	Medupi Power Station Monthly Emissions Report	Template Identifier	240-43921804	Rev	6
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		Review Date	February 2021		

Phumudzo Thivhafuni

Date: 2019/03/25

Limpopo Dept. of Economic Development, Environment and Tourism

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0700

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Ref: 12/4/12L-W2/A3 – Feb 2019

Dear Phumudzo

MEDUPI POWER STATION MONTHLY EMISSIONS REPORT FOR THE MONTH OF FEBRUARY 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 4, 5 and 6 gaseous and particulate emissions performance against the AEL limit for the month of February 2019 only.

1. Raw Materials and Products

Table 1: Quantity of raw materials and products used/produced for Unit 4, 5 and 6 in February 2019

Raw Materials and Products used	Raw Material Type	Unit	Maximum Permitted Consumption/ Rate (Quantity)	Unit 4, 5 and 6 consumption February 2019
	Coal	Tons/month	1 875 000	233 329
	Fuel Oil	Tons/month	40 000	3 562
Production Rates	Product/ By-Product Name	Unit	Maximum Production Capacity Permitted (Quantity)	Unit 4, 5 and 6 Production Rate in Month of February 2019
	Energy	MW	4800	855
	Ash Emitted	Tons/month	not specified	51.8

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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-Feb -19	0.0	0.0	6.5	0	154	154	2667	0	0	467
02-Feb -19	0.0	0.0	0.0	0	0	0	4432	438	0	
03-Feb -19	21.6	0.0	0.0	0	115	115	8514	483	0	395
04-Feb -19	20.2	0.0	14.3	0	122	122	8325	425	0	388
05-Feb -19	0.0	0.0	0.0	0	127	127	7111	432	0	352
06-Feb -19	22.7	0.0	0.0	0	284	284	8637	528	0	353
07-Feb -19	24.0	0.0	19.6	0	194	194	10710	458	0	511
08-Feb -19	24.0	0.0	24.0	0	118	118	11128	470	0	518
09-Feb -19	24.0	0.0	24.0	0	31	31	10823	470	0	478
10-Feb -19	24.0	0.0	24.0	0	0	0	10543	468	0	436
11-Feb -19	24.0	0.0	9.5	0	4	4	8258	375	0	364
12-Feb -19	24.0	0.0	9.9	0	128	128	7885	345	0	398
13-Feb -19	24.0	0.0	7.7	0	91	91	5160	353	0	349
14-Feb -19	24.0	0.0	0.0	0	128	128	5210	352	0	345
15-Feb -19	18.5	0.0	9.8	0	382	382	8028	378	0	428
16-Feb -19	0.0	0.0	24.0	0	107	107	8154	372	0	435
17-Feb -19	18.3	0.0	24.0	0	181	181	8915	453	0	393
18-Feb -19	24.0	0.0	24.0	0	25	25	9831	485	0	406
19-Feb -19	24.0	0.0	24.0	0	80	80	10938	500	0	502
20-Feb -19	24.0	0.0	24.0	0	2	2	11344	499	0	559
21-Feb -19	24.0	0.0	5.3	0	0	0	7579	420	0	425
22-Feb -19	24.0	0.0	10.5	0	146	146	8857	350	0	485
23-Feb -19	24.0	0.0	24.0	0	115	115	9341	336	0	550
24-Feb -19	24.0	0.0	24.0	0	195	195	9937	380	0	523
25-Feb -19	24.0	0.0	24.0	0	104	104	10158	390	0	530
26-Feb -19	24.0	0.0	24.0	0	83	83	9651	358	0	530
27-Feb -19	24.0	0.0	6.1	0	229	229	6154	331	0	475
28-Feb -19	24.0	0.0	0.0	0	417	417	5042	205	0	435

Medupi power station unit 5 was on outage throughout the reporting period. Auxiliary boilers were not operated due to the damaged plates in the deaerator.

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2. Abatement Technology

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

Associated Unit/Stack	Technology Type	Actual Utilisation (%) for the month of February 2019
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 February 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	1.45
Ash Content	35 - 39	35.05

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

Characteristic	Stipulated Range (%)	Monthly Average Content (%)
Oil		
Sulphur Content	0.5 - 3.5	2.05
Ash Content	0.02 - 0.1	0.02

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 February 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	4	5	6	4	5	6	4	5	6	4	5	6	4	5	6	4	5	6	4	5	6	4	5	6	4	5
1			57.0			3 001			430			3			130.2			89.8			7.1			7.8			
2					3 967			549			6																
3	9.5				4 009			2 819	512			362	6		2			134.7			89.8			6.7	8.0		8.5
4	9.1			37.0	3 386			2 855	485			326	10		3			123.3			89.8			5.9	9.7		8.9
5					3 280			2 718	450			330	7		1			119.3			89.8			6.8	10.0		9.4
6	12.0				3 491			2 739	478			308	8		0			119.4			89.8			5.9	9.0		9.0
7	10.3			51.7	3 497			2 985	488			341	7		2			131.2			89.8			7.6	9.0		7.4
8	11.6			41.5	4 147			3 193	521			387	8		1			132.1			89.8			6.6	9.4		7.2
9	14.6			32.0	3 989			3 150	513			386	8		3			131.3			89.8			6.2	9.0		7.4
10	15.4			47.7	3 727			2 967	548			339	7		6			131.9			89.8			5.9	9.5		7.4
11	10.8			33.7	3 548			2 894	505			311	9		3			129.2			89.8			7.1	10.6		8.1
12	11.0			41.4	3 721			2 877	504			280	8		7			127.7			89.8			6.5	10.8		7.9
13	9.4			30.3	3 640			2 854	458			232	9		6			116.1			89.8			7.1	10.3		8.7
14	10.3				3 422			2 576	476			303	8		3			118.0			89.8			7.1	10.5		8.8
15	13.1			20.6	3 678			2 816	548			297	31		3			121.0			89.8			6.0	9.9		8.1
16				19.5	3 545			3 078	587			271	6		11			124.6			89.8			5.9	11.1		7.8
17	15.7			17.4	3 735			3 019	516			260	5		3			124.8			89.8			6.0	8.9		8.1
18	25.0			25.4	3 700			2 840	565			276	8		1			125.2			89.8			8.2	8.9		8.1
19	47.2			30.1	3 902			3 100	640			346	12		24			126.6			89.8			8.6	8.9		7.5
20	65.6			34.6	3 426			2 955	613			365	6		8			131.6			89.8			9.1	9.8		7.2
21	67.0			18.7	3 158			2 604	580			259	6		4			124.5			89.8			7.1	10.3		8.2
22	63.2			48.9	3 026			2 686	652			269	8		6			126.9			89.8			7.8	11.9		7.6
23	53.1			30.2	3 170			2 779	566			298	6		3			130.5			89.8			8.2	11.3		7.0
24	62.4			45.0	3 251			2 909	614			286	6		2			132.1			89.8			8.1	11.0		7.2
25	54.3			39.9	3 410			2 792	549			282	6		7			130.8			89.8			7.9	10.4		7.1
26	57.3			19.7	3 248			2 922	574			321	6		5			129.9			89.8			7.8	10.7		7.4
27	49.4			31.3	2 747			2 776	584			317	6		3			128.8			89.8			7.5	11.3		7.7
28	29.7				2 034			2 742	441			307	7		4			124.8			89.8			7.1	10.2		7.8

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.

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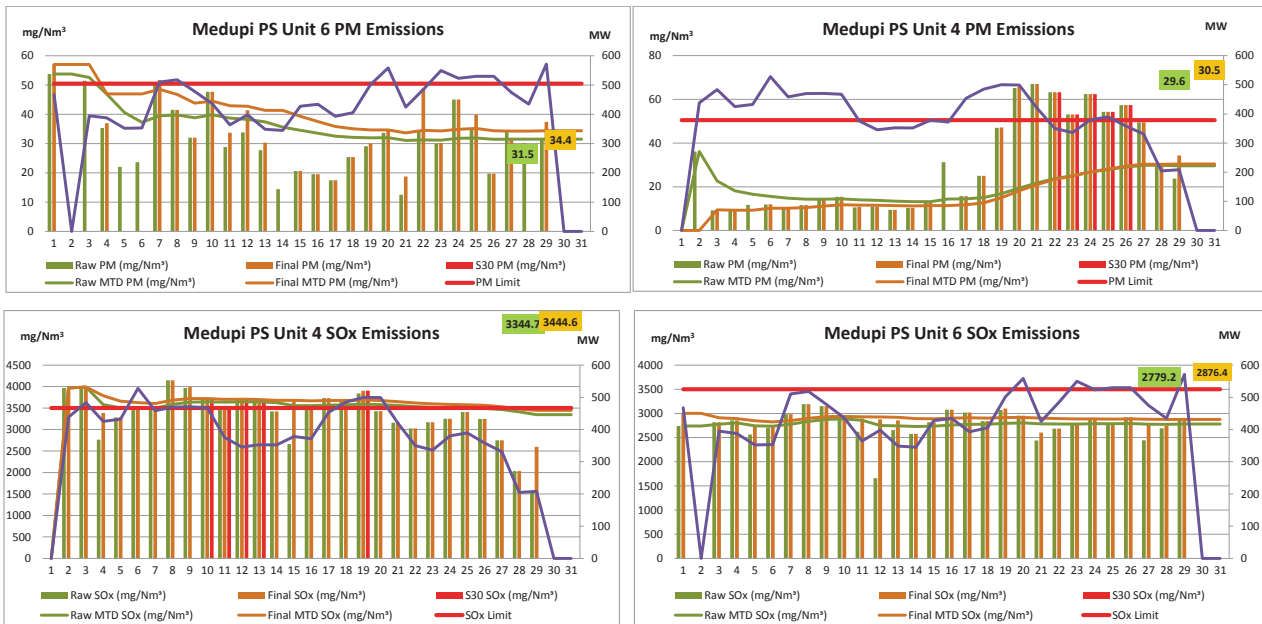
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Medupi Power Station graphical representation of the daily average emissions



Inthu measurements conducted the gaseous parallel test for Medupi Unit 4 between 20 and 23 November 2018. Medupi power station received the report on 19 March 2019 and implement correction factors as such, the emissions data was backfitted 1 February 2019 and it then realised that emissions were above the limit for most of the days in February. Unit 4 burned a lot of fuel oil in the month of February to support the mills due to high load losses caused by dust emissions. Fuel oil contains high sulphur content and might have caused the high sulphur emissions. Unit 4 particulates emissions exceedances were reported in terms of NEMA s30.

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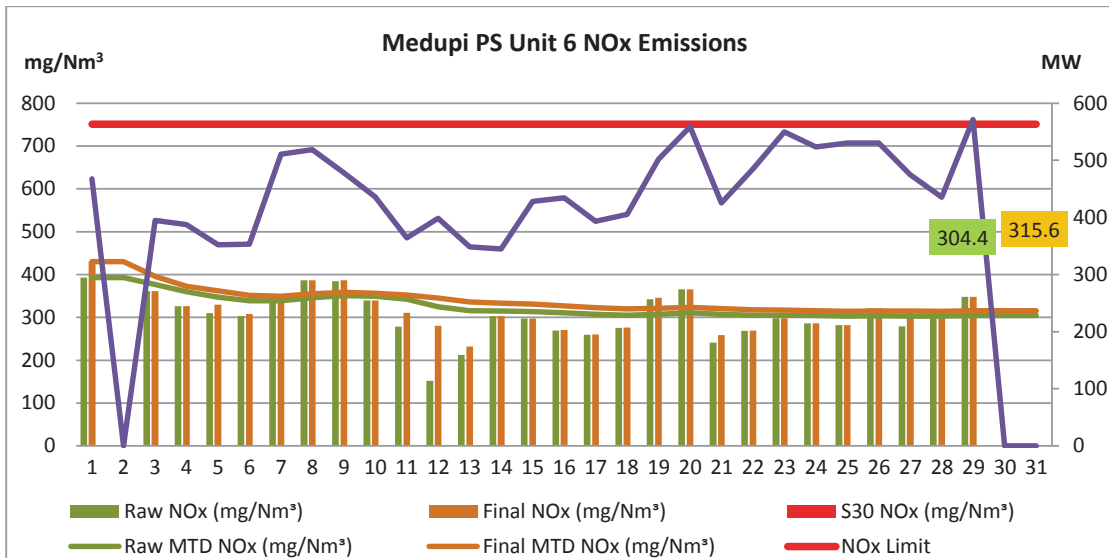
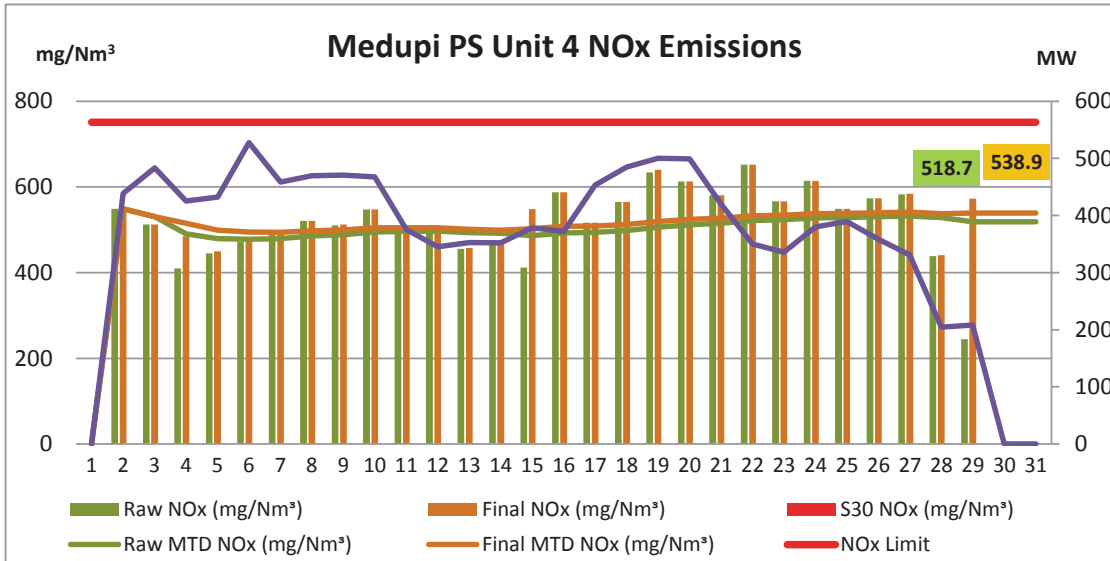
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Note that the x-axis represent days of the month, however point number 29 in all graphs represent the 1st of March 2019.

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Table 7: Monthly tonnages for the month of February 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	0.0	0	0		
4	31.2	3 768	578		
5	0.0	0.0	0.0		
6	26.9	3 129	341		
SUM	58.1	6 897	919		

CO₂ monitoring equipment is currently not functional, procurement process is undergoing to purchase the spare required to fix/repair 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	28:00:00
2	00:00:00	00:00:00	00:00:00	28:00:00
3	00:00:00	00:00:00	00:00:00	28:00:00
4	15:06:15	04:00:00	06:23:00	01:18:45
5	00:00:00	00:00:00	00:00:00	28:00:00
6	22:05:40	00:20:20	00:00:00	04:22:00

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Table 9: Days operating in Emergency Level one (EL1)

Hours February EL1			
Date	EL1 Start	Date	EL1 Start
01-Feb -19	23:44 EL1 and MCR cancelled	16-Feb -19	05:40 EL1 and MCR in force. 00:00 Cancelled.
02-Feb -19	22:39 EL1 and MCR cancelled	17-Feb -19	05:10 EL1 in force
03-Feb -19	None	18-Feb -19	04:32 - MCR & EL1 in force
04-Feb -19	04:05 EL1 & MCR in force	19-Feb -19	04h32 EL1 & MCR in force
05-Feb -19	None	20-Feb -19	04h24 EL1 and MCR in force
06-Feb -19	(04h03) EL1 and MCR in force.	21-Feb -19	(03h53) EL1 and MCR in force
07-Feb -19	EL1 and MCR in force as from 04:33	22-Feb -19	(03h53) EL1 and MCR in force
08-Feb -19	(04h33)EL1 and MCR in force; (23h33) EL1 and MCR cancelled	23-Feb -19	(03h53) EL1 and MCR in force
09-Feb -19	EL1 and MCR in force as from 05:02	24-Feb -19	(06:15) EL1 and MCR in force.
10-Feb -19	(03:30) EL1 and MCR in force	25-Feb -19	(05:42) EL1 and MCR in force
11-Feb -19	03h52 EL1 & MCR in force	26-Feb -19	(22:54) EL1 and MCR cancelled
12-Feb -19	04h46 EL1 & MCR in force	27-Feb -19	None
13-Feb -19	04h35: EL1 in force	28-Feb -19	04h50: EL1 in force
14-Feb -19	05h05: EL1 in force		
15-Feb -19	04:35 EL1 and MCR in force		

6. Comments on the performance and availability of each unit

Medupi power station operating unit 5 was off load during the reporting period. There was no incident for NO_x emissions on all Operating units.


Unit 4 particulates emissions incidents were witnessed as result of bag failures in the PJFF plant and it was reported to the authorities as NEMA S30 incident. Unit 6 particulates emissions were within the limit throughout the reporting period.

There were Exceedances of SO_x on Unit 4 as result of high fuel oil consumption by the unit when it was running at low loads. These exceedances were realised after back fitting data.

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7. Light up information

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

Event No.	Event 1		Event 2		Event 3		Event 4	
Unit	Unit 4		Unit 6		Unit 6		Unit 6	
Fires in	12:25 AM	2019/02/16	01:50 AM	2019/02/05	07:10 AM	2019/02/14	06:40 AM	2019/02/28
Synchronisation with Grid	05:35 AM	2019/02/16	04:20 AM	2019/02/06	02:05 PM	2019/02/14	10:35 AM	2019/02/28
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>	<i>did not go above limit</i>	<i>did not go above limit</i>
Fires in to synchronization	00:05:10	Hrs (dd:hh:mm)	01:02:30	Hrs (dd:hh:mm)	00:06:55	Hrs (dd:hh:mm)	00:03:55	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)	<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	2019/02/16	12:25 AM	2019/02/16	05:35 AM	37.8	3382.2	601.0
Unit 6	2019/02/05	01:50 AM	2019/02/06	04:20 AM	21.9	2539.6	309.4
Unit 6	2019/02/14	07:10 AM	2019/02/14	02:05 PM	34.4	2164.0	386.7
Unit 6	2019/02/28	06:40 AM	2019/02/28	10:35 AM	33.1	2454.2	345.1


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	2019/02/15	06:30 PM	2019/02/15	06:30 PM	1.2	-156.0	42.5
Unit 6	2019/02/04	10:25 PM	2019/02/05	12:40 AM	7.3	1735.8	292.4
Unit 6	2019/02/13	07:40 AM	2019/02/13	07:35 AM	0.4	296.6	36.3
Unit 6	2019/02/27	06:05 AM	2019/02/28	04:35 AM	40.7	2070.3	235.3

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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		99.8
SO ₂	98.1		96.1
NO _x	97.9		95.1
CO	100.0		99.6
O ₂	91.6		94.7
Temperature	100.0		99.8
Pressure	0.0		100.0
Velocity	0.0		58.0
CO ₂	0.0		58.7

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 Licencing authority on a monthly basis.

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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 February 2019

		
CALCULATION OF EMISSIONS OF TOTAL VOLATILE COMPOUNDS FROM FUEL OIL STORAGE TANKS*		
Date:	31 May 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:	February	
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:	5722.15	tons/month
Molecular weight of the fuel oil:	166.00	Lb/lb-mole
METEROLOGICAL DATA FOR THE MONTH	Data	Unit
Daily average ambient temperature	26.20	°C
Daily maximum ambient temperature	32.94	°C
Daily minimum ambient temperature	20.71	°C
Daily ambient temperature range	12.24	°C
Daily total insolation factor	5.72	kWh/m ² /day
Tank paint colour	Aluminum/Specular	NA
Tank paint solar absorbance	0.39	NA
FINAL OUTPUT:	Result	Unit
Breathing losses:	0.70	kg/month
Working losses:	0.16	kg/month
TOTAL LOSSES (Total TVOC Emissions for the month):	0.86	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 February 2019.

13. Complaints Register


Table 16: Complaints for the month of February 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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		Review Date	February 2021		

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 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,
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PO Box 328, Isando, SA, 1600
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www.e-analytics.co.za

Tel: 0861 000 032
Intl. Tel: +27 11 918 6994
Fax: +27 11 894 1037
CO REG #: 2004/007807/07
info@e-analytics.co.za

CALIBRATION CERTIFICATE

		CERTIFICATE NO: 2816	
CUSTOMER:	Medupi Power Station	JOB NO:	SC1267
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	-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	12833
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: J. Faber

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CALIBRATION CERTIFICATE

CERTIFICATE NO: 2817

CUSTOMER:	Medupi Power Station	JOB NO:	SC1267
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	80A
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: J. Faber




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

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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 %
	SPAN	822 ppm	22.0 %	CO2	22.1 %

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: J. Faber





Document Number: TH-PFC-003-F1 Rev 1

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CALIBRATION CERTIFICATE

CERTIFICATE NO: 2815						
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	80A
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 parasitic 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: J. Faber




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



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