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Date: 27 July 2021

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**LRP03PLA000 \_0246/20210706**

Dear Mr. Sibaya

**LETHABO POWER STATION EMISSION MONTHLY REPORT FOR JUNE 2021**

Please find attached Lethabo Power Station emission report for the month of June 2021.

Also attached are the Ambient Air Quality Monitoring Report, Complaints Register and the Fugitive Dust Fallout Monitoring Report for June 2021.

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  
JUNE 2021  
Emission Report**

Reference number: **LRP03PLA000\_0246/20210706**  
Document Type: **Report**  
Area of Applicability: **Environment**  
Report Date: **July-2021**  
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 Jun-2021
	Coal	Tons	2 000 000	1 548 895
	Fuel Oil	Tons	1 700	565.74

Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Production Rate Jun-2021
	Energy	GWh	2743.2	2 204.26
	Ash	Tons	770 000	596 789.4
	RE Ash	kg/MWh	not specified	270.74

**2. ENERGY SOURCE CHARACTERISTICS**

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.656 (Standard)	0.670
Ash Content	%	37.37 (Standard)	38.530

\*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/Nm<sup>3</sup>)

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. ABATEMET TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	Efficiency Jun-2021
Unit 1	<i>Electrostatic Precipitator (ESP)</i>	99.89%
Unit 2	<i>Electrostatic Precipitator (ESP)</i>	99.72%
Unit 3	<i>Electrostatic Precipitator (ESP)</i>	99.84%
Unit 4	<i>Electrostatic Precipitator (ESP)</i>	99.86%
Unit 5	<i>Electrostatic Precipitator (ESP)</i>	99.84%
Unit 6	<i>Electrostatic Precipitator (ESP)</i>	99.85%

### 5. MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO <sub>2</sub>	NO	CO <sub>2</sub>
Unit 1	99.7	99.0	99.4	90.8
Unit 2	99.2	99.7	99.9	99.6
Unit 3	99.3	99.7	99.7	99.6
Unit 4	99.8	99.8	99.8	99.8
Unit 5	99.9	99.9	99.9	99.9
Unit 6	99.8	99.7	99.7	99.6

## 6. EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of June 2021

Associated Unit/Stack	PM (tons)	SO <sub>2</sub> (tons)	NO <sub>x</sub> (tons)
Unit 1	107	2 782	1 369
Unit 2	246.9	4 737	1 967
Unit 3	145.4	3 945	1 887
Unit 4	134.4	3 913	1 818
Unit 5	142.2	3 174	1 546
Unit 6	106.9	3 138	1 521
<b>SUM</b>	<b>882.8</b>	<b>21 689.5</b>	<b>10 109.4</b>

Table 6.2: Operating days in compliance to PM AEL Limit - June 2021

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average PM (mg/Nm <sup>3</sup> )
Unit 1	25	5	0	0	5	67.4
Unit 2	21	9	0	0	9	122.2
Unit 3	27	3	0	0	3	74.5
Unit 4	25	1	1	0	2	70.1
Unit 5	30	0	0	0	0	83.7
Unit 6	23	0	0	0	0	73.8
<b>SUM</b>	<b>151</b>	<b>18</b>	<b>1</b>	<b>0</b>	<b>19</b>	

Table 6.3: Operating days in compliance to SO<sub>x</sub> AEL Limit - June 2021

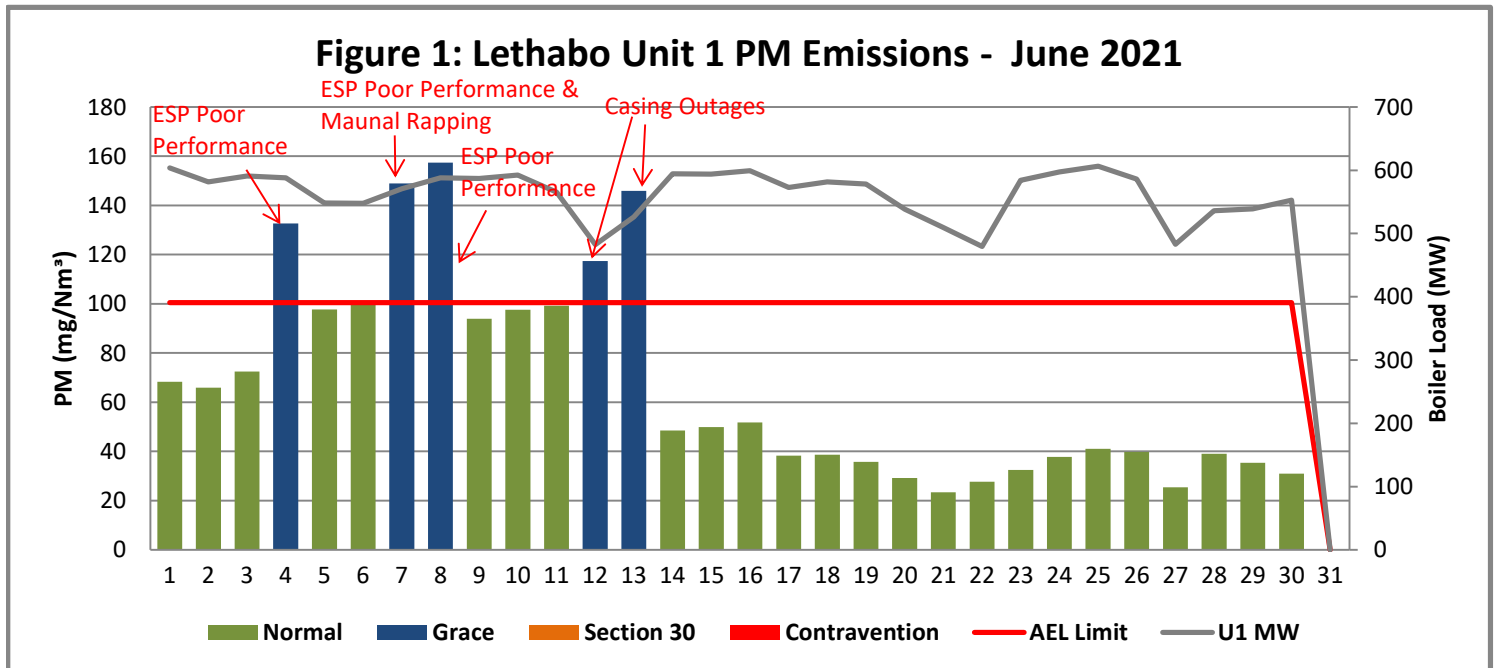
Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average SO <sub>x</sub> (mg/Nm <sup>3</sup> )
Unit 1	30	0	0	0	0	1 728.4
Unit 2	30	0	0	0	0	2 157.4
Unit 3	30	0	0	0	0	2 032.6
Unit 4	28	0	0	0	0	1 945.7
Unit 5	30	0	0	0	0	1 874.4
Unit 6	26	0	0	0	0	2 055.2
<b>SUM</b>	<b>174</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	

Table 6.4: Operating days in compliance to NOx AEL Limit - June 2021

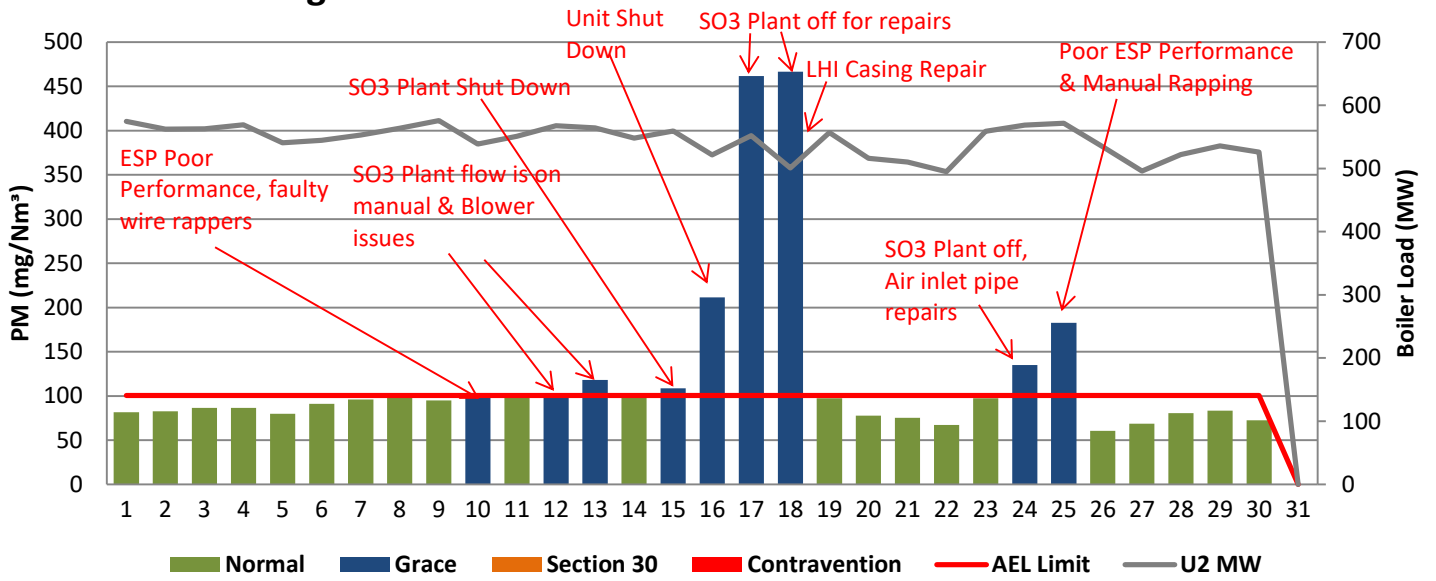
Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average NOx (mg/Nm <sup>3</sup> )
Unit 1	30	0	0	0	0	848.9
Unit 2	30	0	0	0	0	895.4
Unit 3	28	0	0	2	2	973.1
Unit 4	28	0	0	0	0	900.9
Unit 5	30	0	0	0	0	914.1
Unit 6	23	0	0	3	3	984.4
<b>SUM</b>	<b>169</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>5</b>	

Table 6.5: Legend Description

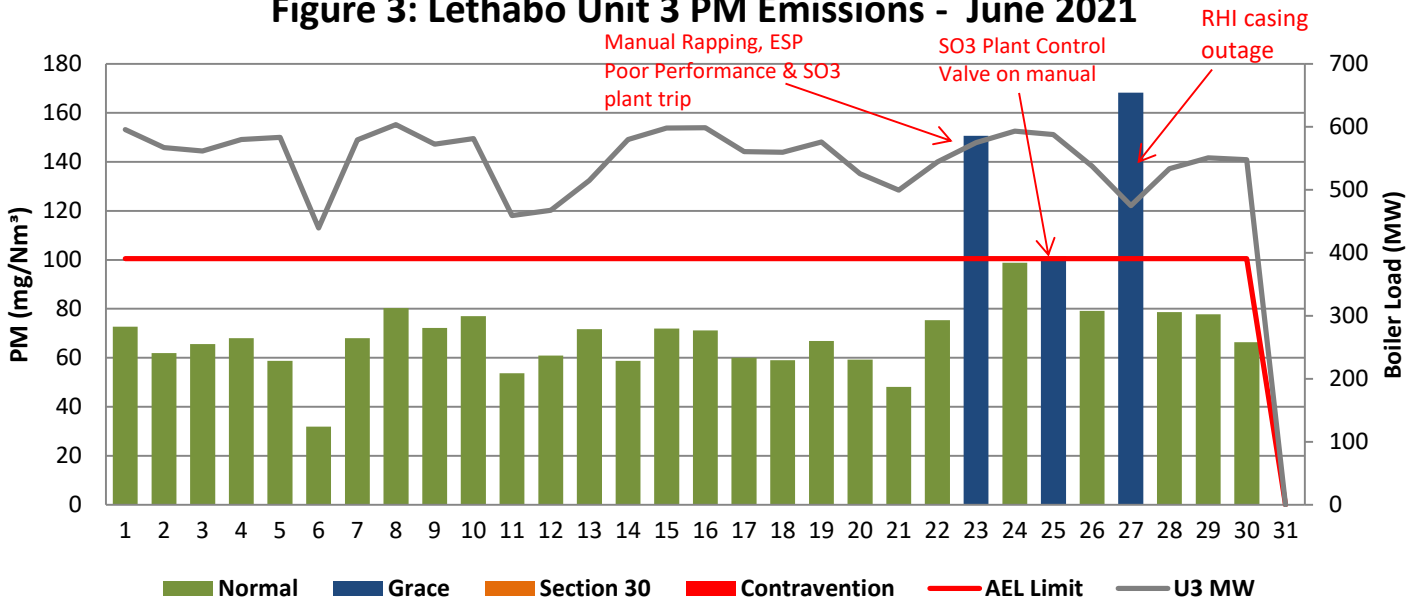
Condition	Colour	Description
Normal	Green	Emissions below Emission Limit Value (ELV)
Grace	Blue	Emissions above the ELV during grace period
Section 30	Orange	Emissions above ELV during a NEMA S30 incident
Contra-vention	Red	Emissions above ELV but outside grace or S30 incident conditions



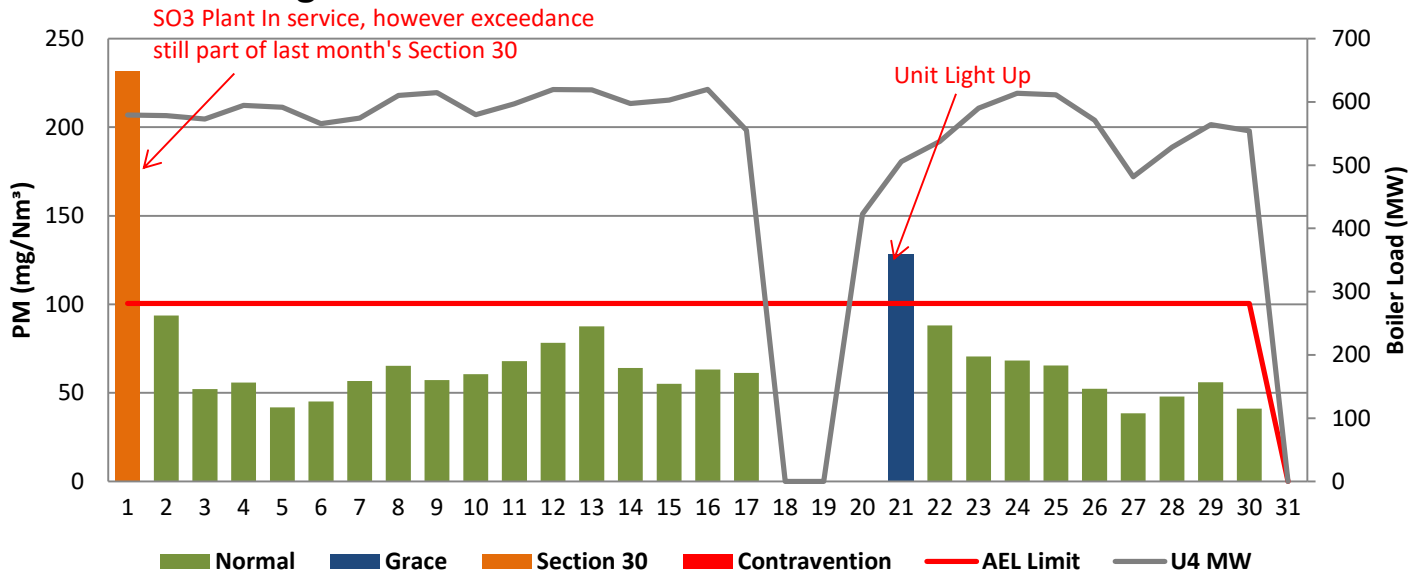
**Figure 2: Lethabo Unit 2 PM Emissions - June 2021**



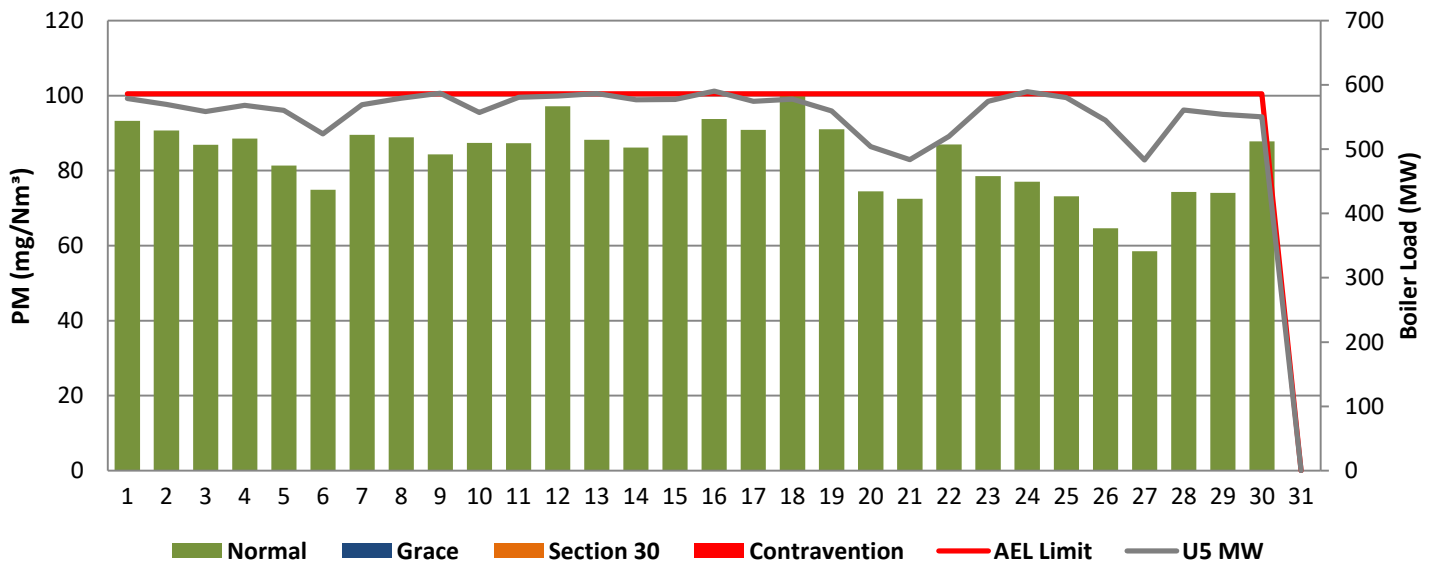
**Figure 3: Lethabo Unit 3 PM Emissions - June 2021**



**Figure 4: Lethabo Unit 4 PM Emissions - June 2021**

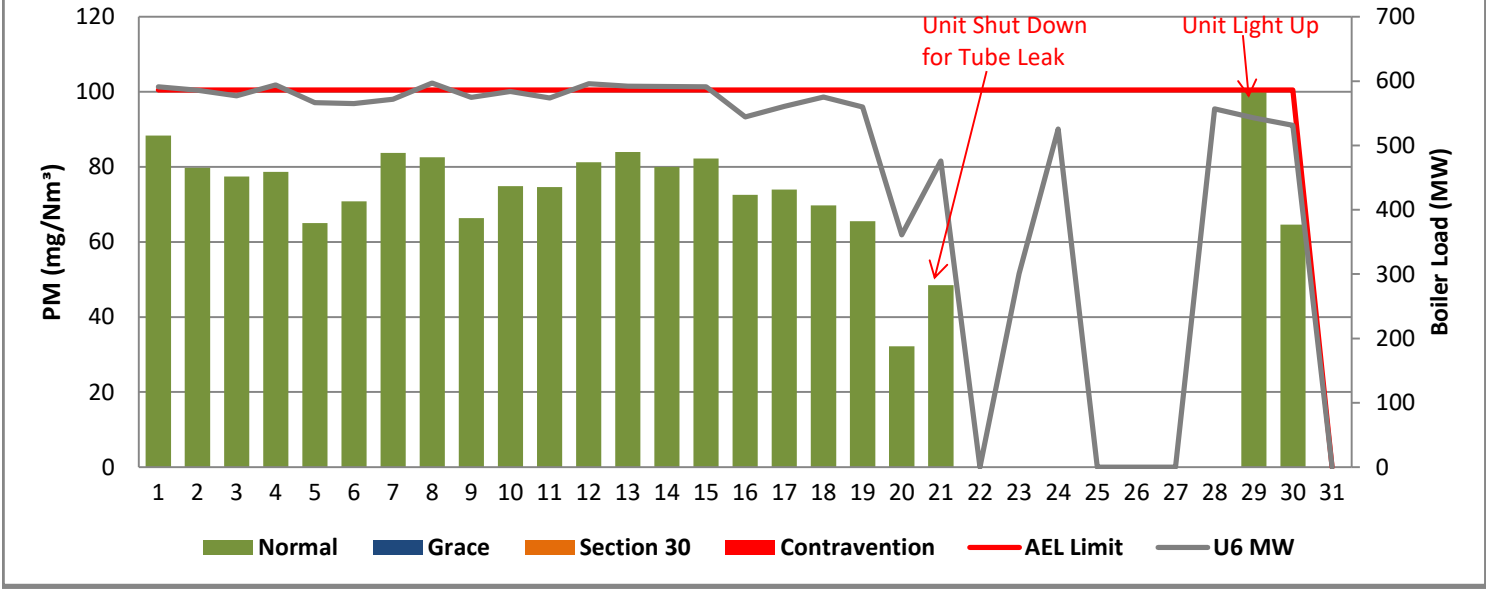


**Figure 5: Lethabo Unit 5 PM Emissions - June 2021**

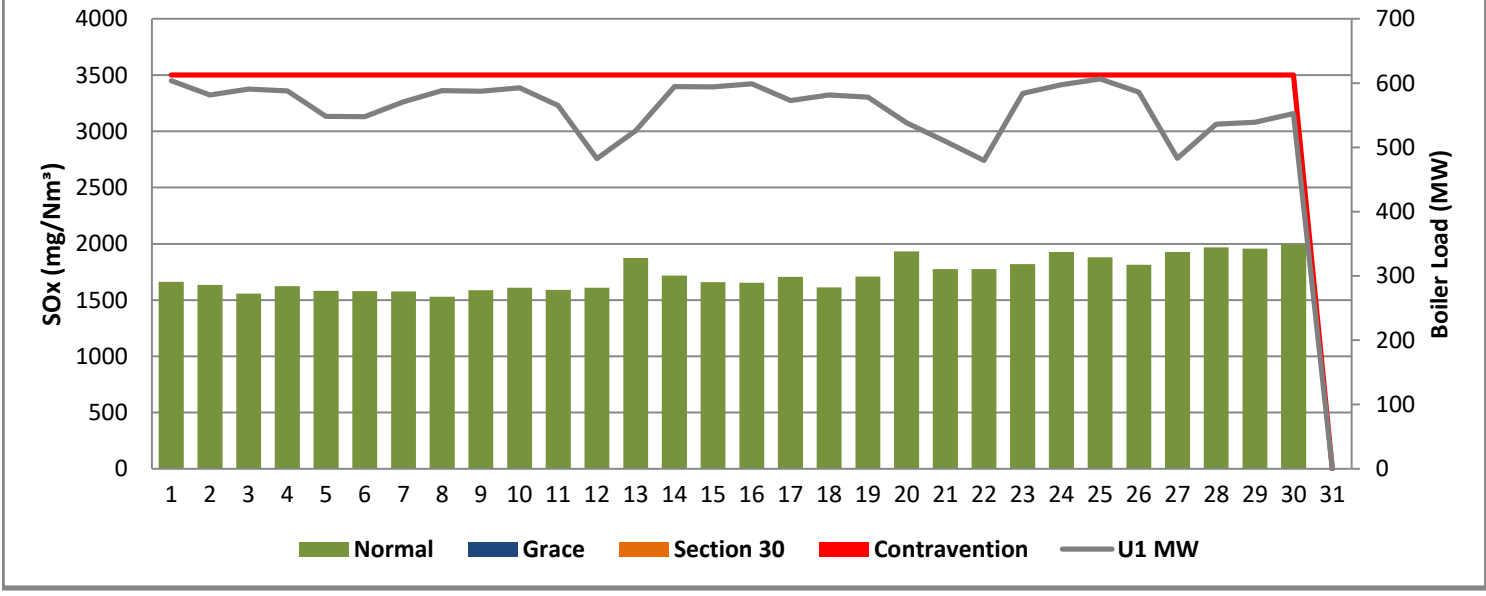




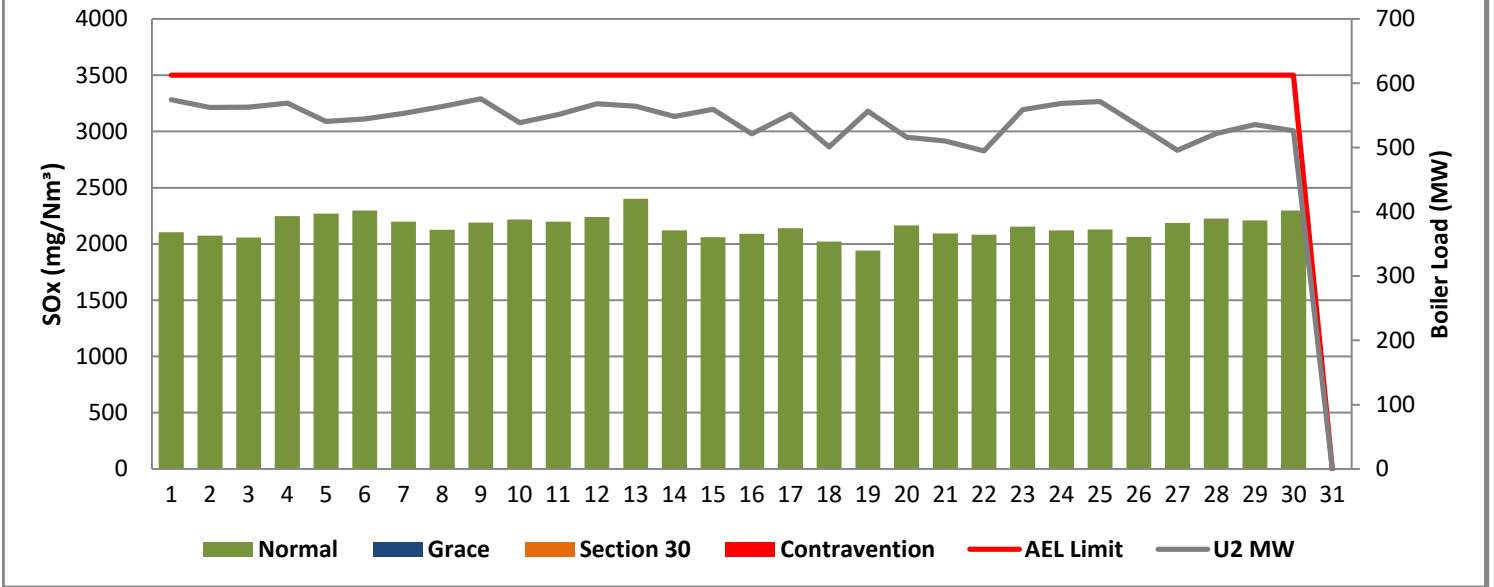
**Figure 6: Lethabo Unit 6 PM Emissions - June 2021**



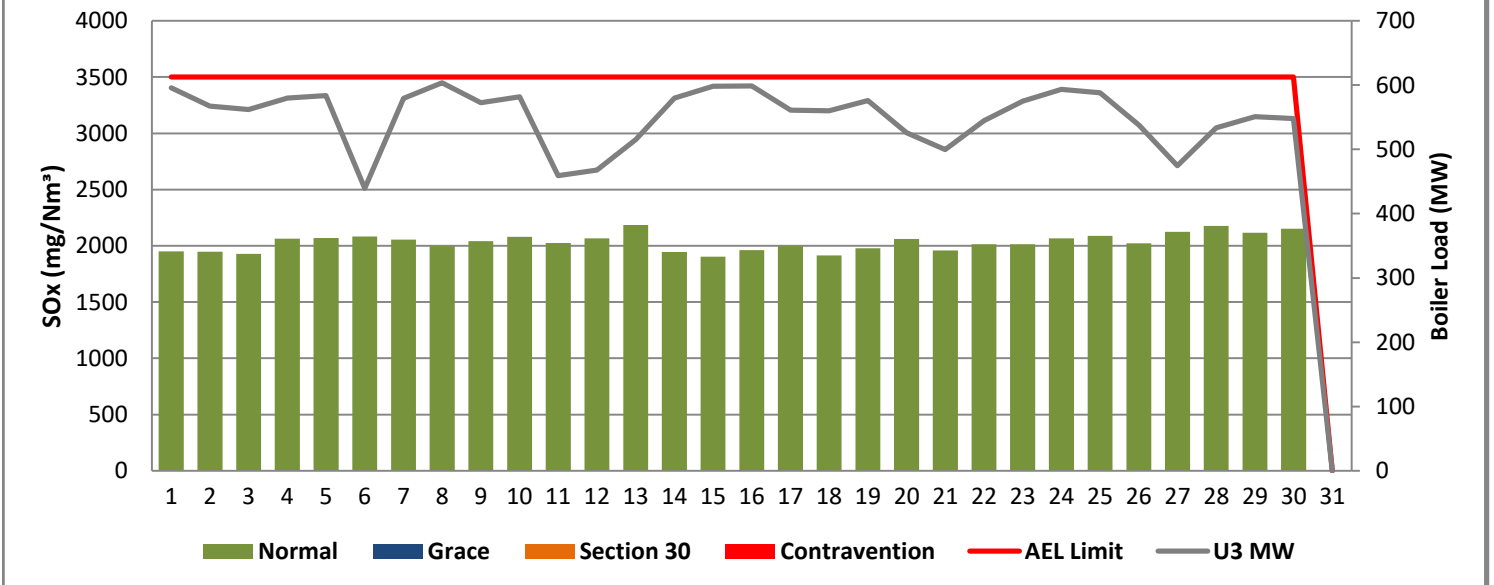
**Figure 7: Lethabo Unit 1 SOx Emissions - June 2021**



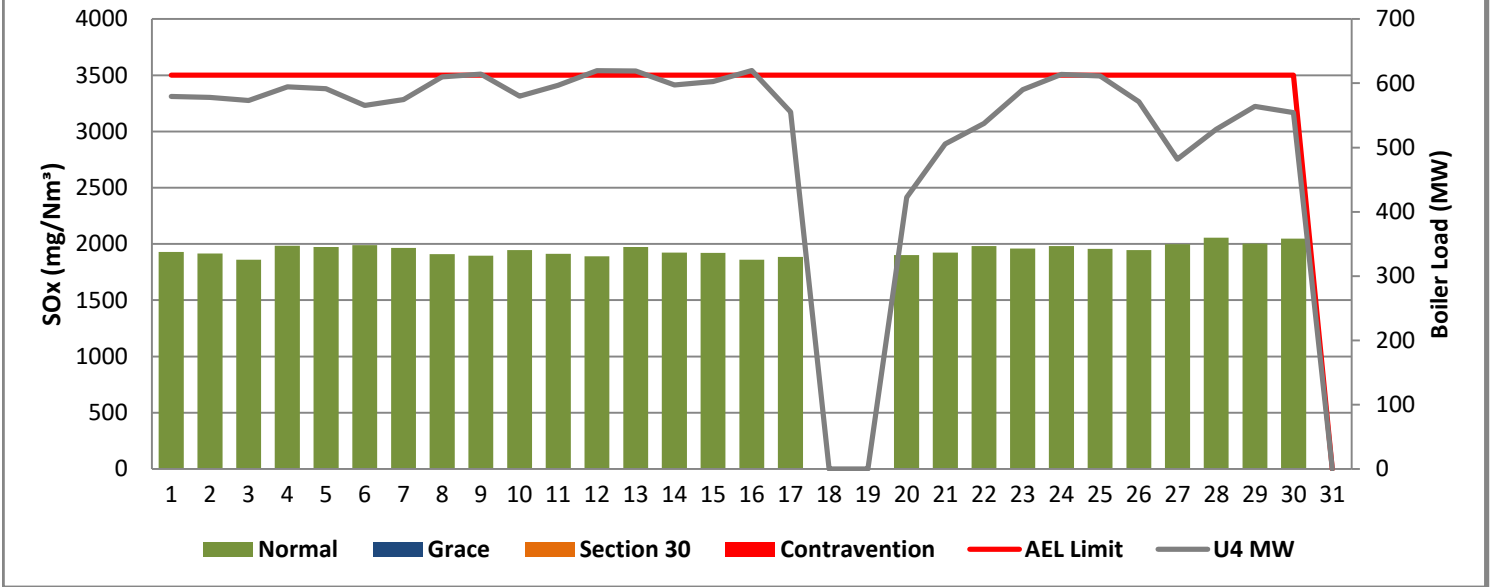
**Figure 8: Lethabo Unit 2 SOx Emissions - June 2021**



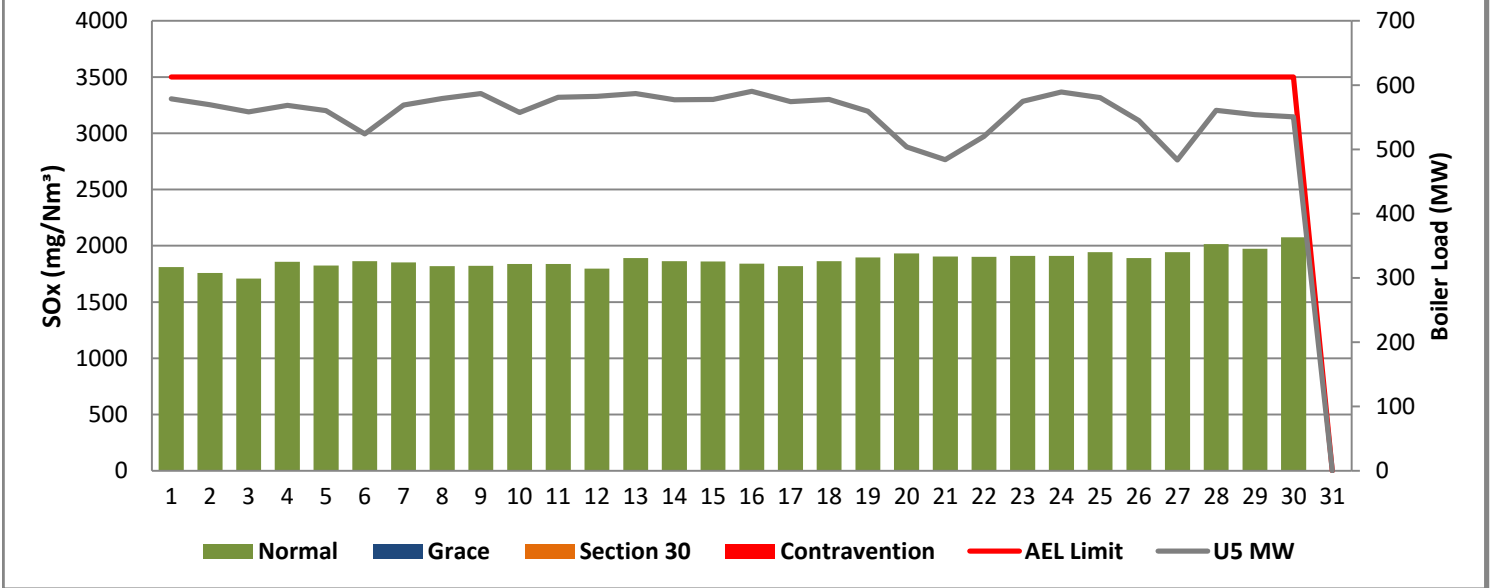
**Figure 9: Lethabo Unit 3 SOx Emissions - June 2021**



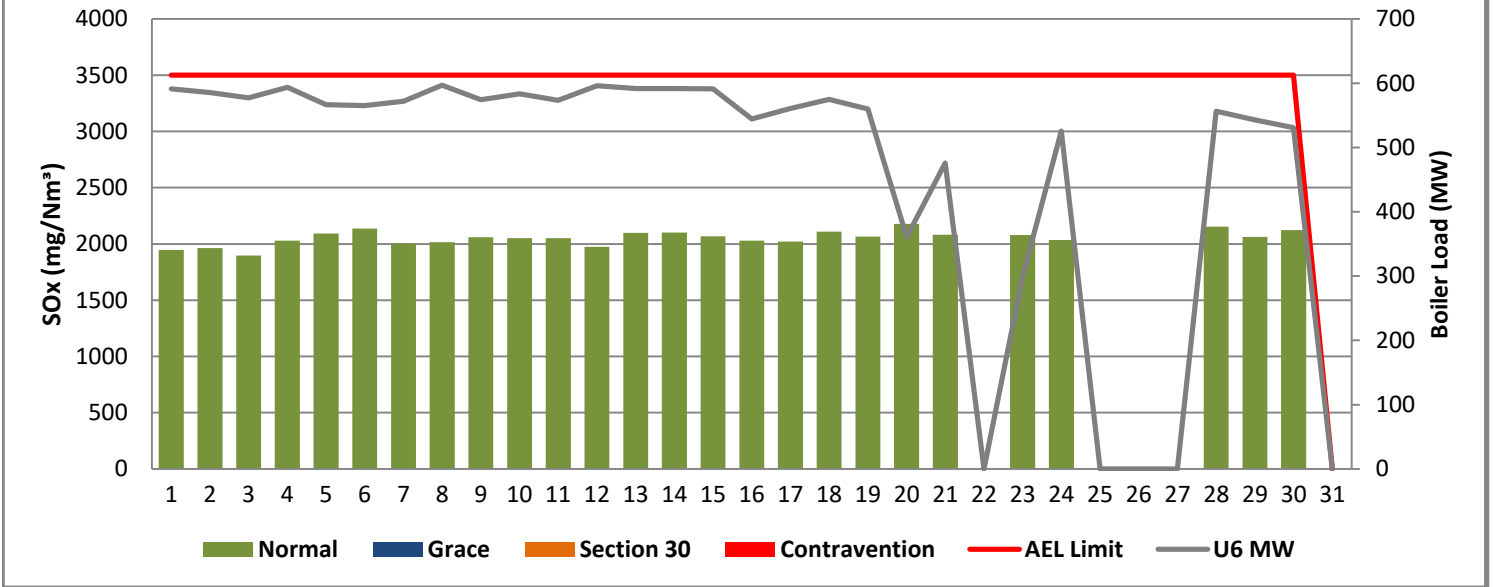
**Figure 10: Lethabo Unit 4 SOx Emissions - June 2021**



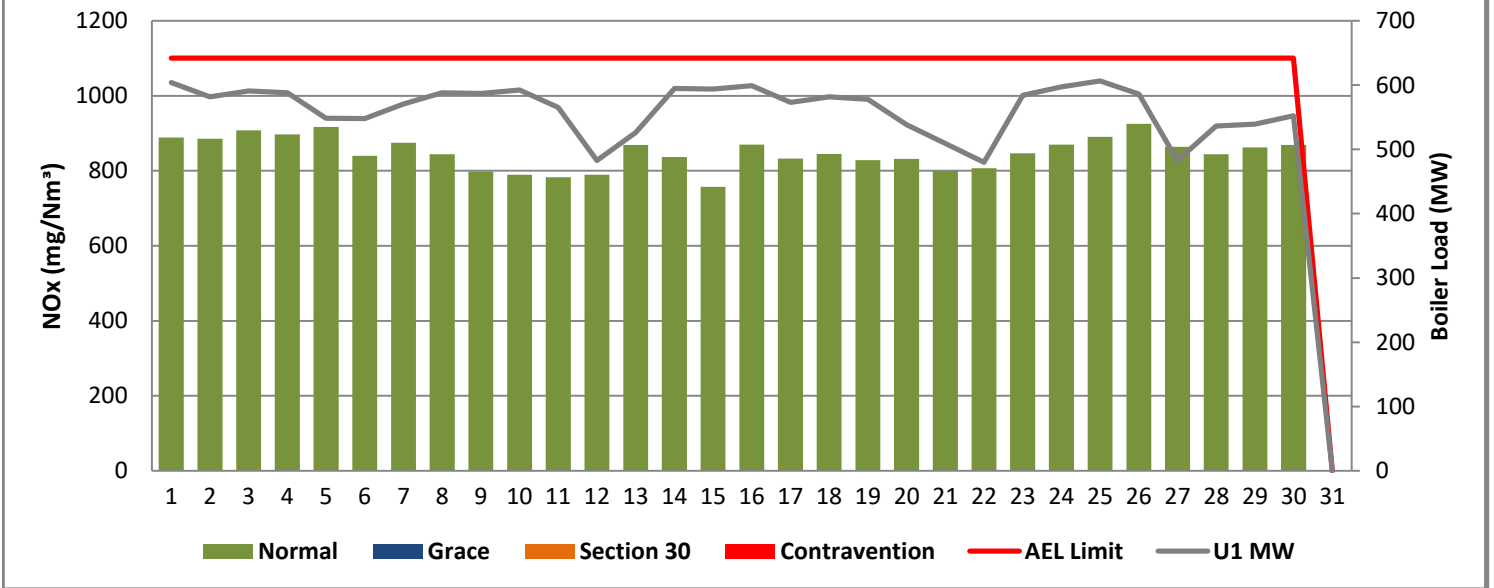
**Figure 11: Lethabo Unit 5 SOx Emissions - June 2021**



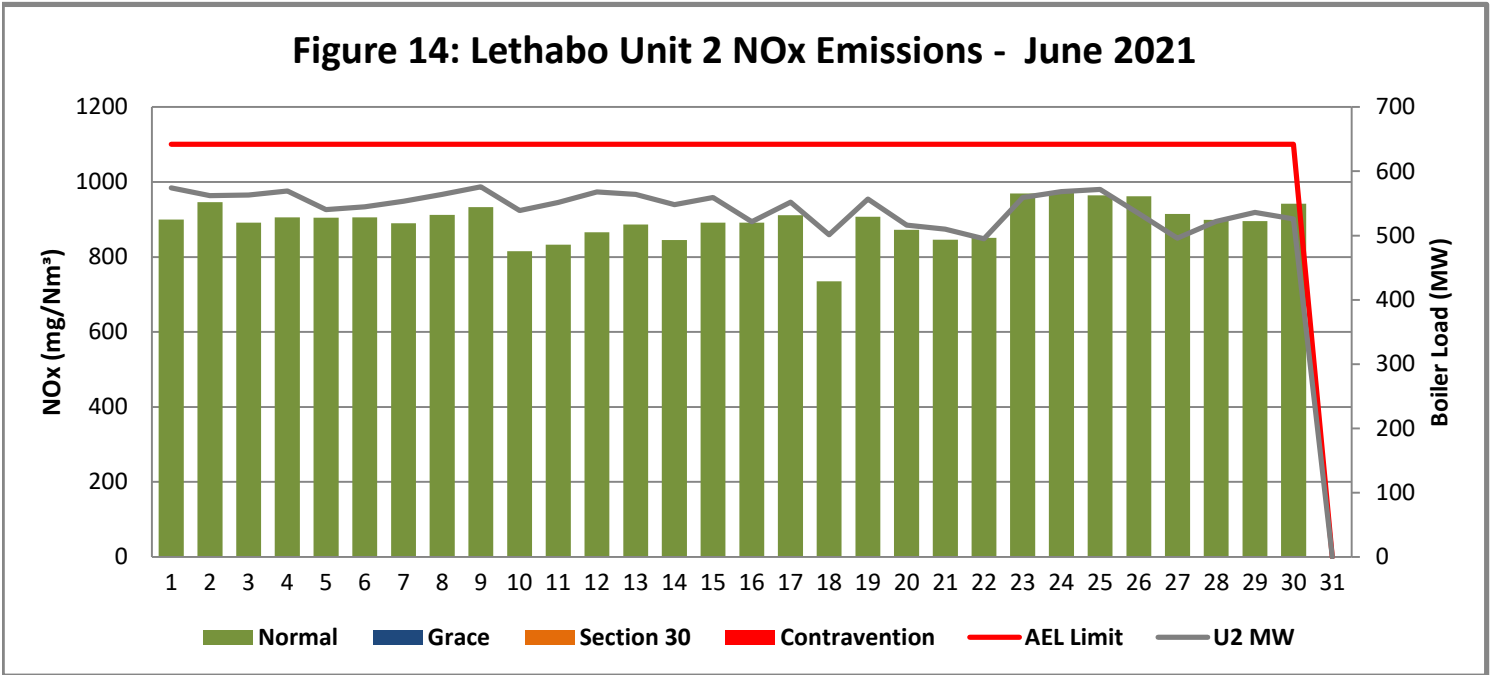
**Figure 12: Lethabo Unit 6 SOx Emissions - June 2021**



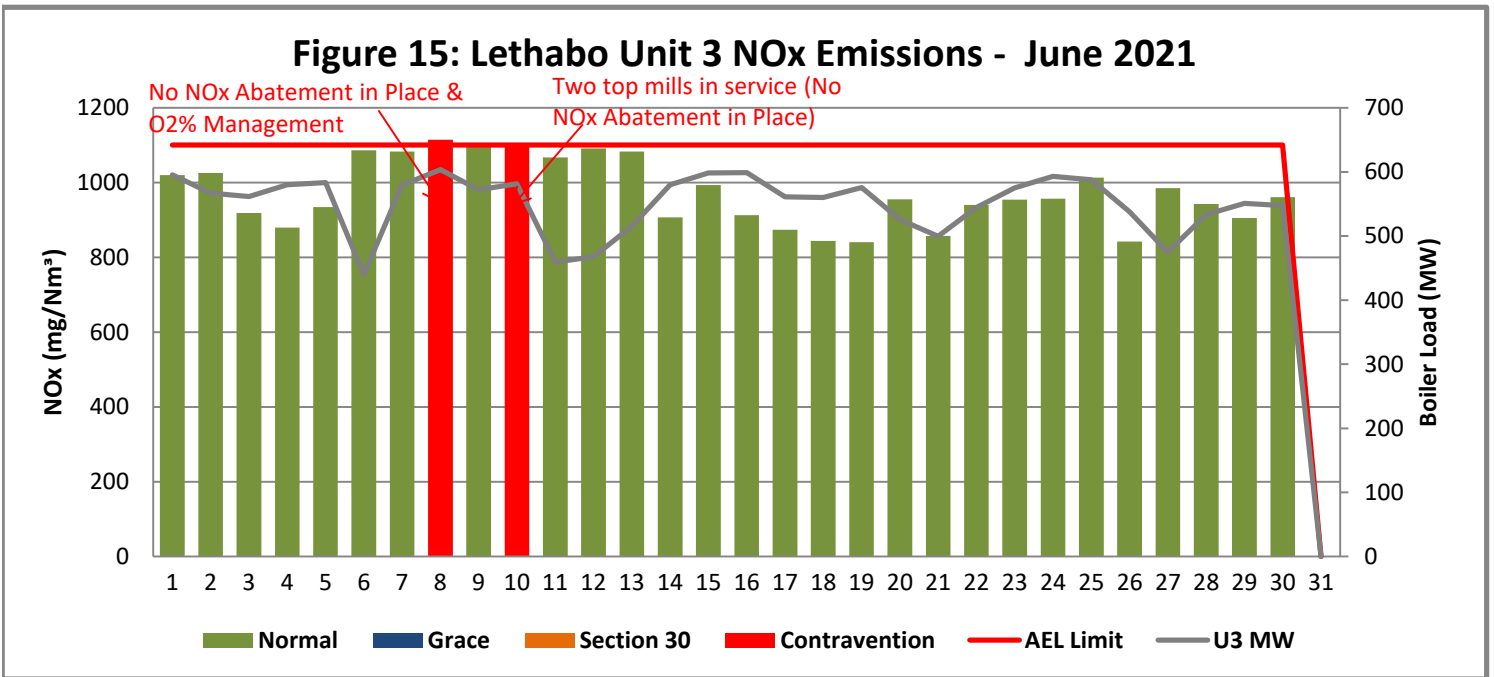
**Figure 13: Lethabo Unit 1 NOx Emissions - June 2021**



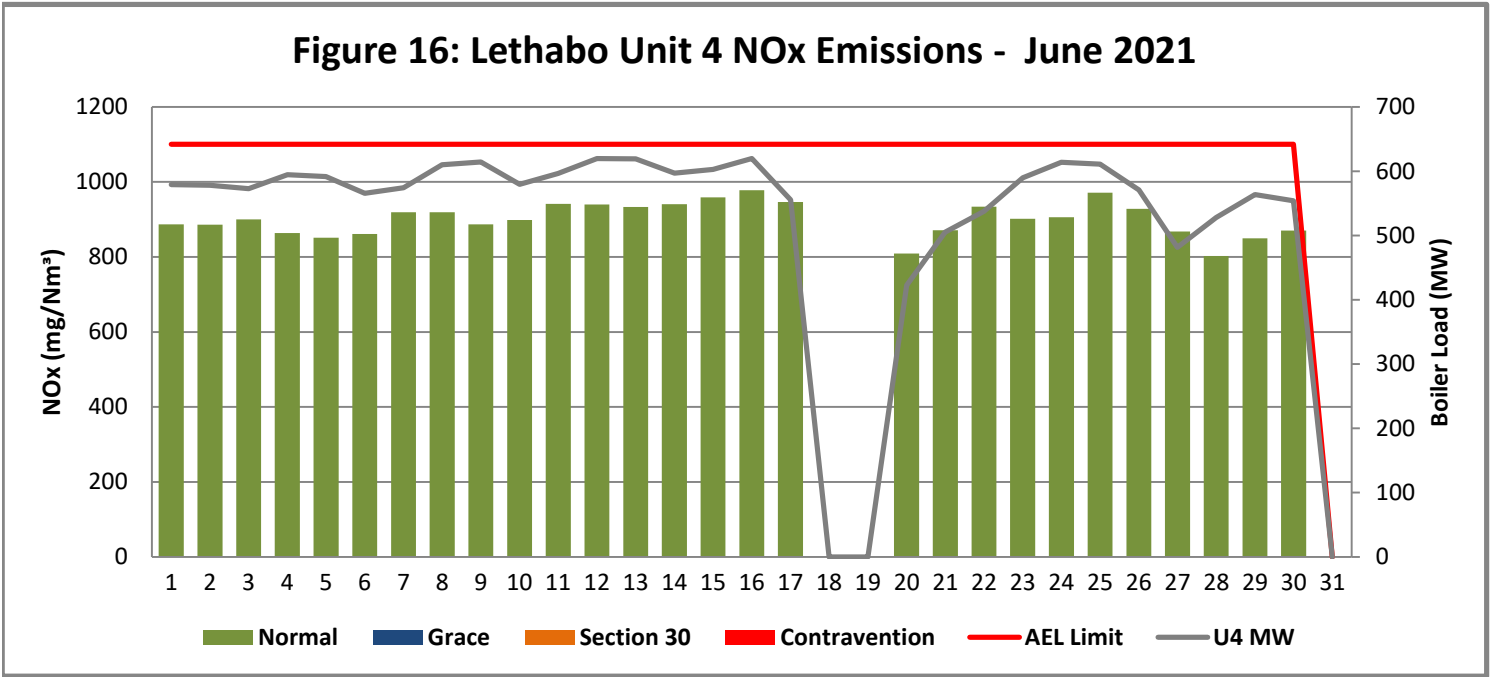
**Figure 14: Lethabo Unit 2 NOx Emissions - June 2021**



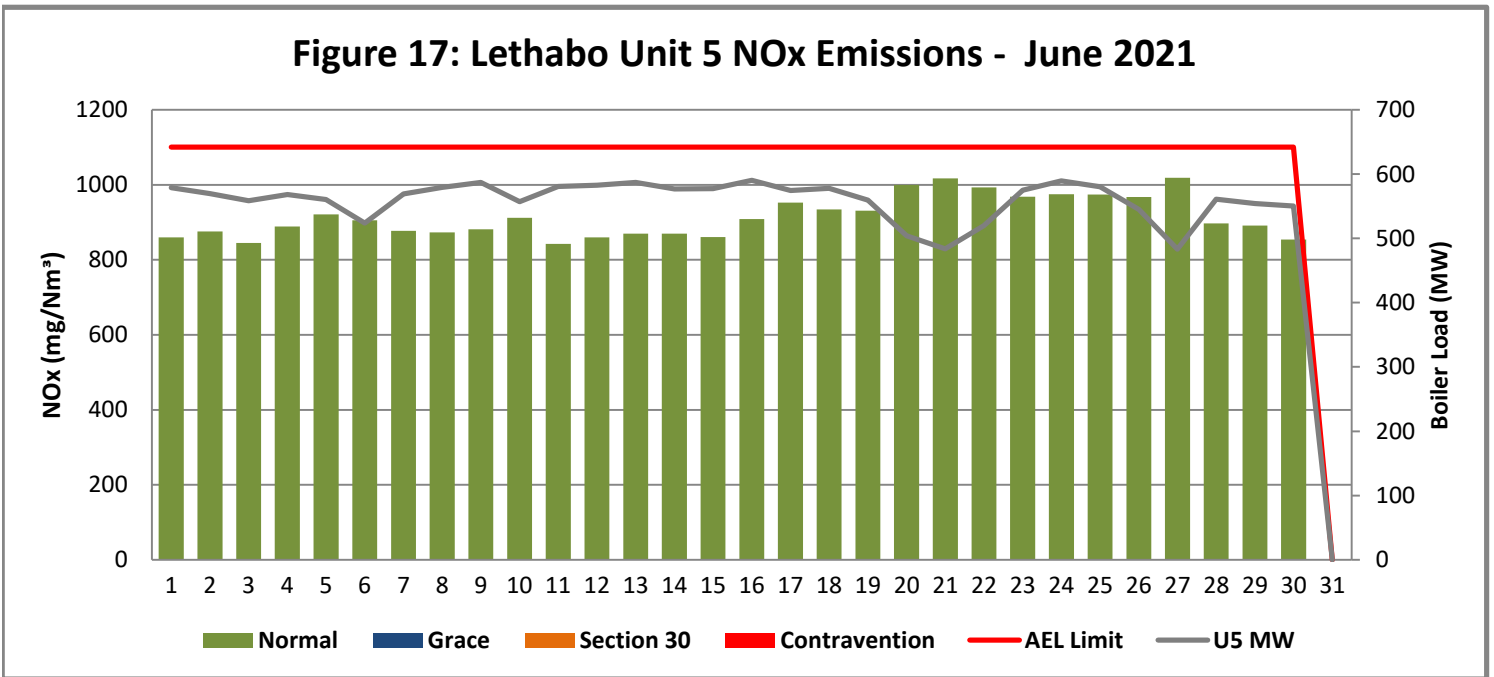
**Figure 15: Lethabo Unit 3 NOx Emissions - June 2021**

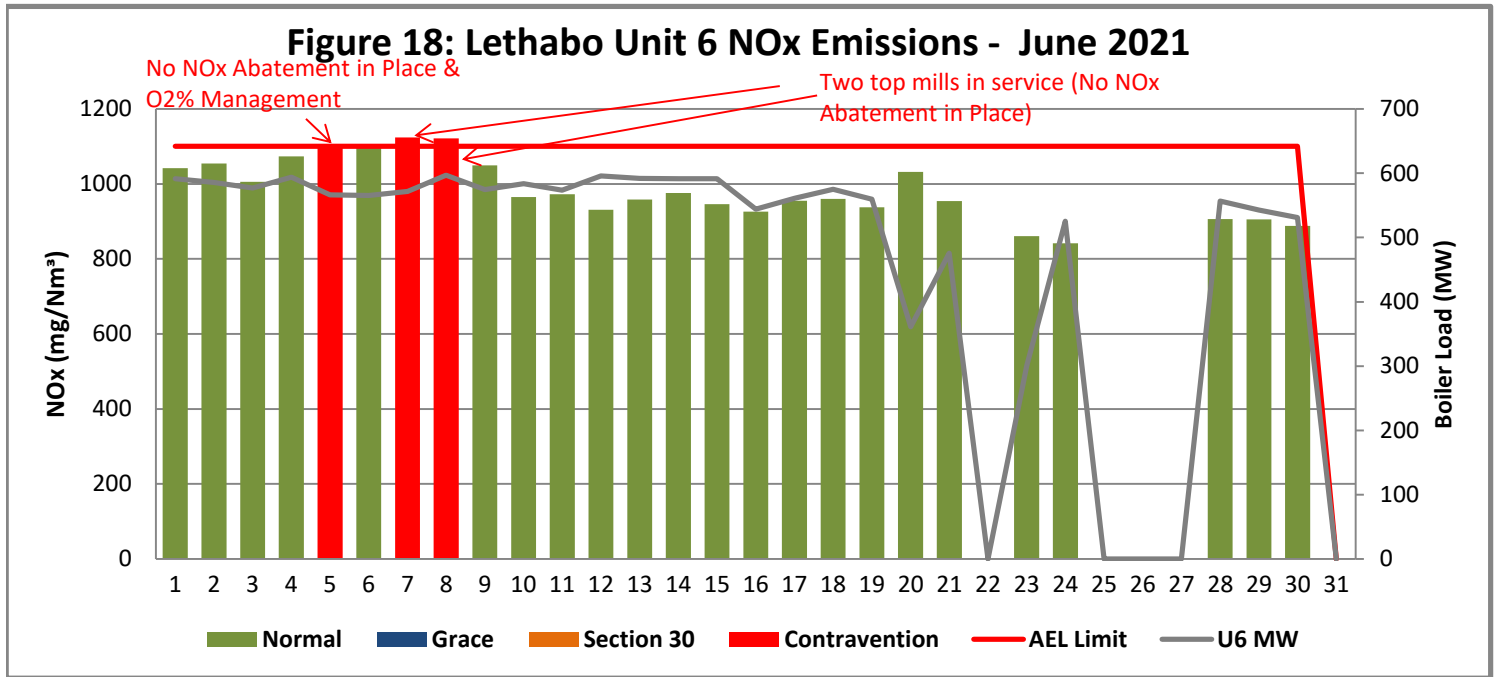


**Figure 16: Lethabo Unit 4 NOx Emissions - June 2021**



**Figure 17: Lethabo Unit 5 NOx Emissions - June 2021**





## 7. SHUT DOWN AND LIGHT UP INFORMATION

Table 7.1: PM Start-up information for the month of June 2021

Unit No.1	<i>Drum level protection operated.</i>						
Breaker Open (BO)	2:10 PM	2021/06/22					
Draught Group (DG) Shut Down (SD)	DG did not trip or SD	DG did not trip or SD					
BO to DG SD (duration)	n/a	DD:HH:MM					
Fires in time							
Synch. to Grid (or BC)							
Fires in to BC (duration)		DD:HH:MM					
Emissions below limit from BC (end date)							
Emissions below limit from BC (duration)		DD:HH:MM					

<b>Unit No.2</b>							
<b>Breaker Open (BO)</b>							
<b>Draught Group (DG) Shut Down (SD)</b>							
<b>BO to DG SD (duration)</b>							
<b>Fires in time</b>							
<b>Synch. to Grid (or BC)</b>							
<b>Fires in to BC (duration)</b>							
<b>Emissions below limit from BC (end date)</b>							
<b>Emissions below limit from BC (duration)</b>							

<b>Unit No.3</b>							
<b>Breaker Open (BO)</b>							
<b>Draught Group (DG) Shut Down (SD)</b>							
<b>BO to DG SD (duration)</b>							
<b>Fires in time</b>							
<b>Synch. to Grid (or BC)</b>							
<b>Fires in to BC (duration)</b>							
<b>Emissions below limit from BC (end date)</b>							
<b>Emissions below limit from BC (duration)</b>							



<b>Unit No.4</b>	<b>SSC repairs</b>							
<b>Breaker Open (BO)</b>	<i>10:05 PM</i>	<i>2021/06/17</i>						
<b>Draught Group (DG) Shut Down (SD)</b>	<i>10:20 AM</i>	<i>2021/06/18</i>						
<b>BO to DG SD (duration)</b>	<i>00:12:15</i>	<i>DD:HH:MM</i>						
<b>Fires in time</b>	<i>7:40 AM</i>	<i>2021/06/20</i>						
<b>Synch. to Grid (or BC)</b>	<i>12:40 PM</i>	<i>2021/06/20</i>						
<b>Fires in to BC (duration)</b>	<i>00:05:00</i>	<i>DD:HH:MM</i>						
<b>Emissions below limit from BC (end date)</b>	<i>12:00 AM</i>	<i>2021/06/22</i>						
<b>Emissions below limit from BC (duration)</b>	<i>01:11:20</i>	<i>DD:HH:MM</i>						

<b>Unit No.5</b>							
<b>Breaker Open (BO)</b>							
<b>Draught Group (DG) Shut Down (SD)</b>							
<b>BO to DG SD (duration)</b>							
<b>Fires in time</b>							
<b>Synch. to Grid (or BC)</b>							
<b>Fires in to BC (duration)</b>							
<b>Emissions below limit from BC (end date)</b>							
<b>Emissions below limit from BC (duration)</b>							

<b>Unit No.6</b>	<b><i>Boiler tube leak repairs.</i></b>		<b><i>Boiler tube leak</i></b>				
<b>Breaker Open (BO)</b>	9:35 PM	2021/06/21	9:00 AM	2021/06/24			
<b>Draught Group (DG) Shut Down (SD)</b>	9:45 AM	2021/06/22	9:10 PM	2021/06/24			
<b>BO to DG SD (duration)</b>	00:12:10	DD:HH:MM	00:12:10	DD:HH:MM			
<b>Fires in time</b>	6:45 PM	2021/06/23	6:32 AM	2021/06/28			
<b>Synch. to Grid (or BC)</b>	8:58 PM	2021/06/23	6:32 AM	2021/06/28			
<b>Fires in to BC (duration)</b>	00:02:13	DD:HH:MM	00:00:00	DD:HH:MM			
<b>Emissions below limit from BC (end date)</b>	2:00 AM	2021/06/24	3:00 AM	2021/06/30			
<b>Emissions below limit from BC (duration)</b>	00:05:02	DD:HH:MM	01:20:28	DD:HH:MM			

7.2: Point Source emissions released during start-up (fires-in) and Shut-down (SD) for the month of June 2021 in mg/Nm<sup>3</sup>

## 8. MAINTENANCE

<b>Unit 1</b>				
<b>Beginning of</b>	2021/06/12 00:00	2021/06/13 00:01		
<b>Reason for Maintenance</b>	LHO Precip casing repairs.	LHI precip casing repairs.		
<b>End (Time):</b>	2021/06/12 23:59	2021/06/13 16:42		
<b>Duration</b>	23:59:00	16:41:00		

<b>Unit 2</b>				
<b>Beginning of</b>	2021/06/18 00:01:00			
<b>Reason for Maintenance</b>	AM: LHI precip casing repairs			
<b>End (Time):</b>	2021/06/18 20:47:00			
<b>Duration</b>	20:46:00			

<b>Unit 3</b>				
<b>Beginning of</b>	2021/06/27 00:00	2021/06/10 23:42	2021/06/11 23:43	2021/06/12 04:31
<b>Reason for Maintenance</b>	RHI precip casing repairs	AM: SO3 plant leak repairs	AM: SO3 Plant O/C.	SO3 plant repairs.
<b>End (Time):</b>	2021/06/27 23:39	2021/06/11 19:18	2021/06/12 04:31	2021/06/13 11:41
<b>Duration</b>	23:39:00	19:36:00	4:48:00	31:10:00

<b>Unit 4</b>				
<b>Beginning of</b>				
<b>Reason for Maintenance</b>				
<b>End (Time):</b>				
<b>Duration</b>				

<b>Unit 5</b>				
<b>Beginning of</b>				
<b>Reason for Maintenance</b>				
<b>End (Time):</b>				
<b>Duration</b>				

<b>Unit 6</b>				
<b>Beginning of</b>				
<b>Reason for Maintenance</b>				
<b>End (Time):</b>				
<b>Duration</b>				

## 9. GENERAL

### Monitor Issues:

Unit 2: Monitor was taken off for calibrations and maintenance from 11:25 to 15:15 on 30/06/2021

Unit 3: Monitor was taken off for calibrations and maintenance from 11:25 to 15:05 on 30/06/2021

Unit 4: Monitor was taken off for calibrations and maintenance from 09:35 to 12:40 on 01/07/2021

Unit 5: Monitor was taken off for calibrations and maintenance from 10:00 to 12:35 on 01/07/2021

Unit 6: Monitor was taken off for calibrations and maintenance from 10:00 to 12:35 on 01/07/2021

Unit 1 Gaseous: Monitor: SO<sub>x</sub> Readings on 15/06/2021 between 09:25-10:55; 11:10; 11:25-11:45; 15:45-16:05; very low so tool omits these points if <250

Unit 1: A step change was noted on the O<sub>2</sub> monitors in Stack 1 from 12/06/2021 23:33 to 16/07/2021 13:00 when it was corrected. A correction factor of reducing the raw values by 6.12% was applied for the period.

Unit 2: A step change was noted on the O<sub>2</sub> monitors in Stack 1 from 12/06/2021 23:33 to 16/07/2021 14:15 when it was corrected. A correction factor of reducing the raw values by 7.2% was applied for the period. This led to a reduction to a NO<sub>x</sub> exceedance on the 13th June 2021.

Unit 3: A step change was noted on the O<sub>2</sub> monitors in Stack 1 from 12/06/2021 23:33 to 16/07/2021 13:16 when it was corrected. A correction factor of reducing the raw values by 9.24% was applied for the period.

### Unit 2:

Unit 2 had 4 days of exceedance 15/06/2021 to 18/06/2021. The exceedance on 15/06/2021 was due to the SO<sub>3</sub> plant being shut down for repairs. This was not a Section 30 reportable incident as the Unit was shut down for Generator Brushes Repairs at 00:34 16/06/2021 (the reported 211.4mg/Nm<sup>3</sup> is for the first 34 minutes prior to shut down on the 16/06/2021). The Unit synchronised on load at 05:09 16/06/2021 and light up conditions apply until 05:09 19/06/2021.

### Unit 3:

NO<sub>x</sub> Exceedance on 08/06/2021: Ops attempting to manage the O<sub>2</sub> at 2.5%, mills were biased and no NO<sub>x</sub> Abatement system.

NO<sub>x</sub> Exceedance on 10/06/2021: Top mills were biased and air flows were managed however loading was fluctuating due to AGC and exaggerated NO<sub>x</sub> production. Bottom E mill not available and the no NO<sub>x</sub> Abatement system

### Unit 4:

A Section 30 was reported for SO<sub>3</sub> Plant repairs, The SO<sub>3</sub> plant was offline from the 28/05/2021 to 31/05/2021, flow was established on the 01/06/2021 however the Unit Exceeded on the 01/06/2021 due to poor ESP performance.

### Unit 6:

NO<sub>x</sub> Exceedance on 05/06/2021: Ops attempting to manage the O<sub>2</sub> at 2.5%, mills were biased and no NO<sub>x</sub> Abatement system.

NO<sub>x</sub> Exceedance on 07/06/2021: No NO<sub>x</sub> Abatement system and is further aggravated by two top mills in operation (E Mill unavailable)

NO<sub>x</sub> Exceedance on 08/06/2021: E mill was put back in service, but not in sufficient time to reduce NO<sub>x</sub>

**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	31/05/2021	01/06/2021	SO3 plant repairs on turbulator outlet pipe	Repairs were performed on the SO3 plant Load was reduced when possible.	31/05/2021	11/06/2021	None		
3	08/06/2021	08/06/2021	No Nox Abatement Technology, and Managing O2's	Manage O2's with air biasing to assist. Aim for 2.5% O2's	N/A	N/A	None		NOx exceedances - Legal Contravention
3	10/06/2021	10/06/2021	No Nox Abatement Technology, and Two Top Mills in service	Avoid Two Top Mill operation where possible	N/A	N/A	None		NOx exceedances - Legal Contravention
3	13/06/2021	13/06/2021	No Nox Abatement Technology, and Bottom Mill Returned but only one feeder in Operation	Avoid Two Top Mill operation where possible	N/A	N/A	None		NOx exceedances - Legal Contravention
6	05/06/2021	05/06/2021	No Nox Abatement Technology, and Managing O2's	Manage O2's with air biasing to assist. Aim for 2.5% O2's	N/A	N/A	None		NOx exceedances - Legal Contravention
6	07/06/2021	07/06/2021	No Nox Abatement Technology, and Two Top Mills in service	Avoid Two Top Mill operation where possible	N/A	N/A	None		NOx exceedances - Legal Contravention
6	08/06/2021	08/06/2021	No Nox Abatement Technology, and Two Top Mills in service	Avoid Two Top Mill operation where possible	N/A	N/A	None		NOx exceedances - Legal Contravention

**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
Jul-20	0.36	0.53	0.36	0.22	0.22	0.33	0.32
Aug-20	0.25	0.57	0.41	0.33	0.31	0.39	0.36
Sep-20	0.22	0.51	OFF	0.25	0.20	0.32	0.29
Oct-20	0.30	0.54	OFF	0.26	0.32	0.31	0.34
Nov-20	0.42	0.49	OFF	0.40	0.32	0.41	0.41
Dec-20	0.46	0.94	OFF	0.66	0.54	0.48	0.63
Jan-21	0.75	0.66	0.68	0.39	0.40	0.54	0.53
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

**ADDENDUM TO MONTHLY EMISSIONS REPORT**

**12. DAILY EMISSIONS FIGURES**

**Final Dust Concentration (mg/Nm<sup>3</sup>)**

Date	U1	U2	U3	U4	U5	U6	Limit
31-May	66	152	70	363	93	88	100
01-Jun	68	81	73	232	93	88	100
02-Jun	66	83	62	94	91	80	100
03-Jun	73	87	66	52	87	77	100
04-Jun	133	86	68	56	89	79	100
05-Jun	98	80	59	42	81	65	100
06-Jun	100	91	32	45	75	71	100
07-Jun	149	96	68	57	90	84	100
08-Jun	157	100	80	65	89	83	100
09-Jun	94	95	72	57	84	66	100
10-Jun	98	103	77	60	87	75	100
11-Jun	99	100	54	68	87	75	100
12-Jun	117	103	61	78	97	81	100
13-Jun	146	118	72	88	88	84	100
14-Jun	48	98	59	64	86	80	100
15-Jun	50	109	72	55	89	82	100
16-Jun	52	211	71	63	94	73	100
17-Jun	38	462	60	61	91	74	100
18-Jun	39	466	59	OFF	100	70	100
19-Jun	36	97	67	OFF	91	66	100
20-Jun	29	78	59	OFF	74	32	100
21-Jun	23	75	48	128	72	49	100
22-Jun	28	67	75	88	87	OFF	100
23-Jun	32	97	151	71	79	OFF	100
24-Jun	38	135	99	68	77	OFF	100
25-Jun	41	183	101	65	73	OFF	100
26-Jun	40	60	79	52	65	OFF	100
27-Jun	25	68	168	38	59	OFF	100
28-Jun	39	81	79	48	74	OFF	100
29-Jun	35	83	78	56	74	100	100
30-Jun	31	73	66	41	88	65	100

**ADDENDUM TO MONTHLY EMISSIONS REPORT**

**Final SOx Concentration (mg/Nm<sup>3</sup>)**

Date	U1	U2	U3	U4	U5	U6	Limit
31-May	1590	2040	1940	1910	1752	1895	3500
01-Jun	1661	2105	1949	1928	1812	1948	3500
02-Jun	1634	2073	1948	1915	1757	1964	3500
03-Jun	1559	2058	1927	1859	1708	1897	3500
04-Jun	1625	2248	2064	1983	1858	2031	3500
05-Jun	1582	2270	2068	1973	1826	2094	3500
06-Jun	1579	2297	2082	1990	1864	2137	3500
07-Jun	1577	2199	2055	1965	1852	2005	3500
08-Jun	1531	2126	1996	1909	1820	2017	3500
09-Jun	1588	2189	2041	1897	1821	2059	3500
10-Jun	1611	2216	2080	1945	1838	2053	3500
11-Jun	1590	2197	2025	1913	1839	2052	3500
12-Jun	1609	2240	2066	1890	1798	1975	3500
13-Jun	1875	2403	2186	1973	1891	2098	3500
14-Jun	1717	2122	1944	1924	1863	2102	3500
15-Jun	1660	2061	1903	1920	1861	2068	3500
16-Jun	1654	2090	1962	1859	1842	2029	3500
17-Jun	1707	2141	1998	1885	1818	2021	3500
18-Jun	1613	2021	1914	OFF	1863	2108	3500
19-Jun	1708	1941	1977	OFF	1897	2066	3500
20-Jun	1933	2165	2061	1901	1932	2180	3500
21-Jun	1775	2092	1958	1923	1906	2081	3500
22-Jun	1775	2082	2014	1981	1902	OFF	3500
23-Jun	1818	2154	2013	1958	1909	2078	3500
24-Jun	1926	2119	2066	1981	1911	2035	3500
25-Jun	1881	2128	2089	1955	1944	OFF	3500
26-Jun	1815	2062	2022	1944	1890	OFF	3500
27-Jun	1927	2188	2125	1998	1944	OFF	3500
28-Jun	1969	2226	2176	2057	2016	2154	3500
29-Jun	1958	2209	2117	2005	1973	2061	3500
30-Jun	1995	2299	2151	2048	2075	2122	3500

**ADDENDUM TO MONTHLY EMISSIONS REPORT**

**Final NOx Concentration (mg/Nm<sup>3</sup>)**

Date	U1	U2	U3	U4	U5	U6	Limit
31-May	828	952	1035	914	856	1006	1100
01-Jun	889	899	1020	887	860	1042	1100
02-Jun	885	947	1026	886	875	1055	1100
03-Jun	908	892	919	900	845	1005	1100
04-Jun	897	906	880	863	889	1073	1100
05-Jun	917	904	935	852	921	1106	1100
06-Jun	840	906	1086	861	905	1098	1100
07-Jun	875	890	1083	920	878	1124	1100
08-Jun	844	913	1115	919	873	1122	1100
09-Jun	798	933	1098	887	881	1050	1100
10-Jun	789	815	1105	899	912	965	1100
11-Jun	783	833	1068	941	843	973	1100
12-Jun	789	866	1092	940	860	931	1100
13-Jun	869	887	1083	933	869	959	1100
14-Jun	837	845	907	940	870	976	1100
15-Jun	757	892	993	959	861	946	1100
16-Jun	870	891	913	978	908	926	1100
17-Jun	832	911	873	946	953	955	1100
18-Jun	845	735	844	OFF	935	960	1100
19-Jun	829	908	841	OFF	931	938	1100
20-Jun	832	873	955	809	1000	1032	1100
21-Jun	800	846	857	872	1017	955	1100
22-Jun	807	851	941	934	993	OFF	1100
23-Jun	847	969	954	902	969	861	1100
24-Jun	870	974	957	906	975	842	1100
25-Jun	891	964	1013	971	974	OFF	1100
26-Jun	925	962	842	928	967	OFF	1100
27-Jun	864	915	985	868	1018	OFF	1100
28-Jun	844	899	942	802	897	907	1100
29-Jun	863	895	905	850	891	905	1100
30-Jun	869	942	961	870	854	888	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
Jul-20	98.39%	2.0	98.39%	2.0	99.19%	1.0	100.00%	0.0	100.00%	0.0	100.00%	0.0
Aug-20	100.00%	0.0	100.00%	0.0	98.39%	2.0	100.00%	0.0	98.39%	2.0	100.00%	0.0
Sep-20	98.33%	2.0	98.33%	2.0	OFF LOAD	0.0	100.00%	0.0	100.00%	0.0	100.00%	0.0
Oct-20	99.19%	1.0	99.19%	1.0	OFF LOAD	0.0	100.00%	0.0	99.19%	1.0	100.00%	0.0
Nov-20	97.50%	3.0	98.33%	2.0	OFF LOAD	0.0	100.00%	0.0	100.00%	0.0	99.17%	1.0
Dec-20	98.39%	2.0	97.58%	3.0	OFF LOAD	0.0	100.00%	0.0	99.19%	1.0	100.00%	0.0
Jan-21	100.00%	0.0	99.19%	1.0	100%	0.0	100.00%	0.0	99.19%	1.0	99.19%	1.0
Feb-21	OFF LOAD	0.0	99.11%	1.0	98%	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%	1.0	100.00%	0.0	100.00%	0.0	100.00%	0.0
Apr-21	100.00%	0.0	100.00%	0.0	97.75%	2.7	99.23%	0.9	100.00%	0.0	98.48%	1.8
May-21	88.70%	2.0	100.00%	0.0	100.00%	0.0	100.00%	0.0	88.82%	1.9	100.00%	0.0
Jun-21	98.59%	1.7	99.28%	0.9	99.18%	1.0	100.00%	0.0	100.00%	0.0	100.00%	0.0

**SO<sub>3</sub> 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
Jul-20	100.00%	0.0	96.77%	1.0	100.00%	0.0	100.00%	0.0	100.00%	0.0	100.00%	0.0
Aug-20	93.55%	2.0	100.00%	0.0	100.00%	0.0	100.00%	0.0	77.42%	7.0	100.00%	0.0
Sep-20	100.00%	0.0	93.33%	2.0	100.00%	0.0	100.00%	0.0	100.00%	0.0	100.00%	0.0
Oct-20	100.00%	0.0	100.00%	0.0	100.00%	0.0	100.00%	0.0	100.00%	0.0	100.00%	0.0
Nov-20	100.00%	0.0	96.67%	1.0	OFF LOAD	0.0	100.00%	0.0	100.00%	0.0	100.00%	0.0
Dec-20	100.00%	0.0	100.00%	0.0	OFF LOAD	0.0	100.00%	0.0	93.55%	2.0	100.00%	0.0
Jan-21	57.14%	3.0	100.00%	0.0	84%	5.0	100.00%	0.0	96.77%	1.0	100.00%	0.0
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

**ADDENDUM TO MONTHLY EMISSIONS REPORT**

**Particulate Emission Monitors**

<b>Availability</b>						
	<b>Unit 1</b>	<b>Unit 2</b>	<b>Unit 3</b>	<b>Unit 4</b>	<b>Unit 5</b>	<b>Unit 6</b>
<b>Jul-20</b>	92.47%	98.48%	99.33%	99.35%	100.00%	100.00%
<b>Aug-20</b>	100.00%	100.00%	99.85%	100.00%	98.22%	100.00%
<b>Sep-20</b>	99.84%	99.63%	OFF	100.00%	100.00%	100.00%
<b>Oct-20</b>	98.79%	99.19%	OFF	99.33%	99.19%	100.00%
<b>Nov-20</b>	94.04%	94.58%	OFF	97.17%	97.28%	99.69%
<b>Dec-20</b>	98.99%	99.01%	OFF	98.92%	93.67%	99.19%
<b>Jan-21</b>	86.90%	99.60%	99.74%	100.00%	91.53%	99.44%
<b>Feb-21</b>	OFF	99.70%	98.46%	100.00%	94.64%	98.90%
<b>Mar-21</b>	OFF	99.87%	99.06%	96.15%	99.60%	100.00%
<b>Apr-21</b>	83.69%	99.65%	99.28%	99.58%	99.86%	99.87%
<b>May-21</b>	99.01%	100.00%	94.83%	99.72%	97.31%	99.38%
<b>Jun-21</b>	99.72%	99.17%	99.31%	99.83%	99.86%	99.82%

**Gaseous Emission Monitors**

<b>Availability</b>												
	<b>Unit 1</b>		<b>Unit 2</b>		<b>Unit 3</b>		<b>Unit 4</b>		<b>Unit 5</b>		<b>Unit 6</b>	
<b>Month</b>	<b>SO<sub>x</sub></b>	<b>NO<sub>x</sub></b>	<b>SO<sub>x</sub></b>	<b>NO<sub>x</sub></b>	<b>SO<sub>x</sub></b>	<b>NO<sub>x</sub></b>	<b>SO<sub>x</sub></b>	<b>NO<sub>x</sub></b>	<b>SO<sub>x</sub></b>	<b>NO<sub>x</sub></b>	<b>SO<sub>x</sub></b>	<b>NO<sub>x</sub></b>
<b>Jul-20</b>	99.73%	99.73%	99.07%	99.07%	99.73%	99.87%	98.54%	98.85%	99.60%	99.87%	99.86%	99.87%
<b>Aug-20</b>	99.91%	99.91%	100.00%	100.00%	99.85%	99.85%	100.00%	100.00%	100.00%	100.00%	96.55%	96.53%
<b>Sep-20</b>	100.00%	100.00%	99.86%	99.86%	OFF	OFF	100.00%	100.00%	100.00%	100.00%	99.77%	99.77%
<b>Oct-20</b>	99.87%	100.00%	99.87%	99.60%	OFF	OFF	99.46%	99.46%	99.46%	99.46%	99.46%	99.46%
<b>Nov-20</b>	97.66%	97.66%	97.64%	97.78%	OFF	OFF	94.14%	94.14%	94.55%	94.55%	94.64%	94.64%
<b>Dec-20</b>	99.17%	99.17%	98.89%	99.05%	OFF	OFF	99.22%	99.22%	95.32%	95.32%	99.33%	99.33%
<b>Jan-21</b>	99.56%	99.56%	99.60%	99.73%	99.12%	99.12%	92.39%	92.39%	99.87%	99.87%	100.00%	100.00%
<b>Feb-21</b>	OFF	OFF	99.70%	99.70%	99.70%	99.70%	92.56%	92.71%	98.65%	98.65%	98.27%	98.52%
<b>Mar-21</b>	OFF	OFF	100.00%	100.00%	100.00%	100.00%	96.07%	96.07%	99.97%	99.97%	99.60%	99.60%
<b>Apr-21</b>	99.47%	99.76%	99.83%	99.83%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	99.84%	99.84%
<b>May-21</b>	94.33%	94.33%	99.87%	100.00%	100.00%	100.00%	99.87%	99.87%	100.00%	100.00%	100.00%	100.00%
<b>Jun-21</b>	99%	99%	99.72%	99.86%	100%	100%	99.76%	99.76%	99.86%	99.86%	99.71%	99.71%

**ADDENDUM TO MONTHLY EMISSIONS REPORT**

<b>Oxygen Monitor Availability</b>						
	<b>Unit 1</b>	<b>Unit 2</b>	<b>Unit 3</b>	<b>Unit 4</b>	<b>Unit 5</b>	<b>Unit 6</b>
<b>Jul-20</b>	99.87%	99.30%	99.87%	99.02%	48.39%	99.87%
<b>Aug-20</b>	99.86%	99.92%	99.85%	100.00%	100.00%	96.67%
<b>Sep-20</b>	99.68%	99.86%	OFF	100.00%	100.00%	98.97%
<b>Oct-20</b>	99.73%	99.87%	0.00%	99.33%	99.33%	99.46%
<b>Nov-20</b>	99.45%	99.72%	OFF	93.97%	94.55%	94.64%
<b>Dec-20</b>	99.31%	98.85%	OFF	99.22%	95.32%	99.33%
<b>Jan-21</b>	99.56%	99.06%	99.54%	100.00%	99.87%	99.87%
<b>Feb-21</b>	OFF	99.70%	99.55%	99.26%	98.32%	98.52%
<b>Mar-21</b>	OFF	100.00%	100.00%	96.43%	99.97%	99.87%
<b>Apr-21</b>	99.40%	98.91%	99.87%	99.72%	100.00%	99.37%
<b>May-21</b>	94.16%	99.87%	99.86%	99.87%	99.87%	98.63%
<b>Jun-21</b>	99.58%	99.79%	99.72%	99.76%	99.72%	99.55%

**14. EFFICIENCY**

<b>ESP Efficiency (%)</b>						
	<b>Unit 1</b>	<b>Unit 2</b>	<b>Unit 3</b>	<b>Unit 4</b>	<b>Unit 5</b>	<b>Unit 6</b>
<b>Jul-20</b>	99.850%	99.759%	99.839%	99.905%	99.901%	99.846%
<b>Aug-20</b>	99.894%	99.738%	99.818%	99.855%	99.856%	99.819%
<b>Sep-20</b>	99.904%	99.757%	OFF	99.882%	99.906%	99.848%
<b>Oct-20</b>	99.866%	99.744%	OFF	99.876%	99.845%	99.850%
<b>Nov-20</b>	99.835%	99.792%	OFF	99.833%	99.863%	99.822%
<b>Dec-20</b>	99.816%	99.605%	OFF	99.734%	99.779%	99.791%
<b>Jan-21</b>	99.622%	99.689%	99.717%	99.832%	99.813%	99.745%
<b>Feb-21</b>	OFF	99.722%	99.736%	99.799%	99.779%	99.775%
<b>Mar-21</b>	OFF	99.659%	99.769%	99.823%	99.802%	99.817%
<b>Apr-21</b>	99.679%	99.788%	99.777%	99.825%	99.858%	99.788%
<b>May-21</b>	99.866%	99.809%	99.825%	99.791%	99.782%	99.786%
<b>Jun-21</b>	99.894%	99.724%	99.844%	99.856%	99.839%	99.852%

ADDENDUM TO MONTHLY EMISSIONS REPORT

15. REMARKS

UNIT	MWLOSS	REASON	ACTUALSTARTDATE	ACTUALENDDATE
1	169	EF:High stack emissions	2021/06/05 20:35:00	2021/06/05 22:22:00
1	68	High stack emissions	2021/06/05 22:22:00	2021/06/05 23:43:00
1	110	High stack emissions	2021/06/06 20:17:00	2021/06/06 22:23:00
1	169	High stack emissions	2021/06/06 22:23:00	2021/06/06 22:55:00
1	118	High stack emission.	2021/06/09 10:54:00	2021/06/09 12:18:00
1	70	High stack emissions.	2021/06/09 12:18:00	2021/06/09 14:45:00
1	118	EF: High stack emissions.	2021/06/11 20:17:00	2021/06/12 00:00:00
1	118	LHO precip casing repairs.	2021/06/12 00:00:00	2021/06/12 23:59:00
1	118	LHI precip casing repairs.	2021/06/13 00:01:00	2021/06/13 16:42:00
1	593	Drum level protection opted.	2021/06/22 14:01:00	2021/06/22 17:10:00
1	297	System Generated Ramp Event for Event id : 1572092	2021/06/22 17:10:00	2021/06/22 18:40:00
2	78	High stack emissions	2021/06/08 21:50:00	2021/06/09 00:00:00
2	78	High stack emissions.	2021/06/11 21:49:00	2021/06/12 00:26:00
2	28	EF High stack emissions.	2021/06/12 20:56:00	2021/06/12 22:27:00
2	50	High stack emissions.	2021/06/14 12:51:00	2021/06/14 15:53:00
2	61	EF: High stack emissions	2021/06/14 19:13:00	2021/06/15 00:00:00
2	297	System Generated Ramp Event for Event id : 1569832	2021/06/16 05:09:00	2021/06/16 06:39:00
2	100	AM: LHI precip casing repairs	2021/06/18 00:01:00	2021/06/18 20:47:00
2	45	High stack emissions	2021/06/19 19:49:00	2021/06/20 00:03:00
3	215	AM: SO3 plant leak repairs	2021/06/10 23:42:00	2021/06/11 19:18:00
3	218	AM: SO3 Plant O/C.	2021/06/11 23:43:00	2021/06/12 04:31:00
3	118	SO3 plant repairs.	2021/06/12 04:31:00	2021/06/13 11:41:00
3	118	for RHI mprecip casing repairs	2021/06/27 00:00:00	2021/06/27 23:39:00
4	593	SSC repairs	2021/06/17 22:01:00	2021/06/20 12:42:00
4	297	System Generated Ramp Event for Event id : 1570434	2021/06/20 12:42:00	2021/06/20 15:42:00
6	593	Boiler tube leak repairs.	2021/06/21 21:26:00	2021/06/23 20:58:00
6	297	System Generated Ramp Event for Event id : 1571853	2021/06/23 20:58:00	2021/06/23 23:58:00
6	593	Boiler tube leak	2021/06/24 09:00:00	2021/06/27 15:56:00
6	0	Cold Reserve	2021/06/27 15:56:00	2021/06/28 06:32:00
6	297	System Generated Ramp Event for Event id : 1572838	2021/06/28 06:32:00	2021/06/28 09:32:00

PM Exceedances		
U1.	ESP Poor Performance	04-Jun
U1.	Manual Rapping and poor ESP performance LHO casing only has three fields in service EMS reported LHI F2 arcing and sparking, F4 back in service. LHO casing to be taken this weekend	07-Jun
U1.	ESP Poor performance Both LH casings not performing	08-Jun
U1.	Two casing outage conducted this weekend	12-Jun
U1.	Two casing outage conducted this weekend	13-Jun
U2.	Emissions spiked yesterday 15:00- 22:00 – Wire rappers on LH side were faulty Ops attended to it, however it was too late. RHI F1 and F5 DE rappers are faulty. Ops reported a problem with SO3 plant Sulphur flow control valve.	10-Jun
U2.	SO3 plant Sulphur flow is on manual, blower issues on Saturday and Sunday caused exceedances. Ops reported that blower issue is not resolved yet, it is still at risk to trip and will cause high emission.	12-Jun
U2.	SO3 plant Sulphur flow is on manual, blower issues on Saturday and Sunday caused exceedances. Ops reported that blower issue is not resolved yet, it is still at risk to trip and will cause high emission.	13-Jun
U2.	23:22 (15th June 2021) SO3 Plant shut down and purged	15-Jun
U2.	Unit Shut down for Generator Brushes Repairs (00:34 16th June 2021) (the reported 211.4mg/Nm3 is for the first 34 minutes prior to shut down) Unit Synchronised on load 05:09 16th June 2021 SO3 plant off for repairs	16-Jun
U2.	Unit under start-up conditions SO3 Plant not in service	17-Jun
U2.	Unit under start-up conditions SO3 Plant not in service LHI Precip Casing repairs	18-Jun
U2.	SO3 plant, is still off, Sulphur was burned off however, BPE advised that the air inlet pipe need to be repaired as temperatures are not picking up further. Plant need to be shut down for this	24-Jun
U2.	ESP Poor Performance and Manual rapping	25-Jun
U3.	ESP Poor Performance and Manual rapping SO3 plant tripped last night on comms fault, Ops reseted within 10 min	23-Jun
U3.	So3 plant supply control valve on manual	25-Jun
U3.	RHI Casing Outage	27-Jun
U4.	3 ESP casings performing poorly SO3 Plant is in service and dosing correctly	01-Jun
U4.	Unit Light Up	20-Jun
U4.	Unit synchronized on 2021/06/20 @ 12:42 , emissions to be below the limit on 2021/06/23 @ 12:42	21-Jun
U5.	Poor ESP performance, SO3 plant trip 17:24-17:49	18-Jun
U6.	Unit off for Tube leak	22-Jun
U6.	Unit Light up	28-Jun
NOX Exceedances		
U3.	Ops attempting to manage the O2 at 2.5%, mills were biased and no NOx Abatement system.	08-Jun
U3.	Top mills were biased and air flows were managed however loading was fluctuating due to AGC and exaggerated NOx production. Bottom E mill not available and the no NOx Abatement system	10-Jun
U6.	Ops attempting to manage the O2 at 2.5%, mills were biased and no NOx Abatement system.	05-Jun
U6.	No NOx Abatement system and is further aggravated by two top mills in operation (E Mill unavailable)	07-Jun
U6.	E mill was put back in service, but not in sufficient time to reduce NOx	08-Jun