	Medupi Power Station Monthly Emissions Report	Template Identifier	240-43921804	Rev	7
		Document Identifier	240-88543153	Rev	2
		Effective Date	November 2024		
		Review Date	November 2027		

Stanley Koenaitse

Waterberg District Municipality
Private Bag X1018
Modimole
0510

skoenaite@waterberg.gov.za

Date: 2024/12/31

Enquiries: MF Dikgale

Tel: 014 762 6820

Email: DikgalMF@eskom.co.za

Ref: H16/1/13-AEL/M1/R1 – November 2024

Dear Mr Koenaitse

MEDUPI POWER STATION MONTHLY EMISSIONS REPORT FOR THE MONTH OF NOVEMBER 2024


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 reflects Unit 1, 2, 3, 5 and 6 gaseous and particulate emissions performance against the AEL limit for the month of November 2024 only.

1. Raw Materials and Products


TABLE 1: QUANTITY OF RAW MATERIALS AND PRODUCTS CONSUMPTION IN NOVEMBER 2024

Raw Materials and Products used	Raw Material Type	Unit	Maximum Permitted Consumption/ Rate (Quantity)	Consumption – November 2024
	Coal	Tons/month	1 875 000	1017892
	Fuel Oil	Tons/month	20 000	1305
Production Rates	Product/ By-Product Name	Unit	Maximum Production Capacity Permitted (Quantity)	Production Rate in Month of November 2024
	Energy	GWh	3 571.2	2260.97
	Ash Emitted	Tons/month	not specified	208.8

	Medupi Power Station Monthly Emissions Report	Template Identifier	240-43921804	Rev	7	
		Document Identifier	240-88543153	Rev	2	
		Effective Date	November 2024			
		Review Date	November 2027			

Date	Daily Reportable Hours of Operation						Coal usage	Production rate (MW)					
	U1	U2	U3	U4	U5	U6		U1	U2	U3	U4	U5	U6
01-Nov	24.0	24.0	24.0	0.0	9.7	24.0	36172	553	690	639	Off	619	698
02-Nov	24.0	24.0	24.0	0.0	24.0	24.0	36700	630		658	Off	650	707
03-Nov	24.0	22.6	24.0	0.0	24.0	24.0	36199	610	720	693	Off	650	635
04-Nov	24.0	0.0	24.0	0.0	24.0	24.0	34545	628	712	678	Off	650	570
05-Nov	24.0	20.3	24.0	0.0	24.0	24.0	35087	634	703	617	Off	650	600
06-Nov	24.0	24.0	24.0	0.0	24.0	24.0	36133	616	755	617	Off	650	666
07-Nov	24.0	24.0	24.0	0.0	24.0	24.0	35675	580	744	649	Off	633	718
08-Nov	24.0	24.0	24.0	0.0	24.0	24.0	36585	611	759	647	Off	650	755
09-Nov	24.0	24.0	24.0	0.0	24.0	1.3	29116	588	776	690	Off	650	336
10-Nov	24.0	24.0	24.0	0.0	24.0	0.0	28613	574	708	677	Off	650	Off
11-Nov	24.0	24.0	24.0	0.0	24.0	0.0	25437	568	623	560	Off	650	Off
12-Nov	24.0	24.0	24.0	0.0	24.0	0.0	25590	650	634	576	Off	650	Off
13-Nov	24.0	24.0	24.0	0.0	4.4	0.0	24388	656	719	700	Off	424	Off
14-Nov	24.0	24.0	24.0	0.0	5.3	0.0	29536	688	793	713	Off	564	183
15-Nov	24.0	24.0	24.0	0.0	24.0	5.7	35246	676	749	672	Off	667	612
16-Nov	24.0	24.0	24.0	0.0	24.0	24.0	36129	593	783	665	Off	690	608
17-Nov	24.0	24.0	24.0	0.0	24.0	24.0	32565	562	571	665	Off	690	607
18-Nov	24.0	24.0	24.0	0.0	24.0	24.0	34125	573	662	626	Off	672	680
19-Nov	24.0	24.0	24.0	0.0	24.0	24.0	35514	542	759	667	Off	690	694
20-Nov	24.0	24.0	24.0	0.0	24.0	20.5	36245	592	776	649	Off	690	671
21-Nov	24.0	24.0	24.0	0.0	24.0	3.1	36722	562	785	715	Off	653	708
22-Nov	24.0	24.0	24.0	0.0	24.0	24.0	37219	580	778	715	Off	645	775
23-Nov	24.0	24.0	24.0	0.0	24.0	24.0	36358	589	776	715	Off	610	758
24-Nov	24.0	24.0	24.0	0.0	24.0	24.0	34418	573	686	653	Off	588	701
25-Nov	24.0	24.0	24.0	0.0	24.0	24.0	35039	578	619	683	Off	690	612
26-Nov	24.0	24.0	24.0	0.0	24.0	24.0	36296	598	739	715	Off	690	565
27-Nov	24.0	24.0	24.0	0.0	24.0	24.0	36283	567	779	715	Off	690	570
28-Nov	24.0	24.0	24.0	0.0	24.0	24.0	36324	600	747	713	Off	690	570
29-Nov	24.0	24.0	24.0	0.0	24.0	24.0	35323	600	705	714	Off	647	570
30-Nov	24.0	24.0	24.0	0.0	24.0	24.0	34310	585	726	653	Off	584	570

NB: Operating hours less than 24 highlighted in pink.

	Medupi Power Station Monthly Emissions Report	Template Identifier	240-43921804	Rev	7
		Document Identifier	240-88543153	Rev	2
		Effective Date	November 2024		
		Review Date	November 2027		

2. Abatement Technology

TABLE 2: ABATEMENT EQUIPMENT CONTROL TECHNOLOGY EFFICIENCY FOR MONTH OF NOVEMBER 2024

Associated Unit/Stack	Technology Type	Efficiency	FFP Utilization
Unit 1	Fabric Filter Plant (FFP)	99.143%	100%
Unit 2	Fabric Filter Plant (FFP)	99.908%	100%
Unit 3	Fabric Filter Plant (FFP)	99.863%	Off
Unit 4	Fabric Filter Plant (FFP)	Off	Off
Unit 5	Fabric Filter Plant (FFP)	99.940%	100%
Unit 6	Fabric Filter Plant (FFP)	99.876%	100%

Note: FFP does not have bypass mode operation, hence plant 100% Utilised.

3. Energy Source Characteristics

TABLE 3: ENERGY SOURCE MATERIAL CHARACTERISTICS FOR THE MONTH OF NOVEMBER 2024

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	1.38
Ash Content	35 - 39	34.16

TABLE 4: ENERGY SOURCE MATERIAL CHARACTERISTICS FOR THE MONTH OF NOVEMBER 2024

Characteristic	Stipulated Range (%)	Monthly Average Content (%)
	Oil	
Sulphur Content	0.5 - 3.5	2.45
Ash Content	0.02 - 0.1	0.010

4. Emissions Reporting

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

The emission limits are as follows:

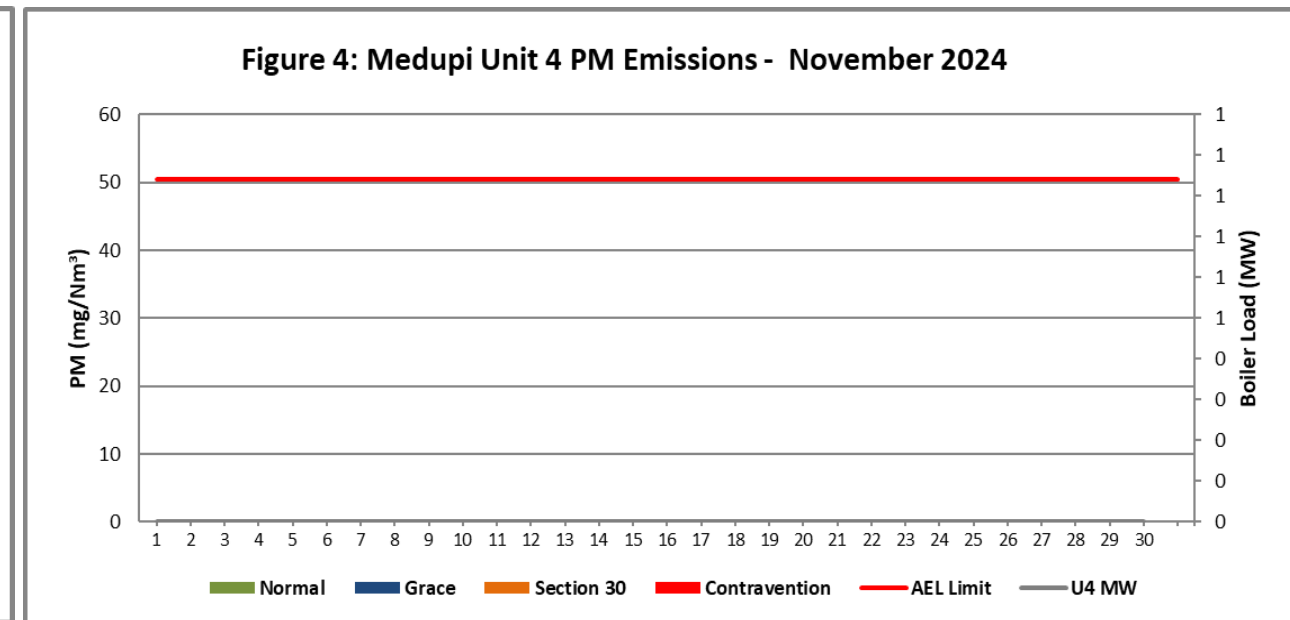
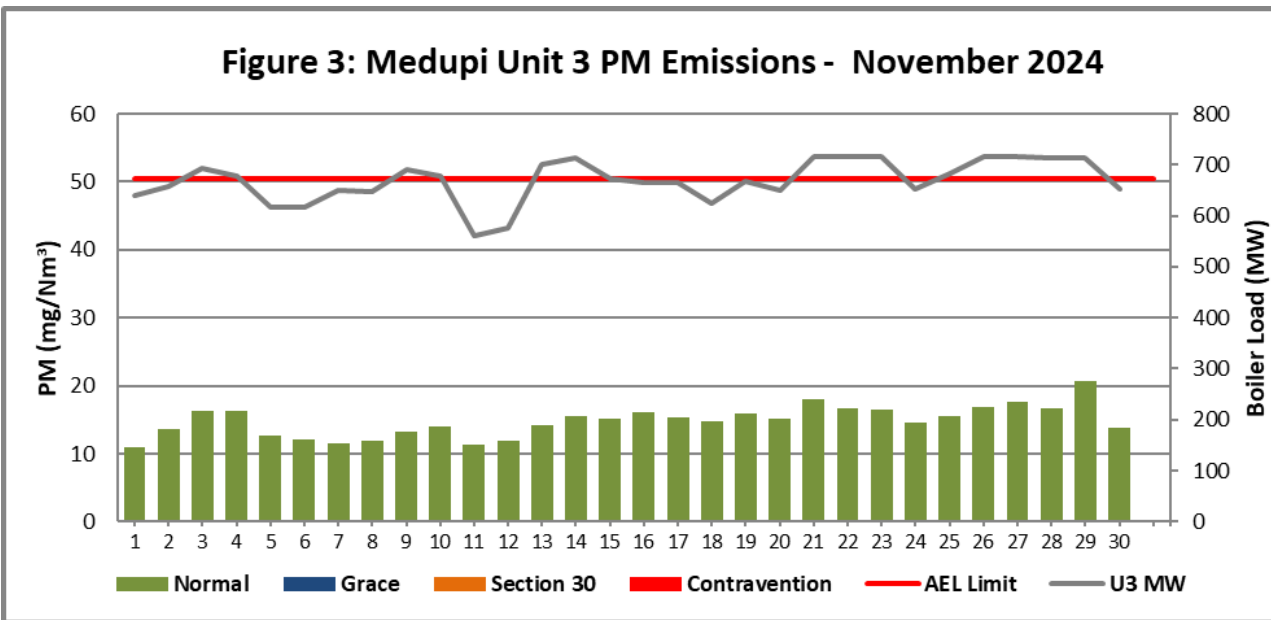
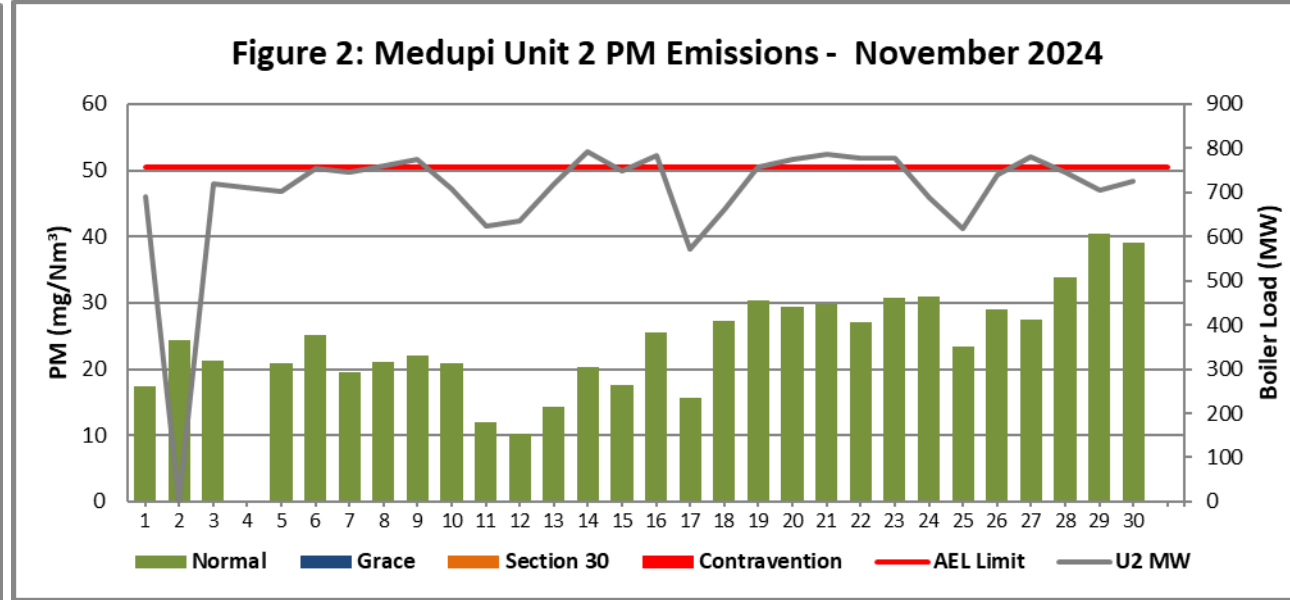
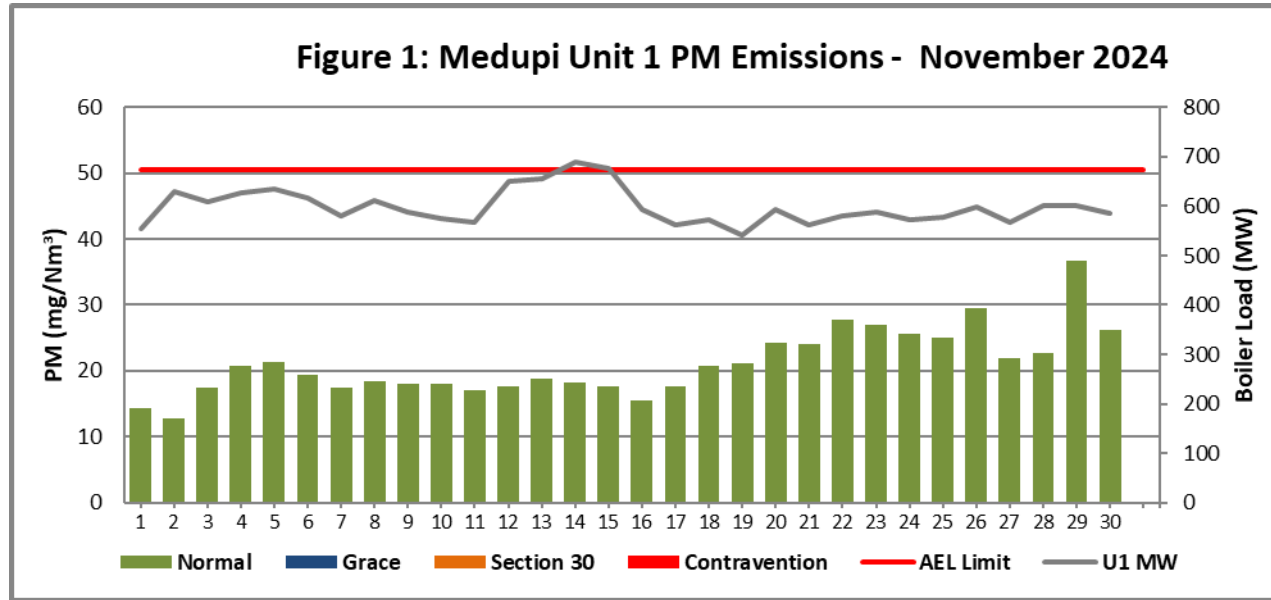
SO₂ Monthly = 3500 mg/Nm³

Dust Daily= 50 mg/Nm³

NO₂ Daily= 750 mg/Nm³

Template Identifier	240-43921804	Rev	7
Document Identifier	240-88543153	Rev	2
Effective Date	November 2024		
Review Date	November 2027		

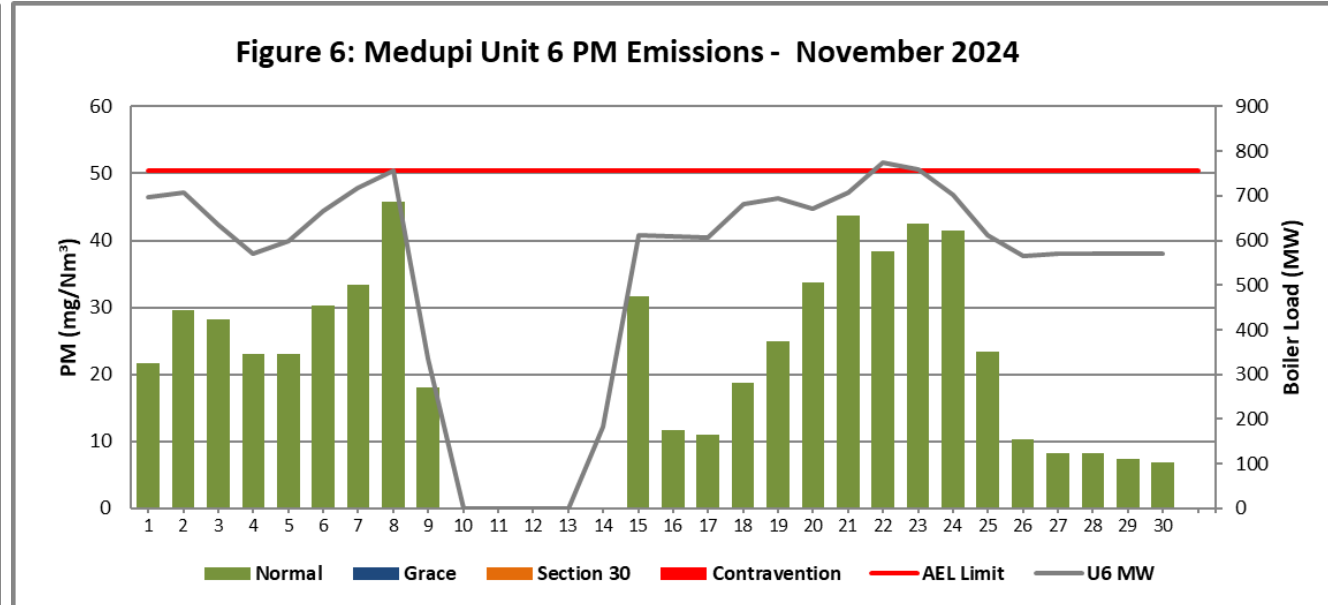
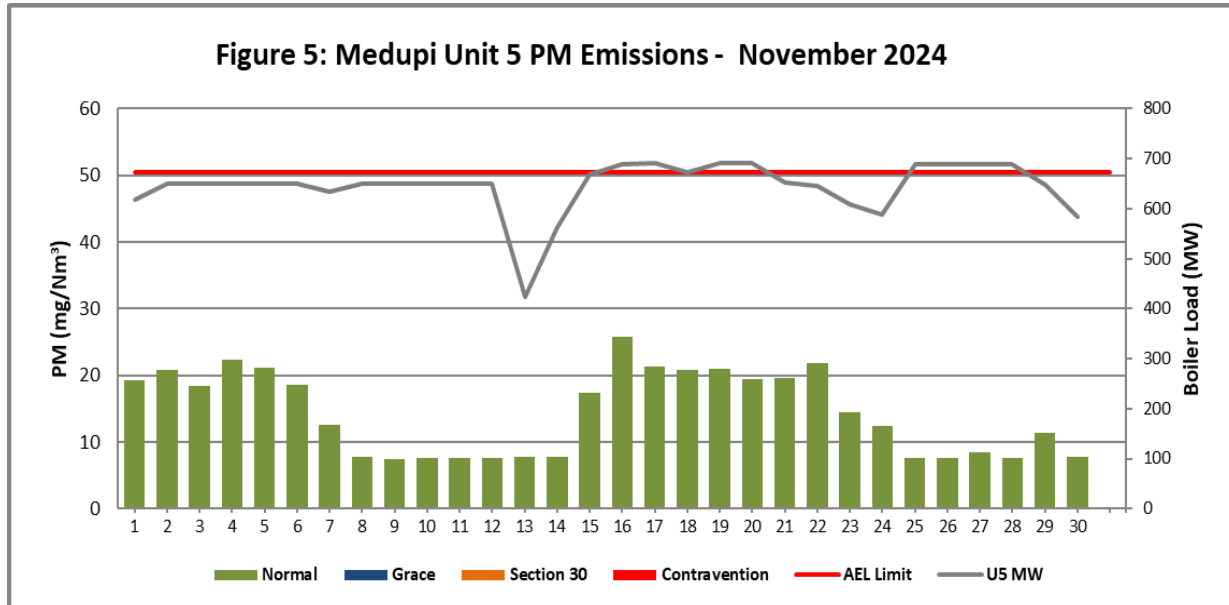
4.1 PM Daily Averages



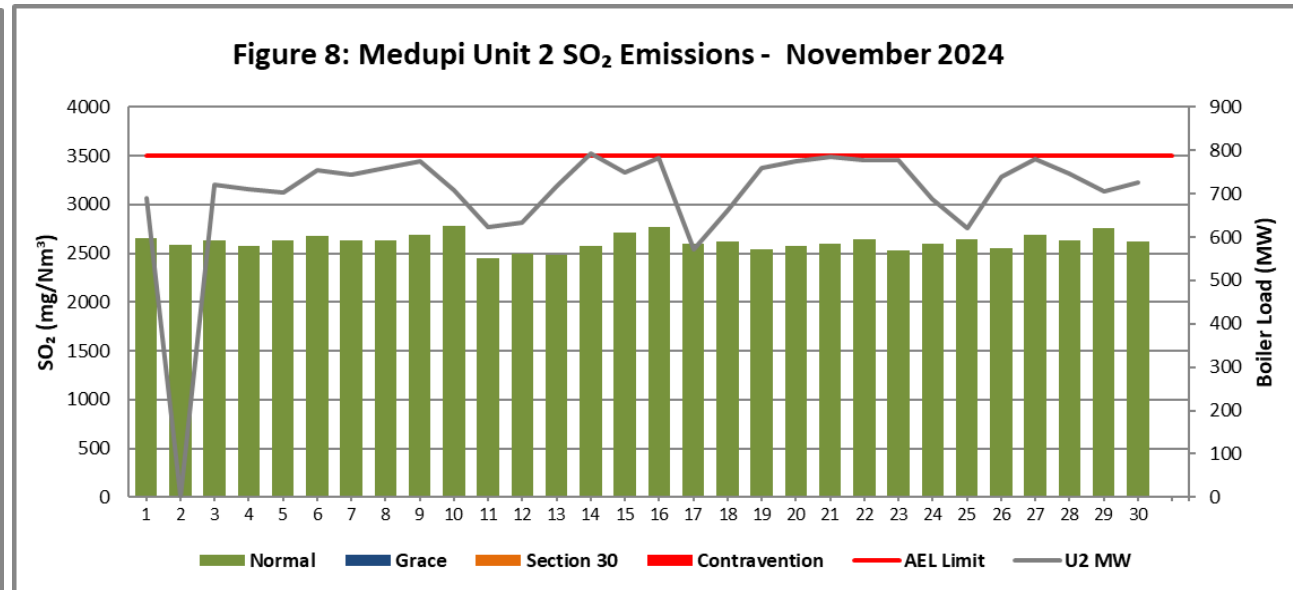
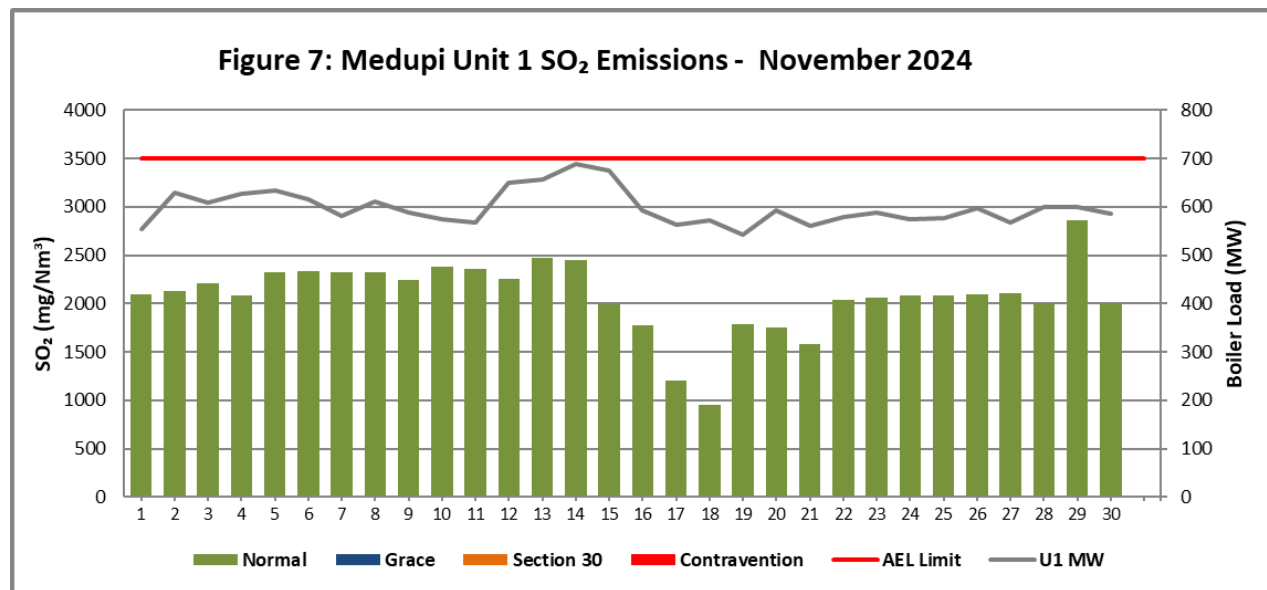


Medupi Power Station Monthly Emissions Report

Template Identifier	240-43921804	Rev	7
Document Identifier	240-88543153	Rev	2
Effective Date	November 2024		
Review Date	November 2027		



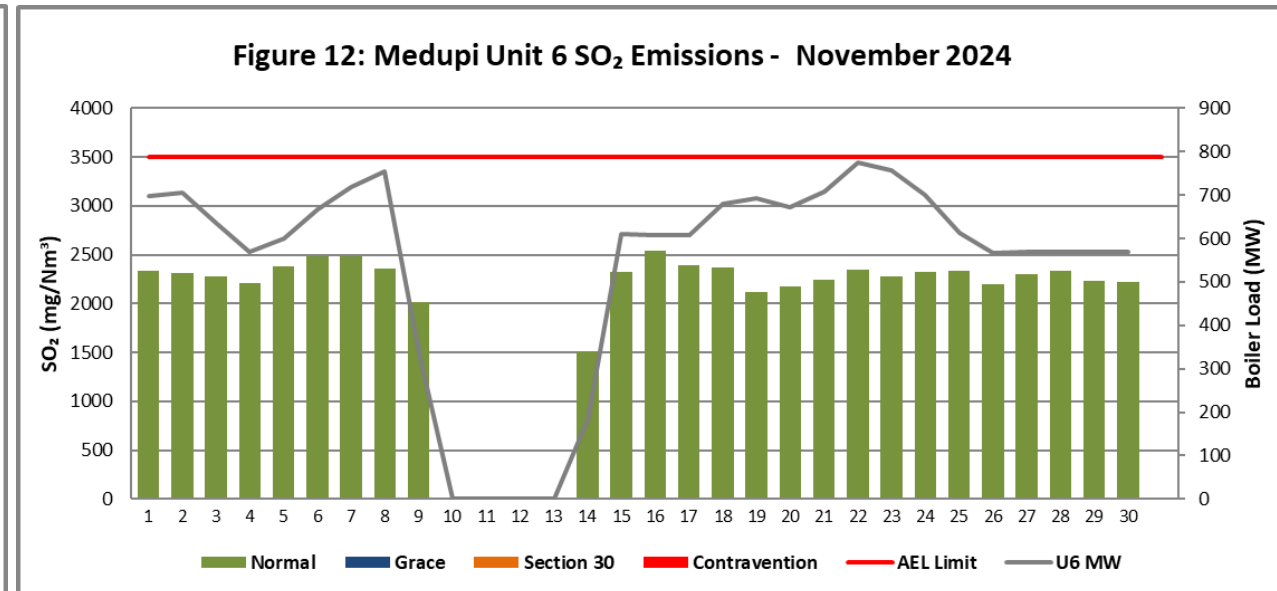
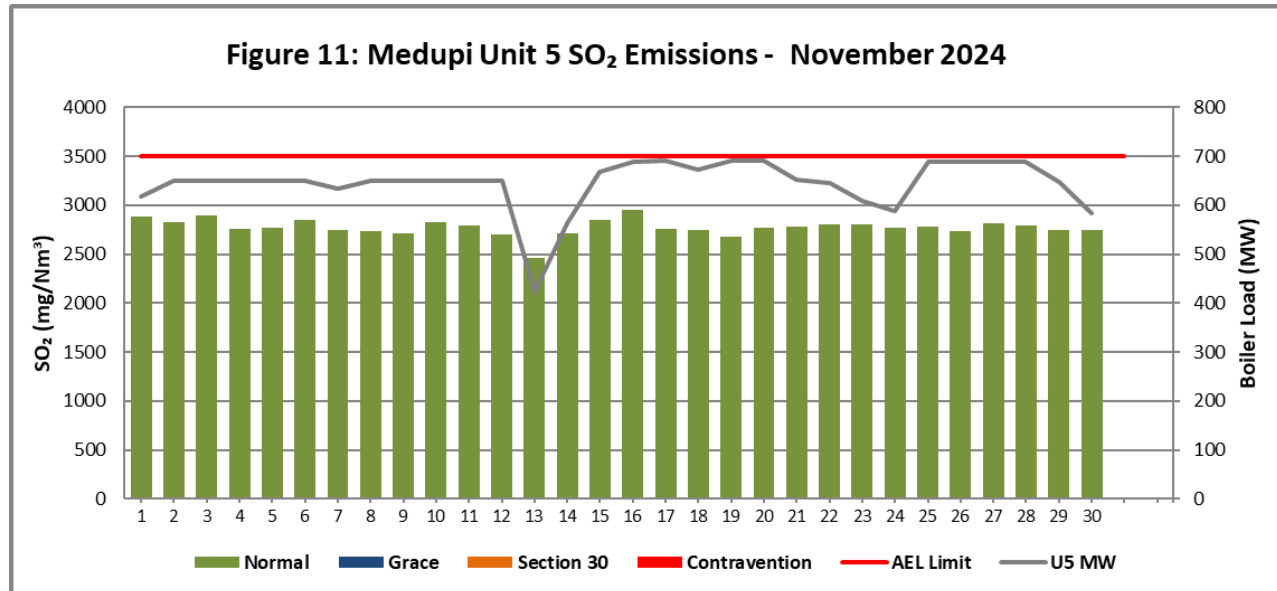
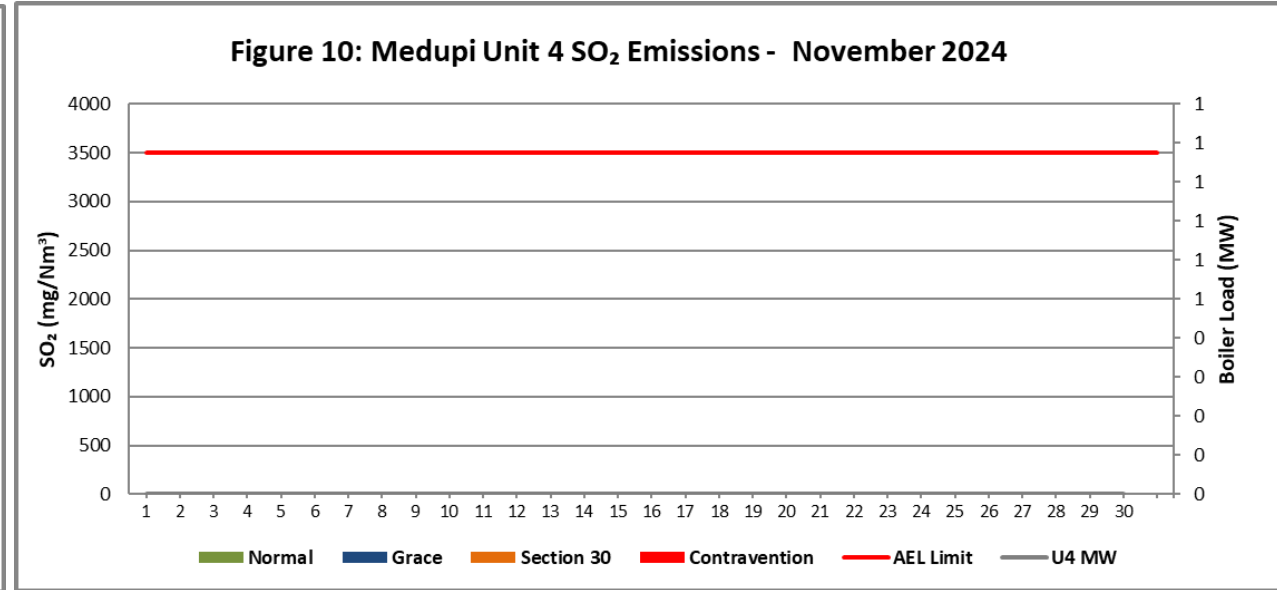
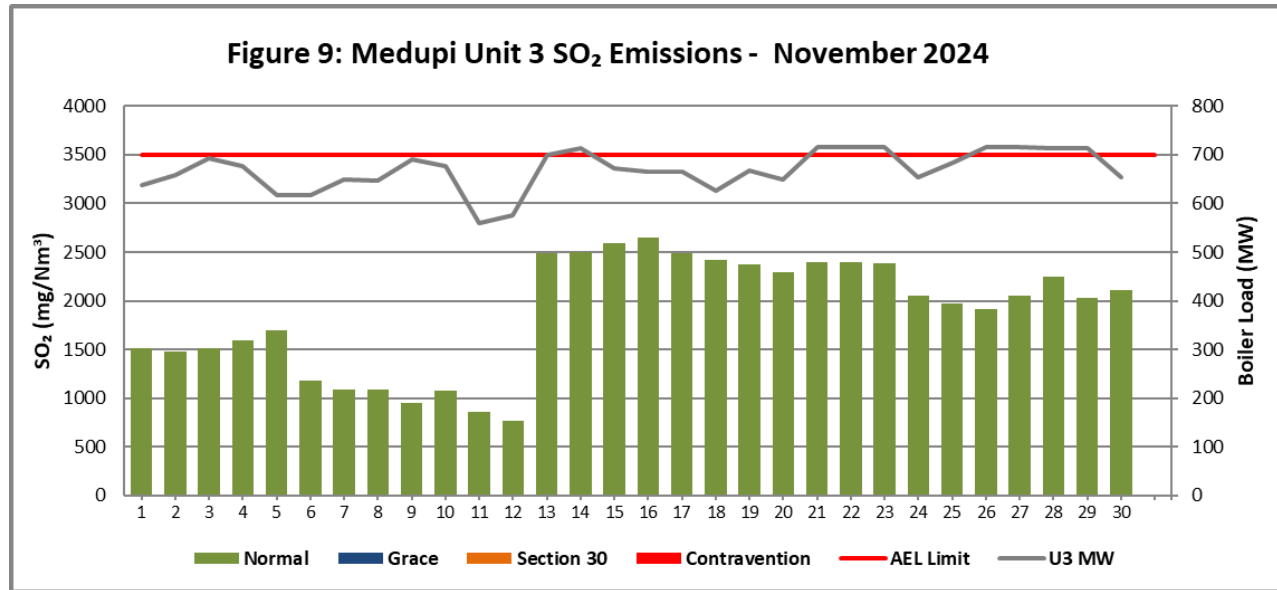
4.2 SO_x Daily Averages





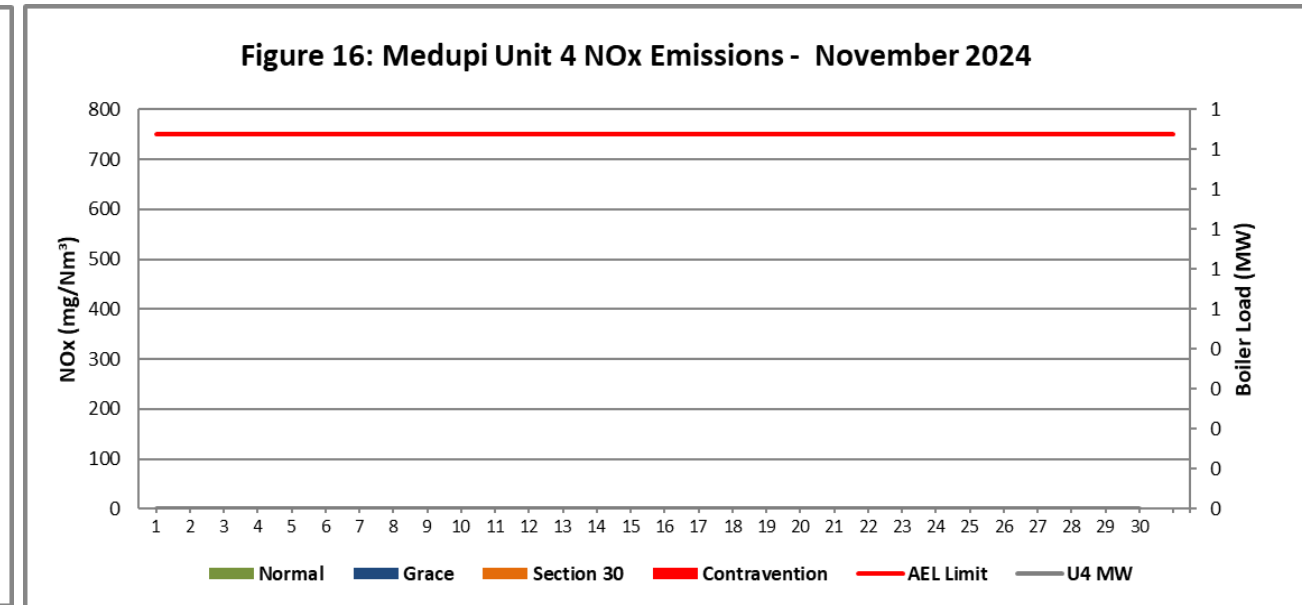
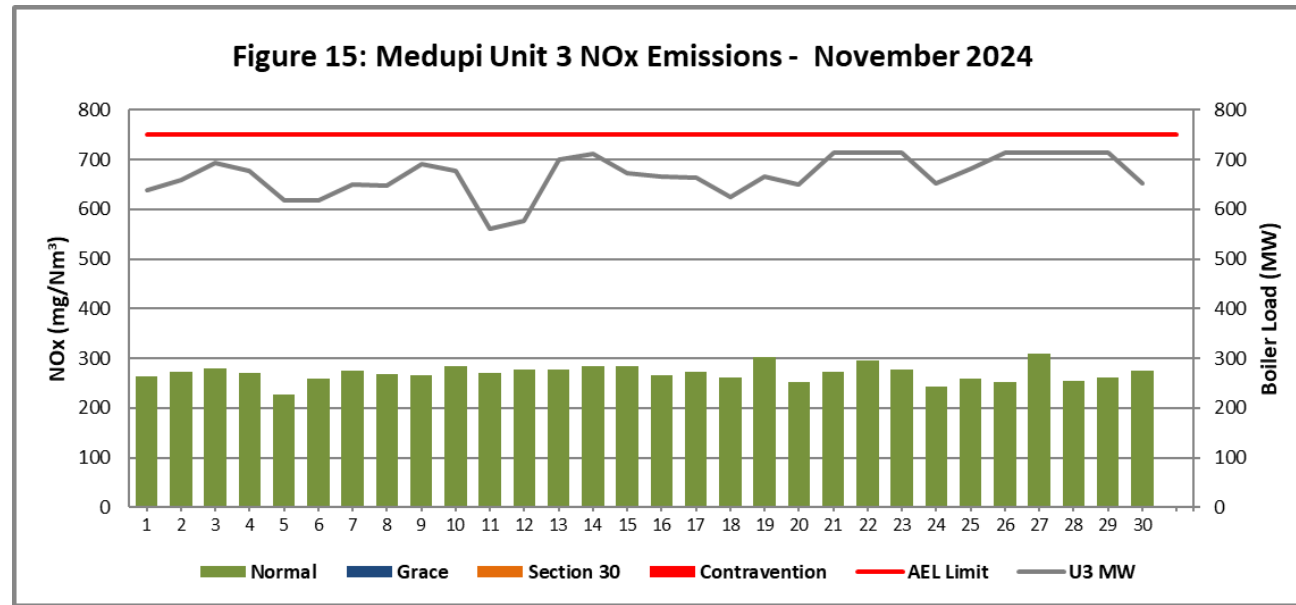
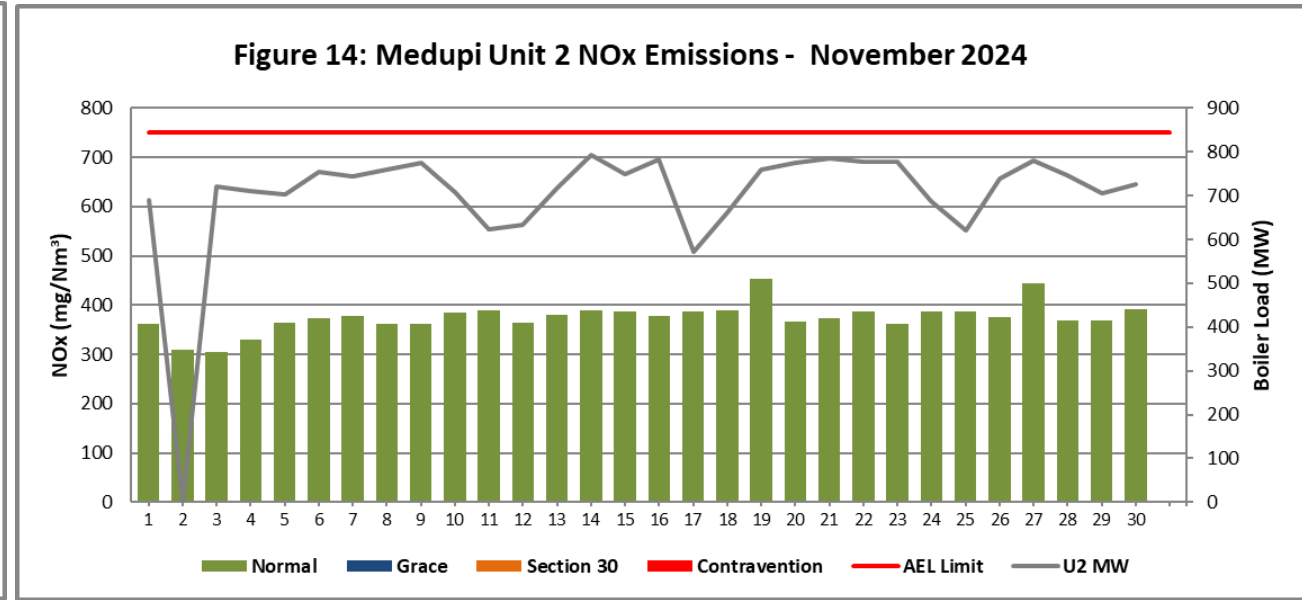
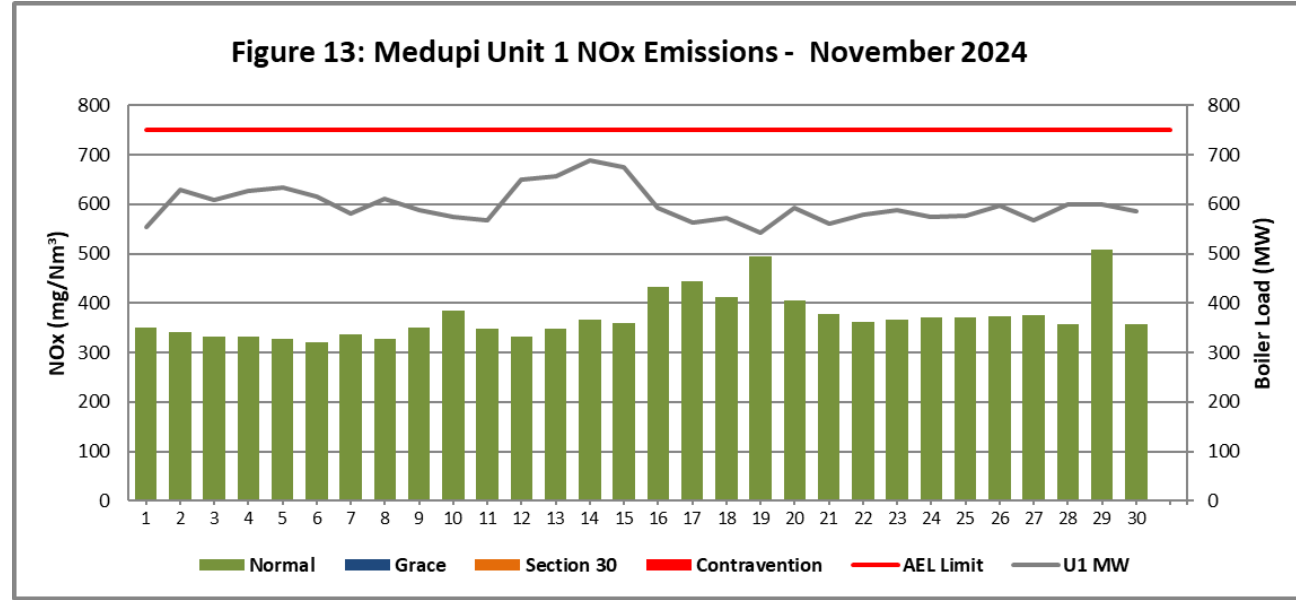
Medupi Power Station Monthly Emissions Report

Template Identifier	240-43921804	Rev	7
Document Identifier	240-88543153	Rev	2
Effective Date	November 2024		
Review Date	November 2027		



Template Identifier	240-43921804	Rev	7
Document Identifier	240-88543153	Rev	2
Effective Date	November 2024		
Review Date	November 2027		

4.3 NOx Daily Averages



Template Identifier	240-43921804	Rev	7
Document Identifier	240-88543153	Rev	2
Effective Date	November 2024		
Review Date	November 2027		

Figure 17: Medupi Unit 5 NOx Emissions - November 2024

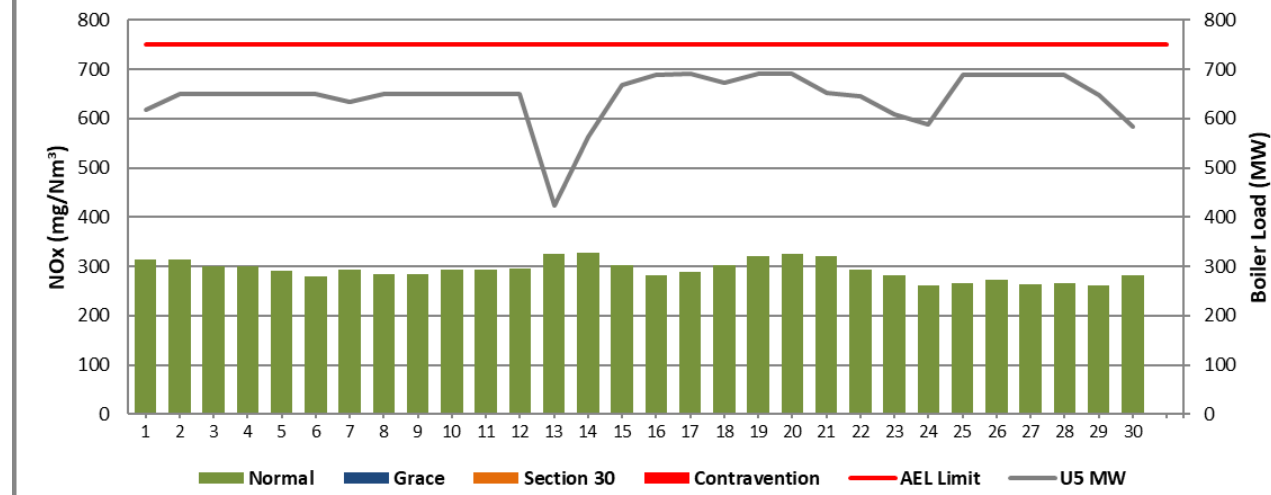
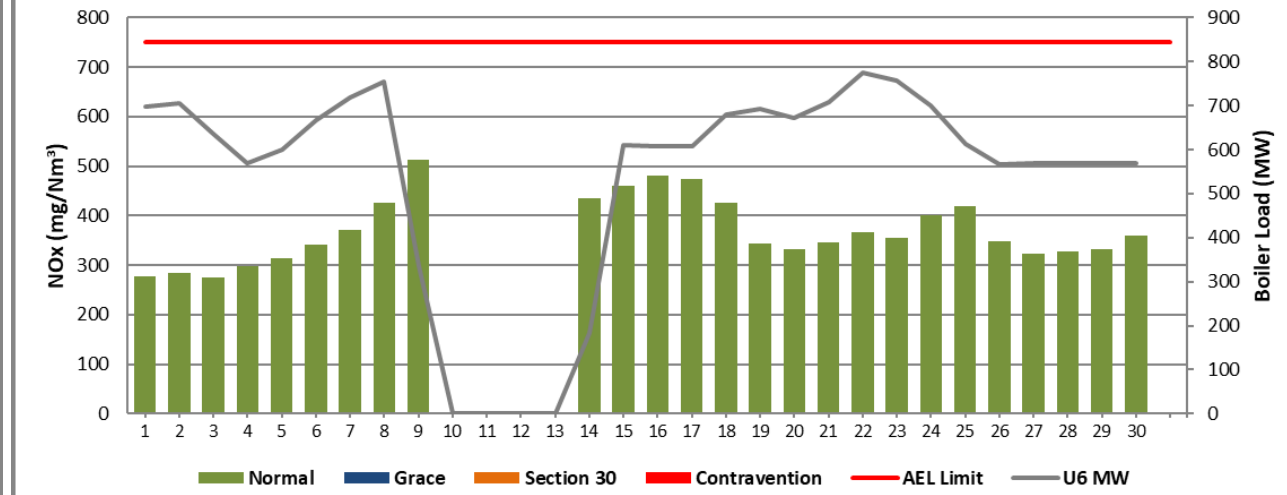


Figure 18: Medupi Unit 6 NOx Emissions - November 2024




	Medupi Power Station Monthly Emissions Report	Template Identifier	240-43921804	Rev	7
		Document Identifier	240-88543153	Rev	2
		Effective Date	November 2024		
		Review Date	November 2027		

TABLE 5: MONTHLY TONNAGES FOR THE MONTH OF NOVEMBER 2024

Associated Unit/Stack	PM	SO ₂	NO ₂
Unit 1	31.2	3 120.0	552.4
Unit 2	61.2	6 781.7	972.4
Unit 3	33.4	4 217.1	607.9
Unit 4	Off	Off	Off
Unit 5	31.8	6 300.3	661.2
Unit 6	51.2	5 109.6	803.3
SUM (Tons)	208.8	25 528.6	3 597.3

TABLE 6: MONTHLY AVERAGES FOR THE MONTH OF NOVEMBER 2024

Associated Unit/Stack	Average PM (mg/Nm ³)	Average SO _x (mg/Nm ³)	Average NO _x (mg/Nm ³)
Unit 1	21.1	2 078.6	372.2
Unit 2	24.4	2 620.1	375.5
Unit 3	14.8	1 871.9	270.4
Unit 4	Off	Off	Off
Unit 5	14.4	2 773.7	292.7
Unit 6	24.6	2 273.5	370.2

5. Continuous Emission Monitoring Systems (CEMS)

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

TABLE 7: PERIODS DURING WHICH CEMS WAS INOPERATIVE/MALFUNCTIONING

Date	CEMS status	Comments
NA	NA	NA


	Medupi Power Station Monthly Emissions Report	Template Identifier	240-43921804	Rev	7
		Document Identifier	240-88543153	Rev	2
		Effective Date	November 2024		
		Review Date	November 2027		

TABLE 8: CEMS MONITOR RELIABILITY PERCENTAGE (%)

Associated Unit/Stack	PM	SO ₂	NO ₂	O ₂
Unit 1	97.9	97.5	98.3	96.1
Unit 2	96.6	98.5	96.7	98.5
Unit 3	100.0	94.7	95.7	99.4
Unit 4	Off	Off	Off	Off
Unit 5	100.0	99.7	99.7	99.7
Unit 6	100.0	99.7	99.8	97.2

6. CEMS Calibration certificates and equipment used for calibration.

A service provider was appointed to calibrate CEMS equipment at Medupi Power Station, calibration certificates are in place and may be made available upon request. Verification of the CEMS after calibration is conducted internally by Eskom.

7. Ambient Air Quality Monitoring Report

The Ambient Air Quality Monitoring report and Dust Fallout report for the month of November 2024 will be submitted before the end of December 2024.

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.




	Medupi Power Station Monthly Emissions Report	Template Identifier	240-43921804	Rev	7
		Document Identifier	240-88543153	Rev	2
		Effective Date	November 2024		
		Review Date	November 2027		

TABLE 9: TOTAL VOLATILE ORGANIC COMPOUND (TVOC) FOR NOVEMBER 2024

		
CALCULATION OF EMISSIONS OF TOTAL VOLATILE COMPOUNDS FROM FUEL OIL STORAGE TANKS*		
Date:	Saturday, 30 November 2024	
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	
<p style="text-align: center;"> 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 <i>any</i> other cells without consulting the AQ CoE </p>		
MONTH:	November	
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:	1305	tons/month
Molecular weight of the fuel oil:		Lb/lb-mole
METEROLOGICAL DATA FOR THE MONTH	Data	Unit
Daily average ambient temperature	26.22	°C
Daily maximum ambient temperature	32.63	°C
Daily minimum ambient temperature	20.19	°C
Daily ambient temperature range	12.44	°C
Daily total insolation factor	6.14	kWh/m ² /day
Tank paint colour	Aluminum/Specular	NA
Tank paint solar absorbance	0.39	NA
FINAL OUTPUT:	Result	Unit
Breathing losses:	0.72	kg/month
Working losses:	0.04	kg/month
TOTAL LOSSES (Total TVOC Emissions for the month):	0.75	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, Tritech Consulting Engineers, 85-93 Chevy Chase Street, Jamaica, NY 11432 USA, Tel - 718-454-3920, Fax - 718-454-6330, e-mail - Peress.J@nvc.rr.com. </small>		

	Medupi Power Station Monthly Emissions Report	Template Identifier	240-43921804	Rev	7
		Document Identifier	240-88543153	Rev	2
		Effective Date	November 2024		
		Review Date	November 2027		


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

No awareness campaign conducted for November 2024.

10. Complaints Register

TABLE 10: COMPLAINTS FOR THE MONTH OF NOVEMBER 2024

Name/ Source Code	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
Exxaro	Dust Fallout	3925 mg/m ² /day	18 November 2024 10 December 2024	Ash dust blown into Exxaro pit is attributed to strong winds and dominant wind direction for a particular day/s.	Eskom responded to Exxaro in the form of a letter.

	Medupi Power Station Monthly Emissions Report	Template Identifier	240-43921804	Rev	7
		Document Identifier	240-88543153	Rev	2
	Effective Date	November 2024			
	Review Date	November 2027			

Compiled By: **Ramokone Makgoka**
Officer Environmental Management



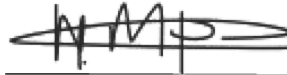
Date: 17/12/2024

Verified by: **Malose Langa**
System Engineer Boiler



Date: 2024/12/18

Verified by: **Shu Mpangase**
System Engineer C&I



Date: 2024/12/18

Supported by: **Mokgadi Dikgale**
Environmental Manager



Date: 2024/12/18


Supported by: **Sithokozile Hlongwa**
(Acting) Engineering Group Manager



Date: 20/12/2024

I Thozama Gangi, declares that the information provided in this report is accurate and correct.

Yours sincerely



Date: 2024/12/29

Thozama Gangi
GENERAL MANAGER (Acting): MEDUPI POWER STATION