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Stanley Koenaitse

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Date: 2021/06/30

Enquiries: TR. Rammutla

Tel: 014 762 6375

Ref: H16/1/13-AEL/M1/R1 – May 2021

Dear Mr Koenaitse

MEDUPI POWER STATION MONTHLY EMISSIONS REPORT FOR THE MONTH OF MAY 2021

This document serves as the monthly emissions report required in terms of Section 7.7.1 of Medupi Power Station Provisional Atmospheric Emission License (AEL), H16/1/13-AEL/M1/R1.

This report is a reflection of Unit 2, 3, 4, 5 and 6 gaseous and particulate emissions performance against the AEL limit for the month of May 2021 only.

1. Raw Materials and Products

Table 1: Quantity of raw materials and products for Unit 2, 3, 4, 5 and 6 in May 2021

Raw Materials and Products used	Raw Material Type	Unit	Maximum Permitted Consumption/ Rate (Quantity)	Unit 2, 3, 4, 5 and 6 consumption May 2021
	Coal	Tons/month	1 875 000	793 723
	Fuel Oil	Tons/month	20 000	1452,000
Production Rates	Product/ By-Product Name	Unit	Maximum Production Capacity Permitted (Quantity)	Unit 2, 3, 4, 5 and 6 Production Rate in Month of May 2021
	Energy	MW	4 800	2426
	Ash Emitted	Tons/month	not specified	233,3

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Table 2: Daily consumption and production rates

Date	Reportable hours of Operation					Coal usage	Production rate (MW)				
	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6		U2	U3	U4	U5	U6
01-May- 21	24,0	24,0	0,0	0,0	24,0	20064	621,1	655,9	off	off	568,8
02-May- 21	24,0	24,0	0,0	0,0	24,0	18487	574,2	535,2	off	off	565,6
03-May- 21	24,0	24,0	0,0	0,0	24,0	23808	691,2	450,1	440,3	off	600,0
04-May- 21	24,0	24,0	22,2	0,0	24,0	25602	713,3	417,6	657,1	off	591,7
05-May- 21	24,0	24,0	24,0	0,0	24,0	24760	630,7	406,5	699,9	off	556,9
06-May- 21	24,0	24,0	24,0	0,0	24,0	26347	622,8	541,3	650,5	off	544,7
07-May- 21	24,0	24,0	24,0	0,0	24,0	27532	705,5	636,9	633,0	off	558,5
08-May- 21	24,0	24,0	24,0	0,0	24,0	26877	713,7	604,3	650,7	off	530,5
09-May- 21	24,0	24,0	24,0	0,0	24,0	28023	756,3	561,8	653,6	off	570,4
10-May- 21	24,0	24,0	24,0	0,0	18,9	24639	651,1	511,8	655,2	off	552,6
11-May- 21	24,0	24,0	24,0	0,0	0,0	25277	681,1	693,5	687,3	off	457,3
12-May- 21	24,0	24,0	24,0	0,0	14,5	28620	690,1	662,6	671,8	off	587,8
13-May- 21	24,0	24,0	24,0	0,0	9,3	23189	542,0	496,3	685,1	off	445,6
14-May- 21	24,0	7,8	24,0	0,0	7,6	21209	487,3	471,6	697,7	off	562,4
15-May- 21	24,0	0,0	24,0	0,0	24,0	22593	473,1	425,3	673,5	off	545,8
16-May- 21	24,0	17,8	24,0	0,0	24,0	24686	450,0	553,5	686,6	off	570,0
17-May- 21	24,0	24,0	24,0	0,0	24,0	26586	506,9	699,8	698,4	off	570,0
18-May- 21	24,0	24,0	24,0	0,0	24,0	27511	579,4	703,3	680,3	off	570,0
19-May- 21	24,0	24,0	24,0	0,0	24,0	24398	476,2	542,8	off	off	624,9
21-May- 21	24,0	24,0	24,0	0,0	24,0	28305	594,6	698,6	685,2	off	684,7
21-May- 21	24,0	24,0	24,0	0,0	24,0	28764	611,6	687,4	676,2	off	701,0
22-May- 21	24,0	24,0	24,0	0,0	24,0	28282	566,4	698,8	696,4	off	726,4
23-May- 21	24,0	24,0	24,0	0,0	24,0	27593	586,8	714,2	665,5	off	633,1
24-May- 21	24,0	24,0	24,0	0,0	24,0	28090	685,7	684,2	593,6	off	580,2
25-May- 21	24,0	24,0	24,0	0,0	24,0	25563	618,5	751,2	671,9	off	522,4
26-May- 21	24,0	24,0	24,0	0,0	24,0	26762	743,5	465,1	700,0	off	568,4
27-May- 21	24,0	24,0	24,0	0,0	24,0	28026	788,6	518,0	719,0	off	529,9
28-May- 21	24,0	24,0	24,0	0,0	24,0	25787	549,8	549,5	679,3	off	529,9
29-May- 21	24,0	24,0	24,0	0,0	24,0	24620	554,0	569,8	531,0	off	530,0
30-May- 21	24,0	24,0	24,0	0,0	24,0	26827	621,5	545,4	740,8	off	530,1
31-May- 21	24,0	24,0	24,0	0,0	24,0	24897	550,8	481,4	719,4	off	530,0

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2. Abatement Technology

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

Associated Unit/Stack	Technology Type	Efficiency
Unit 1	Fabric Filter Plant (FFP)	-
Unit 2	Fabric Filter Plant (FFP)	99,962%
Unit 3	Fabric Filter Plant (FFP)	99,902%
Unit 4	Fabric Filter Plant (FFP)	99,946%
Unit 5	Fabric Filter Plant (FFP)	-
Unit 6	Fabric Filter Plant (FFP)	99,794%

3. Energy Source Characteristics

Table 4: Energy Source Material Characteristics for the month of May 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	1.250
Ash Content	35 - 39	33,680

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

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

4. Emissions Reporting

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

The emission limits are as follows:

SO₂ Monthly = 3500 mg/Nm³

Dust Daily= 50 mg/Nm³

NO₂ Daily= 750 mg/Nm³

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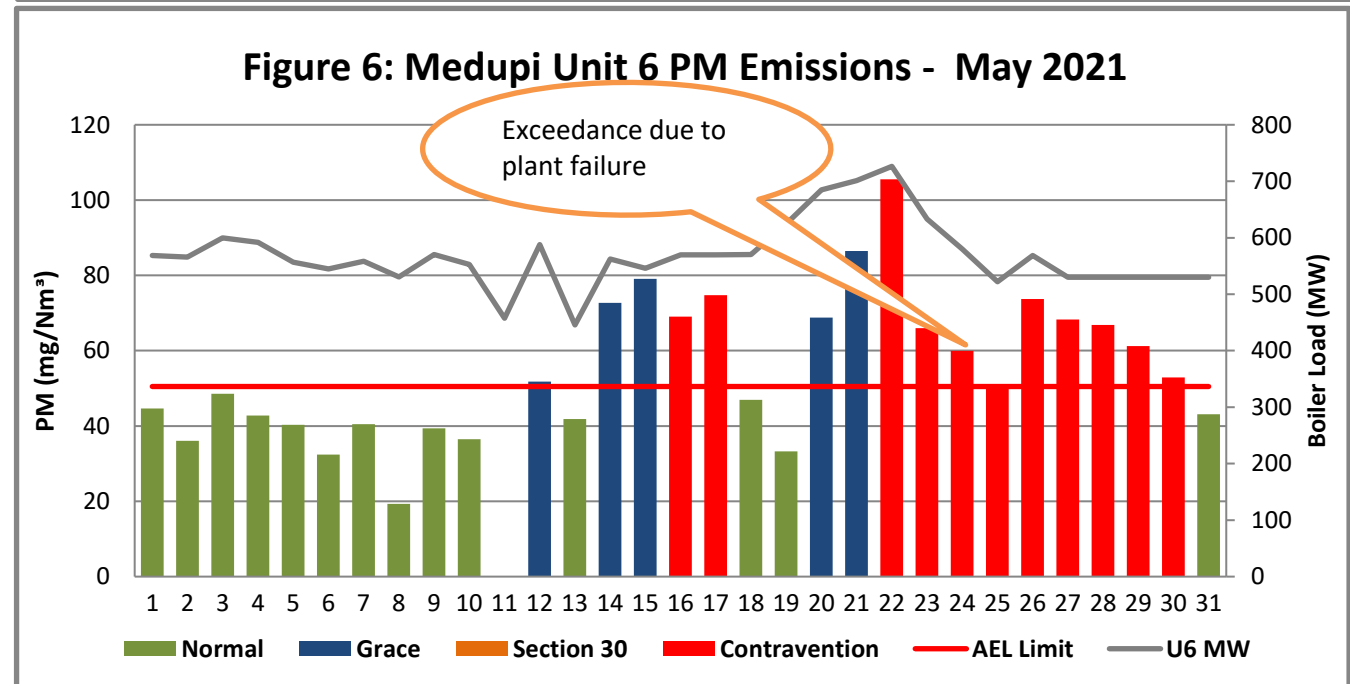
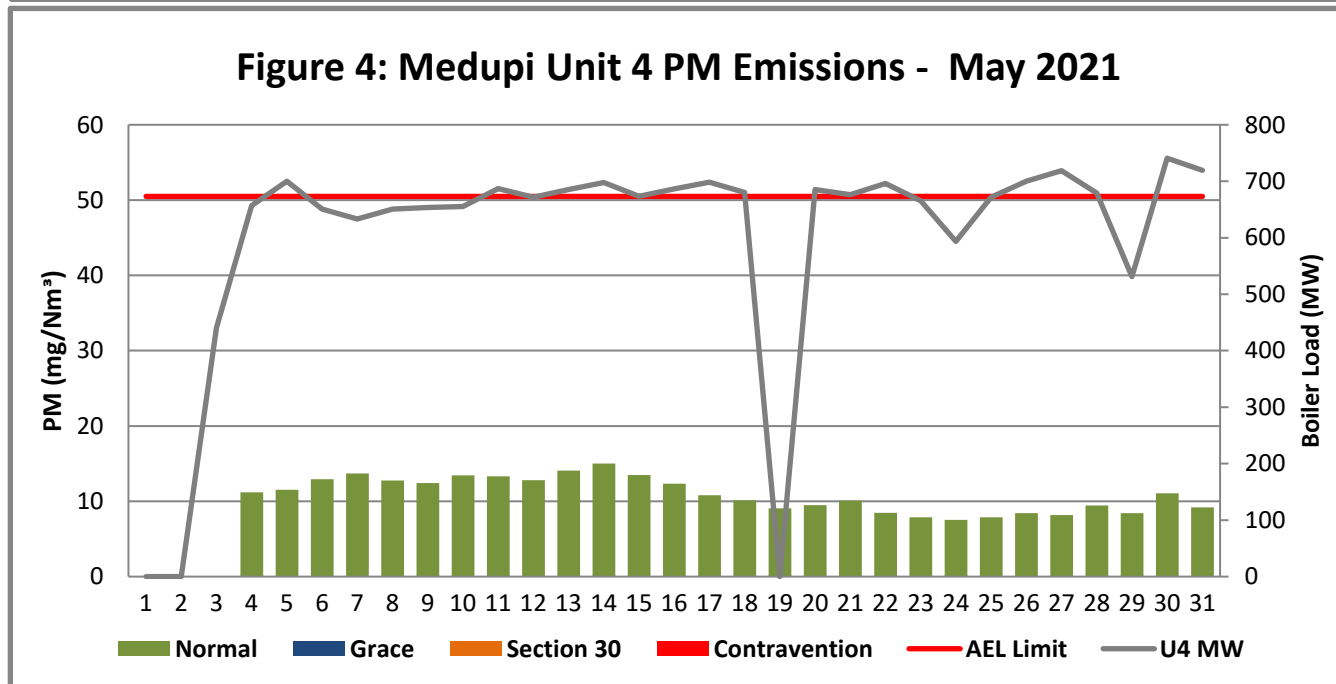
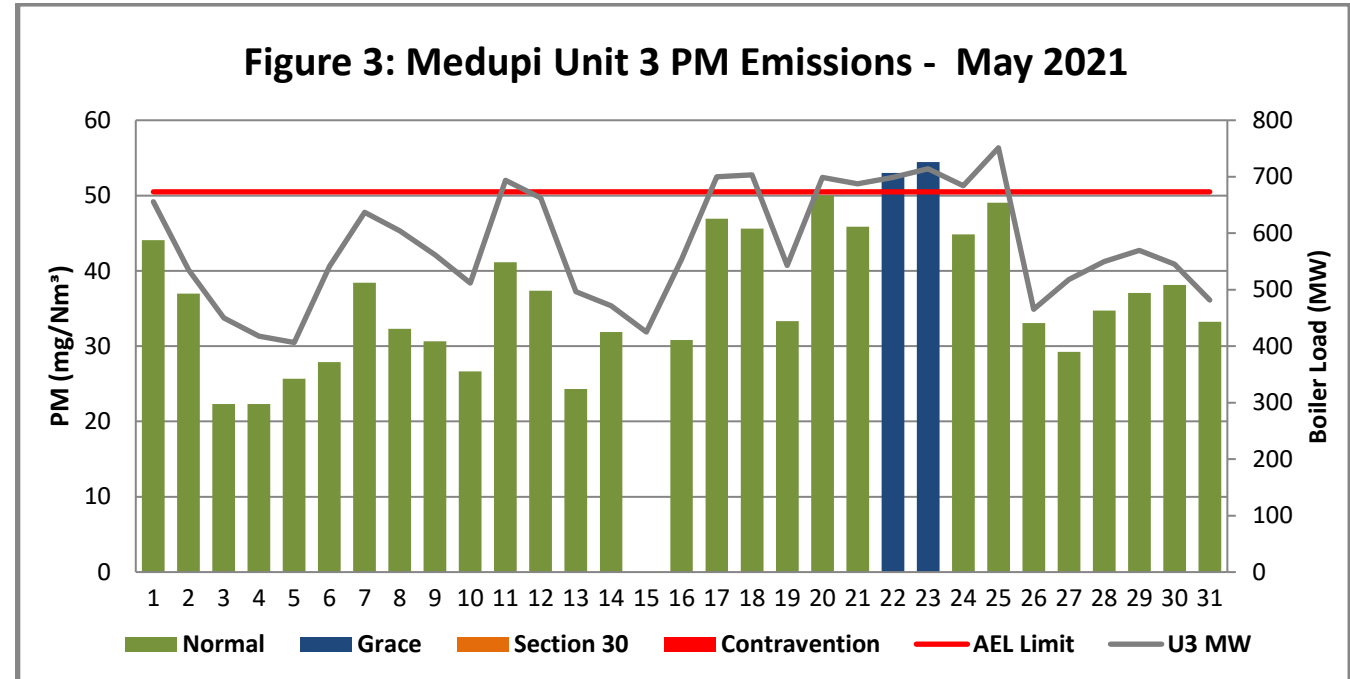
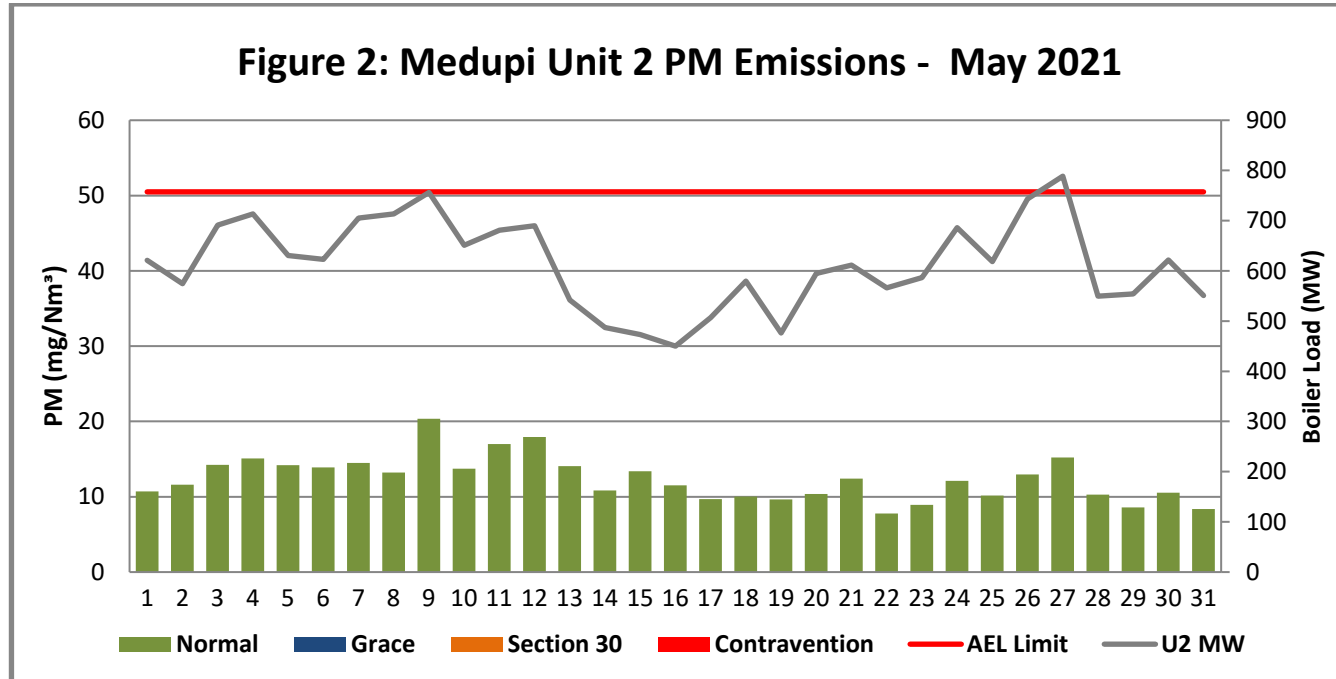
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Note: exceedances of PM limit are due incident of bag damages in the PJFF plant, cell are isolated and inspected online to identify those influencing emissions. Online bag replacement is done on those cells with high dust emissions.

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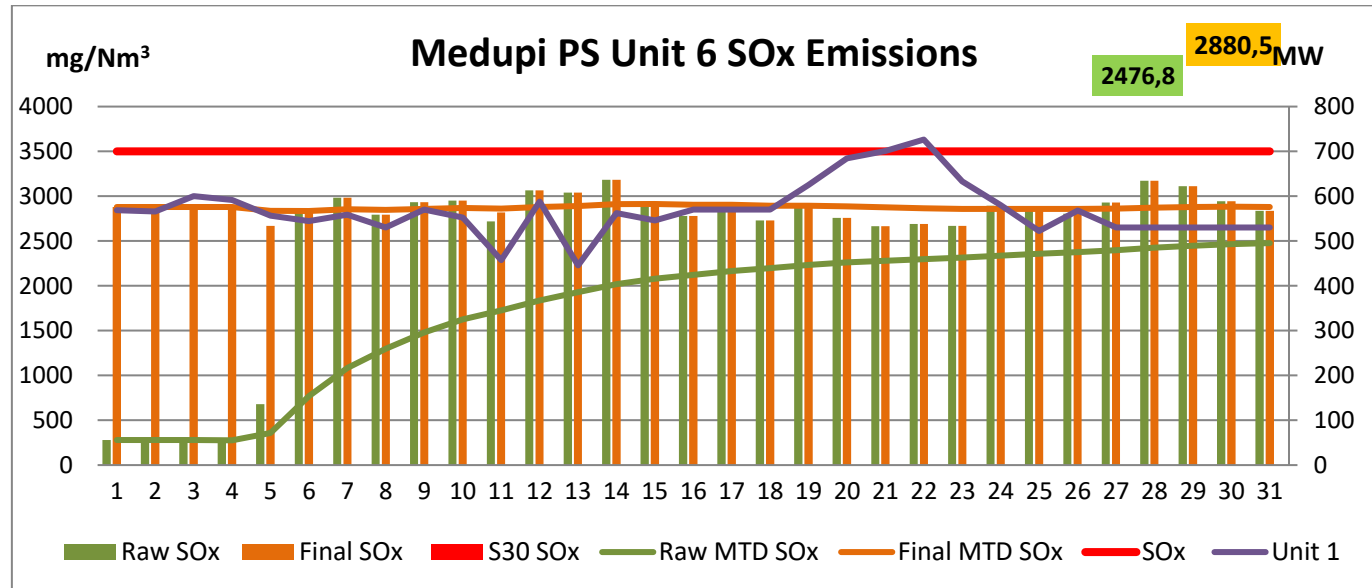
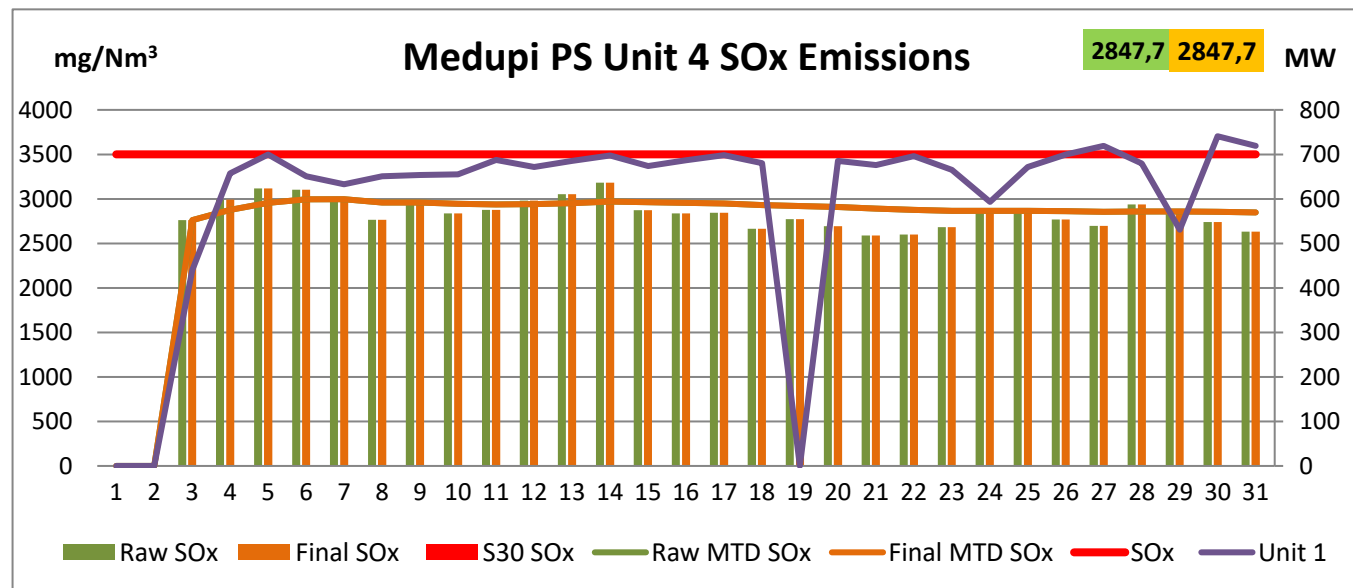
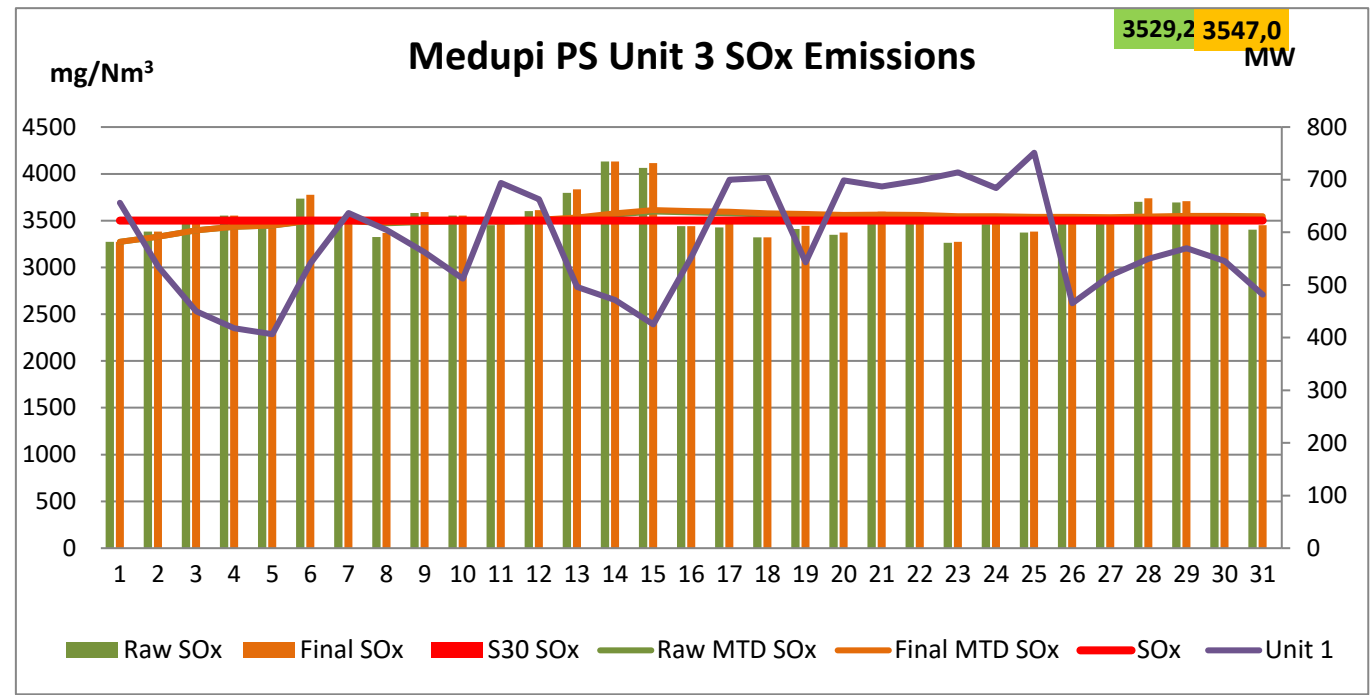
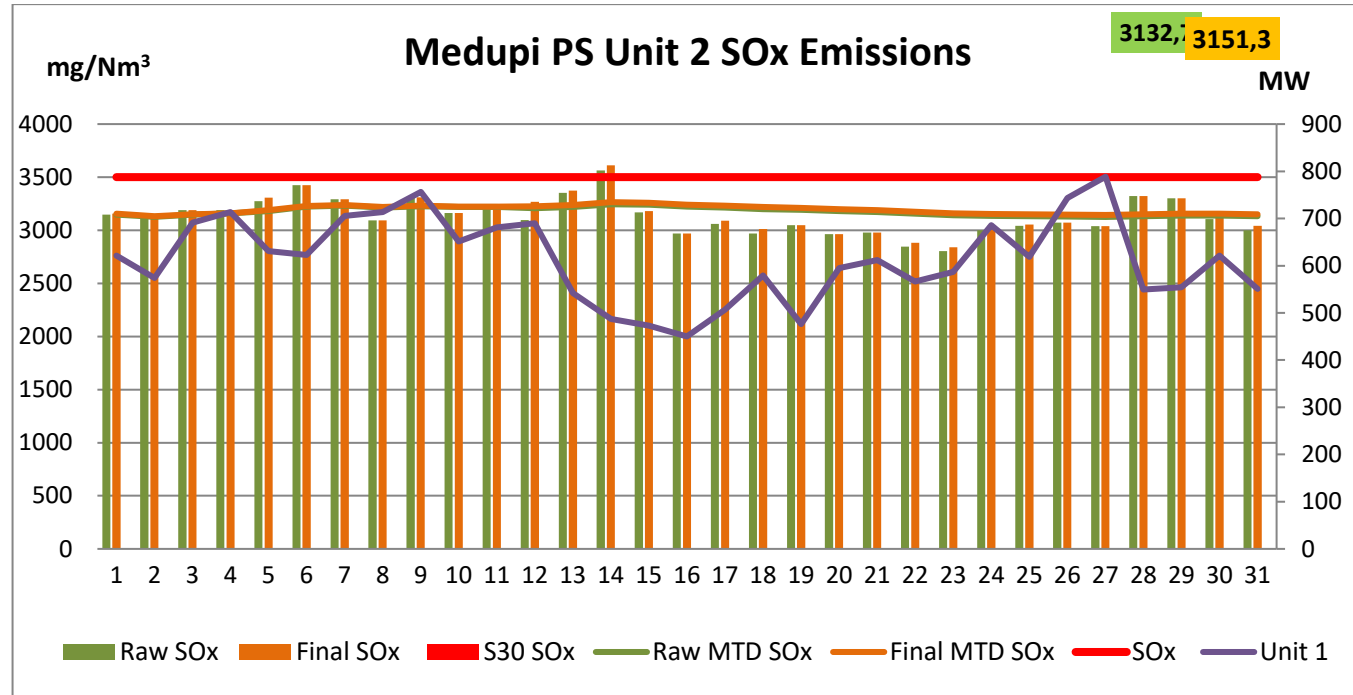
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Note: SO₂ emissions intermittent exceedances of daily limit of 3500mg/Nm³ (station internal limit) is evident in the SO₂ figures, there was no incident that led to exceedance of the monthly limit of 3500mg/Nm³ (AEL limit) for unit 2, 4 and 6. Unit 3 exceeded the limit by 47mg/Nm³.

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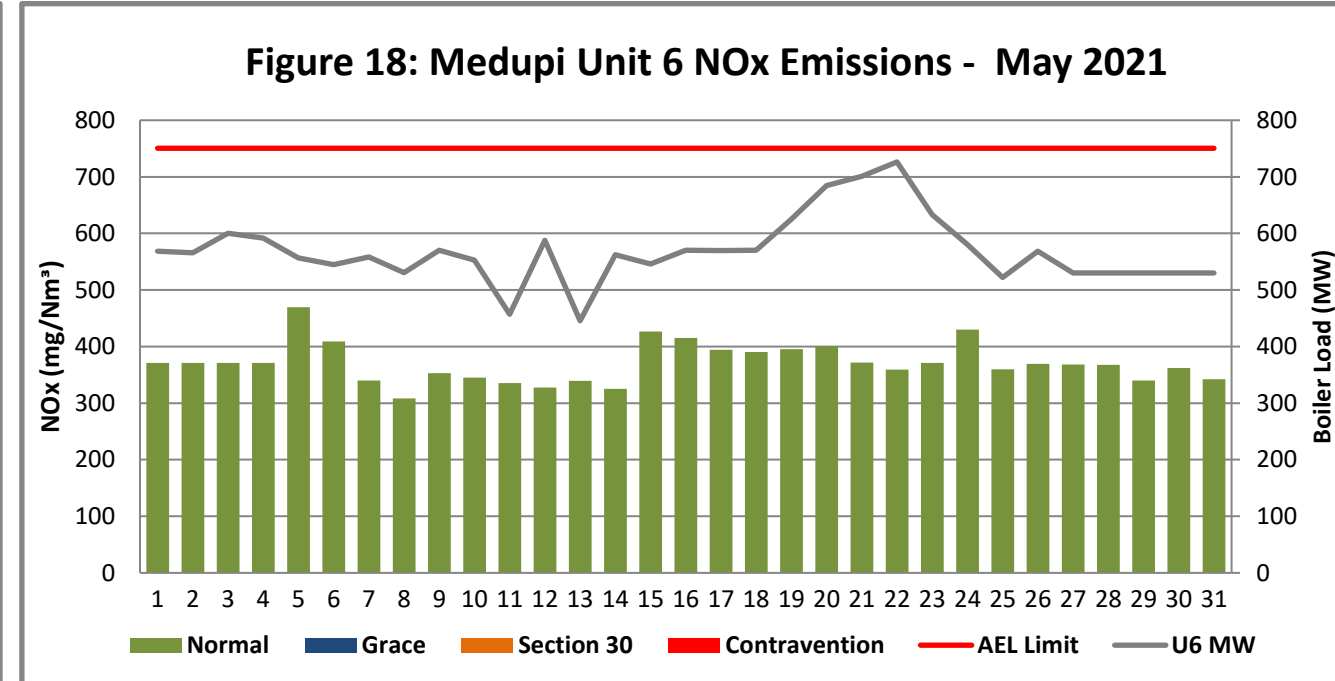
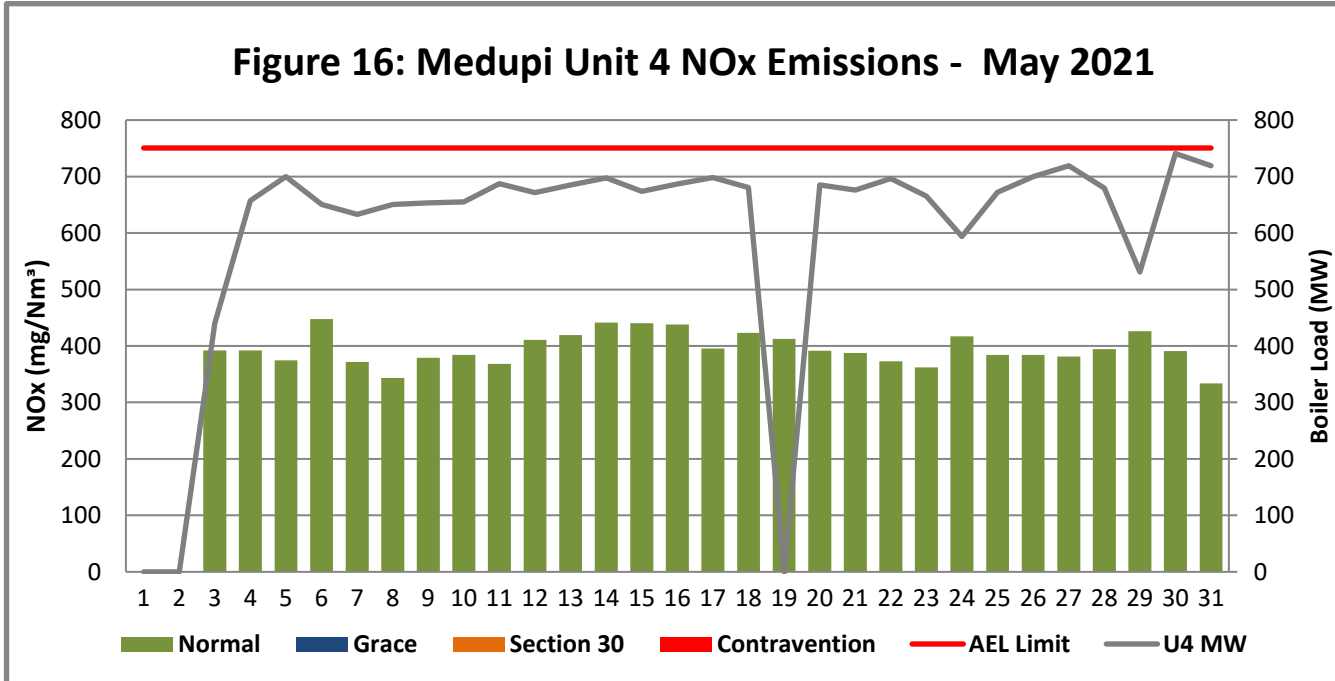
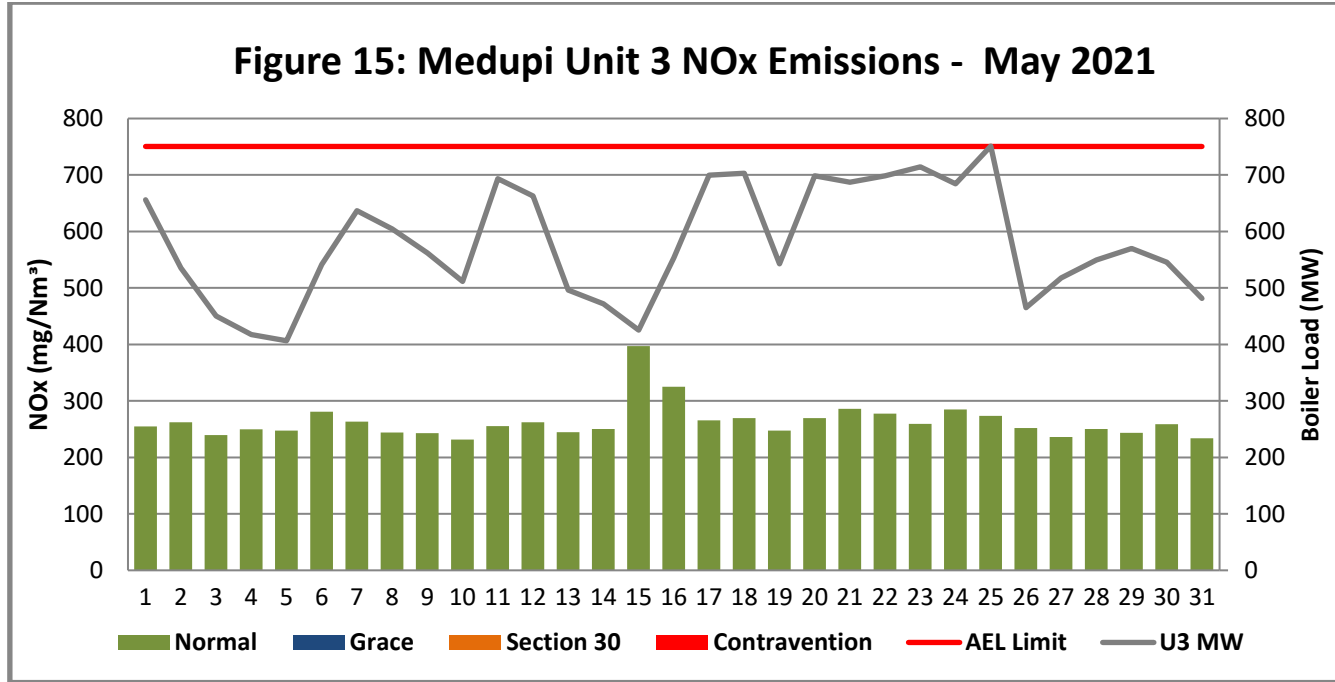
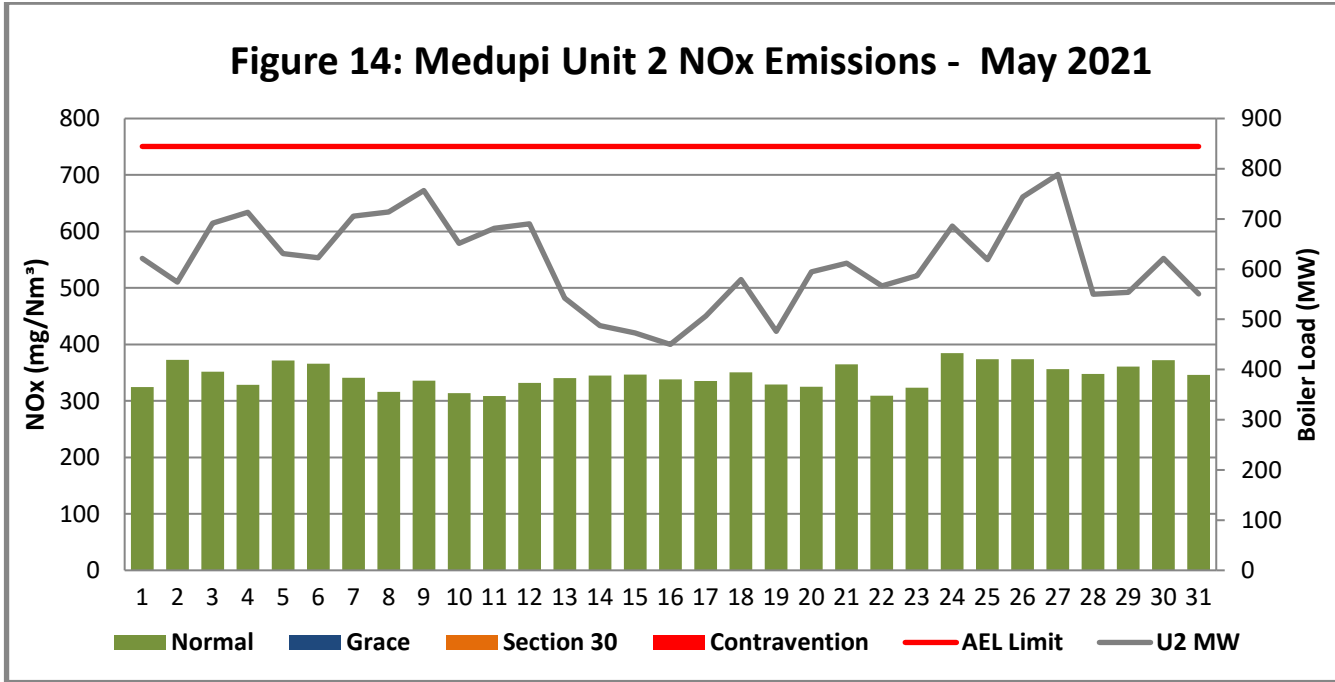
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Medupi Power Station graphical representation of the daily average emissions

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Table 7: Monthly tonnages for the month of May 2021

Unit	PM (tons)	SO ₂ (tons)	NO ₂ (tons)	CO (tons)
1	-	-	-	-
2	24,2	6 010	658	50
3	57,9	5 376	399	49
4	33,2	8 707	1 206	86
5	0,0	0	0	0
6	118,0	6 477	839	95
SUM	233,3	26 570,3	3 101,7	281,4

5. Shutdown/start-up information

Table 8: PM Start-up information for the month of May 2021

Unit No.	3	
Breaker Open (BO)	7:50 am	2021/05/14
Draught Group (DG) Shut Down (SD)	7:50 am	2021/05/14
BO to DG SD (duration)	00:00:00	DD:HH:MM
Fires in time	12:40 am	2021/05/15
Synch. to Grid (or BC)	6:10 am	2021/05/15
Fires in to BC (duration)	00:05:30	DD:HH:MM
Emissions below limit from BC (end date)	<i>not > limit</i>	<i>not > limit</i>
Emissions below limit from BC (duration)	n/a	DD:HH:MM

6. 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

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Date	Time	CEMS status	Comments
May 2021	N/A	N/A	N/A

Table 7: CEMS Monitor Reliability

Associated Unit/Stack	PM	SO ₂	NO	O ₂
Unit 1	-	-	-	-
Unit 2	100,0	100,0	100,0	100,0
Unit 3	100,0	100,0	100,0	90,6
Unit 4	100,0	100,0	100,0	99,8
Unit 5	-	-	-	-
Unit 6	99,7	84,5	84,5	84,5

7. CEMS Calibration certificates and equipment used for calibration

CEMS calibration certificates shall be made available for all units upon request.


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

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

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

FINAL OUTPUT:	Result	Unit
Breathing losses:	0,70	kg/month
Working losses:	0,04	kg/month
TOTAL LOSSES (Total TVOC Emissions for the month):	0,74	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, Trittech 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>		

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

No awareness campaign.

11. Complaints Register


Table 9: Complaints for the month of May 2021

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: Lufuno Tshidzumba *Tshidzumba*
Senior Environmental Advisor

Verified by: Malose Langa *Malose*
System Engineer Boiler

Verified by: Petri De Kock *Petri*
System Engineer C&I

Supported by: Sithokozile Hlongwa *Sithokozile*
Boiler Engineering Manager

Supported by: Rosetta Rammutla *RR Rammutla*
Environmental Manager

Supported by: Jabulani Mkhathshwa *Jabulani*
Engineering Group Manager

I Dan Mashigo, declares that the information provided in this report is accurate and correct.

Yours sincerely



2021.07.02

Dan Mashigo
GENERAL MANAGER: MEDUPI POWER STATION (Acting)

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