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Date:
23 February 2022

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LRP01PLA000_0284/20220211

Dear Mr. Sibaya

LETHABO POWER STATION EMISSION MONTHLY REPORT FOR JANUARY 2022

Please find attached Lethabo Power Station emission report for the month of January 2022.

Also attached are the Ambient Air Quality Monitoring Report, Complaints Register and the Fugitive Dust Fallout Monitoring Report for January 2022.

For any additional information please do not hesitate to contact us.

Yours sincerely

Karabo Rakgolela
GENERAL MANAGER

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Eskom Holdings SOC Ltd Reg No 2002/015527/30



Report

Lethabo Power Station

Report name: **Lethabo Power Station
January 2022
Emission Report**

Reference number: **LRP01PLA000_0284/20220211**
Document Type: **Report**
Area of Applicability: **Environment**
Report Date: **February-2022**
Classification: **Controlled Disclosure**

Signatures:

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LETHABO POWER STATION MONTHLY EMISSIONS REPORT

Atmospheric Emission License FDDM-MET-2011-08-P1


1. RAW MATERIALS AND PRODUCTS

Raw Materials and Products	Raw Material Type	Units	Maximum Permitted Consumption Rate	Consumption Rate Jan-2022
	Coal	Tons	2 000 000	1 051 484
	Fuel Oil	Tons	1 700	613.66
Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Production Rate Jan-2022
	Energy	GWh	2834.64	1 508.36
	Ash	Tons	770 000	401 141.2
	RE Ash	kg/MWh	<i>not specified</i>	265.94

2. ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.656 (Standard)	0.580
Ash Content	%	37.37 (Standard)	38.150

*Please note the "standard" is not necessary a limit, but merely a optimum indication, it will fluctuate as the coal quality changes. The Stipulated Range are the Station acceptance test values.

3. EMISSION LIMITS (mg/Nm³)

Associated Unit/Stack	PM	SOx	NOx
Unit 1	100	3500	1100
Unit 2	100	3500	1100
Unit 3	100	3500	1100
Unit 4	100	3500	1100
Unit 5	100	3500	1100
Unit 6	100	3500	1100

4. ABATEMENT TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	Efficiency Jan-2022
Unit 1	<i>Electrostatic Precipitator (ESP)</i>	99.84%
Unit 2	<i>Electrostatic Precipitator (ESP)</i>	Unit Off-line
Unit 3	<i>Electrostatic Precipitator (ESP)</i>	99.76%
Unit 4	<i>Electrostatic Precipitator (ESP)</i>	99.81%
Unit 5	<i>Electrostatic Precipitator (ESP)</i>	99.79%
Unit 6	<i>Electrostatic Precipitator (ESP)</i>	99.83%

5. MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO ₂	NO	CO ₂
Unit 1	98.7	99.9	100.0	99.9
Unit 2				
Unit 3	99.2	99.9	100.0	99.9
Unit 4	99.9	99.9	100.0	99.7
Unit 5	99.7	99.7	100.0	99.7
Unit 6	100.0	99.5	99.5	99.2

6. EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of January 2022

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	149.1	2 965	1 622
Unit 2	0.0	0	0
Unit 3	212.5	3 990	1 963
Unit 4	173.4	4 139	1 870
Unit 5	85.1	1 406	597
Unit 6	74.5	1 946	913
SUM	694.5	14 446	6 965

Table 6.2: Operating days in compliance to PM AEL Limit - January 2022

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	23	8	0	0	8	94.2
Unit 2	0	0	0	0	0	
Unit 3	21	10	0	0	10	99.5
Unit 4	25	5	1	0	6	81.9
Unit 5	11	3	0	0	3	119.6
Unit 6	14	1	0	0	1	83.7
SUM	94	27	1	0	28	

Table 6.3: Operating days in compliance to SO_x AEL Limit - January 2022

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average SO _x (mg/Nm ³)
Unit 1	31	0	0	0	0	1 778.2
Unit 2	0	0	0	0	0	
Unit 3	31	0	0	0	0	1 907.8
Unit 4	31	0	0	0	0	1 907.5
Unit 5	15	0	0	0	0	1 808.6
Unit 6	16	0	0	0	0	2 096.8
SUM	124	0	0	0	0	

Table 6.4: Operating days in compliance to NOx AEL Limit - January 2022

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average NOx (mg/Nm ³)
Unit 1	31	0	0	0	0	968.6
Unit 2	0	0	0	0	0	
Unit 3	31	0	0	0	0	937.7
Unit 4	31	0	0	0	0	855.7
Unit 5	15	0	0	0	0	766.7
Unit 6	16	0	0	0	0	960.5
SUM	124	0	0	0	0	

Table 6.5: Legend Description

Condition	Colour	Description
Normal	GREEN	Emissions below Emission Limit Value (ELV)
Grace	BLUE	Emissions above the ELV during grace period
Section 30	ORANGE	Emissions above ELV during a NEMA S30 incident
Contra-vention	RED	Emissions above ELV but outside grace or S30 incident conditions

Figure 1: Lethabo Unit 1 PM Emissions - January 2022

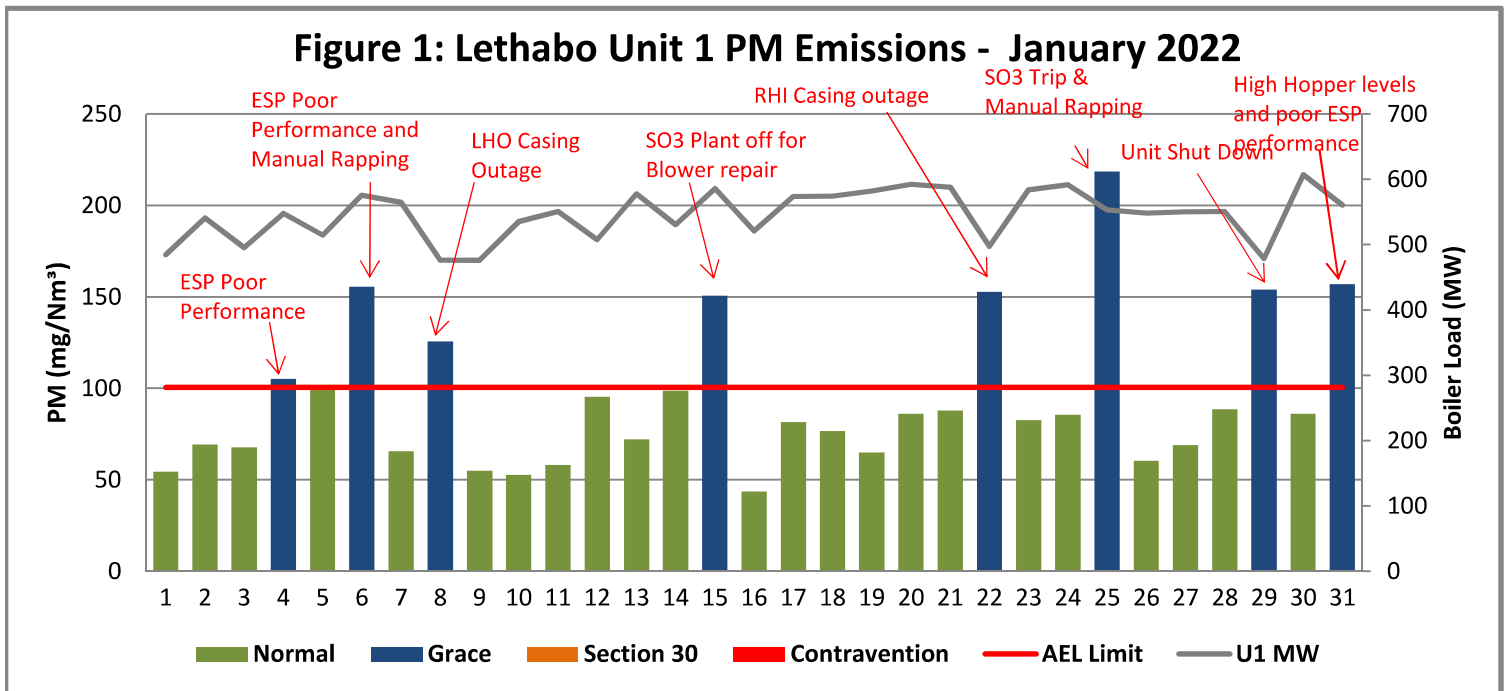


Figure 2: Lethabo Unit 2 PM Emissions - January 2022

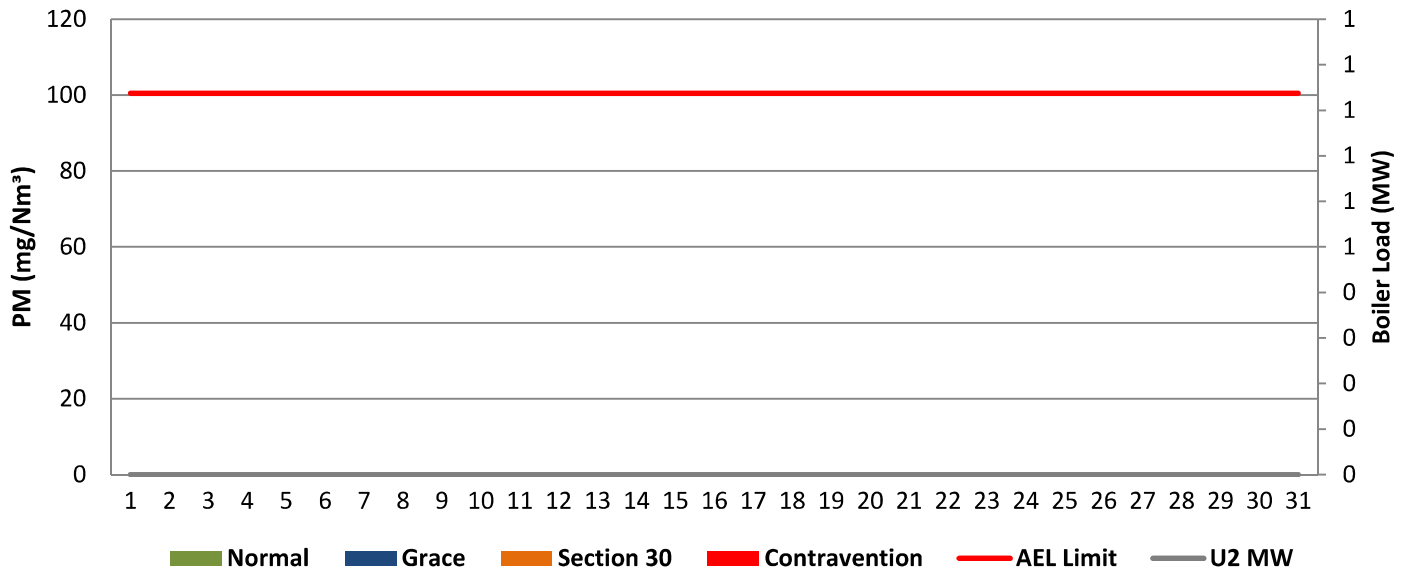


Figure 3: Lethabo Unit 3 PM Emissions - January 2022

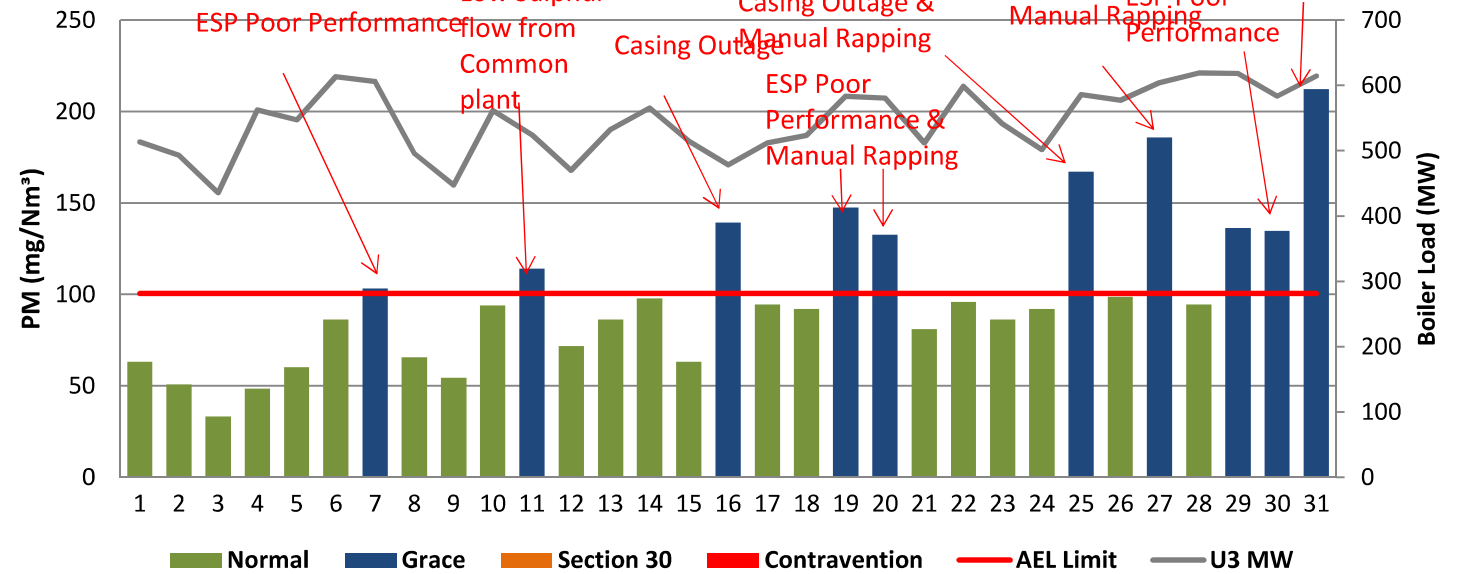


Figure 4: Lethabo Unit 4 PM Emissions - January 2022

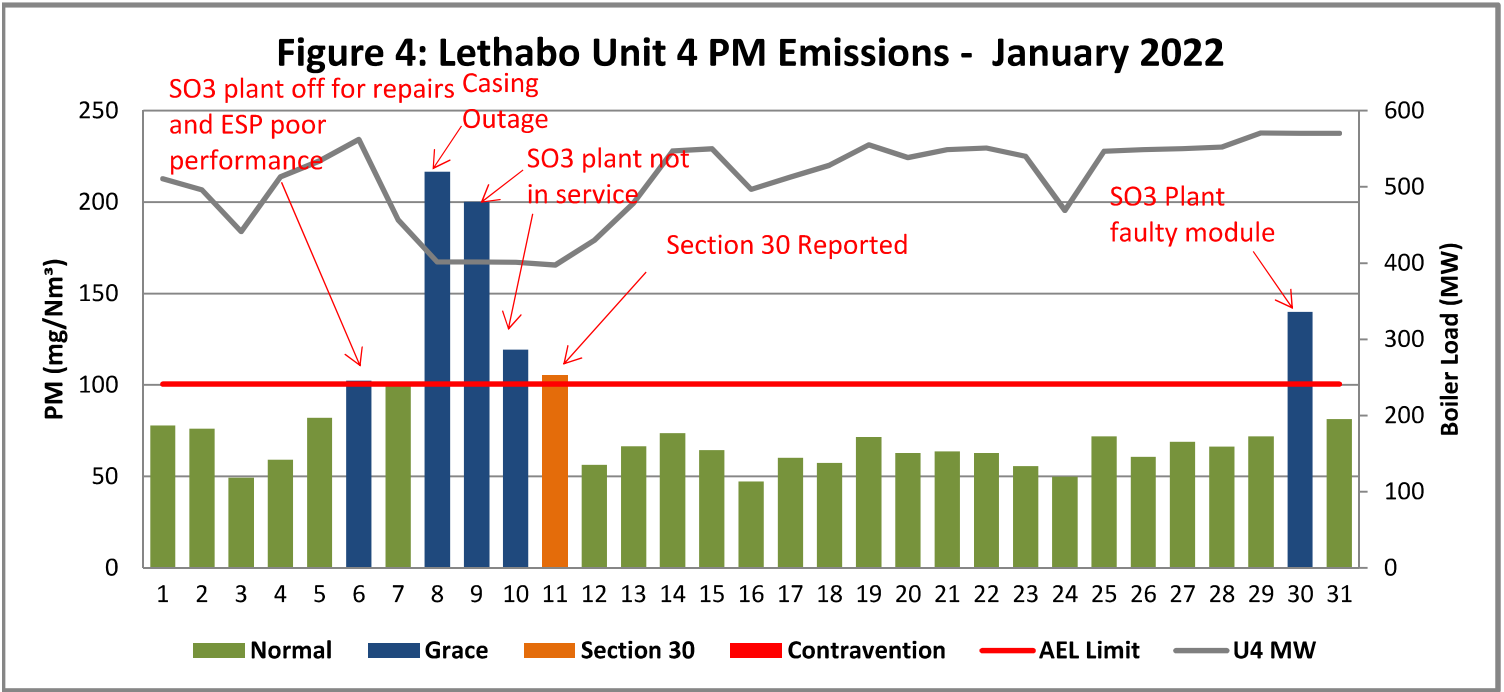


Figure 5: Lethabo Unit 5 PM Emissions - January 2022

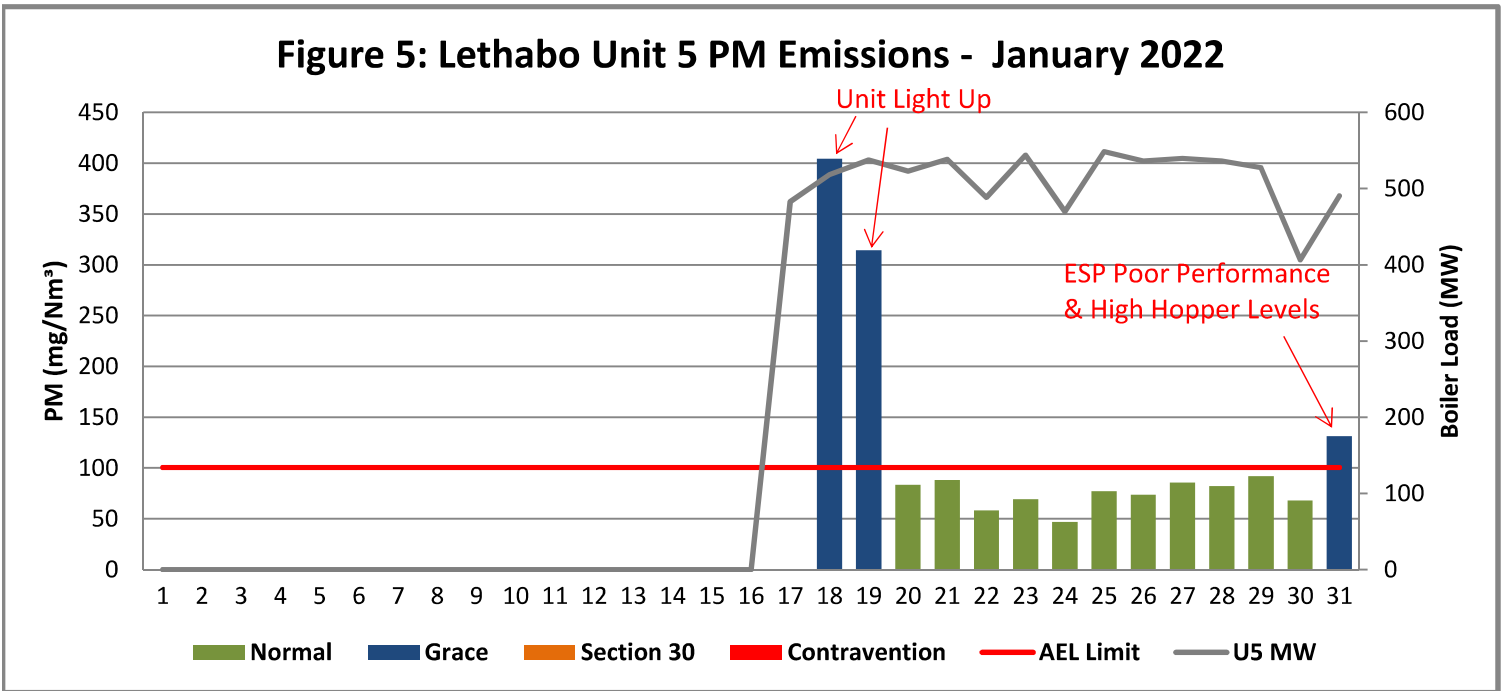


Figure 6: Lethabo Unit 6 PM Emissions - January 2022

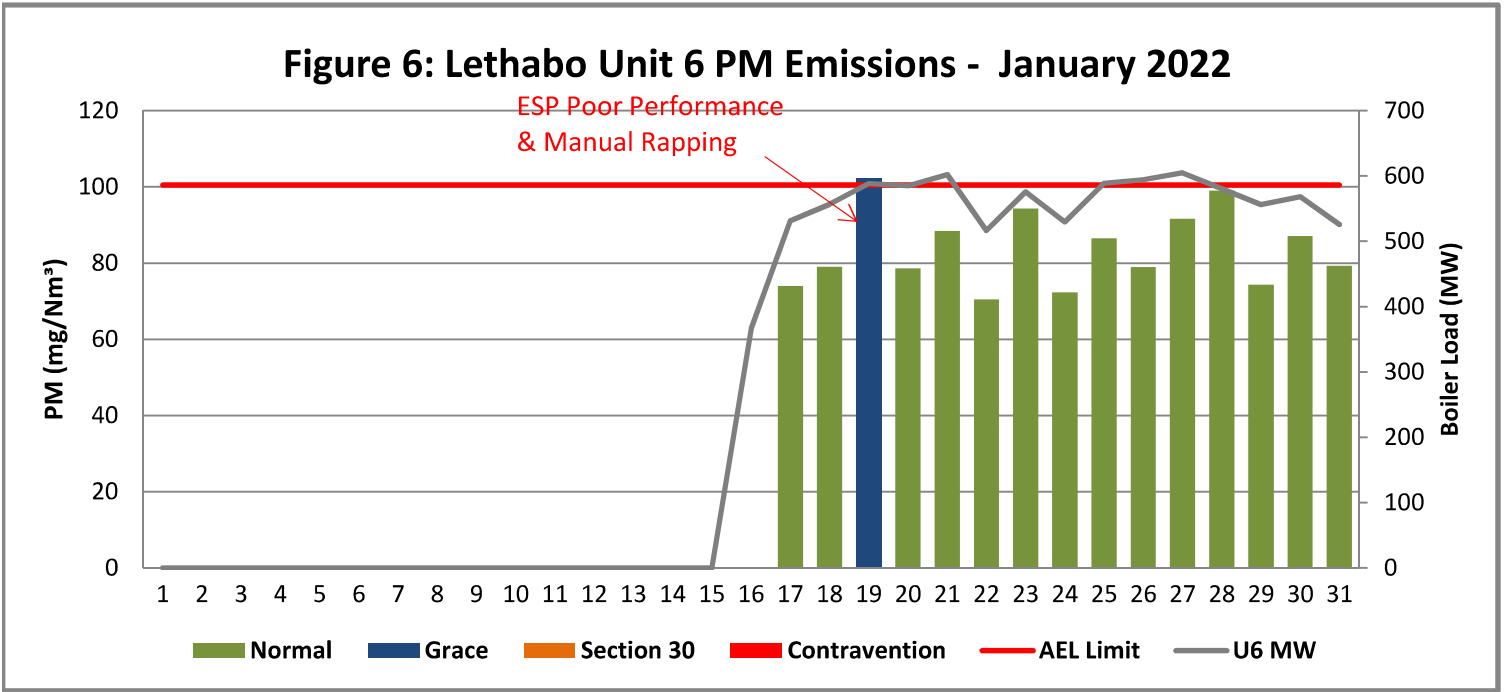


Figure 7: Lethabo Unit 1 SOx Emissions - January 2022

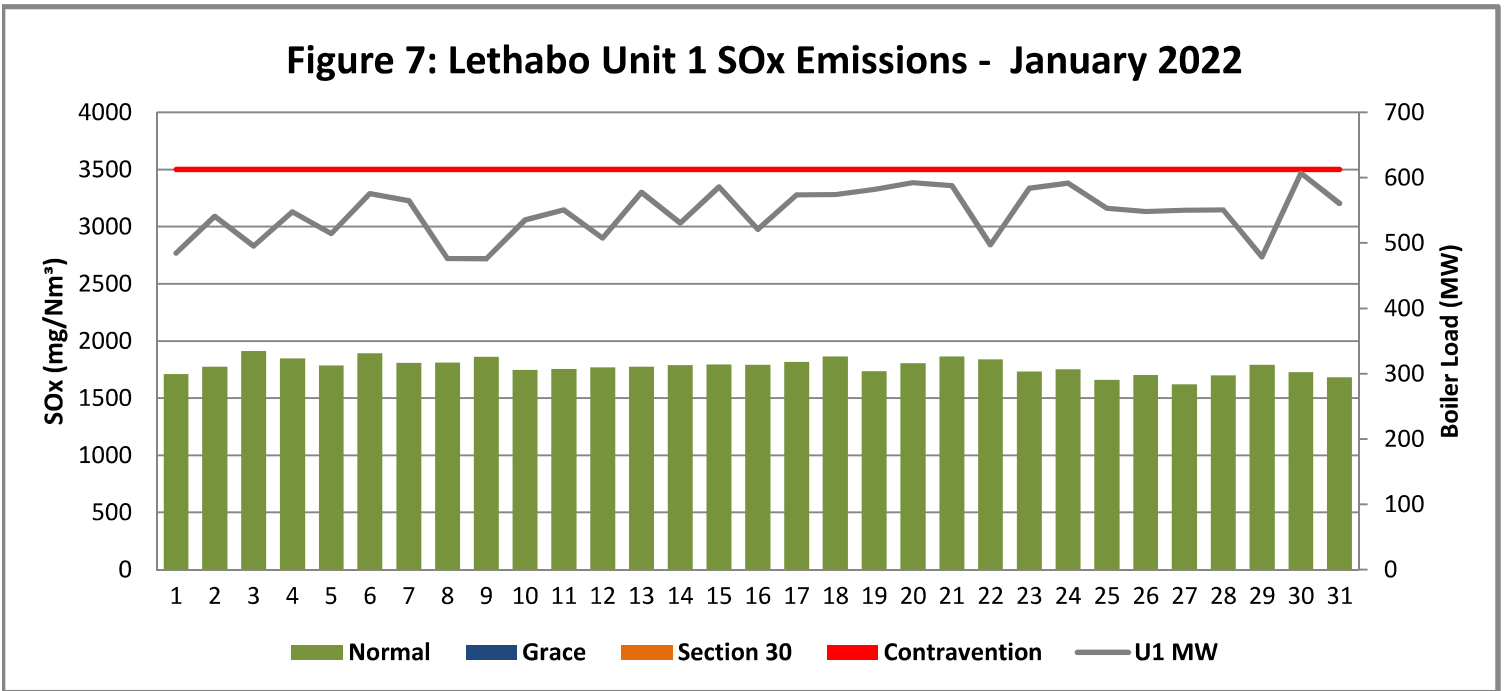


Figure 8: Lethabo Unit 2 SOx Emissions - January 2022

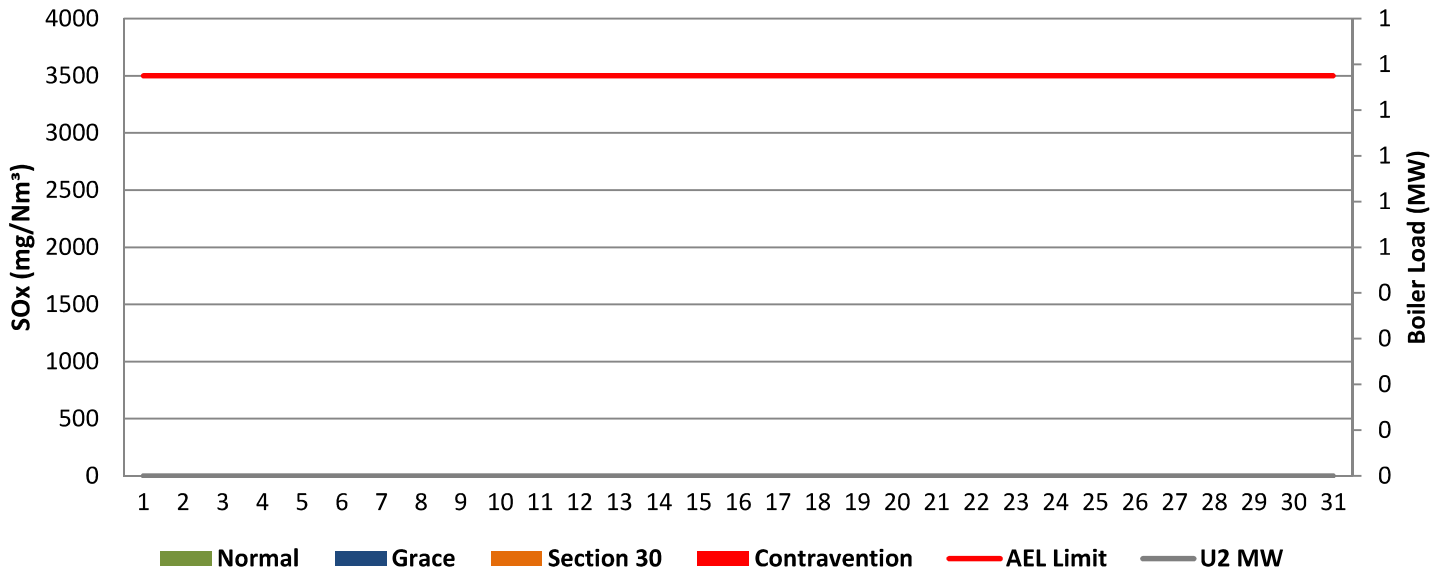


Figure 9: Lethabo Unit 3 SOx Emissions - January 2022

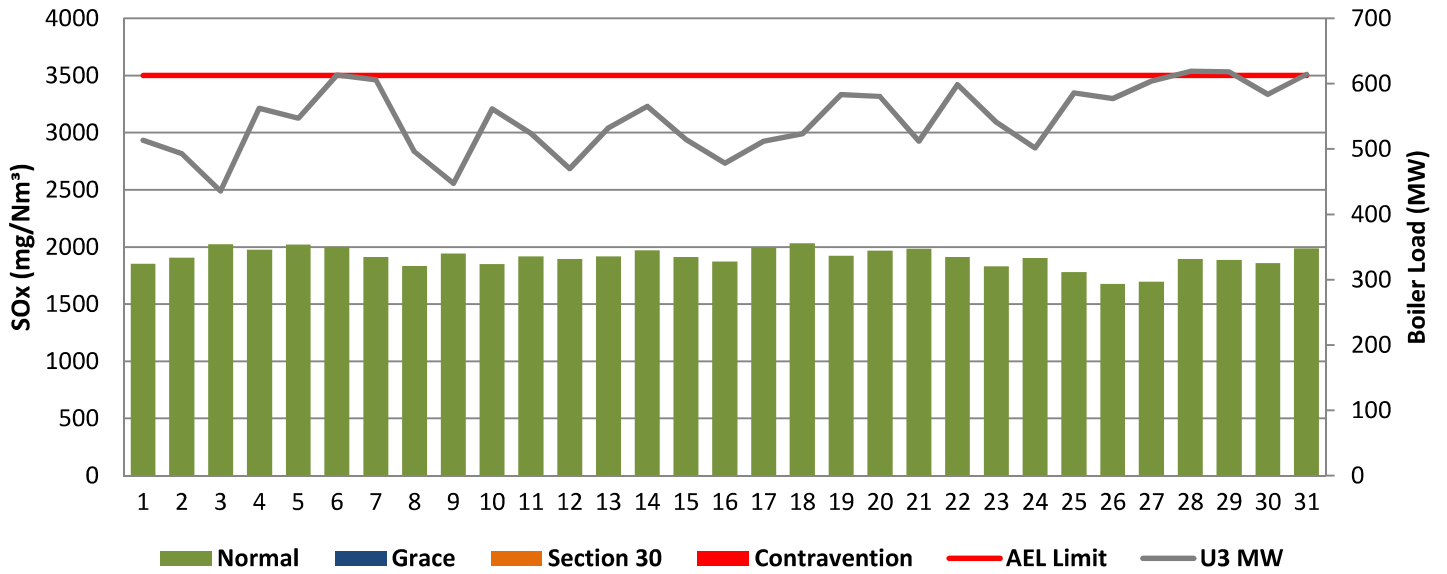


Figure 10: Lethabo Unit 4 SOx Emissions - January 2022

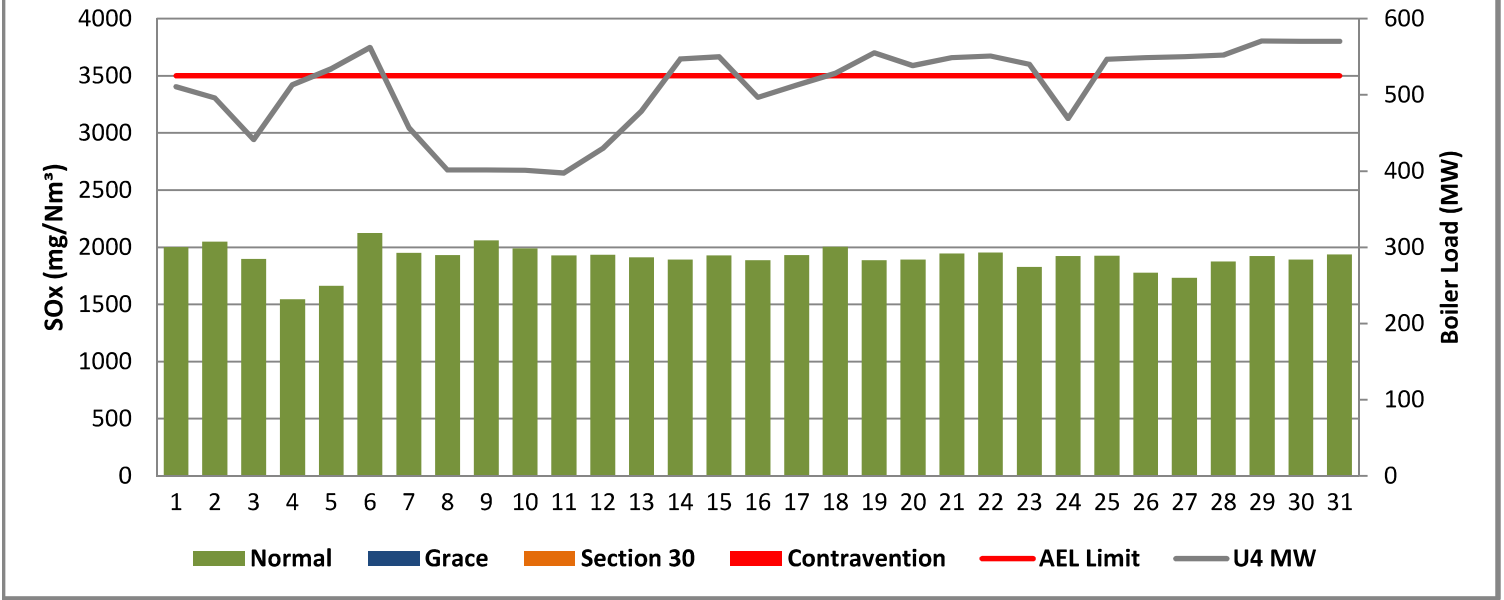


Figure 11: Lethabo Unit 5 SOx Emissions - January 2022

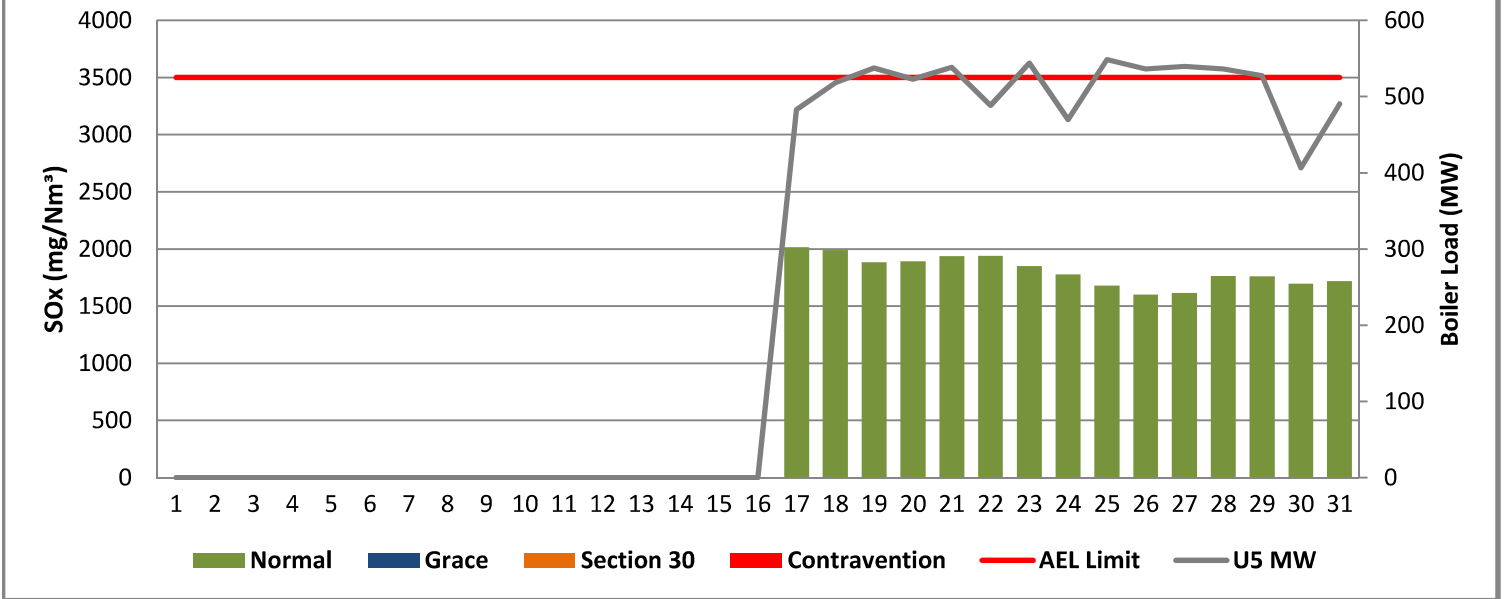


Figure 12: Lethabo Unit 6 SOx Emissions - January 2022

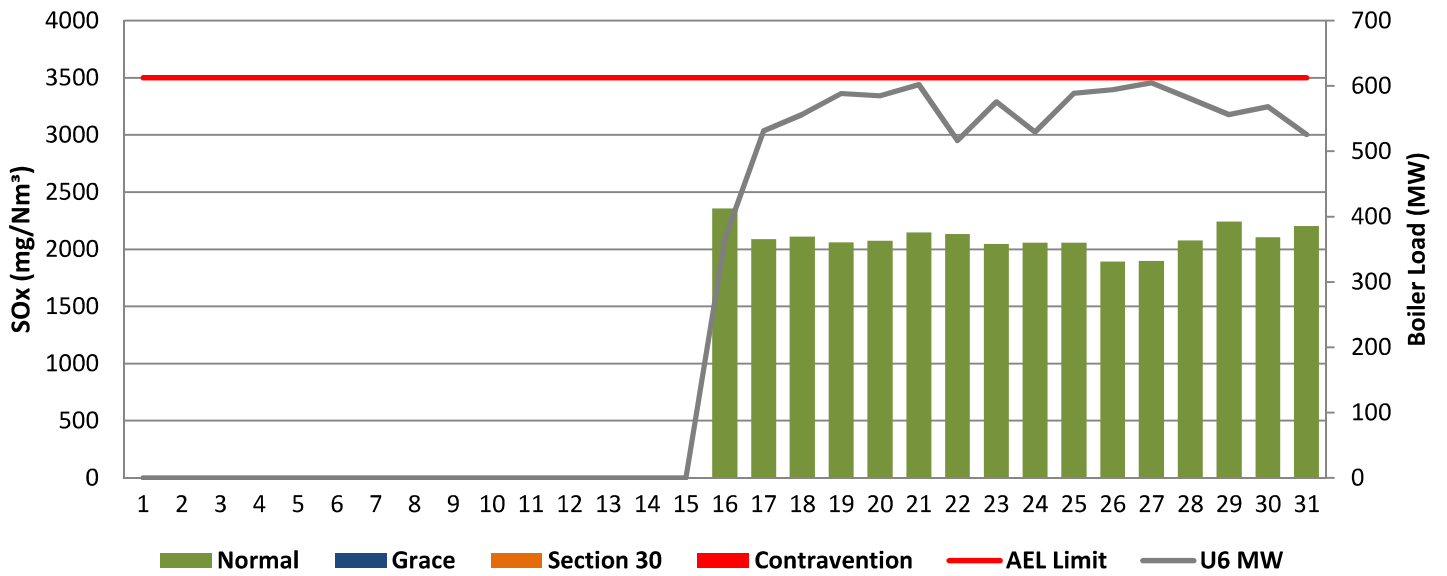


Figure 13: Lethabo Unit 1 NOx Emissions - January 2022

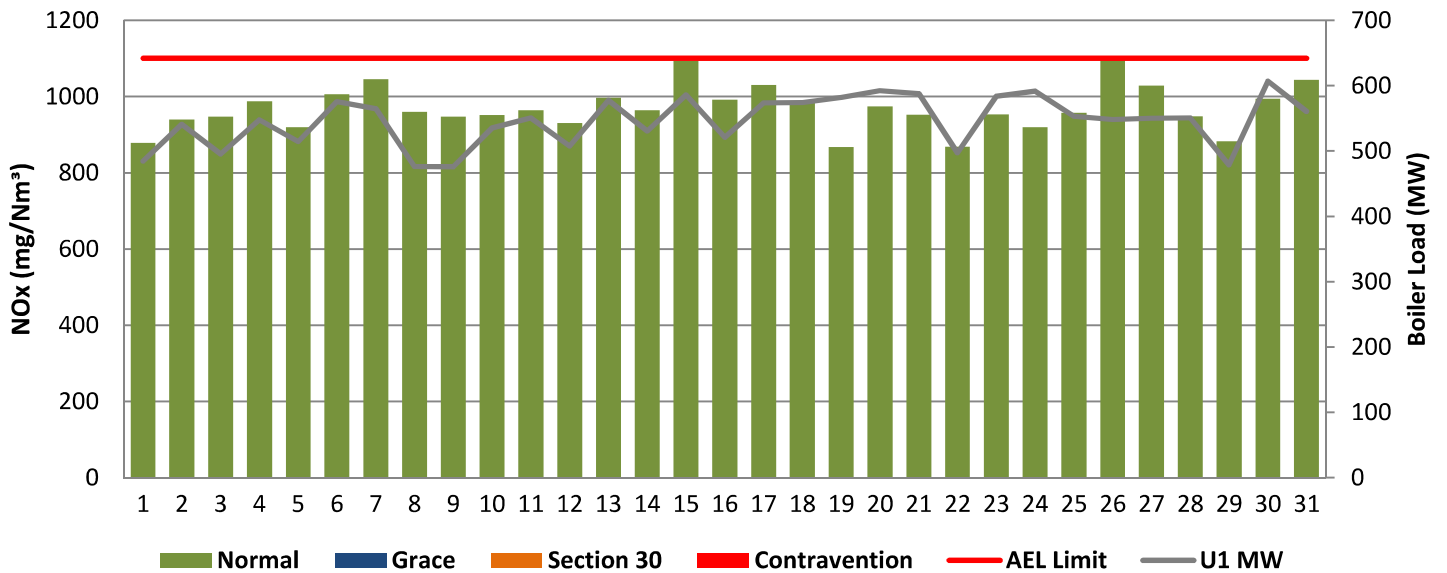


Figure 14: Lethabo Unit 2 NOx Emissions - January 2022

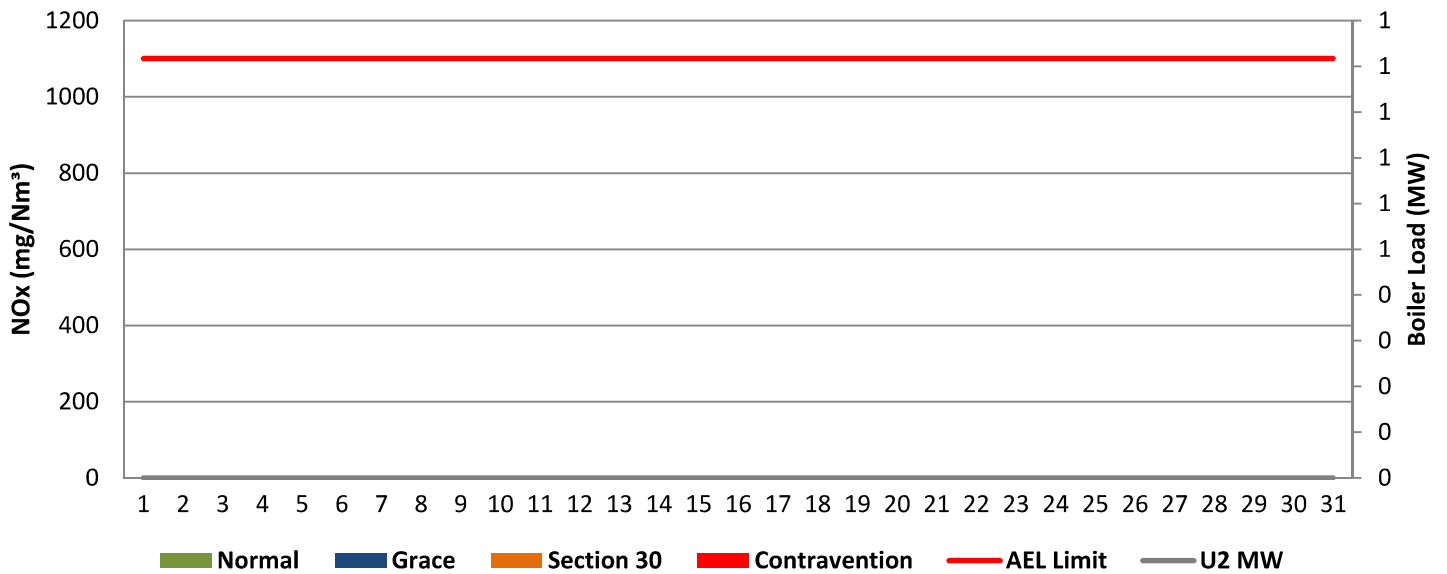


Figure 15: Lethabo Unit 3 NOx Emissions - January 2022

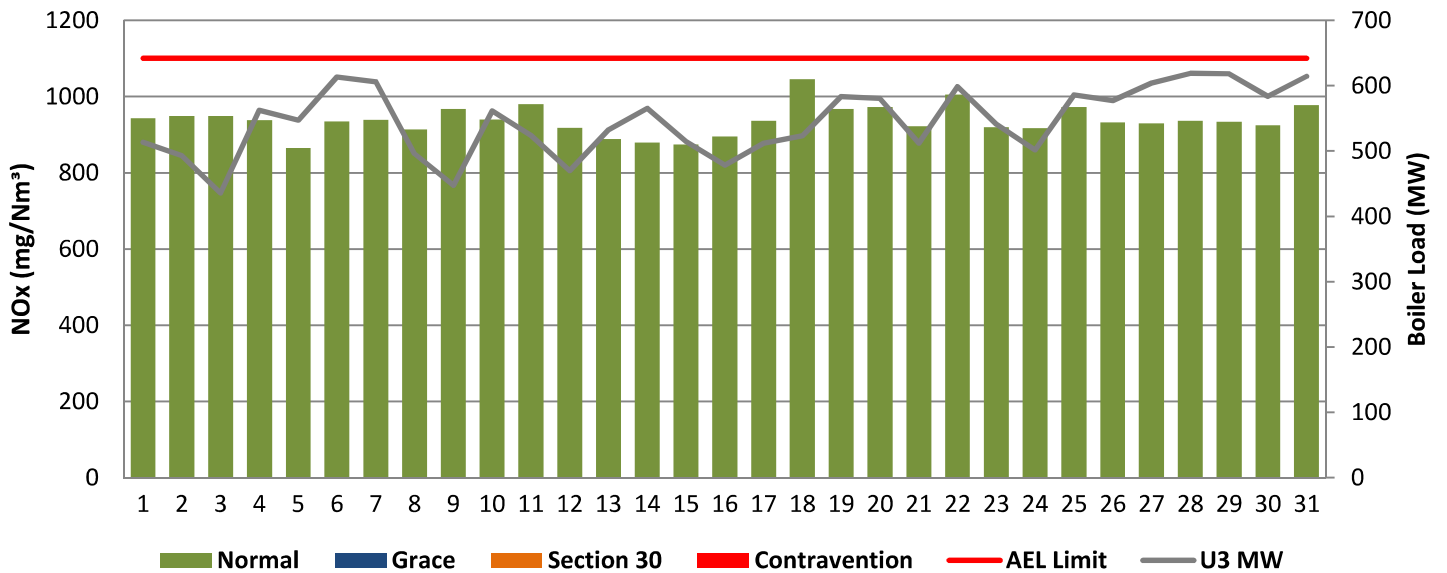


Figure 16: Lethabo Unit 4 NOx Emissions - January 2022

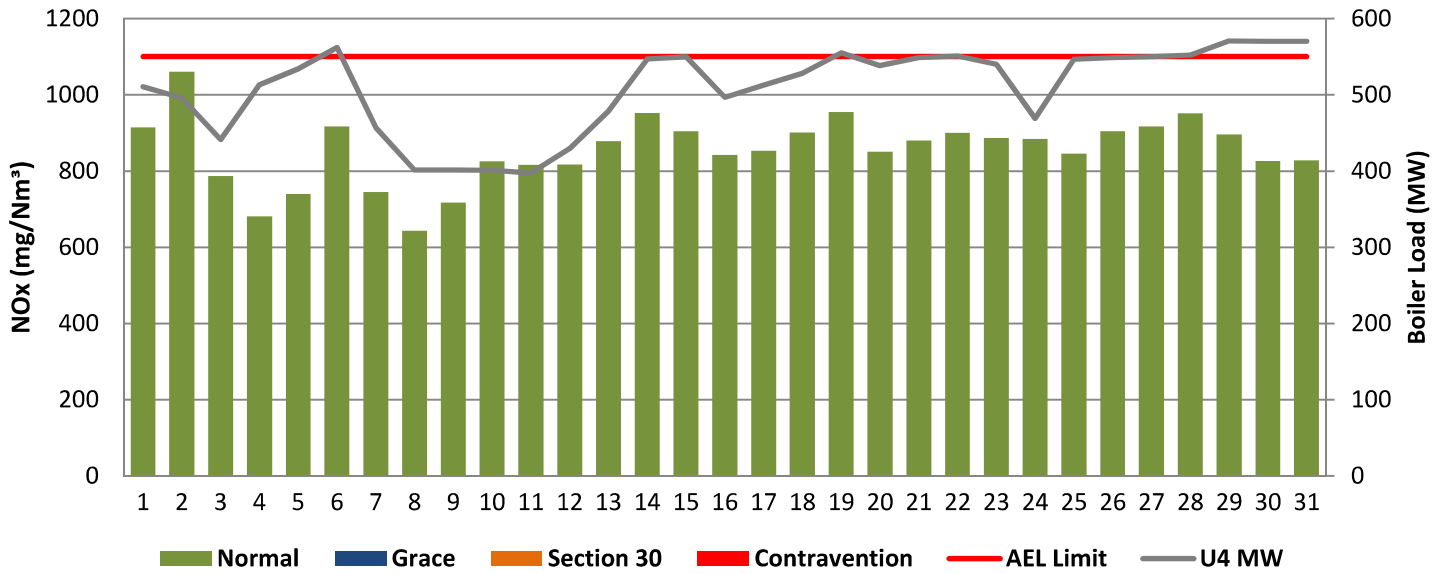


Figure 17: Lethabo Unit 5 NOx Emissions - January 2022

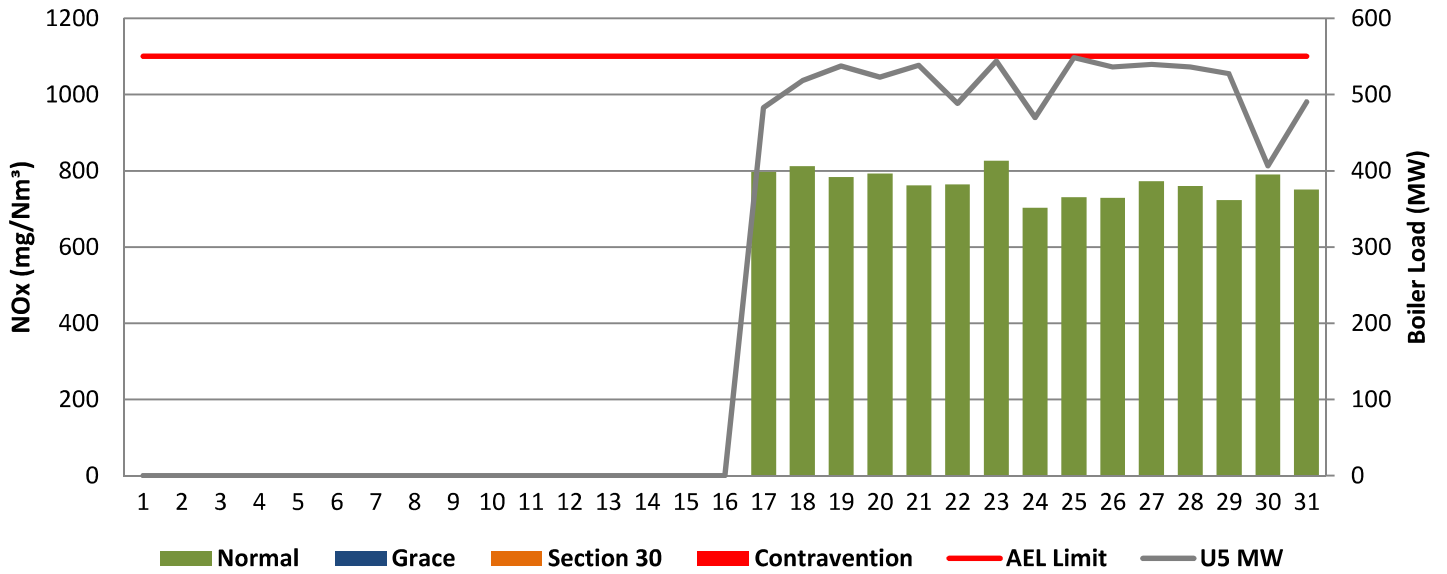
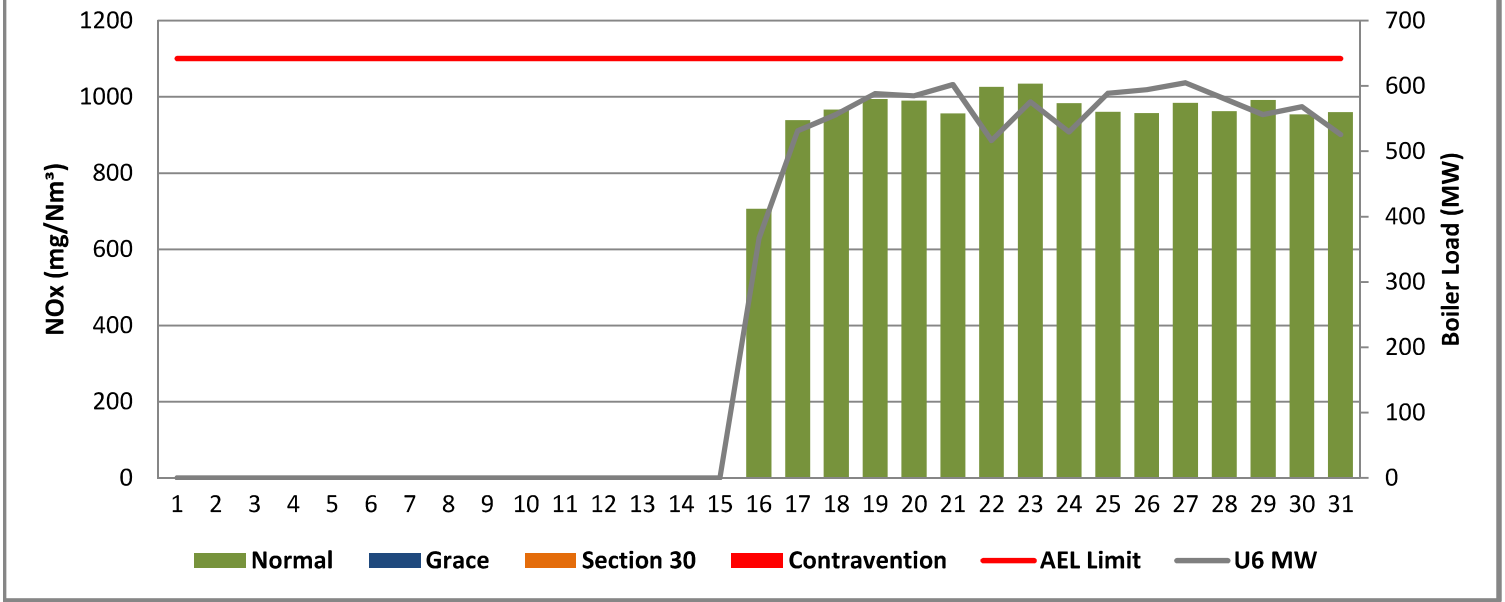


Figure 18: Lethabo Unit 6 NOx Emissions - January 2022



7 SHUT DOWN AND LIGHT UP INFORMATION

Table 7.1: PM Start-up information for the month of January 2022

Unit No.1	<i>High Generator Rear Vibration</i>						
Breaker Open (BO)	2:35 AM	2022/01/29					
Draught Group (DG) Shut Down (SD)	<i>DG did not trip or SD</i>	<i>DG did not trip or SD</i>					
BO to DG SD (duration)	<i>n/a</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
Fires in time	2:19 PM	2022/01/29					
Synch. to Grid (or BC)	3:15 PM	2022/01/29					
Fires in to BC (duration)	00:00:56	DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
Emissions below limit from BC (end date)	<i>not > limit</i>	<i>not > limit</i>					
Emissions below limit from BC (duration)	<i>n/a</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM

Unit No.2							
Breaker Open (BO)							
Draught Group (DG) Shut Down (SD)							
BO to DG SD (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
Fires in time							
Synch. to Grid (or BC)							
Fires in to BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
Emissions below limit from BC (end date)							
Emissions below limit from BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM

Unit No.3							
Breaker Open (BO)							
Draught Group (DG) Shut Down (SD)							
BO to DG SD (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
Fires in time							
Synch. to Grid (or BC)							
Fires in to BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
Emissions below limit from BC (end date)							
Emissions below limit from BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM

Unit No.4							
Breaker Open (BO)							
Draught Group (DG) Shut Down (SD)							
BO to DG SD (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
Fires in time							
Synch. to Grid (or BC)							
Fires in to BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
Emissions below limit from BC (end date)							
Emissions below limit from BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM

Unit No.5	<i>HP heaters repairs & Fly ash bunker 3 water ingress</i>					
Breaker Open (BO)						
Draught Group (DG) Shut Down (SD)						
BO to DG SD (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	<i>1:05 AM</i>	<i>2022/01/17</i>				
Synch. to Grid (or BC)	<i>4:55 AM</i>	<i>2022/01/17</i>				
Fires in to BC (duration)	<i>00:03:50</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	<i>6:00 AM</i>	<i>2022/01/21</i>				
Emissions below limit from BC (duration)	<i>04:01:05</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM

Unit No.6	<i>Fly ash bunker water ingress</i>					
Breaker Open (BO)						
Draught Group (DG) Shut Down (SD)						
BO to DG SD (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	<i>7:35 PM</i>	<i>2022/01/16</i>				
Synch. to Grid (or BC)	<i>8:00 PM</i>	<i>2022/01/16</i>				
Fires in to BC (duration)	<i>00:00:25</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	<i>12:00 AM</i>	<i>2022/01/17</i>				
Emissions below limit from BC (duration)	<i>00:04:00</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM

7.2: Point Source emissions released during start-up (fires-in) and Shut-down (SD) for the month of January 2022 in mg/Nm³

8. MAINTENANCE

Unit 1				
Beginning of	2022/01/07 23:48:00	2022/01/22 00:00:00	2022/01/13 21:50	
Reason for Maintenance	LHO precip casing repairs	RHI precip casing repairs	SO3 Plant Repairs	
End (Time):	2022/01/08 23:14:00	2022/01/22 21:15:00	2022/01/15 05:11	
Duration	23:26:00	21:15:00	31:20:24	

Unit 2				
Beginning of				
Reason for Maintenance				
End (Time):				
Duration				

Unit 3				
Beginning of	2022/01/16 00:07:00			
Reason for Maintenance	RHI precip casing repairs			
End (Time):	2022/01/16 20:20:00			
Duration	20:13:00			

Unit 4				
Beginning of	2022/01/06 22:43:46			
Reason for Maintenance	SO3 Plant repairs.			
End (Time):	2022/01/12 04:26:00			
Duration	125:42:14			

Unit 5				
Beginning of				
Reason for Maintenance				
End (Time):				
Duration				

Unit 6				
Beginning of				
Reason for Maintenance				
End (Time):				
Duration				

9. GENERAL

Unit 5 & 6:

Gaseous Monitor Availability on 24/01/2022: The monitor availability was 87.5% due to program fault. NOx, SOx, CO, CO2 & O2 were affected.

Unit 4:

Gaseous Monitor Availability on 25/01/2022: The monitor availability was 54.2% due to program fault. NOx, SOx, CO, CO2 & O2 were affected.

Unit 4:

Unit 4 reported a NEMA Section 30 on the 11/01/2022 due to start up issues of the SO3 plant after maintenance; SO3 flow established at 12:20. Dosing minimal to increase temperatures. Normal dosing resumed once plant parameters were appropriate.

ADDENDUM TO MONTHLY EMISSIONS REPORT

10. S30 INCIDENT OR LEGAL CONTRAVENTION REGISTER

To be completed in the case of a S30 incident or a legal contravention:

Unit no	Incident Start Date	Incident End Date	Incident Cause	Remedial action	S30 initial notification sent	Date S30 investigation report sent	Date DEA Acknowledgment	Date DEA Acceptable	Comments / Reference No.
4	11/01/2022	12/01/2022	SO3 Plant Start Up Issues	Dosing minimal to increase temperatures. Normal dosing resumed once plant parameters were appropriate.	12/01/2022	24/01/2022	None		PM Exceedance >72 hours - NEMA Section 30 Reported

11. PARTICULATE EMISSIONS

EMISSION RATE (ACTUAL EMISSION/MWh GENERATED - kg/MWh)

MONTH	UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 5	UNIT 6	STATION
Feb-21	OFF	0.64	0.59	0.49	0.51	0.52	0.56
Mar-21	OFF	0.80	0.54	0.45	0.46	0.42	0.54
Apr-21	0.78	0.49	0.52	0.43	0.31	0.48	0.47
May-21	0.33	0.45	0.42	0.53	0.49	0.49	0.46
Jun-21	0.26	0.63	0.37	0.36	0.35	0.33	0.38
Jul-21	0.23	0.55	0.43	0.31	0.27	0.29	0.35
Aug-21	0.24	0.73	0.41	0.55	0.24	0.28	0.41
Sep-21	0.38	0.92	0.52	0.33	0.26	OFF	0.47
Oct-21	0.63	0.53	0.50	0.50	0.40	OFF	0.51
Nov-21	0.34	0.59	0.52	0.52	0.41	0.41	0.46
Dec-21	0.39	OFF	0.55	0.57	0.34	0.29	0.42
Jan-22	0.37	OFF	0.52	0.46	0.47	0.36	0.44

ADDENDUM TO MONTHLY EMISSIONS REPORT

12. DAILY EMISSIONS FIGURES

Final Dust Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
01-Jan	54	OFF	63	78	OFF	OFF	100
02-Jan	69	OFF	51	76	OFF	OFF	100
03-Jan	68	OFF	33	49	OFF	OFF	100
04-Jan	105	OFF	49	59	OFF	OFF	100
05-Jan	99	OFF	60	82	OFF	OFF	100
06-Jan	156	OFF	86	102	OFF	OFF	100
07-Jan	66	OFF	103	100	OFF	OFF	100
08-Jan	126	OFF	66	217	OFF	OFF	100
09-Jan	55	OFF	54	200	OFF	OFF	100
10-Jan	53	OFF	94	119	OFF	OFF	100
11-Jan	58	OFF	114	102	OFF	OFF	100
12-Jan	95	OFF	72	56	OFF	OFF	100
13-Jan	72	OFF	86	66	OFF	OFF	100
14-Jan	99	OFF	98	74	OFF	OFF	100
15-Jan	151	OFF	63	64	OFF	OFF	100
16-Jan	44	OFF	139	47	OFF	OFF	100
17-Jan	82	OFF	94	60	OFF	74	100
18-Jan	77	OFF	92	57	404	79	100
19-Jan	65	OFF	148	72	314	102	100
20-Jan	86	OFF	133	63	84	79	100
21-Jan	88	OFF	81	64	88	88	100
22-Jan	153	OFF	96	63	58	70	100
23-Jan	83	OFF	86	56	69	94	100
24-Jan	86	OFF	92	50	47	72	100
25-Jan	219	OFF	167	72	77	87	100
26-Jan	60	OFF	99	61	74	79	100
27-Jan	69	OFF	186	69	86	92	100
28-Jan	89	OFF	95	66	82	99	100
29-Jan	154	OFF	136	72	92	74	100
30-Jan	86	OFF	135	140	68	87	100
31-Jan	157	OFF	212	81	131	79	100

ADDENDUM TO MONTHLY EMISSIONS REPORT

Final SO_x Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
01-Jan	1711	OFF	1853	2001	OFF	OFF	3500
02-Jan	1776	OFF	1906	2050	OFF	OFF	3500
03-Jan	1913	OFF	2023	1898	OFF	OFF	3500
04-Jan	1848	OFF	1975	1545	OFF	OFF	3500
05-Jan	1785	OFF	2023	1663	OFF	OFF	3500
06-Jan	1892	OFF	2001	2124	OFF	OFF	3500
07-Jan	1807	OFF	1913	1950	OFF	OFF	3500
08-Jan	1813	OFF	1834	1933	OFF	OFF	3500
09-Jan	1860	OFF	1942	2060	OFF	OFF	3500
10-Jan	1746	OFF	1849	1991	OFF	OFF	3500
11-Jan	1756	OFF	1917	1930	OFF	OFF	3500
12-Jan	1768	OFF	1895	1934	OFF	OFF	3500
13-Jan	1775	OFF	1919	1913	OFF	OFF	3500
14-Jan	1788	OFF	1970	1893	OFF	OFF	3500
15-Jan	1795	OFF	1913	1928	OFF	OFF	3500
16-Jan	1792	OFF	1873	1886	OFF	2356	3500
17-Jan	1816	OFF	1994	1933	2017	2088	3500
18-Jan	1865	OFF	2034	2004	1990	2111	3500
19-Jan	1735	OFF	1924	1888	1885	2059	3500
20-Jan	1806	OFF	1969	1893	1893	2074	3500
21-Jan	1865	OFF	1985	1945	1937	2148	3500
22-Jan	1839	OFF	1913	1954	1940	2132	3500
23-Jan	1733	OFF	1832	1828	1850	2045	3500
24-Jan	1754	OFF	1904	1923	1777	2059	3500
25-Jan	1659	OFF	1781	1926	1679	2057	3500
26-Jan	1701	OFF	1676	1779	1603	1892	3500
27-Jan	1621	OFF	1698	1734	1617	1899	3500
28-Jan	1701	OFF	1896	1876	1764	2077	3500
29-Jan	1793	OFF	1887	1923	1762	2243	3500
30-Jan	1727	OFF	1858	1893	1696	2104	3500
31-Jan	1684	OFF	1987	1937	1718	2203	3500

ADDENDUM TO MONTHLY EMISSIONS REPORT

Final NOx Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
01-Jan	878	OFF	943	915	OFF	OFF	1100
02-Jan	940	OFF	949	1061	OFF	OFF	1100
03-Jan	947	OFF	950	787	OFF	OFF	1100
04-Jan	988	OFF	938	681	OFF	OFF	1100
05-Jan	920	OFF	865	740	OFF	OFF	1100
06-Jan	1007	OFF	934	918	OFF	OFF	1100
07-Jan	1046	OFF	939	745	OFF	OFF	1100
08-Jan	960	OFF	914	644	OFF	OFF	1100
09-Jan	947	OFF	968	717	OFF	OFF	1100
10-Jan	951	OFF	940	826	OFF	OFF	1100
11-Jan	964	OFF	980	817	OFF	OFF	1100
12-Jan	931	OFF	918	817	OFF	OFF	1100
13-Jan	997	OFF	889	879	OFF	OFF	1100
14-Jan	964	OFF	879	952	OFF	OFF	1100
15-Jan	1093	OFF	874	905	OFF	OFF	1100
16-Jan	992	OFF	896	843	OFF	707	1100
17-Jan	1030	OFF	936	853	797	939	1100
18-Jan	984	OFF	1046	902	813	967	1100
19-Jan	867	OFF	968	955	783	994	1100
20-Jan	974	OFF	973	851	793	990	1100
21-Jan	952	OFF	922	880	762	956	1100
22-Jan	869	OFF	1005	900	765	1027	1100
23-Jan	954	OFF	920	887	826	1035	1100
24-Jan	920	OFF	917	885	703	984	1100
25-Jan	957	OFF	973	846	731	961	1100
26-Jan	1097	OFF	932	904	729	957	1100
27-Jan	1029	OFF	930	917	773	984	1100
28-Jan	948	OFF	936	951	760	963	1100
29-Jan	883	OFF	934	896	723	992	1100
30-Jan	994	OFF	925	826	791	954	1100
31-Jan	1044	OFF	978	828	751	960	1100

ADDENDUM TO MONTHLY EMISSIONS REPORT

13. AVAILABILITY

ESP utilisation

Availability												
Month	Unit 1	Days Affected	Unit 2	Days Affected	Unit 3	Days Affected	Unit 4	Days Affected	Unit 5	Days Affected	Unit 6	Days Affected
Feb-21	OFF LOAD	0.0	99.11%	1.0	98.21%	2.0	100.00%	0.0	100.00%	0.0	100.00%	0.0
Mar-21	OFF LOAD	0.0	97.58%	3.0	99.19%	1.0	100.00%	0.0	100.00%	0.0	100.00%	0.0
Apr-21	100.00%	0.0	100.00%	0.0	98%	2.7	99.23%	0.9	100.00%	0.0	98.48%	1.8
May-21	88.70%	2.0	100.00%	0.0	100%	0.0	100.00%	0.0	88.82%	1.9	100.00%	0.0
Jun-21	98.59%	1.7	99.28%	0.9	99%	1.0	100.00%	0.0	100.00%	0.0	100.00%	0.0
Jul-21	100.00%	0.0	100.00%	0.0	99.38%	0.8	100.00%	0.0	100.00%	0.0	100.00%	0.0
Aug-21	99.33%	0.8	100.00%	0.0	99.26%	0.9	100.00%	0.0	100.00%	0.0	100.00%	0.0
Sep-21	95.94%	1.0	96.00%	1.0	95.98%	1.0	95.97%	1.0	100.00%	0.0	OFF	OFF
Oct-21	97.32%	3.3	99.36%	0.8	99.33%	0.8	100.00%	0.0	100.00%	0.0	OFF	OFF
Nov-21	100.00%	0.0	100.00%	0.0	100.00%	0.0	96.26%	0.6	95.79%	1.2	100.00%	0.0
Dec-21	99.44%	0.7	OFF	OFF	98.24%	2.2	98.02%	2.5	100.00%	0.0	100.00%	0.0
Jan-22	98.50%	1.9	OFF	OFF	99.32%	0.8	100.00%	0.0	100.00%	0.0	100.00%	0.0

SO₃ plant utilisation

Availability												
Month	Unit 1	Days Affected	Unit 2	Days Affected	Unit 3	Days Affected	Unit 4	Days Affected	Unit 5	Days Affected	Unit 6	Days Affected
Feb-21	OFF LOAD	0.0	100.00%	0.0	96%	1.0	92.86%	2.0	100.00%	0.0	100.00%	0.0
Mar-21	OFF LOAD	0.0	100.00%	0.0	100%	0.0	100.00%	0.0	87.10%	4.0	100.00%	0.0
Apr-21	85.06%	4.5	100.00%	0.0	88.46%	3.5	100.00%	0.0	99.33%	0.2	100.00%	0.0
May-21	100.00%	0.0	100.00%	0.0	81.77%	2.7	76.09%	4.4	78.12%	3.8	100.00%	0.0
Jun-21	100.00%	0.0	100.00%	0.0	92.28%	2.3	100.00%	0.0	100.00%	0.0	100.00%	0.0
Jul-21	100.00%	0.0	100.00%	0.0	91.05%	2.7743056	100.00%	0.0	100.00%	0.0	100.00%	0.0
Aug-21	100.00%	0.0	47.45%	16.3	100.00%	0.0	99.08%	0.3	100.00%	0.0	100.00%	0.0
Sep-21	100.00%	0.0	71.12%	8.0	100.00%	0.0	100.00%	0.0	100.00%	0.0	OFF	OFF
Oct-21	99.75%	0.1	100.00%	0.0	100.00%	0.0	100.00%	0.0	100.00%	0.0	OFF	OFF
Nov-21	100.00%	0.0	100.00%	0.0	100.00%	0.0	88.62%	2.5	100.00%	0.0	90.27%	2.0
Dec-21	97.72%	0.7	OFF	OFF	96.64%	1.0	97.18%	0.9	99.87%	0.0	100.00%	0.0
Jan-22	95.79%	1.3	OFF	OFF	83.10%	5.2	100.00%	0.0	100.00%	0.0	100.00%	0.0

ADDENDUM TO MONTHLY EMISSIONS REPORT

Particulate Emission Monitors

Availability						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Feb-21	OFF	99.70%	98.46%	100.00%	94.64%	98.90%
Mar-21	OFF	99.87%	99.06%	96.15%	99.60%	100.00%
Apr-21	83.69%	99.65%	99.28%	99.58%	99.86%	99.87%
May-21	99.01%	100.00%	94.83%	99.72%	97.31%	99.38%
Jun-21	99.72%	99.17%	99.31%	99.83%	99.86%	99.82%
Jul-21	98.12%	99.60%	99.87%	99.04%	98.22%	99.06%
Aug-21	100.00%	99.60%	99.60%	99.36%	100.00%	100.00%
Sep-21	98.61%	96.91%	99.03%	99.54%	99.72%	OFF
Oct-21	95.51%	99.06%	99.46%	99.87%	99.87%	OFF
Nov-21	99.60%	99.54%	99.86%	99.00%	98.61%	99.80%
Dec-21	98.39%	OFF	96.12%	96.81%	99.87%	100.00%
Jan-22	98.66%	OFF	99.19%	99.87%	99.70%	100.00%

Gaseous Emission Monitors

Month	Availability											
	Unit 1		Unit 2		Unit 3		Unit 4		Unit 5		Unit 6	
	SO _x	NO _x	SO _x	NO _x	SO _x	NO _x	SO _x	NO _x	SO _x	NO _x	SO _x	NO _x
Feb-21	OFF	OFF	99.70%	99.70%	99.70%	99.70%	92.56%	92.71%	98.65%	98.65%	98.27%	98.52%
Mar-21	OFF	OFF	100.00%	100.00%	100.00%	100.00%	96.07%	96.07%	99.97%	99.97%	99.60%	99.60%
Apr-21	99.47%	99.76%	99.83%	99.83%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	99.84%	99.84%
May-21	94.33%	94.33%	99.87%	100.00%	100.00%	100.00%	99.87%	99.87%	100.00%	100.00%	100.00%	100.00%
Jun-21	99%	99%	99.72%	99.86%	100%	100%	99.76%	99.76%	99.86%	99.86%	99.71%	99.71%
Jul-21	99.73%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	98.66%	98.66%	98.79%	98.92%
Aug-21	89.25%	89.78%	99.60%	99.73%	99.73%	99.73%	100.00%	100.00%	99.87%	99.87%	95.27%	95.27%
Sep-21	99.58%	99.58%	99.55%	99.55%	99.58%	99.72%	99.70%	99.70%	99.58%	99.72%	OFF	OFF
Oct-21	99.52%	99.36%	99.73%	99.87%	99.87%	99.87%	99.73%	99.87%	100.00%	100.00%	OFF	OFF
Nov-21	99.62%	99.81%	94.79%	94.79%	100.00%	99.86%	99.84%	99.84%	100.00%	100.00%	99.81%	99.81%
Dec-21	97.85%	97.85%	OFF	OFF	91.28%	91.42%	100.00%	99.87%	100.00%	100.00%	99.87%	100.00%
Jan-22	99.87%	100.00%	0.00%	0.00%	99.87%	100.00%	99.87%	100.00%	99.72%	100.00%	99.48%	99.48%

Oxygen Monitor Availability						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Feb-21	OFF	99.70%	99.55%	99.26%	98.32%	98.52%
Mar-21	OFF	100.00%	100.00%	96.43%	99.97%	99.87%
Apr-21	99.40%	98.91%	99.87%	99.72%	100.00%	99.37%
May-21	94.16%	99.87%	99.86%	99.87%	99.87%	98.63%
Jun-21	99.58%	99.79%	99.72%	99.76%	99.72%	99.55%
Jul-21	100.00%	99.87%	99.60%	99.52%	98.73%	98.79%
Aug-21	99.46%	99.87%	99.60%	100.00%	100.00%	95.45%
Sep-21	99.72%	99.13%	97.78%	99.55%	99.72%	OFF
Oct-21	99.84%	99.87%	97.04%	99.87%	99.73%	OFF
Nov-21	99.05%	89.58%	98.06%	100.00%	99.86%	99.81%
Dec-21	97.58%	OFF	91.28%	94.76%	99.86%	100.00%
Jan-22	100.00%	OFF	99.87%	98.25%	99.17%	99.22%

ADDENDUM TO MONTHLY EMISSIONS REPORT

14. EFFICIENCY

ESP Efficiency (%)						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Feb-21	OFF	99.722%	99.736%	99.799%	99.779%	99.775%
Mar-21	OFF	99.659%	99.769%	99.823%	99.802%	99.817%
Apr-21	99.679%	99.788%	99.777%	99.825%	99.858%	99.788%
May-21	99.866%	99.809%	99.825%	99.791%	99.782%	99.786%
Jun-21	99.894%	99.724%	99.844%	99.856%	99.839%	99.852%
Jul-21	99.916%	99.756%	99.819%	99.879%	99.887%	99.838%
Aug-21	99.894%	99.656%	99.810%	99.759%	99.883%	99.864%
Sep-21	99.836%	99.567%	99.756%	99.855%	99.873%	OFF
Oct-21	99.752%	99.776%	99.789%	99.800%	99.823%	OFF
Nov-21	99.870%	99.743%	99.780%	99.798%	99.820%	99.831%
Dec-21	99.834%	OFF	99.744%	99.757%	99.837%	99.864%
Jan-22	99.845%	OFF	99.765%	99.807%	99.788%	99.834%

15. REMARKS

UNIT	MWLOSS	REASON	ACTUAL START DATE	ACTUAL END DATE
1	200	High stack emissions	2022/01/05 20:04:00	2022/01/06 00:39:00
1	116	LHO precip casing repairs	2022/01/07 23:48:00	2022/01/08 23:14:00
1	164	High stack emissions. No SO3 plant.	2022/01/14 20:47:00	2022/01/14 21:23:00
1	218	High stack emissions. No SO3 plant.	2022/01/14 21:23:00	2022/01/15 00:46:00
1	118	RHI precip casing repairs	2022/01/22 00:00:00	2022/01/22 21:15:00
1	593	HIGH GEN REAR VIBRATION	2022/01/29 02:27:00	2022/01/29 15:15:00
1	296	System Generated Ramp Event for Event id : 1652201	2022/01/29 15:15:00	2022/01/29 17:45:00
1	118	High hopper levels	2022/01/31 04:10:00	2022/01/31 16:08:00
2	593	Interim Repairs	2022/01/01 00:00:00	2022/01/31 23:59:59
3	110	High stack emissions	2022/01/13 11:00:00	2022/01/13 12:51:00
3	88	High stack emissions	2022/01/13 12:51:00	2022/01/13 14:22:00
3	116	RHI precip casing repairs	2022/01/16 00:07:00	2022/01/16 20:20:00
3	66	High stack emissions.	2022/01/17 19:52:00	2022/01/17 20:40:00
3	112	High stack emissions.	2022/01/17 20:40:00	2022/01/18 00:01:00
3	118	So3 plant tests	2022/01/20 09:25:00	2022/01/20 12:54:00
3	118	High stack emissions.	2022/01/21 03:16:00	2022/01/22 00:02:00
3	86	High stack emissions.	2022/01/26 21:05:00	2022/01/27 00:16:00
4	49	High stack emissions	2022/01/06 14:55:00	2022/01/07 00:03:00
4	76	High stack emissions.	2022/01/07 08:11:00	2022/01/07 10:41:00
4	178	SO3 Plant repairs.	2022/01/07 10:41:00	2022/01/10 22:41:00
4	180	SO3 Plant repairs.	2022/01/10 22:41:00	2022/01/11 08:59:00
4	84	SO3 Plant repairs.	2022/01/11 08:59:00	2022/01/12 04:26:00
4	98	High stack emissions.	2022/01/11 12:27:00	2022/01/11 13:53:00
4	117	High stack emissions.	2022/01/11 13:53:00	2022/01/11 16:16:00
4	146	High stack emissions.	2022/01/11 16:16:00	2022/01/12 04:26:00
4	150	Emission test.	2022/01/13 00:02:00	2022/01/13 04:44:00
5	593	HP heaters repairs	2022/01/01 00:00:00	2022/01/03 13:00:00
5	593	Fly ash bunker 3 water ingress	2022/01/03 13:00:00	2022/01/17 04:56:00
5	297	System Generated Ramp Event for Event id : 1642074	2022/01/17 04:56:00	2022/01/17 07:56:00
5	48	High stack emissions.	2022/01/20 12:01:00	2022/01/20 18:24:00
5	64	FAB 3 compartment 1 full.	2022/01/25 12:59:00	2022/01/25 13:55:00
5	52	FAB compartment 1 full	2022/01/25 22:58:00	2022/01/26 02:45:00
5	40	FAB 3 Compartment 1 full	2022/01/28 01:55:00	2022/01/28 04:43:00
5	40	FAB 3 compartment full.	2022/01/29 00:26:00	2022/01/29 04:51:00
5	41	Fly ash bunker 3 levels high	2022/01/29 21:01:00	2022/01/30 00:47:00
5	137	Fly ash bunker 3 levels high.	2022/01/30 00:47:00	2022/01/31 05:01:00
5	41	High hopper levels.	2022/01/31 05:01:00	2022/01/31 15:00:00
6	593	Fly ash bunker water ingress	2022/01/01 00:00:00	2022/01/16 20:01:00
6	297	System Generated Ramp Event for Event id : 1642353	2022/01/16 20:01:00	2022/01/16 23:01:00
6	118	FAB 3 compartment 1 full.	2022/01/25 12:53:00	2022/01/25 13:55:00
6	118	FAB 3 Comp. 1 full.	2022/01/25 22:58:00	2022/01/26 03:48:00
6	118	FAB 3 Compartment 1 full	2022/01/28 01:46:00	2022/01/28 04:49:00
6	218	High stack emissions.	2022/01/28 22:01:00	2022/01/29 05:11:00
6	118	Fly ash bunker 3 levels high.	2022/01/29 21:07:00	2022/01/30 06:06:00
6	118	Fly ash bunker 3 levels high.	2022/01/30 20:14:00	2022/01/31 01:26:00
6	218	Fly ash bunker levels high	2022/01/31 01:26:00	2022/01/31 05:01:00
6	118	High hopper levels.	2022/01/31 05:01:00	2022/01/31 15:08:00

PM Exceedances		
U1.	ESP Poor Performance Three casings are performing below 250, LHO performing worst. LHO has two external faults EMS need to address today to improve the performance: LHO F5 EMS reported arcing and sparking LHO F6 contactor is burnt, checking for spares. Gerald advised that the spares can be taken at Unit 2. LHI F4 poor performance, external fault, EMS need to address today.	04-Jan
U1.	ESP Poor Performance and Manual Rapping	06-Jan
U1.	LHO casing outage	08-Jan
U1.	SO3 plant for air blower	15-Jan
U1.	RHI Casing Outage was taken	22-Jan
U1.	SO3 plant tripped and manual rapping carried out.	25-Jan
U1.	Unit 1 off load for generator vibrations	29-Jan
U1.	Poor casing performance due to high hopper levels	31-Jan
U3.	ESP poor performance	07-Jan
U3.	Common sulphur plant temperatures is low, causing low Sulphur flow. Sulphur flow was restored in the evening	11-Jan
U3.	RHI Casing Outage	16-Jan
U3.	ESP poor performance and manual rapping	19-Jan
U3.	ESP poor performance and manual rapping	20-Jan
U3.	HI casing performing poorly and LHO had internal faults. Manual rapping was also carried out.	25-Jan
U3.	Manual rapping was carried out to improve casing performance.	27-Jan
U3.	LHO/LHI, RHI Casings performing poorly & faulty field rappers.	29-Jan
U3.	LHO/LHI, RHI Casings performing poorly & faulty field rappers.	30-Jan
U3.	RHO casing operating with high hopper levels.	31-Jan
U4.	So3 Plant off and ESP poor performance	06-Jan
U4.	LHO Casing outage	08-Jan
U4.	SO3 plant leak repairs was done over the weekend.	09-Jan
U4.	SO3 plant is ramping up, however the heaters are underperforming. Sulphur plant temperature is low and no flow due to this Ops provided feedback that the heater performance issues were resolved however the common supply line low temperatures caused a delay in establishing Sulphur flow.	10-Jan
U4.	NEMA S30 reported. SO3 flow established at 12:20. Dosing minimal to increase temperatures. Normal dosing resumed once plant parameters were appropriate	11-Jan
U4.	C&I module faulty in the sulphur plant	30-Jan
U5.	Unit synchronized on 2022/01/17 @ 04:57, emissions need to be below the limit by 2022/01/20 @ 04:47 and remain below the limit until 2022/01/21	18-Jan
U5.	Unit Light Up	19-Jan
U5.	High hopper levels due to FAB fault, leading to poor casing performance.	31-Jan
U6.	ESP Poor performance and Manual Rapping	19-Jan