



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	

Date	Reportable hours of Operation						Coal usage	Production rate (MW)					
	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 6		U2	U3	U4	U5	U6	
01-June-21	24,0	24,0	24,0	0,0	24,0	24,0	27267	648	606	715	0	500	
02-June-21	12,0	24,0	24,0	0,0	2,9	21577	593	513	665	0	329	500	
03-June-21	10,3	24,0	24,0	0,0	7,4	22607	451	452	661	0	491	550	
04-June-21	24,0	24,0	24,0	0,0	24,0	25603	490	513	690	135	550	550	
05-June-21	24,0	24,0	24,0	0,0	24,0	30369	555	681	671	367	550	548	
06-June-21	24,0	24,0	24,0	23,3	15,9	29580	620	652	682	369	548	468	
07-June-21	22,3	24,0	24,0	24,0	0,0	30863	668	681	626	481	468	574	
08-June-21	0,0	24,0	24,0	24,0	20,0	32564	692	695	560	447	574	566	
09-June-21	23,8	24,0	24,0	1,6	24,0	27318	642	705	554	411	566	605	
10-June-21	24,0	24,0	24,0	0,0	24,0	27834	737	618	558	0	605	649	
11-June-21	24,0	24,0	24,0	0,0	24,0	29017	732	629	673	0	649	650	
12-June-21	24,0	24,0	24,0	0,0	24,0	27925	646	687	610	0	650	650	
13-June-21	24,0	24,0	24,0	0,0	24,0	28420	600	690	679	0	650	650	
14-June-21	24,0	24,0	24,0	0,0	24,0	29829	519	601	687	256	650	650	
15-June-21	24,0	24,0	24,0	23,1	24,0	25293	317	358	686	302	650	650	
16-June-21	24,0	24,0	24,0	7,3	24,0	26417	427	412	700	326	650	615	
17-June-21	24,0	24,0	24,0	4,4	24,0	29444	461	478	683	431	635	625	
18-June-21	24,0	24,0	24,0	24,0	24,0	31456	513	531	692	485	625	615	
19-June-21	24,0	24,0	24,0	24,0	24,0	33176	646	700	557	513	615	538	
21-June-21	24,0	24,0	24,0	24,0	24,0	28926	430	670	618	611	538	479	
21-June-21	24,0	24,0	24,0	24,0	24,0	26950	586	384	600	470	479	528	
22-June-21	24,0	24,0	24,0	24,0	24,0	27579	455	476	600	465	528	582	
23-June-21	24,0	24,0	24,0	24,0	24,0	26704	436	465	451	463	582	354	
24-June-21	14,8	24,0	24,0	15,6	5,6	21030	400	404	600	577	354	0	
25-June-21	3,3	24,0	24,0	5,6	0,0	17318	495	579	657	324	0	0	
26-June-21	24,0	7,0	0,0	0,0	0,0	13516	620	704	439	0	0	0	
27-June-21	24,0	0,3	21,8	0,0	0,0	20272	632	600	509	318	0	0	
28-June-21	24,0	24,0	24,0	5,6	0,0	26067	739	577	478	608	0	0	
29-June-21	24,0	24,0	24,0	24,0	0,0	28139	747	735	486	663	0	0	
30-June-21	24,0	24,0	24,0	24,0	0,0	24642	573	619	490	607	0	0	

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4. Emissions Reporting

Medupi Power Station uses Continuous Emission Monitoring System which uses the extractive method for analysis.
 The emission limits are as follows:

Characteristic	Stipulated Range (%)	Monthly Average Content (%)
Oil		
Sulphur Content	0.5 - 3.5	2.0
Ash Content	0.02 - 0.1	0.010

Table 5: Energy Source Material Characteristics for the month of June 2021

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	1.22
Ash Content	35 - 39	33.13

Table 4: Energy Source Material Characteristics for the month of June 2021


3. Energy Source Characteristics

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

Associated Unit/Stack	Technology Type	Efficiency
Unit 1	Fabric Filter Plant (FFP)	-
Unit 2	Fabric Filter Plant (FFP)	99.970%
Unit 3	Fabric Filter Plant (FFP)	99.885%
Unit 4	Fabric Filter Plant (FFP)	99.957%
Unit 5	Fabric Filter Plant (FFP)	99.992%
Unit 6	Fabric Filter Plant (FFP)	99.882%

Table 3: Abatement Equipment Control Technology efficiency for month of June 2021

2. Abatement Technology

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SO₂ Monthly = 3500 mg/Nm³

Dust Daily = 50 mg/Nm³

NO₂ Daily = 750 mg/Nm³

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PM daily Average

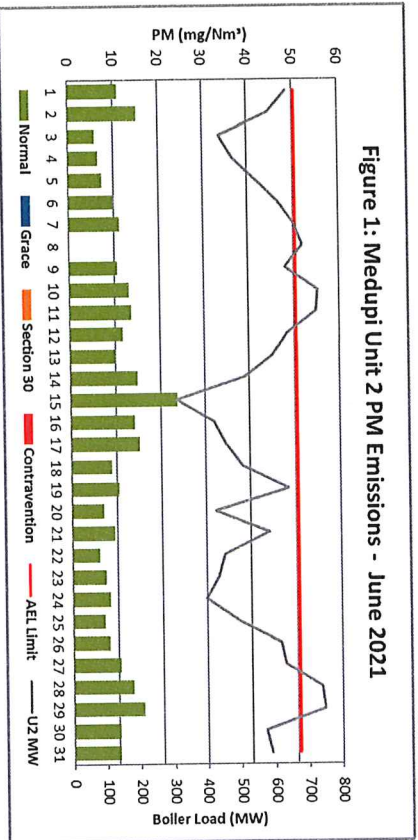


Figure 1: Medupi Unit 2 PM Emissions - June 2021

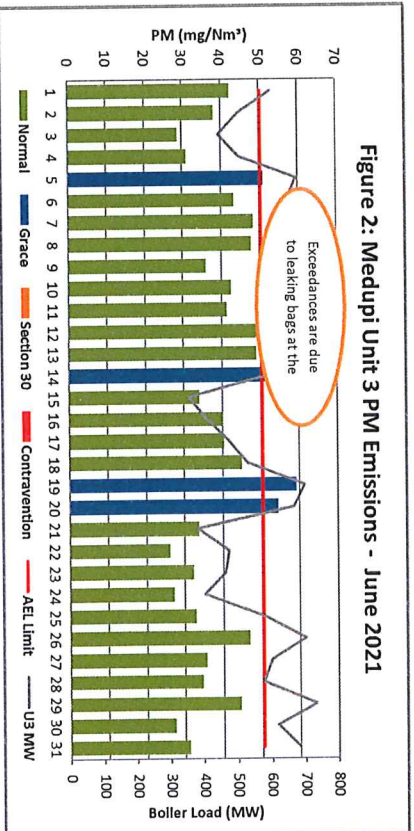


Figure 2: Medupi Unit 3 PM Emissions - June 2021

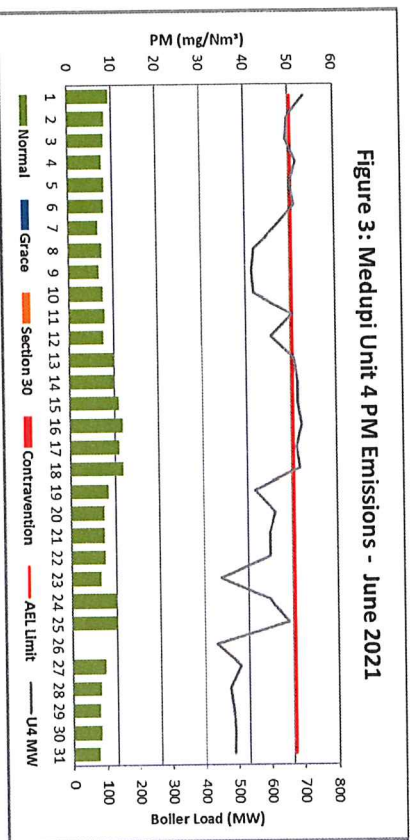


Figure 3: Medupi Unit 4 PM Emissions - June 2021

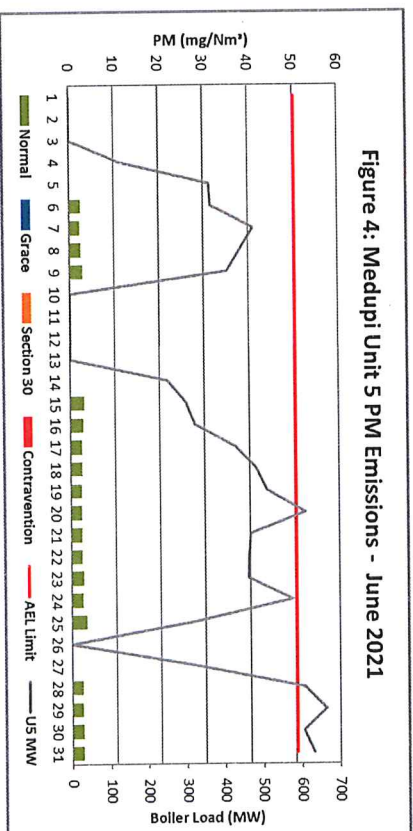


Figure 4: Medupi Unit 5 PM Emissions - June 2021

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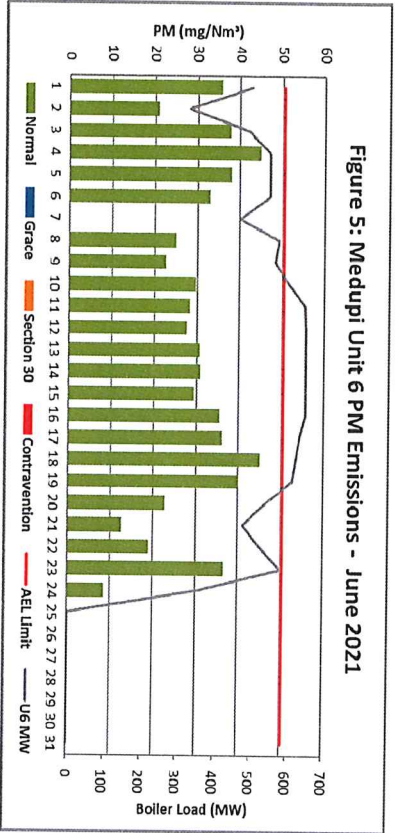


Figure 5: Medupi Unit 6 PM Emissions - June 2021

SOx Daily Average

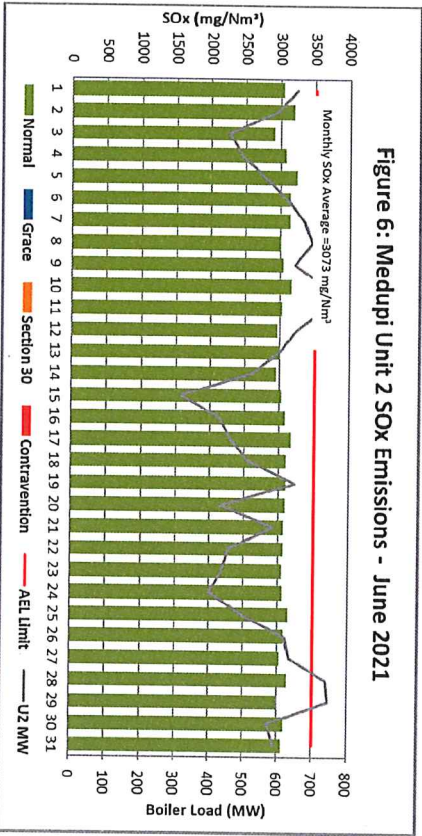


Figure 6: Medupi Unit 2 SOx Emissions - June 2021

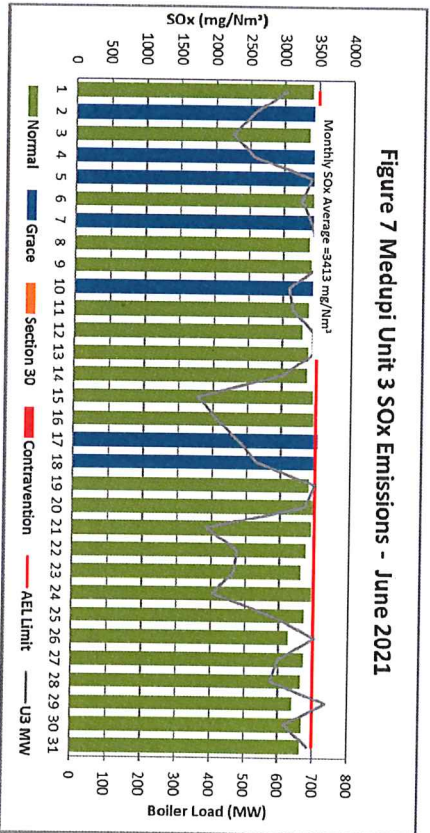


Figure 7: Medupi Unit 3 SOx Emissions - June 2021

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Figure 8: Medupi Unit 4 SOx Emissions - June 2021

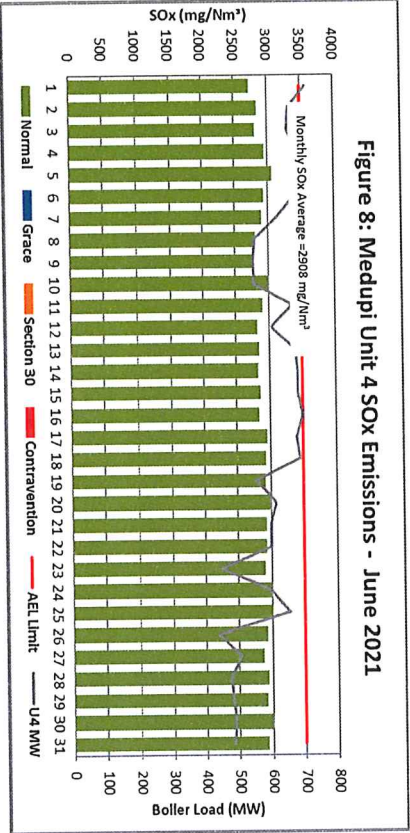


Figure 9: Medupi Unit 5 SOx Emissions - June 2021

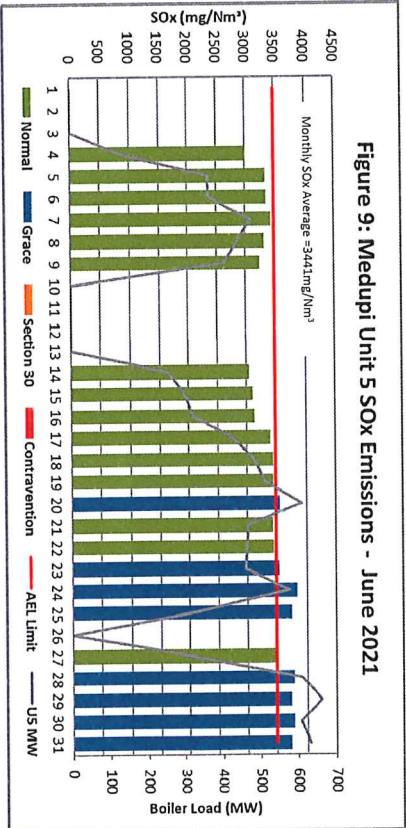
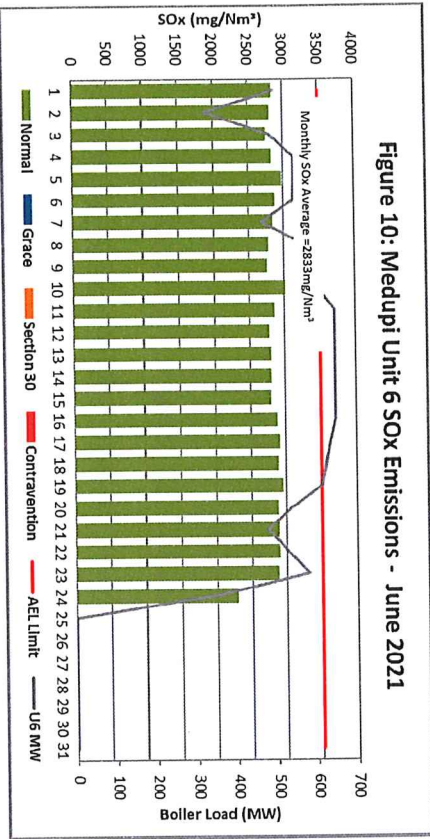


Figure 10: Medupi Unit 6 SOx Emissions - June 2021



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NOx daily average emissions

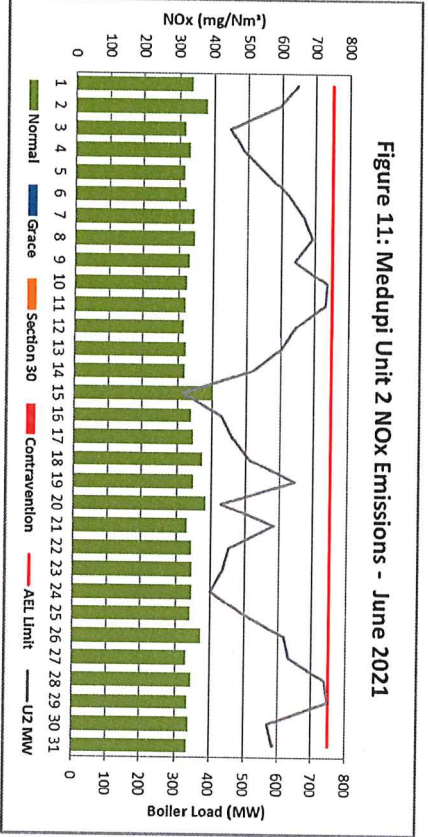


Figure 11: Medupi Unit 2 NOx Emissions - June 2021

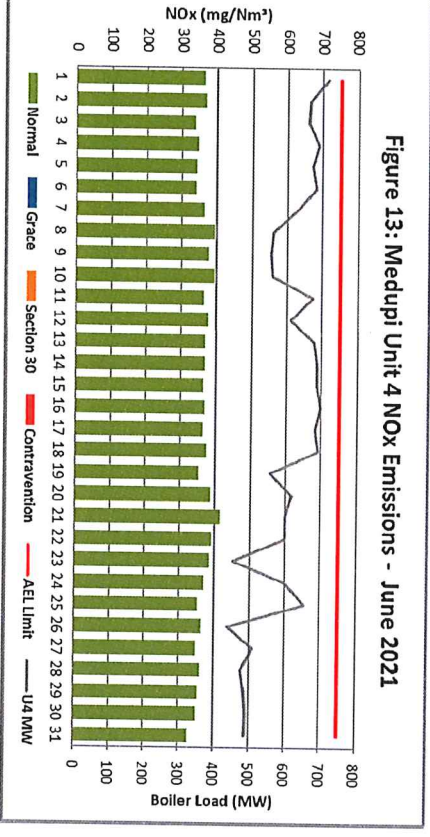


Figure 13: Medupi Unit 4 NOx Emissions - June 2021

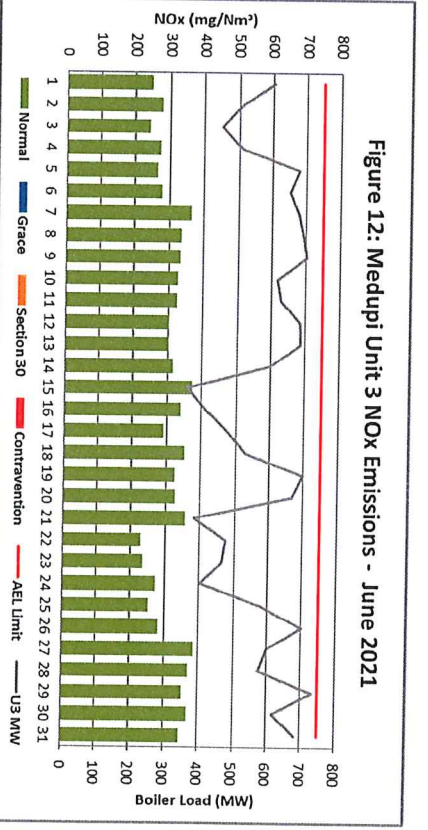


Figure 12: Medupi Unit 3 NOx Emissions - June 2021

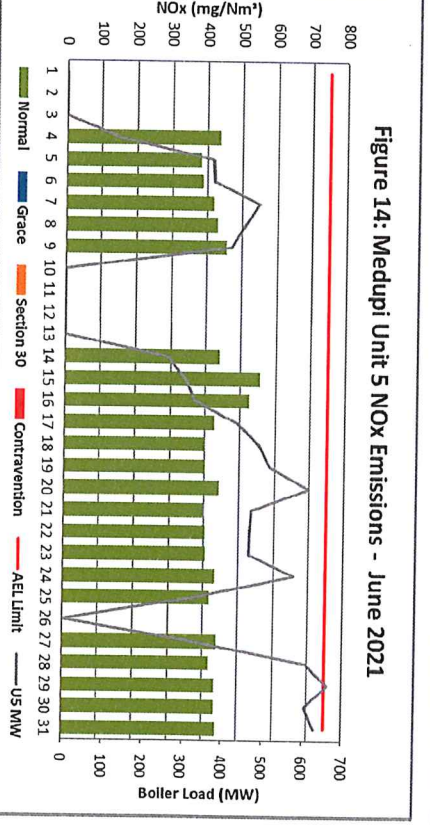


Figure 14: Medupi Unit 5 NOx Emissions - June 2021

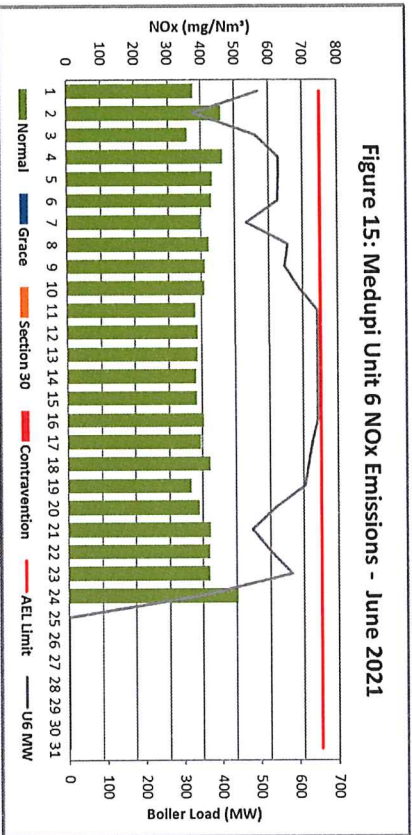
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Medupi Power Station graphical representation of the daily average emissions

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Table 7: Monthly tonnages for the month of June 2021

Associated Unit/Stack	PM	SO ₂	NO ₂	CO
Unit 1	0,0	0	0	0
Unit 2	16,5	4 907	543	35
Unit 3	65,4	5 544	507	73
Unit 4	24,6	8 467	1 070	67
Unit 5	2,1	3 694	450	57
Unit 6	48,5	4 783	676	0
SUM	157,1	27 397	3 245	233

5. Continuous Emission Monitoring Systems (CEMS)

Unit 2, 3, 4, 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
June 2021	N/A	N/A	N/A

Table 7: CEMS Monitor Reliability

Associated Unit/Stack	PM	SO ₂	NO	CO ₂	O ₂
Unit 1	-	-	-	-	-
Unit 2	100,0	98,2	98,2	100,0	98,2
Unit 3	100,0	100,0	100,0	100,0	99,7
Unit 4	100,0	99,9	99,9	0,0	99,9
Unit 5	100,0	98,5	98,5	0,0	98,5
Unit 6	100,0	99,6	99,6	0,0	95,5

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6. CEMS Calibration certificates and equipment used for calibration

CEMS calibration certificates shall be made available for all units 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.

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CALCULATION OF EMISSIONS OF TOTAL VOLATILE COMPOUNDS FROM FUEL OIL STORAGE TANKS*	
Date: Wednesday, 30 June 2021	
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 blue cells below	
Choose from a dropdown menu in the green cells	
The total VOC emissions for the month are in the red cells	
IMPORTANT: Do not change any other cells without consulting the AQ CoE	
MONTH:	June
GENERAL INFORMATION:	
Unit: Data	
Total number of fuel oil tanks:	2
Height of tank:	14,2 m
Diameter of tank:	12 m
Net fuel oil throughput for the month:	5640 tons/month
Molecular weight of the fuel oil:	166,00 Lb/lb-mole
METEOROLOGICAL DATA FOR THE MONTH	
Unit: Data	
Daily average ambient temperature	16,61 °C
Daily maximum ambient temperature	25,19 °C
Daily minimum ambient temperature	9,38 °C
Daily ambient temperature range	15,81 °C
Daily total insulation factor	3,45 kWh/m ² /day
Tank paint colour	Aluminum/Specular
Tank paint solar absorbance	0,39
Unit: NA	
FINAL OUTPUT:	
Breathing losses:	
Working losses:	0,16 kg/month
TOTAL LOSSES (Total TVOC Emissions for the month):	0,87 kg/month
*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 - PeressJ@nyc.rr.com.	

Table 8: Total Volatile Organic Compound (TVOC) for June 2021

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

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

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

No awareness campaign.

10. Complaints Register

Table 9: Complaints for the month of June 2021

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

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Compiled by:

Thabo Khoza

Senior Environmental Advisor

Verified by:

Malose Langa

System Engineer Boiler

Supported by:

Mokgadi Dikgale

Environmental Manager

Supported by:

Jabulani Mkhathwa

Engineering Group Manager

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

Yours sincerely,

I Zweli Witbooi

GENERAL MANAGER: MEDUPI POWER STATION

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