number given above.

The applicant shall be responsible for ensuring compliance with the conditions contained in this ROD by any person acting on his behalf, including but not limited to, an agent, servant, or employee or any person rendering a service to the applicant in respect of the activity, including but not limited to, contractors and consultants.

The applicant must notify the Department in writing, within 24 (twenty four) hours if any condition of this authorisation cannot, or is not, adhered to. The notification must be supplemented with reasons for non-compliance.

A copy of the authorisation and ROD shall be available on site during construction and all staff, contractors and sub-contractors shall be familiar with or be made aware of the contents of this authorisation and ROD.

- 3.3.10 Compliance/non-compliance records must be kept and shall be made available on request from the authorities within five days of receipt of the request.
- 3.3.11 Any changes to, or deviations from, the project description set out in this letter must be approved, in writing, by the Department before such changes or deviations may be effected. In assessing whether to grant such approval or not, the Department may request such information as it deems necessary to evaluate the significance and impacts of such changes or deviations.
- 3.3.12 This Department may review the conditions contained in this letter from time to time and may, by notice in writing to the applicant, amend, add or remove a condition.

- 3.3.13 In the event that the predicted impacts exceed the significance as predicted by the independent consultant in the final environmental impact report and appendices dated 22 May 2006 and the addendum report to the final environmental impact report dated June 2006, the authorisation may be withdrawn after proper procedures have been followed.
- 3.3.14 In the event of any dispute concerning the significance of a particular impact, the opinion of the Department of Environmental Affairs and Tourism (DEAT) in respect of its significance will prevail.
- 3.3.15 The applicant must notify the Department, in writing, at least 10 (ten) days prior to the change of ownership, project developer or the alienation of any similar rights for the activity described in this letter. The applicant must furnish a copy of this document to the new owner, developer or person to whom the rights accrue and inform the new owner, developer or person to whom the rights accrue that the conditions contained herein are binding on them.
- 3.3.16 Where any of the applicant's contact details change, including the name of the responsible person, the physical or postal address and/or telephonic details, the applicant must notify the Department as soon as the new details become known to the applicant.
- 3.3.17 National government, provincial government, local authorities or committees appointed in terms of the conditions of this application or any other public authority or authorisation shall not be held responsible for any damages or losses suffered by the applicant or his successor in title in any instance where construction or operation subsequent to construction be temporarily or permanently stopped for reasons of non-compliance by the applicant with the conditions of approval as set out in this document or any other subsequent document emanating from these conditions of approval.
- 3.3.18 If any condition imposed in terms of this authorisation is not complied with, the authorisation may be withdrawn after 30 days written notice to the applicant in terms of section 22(4) of the Environment Conservation Act, 1989 (Act No. 73 of 1989).
- 3.3.19 Failure to comply with any of these conditions shall also be regarded as an offence and may be dealt with in terms of sections 29, 30 and 31 of the Environment Conservation Act, 1989 (Act No. 73 of 1989), as well as any other appropriate legal mechanisms.
- 3.3.20 The applicant shall be responsible for all costs necessary to comply with the above conditions unless otherwise specified.

Any complaint from the public during construction must be attended to as soon as possible to the satisfaction of the parties concerned. A complaints register must be kept up to date and shall be produced upon request.

- 3.3.22 Departmental officials shall be given access to the properties earmarked for construction activities for the purpose of assessing and/or monitoring compliance with the conditions contained in this document at all reasonable times.

All outdoor advertising associated with this activity, whether on or off the property concerned, must comply with the South African Manual for Outdoor Advertising Control (SAMOAC) available from this Department.

### 3.4 DURATION OF AUTHORISATION

If the activity authorised by this letter does not commence within 4 (four) years from the date of signature of this letter, the authorisation will lapse and the applicant will need to reapply for exemption or authorisation in terms of the above legislation or any amendments thereto or any subsequent new legislation.

### 4. CONSEQUENCES OF NON-COMPLIANCE

The applicant must comply with the conditions set out in this letter. Failure to comply with any of the above conditions may result in, *inter alia*, the Department withdrawing the authorisation, issuing directives to address the non-compliance – including an order to cease the activity – as well as instituting criminal and/or civil proceedings to enforce compliance.

### 5. APPEALS

Appeals in respect of this decision must be lodged with the Minister of Environmental Affairs and Tourism within 30 (thirty) days of the date of this decision. Appeals can be submitted utilising one of the following methods:

By facsimile: (012) 322 0082  
By post: Private Bag X447, Pretoria 0001  
By hand: 2<sup>nd</sup> Floor, Fedsure Forum Building, North Tower, cor. Van der Walt and Pretorius Streets, Pretoria.

Appeals must comply with the provisions of Regulation 11 of Government Notice No. R. 1183 which reads as follows:

"An appeal to the Minister or provincial authority under section 35(3) of the Act must be done in writing within 30 days from the date on which the ROD was issued to the applicant in terms of regulation 10(1);

An appeal must set out all the facts as well as the grounds of appeal, and must be accompanied by all relevant documents or copies of them which are certified as true by a commissioner of oaths."

An appeal questionnaire may be used in the lodging of an appeal. It is obtainable from the Department's offices at tel. (012) 310 3590 or e-mail: [cveeden@deat.gov.za](mailto:cveeden@deat.gov.za).

Should the applicant wish to appeal any aspect of this decision, the applicant must notify and furnish copies of the appeal which will be submitted to the Minister, to all registered interested and affected parties. Proof of such notification must be submitted to the Minister with the appeal. Failure to comply with this provision may result in the Minister refusing to consider the appeal.

### 6. APPLICANT:

Eskom Holdings Limited: Generation Division  
P O Box 1091  
**JOHANNESBURG**  
2000

Contact person: Ms Deirdre Herbst

Tel: (011) 800 3501

Fax: (011) 800 5140

**7. CONSULTANT:**

Bohlweki Environmental (Pty) Ltd  
P O Box 11784  
**VORNA VALLEY**  
1686

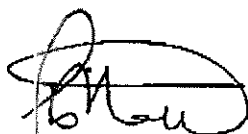
Contact person: Ms Ashlea Strong

Tel: (011) 466 3841

Fax: (011) 466 3849

**8. SITE VISIT**

A site visit was undertaken by Mr Vincent Matabane and Mr Ndhivhuwo Netshilaphala from the department, Eskom personnel and the consultant on 6<sup>th</sup> April 2005.



M: Pam Yako  
Director – General  
Department of Environmental Affairs and Tourism

Date: 21/09/06

## **APPENDIX B: Atmospheric Emissions License**





# LIMPOPO

PROVINCIAL GOVERNMENT  
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF  
ECONOMIC DEVELOPMENT, ENVIRONMENT & TOURISM

## PROVISIONAL ATMOSPHERIC EMISSION LICENSE AS CONTEMPLATED IN CHAPTER 5 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT, 2004, (ACT NO. 39 OF 2004)

The Provisional Atmospheric Emission License issued to Eskom Holdings SOC Limited – Medupi Power Station in terms of section 40(1)(a) of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) ("the Act"), in respect of Listed Activities No. 1.1, 2.4 and 5.1. The Provisional Atmospheric Emission License has been issued on the basis of a decision taken with respect to an application for postponement of compliance timeframes with minimum emission limits identified in terms section 21 of the Act and information that became available during processing of the application.

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

This Provisional Atmospheric Emission License is valid for a period of five (05) years from the date of issuance. The Provisional Atmospheric Emission License expiration terminates the License Holder's right to operate the Listed Activities unless a complete Renewal application has been submitted to the relevant Licensing Authority no later than six (06) months prior to the expiration date of this License. If a complete renewal application has been submitted by the renewal application due date, this Provisional Atmospheric Emission License and all conditions contained therein shall not expire until the renewal License has been issued or denied. This protection shall cease to apply if, subsequent to a renewal application completeness determination, the applicant fails to submit by the deadline any additional information identified by the Licensing Authority as necessary to process the application.

The Provisional Atmospheric Emission License is valid until 01 April 2020

### 1. ATMOSPHERIC EMISSION LICENSE ADMINISTRATION

Name of the Licensing Authority	Department of Economic Development, Environment and Tourism
Atmospheric Emission License Number	12/4/12L-W2/A3
Atmospheric Emission Licence Issue Date	31 March 2015
Expiry date	01 April 2020
Atmospheric Emission License Type	<i>Provisional</i>
Review Date, not later than	When deemed necessary by the Licensing Authority

DEPARTMENT OF ECONOMIC DEVELOPMENT,  
ENVIRONMENT & TOURISM  
INTEGRATED POLLUTION & WASTE MANAGEMENT

Corner Suid & Dorp Street, Polokwane, 0699, Private Bag X 9484, Polokwane 2015  
(Switchboard) Tel: +2715 290 7000 Website: www.edet.gov.za

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## 2. ATMOSPHERIC EMISSION LICENSE HOLDER DETAILS

Enterprise Name	Eskom Holdings SOC Limited
Trading as	Medupi Power Station
Enterprise Registration Number (Registration Numbers if Joint Venture)	2002/015527/06
Registered Address	Megawatt Park, Maxwell Drive, Sunninghill, Sandton
Postal Address	PO Box 1091 Johannesburg 2000
Telephone Number (General)	011 800 3861
Industry Sector	Electricity Generation
Name of Responsible Officer/ Emission Control Officer	Johan Prinsloo
Telephone Number	013 656 4061
Cell Phone Number	083 655 9140
Fax Number	013 656 4973
Email Address	CJ.Prinsloo@eskom.co.za
After Hours Contact Details	083 655 9140
Land Use Zoning as per Town Planning Scheme	N/A

## 3. LOCATION AND EXTENT OF POWER STATION

## 3.1 Location and Extent of Plant

Physical Address of the Premises/Plant	Lephalale
Description of Site (Erf)	Farm Naauwontkomen; Farm Eenzaamheid
Coordinates of Approximate Centre of Operations	Latitude: 23.7038316°S Longitude: 27.5617951°E
Extent (km <sup>2</sup> )	6.3
Elevation Above Mean Sea Level (m)	900
Province	Limpopo
District Municipality	Waterberg District Municipality
Local Municipality	Lephalale Local Municipality
Designated Priority Area	Waterberg – Bojanala Priority Area



3.2 Description of Surrounding Land Use (within 5 km radius)

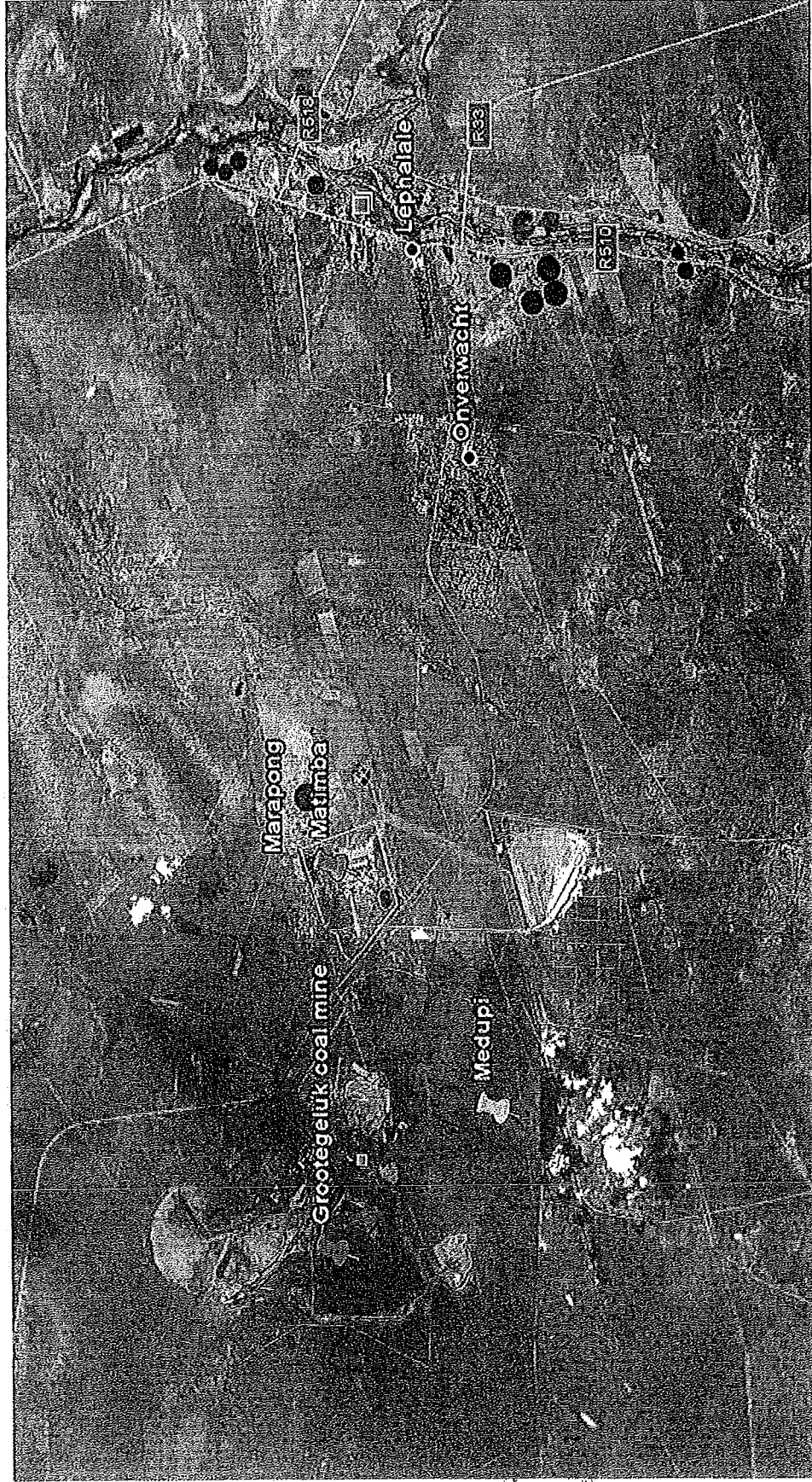


Figure 1: Location of premises in relation to surrounding community

*PLM*

Euridiki Towers, 20 Hans van Rensburg Street, POLOKWANE, 0700, Private Bag X9484, POLOKWANE, 0700  
Tel: 015 293 8300, Fax: 015 295 5297, website: <http://www.Limpopo.gov.za>

*The heartland of southern Africa - development is about people!*

#### 4. GENERAL CONDITIONS

##### 4.1 Process and ownership changes

The holder of the atmospheric emission License 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 facilities (building, plant or site of works) related to the listed activity or activities shall be extended, altered or added to the listed activity without prior approval by the Licensing Authority. The investigation, assessment and communication of potential impact of such an activity must follow the basic 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.

Any changes in processes or production increases, by the License Holder, will require prior approval by the licensing authority.

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

The License 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) days after the change of ownership.

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

##### 4.2 General duty of care

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

The License 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 License Holder will be subject to the sanctions set out in section 28 of the NEMA.

##### 4.3 Sampling and or analysis requirements

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

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



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#### 4.4 General requirements for License Holder

The License Holder is responsible for ensuring compliance with the conditions of this License 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 License.

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

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

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

#### 4.5 Statutory obligations

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

#### 4.6 Payment of atmospheric emission License processing fee

The License Holder must pay the processing fee to the Licensing Authority within 30 days of receipt of atmospheric emission License processing fee invoice.

#### 4.7 License Revisions, Termination and Reissuance

The License Holder may request the Licensing Authority to revise the conditions of this License by submitting an application that contains the information specified in Section 46 of the Act. The Licensing Authority will revise the License using the same procedures that apply to initial License issuance.

If the License Holder wishes to terminate the License, a written request must be submitted to the Licensing Authority explaining the reasons for the request and, if necessary for continued operation, submitting applications for any License or approvals that the License Holder avoided by establishment of the limits contained in this License.

This License may be terminated, revised, or revoked and reissued by the Licensing Authority for cause. Cause exists to terminate, revise, or revoke and reissue this License under the following circumstances:

- a) This License contains a material mistake;
- b) Inaccurate statements were made in establishing the terms or conditions of this License;
- c) Newly discovered material information or material change in environmental conditions, environmental technology or applicable law or regulations since the issuance of the existing License;
- d) The License Holder fails to comply with any condition of this License; or
- e) This License must be terminated, revised, or reopened and reissued to assure compliance with Air Quality Act requirements.

The Licensing Authority will use the same proceedings to terminate, revise, or revoke and reissue a License for cause as for initial License issuance. Before initiating proceedings to terminate, revise, or revoke and reissue a License, the Licensing Authority will provide the License Holder at least 30 days' advance written notice of Licensing Authority's intent to terminate, revise, or revoke and reissue the permit, except that the Licensing Authority may provide a shorter notice period in the case of an emergency.

#### 4.8 Non-Compliance with Conditions

If the License Holder fails to comply with the conditions or requirements of the License, the Licensing Authority may by notice in writing call upon such holder to comply with such conditions or requirement within a reasonable period specified in the notice, and in the event of failure on the part of such holder to comply with the said conditions or requirement within the period so specified, the Licensing Authority may cancel the License or suspend the operation thereof for such period as he or she may deem fit.

#### 4.9 Appeal of Licence

- A. The License Holder must, within seven (07) calendar days of receipt of this license, inform all interested and affected parties and at least include the following:
- (i) That an Atmospheric Emission License has been issued to the applicant to proceed with the operation of the activities. If requested provide copies of this license.
  - (ii) That any appeals against the issuing of the license must be lodged with the Member of the Executive Council of Limpopo Department of Economic Development Environment and Tourism ("the MEC") as per chapter 2 of National Appeal Regulations Government Notice No. R.594 in Government Gazette No. 38303 of 8 December 2014.
  - (iii) The date on which the license was issued to the applicant in terms of section 40 of the Act and the date by which appeals must reach the MEC.
- B. Failure to inform interested and affected parties within the stipulated time period may result in the MEC considering requests from such parties for permission to submit late appeal favourably.
- C. An appeal lodged with the MEC must be submitted to the Department of Limpopo Department of Economic Development Environment and Tourism by means of one of the following methods:
- By post: Private Bag X 9484, POLOKWANE, 0700  
By fax: (015) 291 5809  
By hand: Evridiki Towers, 19 Biccard Street, Polokwane 0700
- D. An appeal must be
- (i) submitted in writing
  - (ii) accompanied by:
    - a statement setting out the grounds of appeal;
    - supporting documentation which is referred to in the appeal and is not available to the relevant Licensing Authority
    - a statement that the appellant has complied with regulation 60(2) or (3) of NEMA EIA Regulations

### 5. NATURE OF PROCESS

#### 5.1 Process description

Medupi Power Station was designed to produce a combined 4800MW nominal, generated from six (6) 800MW nominal power generating units. Coal is supplied, into the 10 000 Ton Silo, from Grootegeluk Exxaro mine by means of conveyor belts. The delivered coal is either stored at the Coal Stock Yard or conveyed directly into the individual unit's Mill Bunkers. The Mill Feeders are then used to transport coal into the mills. Bunker 150 Fuel Oil (FO) is transported and delivered into the Power Station by means of road trucks. FO is then offloaded into one (1) of the two (2) FO Storage Tanks. It is then pumped into the FO Burners by means of the FO pumps.



Liquefied Petroleum (LP) Gas is used to start the combustion fire in the boiler furnace by means of the Igniter. The LP Gas flame is used to ignite the Bunker 150 Fuel Oil (FO), which is injected into the boiler furnace, using the FO Burners. When FO has ignited and the flame is stable, LP Gas is turned off. The vertical spindle mills crush coal (from the Mill Bunkers) into powder, namely the Pulverized Fuel (PF). FO is then used to ignite PF that is introduced into the boiler furnace by means of the PF Low (Nitrogen Oxide) NOx Burners. The PF Low NOx Burners are also used to control the NOx emissions. Once the PF has ignited and the boiler furnace flame is stable, FO Burners are turned off. Four (4) mills per Unit are required to achieve the Unit Generated Load of 800MW nominal.

The LP Gas, FO, and/or PF burnt in the furnace are converted into a combination of combustion gases, fly ash and coarse ash. A combination of combustion gases and fly ash is known as flue gas. Coarse ash is collected at the bottom of the boiler furnace and quenched inside the Submerged Scrapper Conveyor (SCC) water. The SSC conveys the coarse ash into the coarse ash conveyors, which sends the coarse ash into the ash dump for disposal. Fly ash (which is responsible for particulate emissions) exits the boiler through the flue gas path. The flue gas path components consist of the Gas Air Heater (GAH), flue gas ducting, Pulse Jet Fabric Filter Plant (PJFFP), fly ash hoppers, Induced Draught (ID) Fan, and the Smoke Stack.

PJFFP is used to control the particulate emissions, by filtering the fly ash from the flue gas and cause the fly ash to fall inside the fly ash hoppers. The balance of the cleaner flue gas is then sucked out of the PJFFP using the ID fans to exit through the Smoke Stack. The fly ash is extracted from the fly ash hoppers and transported to one of the six (6) fly ash silos by means of compressed air. The fly ash then exits the bottom of the fly ash silos and is sprayed with water in the fly ash conditioner to form a paste. The hydrated fly ash is then allowed to mix with coarse ash on the coarse ash conveyor. The mixed ash is then transported to the ash dump.

Demineralized water, produced from the Water Treatment Plant (WTP), is pumped into the Feed Water Tank (FWT) by means of Condensate Extraction Pumps (CEPs). This water is then pumped into the boiler using the Electric Feed Pumps (EFPs). The furnace flame then heats up the demineralized water; through transfer of heat into the boiler tubes, Economizers and Super-heaters to produced superheated steam. Super-heated steam exits the boiler by means of the High Pressure (HP) piping and is introduced into the turbine to turn the turbine shaft. The turbine shaft that is coupled to the Generator shaft is used to turn the Generator rotor. This induces electricity on the Generator stator, and thereby generating electricity. The turbine steam that leaves the turbine exhausts then flows into the Air Cooled Condensers (ACC) that converts the steam into condensate. The condensate is collected from the Air Cooled Condensate Collecting Tank (ACCCT) and pumped by the CEP back into the FWT.

## 5.2 Listed activity or activities

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

Category of Listed Activity	Sub-category of the Listed Activity	Description of the Listed Activity
1 – Combustion Installations	1.1 – Solid Fuel Combustion Installations	Solid fuels combustion installations used primarily for steam raising or electricity generation
2 – Petroleum Industry	2.4 – Storage and Handling of Petroleum Products.	Petroleum product storage tanks and product transfer facilities, except those under liquefied petroleum gas
5 – Mineral Processing, Storage and Handling	5.1 – 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



### 5.3 Unit process or processes

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

Unit Process	Unit Process Function	Batch or Continuous Process
Boiler - Unit 1	Electricity Generation – 800 MW	Continuous
Boiler - Unit 2	Electricity Generation – 800 MW	Continuous
Boiler - Unit 3	Electricity Generation – 800 MW	Continuous
Boiler - Unit 4	Electricity Generation – 800 MW	Continuous
Boiler - Unit 5	Electricity Generation – 800 MW	Continuous
Boiler - Unit 6	Electricity Generation – 800 MW	Continuous
Coal stockyard	Coal Storage	Continuous
Excess coal stockyard	Coal Storage	Continuous
Fuel Oil Storage Tanks	Fuel Oil Storage	Continuous
Ashing facility	Ash Dump	Continuous

### 5.4 Hours of operations

Hours of operation of all unit processes associated with the listed activities at the premises.

Unit Process	Operating Hours	Days of Operation per Year
Boiler - Unit 1	00:00 – 24:00	366
Boiler - Unit 2	00:00 – 24:00	366
Boiler - Unit 3	00:00 – 24:00	366
Boiler - Unit 4	00:00 – 24:00	366
Boiler - Unit 5	00:00 – 24:00	366
Boiler - Unit 6	00:00 – 24:00	366
Coal stockyard	00:00 – 24:00	366
Excess coal stockyard	00:00 – 24:00	366
Fuel Oil Storage Tanks	00:00 – 24:00	366
Ashing facility	00:00 – 24:00	366

5.5 Graphical Process Information

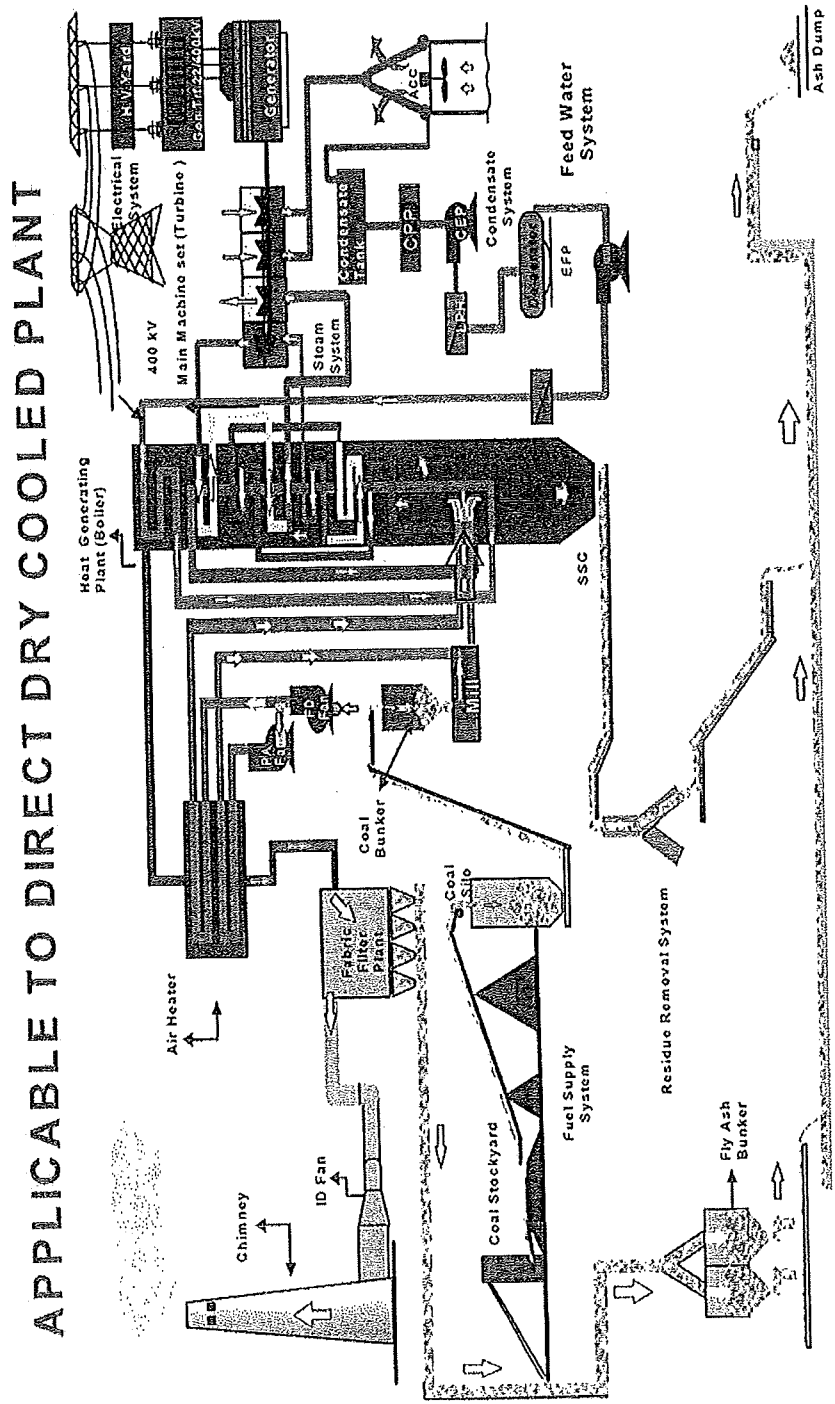


Figure 2: Process Flow Diagram Applicable to Direct Dry Cooled Plant

*PLM*

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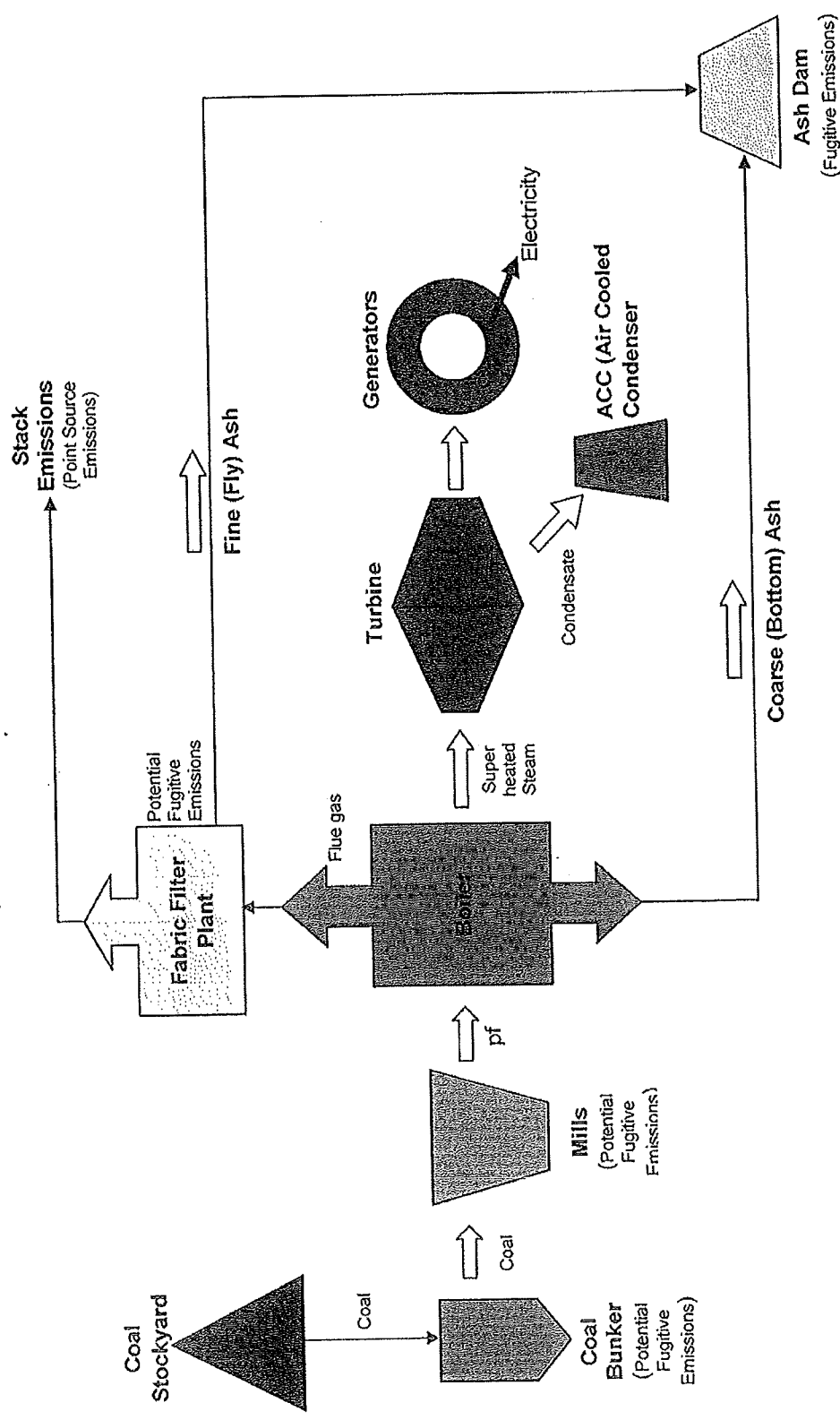


Figure 3: Process flow chart indicating inputs, outputs and emissions at the site of works, including points of potential fugitive emissions

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## 6. RAW MATERIALS AND PRODUCTS

## 6.1 Raw materials used

Regulated Raw Materials		
Raw Material Type	Maximum Permitted Consumption Rate (Quantity)	Units (quantity/period)
Coal	1 875 000	tons/month
Fuel oil*	40 000	tons/month
Non-regulated Raw Materials		
Raw Material Type	Maximum Permitted Consumption Rate (Quantity)	Units (quantity/period)
Water	1 429 000	litres/month

\* Regulated raw materials refers to those materials when increased or decreased may result in the change of air emissions output.

\* Non-regulated raw materials refers to those materials when increased or decreased may not result in any change of air emissions output.

## Limitations and Standards

6.1.1 The Coal consumption rate shall not exceed 1 875 000 tons per month.

6.1.2 The Fuel Oil consumption rate shall not exceed 40 000 tons per month

## 6.2 Production rates

Product Name	Maximum Permitted Production Capacity (Quantity)	Units (quantity/period)
Electricity	4 800	MW

## 6.3 Materials used in energy sources

Materials for Energy Source	Actual Consumption Rate (Quantity)	Units (quantity/period)	Materials Characteristics (Monthly Average)
Coal	1 875 000	Tons/month	Sulphur Content: 1.3 – 2.2% Ash Content: 35 – 39%
Fuel oil	40 000	Tons/month	Sulphur Content: 0.5 - 3.5% Ash Content: 0.02 - 0.1%

6.3.1 No fuel must be used with material characteristics with an exceedance of the largest value by over 10% without the approval by the Licensing Authority.

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6.4 Sources of atmospheric emission

6.4.1 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)	Effective Diameter at Stack Tip/Vent Exit (m)*	Actual Gas Exit Temperature (°C)	Actual Gas Volumetric Flow (m³/hr)	Actual Gas Exit Velocity (m/s)	Emission Hours	Type of Emission (Continuous / Batch)
		South	East								
Stack 1	Stack 1	23.7028928°S	27.5614339°E	220	100	21.9	140	4 000 000	18 -24	24 hours	Continuous
Stack 2	Stack 2	23.7047792°S	27.5617951°E	220	100	21.9	140	4 000 000	18 -24	24 hours	Continuous

6.4.2 Area and or line source parameters

Area and or Line Source Code	Source Name	Source Description	Latitude (decimal degrees) of SW corner	Longitude (decimal degrees) of SW corner	Height of Release Above Ground (m)	Length of Area (m)	Width of Area (m)	Emission Hours	Type of Emission (Continuous / Intermittent)
A1	Coal stockyard	Storage and handling of coal	23.710818°S	27.550252°E	12	897	616.6	24	Continuous
A2	Excess coal stockyard	Storage and handling of coal	23.70941°S	27.52924°E	20	2000	2000	24	Continuous
A3	Ash disposal facility	Storage of ash	23.748821°S	27.515143°E	60	4200	4000	24	Continuous
A4	Fuel oil tank 2	Fuel oil storage	2623173.400 SW	57523.252 SW	16.5	16.5	12	24	Continuous
A5	Fuel oil tank 1	Fuel oil storage	2623235.4449 SW	57559.027 SW	16.5	16.5	12	24	Continuous

## 7. APPLIANCES AND MEASURES TO PREVENT AIR POLLUTION

## 7.1 Appliances and control measures

Associated Source Code	Appliances			Abatement Equipment Control Technology						
	Appliance /Process Equipment Number	Appliance serial number	Appliance Type / Description	Abatement Equipment Technology Name and Model	Abatement Equipment Technology Manufacture Date	Commission Date	Technology Type	Design Capacity	Minimum Control Efficiency (%)	Minimum Utilisation (%)
Stack 1	Boiler 1	To be provided as per Condition 7.1.1	Fabric filter plant	Fabric filter plant	2013 – 2019	2013 – 2019	Fabric filter plant	To be provided as per Condition 7.1.1	99.0%	100%
			Low NOx burners and Overfire air	Low NOx burners and Overfire air	2013 – 2019	2013 – 2019	Low NOx burners and Overfire air	To be provided as per Condition 7.1.1	70%	100%
Stack 2	Boiler 2	To be provided as per Condition 7.1.1	Fabric filter plant	Fabric filter plant	2013 – 2019	2013 – 2019	Fabric filter plant	To be provided as per Condition 7.1.1	99.0%	100%
			Low NOx burners and Overfire air	Low NOx burners and Overfire air	2013 – 2019	2013 – 2019	Low NOx burners and Overfire air	To be provided as per Condition 7.1.1	70%	100%
Stack 3	Boiler 3	To be provided as per Condition 7.1.1	Fabric filter plant	Fabric filter plant	2013 – 2019	2013 – 2019	Fabric filter plant	To be provided as per Condition 7.1.1	99.0%	100%
			Low NOx burners and Overfire air	Low NOx burners and Overfire air	2013 – 2019	2013 – 2019	Low NOx burners and Overfire air	To be provided as per Condition 7.1.1	70%	100%

Associated Source Code	Appliances		Abatement Equipment Control Technology							
	Appliance /Process Equipment Number	Appliance serial number	Appliance Type / Description	Abatement Equipment Name and Model	Abatement Equipment Technology Manufacture Date	Commission Date	Technology Type	Design Capacity	Minimum Control Efficiency (%)	Minimum Utilisation (%)
Stack 2	Boiler 4	To be provided as per Condition 7.1.1	Fabric filter plant	Fabric filter plant	2013 – 2019	2013 – 2019	Fabric filter plant	To be provided as per Condition 7.1.1	99.0%	100%
			Low NOx burners and Overfire air	Low NOx burners and Overfire air	2013 – 2019	2013 – 2019	Low NOx burners and Overfire air	To be provided as per Condition 7.1.1	70%	100%
	Boiler 5	To be provided as per Condition 7.1.1	Fabric filter plant	Fabric filter plant	2013 – 2019	2013 – 2019	Fabric filter plant	To be provided as per Condition 7.1.1	99.0%	100%
			Low NOx burners and Overfire air	Low NOx burners and Overfire air	2013 – 2019	2013 – 2019	Low NOx burners and Overfire air	To be provided as per Condition 7.1.1	70%	100%
	Boiler 6	To be provided as per Condition 7.1.1	Fabric filter plant	Fabric filter plant	2013 – 2019	2013 – 2019	Fabric filter plant	To be provided as per Condition 7.1.1	99.0%	100%
			Low NOx burners and Overfire air	Low NOx burners and Overfire air	2013 – 2019	2013 – 2019	Low NOx burners and Overfire air	To be provided as per Condition 7.1.1	70%	100%

**Appliances and control measures requirements:**

- 7.1.1 The control devices' details must be forwarded to the Licensing Authority thirty (30) days prior to commissioning of the equipment/technology.
- 7.1.2 Off-gases from each heat generating plant (Boiler) shall be vented via a fabric filter plant to a stack at all times the emissions unit is in process. Low NOX burners Overfire air must be utilized to control NOX emissions.
- 7.1.3 The License Holder must inspect all control systems, specified in the Appliances and Control Measures Table 7.1 above for the plant, weekly to ensure that they are operated and maintained in conformance with their designs.
- 7.1.4. The License Holder shall, continuously operate, and maintain a flue gas desulphurization (FGD) plant for control of SO<sub>2</sub> on all six units. The Flue Gas Desulphurisation plant shall be retrofitted in each unit within Six (06) years after the first commissioning of each unit and during the General Overhaul outages.

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

Point Source Code	Pollutant Name	(mg/Nm <sup>3</sup> )	Maximum Release Rate		Duration of Emissions
			Date to be Achieved By	Average Period	
Stack 1	SO <sub>2</sub>	3500 mg/Nm <sup>3</sup>	01 April 2015	Daily	Continuous
	NOX	500 mg/Nm <sup>3</sup>	01 April 2025	Daily	Continuous
	PM	750 mg/Nm <sup>3</sup>	01 April 2015	Daily	Continuous
Stack 2	SO <sub>2</sub>	50 mg/Nm <sup>3</sup>	01 April 2015	Daily	Continuous
	NOX	3500 mg/Nm <sup>3</sup>	01 April 2025	Daily	Continuous
	PM	500 mg/Nm <sup>3</sup>	01 April 2015	Daily	Continuous

**Point source – maximum emission rates and requirements**

- 7.2.1 Emissions to the atmosphere from each unit shall be limited as set out in the Table 7.2 when the processes are in operation. The License Holder must be in compliance with the emissions limitations in Table 7.2 at all times, except during periods of start-up, maintenance, and shutdown.



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- 7.2.2 PM10 emissions shall not exceed 50 mg/Nm<sup>3</sup>, NO<sub>x</sub> emissions shall not exceed 750 mg/Nm<sup>3</sup>, and SO<sub>2</sub> emissions shall not exceed 3500 mg/Nm<sup>3</sup> during the period 01 April 2015 to 31 March 2025 and shall not exceed 500 mg/Nm<sup>3</sup> from 01 April 2025, averaged daily under normal conditions of 273 K, 101.3 kPa and 10% oxygen (O<sub>2</sub>).
- 7.2.3 The License Holder must prevent deviations from normal operating conditions that would result in emissions exceeding specified limit values, and shall scale back or halt its operations under excessive emissions if it is likely that the permitted levels of emissions would otherwise be exceeded.
- 7.2.4 The License Holder must develop a written start-up, maintenance, and shutdown plan that describe, in detail, procedures for operating and maintaining each boiler during periods of start-up, maintenance, and shutdown; and a program of corrective action for malfunctioning process, air pollution control, and monitoring equipment used to comply with the emission limitations in Table 7.2. The start-up, maintenance, and shutdown plan does not need to address any scenario that would not cause either unit to exceed an emission limitation. During periods of start-up, maintenance, and shutdown, the License Holder must operate each unit in accordance with the start-up, maintenance, and shutdown plan.
- 7.2.5 Deviations that occur during a period of start-up, maintenance, and shutdown are not violations if the License Holder demonstrates to the Licensing Authority satisfaction that the License Holder was operating in accordance with the start-up, maintenance, and shutdown plan. The Licensing Authority will determine whether deviations that occur during a period of start-up, maintenance, and shutdown are violations in accordance with Section 51 of the Act.
- 7.2.6 The License Holder must apply for an exemption from the conditions of the License in the event of equipment malfunction or breakdown within twenty four (24) hours of the incident. Should the normal start-up, maintenance, upset and shutdown conditions exceed 48 hours, Section 30 of the National Environmental Management Act (Act No. 107 of 1998), as amended, shall apply.
- 7.2.7 The duration of start-up (number of hours from fires in to synchronization) and shut down must be reported in the report required in terms of Condition 7.7.1. The number of hours for which emissions exceed the limit during Emergency Generation, and the number of hours declared as Emergency Generation by National Control, must be included in the report required in terms of Condition 7.7.1.

### 7.3. Point source – emission monitoring and reporting requirements

Point Source Code	Emission Sampling / Monitoring Method	Sampling Frequency	Parameters to be Measured	Parameters to be Reported	Reporting Frequency	Conditions Under Which Monitoring Could Be Stopped
Stack 1	Continuous emission monitoring (in-stack)	Continuous	Continuous (90% of hours in a year)	PM, SO <sub>2</sub> , NO <sub>x</sub> , CO <sub>2</sub>	As per Condition 7.7 of the License	Upon written approval by the Licensing Authority
Stack 2	Continuous emission monitoring (in-stack)	Continuous	Continuous (90% of hours in a year)	PM, SO <sub>2</sub> , NO <sub>x</sub> , CO <sub>2</sub>	As per Condition 7.7 of the License	Upon written approval by the Licensing Authority



**Point source – monitoring and reporting requirements**

- 7.3.1 The License Holder shall install, calibrate, and operate a Continuous Emissions Monitoring System (CEMS) each for Stack 1 and Stack 2 that measures Particulate Matter (PM10), Sulphur Dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>) and Carbon Dioxide (CO<sub>2</sub>). The concentrations of the gaseous pollutants shall be corrected to 10% O<sub>2</sub> on a dry basis. The averaging period for the purposes of compliance monitoring shall be expressed on a daily average basis.
- 7.3.2 The CEMS shall be operated, calibrated and maintained continuously, dependent of the units' operation. The License Holder must measure and record valid continuous emission data for the parameters listed in Condition 7.3 during all periods of the units' operation including periods of unit start-up, shutdown, malfunction or emergency conditions, except for periods of CEMS quality assurance/quality control ("QA/QC"), routine maintenance, or uncontrolled malfunction. Nevertheless, the CEMS must be maintained to yield a minimum of 90% valid hourly average values during the reporting period. CEMS must be audited by a SANAS accredited laboratory at least once every two (02) years.
- 7.3.3 The License Holder shall conduct spot measurement or correlation stack tests to verify the accuracy of the continuous emission measurement. The Licensing Authority, or the Licensing Authority's duly authorized representative, may witness or conduct such test(s). Should the Licensing Authority opt to conduct such test(s), the operator shall provide all necessary sampling connections and sampling ports to be located in such manner as the Licensing Authority may require, power for test equipment and the required safety equipment, such as scaffolding, railings and ladders, to comply with generally accepted good safety practices. Such tests shall be conducted in accordance with the methods and procedures set out in this License or as otherwise approved or specified by the Licensing Authority.
- 7.3.4 All spot measurement or correlation stack tests to verify the accuracy of the continuous emission measurement and such other tests as specified in this License shall be conducted in accordance with an approved test method as contained in Schedule A of Section 21 Notice (Government Notice No. 893). Methods other than those contained in Schedule A may be used with the written consent of the National Air Quality Officer. Such methods shall be submitted to the Licensing Authority in writing at least thirty (30) days prior to any testing and shall contain the information set out by the Licensing Authority or as per Condition 7.8(A)(iii).
- 7.3.5 The License Holder shall notify the Licensing Authority prior to any isokinetic sampling, spot measurement or correlation stack tests, in accordance with Condition 7.8, so the Licensing Authority may have the opportunity to observe such tests. This notification shall include the actual date and time during which the test will be conducted and, if appropriate, verification that the tests will fully conform to a referenced method previously approved by the Licensing Authority.
- 7.3.6 In addition to installing, operating and maintaining a CEMS for monitoring and reporting of emissions, the License Holder shall install, maintain and operate an ambient air quality [Sulphur Dioxide (SO<sub>2</sub>); Nitrogen Dioxide (NO<sub>2</sub>), Carbon Monoxide(CO); Particulate Matter(PM10 and PM 2.5); Ozone(O<sub>3</sub>); and Mercury(H g)] monitoring and associated meteorological stations in the Marapong residential area as well as at relevant areas upwind and downwind of the facility. An ambient air quality monitoring plan must be submitted to the Licensing Authority for approval as per Condition 7.9.
- 7.3.7 The License Holder shall also conduct public education and awareness campaigns focusing on air quality improvements and shall implement a program of support for initiatives aimed at improving air quality in the surrounding communities and performance reports must be submitted to the Licensing Authority as per Condition 7.7.1(V). A five year public education and awareness plan must be developed and submitted to the Licensing Authority for review and approval by the Licensing Authority as per Condition 7.9.

## 7.4. Area and or line source – management and mitigation measures

Area and/or Line Source Code	Source Name	Source Description	Description of specific measures	Required control efficiency (%)	Timeframe for achieving required efficiency	Method of monitoring measures' effectiveness
A1	Coal stockyard	Storage and handling of coal	<ul style="list-style-type: none"> <li>- Compaction of strategic stockpile</li> <li>- Spraying of water for dust suppression</li> </ul>	Fallout dust not to exceed dust fallout standards set out in Regulation 3 of the National Dust Control Regulation, 2013	Immediately	Dust fallout and PM10 monitoring
A2	Excess coal stockyard	Storage and handling of coal	<ul style="list-style-type: none"> <li>- Compaction of strategic stockpile</li> <li>- Spraying of water for dust suppression</li> </ul>	Fallout dust not to exceed dust fallout standards set out in Regulation 3 of the National Dust Control Regulation, 2013	Immediately	Dust fallout and PM10 monitoring
A3	Ash dump	Storage of ash	<ul style="list-style-type: none"> <li>- Spraying of water for dust suppression</li> <li>- Rehabilitation of ash dump by planting vegetation</li> </ul>	Fallout dust not to exceed dust fallout standards set out in Regulation 3 of the National Dust Control Regulation, 2013	Immediately	Dust fallout and PM10 monitoring
A4	Fuel oil tank 1	Fuel oil storage	<ul style="list-style-type: none"> <li>- Monthly visual inspection of the exterior walls of the tank</li> <li>- Perform inventory reconciliation and annual leak detection tests</li> </ul>	Fallout dust not to exceed dust fallout standards set out in Regulation 3 of the National Dust Control Regulation, 2013	Immediately	Dust fallout and PM10 monitoring
A5	Fuel oil tank 2	Fuel oil storage	<ul style="list-style-type: none"> <li>- Monthly visual inspection of the exterior walls of the tank</li> <li>- Perform inventory reconciliation and annual leak detection tests</li> </ul>	Fallout dust not to exceed dust fallout standards set out in Regulation 3 of the National Dust Control Regulation, 2013	Immediately	Dust fallout and PM10 monitoring



#### Area and or line source management and mitigation measures

- 7.4.1 The License Holder shall perform all necessary operations to minimize emissions arising from the coal stockpile, ash dump, coal and ash handling equipment, and any other associated infrastructure or activity. Measures including good housekeeping, compaction of stockpile, rehabilitation of ash dump by planting vegetation and spraying of water for dust suppression shall be implemented at all times as shall be necessary to minimize the generation of dust from the works and to prevent detrimental impacts on adjacent receptors.
- 7.4.2 The License Holder shall perform all necessary operations to minimize emissions arising from the fuel oil storage area, fuel oil handling equipment, and any other associated infrastructure or activity. The area shall be bunded to cater for double the volume of each tank at the minimum (i.e. 2400m<sup>3</sup> per tank) with an additional freeboard of 300mm so that each tank has its own bunded area with a double volume bund and spare change. The bund shall be constructed of concrete with all joints sealed, excess water shall be discharged through a drain-off facility within the bunded area and oil traps shall be used to separate oil from water prior to release into the wastewater system. A sand-bitumen mix placed at the bottom of the tank shall be used to prevent leaking. Fuel oil tanks shall be fitted with a breather pipe with flame arrestor, full fire-water system and fire blanket system installed along the top of the bunker walls.
- 7.4.3 Periodic evaluation of the coal, ash dump and fuel oil storage sites' implemented control measures must be undertaken to identify the success of those measures, in-line with the requirements of the Fugitive Emissions Management Plan contemplated in Condition 7.9.
- 7.4.4 The License Holder shall conduct dust fallout monitoring/measurements in accordance with an approved test method at sites around the stockyard area, ash dump area as well as along the site boundary (at least upwind and downwind) to determine contributions from background sources.
- 7.4.5 Monitoring systems and control measures must be implemented to ensure prevention or mitigation of spontaneous combustion of coal stockpiles
- 7.4.6 Reviews of the monitoring results and effectiveness of implemented mitigation measures shall be carried out. Results of such reviews (including calibration data, monitoring protocol, measured dust concentrations, and data analysis) must be submitted to the Department in accordance with Condition 7.7.1. Records of specific dust events, dust complaints and site conditions including prevailing meteorology must be included in the report.
- 7.4.7 The License Holder shall keep readily accessible records showing the dimension of each storage vessel, an analysis showing the capacity of each storage tank and the maximum true vapor pressure of the stored liquid. Records shall be retained for the life of the facility. The License Holder shall also keep records sufficient to determine the throughput of fuel oil for each storage tank for use in the report as per Condition 7.7.1.
- 7.4.8 Emissions of Total Volatile Organic Compounds (TVOC) from fuel oil storage tanks' venting and working loss shall be estimated using methods approved by the Licensing Authority. Visual inspection of the exterior walls of the tanks results, fuel oil inventory reconciliation data, fuel oil throughput data and TVOC emission estimation results shall be submitted to the Licensing Authority as per Condition 7.7.1.
- 7.4.9 The License Holder must install and maintain appropriately designed stormwater management and treatment infrastructure to control and prevent pollution of water resources. Any runoff from the coal stockyard, ash dump and fuel oil storage area must be directed to the treatment system.
- 7.4.10 The License Holder must revise and submit a fugitive emission management plan as per Condition 7.9. The plan must identify all significant sources of fugitive emission and measures that will be implemented to address these fugitive sources. The plan must include detailed control methodologies/techniques, contingency plans, timeframes for implementation, assessment of efficiency, and regular monitoring and reporting systems/criteria.

#### 7.5. Energy Conservation Measures

The License Holder shall evaluate its activities to improve energy utilization and efficiency. This information should be provided to the Licensing Authority upon request.

#### 7.6. Cleaner Production Targets

The License Holder must investigate cleaner production processes and practices that are relevant to its operations with a view towards reducing energy consumption and atmospheric emissions related to the processes. This information should be provided to the Licensing Authority upon request.

#### 7.7. Routine Reporting and Record-keeping

##### 7.7.1 Monthly Reporting

The License Holder must complete and submit to the Licensing Authority a Monthly Report no later than thirty (30) days after the end of each reporting period. The report must include information for the period under review. The Monthly Report must include, but not limited to, the following:

#### I. Complaints Register

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

- a) Air pollution complaints received;
- b) Date the complaint was received and the date the facility responded,
- c) Investigations to determine the cause of the complaint;
- d) Results of the investigation, and
- e) Any actions taken to resolve the complaint.

The Licensing Authority must also be provided with a copy of the Complaints Register upon request.



## II. Operation and Production Records

The License Holder must track and record the operation and production such that source-wide emissions can be estimated on a daily basis. Records must include, but not be limited to:

- a) Daily hours of operation
- b) Daily production Rate
- c) Daily fuel consumption rate
- d) Ash and sulphur content (%) of any Coal
- e) Sulphur content (%) of fuel oil combusted;
- f) Coal, Ash and Fuel oil throughput data
- g) Visual inspection of the exterior walls of the fuel oil tanks results and fuel oil inventory reconciliation data
- h) Documentation of any time periods when the unit process is operational and the Fabric filter plant and/or low NO<sub>x</sub> burners are not fully operational

## III. Emissions monitoring and measurements and performance against limits

The License Holder must record and report, in a summarised format, any performance and/or compliance testing of machinery and equipment that has a direct or indirect impact on the atmospheric emissions to the Licensing Authority. Any non-compliance must be described thoroughly in the report. The performance tests and compliance testing report should include (but not be limited to) the following information:

- a) Point sources monitoring and measurements results indicating performance against the specified emission limits in Table 7.2;
- b) Pollutant emissions trend including Greenhouse gas emissions;
- c) Fugitive emissions estimation/measurement information
- d) Start-up, maintenance, shutdowns or malfunction occurrence and duration;
- e) Major upgrades projects (i.e. abatement equipment or process equipment);
- f) Excess emissions, source code or name, emission standard exceeded, root cause analysis;
- g) Calculation of impacts/emissions associated with the non-compliance incidents and dispersion modelling of pollutants where applicable;
- h) Measures implemented or to be implemented to prevent recurrence; and
- i) Date by which measures were or will be implemented.

#### IV. Spot/correlation stack tests

Records of all required compliance testing shall include the following:

- a) The date, place, and time of sampling or measurements;
- b) The date analyses were performed;
- c) The company or entity that performed the analyses;
- d) The analytical techniques or methods used;
- e) The results of all such analyses; and
- f) The operating conditions existing at the time of sampling or measurement

#### V. Air Quality Improvement and Social Responsibility

- a) Ambient air quality monitoring results;
- b) Air quality improvement initiatives;
- c) Public education and awareness campaigns;

##### 7.7.2 Bi-annual Reporting

The License Holder must complete and submit to the Licensing Authority a Bi-annual Report no later than thirty (30) days after the end of each reporting period. The report must include information for the period under review. The Bi-annual Report must include, amongst others, the following items:

- a) Compliance with regard to each AEL condition
- b) Interpretation of all available data, tests and monitoring results regarding operation of the plant and all impacts on the environment
- c) Recommendations regarding non-compliance or potential non-compliance
- d) Target dates for the implementation of recommendations by the License Holder to achieve compliance
- e) Impact of implemented corrective action taken for identified non-compliance



### 7.7.3 Annual Reporting


The License Holder must complete and submit to the Licensing Authority, an Annual Report as contemplated in paragraph 17 of Section 21 Notice (Government Notice No. 893) no later than thirty (30) days after the end of each reporting period. The report must include information for the year under review. The Annual Report must include, amongst others, the following items:

- a) Information specified in paragraph 18 of Section 21 Notice (Government Notice No. 893)
- b) Emissions performance (emissions trend including Greenhouse gas emissions), compliance statistics and Spot/verification tests annual data summaries
- c) Start-up, maintenance, shutdowns or malfunction occurrence and duration annual summary statistics
- d) Operation and production annual data summaries
- e) Annual summaries of deviations from License conditions or operations and maintenance plan and actions taken to resolve the problem

### 7.8. License Notification Requirements

A. The License Holder shall notify the Licensing Authority by letter or by electronic mail of the:

- i. Actual date of initial start-up of each unit, not less than fourteen (14) days prior to such date;
  - ii. Actual date of commencement of commercial operation of each unit, not less than fourteen (14) days prior to such date;
  - iii. Date upon which isokinetic stack sampling, spot measurement or correlation stack tests will commence, in accordance with Condition 7.3.5, within fourteen (14) days prior to such date. Notification may be provided with the submittal of the performance test protocol required in terms Condition 7.3.3 and 7.3.4. The notice must state the source to be tested, the proposed time of the test, the testing date(s) and the proposed testing methods and procedures.
- B. The License Holder shall notify the Licensing Authority within twenty four (24) hours following the discovery of any failure of air pollution control equipment, process equipment, or of a process to operate in a normal manner, which results in an increase in emissions above the allowable emission limits set in Section 7.2 of this License.
- C. In addition, the License Holder shall provide an additional notification to the Licensing Authority in writing or electronic mail within fourteen (14) days of any such failure described under Condition 7.8 (B). This notification shall include a description of the malfunctioning equipment or abnormal operation, the date of the initial malfunction, the period of time over which emissions were increased due to the failure, the cause of the failure, the estimated resultant emissions in excess of those allowed in Section 7.2, and the methods utilized to mitigate emissions and restore normal operations.
- D. The License Holder is to notify the Licensing Authority within twenty four (24) hours of any other significant incidences (i.e. spillages, fires, leakages or other similar situations). Should such incidences pose a significant health risk or nuisance, notification of the incident is to be immediate. Where excessive emissions occur, which could cause adverse health or environmental impacts or nuisance, urgent corrective measures must be taken, by the License Holder, to contain or minimise the emissions through operational interventions. Remediation, if required shall be carried out to the satisfaction of the Licensing



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Authority and/or any other governmental agencies. Any incident that has the potential to create significant health, safety or environmental risk or nuisance needs to be reported immediately to the relevant authority, Section 30 of the National Environmental Management Act (Act No. 107 of 1998), as amended, shall apply.

E. Compliance with the notification provision shall in no way serve to excuse, otherwise justify, or in any manner affect any potential liability or enforcement action resulting from the occurrence.

**7.9. Investigation and Reviews**

The following investigations are required:

Location	License Conditions	Minimum Requirements	Timeframe
Plant Wide	Fugitive Emissions Management (revised)	Fugitive Emissions Management Plan developed, approved and under implementation as per the schedule agreed in the plan, to minimize nuisance impacts off-site	Six (06) months from the date of issue of this License.
Plant Wide	Operations and Maintenance Plan (revised)	A written start-up, maintenance, and shutdown plan that describe, in detail, procedures for operating and maintaining each unit during periods of start-up, maintenance, and shutdown; and a program of corrective action for malfunctioning process must be developed. The Maintenance Plan must illustrate how the facility will be operated and maintained in order to comply with the emission limits as specified in this License.	Six (06) months from the date of issue of this License.
Neighborhood	Five Year Public and Education Awareness Plan	Public Education and Awareness Plan must include strategies for reaching out to selected audiences, messages that promote maintenance/achievements of ambient air quality goals and messages tailored to make people from all walks of life aware of specific issues related to the facility's operations taking into account emissions to the atmosphere, their impacts on health and surroundings/environment as well as preventative measures. The plan must also include aspect of monitoring and evaluation (M&E).	Six (06) months from the date of issue of this License.
Neighborhood	Ambient Air Quality Monitoring Plan	An Ambient Air Quality Monitoring Plan must provide specifics of the monitoring network to be established including details of the monitoring sites considerations, location including street address and geographical coordinates of the identified sites, pollutants and meteorological parameters to be monitored, sampling and analysis method(s) for each parameter to be measured, monitoring objectives and spatial scale of representativeness for each monitoring site, data acquisition, management and reporting procedures, as well as necessary protocols, procedures and work instructions for effective management of the monitoring network.	Six (06) months from the date of issue of this License.

## 7.10. Start up, Maintenance and Shut-down Conditions

Unit Process	Description of Occurrence of Potential Releases (e.g. leakage, technology outage, etc.)	Pollutants and Associated Amount of Emissions	Briefly Outline Back Up Plan
Start-up	Fuel oil-assisted start-up to get the unit up to temperature	Particulate emissions in excess of 50 mg/Nm <sup>3</sup>	Start-up is of limited duration
Shut-down	Plant failure /breakdown	Particulate emissions in excess of 50 mg/Nm <sup>3</sup>	To be provided as per Condition 7.2.4
Bag leakages	Leaks in fabric filter plant bags will result in higher emissions of ash	Particulate emissions in excess of 50 mg/Nm <sup>3</sup>	Leaking bags will be replaced
On-load rebags	Bags will be replaced if leaking or as part of normal maintenance cycle while unit is operating	Particulate emissions in excess of 50 mg/Nm <sup>3</sup>	Bags will be replaced to maintain emissions performance

- 7.10.1 The License Holder shall, to the extent practicable, maintain and operate the facility including associated air pollution control equipment in a manner consistent with good practice for minimizing emissions.
- 7.10.2 Leaking bags must be replaced during bag leakages and as part of normal maintenance cycle in order to maintain emissions performance at all times, including periods of start-up, shutdown, shakedown, and malfunction.
- 7.10.3 During a period of start-up, shutdown, or malfunction, the License Holder shall operate all unit processes (including associated air pollution control equipment) in accordance with the procedure specified in the start-up, shutdown, maintenance and malfunction plan.
- 7.10.4 Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Licensing Authority, which may include, but is not limited to, monitoring results, review of operating maintenance procedures and inspection of the facility.
- 7.10.5 The License Holder shall maintain records of the occurrence and duration of any start-up, maintenance, shutdown, or malfunction in the operation of each unit; any malfunction of the air pollution control equipment; or any periods during which a CEMS is inoperative.
- 7.10.6 Notification of a start-up, shutdown, or a malfunction shall be made by the License Holder in accordance with Condition 7.8

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

The disposal of any waste and effluent arising from pollution mitigation measures proposed must comply with the relevant legislation and requirements of the relevant authorities.

Point or Area Source Code	Waste / Effluent Type	Hazardous Components Present	Method of Disposal
Stacks 1 and 2	Ash	Heavy metal trace elements and silica	Ash dump
Stacks 1 and 2	Fabric filter bags	Heavy metal trace elements and silica	Ash dump / waste disposal site
Once FGD is installed:			
Stacks 1 and 2	Gypsum	Heavy metal trace elements and silica	Co-disposal on ash dump OR distribution to market
Stacks 1 and 2	FGD waste water	Heavy metal trace elements and silica	Waste water treatment plant

**9. PENALTIES FOR NON-COMPLIANCE WITH LICENSE AND STATUTORY CONDITIONS OR REQUIREMENTS**

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

**10. ATMOSPHERIC EMISSION LICENSE ENDORSEMENT**

SIGNATURE: *E. Mphahlele*  
 NAME: *E. Mphahlele*  
 DESIGNATION: *Senior Manager*  
 DATE: *01/04/2015*

