



Medupi Power Station Monthly Emissions Report

Identifier	240-43921804	Rev	6
Document Identifier	240-88543153	Rev	1
Effective Date	January 2018		
Review Date	January 2021		

Phumudzo Thivhafuni

Date: 2018/11/20

Limpopo Dept. of Economic Development, Environment and Tourism

Enquiries:

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0700

Ref: 12/4/12L-W2/A3 – Oct 2018

Dear Phumudzo

MEDUPI POWER STATION MONTHLY EMISSIONS REPORT FOR THE MONTH OF OCTOBER 2018

This document serves as the monthly report required in terms of Section 7.7.1 of Medupi Power Station Provisional Atmospheric Emission License (AEL), 12/4/12L-W2/A3.

This report is a reflection of Unit 4, 5 and 6 gaseous and particulate emissions performance against the AEL limit for the month of October 2018 only. Unit 6 was on outages throughout the reporting period.

1. Raw Materials and Products

Table 1: Quantity of raw materials and products used/produced for Unit 4, 5 and 6 in October 2018

Raw Materials and Products used	Raw Material Type	Unit	Maximum Permitted Consumption/ Rate (Quantity)	Unit 4, 5 and 6 consumption October 2018
	Coal	Tons/month	1 875 000	356544
	Fuel Oil	Tons/month	40 000	1649.5
Production Rates	Product/ By-Product Name	Unit	Maximum Production Capacity Permitted (Quantity)	Unit 4, 5 and 6 Production Rate in Month of October 2018
	Energy	MW	4800	1149
	Ash Emitted	Tons/month	not specified	96.3

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Table 2: Daily consumption and production rates


Date	Reportable hours of Operation			Fuel Consumption (tons)				Production rate (MW)		
	Unit 4	Unit 5	Unit 6	Oil			Coal	U4	U5	U6
				Aux Boiler	Unit 4, 5 & 6	Total	Unit 4, 5 & 6)			
01-Oct -18	24.0	24.0		0	16	16	12620	619	585	
02-Oct -18	24.0	24.0		3.1	32	35.1	13006	615	615	
03-Oct -18	24.0	24.0		0	4	4	12898	630	613	
04-Oct -18	24.0	24.0		0	1	1	12664	630	558	
05-Oct -18	24.0	24.0		0	35	35	9909	549	533	
06-Oct -18	24.0	24.0		0	204	204	13194	638	610	
07-Oct -18	9.8	10.1		0	5	5	7131	537	556	
08-Oct-18	2.5	6.3		0	221	221	12789	617	608	
09-Oct -18	24.0	24.0		5.9	11	16.9	12670	616	569	
10-Oct -18	24.0	24.0		3.7	17	20.67	13313	622	671	
11-Oct -18	24.0	24.0		0.0	0	0.05	13437	620	643	
12-Oct -18	2.9	24.0		0	0	0	12635	606	670	
13-Oct -18	14.0	24.0		0	2	2	13338	645	670	
14-Oct -18	24.0	24.0		0	0	0	12863	645	560	
15-Oct -18	24.0	24.0		0	6	6	12300	653	529	
16-Oct -18	24.0	24.0		0	12	12	12415	659	472	
17-Oct -18	24.0	24.0		0	62	62	12940	650	561	
18-Oct -18	24.0	24.0		0	28	28	13259	645	604	
19-Oct -18	24.0	20.0		1.6	41	42.58	7207	645	48	
20-Oct -18	24.0	0.0		0	0	0	6658	645	43	
21-Oct -18	24.0	0.0		0	0	0.0	6665	633		
22-Oct -18	24.0	0.0		0	0	0	8213	644	315	
23-Oct -18	24.0	2.3		0	409	409	10784	641	631	
24-Oct -18	24.0	24.0		0	133	133	11241	649	632	
25-Oct -18	24.0	24.0		0	2	2	13687	641	632	
26-Oct -18	24.0	24.0		0	0	0	13035	595	608	
27-Oct -18	24.0	24.0		0	19	19	12530	585	557	
28-Oct -18	5.7	24.0		0	10	10	8610	404	556	
29-Oct -18	7.4	24.0		0	264	264	10838	352	633	
30-Oct -18	24.0	24.0		0.1	94	94.1	12156	466	643	
31-Oct -18	24.0	24.0		0	7	7	11541	404	649	

Note: the auxiliary boilers were not utilised for the purpose of steam generation throughout the reporting period, this boilers were run to conduct the reliability test in preparation for the annual emissions test. The aux boilers were not reliable and such, there was no emission test conducted.

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2. Abatement Technology

Table 3: Abatement Equipment Control Technology utilisation for month of October 2018

Associated Unit/Stack	Technology Type	Actual Utilisation (%) for the month of October 2018
Unit 4,5 and 6	Low NO _x Burners	100
	Pulse Jet Fabric Filter Plant	100

3. Energy Source Characteristics

Table 4: Energy Source Material Characteristics for the month of October 2018

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	1.47
Ash Content	35 - 39	34.27

Table 5: Energy Source Material Characteristics for the month of October 2018

Characteristic	Stipulated Range (%)	Monthly Average Content (%)
Oil		
Sulphur Content	0.5 - 3.5	1.8
Ash Content	0.02 - 0.1	0.017

4. Emissions Reporting-

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

The daily emission limits are as follows:

SO₂= 3500 mg/Nm³

Dust= 50 mg/Nm³

NO₂= 750 mg/Nm³

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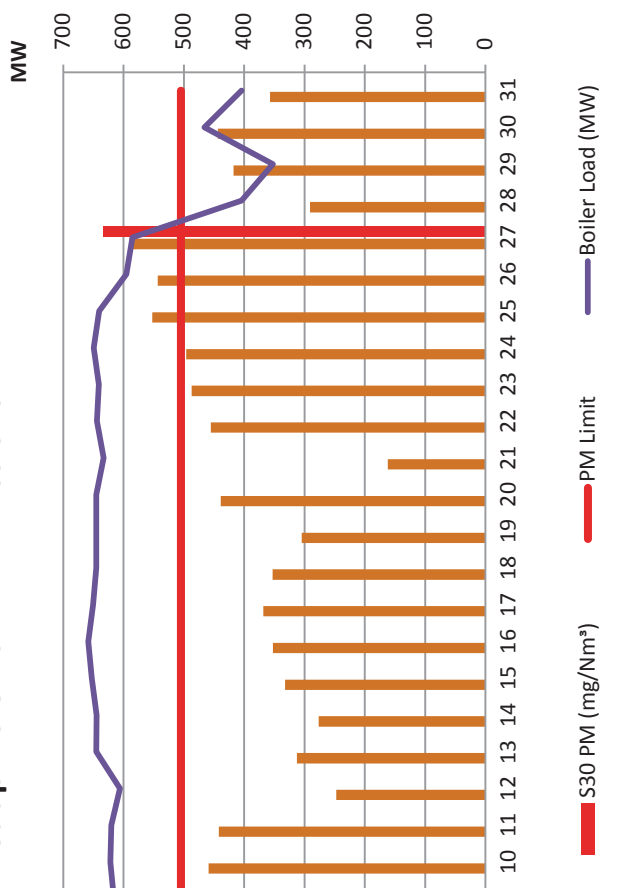
Averages emissions for the month of October 2018

PM (mg/Nm ³)	SO ₂ (mg/Nm ³)			NO ₂ (mg/Nm ³)			CO (mg/Nm ³)			Temp (°C)			Press (kPa)			Velocity (m/s)			O ₂ (%)		
	5	6	7	4	5	6	4	5	6	4	5	6	4	5	6	4	5	6	4	5	6
6	13.48	2798.9	2602.2	596.9	412.7	6.7	7.4	126.0	90.2	90.1	16.9	7.8	7.8								
8	15.88	2946.0	2673.1	620.2	385.5	6.3	5.1	129.0	89.9	89.8	17.3	8.0	7.4								
2	15.14	2923.4	2742.6	627.0	406.9	5.9	4.8	130.2	89.7	89.6	17.5	7.9	7.5								
1	12.61	3095.4	2901.8	694.9	519.4	6.5	4.9	119.0	90.1	90.1	16.2	8.0	8.1								
5	11.64	2818.5	2929.2	755.4	497.6	21.0	5.2	117.3	90.2	90.2	16.2	8.9	8.1								
8	14.46	2969.6	2619.8	703.9	415.5	5.8	5.1	127.1	90.1	90.0	17.3	8.2	7.5								
5	13.01	3002.7	2650.1	729.5	394.3	7.8	6.5	125.0	90.2	90.1	16.2	8.8	7.6								
8	11.31	3165.8	2953.4	679.4	402.1	6.5	5.8	126.6	90.1	90.0	17.3	8.1	7.7								
6	11.87	3108.8	2981.1	754.7	407.5	5.6	7.0	123.1	89.9	89.9	16.7	8.5	7.9								
8	25.85	2888.3	2775.0	674.2	358.9	6.0	6.4	129.2	89.8	89.7	18.4	8.1	7.3								
9	29.05	3259.7	3034.6	729.7	374.2	5.7	6.6	131.6	89.7	89.6	18.3	8.2	7.3								
0	28.99	3203.4	3106.6	762.2	397.4	7.1	7.8	134.7	89.5	89.4	18.1	8.1	7.1								
6	25.18	2999.1	2929.3	746.9	396.9	6.6	6.0	129.6	89.7	89.6	18.1	7.8	7.1								
2	23.89	2895.0	2873.3	695.2	384.5	5.9	5.3	121.7	89.7	89.6	17.3	7.7	7.4								
2	15.82	2860.6	2619.9	714.7	415.4	5.7	4.2	117.2	89.5	89.5	15.8	7.7	8.1								
3	12.90	2816.9	2769.7	700.2	417.6	5.9	5.5	122.5	89.6	89.5	16.4	7.7	8.0								
2	16.01	2841.7	2742.0	720.9	413.5	6.2	15.1	127.1	89.3	89.3	17.2	7.8	7.5								
0	18.16	2969.2	2783.8	698.7	392.3	6.1	6.4	126.4	89.5	89.4	17.9	7.9	7.3								
7	4.97	2866.9	2728.5	738.3	437.7	7.3	6.2	121.4	89.7	89.8	9.1	7.7	7.8								
8		2590.7		732.8		5.8			89.8			7.9									
8		2683.1		749.1		5.7			90.4			8.1									
0		2683.7		675.8		6.4			90.6			8.0									
9	12.66	2728.1	2668.0	858.5	512.0	5.8	7.3	125.6	90.6	90.6	17.0	8.2	7.7								
9	15.81	2627.1	2502.6	759.0	447.4	5.9	3.8	132.2	90.3	90.3	18.3	8.0	7.2								
5	14.73	2692.1	2550.8	814.4	465.4	6.6	4.2	133.6	90.1	90.1	18.0	8.5	7.2								
1	15.72	2704.3	2518.9	858.6	473.9	7.2	4.4	136.8	90.2	90.1	17.7	8.9	7.3								
4	15.10	2453.6	2278.0	942.4	487.2	6.9	4.7	128.1	90.2	89.8	708.4	8.7	7.7								
9	16.01	2570.4	2480.0	815.2	507.3	12.8	3.9	135.0	90.1	90.0	21.8	10.3	7.7								
7	18.12	3031.8	2734.8	801.3	482.6	9.1	4.2	139.0	89.9	89.7	18.4	11.6	7.0								
7	21.34	2852.0	2836.6	783.6	503.5	13.5	10.9	140.5	89.3	89.1	18.6	9.6	7.3								
1	20.81	2826.4	2656.3	753.7	493.3	7.2	4.1	140.7	89.2	89.0	18.5	9.7	7.1								

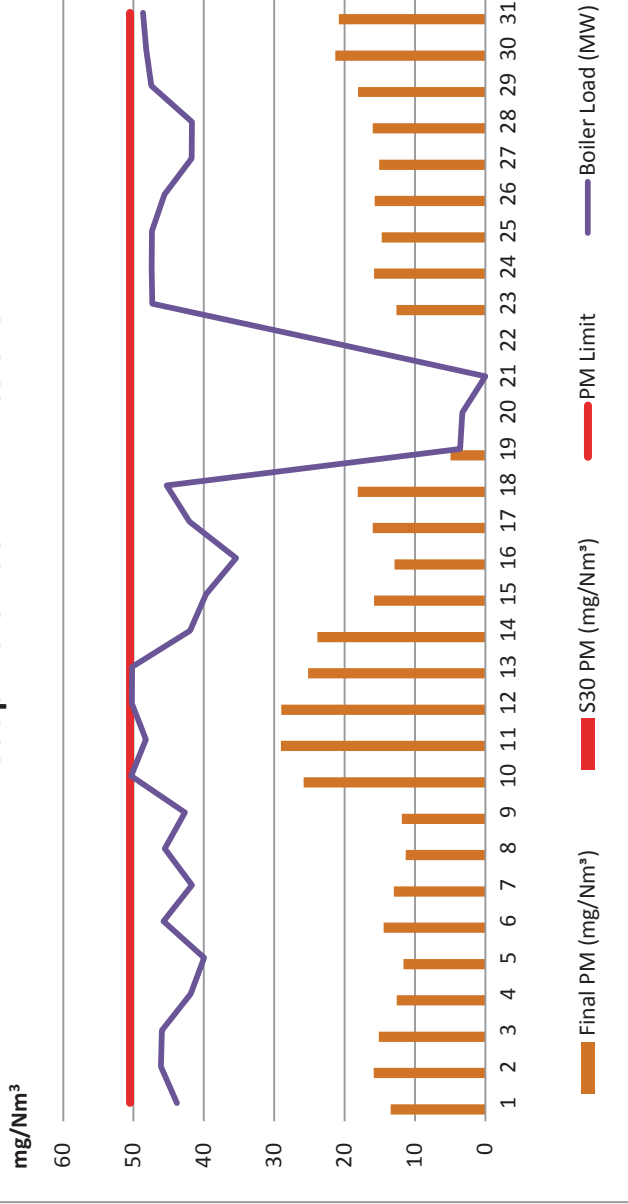
no reportable data on areas shaded black.
 temperature and velocity meters are faulty. A notification has been loaded for the maintenance team to fix the instrument.

Graphical representation of the daily average emissions

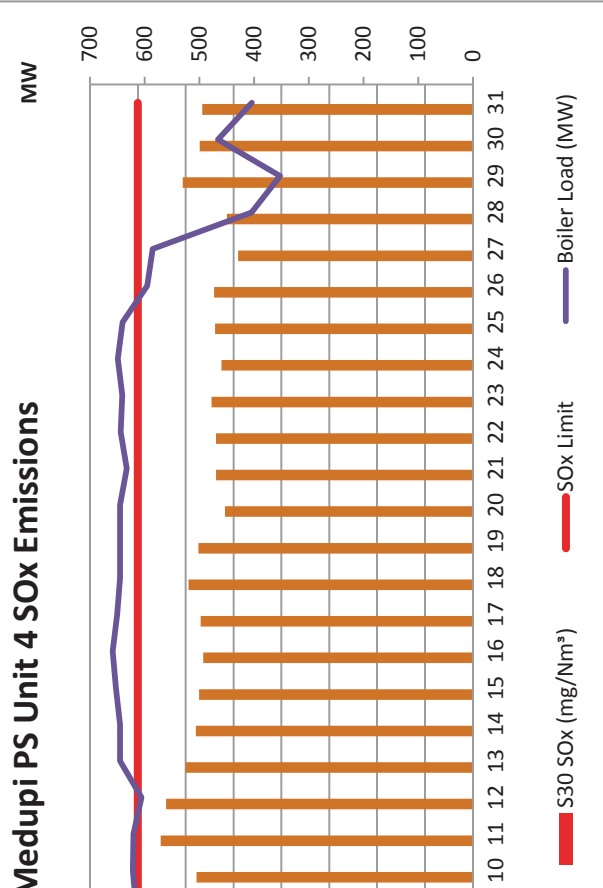
Medupi PS Unit 4 PM Emissions



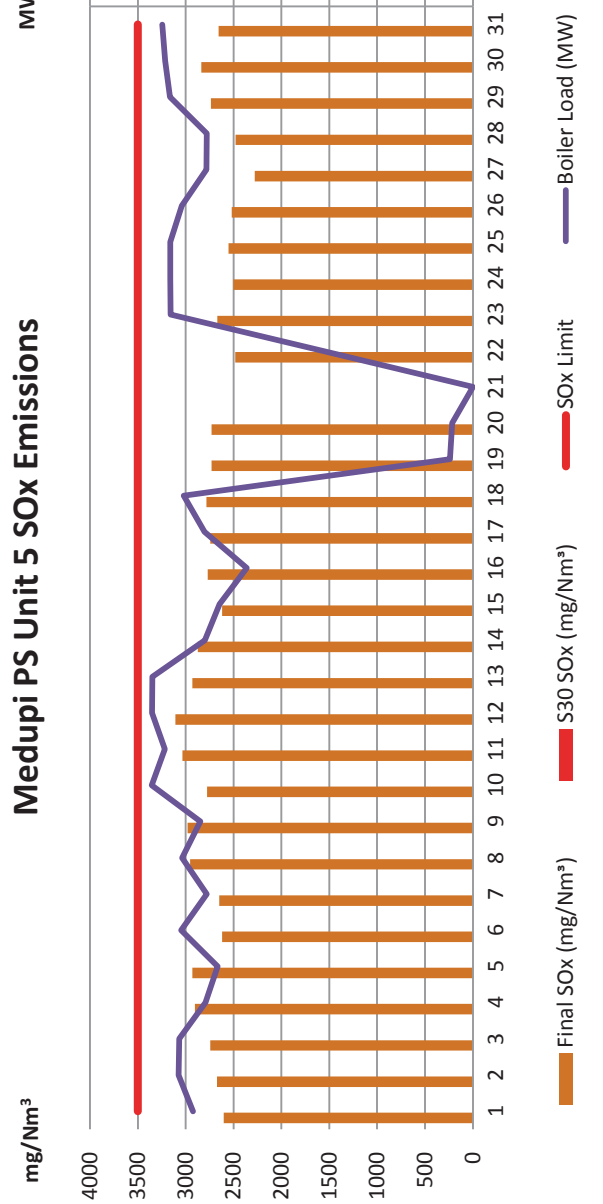
Medupi PS Unit 5 PM Emissions



Medupi PS Unit 4 SOx Emissions



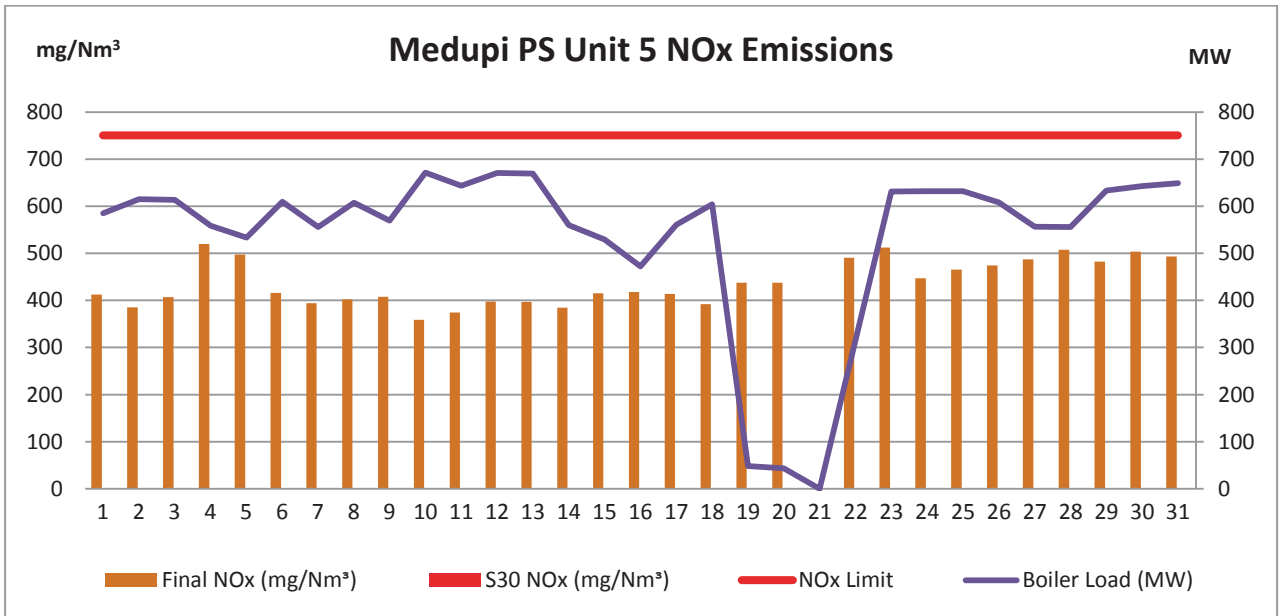
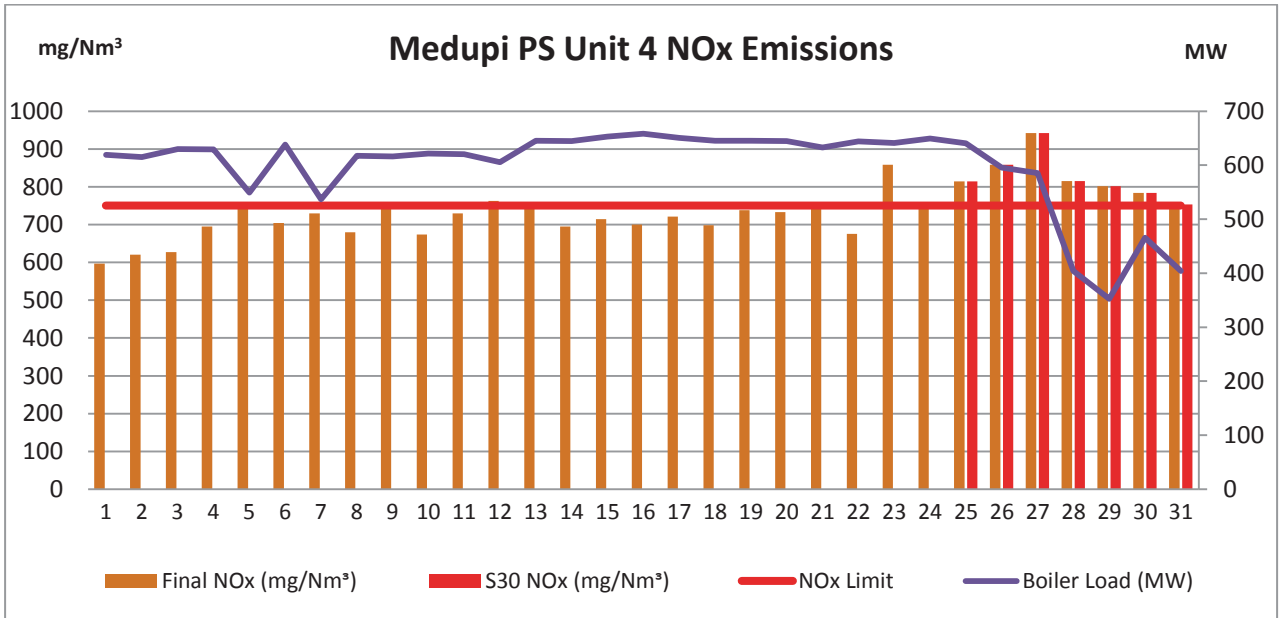
Medupi PS Unit 5 SOx Emissions





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Table 7: Monthly tonnages for the month of October 2018

Unit	PM (tons)	SO ₂ (tons)	NO ₂ (tons)	CO (tons)	CO ₂ (tons)
1	0.0	0	0	0	
2	0.0	0	0	0	
3	0.0	0	0	0	
4	65.7	4 843	1 249	12	
5	30.7	4 718	745	10	
6					
SUM	96.3	9 560	1 995	22	

Note: Unit 6 was on outage throughout the reporting period, unit 1 to 3 is not yet in commercial operation. CO₂ monitoring equipment is currently not functional, procurement process is undergoing to purchase the spare required to fix the equipment.

5. Shutdown/start-up information

Table 8: Days operating under normal operation, days in grace period and section 30 days respectively

Unit	Operating Days (DD:HH:MM)			
	Normal operation	In grace period	Under S 30	Unit off load
1	00:00:00	00:00:00	00:00:00	31:00:00
2	00:00:00	00:00:00	00:00:00	31:00:00
3	00:00:00	00:00:00	00:00:00	31:00:00
4	27:04:15	02:00:00	00:14:00	01:05:45
5	28:19:25	00:00:00	00:00:00	02:04:35
6	00:00:00	00:00:00	00:00:00	31:00:00

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Table 9: Days declared Emergency Level one (EL1)

Hours Declared EL1	
Date	EL1 Start
1 October 2018	17:03 EL1 and MCR in force. 19:35 EL1 and MCR cancelled.
2 October 2018	17h53 EL1 and MC
4 October 2018	19h55 EL1 and MCR is cancelled
6 October 2018	13h16 EL1 and MCR in force
8 October 2018	16:40 EL1 and MCR in force. 19:55 EL1 and MCR cancelled.
9 October 2018	16:23 EL1 and MCR in force. 20:01 EL1 and MCR cancelled.
12 October 2018	EL1 & MCR in force from 10:14 to 21:02
13 October 2018	EL1 & MCR in force from 09:17 to 22:30
14 October 2018	08H10: EL1 and MCR in force. 21:51 cancelled.
15 October 2018	EL1 and MCR in force 04:43
17 October 2018	05:25 EL1 and MCR in force.
20 October 2018	05:25 EL1 and MCR in force.
21 October 2018	17:19 EL1 and MCR in force. 21h18: EL1 and MCR cancelled 17:19 EL1 and MCR in force. 21h18: EL1 and MCR cancelled
22 October 2018	05:14 EL1 and MCR in force.
23 October 2018	05:14 EL1 and MCR in force and cleared at 22:11
24 October 2018	05:14 EL1 and MCR in force. 22:37 EL1 and MCR cancelled
25 October 2018	10:55 EL1 & MCR in force. @ 21:40 EL1 & MCR cancelled.
26 October 2018	12h57 EL1 and MCR in force. 21h49 EL1 & MCR was cleared.
27 October 2018	EL1 and MCR in force at 16h07 and cancelled at 21h39
28 October 2018	22h17: EL1 & MCR cancelled
29 October 2018	10:00 EL1 and MCR in force. 2h12: EL1 & MCR cancelled

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Hours Declared EL1	
Date	EL1 Start
30 October 2018	10:00 EL1 and MCR inforce. 22h12: EL1 & MCR cancelled
31 October 2018	22h19: EL1 & MCR cancelled

6. Comments on the performance and availability of each unit

Medupi power station operating units performed well within the ambit of the Atmospheric emissions licence. Unit 4 NO_x exceeded the limit of 750 mg/Nm³ on four occasions, Medupi Power Station plan to conduct verification test on unit 4 CEMS in the month of November 2018. The department will be notified of the outcome of the tests as soon as the report is available.

Unit 4 particulates emissions exceeded the limit between 25 and 28 November 2018, this incident was reported to the licencing authority as well as DEA in terms of NEMA s30. It is also important to note that during this time period, EL1 was declared.

7. Light up information

Table 10: PM Start-up information for the month of October

Event No.	Event 1		Event 2		Event 3	
Unit	4		4		5	
Fires in	2018/10/05	2018/10/05	02:10 PM	2018/10/11	04:05 AM	2018/10/22
Synchronisation with Grid	09:25 PM	2018/10/07	09:55 AM	2018/10/12	09:40 PM	2018/10/22
Emissions below limit from Sync (Date and Time)	did not go above limit	did not go above limit	did not go above limit	did not go above limit	did not go above limit	did not go above limit
Fires in to synchronization	02:12:10	Hrs (dd:hh:mm)	00:19:45	Hrs (dd:hh:mm)	00:17:35	Hrs (dd:hh:mm)
Synchronization to < limit (Duration)	did not go above limit	Hrs (dd:hh:mm)	did not go above limit	Hrs (dd:hh:mm)	did not go above limit	Hrs (dd:hh:mm)

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Table 11: Emission Average from Fires-in to Synchronisation

South Stack Emission Average from Fires-in to Synchronisation (Date and Time)							
Unit	Fires-In		Synchronisation		PM	SO ₂	NO _x
Unit 4	2018/10/05	09:15 AM	2018/10/07	09:25 PM	22.8	2653.8	645.6
Unit 4	2018/10/11	02:10 PM	2018/10/12	09:55 AM	38.0	3570.5	804.4
Unit 5	2018/10/22	04:05 AM	2018/10/22	09:40 PM	4.7	2276.5	450.8

Table 12: Point Source emissions released during Shut-down

South Stack Emission Average Breaker Open (BO) to Draft Group Shut Down (SD) (Date & Time)							
Unit	Breaker Open		DG SD		PM	SO ₂	NO _x
Unit 4	2018/10/07	09:45 AM	2018/10/05	07:45 AM	22.8	2576.4	0.0
Unit 4	2018/10/12	02:55 AM	2018/10/11	02:05 PM	38.0	3570.5	804.4

8. Continuous Emission Monitoring Systems (CEMS)

Unit 4 and 5 Continuous Emission Monitoring Systems were in operation at all times when the unit was on load. CEMS CO₂ monitor verification test not yet conducted as a result of challenges on the equipment, the power station is in the process of procuring spares to fix the equipment, and the Licencing Authority will be notified prior to conducting the test.

Table 13: Periods during which CEMS was inoperative

Date	Time	Duration	Nature of Repair/Adjustment
N/A	N/A	N/A	N/A

Continuous emissions monitoring systems was operational through the month of October 2018.

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Table 14: CEMS Monitor Reliability

Variable	Unit 4	Unit 5	Unit 6
Dust	99.7	98.8	N/A
SO2	99.4	97.9	N/A
NOx	99.2	96.5	N/A
CO	99.9	98.8	N/A
O2	99.0	96.7	N/A
Temperature	0.0	100	N/A
Pressure	99.9	98.8	N/A
Velocity	0.0	100	N/A
CO ₂	N/A	N/A	N/A

9. CEMS Calibration certificates and equipment used for calibration

See attached Appendix A

10. 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.

11. Visual inspection of the exterior walls of the fuel oil tanks, fuel oil inventory data and TVOC Estimation

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

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Table 15: Total Volatile Organic Compound (TVOC) for October 2018

		
CALCULATION OF EMISSIONS OF TOTAL VOLATILE COMPOUNDS FROM FUEL OIL STORAGE TANKS*		
Date:	30 October 2018	
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 <i>any</i> other cells without consulting the AQ CoE		
MONTH:	October	
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:	1955.689	tons/month
Molecular weight of the fuel oil:	166.00	Lb/lb-mole
METEROLOGICAL DATA FOR THE MONTH	Data	Unit
Daily average ambient temperature	23.43	°C
Daily maximum ambient temperature	31.06	°C
Daily minimum ambient temperature	16.52	°C
Daily ambient temperature range	14.54	°C
Daily total insolation factor	4.41	kWh/m ² /day
Tank paint colour	Aluminum/Specular	NA
Tank paint solar absorbance	0.39	NA
FINAL OUTPUT:	Result	Unit
Breathing losses:	0.69 kg/month	
Working losses:	0.06 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 - PeressJ@nyc.rr.com.</small>		

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		Document Identifier	240-88543153	Rev	1	
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		Review Date	January 2021			

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

There were no activities relating to community awareness campaign during the month of October 2018.

13. Complaints Register


Table 16: Complaints for the month of October 2018

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

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		Review Date	January 2021		

Compiled by:

Senior Environmental Advisor

Reviewed by:

Boiler System EIT

Supported by:

Boiler Engineering Manager

Supported by:

Engineering Group Manager (Acting)

I Rudi van der Wal, declares that the information provided in this report is accurate and correct.

Yours sincerely

GENERAL MANAGER: MEDUPI POWER STATION

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APPENDIX 1

CEMS Calibration certificates



12 Angellier Street, Bardene,
Boksburg, SA, 1459
PO Box 328, Isando, SA, 1600
VAT REG #: 421 021 2249
www.e-analytics.co.za

Tel: 0861 000 032
Intl. Tel: +27 11 918 6994
Fax: +27 11 894 1037
CO REG #: 2004/007607/07
info@e-analytics.co.za

E-TEST Level 4 Company

CALIBRATION CERTIFICATE

CUSTOMER:		Medupi Power Station	CERTIFICATE NO: 2706	
CONTACT NAME:		Christo Vorster	JOB NO:	SC943
MODEL:		Foedisch MGA 23	PHONE:	014 762 2255
AUXILIARY EQUIPMENT:		Unit 4	SERIAL NO:	

CHAN		PRIOR	FINAL	TEST GAS	TEST GAS VALUE	GAS CERTIFICATE NUMBER
1	ZERO	0.1 ppm	0 ppm	Air	21 %	Air
	SPAN	822 ppm	804 ppm	CO	803.9 ppm	80A
2	ZERO	2.6 ppm	0 ppm	Air	21 %	Air
	SPAN	832 ppm	834 ppm	NO	833.9 ppm	3207
3	ZERO	1.9 ppm	0 ppm	Air	21 %	Air
	SPAN	2267 ppm	2090 ppm	SO2	2090.4 ppm	12633
4	ZERO	0.12 %	0.0 %	N2	99.99 %	3207
	SPAN	21.34 %	20.95	O2	20.95 %	Air

REPORT: Inspect sample lines and sample system, check diagnostics. Calibrate analysers with zero and span gas, calibration was done according to cylinder standards, analysers were responding to all test gas.

Date: 24 July 2018

Calibration Due Date: Oct 2018

Technician:



Document Number: TH-PFC-002-F1 Rev 1

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Fax: +27 11 994 1037
CO REG #: 2004/007607/07
info@e-analytics.co.za

CALIBRATION CERTIFICATE

CERTIFICATE NO: 2797

CUSTOMER:	Medupi Power Station	JOB NO:	SC943
CONTACT NAME:	Christo Vorster	PHONE:	014 762 2255
MODEL:	Foedisch MGA 23	SERIAL NO:	
AUXILIARY EQUIPMENT:	Unit 5		

CHAN		PRIOR	FINAL	TEST GAS	TEST GAS VALUE	GAS CERTIFICATE NUMBER
1	ZERO	0.3 ppm	0 ppm	Air	21 %	Air
	SPAN	835 ppm	804 ppm	CO	803.9 ppm	804
2	ZERO	1.8 ppm	0 ppm	Air	21 %	Air
	SPAN	833 ppm	834 ppm	NO	833.9 ppm	8007
3	ZERO	3.1 ppm	0 ppm	Air	21 %	Air
	SPAN	2248 ppm	2090 ppm	O2	2090.4 ppm	12633
4	ZERO	0.03 %	0.0 %	N2	99.99 %	8007
	SPAN	21.01 %	20.95 %	O2	20.95 %	Air

REPORT: Inspect sample lines and sample system, check diagnostics. The peristaltic pump on cooler 1 for unit 5 must be replaced. Calibrate analysers with zero and span gas, calibration was done according to cylinder standards, analysers were responding to all test gas.

Date: 24 July 2018

Calibration Due Date: Oct 2018

Technician:



Document Number: TR-PFC-002-F1 Rev 1

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CALIBRATION CERTIFICATE

		CERTIFICATE NO: 2708	
CUSTOMER:	Medupi Power Station	JOB NO:	SC943
CONTACT NAME:	Christo Vorster	PHONE:	014 762 2255
MODEL:	Foedisch MGA 23	SERIAL NO:	
AUXILIARY EQUIPMENT:	Unit 6		

CHAN		PRIOR	FINAL	TEST GAS	TEST GAS VALUE	GAS CERTIFICATE NUMBER
1	ZERO	-3.0 ppm	0 ppm	Air	21 %	Air
	SPAN	829 ppm	804 ppm	CO	803.9 ppm	80A
2	ZERO	-5.1 ppm	0 ppm	Air	21 %	Air
	SPAN	837 ppm	834 ppm	NO	833.9 ppm	3207
3	ZERO	-1.7 ppm	0 ppm	Air	21 %	Air
	SPAN	2173 ppm	2090 ppm	SO2	2090.4 ppm	12633
4	ZERO	0.09 %	0.0 %	N2	99.99 %	3207
	SPAN	21.17 %	20.95	O2	20.95 %	Air

REPORT: Inspect sample lines and sample system, check diagnostics. Calibrate analysers with zero and span gas, calibration was done according to cylinder standards, analysers were responding to all test gas.

Date: 24 July 2018

Calibration Due Date: Oct 2018

Technician:

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