



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: 2019/01/15

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Ref: 12/4/12L-W2/A3 – Dec 2018

Dear Phumudzo

MEDUPI POWER STATION MONTHLY EMISSIONS REPORT FOR THE MONTH OF DECEMBER 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 December 2018 only.

1. Raw Materials and Products

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

Raw Materials and Products used	Raw Material Type	Unit	Maximum Permitted Consumption/ Rate (Quantity)	Unit 4, 5 and 6 consumption December 2018
	Coal	Tons/month	1 875 000	439 664
	Fuel Oil	Tons/month	40 000	4974
Production Rates	Product/ By-Product Name	Unit	Maximum Production Capacity Permitted (Quantity)	Unit 4, 5 and 6 Production Rate in Month of December 2018
	Energy	MW	4800	1470
	Ash Emitted	Tons/month	not specified	119.4

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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	Units	Total	Units			
01-Dec -18	24.0	24.0	24.0	0.00	39	39	19432	530	656	619
02-Dec -18	24.0	17.5	24.0	0.00	8	8	16790	456	584	633
03-Dec -18	13.3	0.0	24.0	0.00	162	162	13652	493	446	651
04-Dec -18	0.0	13.3	24.0	0.00	0	0	13490	262	605	652
05-Dec -18	2.4	24.0	24.0	0.00	0	0	16861	458	562	531
06-Dec -18	24.0	24.0	24.0	0.00	379	379	18417	467	579	673
07-Dec -18	24.0	24.0	24.0	0.00	7	7	18639	421	659	646
08-Dec -18	24.0	24.0	24.0	0.00	37	37	18949	412	656	661
09-Dec -18	22.3	24.0	11.2	0.00	23	23	13479	428	583	569
10-Dec -18	0.0	24.0	0.0	0.00	67	67	9530	364	599	336
11-Dec -18	0.0	24.0	0.0	0.00	532	532	10023	422	560	375
12-Dec -18	4.7	24.0	2.6	0.00	262	262	17169	534	487	589
13-Dec -18	24.0	2.3	24.0	0.00	35	35	11871	443	370	560
14-Dec -18	24.0	0.0	24.0	0.00	408	408	14957	370	451	659
15-Dec -18	24.0	18.8	24.0	0.00	367	367	17565	428	626	581
16-Dec -18	24.0	24.0	24.0	0.00	97	97	16384	470	475	576
17-Dec -18	24.0	24.0	24.0	0.00	142	142	13873	476	360	509
18-Dec -18	24.0	24.0	24.0	0.00	238	238	15978	460	420	607
19-Dec -18	24.0	24.0	24.0	0.00	83	83	17100	450	527	601
20-Dec -18	10.8	24.0	24.0	0.00	16	16	13612	383	507	498
21-Dec -18	5.2	24.0	24.0	0.00	191	191	15124	402	495	537
22-Dec -18	24.0	2.0	24.0	0.00	167	167	11988	400	442	550
23-Dec -18	24.0	6.2	24.0	0.00	229	229	16092	400	561	530
24-Dec -18	24.0	24.0	24.0	0.00	47	47	14564	400	385	511
25-Dec -18	20.3	12.7	24.0	0.00	25	25	11713	399	387	416
26-Dec -18	0.0	0.0	24.0	0.00	249	249	8533		325	451
27-Dec -18	0.0	5.7	24.0	0.00	132	132	11121		491	520
28-Dec -18	0.0	24.0	24.0	0.00	130	130	10075		313	573
29-Dec -18	0.0	3.0	24.0	0.00	137	137	7123		262	510
30-Dec -18	0.0	0.9	24.0	0.00	443	443	12322	277	447	547
31-Dec -18	0.0	21.7	24.0	0.00	322	322	13243	277	422	703

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2. Abatement Technology

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

Associated Unit/Stack	Technology Type	Actual Utilisation (%) for the month of December 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 December 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	35.13

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

Characteristic	Stipulated Range (%)	Monthly Average Content (%)
Oil		
Sulphur Content	0.5 - 3.5	2.2
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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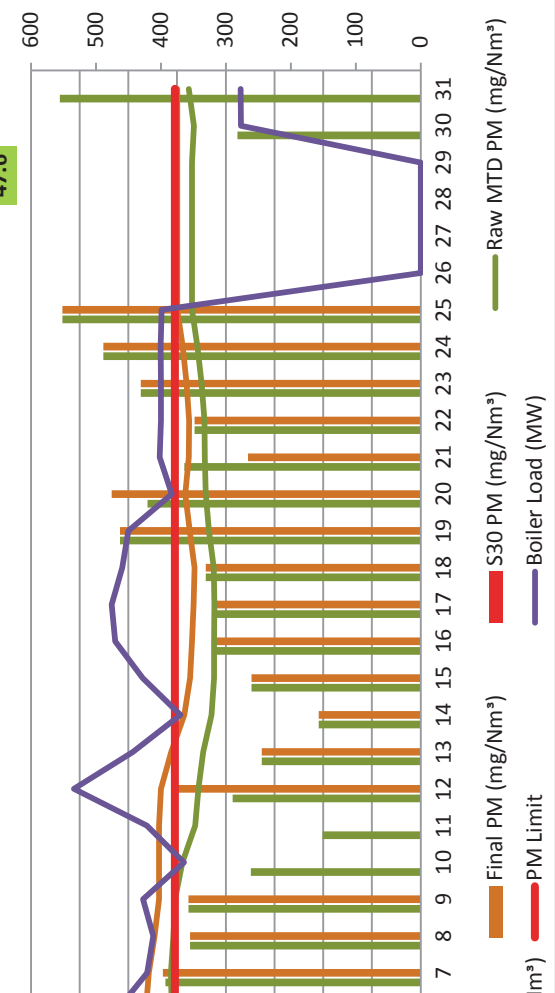
Averages emissions for the month of December 2018

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	4	5	6	4	5	6	4	5	6	4	5	6	4	5	6	4	5	6	4	5	6
35.2	30.6	2 807	2 427	2 844	724	492	472	7	9	22	135.0	130.7	89.8	89.7	89.8	13.8	9.8	8.9	7.0	6.5			
28.0	40.2	3 013	2 642	2 952	771	451	488	8	14	25	134.6	136.7	89.3	89.2	89.2	12.9	9.8	9.2	7.5	6.2			
	43.5	2 961	2 283	2 908	700	498	468	15	24	85	131.3	137.5	89.2	89.0	89.0	12.0	5.9	8.7	9.2	6.0			
25.4	38.8	2 639	2 501	2 891	721	470	475	13	7	81	134.9	137.6	89.4	89.1	89.2	13.4	6.2	11.8	7.6	6.2			
24.8	40.8	3 013	2 535	2 864	629	486	465	10	5	23	132.9	126.8	89.5	92.1	89.4	24.0	21.8	9.4	7.9	8.1			
24.6	37.2	3 030	2 576	2 910	635	469	456	7	4	89	134.9	133.4	89.5	89.4	89.5	24.8	26.7	9.2	7.8	6.6			
27.4	29.1	3 192	2 699	3 101	659	465	439	7	4	19	138.0	130.0	89.3	89.2	89.3	27.0	26.4	9.6	7.2	6.8			
27.7	31.6	2 995	2 474	2 821	568	428	396	7	4	37	135.6	129.5	89.2	89.0	89.1	14.0	9.6	9.5	7.1	6.3			
23.1	27.4	2 998	2 563	2 760	629	454	388	7	6	90	127.7	120.9	89.3	89.2	89.3	12.5	8.6	9.4	7.5	7.0			
25.1		2 636	2 608	2 320	559	440	426	12	5	22	129.6	115.3	89.5	89.4	89.5	13.0	7.5	9.7	7.3	10.5			
23.2		2 996	2 569	2 603	597	429	411	12	4	20	125.8	111.6	89.8	89.8	89.8	12.2	7.8	10.0	7.6	10.5			
17.7	37.5	3 017	2 510	2 846	585	455	422	7	4	8	124.6	137.4	89.7	89.7	89.7	10.6	8.6	9.0	8.4	6.7			
16.9	31.4	2 921	-1 729	2 826	671	455	417	11	7	23	127.8	132.6	89.6	89.6	89.5	12.5	9.8	9.8	8.4	7.2			
	31.8	2 977	2 300	2 764	502	458	407	9	9	14	131.1	141.7	90.1	89.9	89.9	11.2	9.6	10.5	9.2	6.2			
28.1	27.7	3 148	2 602	2 932	543	453	383	8	4	7	137.2	136.3	90.1	89.9	90.0	13.7	8.4	9.7	7.3	6.9			
18.7	30.8	3 045	2 431	2 787	601	414	376	9	7	15	126.5	137.5	90.0	89.8	89.9	12.1	8.3	9.3	8.6	6.9			
12.3	22.9	2 850	2 327	2 617	562	366	380	10	5	16	115.4	133.5	89.9	89.7	89.8	7.9	8.0	8.9	9.7	7.8			
15.9	36.6	3 192	2 497	2 847	647	400	403	9	5	12	120.2	139.4	89.6	89.5	89.6	10.1	8.9	9.1	9.1	6.8			
18.4	42.1	3 576	2 733	3 251	703	430	427	9	5	7	128.7	142.5	89.4	89.3	89.3	11.3	8.9	9.2	8.0	6.8			
17.6	35.2	2 991	2 573	2 770	793	431	419	29	4	2	127.9	135.9	89.5	89.2	89.4	11.1	7.4	10.2	8.1	7.8			
14.7	34.1	3 029	2 559	2 874	657	419	393	8	4	15	122.6	132.0	89.8	89.6	89.7	10.5	7.7	9.8	8.2	7.3			
14.0	33.1	3 173	2 374	2 938	695	475	398	8	12	1	123.0	136.3	89.6	89.4	89.6	10.9	8.1	9.9	9.2	7.2			
19.3	31.4	3 061	2 583	2 788	758	455	379	7	4	12	134.3	134.5	89.5	89.3	89.4	12.2	7.8	9.8	7.6	7.3			
18.6	43.7	2 915	2 355	2 781	823	476	429	9	5	7	125.6	138.3	89.4	89.3	89.4	8.3	7.6	10.3	8.8	7.5			
21.8	37.6	2 725	2 084	2 505	1 078	523	417	10	6	1	126.5	130.1	89.5	89.4	89.4	8.8	6.4	12.2	9.1	8.6			
	31.1		2 219	2 747		479	365	8	1		119.6	130.4		89.4	89.5	8.1	6.3		10.3	7.7			
30.9	30.2		2 419	2 747		458	407	6	9		130.5	133.4		89.3	89.4	11.0	7.3		8.2	7.0			
16.0	34.2		2 356	2 863		498	401	6	9		123.7	136.3		89.5	89.5	10.2	8.1		10.7	6.7			
17.0	24.8		2 283	2 908		492	399	10	1		111.0	130.0		89.9	89.9	8.7	7.3		11.4	7.1			
10.0	17.2	1 928	2 315	2 710	585	423	408	30	3	21	121.5	127.3	90.0	90.0	89.9	10.5	7.9	10.5	8.5	6.8			
19.5	19.0	2 032	2 524	3 132	716	457	419	18	3	14	122.4	134.4	90.0	89.8	89.8	9.3	9.7	10.9	8.7	5.7			

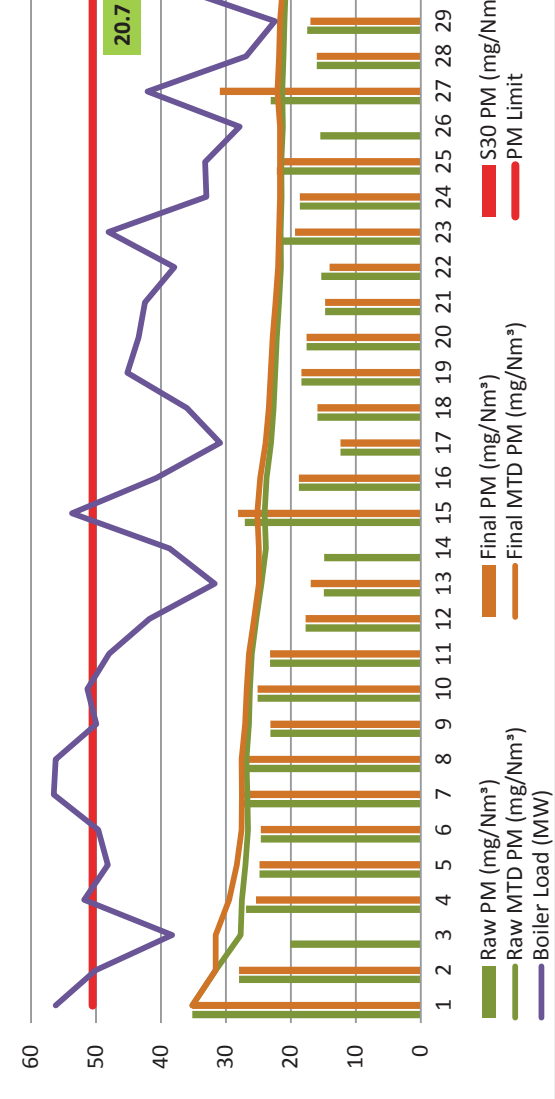
no reportable data on areas shaded black.
 temperature and velocity meters are faulty. The Power station maintenance team is awaiting spares for the repairs of the instrument to be conducted.

Medupi Power Station graphical representation of the daily average emissions

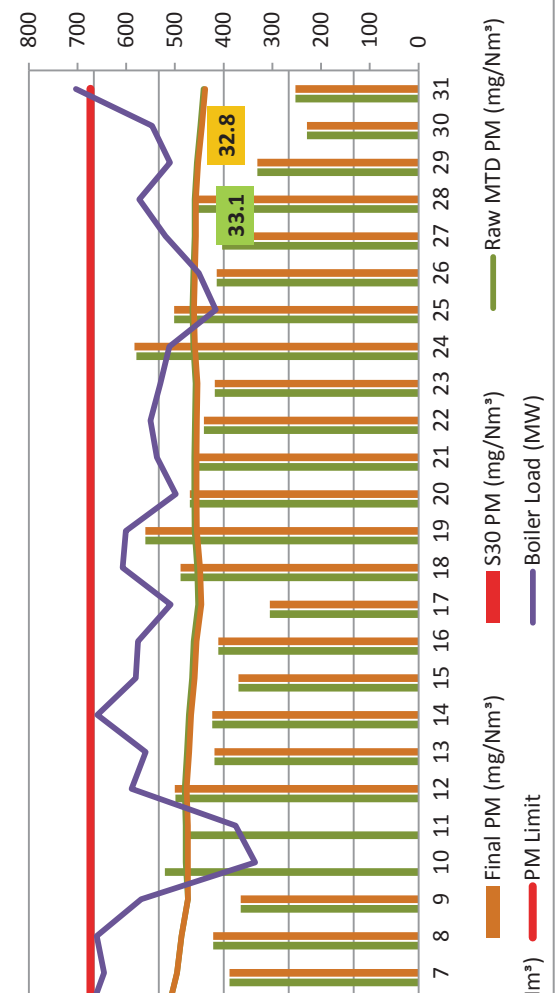
Medupi PS Unit 4 PM Emissions



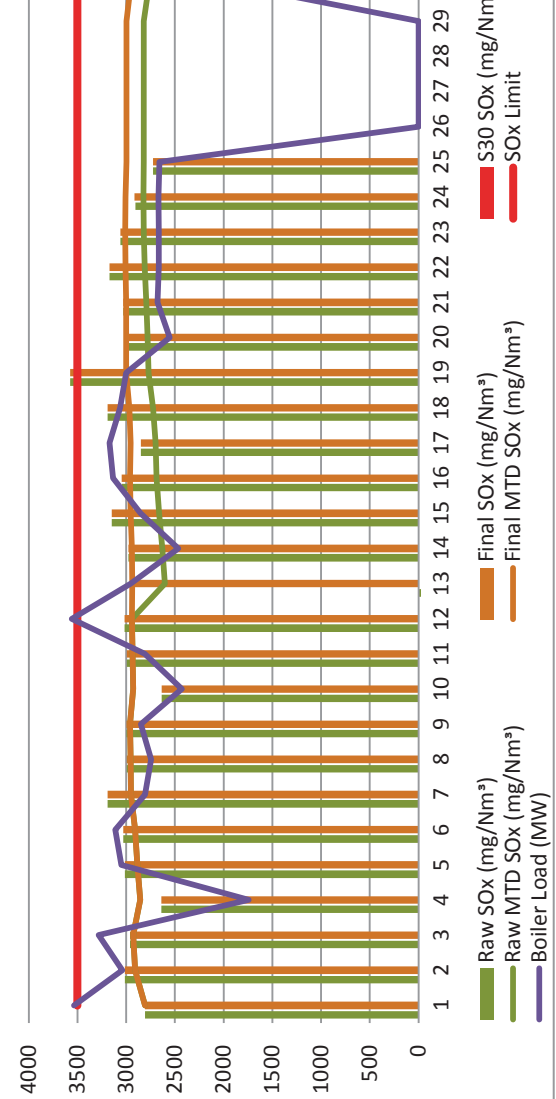
Medupi PS Unit 5 PM Emissions



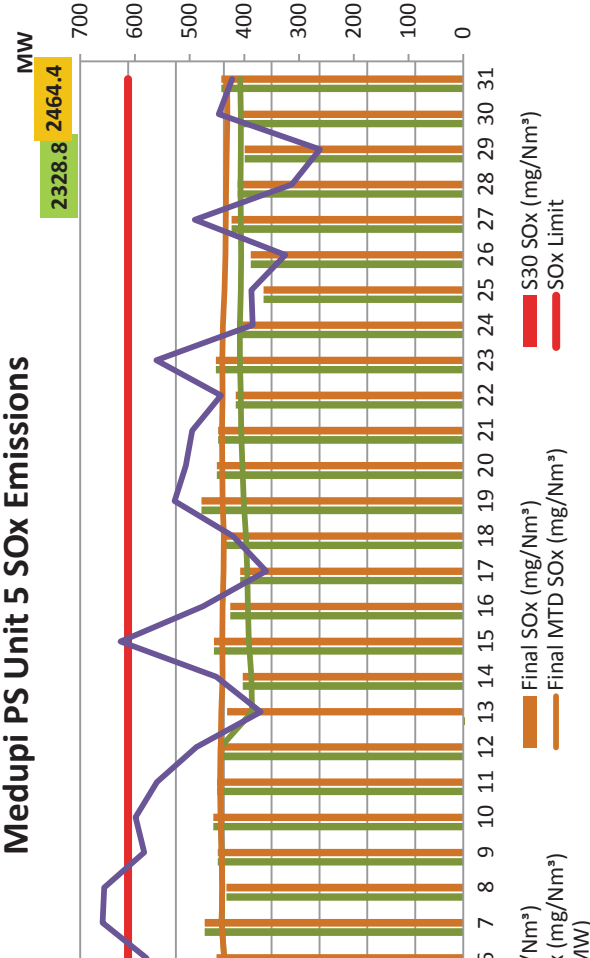
Medupi PS Unit 6 PM Emissions



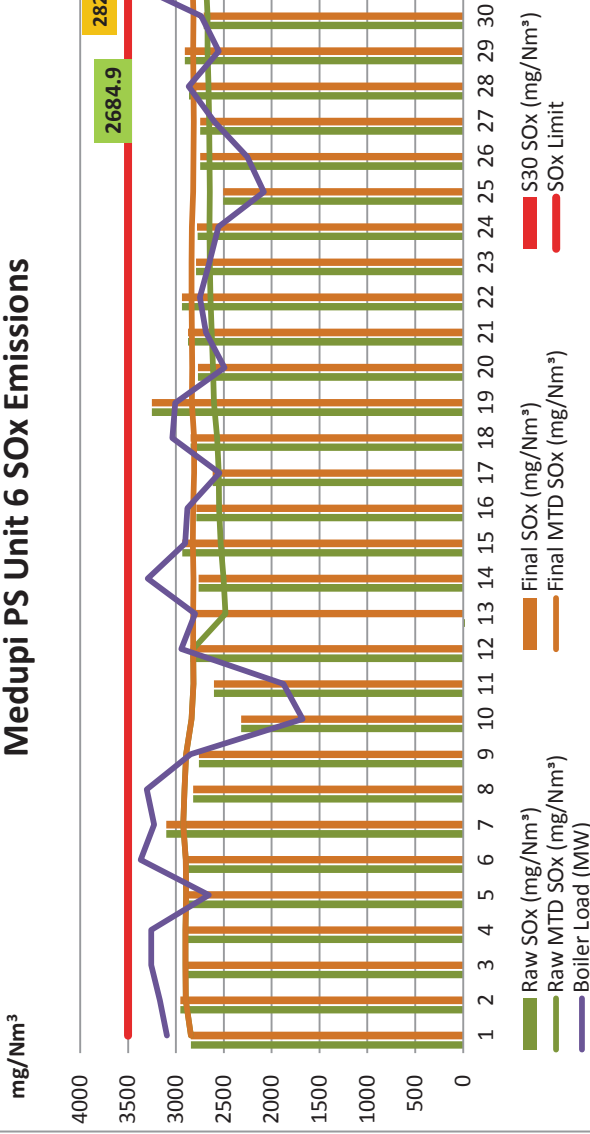
Medupi PS Unit 4 SOx Emissions



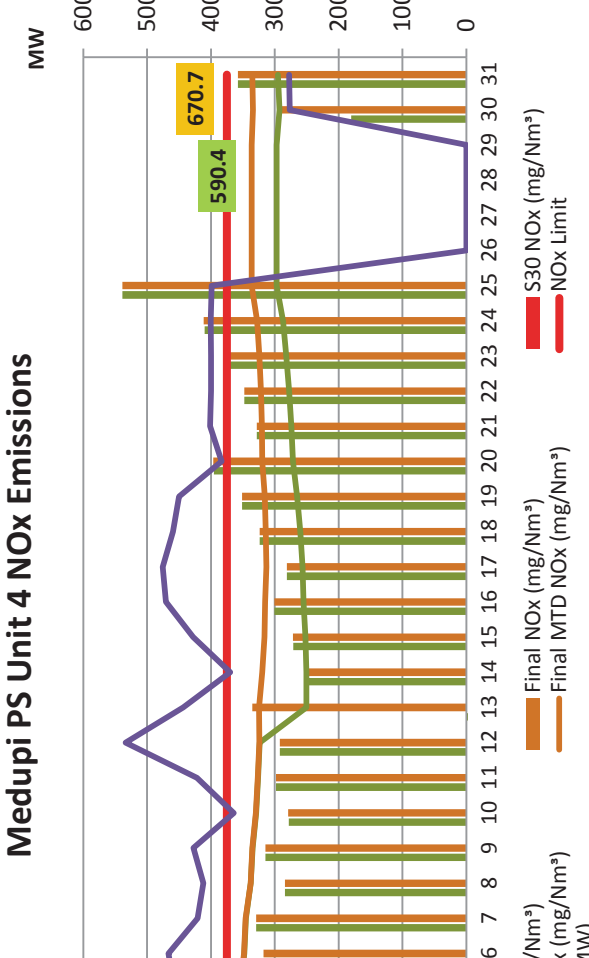
Medupi PS Unit 5 SOx Emissions



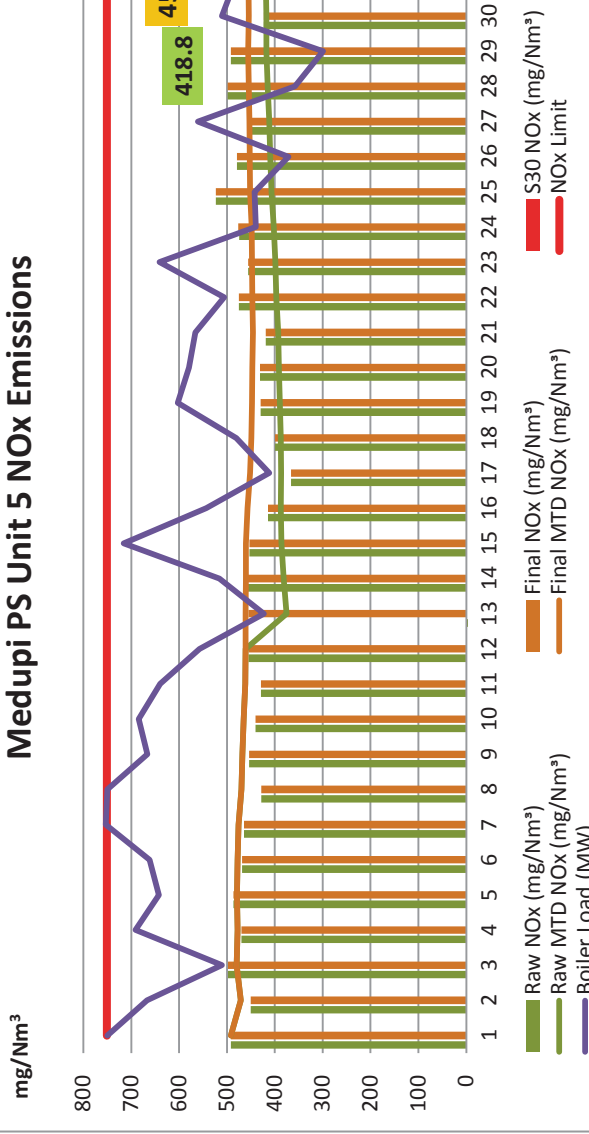
Medupi PS Unit 6 SOx Emissions



Medupi PS Unit 4 NOx Emissions



Medupi PS Unit 5 NOx Emissions





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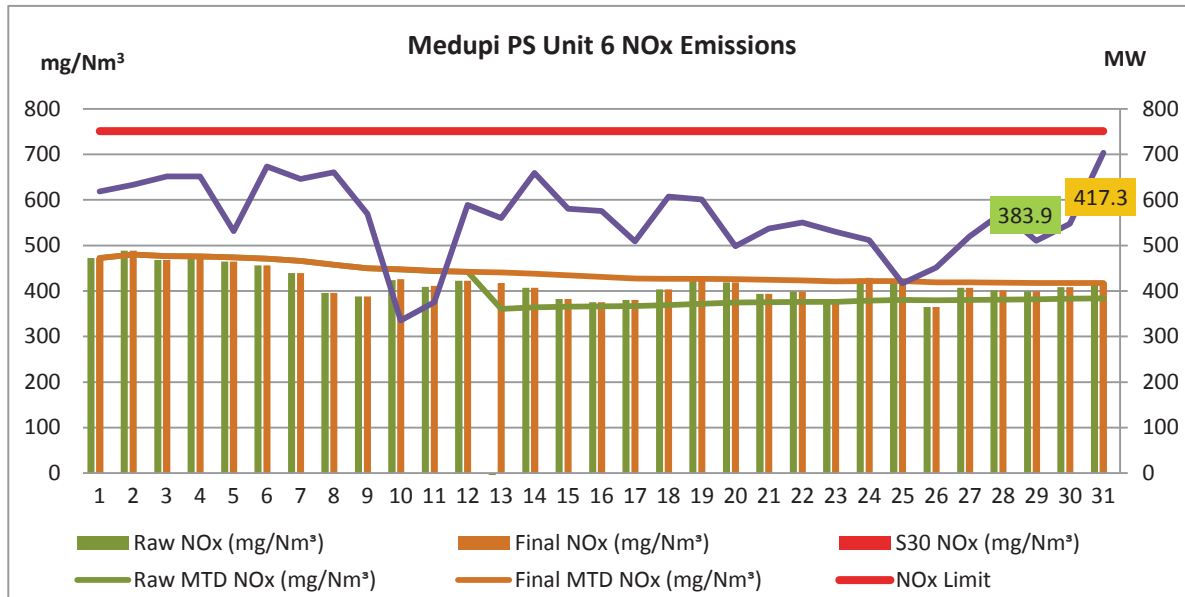


Table 7: Monthly tonnages for the month of December 2018


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	40.0	2 856	627	9	
5	27.4	3 803	688	9	
6	52.0	4 774	700	39	
SUM	119.4	11 433	2 015	57	

CO₂ monitoring equipment is currently not functional, procurement process is undergoing to purchase the spare required to fix/repair the equipment.

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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	23:05:10	00:00:00	00:00:00	07:18:50
5	27:05:05	00:00:00	00:00:00	03:18:55
6	29:07:30	00:00:00	00:00:00	01:16:30


Table 9: Days declared Emergency Level one (EL1)

Hours Declared EL1	
Date	EL1 Start
1 December 2018	(04:17) EL1 and MCR in force
2 December 2018	(23:09) EL1 and MCR cancelled. (04:05) EL1 and MCR in force.
3 December 2018	04:20 EL 1 in force
4 December 2018	23:57 EL1 cancelled 05:14 EL1 and MCR in force.
5 December 2018	EL1 and MCR was in force from 05h14 to 22h35
6 December 2018	EL1 was in force from 07h40 to 22h46
8 December 2018	EL1 was in force from 05h00 to 22h15
10 December 2018	(08:25) EL1 and MCR in force. (21:42) EL1 and MCR cancelled
11 December 2018	(07:35) EL1 and MCR in force. (22:03) EL1 and MCR cancelled.
12 December 2018	(17:16) EL1 and MCR in force. (21:05) EL1 and MCR cancelled.
13 December 2018	04h32: EL 1 in force
14 December 2018	22h12: EL1 cancelled
17 December 2018	(15:38) EL1 and MCR in force.

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Hours Declared EL1	
Date	EL1 Start
	(20:43) EL1 and MCR cancelled
24 December 2018	16:12 EL1 and MCR in force. 20:40 EL1 and MCR cancelled.
30 December 2018	(04:46) EL1 and MCR in force.

6. Comments on the performance and availability of each unit

Medupi power station operating unit 5 performed well within the ambit of the Atmospheric emissions licence in all parameters. Unit 4 NO_x exceeded the limit of 750 mg/Nm³ on five occasions, Medupi Power Station conducted verification test on unit 4 CEMS in the month of December 2018. The department will be notified of the outcome of the tests as soon as the report is available.

Unit 4 particulates emissions incidents were witnessed as result of bag failures in the PJFF plant. The first set of exceedance was recorded during cold start and the second set was witnessed during the normal operations as a result of plant upset conditions.

7. Light up information


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

Event No.	Event 1		Event 2		Event 3	
Unit	4		4		4	
Fires in	2018/12/04	2018/12/04	11:30 AM	2018/12/20	06:35 PM	2018/12/29
Synchronisation with Grid	09:30 PM	2018/12/04	06:45 PM	2018/12/20	10:30 PM	2018/12/31
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	00:08:20	Hrs (dd:hh:mm)	00:07:15	Hrs (dd:hh:mm)	02:03:55	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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Event No.	Event 1		Event 2		Event 3	
Unit	5		5		6	
Fires in	05:20 AM	2018/12/13	01:10 PM	2018/12/25	08:55 PM	2018/12/09
Synchronisation with Grid	05:05 AM	2018/12/14	06:15 PM	2018/12/26	09:20 PM	2018/12/11
Emissions below limit from Sync (Date and Time)	<i>did not go above limit</i>	<i>did not go above limit</i>	<i>did not go above limit</i>	<i>did not go above limit</i>	<i>did not go above limit</i>	<i>did not go above limit</i>
Fires in to synchronization	00:23:45	Hrs (dd:hh:mm)	01:05:05	Hrs (dd:hh:mm)	02:00:25	Hrs (dd:hh:mm)
Synchronization to < limit (Duration)	<i>did not go above limit</i>	Hrs (dd:hh:mm)	<i>did not go above limit</i>	Hrs (dd:hh:mm)	<i>did not go above limit</i>	Hrs (dd:hh:mm)

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	2018/12/04	01:10 PM	2018/12/04	09:30 PM	17.6	2585.6	689.3
Unit 4	2018/12/20	11:30 AM	2018/12/20	06:45 PM	51.7	2778.0	737.3
Unit 4	2018/12/29	06:35 PM	2018/12/31	10:30 PM	47.1	1552.8	429.6
Unit 5	2018/12/13	05:20 AM	2018/12/14	05:05 AM	13.6	-890.7	-425.1
Unit 5	2018/12/25	01:10 PM	2018/12/26	06:15 PM	19.6	2063.0	501.1
Unit 6	2018/12/09	08:55 PM	2018/12/11	09:20 PM	38.8	2416.9	410.2

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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	2018/12/03	01:20 PM	2018/12/03	03:30 PM	65.9	2984.2	0.0
Unit 4	2018/12/20	10:45 AM	2018/12/20	10:45 AM	68.3	3074.3	718.1
Unit 4	2018/12/25	08:20 PM	2018/12/26	09:50 AM	47.4	2615.9	808.4
Unit 5	2018/12/13	02:15 AM	2018/12/13	03:45 AM	24.3	-1729.3	-655.9
Unit 5	2018/12/25	12:40 PM	2018/12/25	12:40 PM	13.3	2044.4	427.1
Unit 6	2018/12/09	11:10 AM	2018/12/09	06:30 PM	49.0	3023.6	448.2

8. Continuous Emission Monitoring Systems (CEMS)

Unit 4, 5 and 6 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	Nature of Repair/Adjustment
None	N/A


Table 14: CEMS Monitor Reliability

Variable	Unit 4	Unit 5	Unit 6
Dust	100.0	100.0	100.0
SO ₂	95.2	96.0	96.3
NO _x	94.9	96.0	96.3
CO	95.5	96.2	96.6
O ₂	94.9	95.4	96.3
Temperature	0.0	96.4	96.6
Pressure	95.5	96.4	96.6
Velocity	0.0	76.6	81.3

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CO ₂	9.5	2.4	1.6
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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 December 2018

		
CALCULATION OF EMISSIONS OF TOTAL VOLATILE COMPOUNDS FROM FUEL OIL STORAGE TANKS*		
Date:	31 December 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:	December	
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:	3757.131	tons/month
Molecular weight of the fuel oil:	166.00	Lb/lb-mole
METEROLOGICAL DATA FOR THE MONTH	Data	Unit
Daily average ambient temperature	27.35	°C
Daily maximum ambient temperature	33.26	°C
Daily minimum ambient temperature	21.97	°C
Daily ambient temperature range	11.30	°C
Daily total insolation factor	6.12	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:	0.11 kg/month	
TOTAL LOSSES (Total TVOC Emissions for the month):	0.80 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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12. Air quality improvements initiatives and public education and awareness campaigns

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

13. Complaints Register


Table 16: Complaints for the month of December 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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Compiled by:

Senior Environmental Advisor

Reviewed by:

Boiler System EIT

Supported by:

Boiler Engineering Manager

Supported by:

Environmental 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 Angeller 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

CALIBRATION CERTIFICATE

				CERTIFICATE NO: 2816	
CUSTOMER:	Medupi Power Station	JOB NO:	SC1267	PHONE:	014 762 2255
CONTACT NAME:	Christo Vorster	SERIAL NO:	13670		
MODEL:	Dr Fodisch MGA 23				
AUXILIARY EQUIPMENT:	Unit 5				

CHAN		PRIOR	FINAL	TEST GAS	TEST GAS VALUE	GAS CERTIFICATE NUMBER
1	ZERO	-2.6 ppm	0 ppm	Air	21 %	Air
	SPAN	796 ppm	804 ppm	CO	803.9 ppm	80A
2	ZERO	-9.0 ppm	0 ppm	Air	21 %	Air
	SPAN	821 ppm	834 ppm	NO	833.9 ppm	3207
3	ZERO	-4.2 ppm	0 ppm	Air	21 %	Air
	SPAN	2113 ppm	2090 ppm	SO2	2090.4 ppm	12633
4	ZERO	0.05 %	0.0 %	N2	99.99 %	3207
	SPAN	20.98 %	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: 30 Oct 2018

Calibration Due Date: Feb 2019

Technician:

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Fax: +27 11 894 1037
CO REG #: 2004/007607/07
info@e-analytics.co.za

CALIBRATION CERTIFICATE

CERTIFICATE NO: 2817

CUSTOMER:	Medupi Power Station	JOB NO:	SC1287
CONTACT NAME:	Christo Vorster	PHONE:	014 762 2255
MODEL:	Foedisch MGA 23	SERIAL NO:	18339
AUXILIARY EQUIPMENT:	Unit 6		

CHAN		PRIOR	FINAL	TEST GAS	TEST GAS VALUE	GAS CERTIFICATE NUMBER
1	ZERO	+1.0 ppm	0 ppm	Air	21 %	Air
	SPAN	802 ppm	804 ppm	CO	803.9 ppm	804
2	ZERO	+1.0 ppm	0 ppm	Air	21 %	Air
	SPAN	854 ppm	834 ppm	NO	833.9 ppm	3207
3	ZERO	+3.0 ppm	0 ppm	Air	21 %	Air
	SPAN	2265 ppm	2090 ppm	SO2	2090.4 ppm	12633
4	ZERO	0.07 %	0.0 %	N2	99.99 %	3207
	SPAN	20.79 %	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: 30 Oct 2018

Calibration Due Date: Feb 2019

Technician:



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

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ESST Level 4 Company

CALIBRATION CERTIFICATE

CERTIFICATE NO: 2818			
CUSTOMER:	Medupi Power Station	JOB NO:	SC1267
CONTACT NAME:	Christo Vorster	PHONE:	014 762 2255
MODEL:	Dr Fodisch MGA 12 CO2	SERIAL NO:	
AUXILIARY EQUIPMENT:	Unit 6		

CHAN		PRIOR	FINAL	TEST GAS	TEST GAS VALUE	GAS CERTIFICATE NUMBER
1	ZERO	0.6 %	0.0 %	Air	21 %	Air
	SPAN	622 ppm	22.0 %	CO2	22.1 %	222321

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: 30 Oct 2018

Calibration Due Date: Feb 2019

Technician:



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

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CALIBRATION CERTIFICATE

		CERTIFICATE NO: 2615	
CUSTOMER:	Medupi Power Station	JOB NO:	SC1267
CONTACT NAME:	Christo Vorster	PHONE:	014 762 2255
MODEL:	Dr Fodisch MGA 23	SERIAL NO:	13668
AUXILIARY EQUIPMENT:	Unit 4		

CHAN		PRIOR	FINAL	TEST GAS	TEST GAS VALUE	GAS CERTIFICATE NUMBER
1	ZERO	-5.0 ppm	0 ppm	Air	21 %	Air
	SPAN	788 ppm	804 ppm	CO	803.9 ppm	804
2	ZERO	-12.0 ppm	0 ppm	Air	21 %	Air
	SPAN	818 ppm	834 ppm	NO	833.9 ppm	3207
3	ZERO	-17.3 ppm	0 ppm	Air	21 %	Air
	SPAN	1945 ppm	2090 ppm	SO2	2090.4 ppm	12633
4	ZERO	0.11 %	0.0 %	N2	99.99 %	3207
	SPAN	27.15 %	20.95	O2	20.95 %	Air

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

Date: 30 Oct 2018

Calibration Due Date: Feb 2019

Technician:



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



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