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		Effective Date	August 2018		
		Review Date	August 2021		

Phumudzo Thivhafuni

Date: 2019/09/20

Limpopo Dept. of Economic Development, Environment and Tourism

Private Bag 9484
POLOKWANE
0700

ThivhafuniPO@ledet.gov.za

Ref: 12/4/12L-W2/A3 – Aug 2019

Dear Phumudzo

MEDUPI POWER STATION MONTHLY EMISSIONS REPORT FOR THE MONTH OF AUGUST 2019

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 3, 4, 5 and 6 gaseous and particulate emissions performance against the AEL limit for the month of August 2019 only.

1. Raw Materials and Products

Table 1: Quantity of raw materials and products for Unit 3, 4, 5 and 6 in August 2019

Raw Materials and Products used	Raw Material Type	Unit	Maximum Permitted Consumption/ Rate (Quantity)	Unit 3, 4, 5 and 6 consumption August 2019
	Coal	Tons/month	1 875 000	622 778
	Fuel Oil	Tons/month	40 000	2631
Production Rates	Product/ By-Product Name	Unit	Maximum Production Capacity Permitted (Quantity)	Unit 3, 4, 5 and 6 Production Rate in Month of August 2019
	Energy	MW	4 800	2299
	Ash Emitted	Tons/month	not specified	206.2

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Table 2: Daily consumption and production rates

Date	Reportable hours of Operation				Fuel Consumption (tons)				Production rate (MW)			
	Unit 3	Unit 4	Unit 5	Unit 6	Oil			Coal	U3	U4	U5	U6
					Aux Boiler	Units	Total	Units				
01-August-19	24.0	24.0	24.0	0.0	0.00	143	143	18278	735	611	490	492
02-August-19	24.0	24.0	24.0	18.9	0.00	214	214	24196	660	642	528	613
03-August-19	24.0	24.0	24.0	24.0	0.00	9	9	24779	566	713	487	613
04-August-19	24.0	14.8	24.0	24.0	0.00	28	28	25445	502	488	483	557
05-August-19	24.0	0.0	24.0	24.0	0.00	191	191	23276	567	546	504	583
06-August-19	24.0	19.2	24.0	24.0	0.00	254	254	19529	615	638	548	563
07-August-19	0.2	24.0	24.0	24.0	0.00	32	32	20122	256	688	496	626
07-August-19	0.0	24.0	24.0	24.0	0.00	107	107	16855		744	458	644
09-August-19	0.0	24.0	24.0	24.0	0.00	101	101	12237		695	449	563
10-August-19	0.0	24.0	24.0	24.0	0.00	141	141	18246		633	438	573
11-August-19	0.0	24.0	21.3	24.0	0.00	129	129	16852	364	603	423	536
12-August-19	12.8	24.0	0.0	24.0	0.00	440	440	17574	597	646		538
13-August-19	24.0	24.0	0.0	24.0	0.00	36	36	18123	705	650		569
14-August-19	24.0	24.0	0.0	24.0	0.00	26	26	17189	697	571		591
15-August-19	24.0	24.0	0.0	24.0	0.00	132	132	18604	584	585		519
16-August-19	24.0	24.0	0.0	24.0	0.00	72	72	19820	721	579		583
17-August-19	24.0	24.0	0.0	24.0	0.00	29	29	20727	750	586		579
18-August-19	24.0	24.0	0.0	24.0	0.00	3	3	26046	646	560		547
19-August-19	24.0	24.0	0.0	24.0	0.00	33	33	22195	681	607		570
20-August-19	24.0	24.0	0.0	24.0	0.00	44	44	21115	761	740		564
21-August-19	24.0	24.0	0.0	2.3	0.00	1	1	22501	651	608		574
22-August-19	24.0	24.0	0.0	0.0	0.00	157	157	26048	657	584		531
23-August-19	24.0	24.0	0.0	11.6	0.00	226	226	25564	674	661		594
24-August-19	24.0	24.0	0.0	24.0	0.00	17	17	20986	532	562		569
25-August-19	24.0	24.0	0.0	24.0	0.00	22	22	23130	677	615		527
26-August-19	24.0	24.0	0.0	24.0	0.00	8	8	19755	722	706		525
27-August-19	24.0	24.0	0.0	24.0	0.00	15	15	19088	733	686		534
28-August-19	24.0	24.0	0.0	24.0	0.00	6	6	18651	691	690		537
29-August-19	24.0	24.0	0.0	24.0	0.00	0	0	19113	766	764		562
30-August-19	24.0	24.0	0.0	24.0	0.00	5	5	22409	757	648		556
31-August-19	24.0	24.0	0.0	24.0	0.00	10	10	19322	725	628	181	560

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2. Abatement Technology

Table 3: Abatement Equipment Control Technology utilisation for month of August 2019

Associated Unit/Stack	Technology Type	Actual Utilisation (%) for the month of August 2019
Unit 3,4,5 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 August 2019

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	1.42
Ash Content	35 - 39	33.36

Table 5: Energy Source Material Characteristics for the month of August 2019

Characteristic	Stipulated Range (%)	Monthly Average Content (%)
Oil		
Sulphur Content	0.5 - 3.5	1.8
Ash Content	0.02 - 0.1	0.01

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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Table 6: Daily averages emissions for the month of August 2019

Days	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 (%)				CO ₂ (mg/Nm ³)			
	Unit	3	4	5	6	3	4	5	6	3	4	5	6	3	4	5	6	3	4	5	6	3	4	5	6	3	4	5	6	3	4	5	6	3	4	5
1	27.3	39.6	28.1		2 308	2 962	3 059	2 818	383	480	426	379					133.9	113.2	113.0	126.8	89.6	90.0	90.0	90.1	17.6	9.8	9.6	8.0	6.2	7.6	7.7	8.7				
2	22.3	34.8	41.4	35.2	2 262	2 818	2 981	2 951	380	511	443	408					130.6	120.5	114.5	133.9	89.6	90.2	90.1	90.1	16.7	9.8	10.6	8.1	6.8	7.3	7.5	7.4				
3	19.1	39.3	36.3	39.0	2 226	2 634	2 780	2 667	389	498	435	501					126.2	111.2	113.3	128.9	89.6	90.0	90.0	90.0	15.4	9.8	9.8	8.0	7.7	7.0	7.8	7.3				
4	18.3	16.9	35.8	37.5	2 256	2 625	2 778	2 621	389	473	427	417					126.7	117.8	114.3	129.1	89.6	90.2	90.1	90.1	14.1	9.8	9.7	7.3	8.1	8.7	7.8	7.6				
5	19.0		34.2	44.5	2 316	2 564	2 875	2 720	325	525	422	400					128.9	114.4	116.5	132.1	89.5	90.1	90.0	90.0	15.2	7.8	10.5	7.8	8.5	8.6	7.9	7.6				
6	24.0	44.2	29.3	42.8	2 407	2 941	3 078	2 912	347	500	436	455					134.2	112.7	120.2	133.5	89.5	90.0	89.9	90.0	16.0	7.5	11.1	7.6	8.4	7.7	7.3	7.7				
7	8.0	31.5	18.6	42.1	2 655	2 996	2 968	2 744	384	565	467	471					131.2	115.5	117.9	138.3	89.6	89.3	89.2	89.3	11.8	7.3	10.5	8.3	10.7	7.3	8.1	7.2				
8		29.0	10.5	73.4		3 056	3 025	1 513		556	496	248						113.6	120.9	138.6		86.2	86.2	86.2	7.4	10.0	8.7		7.7	8.3	7.5					
9		59.5	14.8	48.0		2 891	3 128	3 159		639	465	531						115.2	118.7	135.6		90.3	90.2	90.2		7.6	9.6	7.7		8.8	8.5	7.8				
10		27.4	11.9	39.6		1 380	3 074	3 087		464	478	499						115.5	112.0	128.8		90.6	90.6	90.6		9.8	9.4	7.7		7.7	8.8	7.8				
11		24.0	13.8	43.3	2 533	1 984	3 152	2 954	333	548	509	498					128.6	115.5	111.9	131.0	89.6	89.3	89.3	89.3	12.6	14.7	9.3	7.5	9.3	7.5	8.9	8.2				
12	20.6	38.8		46.7	2 601	3 863		3 277	314	612		528					137.4	122.2		133.0	89.5	90.0		90.0	15.8	9.5		7.3	7.2	6.9		8.0				
13	22.6	43.4		45.4	2 619	3 515		3 255	324	593		495					135.6	127.0		130.0	89.6	90.2		90.2	17.0	10.5		7.6	6.2	7.0		7.7				
14	23.6	36.9		48.3	2 610	3 754		3 567	323	648		517					136.2	125.0		132.2	89.8	90.5		90.4	16.8	11.5		7.9	6.3	7.8		7.6				
15	16.9	34.9		31.0	2 576	3 274		3 428	332	575		516					130.6	121.4		126.5	90.1	90.8		90.8	15.0	10.0		7.0	7.2	7.4		8.2				
16	23.0	35.8		43.3	2 631	3 338		3 476	324	567		452					135.8	124.5		131.1	89.9	90.6		90.6	17.3	8.5		7.7	6.1	7.4		7.6				
17	23.0	41.9		44.0	2 603	3 154		3 645	335	591		473					139.7	117.8		134.6	89.7	90.3		90.3	17.7	8.8		7.6	5.7	7.3		7.5				
18	16.6	35.8		37.5	2 734	3 541		1 300	346	516		165					132.6	117.8		127.9	89.9	90.4		90.4	16.0	10.3		7.2	6.4	7.4		7.8				
19	19.0	37.7		42.3	2 562	3 075		3 556	363	601		432					135.9	117.8		130.1	89.8	90.4		90.4	16.7	9.2		7.6	6.6	7.3		7.8				
20	23.4	31.3		35.6	2 327	2 230		2 966	342	547		427					139.3	117.8		130.8	89.8	90.4		90.4	17.9	11.6		7.5	6.0	6.6		7.9				
21	17.3	20.6		37.4	2 515	2 515		3 083	323	533		522					131.5	117.8		127.3	90.1	90.8		90.8	15.9	8.6		8.3	6.6	7.6		8.3				
22	16.5	23.5			2 670	2 864		3 291	321	571		432					130.9	117.8		132.8	90.0	90.7		90.6	16.0	9.8		8.1	6.5	7.7		8.7				
23	18.4	34.1		59.2	2 627	3 034		3 584	314	553		389					129.9	117.8		127.7	89.9	90.5		90.5	16.4	10.5		8.1	6.5	7.2		7.9				
24	15.8	33.7		36.0	2 599	2 848		3 237	325	646		398					126.0	117.8		127.6	89.9	90.5		90.5	14.4	9.7		7.8	7.9	7.8		8.2				
25	17.7	35.8		39.2	2 643	2 913		3 509	421	584		415					132.4	117.8		131.2	89.7	90.3		90.3	16.6	9.4		7.5	6.5	7.4		8.5				
26	19.5	39.8		42.6	2 461	2 963		3 186	391	549		353					136.3	117.8		130.4	89.6	90.1		90.1	17.3	10.5		7.2	6.1	7.0		8.3				
27	24.0	39.1		43.5	2 631	3 643		3 382	383	549		380					136.1	117.8		131.2	89.4	90.0		90.0	18.0	10.6		7.4	6.9	6.8		8.3				
28	25.4	38.3		48.9	1 869	3 672		3 374	337	542		539					133.1	117.8		133.6	89.3	89.8		89.8	17.7	10.3		7.5	7.6	6.5		8.2				
29	23.5	39.9		43.1	1 869	3 961		3 410	377	528		522					136.2	117.8		131.1	89.4	89.8		89.9	18.4	11.2		7.7	6.3	6.2		8.0				
30	29.2	43.2		41.0	2 196	3 825		3 354	392	572		562					138.7	117.8		132.5	89.1	89.6		89.6	18.2	10.5		7.5	6.9	6.8		7.7				
31	22.5	39.7		38.6	2 077	3 908	2 256	3 581	407	592	492	546					138.6	117.8	118.1	128.4	89.0	89.4	89.6	89.4	17.8	11.6	8.4	7.7	6.9	7.0	9.8	8.0				

Note:

- There is no reportable data on areas shaded black; this is a result of unit trip, outage and or grace period.
- Unit 4 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 is awaiting spares for unit 4, 5 and 6 CO₂ monitor.

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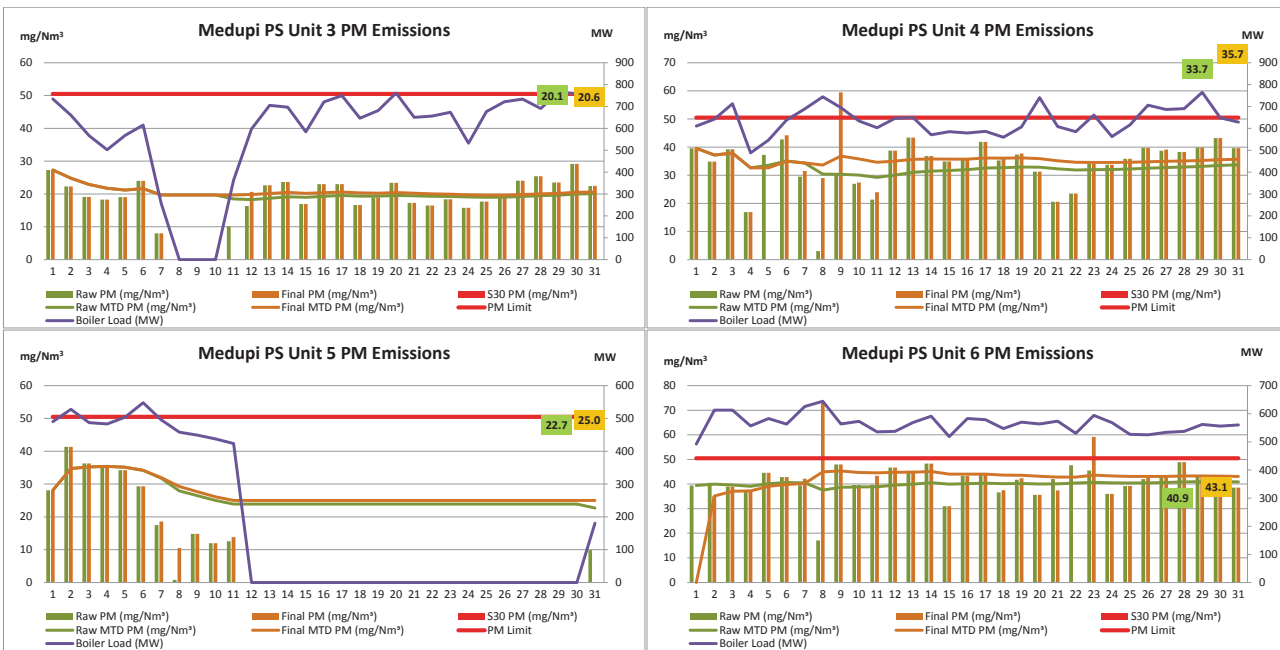


Figure 1: Medupi Power Station graphical representation of the daily average emissions for particulates

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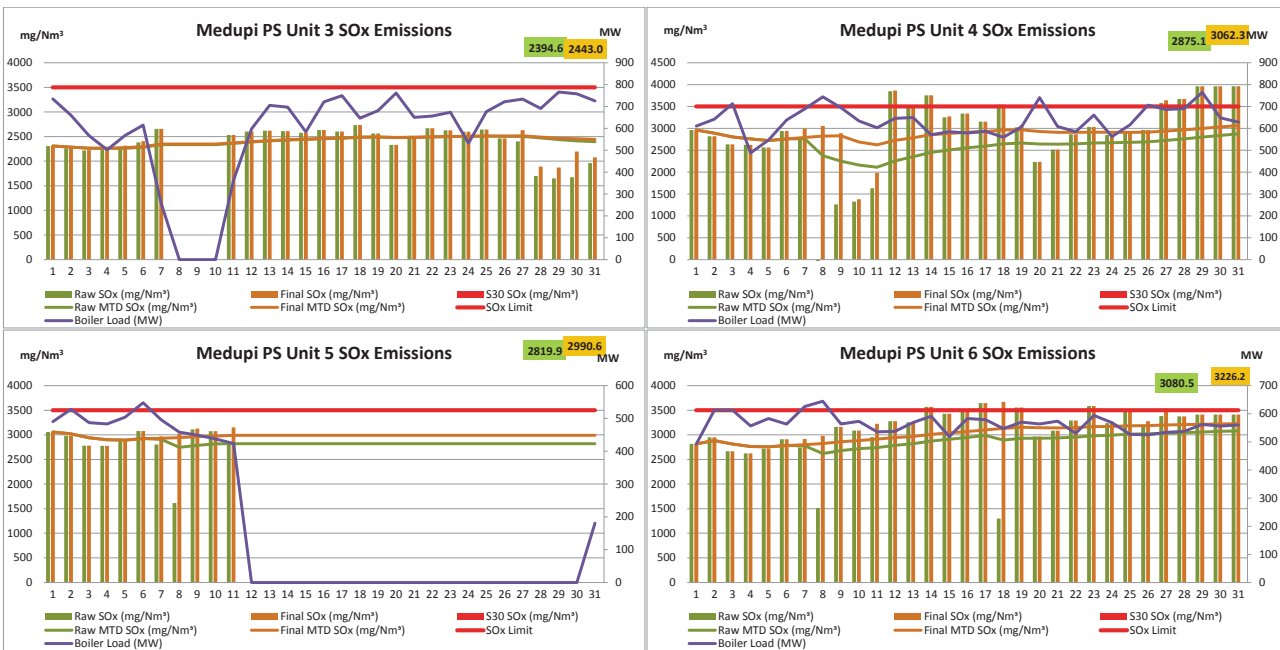


Figure 2: Medupi Power Station graphical representation of the daily average emissions for SOx

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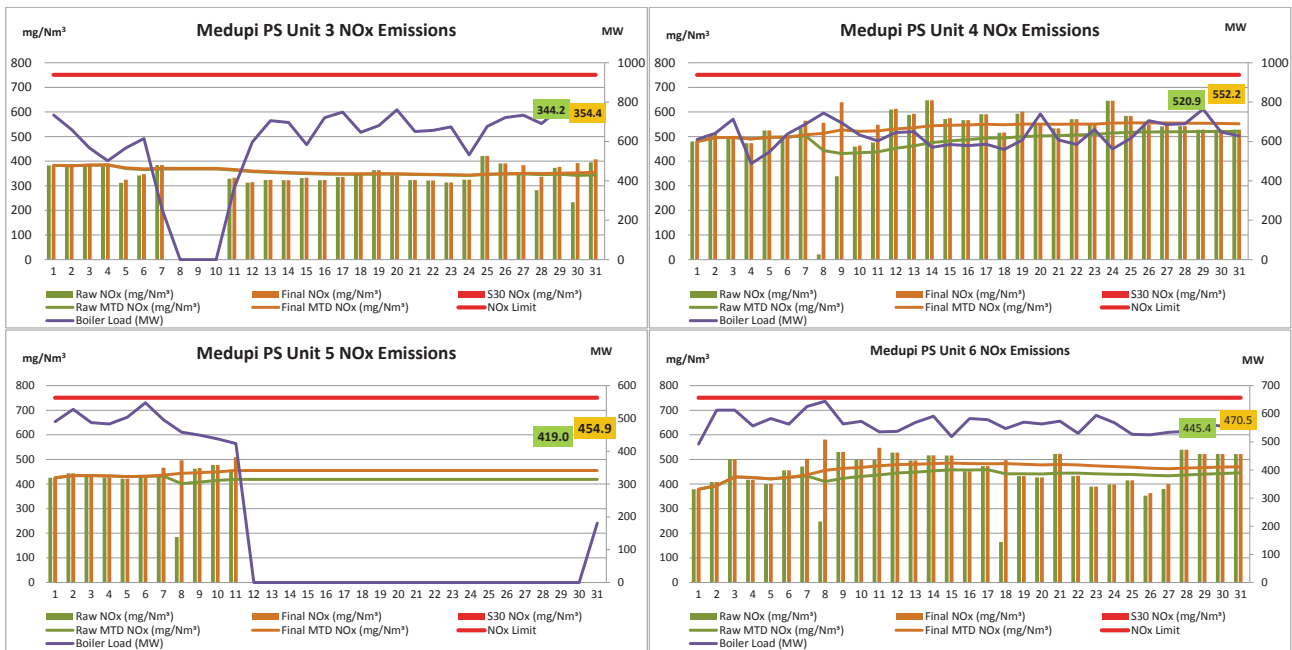


Figure 3: Medupi Power Station graphical representation of the daily average emissions for NOx

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Table 7: Monthly tonnages for the month of August 2019

Unit	PM (tons)	SO ₂ (tons)	NO ₂ (tons)	CO (tons)	CO ₂ (tons)
1	0.0	0	0		
2	0.0	0	0		
3	48.3	5 609	821		
4	76.3	6 570	1 184		
5	15.3	1 780	271		
6	66.2	5 432	796		
SUM	206.2	19 392	3 071		

Unit 3, 4, 5 and 6 CO₂ monitoring equipment is currently not functional, procurement process is undergoing to purchase the spare required to fix/repair the equipment. It is anticipated that, the spare will be onsite by end of August 2019.

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	26:13:00	00:00:00	00:00:00	04:11:00
4	29:13:00	00:21:00	00:00:00	00:14:00
5	11:02:25	00:00:00	00:00:00	19:21:35
6	28:21:30	01:02:00	00:00:00	01:00:30

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6. Comments on the performance and availability of each unit

Unit 3 was off from 8 to 11 August 2019 for Generator H2 leak repairs. Unit 5 was on outage for PJFF bag replacement between 12 and 31 August 2019. The monthly average emissions limit of 3500 mg/Nm³ for SO₂ was achieved in all the Units during the reporting period. There were exceedances for NO_x in all the operating units. Unit 4 and 6 exceeded the daily average emissions limit for particulates on 1 and two occasions respectively due to upset conditions on the PJFF.

7. Light up information

Table 9: 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
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 10: 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
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

8. Continuous Emission Monitoring Systems (CEMS)

Unit 3, 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 on unit 4, 5 and 6 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 11: Periods during which CEMS was inoperative

Date	Nature of Repair/Adjustment
None	Not Applicable

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Table 12: CEMS Monitor Reliability

Variable	Unit 3	Unit 4	Unit 5	Unit 6
Dust	96.3	98.5	98.1	98.3
SO ₂	87.4	92.5	87.8	92.7
NO _x	90.9	92.5	87.8	92.6
CO	91.7	97.8	91.7	97.8
O ₂	90.0	86.8	87.2	92.5
Temperature	94.6	0.0	87.5	95.0
Pressure	84.5	97.8	91.7	96.5
Velocity	94.8	69.9	86.5	95.0
CO ₂				

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 13: Total Volatile Organic Compound (TVOC) for August 2019

		
CALCULATION OF EMISSIONS OF TOTAL VOLATILE COMPOUNDS FROM FUEL OIL STORAGE TANKS*		
Date:	31 August 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:	August	
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:	2631	tons/month
Molecular weight of the fuel oil:	166.00	Lb/lb-mole
METEROLOGICAL DATA FOR THE MONTH	Data	Unit
Daily average ambient temperature	20.46	°C
Daily maximum ambient temperature	28.86	°C
Daily minimum ambient temperature	12.76	°C
Daily ambient temperature range	16.09	°C
Daily total insolation factor	4.23	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:	0.07 kg/month	
TOTAL LOSSES (Total TVOC Emissions for the month):	0.80 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.		

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

There was activity planned for the month of August 2019.

13. Complaints Register


Table 14: Complaints for the month of August 2019

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

Verified by: Boiler System EIT

Supported by: Boiler Engineering Manager

Supported by: Environmental Manager

Supported by: Chief Engineer

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, Itando, SA, 1600
VAT REG #: 421 021 3248
www.e-analytics.co.za

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

CALIBRATION CERTIFICATE

		CERTIFICATE NO: 3152	
CUSTOMER:	Medupi Power Station	JOB NO:	SC1437
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	800 ppm	804 ppm	O ₂	803.9 ppm	80A
2	ZERO	1.0 ppm	0 ppm	Air	21 %	Air
	SPAN	911 ppm	910 ppm	NO	910 ppm	1260B
3	ZERO	-7.4 ppm	0 ppm	Air	21 %	Air
	SPAN	2205 ppm	2173 ppm	SO ₂	2172.8 ppm	1265A
4	ZERO	-0.08 %	0.0 %	N ₂	99.99 %	1260B
	SPAN	21.13 %	20.95	O ₂	20.95 %	Air

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

Date: 14 May 2019

Calibration Due Date: Aug 2019

Technician: J. Faber




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

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Tel: 0861 000 032
Int. Tel: +27 11 918 8994
Fax: +27 11 854 1037
CO REG #: 2004/007607/07
info@e-analytics.co.za

13811 Level 4 Comenza

CALIBRATION CERTIFICATE

CERTIFICATE NO: 3053

CUSTOMER:	Medupi Power Station	JOB NO:	SC1437
CONTACT NAME:	Christo Vorster	PHONE:	014 762 2255
MODEL:	Dr Fodisch MGA 23	SERIAL NO:	13670
AUXILIARY EQUIPMENT:	Unit 5		

CHAN		PRIOR	FINAL	TEST GAS	TEST GAS VALUE	GAS CERTIFICATE NUMBER
1	ZERO	-7.0 ppm	0 ppm	Air	21 %	Air
	SPAN	796 ppm	804 ppm	CO	803.9 ppm	80A
2	ZERO	-12.0 ppm	0 ppm	Air	21 %	Air
	SPAN	891 ppm	910 ppm	NO	910.0 ppm	12608
3	ZERO	-15.1 ppm	0 ppm	Air	21 %	Air
	SPAN	1930 ppm	2173 ppm	SO2	2172.8 ppm	12664
4	ZERO	-0.06 %	0.0 %	N2	99.99 %	12608
	SPAN	21.2 %	20.95	O2	20.95 %	Air

REPORT: Inspect sample lines and sample system, check diagnostics, sample pump was change. Calibrate analyser with zero and span gas, analyser respond to all test gas.

Date: 14 May 2019

Calibration Due Date: Aug 2019

Technician: J. Faber



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

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info@e-analitics.co.za

ANALYTICAL Level 4 Company

CALIBRATION CERTIFICATE

CERTIFICATE NO: 3064

CUSTOMER:	Medupi Power Station	JOB NO:	SC1437
CONTACT NAME:	Christo Vorster	PHONE:	014 762 2255
MODEL:	Foedisch MGA 23	SERIAL NO:	16339
AUXILIARY EQUIPMENT:	Unit 6		

CHAN		PRIOR	FINAL	TEST GAS	TEST GAS VALUE	GAS CERTIFICATE NUMBER
1	ZERO	-11.0 ppm	0 ppm	Air	21 %	Air
	SPAN	787 ppm	804 ppm	CO	803.9 ppm	80A
2	ZERO	-32.0 ppm	0 ppm	Air	21 %	Air
	SPAN	882 ppm	910 ppm	NO	910.0 ppm	12608
3	ZERO	-36.0 ppm	0 ppm	Air	21 %	Air
	SPAN	2278 ppm	2173 ppm	SO2	2172.8 ppm	12664
4	ZERO	0.05 %	0.0 %	N2	99.99 %	12608
	SPAN	20.89 %	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: 14 May 2019
Calibration Due Date: Aug 2019
Technician: J. Faber 


Document Number: TH-PPC-002-P1 Rev 1

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