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Date: 28 June 2022

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**LRP01PLA000\_0301/20220607**

Dear Mr. Sibaya

**LETHABO POWER STATION EMISSION MONTHLY REPORT FOR MAY 2022**

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

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

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

Yours sincerely

  
PP **Karabo Rakgolela**  
**GENERAL MANAGER**

**Generation Division (Cluster 1)**  
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Eskom Holdings SOC Ltd Reg No 2002/015527/30



Report

Lethabo Power Station

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

Reference number: **LRP01PLA000\_0301/20220607**  
Document Type: **Report**  
Area of Applicability: **Environment**  
Report Date: **June-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 May-2022
	Coal	Tons	2 000 000	1 109 305
	Fuel Oil	Tons	1 700	1412.2
Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Production Rate May-2022
	Energy	GWh	2834.64	1 504.16
	Ash	Tons	770 000	440 948.7
	RE Ash	kg/MWh	not specified	293.15

**2. ENERGY SOURCE CHARACTERISTICS**

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.656 (Standard)	0.530
Ash Content	%	37.37 (Standard)	39.750

\*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	SO <sub>x</sub>	NO <sub>x</sub>
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 May-2022
Unit 1	<i>Electrostatic Precipitator (ESP)</i>	99.80%
Unit 2	<i>Electrostatic Precipitator (ESP)</i>	99.76%
Unit 3	<i>Electrostatic Precipitator (ESP)</i>	99.87%
Unit 4	<i>Electrostatic Precipitator (ESP)</i>	99.93%
Unit 5	<i>Electrostatic Precipitator (ESP)</i>	Unit Off
Unit 6	<i>Electrostatic Precipitator (ESP)</i>	99.81%

### 5. MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO <sub>2</sub>	NO
Unit 1	97.3	99.7	99.9
Unit 2	99.1	99.6	99.6
Unit 3	99.7	99.8	99.8
Unit 4	99.7	90.9	91.2
Unit 5	Unit Off	Unit Off	Unit Off
Unit 6	100.0	99.8	99.8

## 6. EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of May 2022

Associated Unit/Stack	PM (tons)	SO <sub>2</sub> (tons)	NO <sub>x</sub> (tons)
Unit 1	200.2	2 985	1 527
Unit 2	237.7	3 718	1 584
Unit 3	103.0	2 734	1 251
Unit 4	34.7	2 182	873
Unit 5	0.0	0	0
Unit 6	136.7	2 962	1 299
<b>SUM</b>	<b>712.4</b>	<b>14 580</b>	<b>6 533</b>

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

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average PM (mg/Nm <sup>3</sup> )
Unit 1	9	18	1	0	19	132.9
Unit 2	16	15	0	0	15	120.3
Unit 3	21	3	0	0	3	71.9
Unit 4	16	0	0	0	0	37.8
Unit 5	0	0	0	0	0	
Unit 6	19	5	0	0	5	107.6
<b>SUM</b>	<b>81</b>	<b>41</b>	<b>1</b>	<b>0</b>	<b>42</b>	

Table 6.3: Operating days in compliance to SO<sub>x</sub> AEL Limit - May 2022

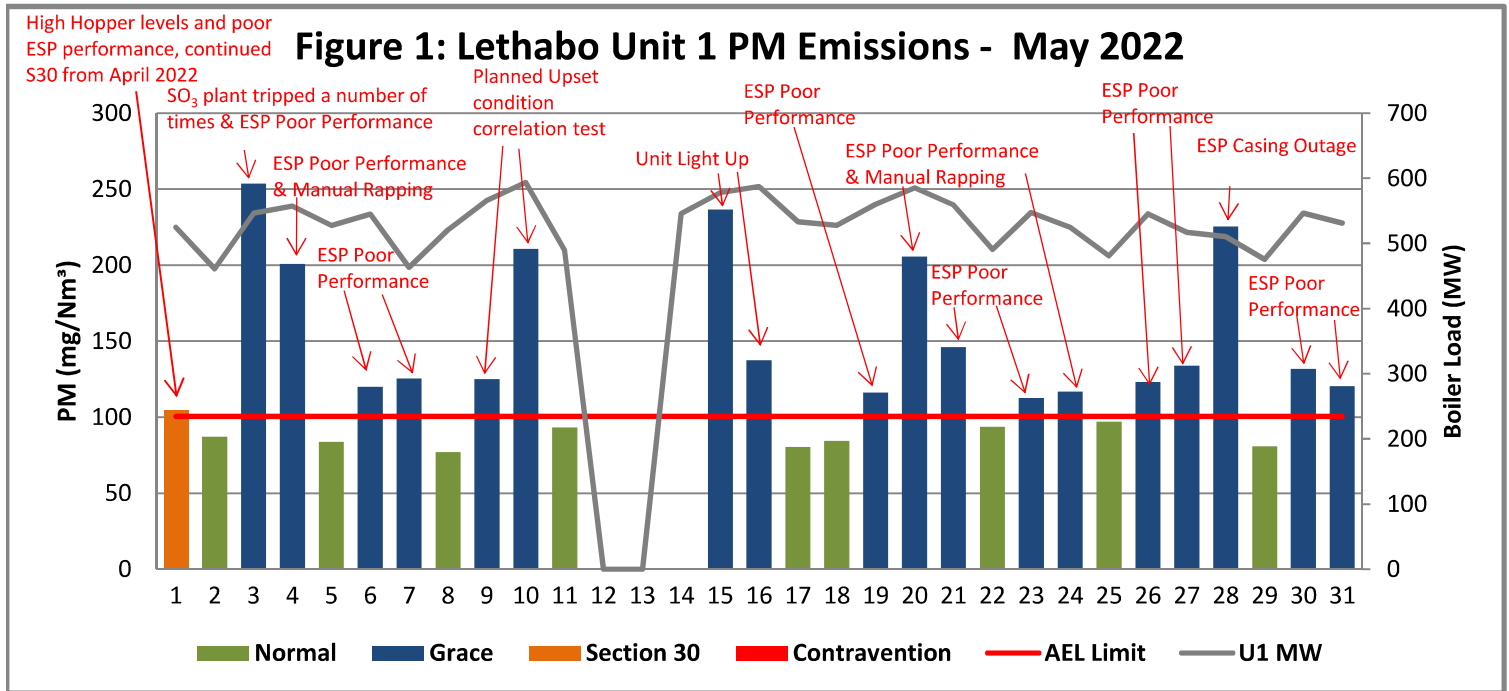
Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average SO <sub>x</sub> (mg/Nm <sup>3</sup> )
Unit 1	29	0	0	0	0	1 929.3
Unit 2	31	0	0	0	0	1 874.8
Unit 3	25	0	0	0	0	1 744.7
Unit 4	18	0	0	0	0	2 013.7
Unit 5	0	0	0	0	0	
Unit 6	25	0	0	0	0	2 161.3
<b>SUM</b>	<b>128</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	

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

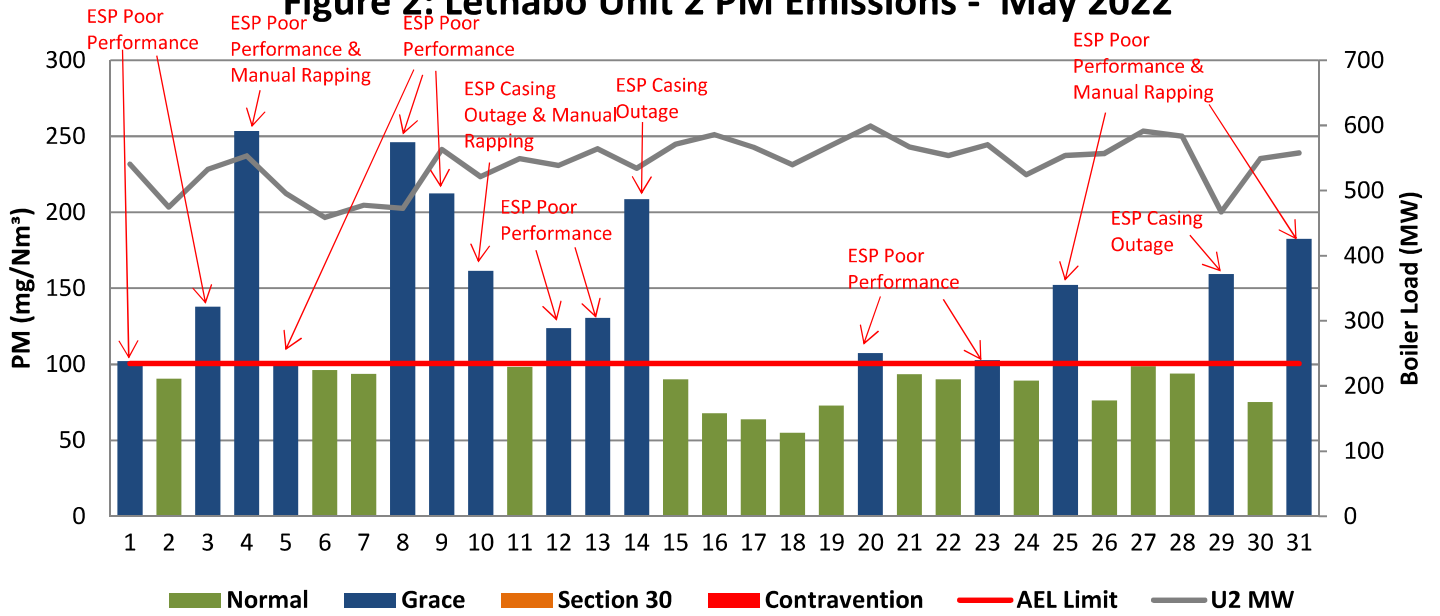
Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average NOx (mg/Nm³)
Unit 1	29	0	0	0	0	985.0
Unit 2	31	0	0	0	0	796.6
Unit 3	25	0	0	0	0	799.4
Unit 4	18	0	0	0	0	799.6
Unit 5	0	0	0	0	0	
Unit 6	25	0	0	0	0	939.4
<b>SUM</b>	<b>128</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	

Table 6.5: Legend Description

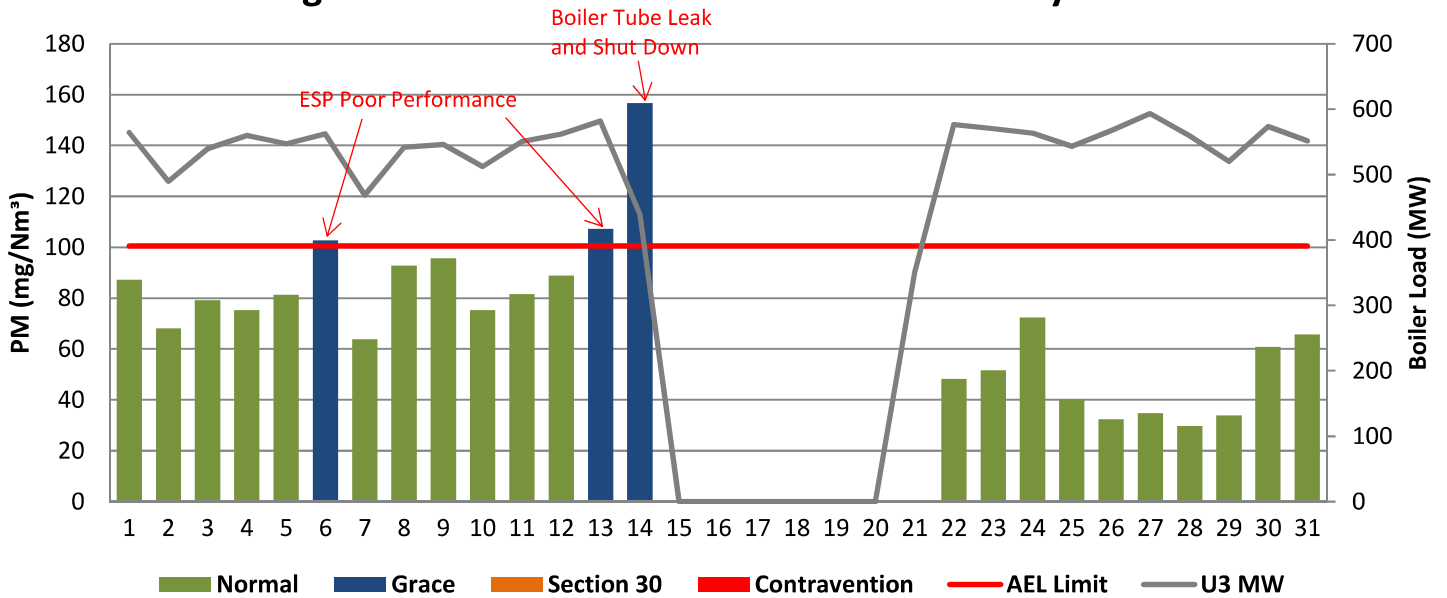
Condition	Colour	Description
Normal	GREEN	Emissions below Emission Limit Value (ELV)
Grace	BLUE	Emissions above the ELV during grace period
Section 30	ORANGE	Emissions above ELV during a NEMA S30 incident
Contra-vention	RED	Emissions above ELV but outside grace or S30 incident conditions



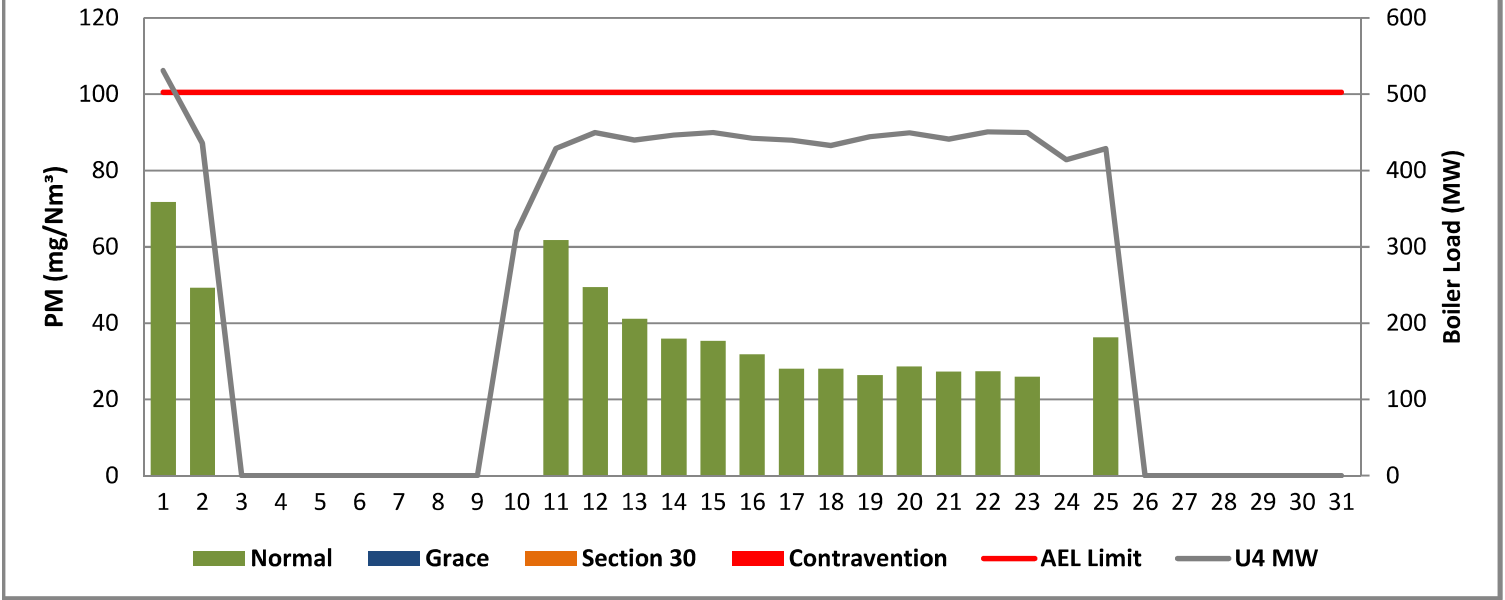
**Figure 2: Lethabo Unit 2 PM Emissions - May 2022**



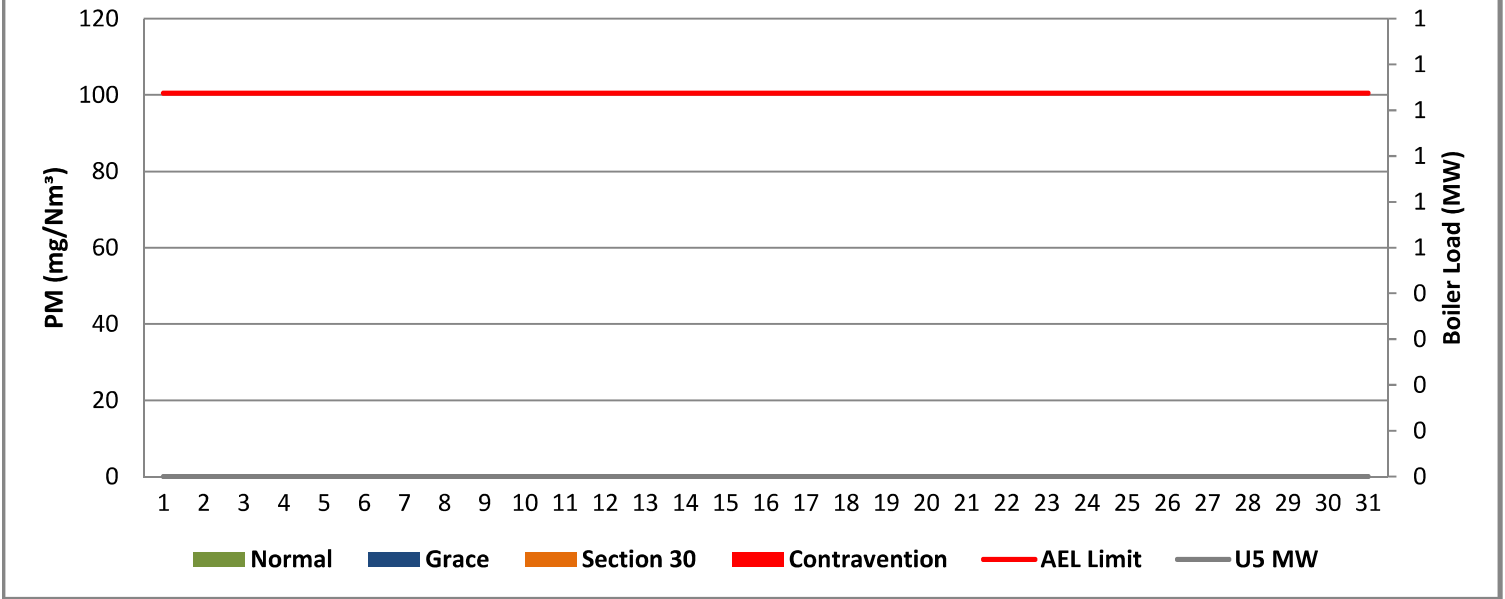
**Figure 3: Lethabo Unit 3 PM Emissions - May 2022**



**Figure 4: Lethabo Unit 4 PM Emissions - May 2022**

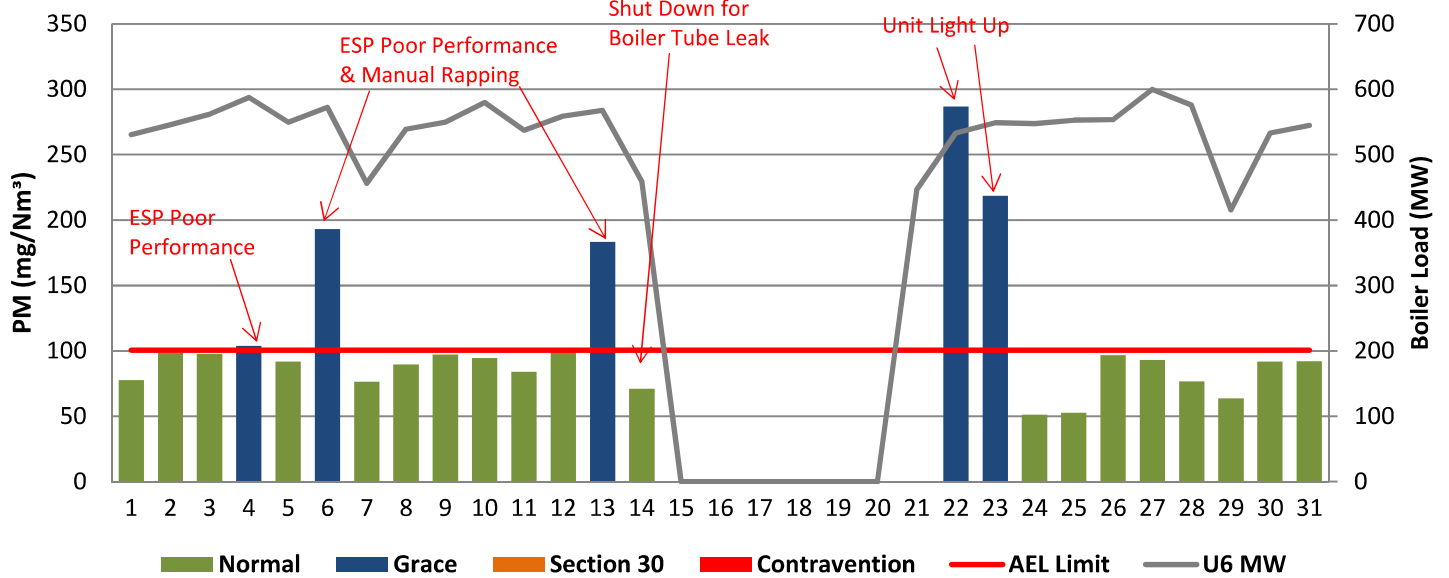


**Figure 5: Lethabo Unit 5 PM Emissions - May 2022**

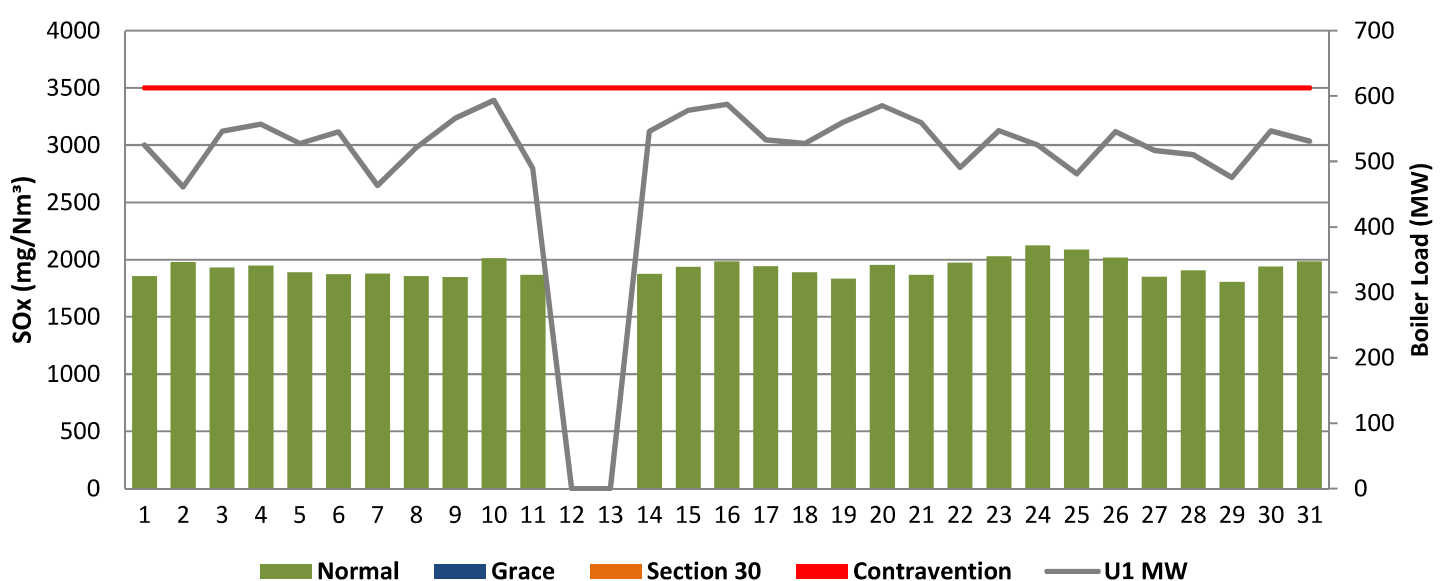




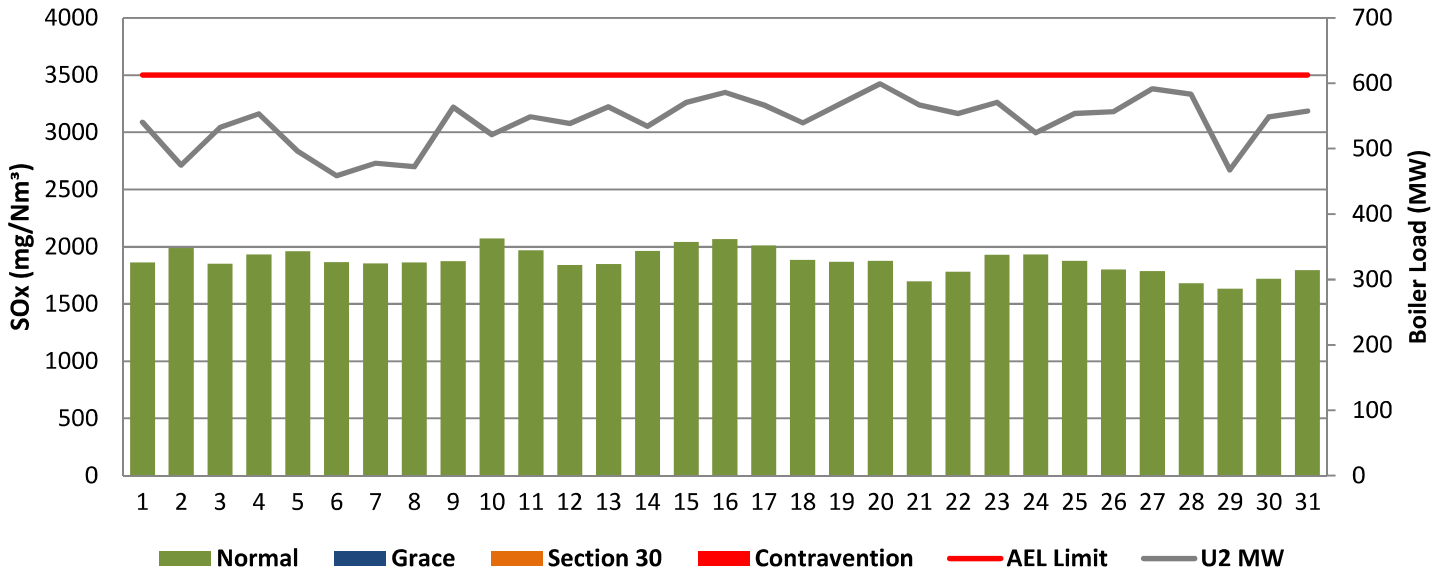
**Figure 6: Lethabo Unit 6 PM Emissions - May 2022**



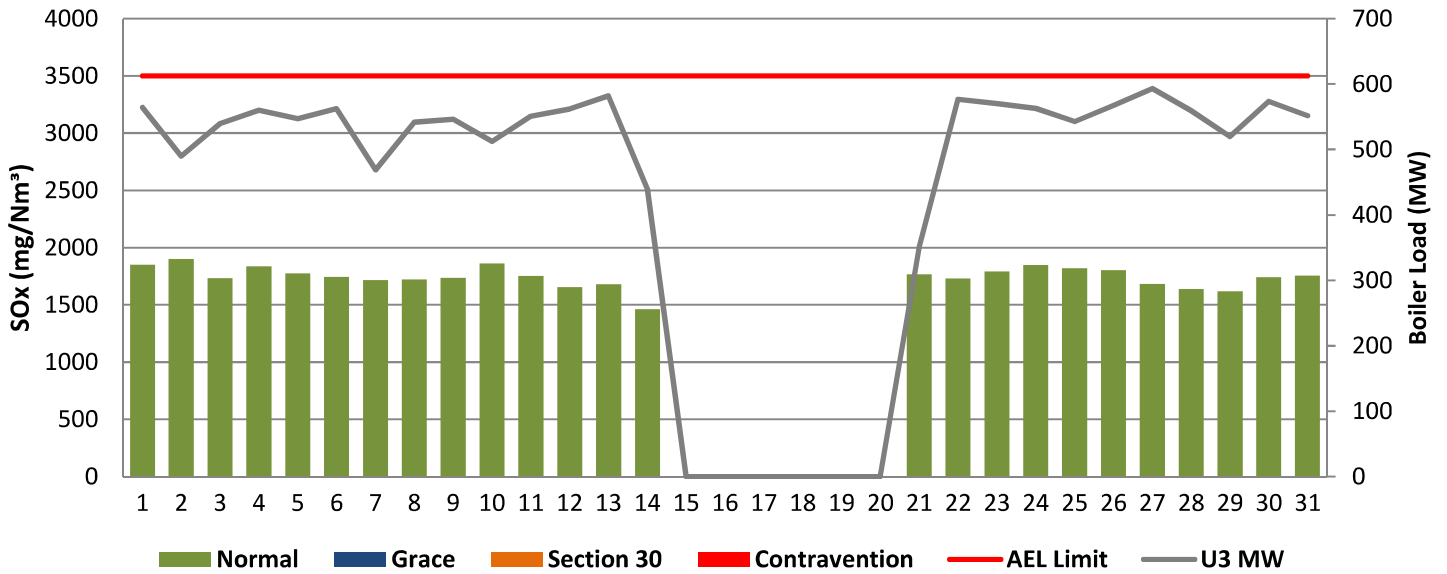
**Figure 7: Lethabo Unit 1 SOx Emissions - May 2022**



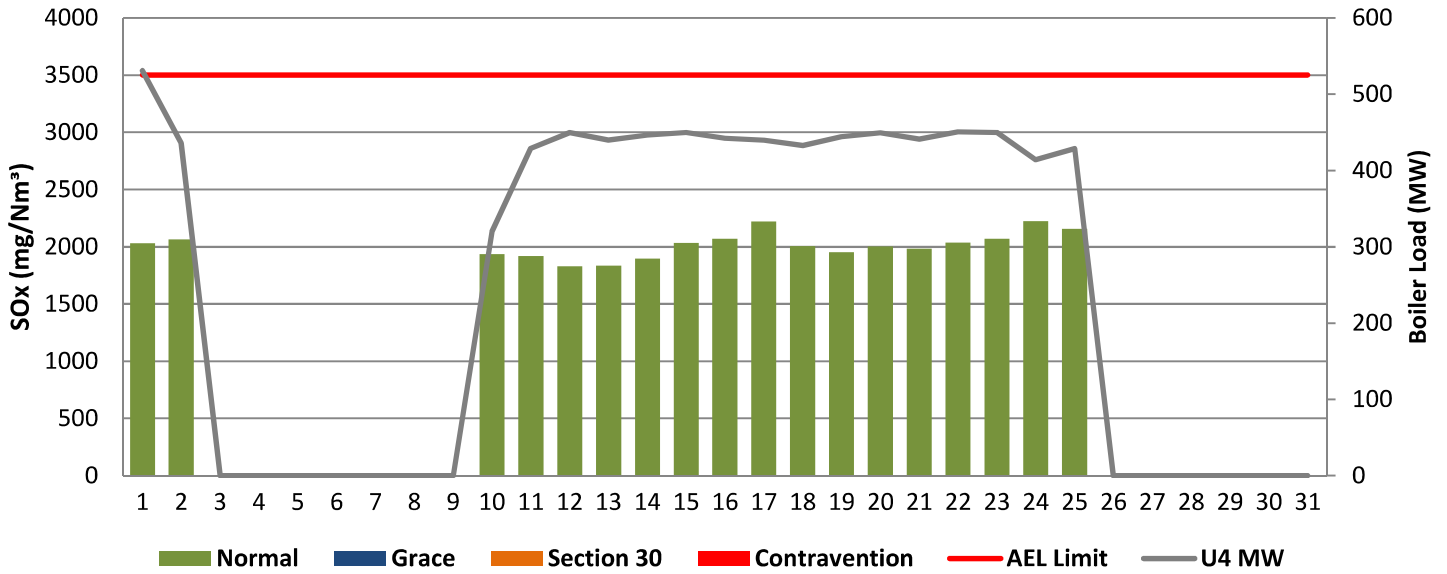
**Figure 8: Lethabo Unit 2 SOx Emissions - May 2022**



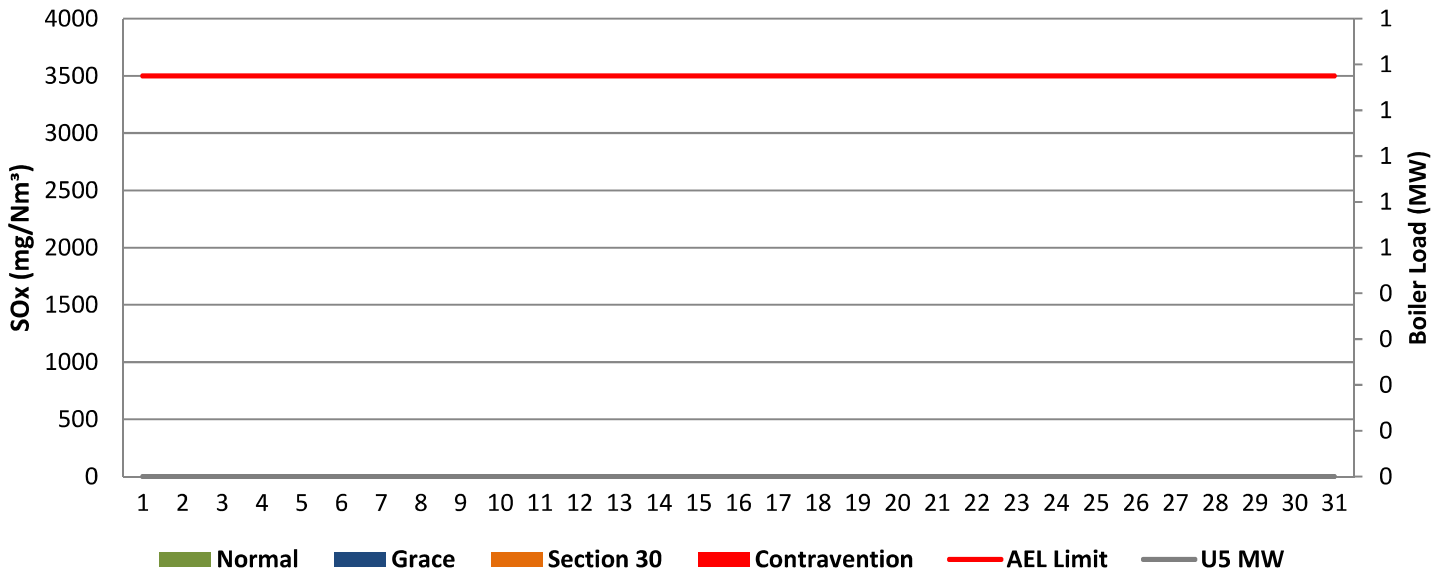
**Figure 9: Lethabo Unit 3 SOx Emissions - May 2022**



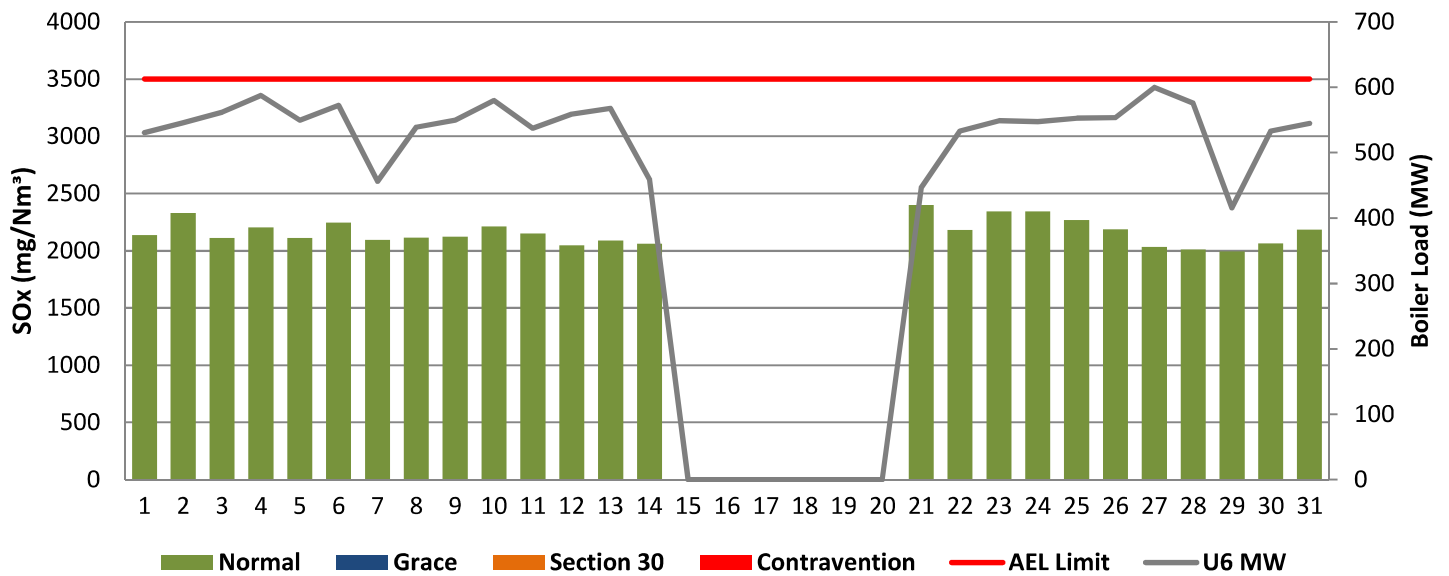
**Figure 10: Lethabo Unit 4 SOx Emissions - May 2022**



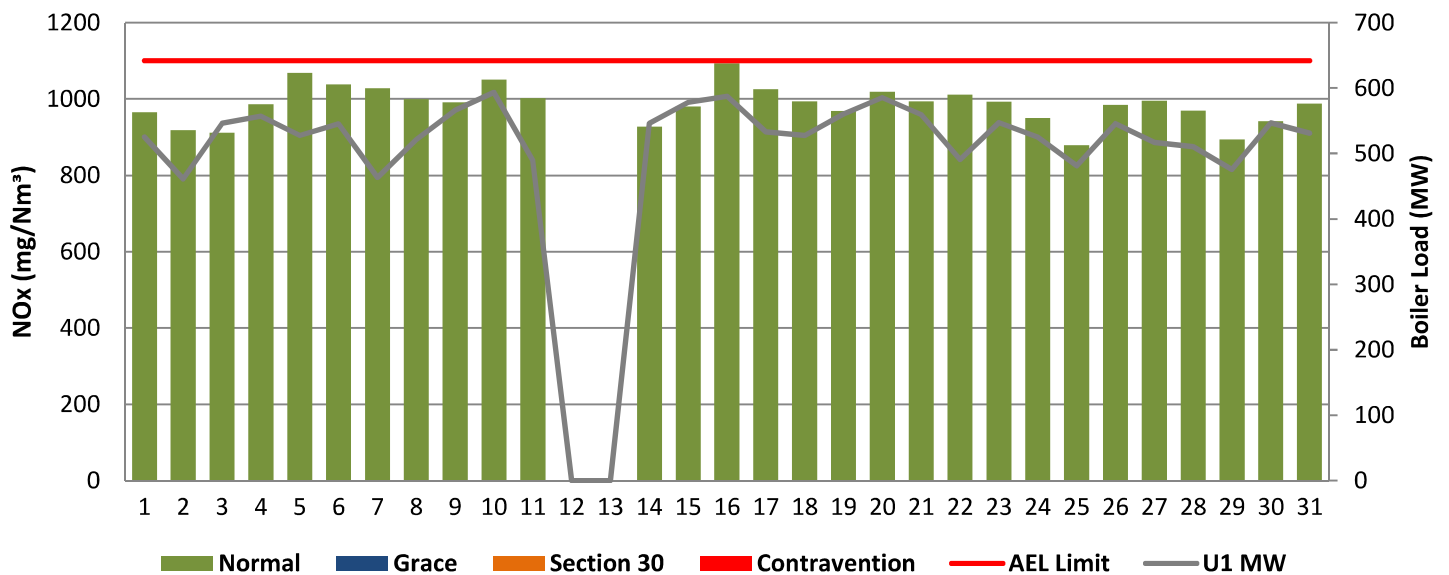
**Figure 11: Lethabo Unit 5 SOx Emissions - May 2022**



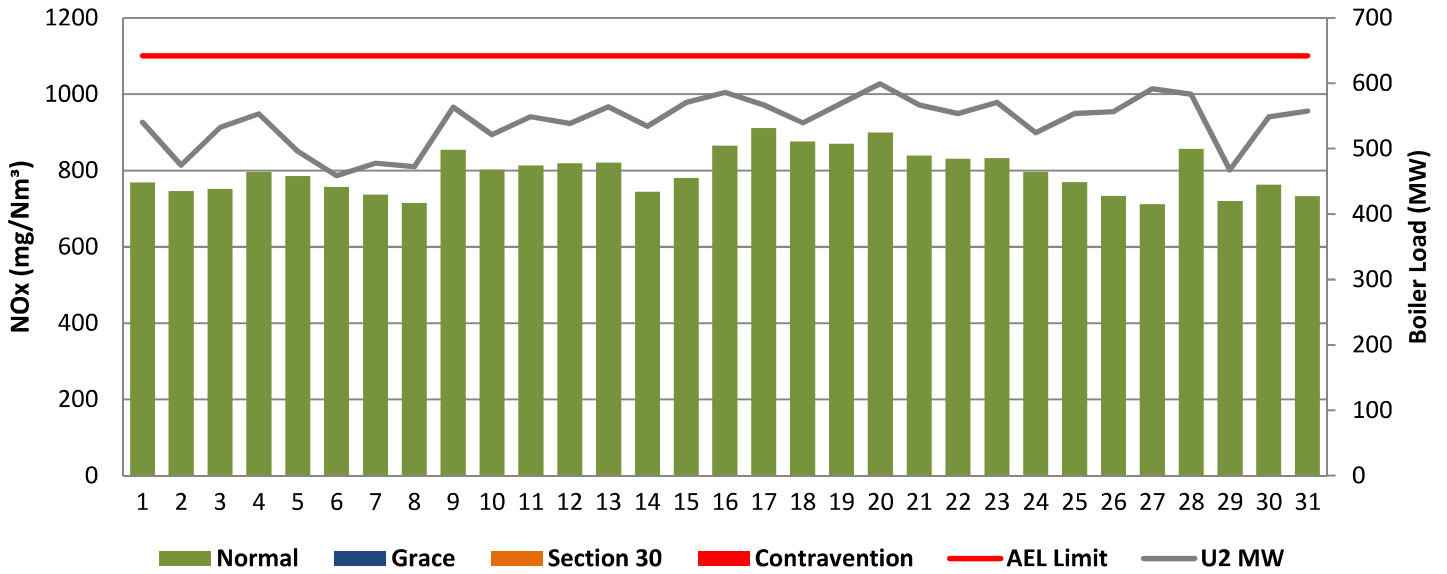
**Figure 12: Lethabo Unit 6 SOx Emissions - May 2022**



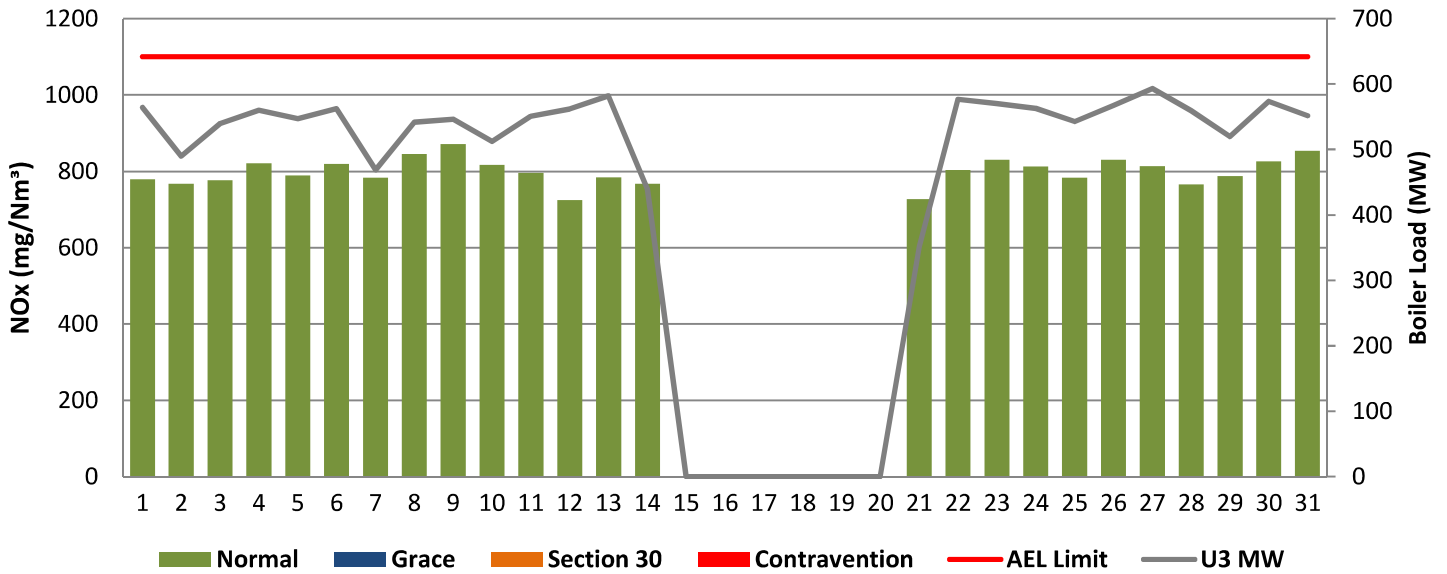
**Figure 13: Lethabo Unit 1 NOx Emissions - May 2022**



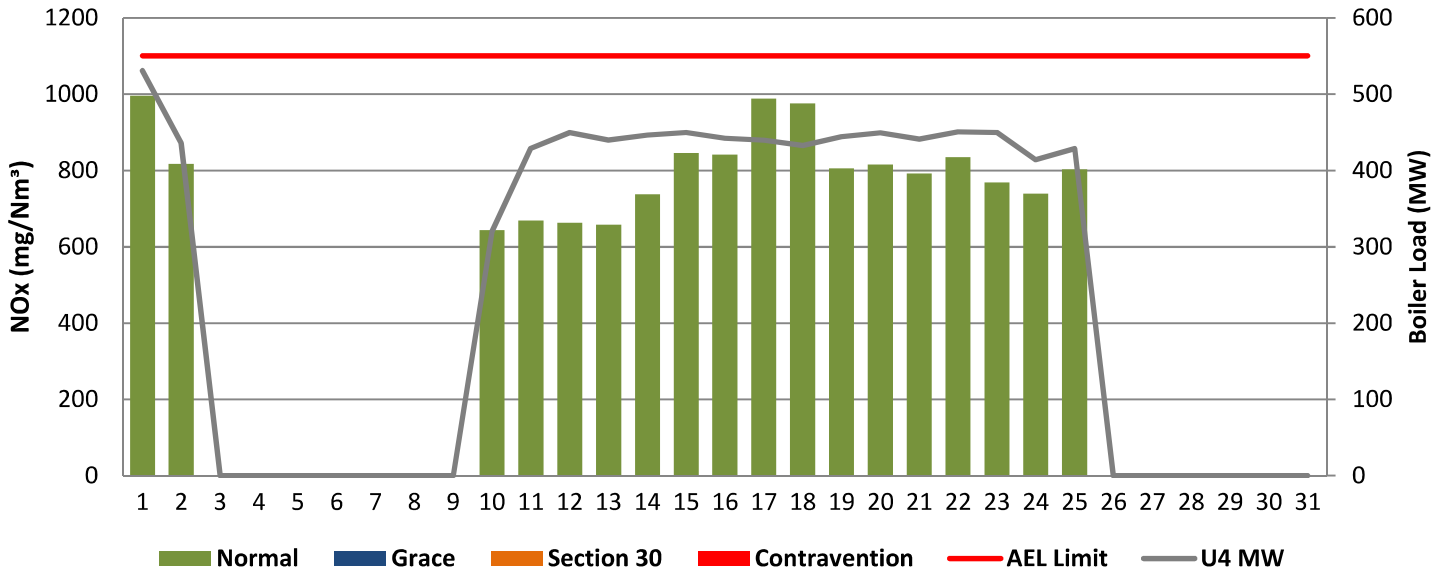
**Figure 14: Lethabo Unit 2 NOx Emissions - May 2022**



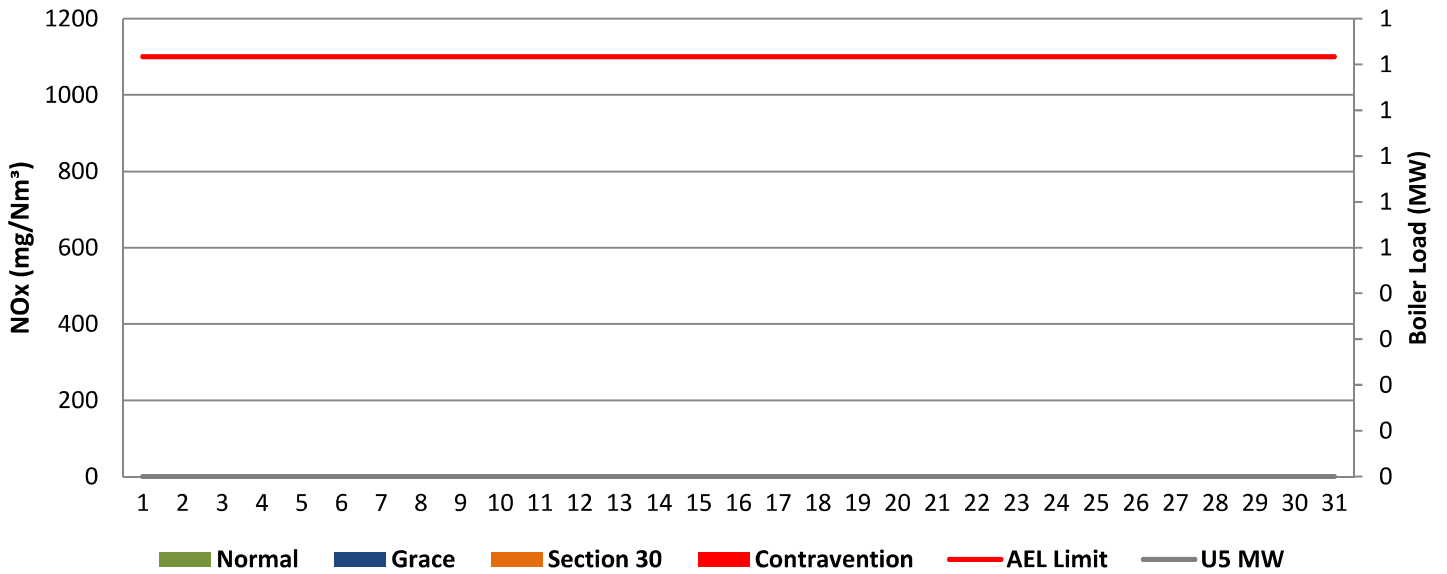
**Figure 15: Lethabo Unit 3 NOx Emissions - May 2022**



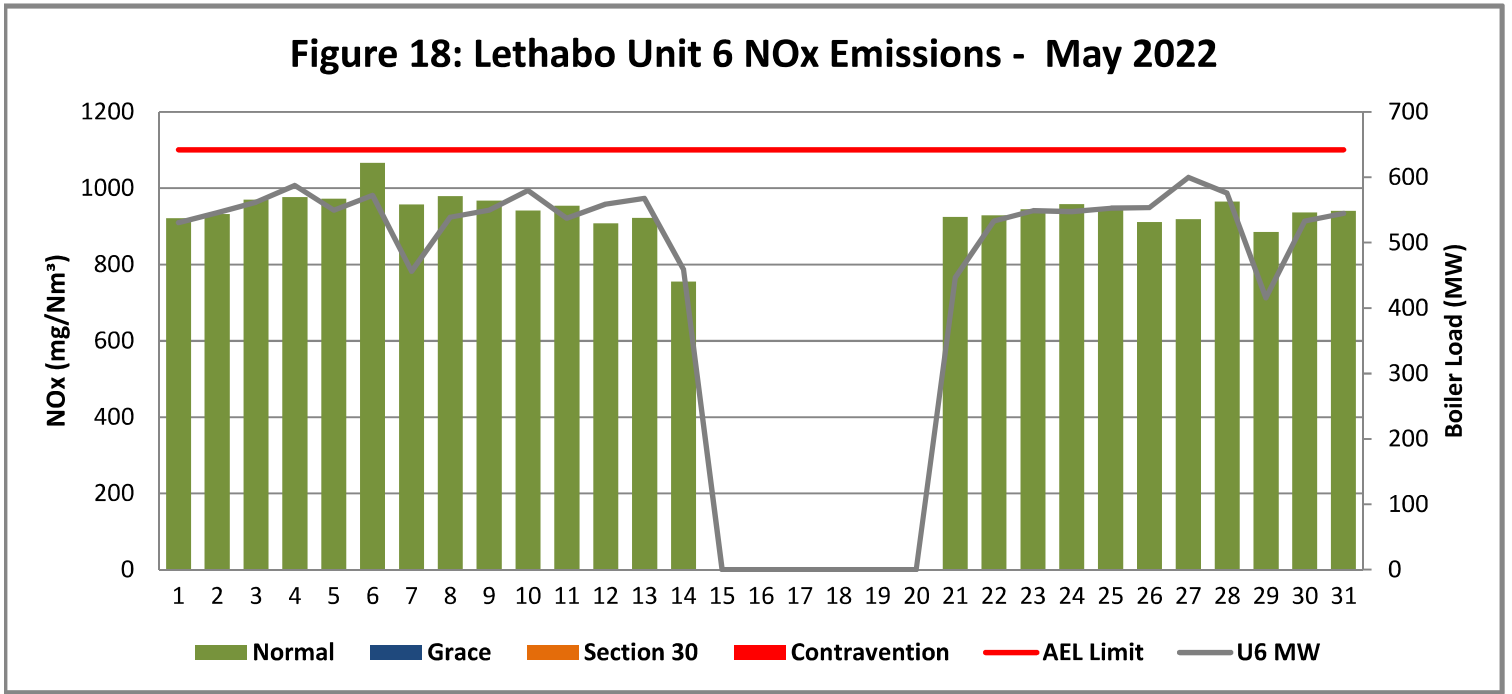
**Figure 16: Lethabo Unit 4 NOx Emissions - May 2022**



**Figure 17: Lethabo Unit 5 NOx Emissions - May 2022**



**Figure 18: Lethabo Unit 6 NOx Emissions - May 2022**



## 7 SHUT DOWN AND LIGHT UP INFORMATION

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

<b>Unit No.1</b>	<i>Boiler tube leak repairs.</i>							
<b>Breaker Open (BO)</b>	8:00 PM	2022/05/11						
<b>Draught Group (DG) Shut Down (SD)</b>	8:00 AM	2022/05/12						
<b>BO to DG SD (duration)</b>	00:12:00	DD:HH:MM						
<b>Fires in time</b>	12:22 AM	2022/05/14						
<b>Synch. to Grid (or BC)</b>	4:40 AM	2022/05/14						
<b>Fires in to BC (duration)</b>	00:04:18	DD:HH:MM						
<b>Emissions below limit from BC (end date)</b>	3:00 AM	2022/05/18						
<b>Emissions below limit from BC (duration)</b>	03:22:20	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>								



Unit No.3	Boiler tube leak		Faulty control card					
Breaker Open (BO)	4:30 AM	2022/05/14	10:40 AM	2022/05/21				
Draught Group (DG) Shut Down (SD)	4:10 PM	2022/05/14	3:10 PM	2022/05/20				
BO to DG SD (duration)	00:11:40	DD:HH:MM	#####	DD:HH:MM				
Fires in time	9:54 PM	2022/05/20	1:32 PM	2022/05/21				
Synch. to Grid (or BC)	1:05 AM	2022/05/21	2:24 PM	2022/05/21				
Fires in to BC (duration)	00:03:11	DD:HH:MM	00:00:52	DD:HH:MM				
Emissions below limit from BC (end date)	3:00 AM	2022/05/22	3:00 AM	2022/05/22				
Emissions below limit from BC (duration)	01:01:55	DD:HH:MM	00:12:36	DD:HH:MM				

Unit No.4	Boiler tube leak		Unit tripped on Turbine Delta T's protection		Unit tripped on Turbine Delta T's protection			
Breaker Open (BO)	12:35 PM	2022/05/02	8:20 AM	2022/05/10	10:05 PM	2022/05/23		
Draught Group (DG) Shut Down (SD)	11:45 PM	2022/05/02	DG did not trip or SD	DG did not trip or SD	11:25 PM	2022/05/23		
BO to DG SD (duration)	00:11:10	DD:HH:MM	n/a	DD:HH:MM	00:01:20	DD:HH:MM		
Fires in time	11:04 PM	2022/05/09	12:17 PM	2022/05/10	2:25 AM	2022/05/24		
Synch. to Grid (or BC)	12:57 AM	2022/05/10	1:48 PM	2022/05/10	2:42 AM	2022/05/24		
Fires in to BC (duration)	00:01:53	DD:HH:MM	00:01:31	DD:HH:MM	00:00:17	DD:HH:MM		
Emissions below limit from BC (end date)	3:00 AM	2022/05/13	3:00 AM	2022/05/13	9:40 PM	2022/05/25		
Emissions below limit from BC (duration)	03:02:03	DD:HH:MM	02:13:12	DD:HH:MM	01:18:58	DD:HH:MM		

<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>	<i>Boiler tube leak.</i>					
<b>Breaker Open (BO)</b>	7:15 AM	2022/05/14				
<b>Draught Group (DG) Shut Down (SD)</b>	5:15 PM	2022/05/14				
<b>BO to DG SD (duration)</b>	00:10:00	DD:HH:MM				
<b>Fires in time</b>	4:29 PM	2022/05/21				
<b>Synch. to Grid (or BC)</b>	5:36 PM	2022/05/21				
<b>Fires in to BC (duration)</b>	00:01:07	DD:HH:MM				
<b>Emissions below limit from BC (end date)</b>	3:00 AM	2022/05/25				
<b>Emissions below limit from BC (duration)</b>	03:09:24	DD:HH:MM				

7.2: Point Source emissions released during start-up (fires-in) and Shut-down (SD) for the month of May 2022 in mg/Nm<sup>3</sup>

## 8. MAINTENANCE

<b>Unit 1</b>				
<b>Beginning of</b>	2022/05/07 00:00	2022/05/28 00:23		
<b>Reason for Maintenance</b>	RHO precip casing repairs	RHO precip casing repairs		
<b>End (Time):</b>	2022/05/07 19:35	2022/05/28 18:38		
<b>Duration</b>	19:35:00	18:15:00	0:00:00	0:00:00

<b>Unit 2</b>				
<b>Beginning of</b>	2022/05/08 00:00:00	2022/05/10 00:00:00	2022/05/29 00:00:00	2022/05/21 04:05
<b>Reason for Maintenance</b>	RHI precip casing repairs	LHO precip casing repairs	RHI precip casing repairs	LHI precip casing repairs
<b>End (Time):</b>	2022/05/08 20:20:00	2022/05/10 16:51:00	2022/05/29 17:31:00	2022/05/21 04:56
<b>Duration</b>	20:20:00	16:51:00	17:31:00	0:51:00

<b>Unit 3</b>				
<b>Beginning of</b>				
<b>Reason for Maintenance</b>				
<b>End (Time):</b>				
<b>Duration</b>				

<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

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### Unit 1 :

PM Monitor Availability on 03/05/2022: The monitor availability was 79.2% due to the monitors at maximum output hence the reporting tool does not take the readings and affects the monitor availability (Unit also shut down and tripped).

CO2 Monitor Availability on 14/05/2022: The monitor availability was 72.7% due to the unit light up.

### Unit 1:

Issue with server, data lost from 07:10 to 08:05 on the 13/05/2022 and 13:30-14:15 on the 17/05/2022. To ensure hours are not discounted the average for the previous hour and next hour load average was used.

The NEMA Section 30 on Unit 1 was continued from April 2022, the station reported a NEMA Section 30 from the 28/04/2022-01/05/2022 due to high hopper levels and poor ESP performance

### Unit 2:

Issue with server, data lost from 07:10 to 08:05 on the 13/05/2022; 13:30-14:15 on the 17/05/22 and 14:35-14:45 on the 17/05/2022. To ensure hours are not discounted the average for the previous hour and next hour load average was used.

### Unit 3:

Issue with server, data lost from 07:10 to 08:05 on the 13/05/2022 and 13:40-13:50 on the 17/05/2022. To ensure hours are not discounted the average for the previous hour and next hour load average was used.

### Unit 4:

Issue with server, data lost from 07:10 to 08:05 on the 13/05/2022 and 13:40-13:50 on the 17/05/2022. To ensure hours are not discounted the average for the previous hour and next hour load average was used.

### Unit 6:

Issue with server, data lost from 13:35-14:20 on the 17/05/2022. To ensure hours are not discounted the average for the previous hour and next hour load average was used.

**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.
1	28/04/2022	01/05/2022 2	High hopper levels and poor ESP performance.	Backlogging done so that hopper levels could be decreased	29/04/2022	12/05/2022			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
<b>Jun-21</b>	0.26	0.63	0.37	0.36	0.35	0.33	0.38
<b>Jul-21</b>	0.23	0.55	0.43	0.31	0.27	0.29	0.35
<b>Aug-21</b>	0.24	0.73	0.41	0.55	0.24	0.28	0.41
<b>Sep-21</b>	0.38	0.92	0.52	0.33	0.26	OFF	0.47
<b>Oct-21</b>	0.63	0.53	0.50	0.50	0.40	OFF	0.51
<b>Nov-21</b>	0.34	0.59	0.52	0.52	0.41	0.41	0.46
<b>Dec-21</b>	0.39	OFF	0.55	0.57	0.34	0.29	0.42
<b>Jan-22</b>	0.37	OFF	0.52	0.46	0.47	0.36	0.44
<b>Feb-22</b>	0.47	1.06	0.62	0.44	0.38	0.59	0.56
<b>Mar-22</b>	0.73	0.90	0.66	0.58	0.33	0.43	0.57
<b>Apr-22</b>	0.60	0.61	0.53	0.45	OFF	0.37	0.51
<b>May-22</b>	0.55	0.59	0.33	0.19	OFF	0.44	0.45

**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
01-May	105	102	87	72	OFF	78	100
02-May	87	91	68	49	OFF	98	100
03-May	254	138	79	OFF	OFF	98	100
04-May	201	254	75	OFF	OFF	104	100
05-May	84	101	81	OFF	OFF	92	100
06-May	120	96	103	OFF	OFF	193	100
07-May	125	94	64	OFF	OFF	76	100
08-May	77	246	93	OFF	OFF	90	100
09-May	125	212	96	OFF	OFF	97	100
10-May	211	162	75	OFF	OFF	95	100
11-May	93	98	82	62	OFF	84	100
12-May	OFF	124	89	49	OFF	100	100
13-May	OFF	131	107	41	OFF	183	100
14-May	OFF	209	157	36	OFF	71	100
15-May	236	90	OFF	35	OFF	OFF	100
16-May	137	68	OFF	32	OFF	OFF	100
17-May	80	64	OFF	28	OFF	OFF	100
18-May	84	55	OFF	28	OFF	OFF	100
19-May	116	73	OFF	26	OFF	OFF	100
20-May	206	107	OFF	29	OFF	OFF	100
21-May	146	94	OFF	27	OFF	OFF	100
22-May	94	90	48	27	OFF	287	100
23-May	113	103	52	26	OFF	219	100
24-May	117	89	72	OFF	OFF	51	100
25-May	97	152	40	36	OFF	53	100
26-May	123	76	32	OFF	OFF	97	100
27-May	134	99	35	OFF	OFF	93	100
28-May	225	94	30	OFF	OFF	77	100
29-May	81	159	34	OFF	OFF	64	100
30-May	132	75	61	OFF	OFF	92	100
31-May	120	182	66	OFF	OFF	92	100

**ADDENDUM TO MONTHLY EMISSIONS REPORT**

**Final SO<sub>x</sub> Concentration (mg/Nm<sup>3</sup>)**

Date	U1	U2	U3	U4	U5	U6	Limit
01-May	1855	1863	1849	2030	OFF	2136	3500
02-May	1979	1987	1901	2063	OFF	2330	3500
03-May	1930	1850	1732	OFF	OFF	2112	3500
04-May	1949	1932	1836	OFF	OFF	2204	3500
05-May	1891	1959	1774	OFF	OFF	2110	3500
06-May	1873	1863	1744	OFF	OFF	2247	3500
07-May	1880	1852	1716	OFF	OFF	2095	3500
08-May	1856	1862	1722	OFF	OFF	2115	3500
09-May	1847	1874	1737	OFF	OFF	2123	3500
10-May	2012	2073	1861	1934	OFF	2212	3500
11-May	1866	1969	1753	1918	OFF	2151	3500
12-May	OFF	1840	1655	1829	OFF	2048	3500
13-May	OFF	1848	1681	1835	OFF	2088	3500
14-May	1876	1961	1463	1896	OFF	2059	3500
15-May	1937	2041	OFF	2032	OFF	OFF	3500
16-May	1986	2066	OFF	2069	OFF	OFF	3500
17-May	1943	2011	OFF	2221	OFF	OFF	3500
18-May	1891	1884	OFF	2003	OFF	OFF	3500
19-May	1833	1867	OFF	1952	OFF	OFF	3500
20-May	1955	1877	OFF	2002	OFF	OFF	3500
21-May	1867	1700	1768	1982	OFF	2398	3500
22-May	1974	1782	1729	2035	OFF	2180	3500
23-May	2030	1928	1792	2068	OFF	2344	3500
24-May	2124	1931	1849	2224	OFF	2343	3500
25-May	2089	1875	1820	2155	OFF	2269	3500
26-May	2019	1801	1802	OFF	OFF	2187	3500
27-May	1851	1787	1682	OFF	OFF	2033	3500
28-May	1907	1683	1639	OFF	OFF	2010	3500
29-May	1807	1636	1619	OFF	OFF	1994	3500
30-May	1939	1722	1740	OFF	OFF	2063	3500
31-May	1984	1796	1755	OFF	OFF	2182	3500

**ADDENDUM TO MONTHLY EMISSIONS REPORT**

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

Date	U1	U2	U3	U4	U5	U6	Limit
01-May	965	768	779	996	OFF	921	1100
02-May	918	746	768	817	OFF	932	1100
03-May	911	752	777	OFF	OFF	970	1100
04-May	986	796	822	OFF	OFF	977	1100
05-May	1068	785	790	OFF	OFF	973	1100
06-May	1038	757	820	OFF	OFF	1066	1100
07-May	1028	736	784	OFF	OFF	958	1100
08-May	999	715	846	OFF	OFF	979	1100
09-May	991	854	872	OFF	OFF	968	1100
10-May	1050	802	817	643	OFF	942	1100
11-May	1002	813	796	668	OFF	954	1100
12-May	OFF	819	725	663	OFF	908	1100
13-May	OFF	820	784	658	OFF	923	1100
14-May	927	744	768	737	OFF	755	1100
15-May	980	780	OFF	846	OFF	OFF	1100
16-May	1093	865	OFF	841	OFF	OFF	1100
17-May	1026	911	OFF	989	OFF	OFF	1100
18-May	993	876	OFF	976	OFF	OFF	1100
19-May	969	870	OFF	806	OFF	OFF	1100
20-May	1019	899	OFF	815	OFF	OFF	1100
21-May	993	839	727	792	OFF	925	1100
22-May	1011	831	804	835	OFF	929	1100
23-May	993	832	830	768	OFF	945	1100
24-May	950	797	813	739	OFF	958	1100
25-May	879	769	784	803	OFF	946	1100
26-May	985	734	831	OFF	OFF	911	1100
27-May	995	711	814	OFF	OFF	919	1100
28-May	969	857	766	OFF	OFF	965	1100
29-May	895	720	788	OFF	OFF	885	1100
30-May	942	763	826	OFF	OFF	936	1100
31-May	988	732	854	OFF	OFF	941	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
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%	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%	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
Feb-22	100.00%	0.0	100.00%	0.0	100.00%	0.0	100.00%	0.0	100.00%	0.0	98.54%	1.6
Mar-22	98.73%	1.6	98.70%	1.6	100.00%	0.0	100.00%	0.0	100.00%	0.0	100.00%	0.0
Apr-22	100.00%	0.0	98.63%	1.6	100.00%	0.0	98.46%	1.9	OFF	OFF	100.00%	0.0
May-22	98.73%	1.6	98.13%	2.3	100.00%	0.0	100.00%	0.0	OFF	OFF	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
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
Feb-22	99.40%	0.2	85.42%	4.1	97.47%	0.7	100.00%	0.0	100.00%	0.0	97.17%	0.8
Mar-22	87.77%	3.8	100.00%	0.0	100.00%	0.0	87.23%	4.0	100.00%	0.0	100.00%	0.0
Apr-22	99.72%	0.1	100.00%	0.0	95.69%	1.3	98.33%	0.5	OFF	OFF	100.00%	0.0
May-22	98.66%	0.4	100.00%	0.0	97.45%	0.8	98.92%	0.3	OFF	OFF	96.51%	1.1

**ADDENDUM TO MONTHLY EMISSIONS REPORT**

Particulate Emission Monitors

Availability						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
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%
Feb-22	98.28%	95.56%	99.67%	100.00%	99.85%	99.40%
Mar-22	94.33%	95.83%	95.56%	99.67%	98.38%	98.79%
Apr-22	96.20%	94.58%	98.99%	99.57%	OFF	100.00%
May-22	97.32%	99.06%	99.65%	99.72%	OFF	100.00%

## Gaseous Emission Monitors

Availability												
	Unit 1		Unit 2		Unit 3		Unit 4		Unit 5		Unit 6	
Month	SO <sub>x</sub>	NO <sub>x</sub>	SO <sub>x</sub>	NO <sub>x</sub>	SO <sub>x</sub>	NO <sub>x</sub>	SO <sub>x</sub>	NO <sub>x</sub>	SO <sub>x</sub>	NO <sub>x</sub>	SO <sub>x</sub>	NO <sub>x</sub>
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%
Feb-22	100.00%	100.00%	100.00%	100.00%	99.85%	100.00%	99.40%	99.40%	99.26%	99.40%	99.55%	99.55%
Mar-22	98.30%	98.30%	98.92%	99.06%	99.06%	99.33%	99.84%	100.00%	98.88%	98.88%	98.79%	98.66%
Apr-22	99.31%	99.31%	99.58%	99.86%	100.00%	99.86%	99.44%	99.86%	OFF	OFF	100.00%	100.00%
May-22	99.71%	99.86%	99.60%	99.60%	99.83%	99.83%	90.93%	91.16%	OFF	OFF	99.83%	99.83%

Oxygen Monitor Availability						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
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%
Feb-22	100.00%	100.00%	98.74%	99.55%	99.40%	99.55%
Mar-22	98.30%	98.92%	99.19%	99.84%	98.88%	98.52%
Apr-22	99.13%	100.00%	100.00%	81.67%	OFF	99.72%
May-22	100.00%	99.73%	99.83%	99.75%	OFF	99.83%

### ADDENDUM TO MONTHLY EMISSIONS REPORT

#### 14. EFFICIENCY

ESP Efficiency (%)						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
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%
Feb-22	99.825%	99.561%	99.743%	99.823%	99.839%	99.745%
Mar-22	99.725%	99.623%	99.726%	99.768%	99.862%	99.816%
Apr-22	99.778%	99.748%	99.786%	99.822%	OFF	99.842%
May-22	99.672%	99.488%	99.880%	99.961%	OFF	99.844%

15. REMARKS

UNIT	MWLOSS	REASON	ACTUALSTARTDATE	ACTUALENDDATE
1	217	EF: High stack emissions.	2022/05/01 20:13:00	2022/05/01 23:53:00
1	115	EF: High stack emissions.	2022/05/02 20:16:00	2022/05/03 00:00:00
1	118	Correlation test	2022/05/04 23:43:00	2022/05/05 05:27:00
1	218	AM: Correlation tests	2022/05/05 23:58:00	2022/05/06 05:06:00
1	118	AM: RHO precip casing repairs	2022/05/07 00:00:00	2022/05/07 19:35:00
1	118	EF: High stack emissions	2022/05/08 09:40:00	2022/05/08 13:18:00
1	68	EF: High stack emissions.	2022/05/08 13:18:00	2022/05/08 16:29:00
1	220	AM: Emission rapping test	2022/05/11 00:04:00	2022/05/11 05:04:00
1	593	Boiler tube leak repairs.	2022/05/11 19:55:00	2022/05/14 04:40:00
1	297	System Generated Ramp Event for Event id : 1689332	2022/05/14 04:40:00	2022/05/14 07:40:00
1	216	High stack emissions.	2022/05/17 12:33:00	2022/05/17 16:59:00
1	114	High stack emissions.	2022/05/22 10:18:00	2022/05/22 16:23:00
1	214	EF: High emissions	2022/05/22 19:59:00	2022/05/23 00:05:00
1	218	High stack emission.	2022/05/25 11:10:00	2022/05/25 16:34:00
1	218	EF: High stack emissions	2022/05/25 19:52:00	2022/05/26 00:06:00
1	120	AM: High stack emissions.	2022/05/27 11:36:00	2022/05/27 12:04:00
1	218	AM: High stack emissions.	2022/05/27 12:04:00	2022/05/27 16:20:00
1	118	AM: RHO precip casing repairs	2022/05/28 00:23:00	2022/05/28 18:38:00
2	196	EF: High stack emissions.	2022/05/01 20:17:00	2022/05/01 23:53:00
2	96	EF: High stack emissions.	2022/05/02 20:11:00	2022/05/03 00:03:00
2	101	EF: High stack emissions	2022/05/05 21:40:00	2022/05/05 22:36:00
2	200	EF: High stack emissions	2022/05/05 22:36:00	2022/05/06 00:00:00
2	200	AM: Emissions tests	2022/05/06 00:00:00	2022/05/06 05:14:00
2	98	high stack emissions.	2022/05/06 11:37:00	2022/05/06 12:46:00
2	199	High stack emissions.	2022/05/06 12:46:00	2022/05/06 16:54:00
2	180	High stack emissions.	2022/05/06 18:29:00	2022/05/07 00:07:00
2	198	EF: High stack emissions	2022/05/07 19:57:00	2022/05/08 00:00:00
2	100	AM: RHI precip casing repairs	2022/05/08 00:00:00	2022/05/08 20:20:00
2	100	AM: LHO Precip. casing repairs.	2022/05/10 00:00:00	2022/05/10 16:51:00
2	170	AM: Emission rapping test	2022/05/11 00:00:00	2022/05/11 00:32:00
2	150	AM: Emission rapping test	2022/05/11 00:32:00	2022/05/11 05:10:00
2	48	High stack emissions.	2022/05/11 19:29:00	2022/05/11 21:46:00
2	99	High stack emissions.	2022/05/11 21:46:00	2022/05/12 00:02:00
2	100	AM: RHI precip casing repairs	2022/05/14 00:42:00	2022/05/14 17:00:00
2	199	Ef: High stack emissions	2022/05/15 01:45:00	2022/05/15 05:18:00
2	98	EF: High emissions	2022/05/22 19:52:00	2022/05/22 23:09:00
2	50	EF: High emissions	2022/05/22 23:09:00	2022/05/23 00:00:00
2	99	High stack emissions.	2022/05/23 21:44:00	2022/05/23 23:59:00
2	98	High stack emissions	2022/05/24 19:37:00	2022/05/25 01:06:00
2	99	AM: RHI precip casing repairs	2022/05/29 00:00:00	2022/05/29 17:31:00
3	593	Boiler tube leak	2022/05/14 04:23:00	2022/05/21 01:05:00
3	297	System Generated Ramp Event for Event id : 1690230	2022/05/21 01:05:00	2022/05/21 04:05:00
3	130	AM: LHI precip casing washing	2022/05/21 04:05:00	2022/05/21 04:56:00
3	593	Faulty control card	2022/05/21 10:33:00	2022/05/21 14:24:00
3	297	System Generated Ramp Event for Event id : 1692847	2022/05/21 14:24:00	2022/05/21 15:54:00

UNIT	MWLOSS	REASON	ACTUALSTARTDATE	ACTUALENDDATE
4	593	Boiler tube leak	2022/05/02 12:29:00	2022/05/10 00:57:00
4	297	System Generated Ramp Event for Event id : 1685344	2022/05/10 00:57:00	2022/05/10 03:57:00
4	593	Unit tripped on Turbine Delta T's protection	2022/05/10 08:10:00	2022/05/10 13:48:00
4	297	System Generated Ramp Event for Event id : 1688700	2022/05/10 13:48:00	2022/05/10 15:18:00
4	593	Unit tripped on Turbine Delta T's protection.	2022/05/23 21:56:00	2022/05/24 02:42:00
4	297	System Generated Ramp Event for Event id : 1693823	2022/05/24 02:42:00	2022/05/24 04:12:00
4	593	Boiler tube leak	2022/05/25 21:31:00	2022/05/30 09:30:00
4	593	System Generated Slip Event linked to PCLF Event : 1694709	2022/05/30 09:30:00	2022/05/31 23:59:59
5	593	G.O.	2022/05/01 00:00:00	2022/05/31 23:59:59
6	218	high stack emissions	2022/05/01 00:00:00	2022/05/01 00:05:00
6	68	EF: High stack emissions	2022/05/10 21:02:00	2022/05/10 23:56:00
6	593	AM: Boiler tube leak.	2022/05/14 07:05:00	2022/05/21 17:36:00
6	297	System Generated Ramp Event for Event id : 1690294	2022/05/21 17:36:00	2022/05/21 20:36:00
6	118	High stack emissions.	2022/05/23 21:52:00	2022/05/24 04:52:00

PM Exceedances		
U1.	ESP Poor Performance and High Hopper levels	01-May
U1.	ESP Manual rapping and ESP poor performance SO3 plant trips twice a day due to comms fault	03-May
U1.	Manual rapping & ESP poor performance	04-May
U1.	ESP Poor performance	06-May
U1.	Planned Upset condition Correlation test (SO3 plant off load)	09-May
U1.	Planned upset correlation test (Various ESP fields Switched off)	10-May
U1.	RHO Precip Casing	11-May
U1.	Unit off for boiler tube leak	12-May
U1.	Unit Light Up. The unit synchronized on 2022/05/14 @ 04:41 emissions to be below the limit by 2022/05/17 @ 04:41 and remain below the limit until 2022/05/18 @ 23:59	15-May
U1.	Unit Light Up	16-May
U1.	Clean rapping did not take place yesterday and today ESP poor performance	19-May
U1.	ESP Poor Performance and manual rapping Clean rapping did not take place	20-May
U1.	ESP Poor performance	21-May
U1.	ESP poor performance RHI F3 high hopper level	23-May
U1.	ESP poor performance and manual rapping	24-May
U1.	ESP Poor Performance	26-May
U1.	ESP poor Performance	27-May
U1.	Casing Outage	28-May
U1.	ESP poor Performance	30-May
U1.	ESP poor Performance	31-May
U2.	ESP Poor Performance	01-May
U2.	ESP poor Performance	03-May
U2.	ESP poor performance Manual rapping	04-May
U2.	Casing taken ESP poor performance	05-May
U2.	ESP poor Performance	08-May
U2.	ESP poor performance	09-May
U2.	ESP casing outage Manual Rapping	10-May
U2.	ESP Poor Performance Possible skew flow	12-May
U2.	ESP Poor Performance	13-May
U2.	RHI Casing Outage	14-May
U2.	ESP Poor Performance	20-May
U2.	ESP Poor performance	23-May
U2.	ESP poor performance and Manual rapping	25-May
U2.	Casing Outage	29-May
U2.	ESP Poor Performance and Manual rapping	31-May
U3.	ESP Poor Performance	06-May
U3.	ESP Poor Performance	13-May
U3.	Running with boiler tube leak, shut down 07:07	14-May
U3.	Unit off for boiler tube leak	15-May
U6.	ESP poor performance	04-May
U6.	ESP Poor Performance and Manual Rapping	06-May
U6.	ESP Poor performance and Manual rapping	13-May
U6.	Unit shut down 07:09 for boiler tube leak	14-May
U6.	Unit synchronized on 2022/05/21 and emissions need to be below the limit on 2022/05/24 @ 17:37 and remain below the limit until the 2022/05/25 @ 23:59	22-May
U6.	Unit Light up	23-May