	Medupi Power Station Monthly Emissions Report	Template Identifier	240-43921804	Rev	6	
		Document Identifier	240-88543153	Rev	2	
		Effective Date	February 2021			
		Review Date	February 2024			

Stanley Koenaitse

Waterberg District Municipality

Private Bag X1018

Modimolle

0510

skoenaite@waterberg.gov.za

Date: 2022/01/31

Enquiries: TR. Rammulla

Tel: 014 762 6375

Ref: H16/1/13-AEL/M1/R1 – January 2022

Dear Mr Koenaitse

MEDUPI POWER STATION MONTHLY EMISSIONS REPORT FOR THE MONTH OF JANUARY 2022

This document serves as the monthly emissions report required in terms of Section 7.7.1 of Medupi Power Station Provisional Atmospheric Emission License (AEL), H16/1/13-AEL/M1/R1.

This report is a reflection of Unit 1, 2, 3, 5 and 6 gaseous and particulate emissions performance against the AEL limit for the month of January 2022 only.

1. Raw Materials and Products

TABLE 1: QUANTITY OF RAW MATERIALS AND PRODUCTS CONSUMPTION IN JANUARY 2022

Raw Materials and Products used	Raw Material Type	Unit	Maximum Permitted Consumption/ Rate (Quantity)	Consumption - January 2022
	Coal	Tons/month	1 875 000	895747
	Fuel Oil	Tons/month	20 000	2567
Production Rates	Product/ By-Product Name	Unit	Maximum Production Capacity Permitted (Quantity)	Production Rate in Month of January 2022
	Energy	GWh	3571,2	1900
	Ash Emitted	Tons	not specified	183,83

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the database.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.


	Medupi Power Station Monthly Emissions Report	Template Identifier	240-43921804	Rev	6
		Document Identifier	240-88543153	Rev	2
		Effective Date	February 2021		
		Review Date	February 2024		

TABLE 2: DAILY CONSUMPTION AND PRODUCTION RATES


Date	Reportable hours of Operation						Coal usage	Production rate (MW)					
	U1	U2	U3	U4	U5	U6		U1	U2	U3	U4	U5	U6
01/01/22	0,0	24,0	24,0		24,0	24,0	26797	Off	643	784	Off	650	617
02/01/22	0,0	24,0	24,0		24,0	7,0	27118	Off	679	784	Off	689	570
03/01/22	0,0	24,0	24,0		24,0	8,6	25069	off	596	784	off	607	578
04/01/22	0,0	24,0	24,0		24,0	24,0	22880	Off	562	784	Off	560	490
05/01/22	0,0	24,0	24,0		24,0	24,0	25974	Off	664	650	Off	654	480
06/01/22	0,0	24,0	24,0		24,0	0,8	24114	Off	790	789	Off	697	510
07/01/22	0,0	24,0	24,0		24,0	0,0	28180	Off	781	746	Off	775	530
08/01/22	0,0	24,0	24,0		24,0	15,9	28861	Off	776	656	Off	679	639
09/01/22	0,0	24,0	24,0		24,0	24,0	26702	off	699	571	off	672	550
10/01/22	0,0	24,0	7,9		24,0	14,7	22257	Off	752	600	Off	724	641
11/01/22	0,0	24,0	1,4		24,0	0,0	25476	Off	732	687	Off	685	564
12/01/22	0,0	24,0	24,0		24,0	13,0	27502	Off	577	713	Off	598	661
13/01/22	0,0	24,0	24,0		24,0	24,0	28969	Off	560	738	Off	690	657
14/01/22	0,0	24,0	24,0		24,0	16,5	28438	Off	560	734	Off	768	726
15/01/22	0,0	24,0	24,0		24,0	0,0	21929	Off	627	753	Off	645	off
16/01/22	0,0	24,0	24,0		24,0	0,0	27339	Off	717	717	Off	723	485
17/01/22	0,0	24,0	24,0		24,0	20,8	30209	off	699	722	off	719	671
18/01/22	0,0	24,0	24,0		24,0	24,0	28460	Off	643	682	Off	664	673
19/01/22	0,0	24,0	24,0		24,0	10,6	25659	Off	753	693	Off	611	657
20/01/22	0,0	24,0	24,0		24,0	1,8	29891	Off	765	743	Off	729	597
21/01/22	0,0	7,9	24,0		24,0	24,0	24701	Off	601	622	Off	778	548
22/01/22	0,0	8,5	24,0		24,0	24,0	30014	Off	788	738	Off	782	570
23/01/22	0,0	24,0	24,0		24,0	24,0	30621	210	740	772	Off	766	575
24/01/22	0,0	24,0	24,0		24,0	24,0	30795	522	680	666	off	575	651
25/01/22	4,6	24,0	24,0		24,0	24,0	37019	560	711	714	Off	702	714
26/01/22	16,0	24,0	24,0		24,0	24,0	34886	623	717	734	Off	662	631
27/01/22	2,1	24,0	24,0		24,0	24,0	39663	779	720	734	Off	709	650
28/01/22	24,0	24,0	24,0		24,0	24,0	38778	765	726	734	Off	737	674
29/01/22	24,0	24,0	24,0		24,0	24,0	37719	708	741	734	Off	692	651
30/01/22	24,0	24,0	24,0		24,0	24,0	28993	528	570	734	Off	551	558
31/01/22	9,3	24,0	24,0		24,0	24,0	30774	551	639	734	Off	642	572

NB: reportable hours less than 24 highlighted in pink

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the database.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	Medupi Power Station Monthly Emissions Report	Template Identifier	240-43921804	Rev	6
		Document Identifier	240-88543153	Rev	2
		Effective Date	February 2021		
		Review Date	February 2024		

2. Abatement Technology

Table 3: Abatement Equipment Control Technology efficiency for month of January 2022

Associated Unit/Stack	Technology Type	Efficiency
Unit 1	Fabric Filter Plant (FFP)	99,966%
Unit 2	Fabric Filter Plant (FFP)	99,950%
Unit 3	Fabric Filter Plant (FFP)	99,921%
Unit 4	Fabric Filter Plant (FFP)	-
Unit 5	Fabric Filter Plant (FFP)	99,936%
Unit 6	Fabric Filter Plant (FFP)	99,916%

3. Energy Source Characteristics

TABLE 4: ENERGY SOURCE MATERIAL CHARACTERISTICS FOR THE MONTH OF JANUARY 2022

Characteristic	Stipulated Range (% by weight on a dry basis)	Monthly Average Content (% by weight on a dry basis)
Coal		
Sulphur Content	1.3 - 2.2	1,36
Ash Content	35 - 39	34,39

TABLE 5: ENERGY SOURCE MATERIAL CHARACTERISTICS FOR THE MONTH OF JANUARY 2022

Characteristic	Stipulated Range (%)	Monthly Average Content (%)
Oil		
Sulphur Content	0.5 - 3.5	2
Ash Content	0.02 - 0.1	0.055

4. Emissions Reporting

Medupi Power Station uses Continuous Emission Monitoring System which uses the extractive method for analysis.

The emission limits are as follows:

SO₂ Monthly = 3500 mg/Nm³

Dust Daily= 50 mg/Nm³

NO₂ Daily= 750 mg/Nm³

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the database.

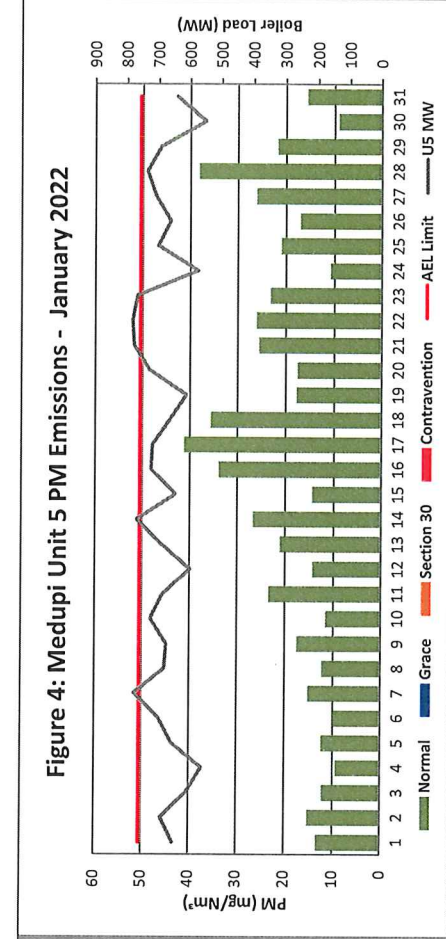
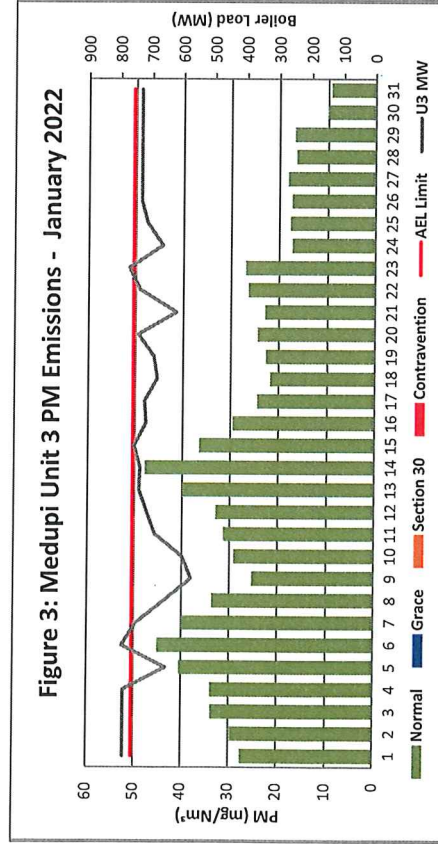
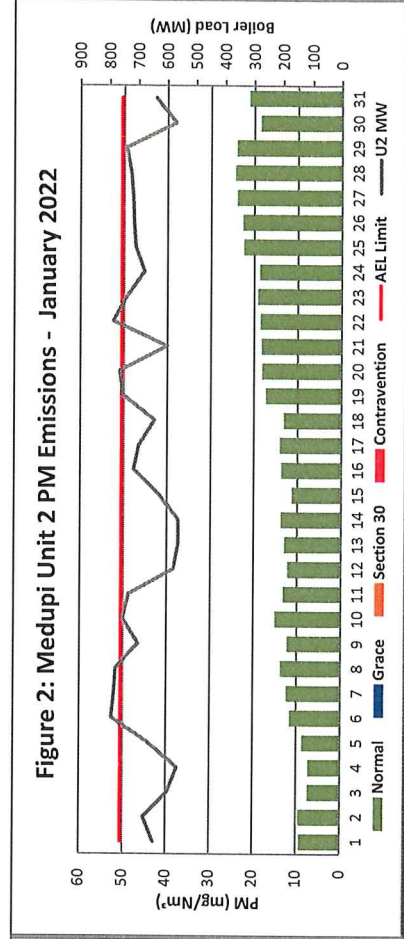
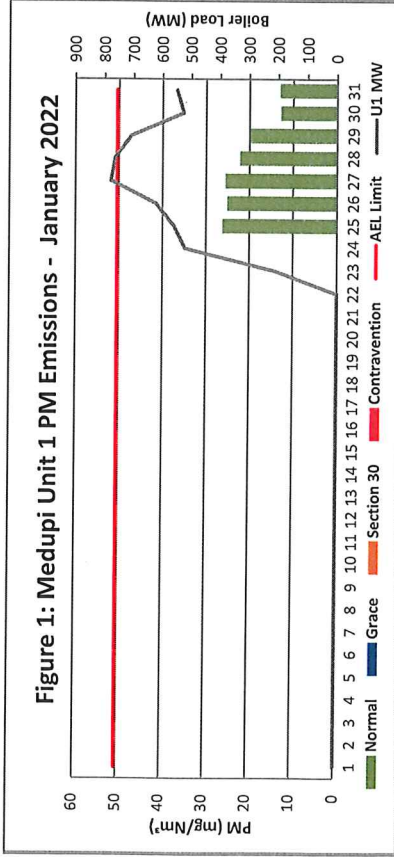
No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.



Medupi Power Station Monthly Emissions Report

Template Identifier	240-43921804	Rev	6
Document Identifier	240-88543153	Rev	2
Effective Date	February 2021		
Review Date	February 2024		

4.1 PM Emissions



CONTROLLED DISCLOSURE

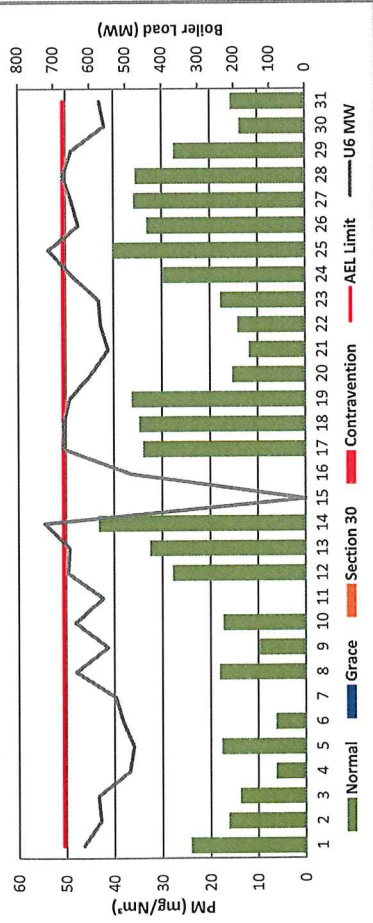
When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the database. No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.



Medupi Power Station Monthly Emissions Report

Template Identifier	240-43921804	Rev	6
Document Identifier	240-88543153	Rev	2
Effective Date	February 2021		
Review Date	February 2024		

Figure 5: Medupi Unit 6 PM Emissions - January 2022



CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the database. No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.



Medupi Power Station Monthly Emissions Report

Template Identifier	240-43921804	Rev	6
Document Identifier	240-88543153	Rev	2
Effective Date	February 2021		
Review Date	February 2024		

4.2 SOx Emissions

Figure 6: Medupi Unit 1 SOx Emissions - January 2022

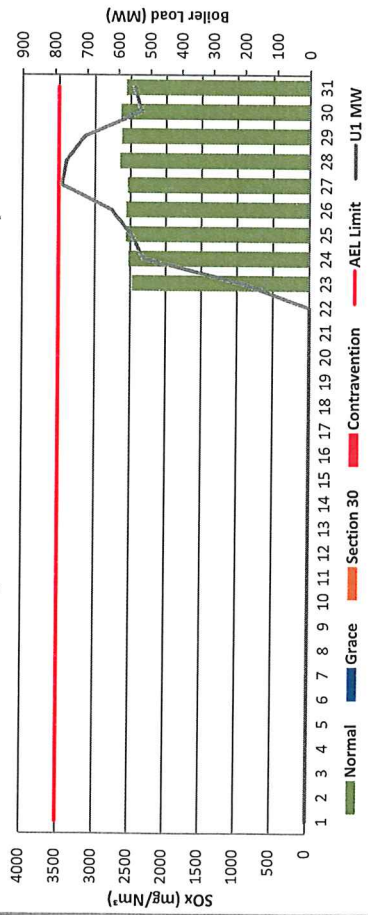


Figure 7: Medupi Unit 2 SOx Emissions - January 2022

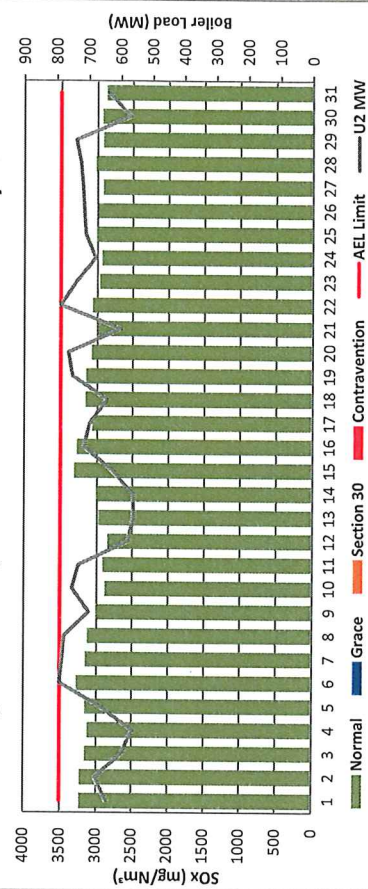
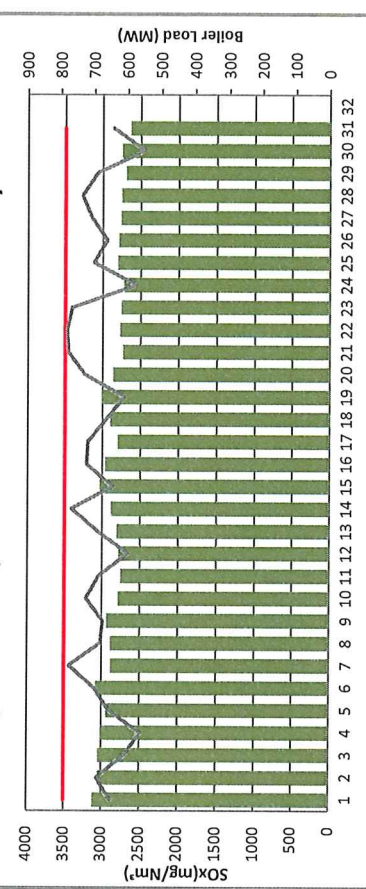


Figure 8: Medupi Unit 3 SOx Emissions - January 2022



Figure 9: Medupi Unit 5 SOx Emissions - January 2022



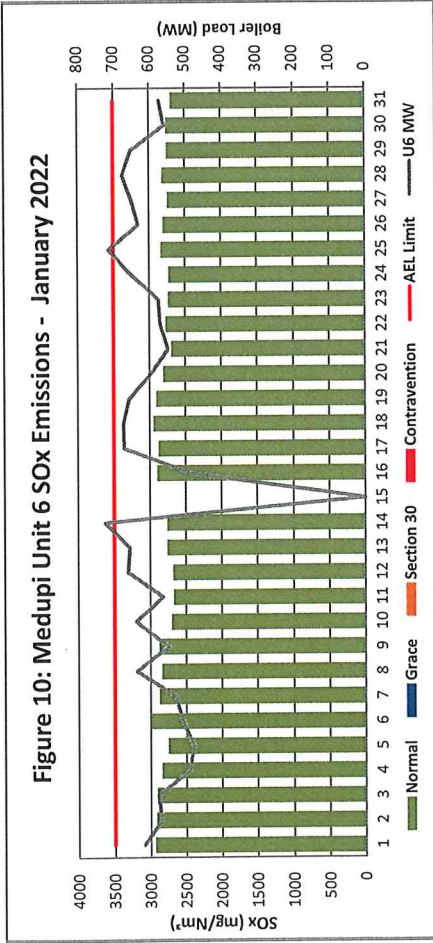
CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the database. No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

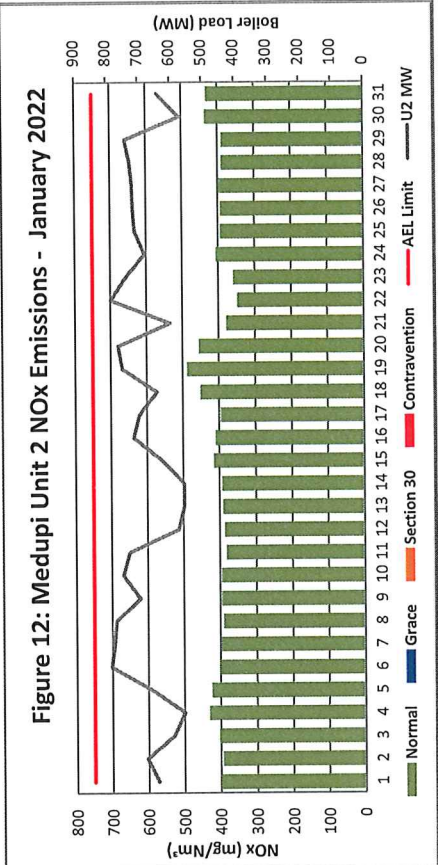
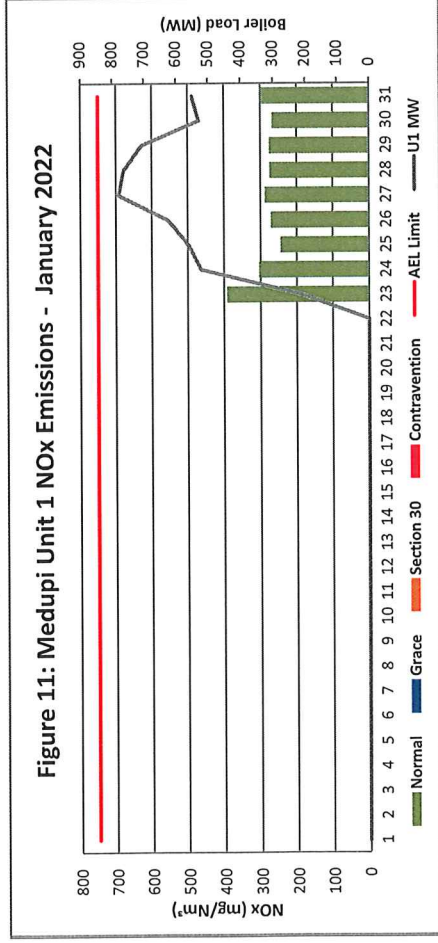


Medupi Power Station Monthly Emissions Report

Template Identifier	240-43921804	Rev	6
Document Identifier	240-88543153	Rev	2
Effective Date	February 2021		
Review Date	February 2024		



4.3 NOx Emissions



CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the database. No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.



Medupi Power Station Monthly Emissions Report

Template Identifier	240-43921804	Rev	6
Document Identifier	240-88543153	Rev	2
Effective Date	February 2021		
Review Date	February 2024		

Figure 13: Medupi Unit 3 NOx Emissions - January 2022

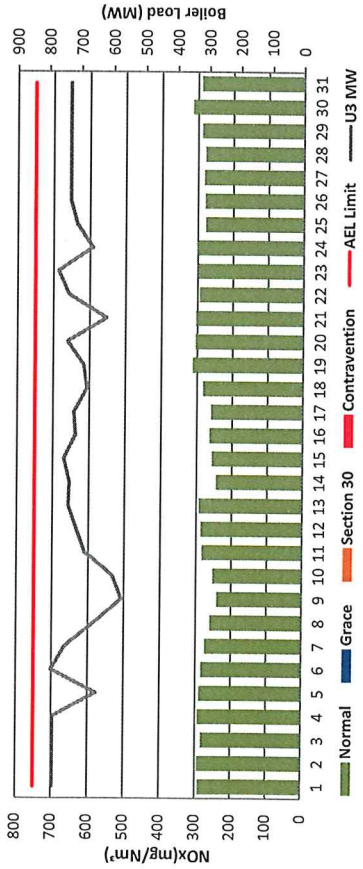


Figure 14: Medupi Unit 5 NOx Emissions - January 2022

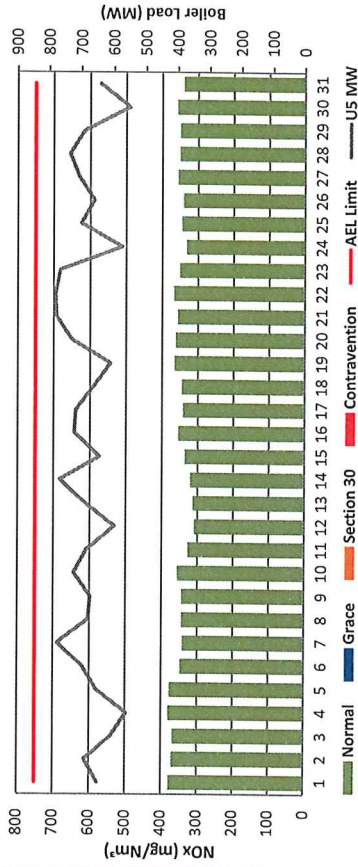
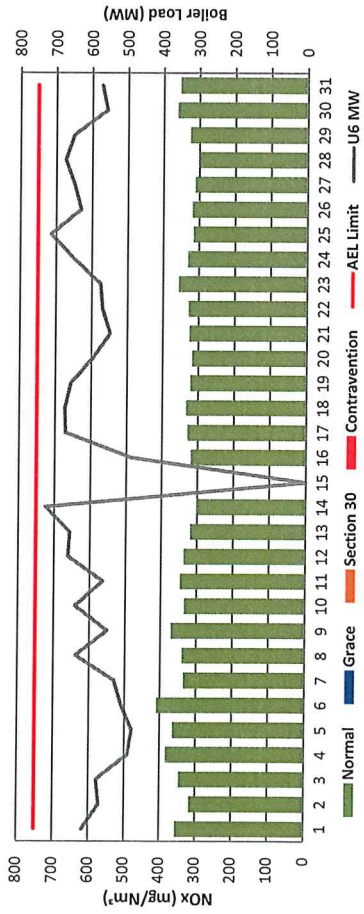


Figure 15: Medupi Unit 6 NOx Emissions - January 2022



Medupi Power Station graphical representation of the daily average emissions

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the database. No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.


	Medupi Power Station Monthly Emissions Report	Template Identifier	240-43921804	Rev	6
		Document Identifier	240-88543153	Rev	2
		Effective Date	February 2021		
		Review Date	February 2024		

TABLE 7: MONTHLY TONNAGES FOR THE MONTH OF JANUARY 2022

Associated Unit/Stack	PM	SO ₂	NO ₂
Unit 1	5,5	1 218,3	131,4
Unit 2	36,1	7 511,9	992,3
Unit 3	55,7	5 033,8	599,2
Unit 4			
Unit 5	42,4	6 040,1	738,0
Unit 6	44,0	5 997,3	714,6
SUM	183,83	25 801,4	3 175,4

5. Continuous Emission Monitoring Systems (CEMS)

Unit 1, 2, 3, 5 and 6 Continuous Emission Monitoring Systems were in operation at all times when the unit was on load.

TABLE 6: PERIODS DURING WHICH CEMS WAS INOPERATIVE

Date	Time	CEMS status	Comments
N/A	N/A	N/A	N/A

Note: Unit 5 dust monitor in operation however suspected to be faulty, Investigation underway.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the database.

No part of this document February be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.


	Medupi Power Station Monthly Emissions Report	Template Identifier	240-43921804	Rev	6
		Document Identifier	240-88543153	Rev	2
		Effective Date	February 2021		
		Review Date	February 2024		

TABLE 7: CEMS MONITOR RELIABILITY

Associated Unit/Stack	PM	SO ₂	NO	O ₂
Unit 1	100,0	99,8	99,2	99,2
Unit 2	100,0	99,9	99,9	99,9
Unit 3	100,0	99,9	99,9	99,9
Unit 4	[REDACTED]			
Unit 5	98,7	100,0	100,0	100,0
Unit 6	100,0	100,0	99,9	99,6

6. CEMS Calibration certificates and equipment used for calibration

A service provider was appointed to calibrate CEMS equipment at Medupi Power Station, calibration certificates to be made available upon request.

7. Ambient Air Quality Monitoring Report

The Ambient Air Quality Monitoring and Dust fall-out report are emailed to the Licensing authority on a monthly basis.

8. Visual inspection of the exterior walls of the fuel oil tanks and TVOC Estimation

Visual inspection was conducted and there were no leaks observed on the exterior walls of the fuel oil tanks.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the database.

No part of this document February be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.



	Medupi Power Station Monthly Emissions Report	Template Identifier	240-43921804	Rev	6	
		Document Identifier	240-88543153	Rev	2	
		Effective Date	February 2021			
		Review Date	February 2024			


TABLE 8: TOTAL VOLATILE ORGANIC COMPOUND (TVOC) FOR JANUARY 2022

		
CALCULATION OF EMISSIONS OF TOTAL VOLATILE COMPOUNDS FROM FUEL OIL STORAGE TANKS*		
Date:	Monday, 31 January 2022	
Station:	Medupi Power Station	
Province:	Limpopo Province	
Tank no.	1-2	
Description:	Outdoor fuel oil storage tank	
Tank Type:	Vertical fixed roof (vented to atmosphere)	
Material stored:	Fuel Oil 150	
MONTHLY INPUT DATA FOR THE STATION Please only insert relevant monthly data inputs into the <i>blue cells</i> below Choose from a dropdown menu in the <i>green cells</i> The total VOC emissions for the month are in the <i>red cells</i> IMPORTANT: Do not change <u>any</u> other cells without consulting the AQ CoE		
MONTH:	January	
GENERAL INFORMATION:	Data	Unit
Total number of fuel oil tanks:	2	NA
Height of tank:*	14,2	m
Diameter of tank:	12	m
Net fuel oil throughput for the month:	2567	tons/month
Molecular weight of the fuel oil:	166,00	Lb/lb-mole
METEROLOGICAL DATA FOR THE MONTH	Data	Unit
Daily average ambient temperature	25,11	°C
Daily maximum ambient temperature	31,57	°C
Daily minimum ambient temperature	17,48	°C
Daily ambient temperature range	14,10	°C
Daily total insolation factor	5,87	kWh/m ² /day
Tank paint colour	Aluminum/Specular	NA
Tank paint solar absorbance	0,39	NA
FINAL OUTPUT:	Result	Unit
Breathing losses:	0,74 kg/month	
Working losses:	0,07 kg/month	
TOTAL LOSSES (Total TVOC Emissions for the month):	0,81 kg/month	
<small>*Calculations performed on this spreadsheet are taken from the USEPA AP-42- Section 7.1 Organic Liquid Storage Tanks - January 1996. This spreadsheet is derived from materials provided by Jimmy Peress, PE, Trittech Consulting Engineers, 85-93 Chevy Chase Street, Jamaica, NY 11432 USA, Tel - 718-454-3920, Fax - 718-454-6330, e-mail - PeressJ@nyc.rr.com.</small>		

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the database.

No part of this document February be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	Medupi Power Station Monthly Emissions Report	Template Identifier	240-43921804	Rev	6
		Document Identifier	240-88543153	Rev	2
		Effective Date	February 2021		
		Review Date	February 2024		

9. Air quality improvements initiatives and public education and awareness campaigns

- No awareness campaign.

10. Complaints Register


TABLE 9: COMPLAINTS FOR THE MONTH OF JANUARY 2022

Source Code/ Name	Air pollution complaints received	Calculation of Impacts/ emissions associated with the incident	Date of complaint and date of response by the license holder	Results of investigation	Action taken to resolve the complaint
N/A	No complaints received	N/A	N/A	N/A	N/A

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the database.

No part of this document February be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

	Medupi Power Station Monthly Emissions Report	Template Identifier	240-43921804	Rev	6
		Document Identifier	240-88543153	Rev	2
		Effective Date	February 2021		
		Review Date	February 2024		

Compiled by: Lutendo Nemutamba Nemutamba
Environmental Officer

Verified by: Malose Langa b.
System Engineer Boiler

Supported by: Rosetta Rammutla TR Rammutla
Environmental Manager

Supported by: Jabulani Mkhathswa JME
Engineering Group Manager

I Zweli Witbooi, declares that the information provided in this report is accurate and correct.

Yours sincerely,

Zweli Witbooi

Zweli Witbooi
GENERAL MANAGER: MEDUPI POWER STATION (Acting)

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the database.

No part of this document February be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Limited, Reg No 2002/015527/30.

