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Date:
28 August 2023

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LRP02PLA000_0360/20230706

Dear Mr. Sibaya

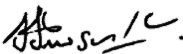
LETHABO POWER STATION EMISSION MONTHLY REPORT FOR JUNE 2023

Please find attached Lethabo Power Station emission report for the month of June 2023.

Also attached are the Ambient Air Quality Monitoring Report, Complaints Register and the Fugitive Dust Fallout Monitoring Report for June 2023.

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

Yours sincerely

pp 

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 2023
Emission Report

Reference number: **LRP02PLA000_0360/20230706**
Document Type: **Report**
Area of Applicability: **Environment**
Report Date: **July-2023**
Classification: **Controlled Disclosure**

Signatures:

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Date: 20/07/2023

Verified by :

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Snr Advisor

Date: 2023 07 20

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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-2023
	Coal	Tons	2 000 000	1 298 323
	Fuel Oil	Tons	1 700	1261.94

Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Indicative Production Rate Jun-2023
	Energy	GWh	2743.2	1 864.25
	Ash	Tons	770 000	483 105.8
	RE Ash	kg/MWh	Not Specified	0.37

2. ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.656 (Standard)	0.670
Ash Content	%	37.37 (Standard)	37.210

*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	SO ₂	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 Jun-2023	Technology Type	SO ₃ Utilization Jun-2023
Unit 1	<i>Electrostatic Precipitator (ESP)</i>	99.95%	SO ₃	86.0%
Unit 2	<i>Electrostatic Precipitator (ESP)</i>	99.72%	SO ₃	81.8%
Unit 3	<i>Electrostatic Precipitator (ESP)</i>	99.79%	SO ₃	96.6%
Unit 4	<i>Electrostatic Precipitator (ESP)</i>	99.86%	SO ₃	97.9%
Unit 5	<i>Electrostatic Precipitator (ESP)</i>	99.80%	SO ₃	86.8%
Unit 6	<i>Electrostatic Precipitator (ESP)</i>	99.86%	SO ₃	97.5%

Note: ESP plant does not have bypass mode operation, hence plant 100% Utilised.

5. MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO ₂	NO
Unit 1	99.2	99.7	99.9
Unit 2	95.1	99.6	100.0
Unit 3	99.2	99.7	100.0
Unit 4	98.3	100.0	100.0
Unit 5	99.0	100.0	100.0
Unit 6	99.9	99.9	100.0

Note: NOx emissions is measured as NO in PPM. Final NOx value is expressed as total NO₂

6. EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of June 2023 Before

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	44.2	2 929	1 643
Unit 2	85.9	1 183	538
Unit 3	170.4	3 476	1 554
Unit 4	92.8	2 584	1 213
Unit 5	176.3	3535	1329
Unit 6	120.2	3 631	1 675
SUM	689.8	17 339	7 953

Table 6.2: Operating days in compliance to PM AEL Limit - June 2023

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	25	2	0	0	2	31.2
Unit 2	7	2	0	0	2	146.7
Unit 3	22	5	0	0	5	104.7
Unit 4	22	3	0	0	3	72.1
Unit 5	22	7	0	1	8	97.1
Unit 6	27	3	0	0	3	62.7
SUM	125	22	0	1	23	

Table 6.3: Operating days in compliance to SO₂ AEL Limit - June 2023

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average SO ₂ (mg/Nm ³)
Unit 1	28	0	0	0	0	1 711.7
Unit 2	10	0	0	0	0	1 828.1
Unit 3	29	0	0	0	0	1 919.9
Unit 4	26	0	0	0	0	1 827.8
Unit 5	30	0	0	0	0	1 890.1
Unit 6	30	0	0	0	0	1 914.0
SUM	153	0	0	0	0	

Table 6.4: Operating days in compliance to NOx AEL Limit - June 2023

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average NOx (mg/Nm³)
Unit 1	28	0	0	0	0	932.3
Unit 2	10	0	0	0	0	830.8
Unit 3	29	0	0	0	0	854.2
Unit 4	26	0	0	0	0	849.4
Unit 5	30	0	0	0	0	709.3
Unit 6	30	0	0	0	0	880.7
SUM	153	0	0	0	0	

Note: NOx emissions is measured as NO in PPM. Final NOx value is expressed as total NO₂

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 - June 2023

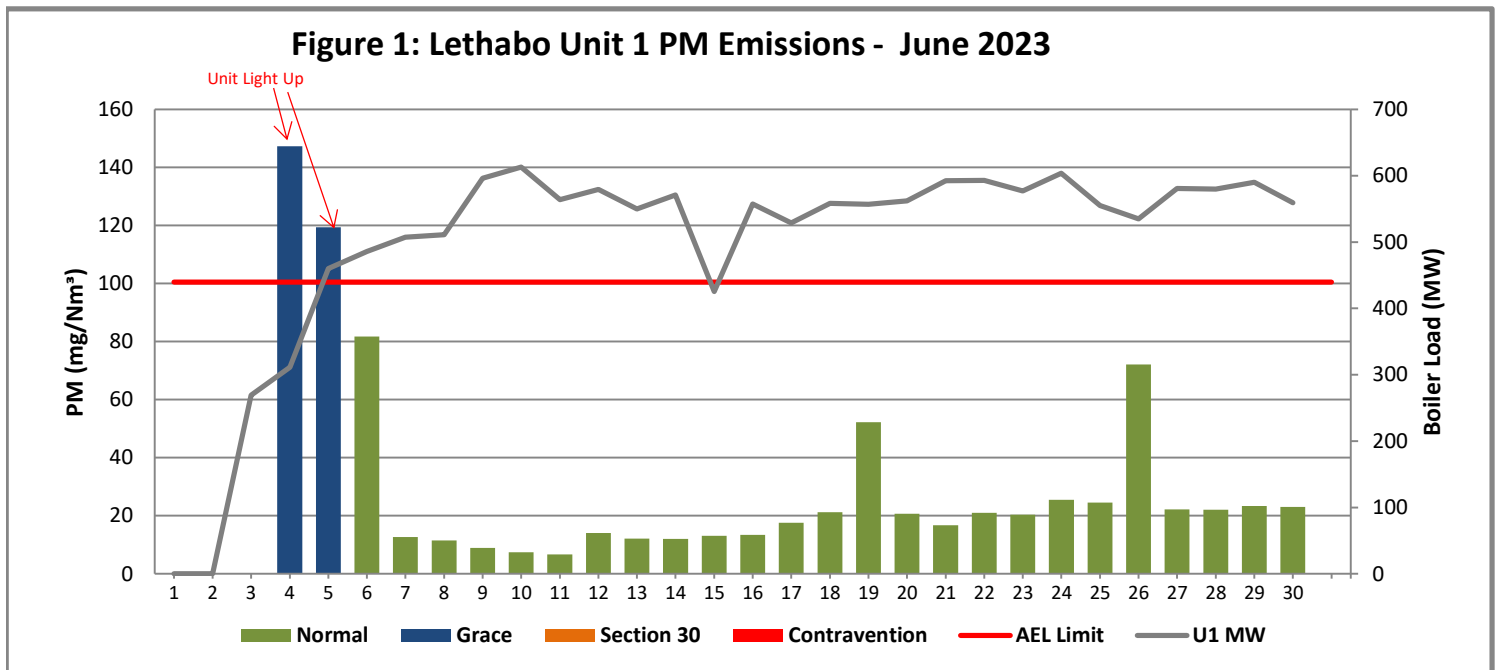


Figure 2: Lethabo Unit 2 PM Emissions - June 2023

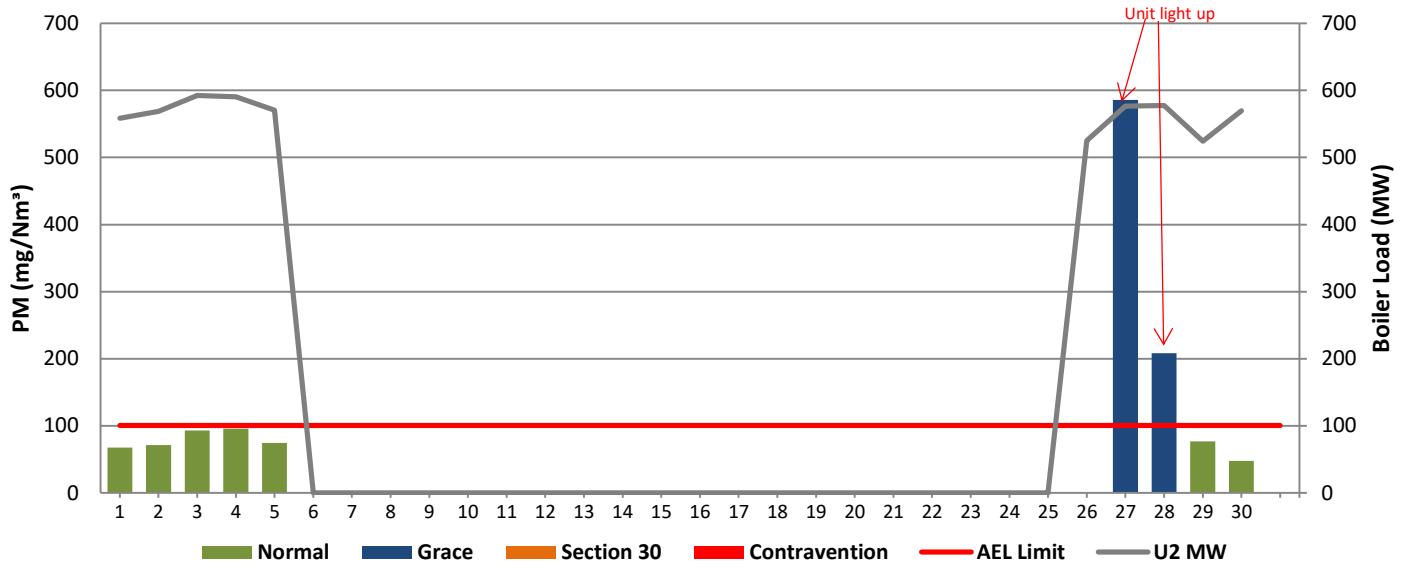


Figure 3: Lethabo Unit 3 PM Emissions - June 2023

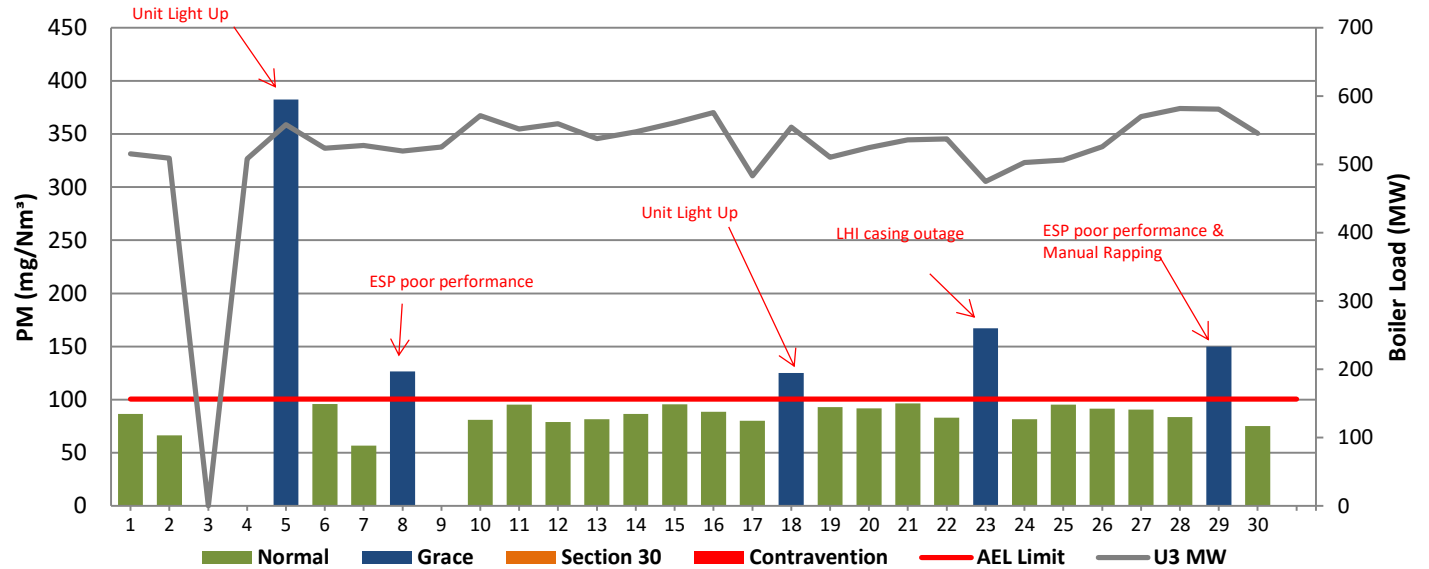


Figure 4: Lethabo Unit 4 PM Emissions - June 2023

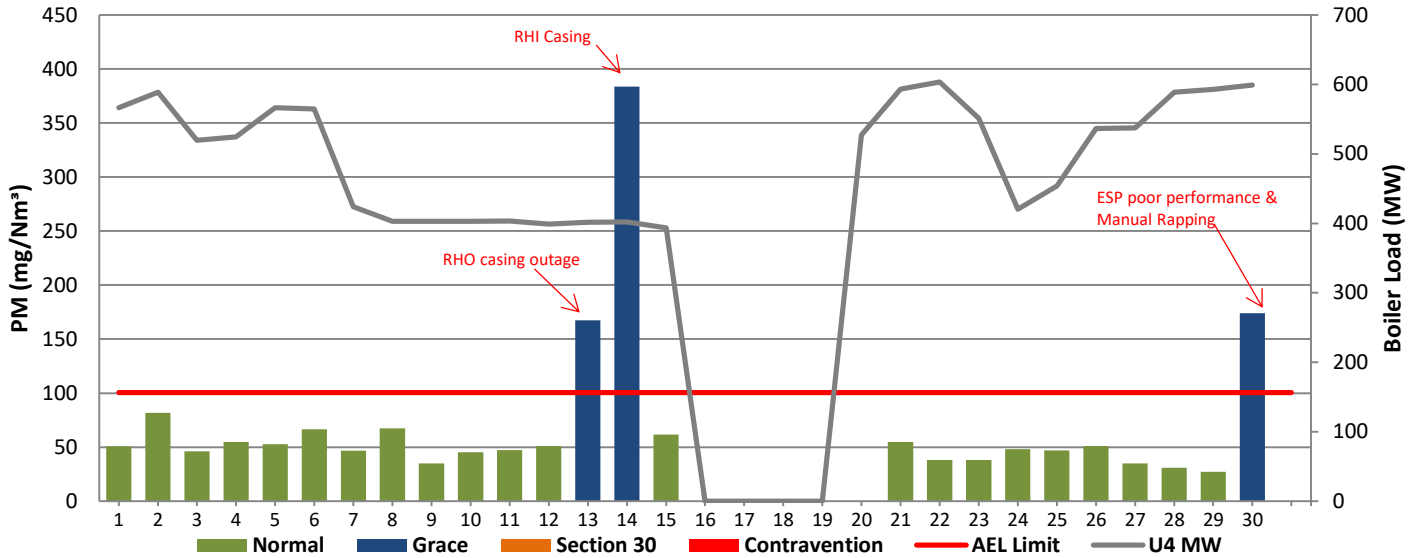


Figure 5: Lethabo Unit 5 PM Emissions - June 2023

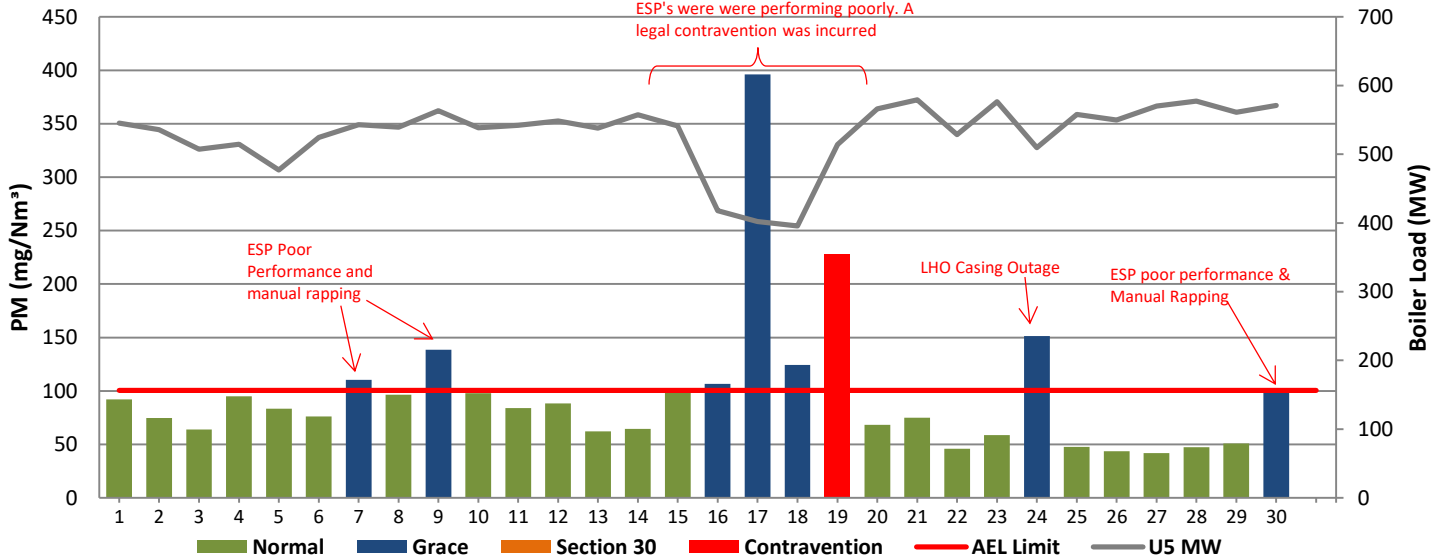


Figure 6: Lethabo Unit 6 PM Emissions - June 2023

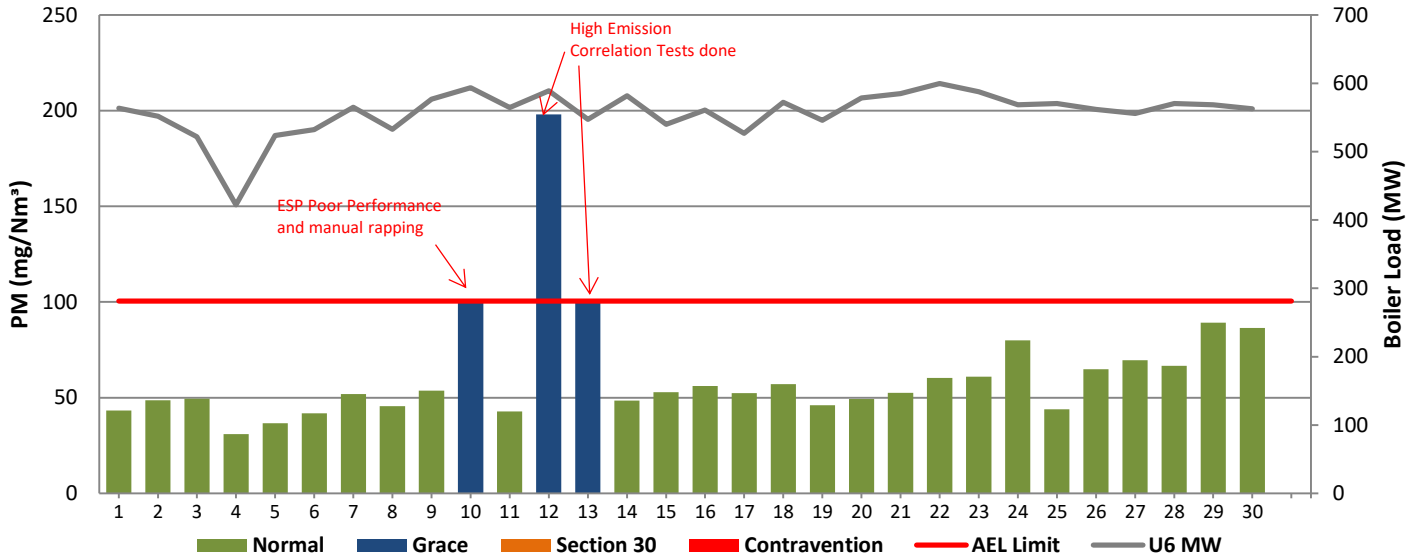


Figure 7: Lethabo Unit 1 SO₂ Emissions - June 2023

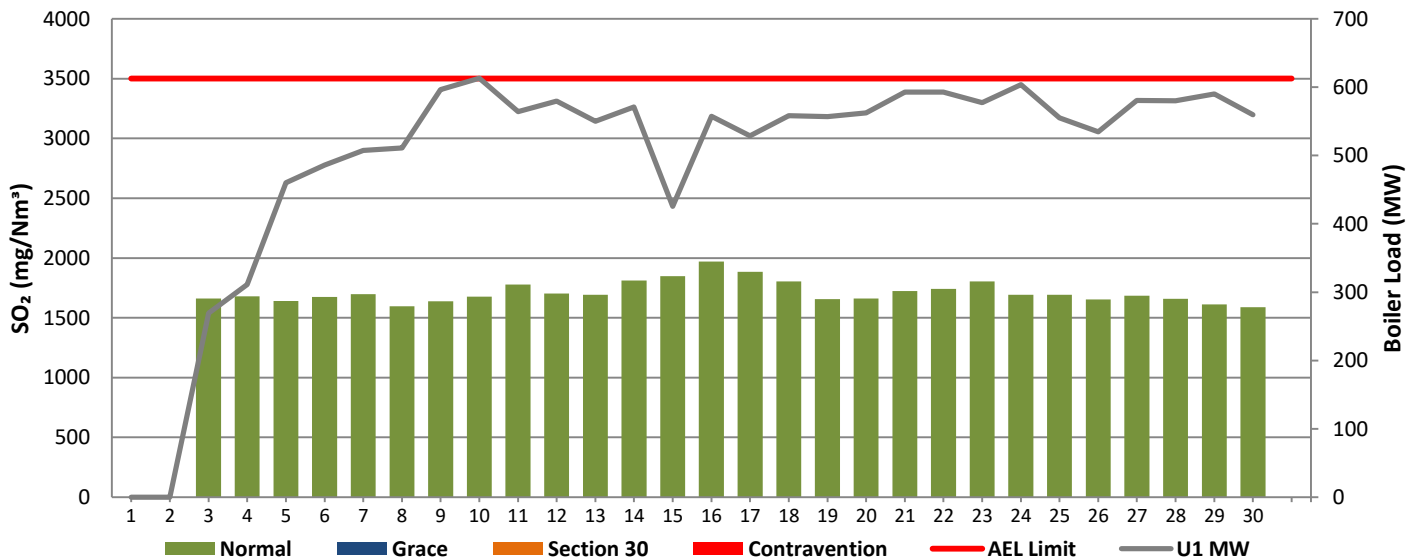


Figure 8: Lethabo Unit 2 SO₂ Emissions - June 2023

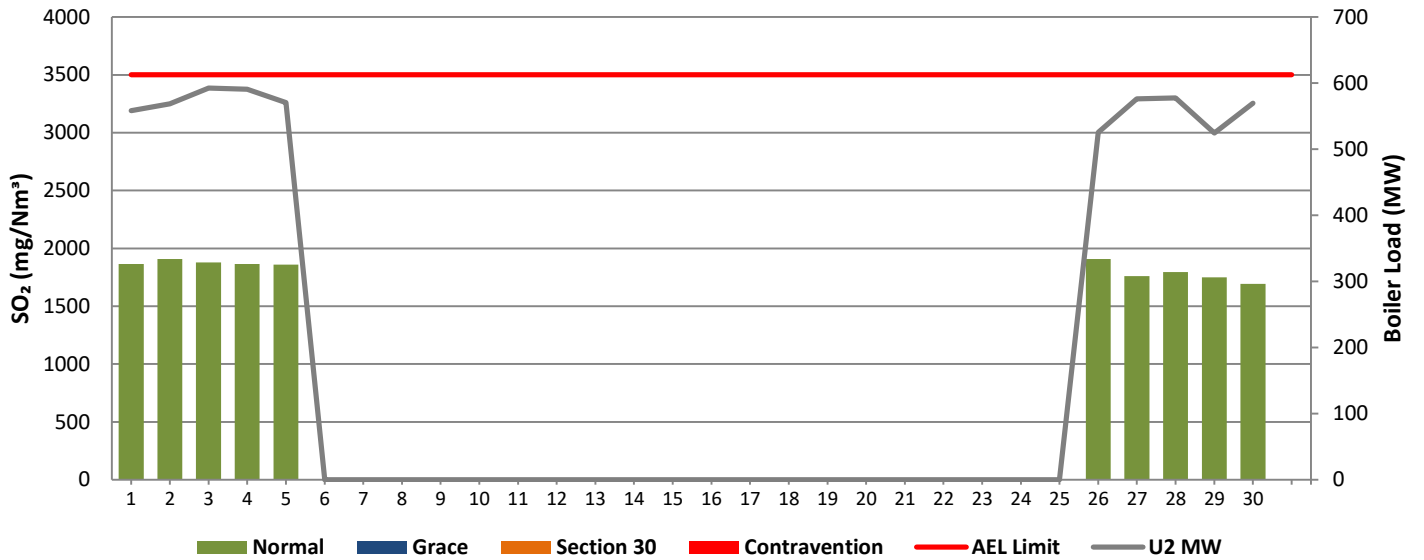


Figure 9: Lethabo Unit 3 SO₂ Emissions - June 2023

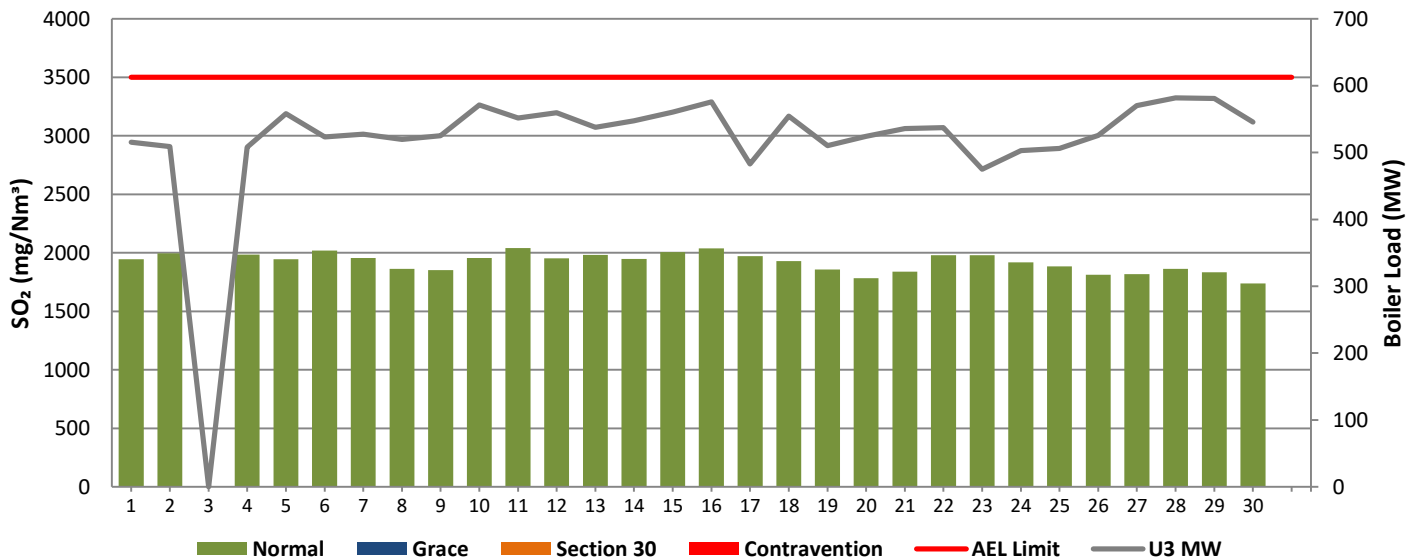


Figure 10: Lethabo Unit 4 SO₂ Emissions - June 2023

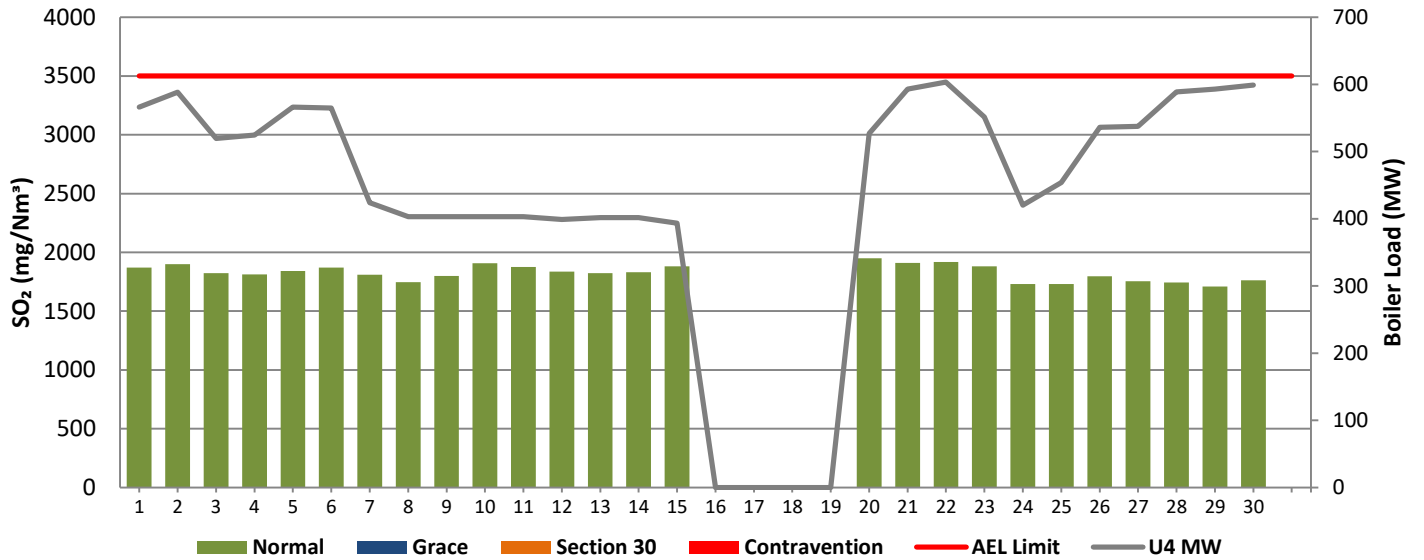


Figure 11: Lethabo Unit 5 SO₂ Emissions - June 2023

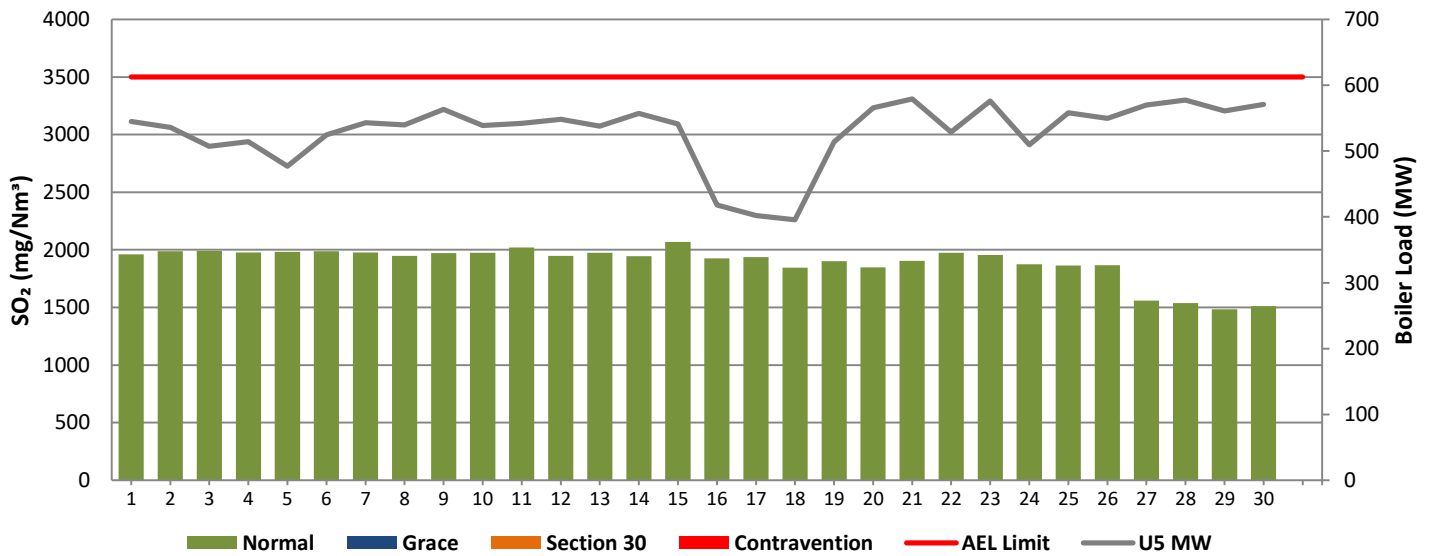


Figure 12: Lethabo Unit 6 SO₂ Emissions - June 2023

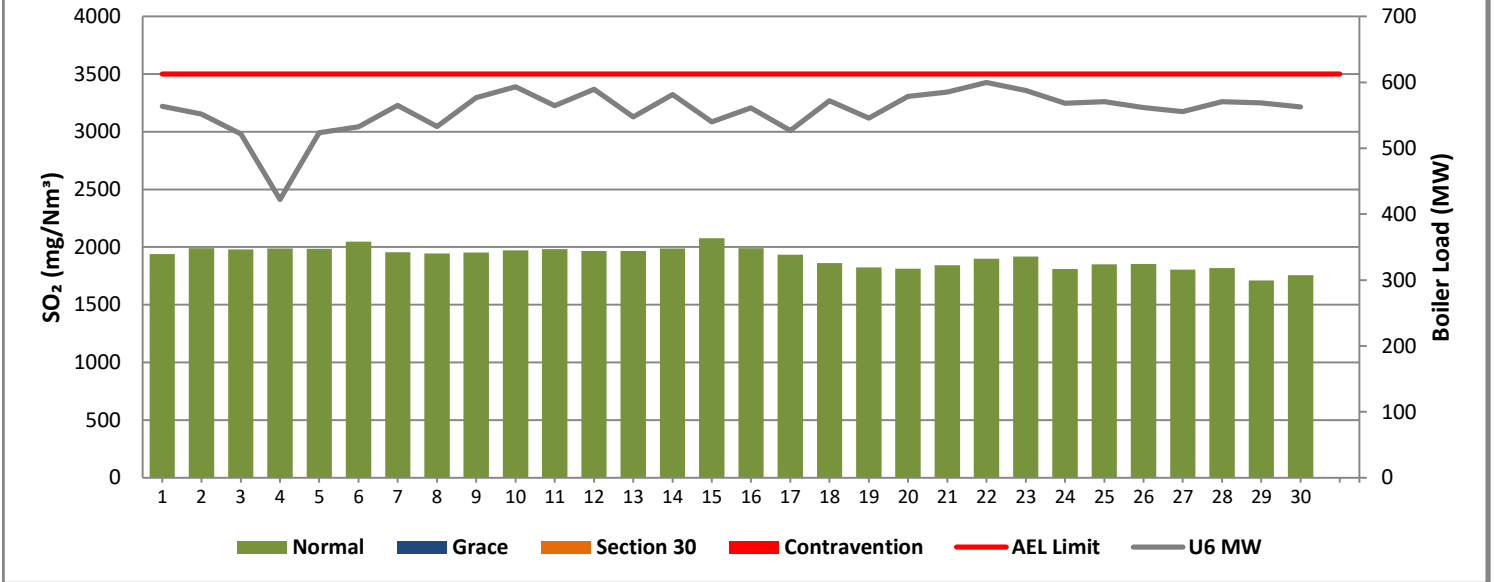


Figure 13: Lethabo Unit 1 NO_x Emissions - June 2023

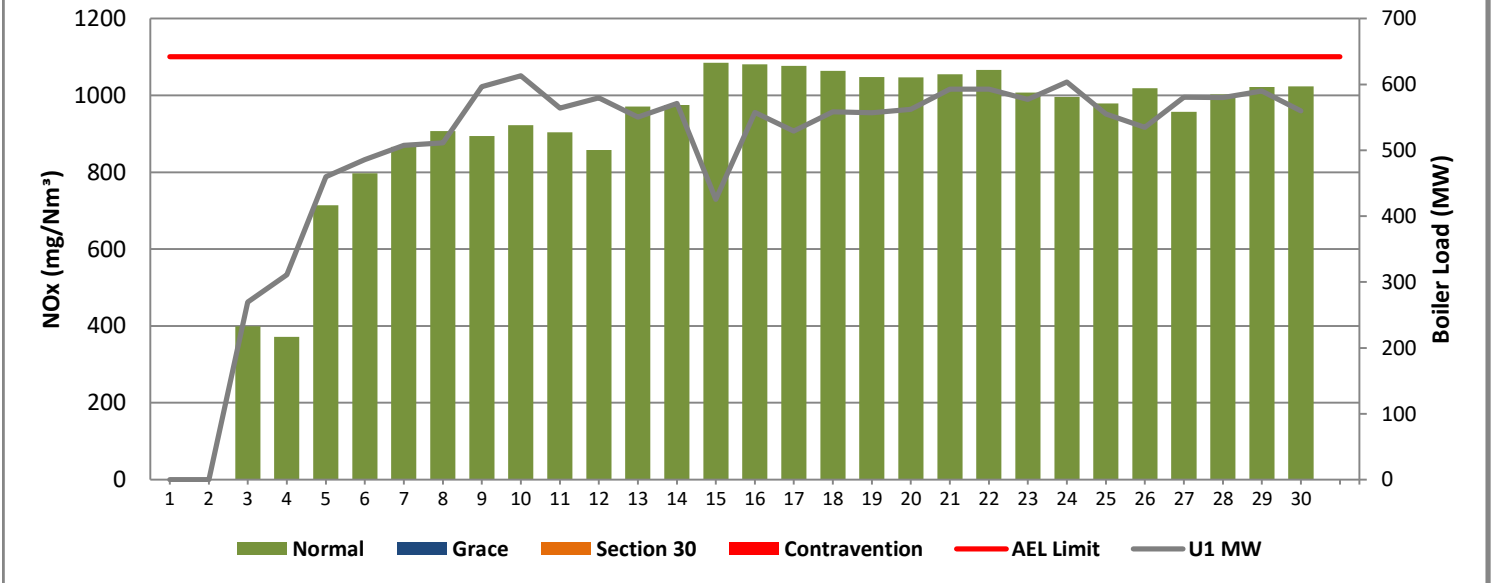


Figure 14: Lethabo Unit 2 NOx Emissions - June 2023

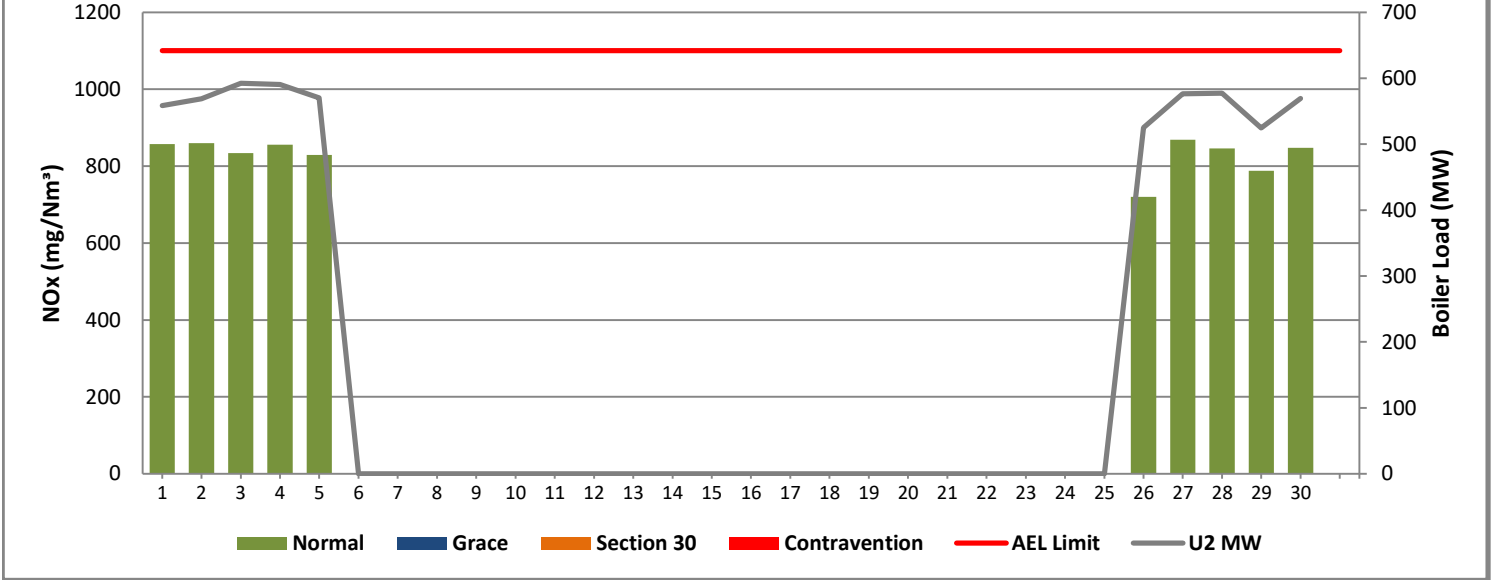


Figure 15: Lethabo Unit 3 NOx Emissions - June 2023

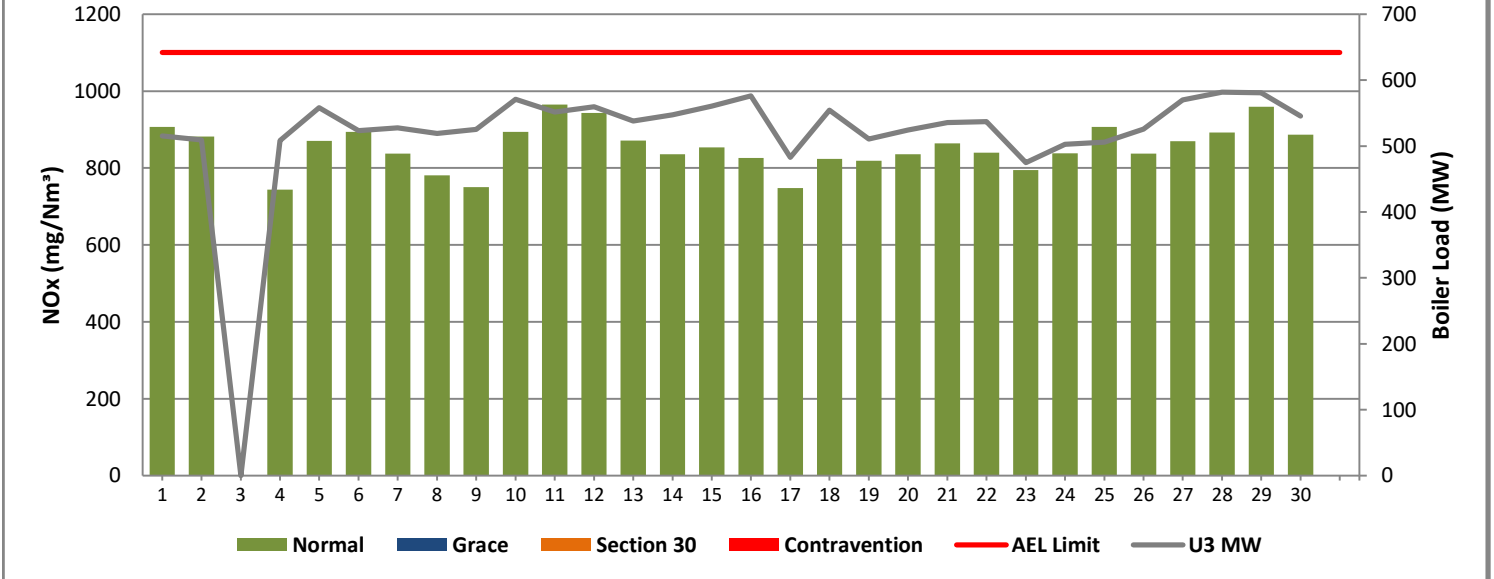


Figure 16: Lethabo Unit 4 NOx Emissions - June 2023

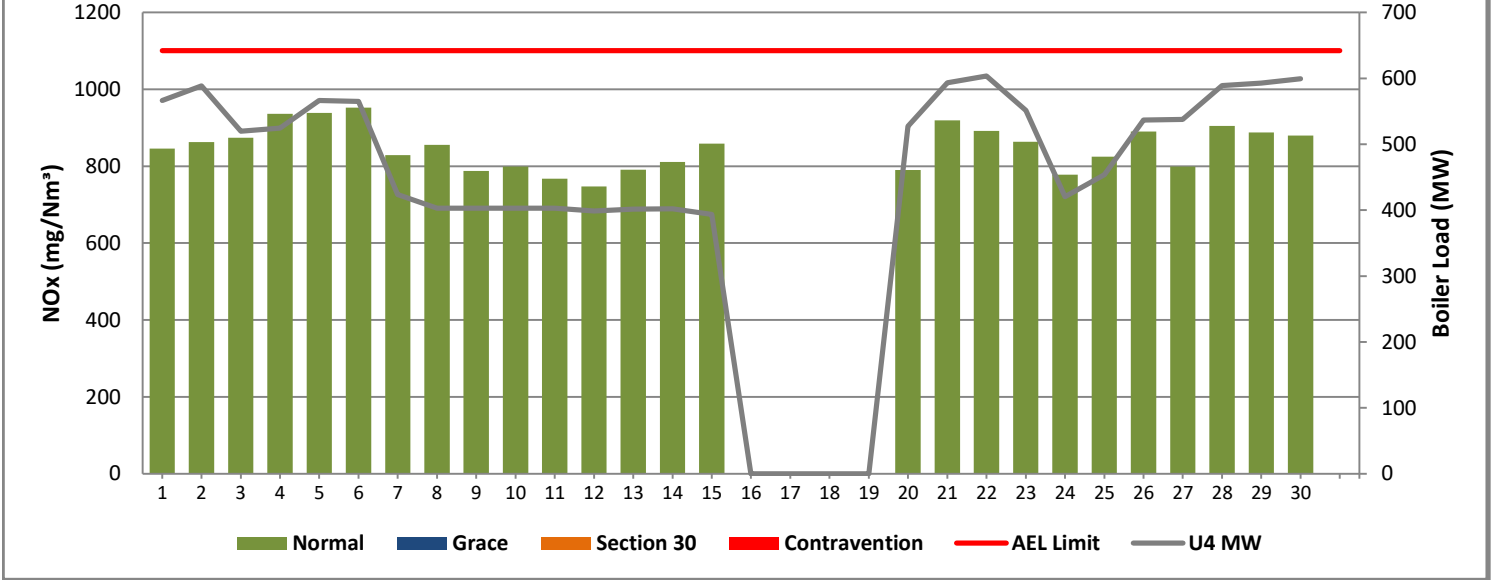


Figure 17: Lethabo Unit 5 NOx Emissions - June 2023

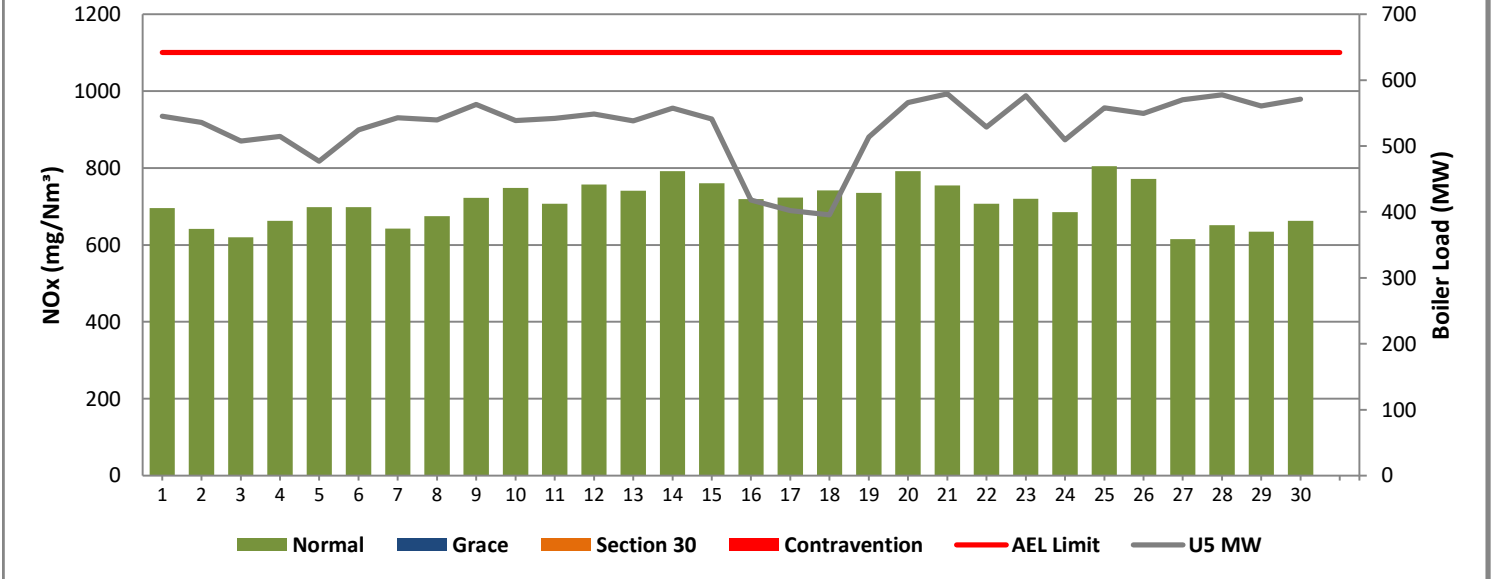
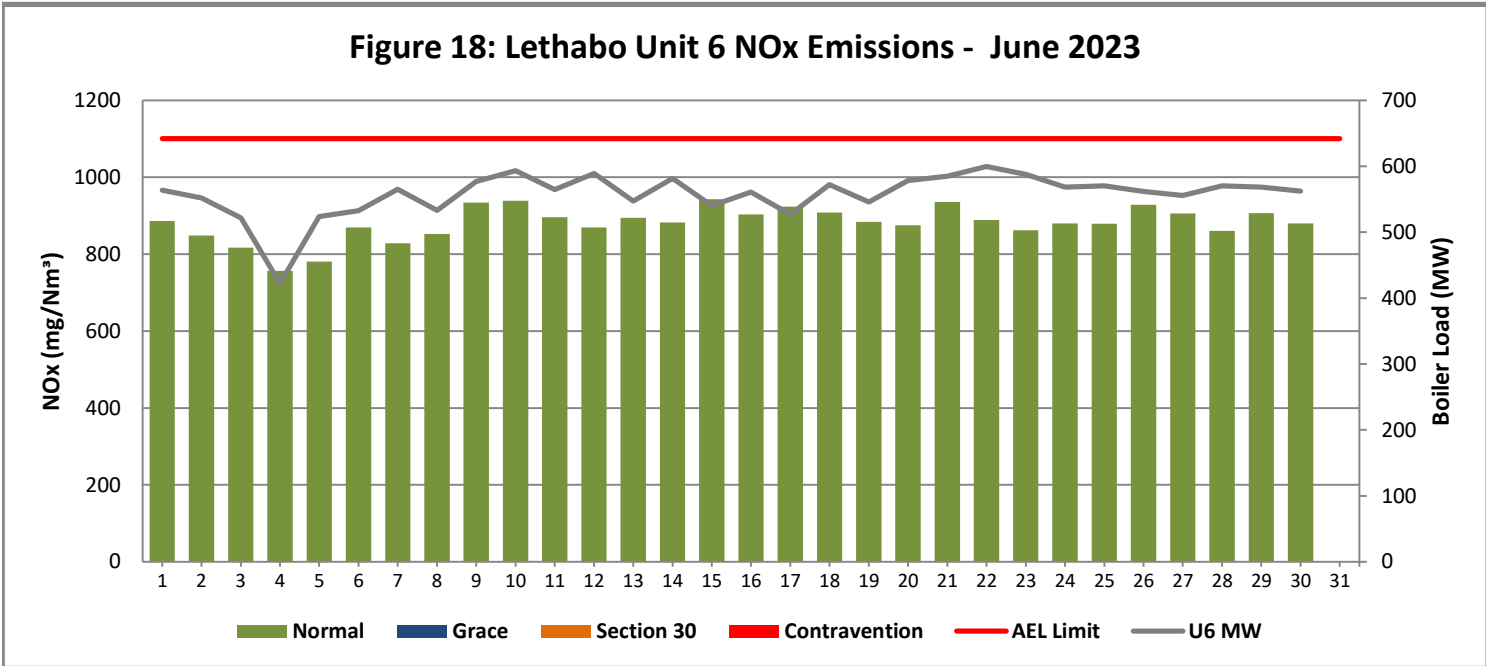


Figure 18: Lethabo Unit 6 NOx Emissions - June 2023



7 SHUT DOWN AND LIGHT UP INFORMATION

Table 7.1: PM Start-up information for the month of June 2023

Unit No.1	Outage IR		Top/bottom delta t's.		Top/bottom delta t's.			
Breaker Open (BO)			9:04 AM	2023/06/15	2:46 PM	2023/06/15		
Draught Group (DG) Shut Down (SD)			DG did not trip or SD	DG did not trip or SD	DG did not trip or SD	DG did not trip or SD		
BO to DG SD (duration)		DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM		DD:HH:MM
Fires in time	2:03 PM	2023/06/03						
Synch. to Grid (or BC)	5:10 PM	2023/06/03						
Fires in to BC (duration)	00:03:07	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	7:00 PM	2023/06/06						
Emissions below limit from BC (duration)	03:01:50	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM

Unit No.2	Unit 2 tripped on black furnace due to no oil burners available while deloading & H2 leak repairs on generator							
Breaker Open (BO)	9:56 PM	2023/06/05						
Draught Group (DG) Shut Down (SD)	4:09 PM	2023/06/06						
BO to DG SD (duration)	00:18:13	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	7:43 PM	2023/06/25						
Synch. to Grid (or BC)	12:33 AM	2023/06/26						
Fires in to BC (duration)	00:04:50	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	3:00 AM	2023/06/30						
Emissions below limit from BC (duration)	04:02:27	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM

Unit No.3	<i>Spray water repairs.</i>		<i>Leak on the main turbine FRF.</i>		<i>Unit 3 Islanded due to bus zone protection trip.</i>			
Breaker Open (BO)	<i>10:45 PM</i>	<i>2023/06/02</i>	<i>6:02 PM</i>	<i>2023/06/08</i>	<i>2:25 PM</i>	<i>2023/06/17</i>		
Draught Group (DG) Shut Down (SD)	<i>DG did not trip or SD</i>	<i>DG did not trip or SD</i>	<i>7:02 PM</i>	<i>2023/06/08</i>	<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>	<i>DD:HH:MM</i>	<i>00:01:00</i>	<i>DD:HH:MM</i>	<i>n/a</i>	<i>DD:HH:MM</i>		<i>DD:HH:MM</i>
Fires in time	<i>4:30 AM</i>	<i>2023/06/04</i>	<i>1:54 AM</i>	<i>2023/06/09</i>				
Synch. to Grid (or BC)	<i>7:05 AM</i>	<i>2023/06/04</i>	<i>3:13 AM</i>	<i>2023/06/09</i>				
Fires in to BC (duration)	<i>00:02:35</i>	<i>DD:HH:MM</i>	<i>00:01:19</i>	<i>DD:HH:MM</i>		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>
Emissions below limit from BC (end date)	<i>5:00 AM</i>	<i>2023/06/07</i>	<i>8:00 PM</i>	<i>2023/06/11</i>				
Emissions below limit from BC (duration)	<i>02:21:55</i>	<i>DD:HH:MM</i>	<i>02:16:47</i>	<i>DD:HH:MM</i>		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>

Unit No.4	<i>LP and HP turbine v/v water leak repairs.</i>							
Breaker Open (BO)	<i>11:45 PM</i>	<i>2023/06/15</i>						
Draught Group (DG) Shut Down (SD)	<i>5:03 AM</i>	<i>2023/06/16</i>						
BO to DG SD (duration)	<i>00:05:18</i>	<i>DD:HH:MM</i>		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>
Fires in time	<i>5:57 AM</i>	<i>2023/06/20</i>						
Synch. to Grid (or BC)	<i>6:53 AM</i>	<i>2023/06/20</i>						
Fires in to BC (duration)	<i>00:00:56</i>	<i>DD:HH:MM</i>		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>
Emissions below limit from BC (end date)	<i>2:00 AM</i>	<i>2023/06/22</i>						
Emissions below limit from BC (duration)	<i>01:19:07</i>	<i>DD:HH:MM</i>		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>

Unit No.5							
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.6	<i>Delta T's</i>					
Breaker Open (BO)	4:06 AM	2023/06/04				
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
Fires in time						
Synch. to Grid (or BC)						
Fires in to BC (duration)		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

7.2: Point Source emissions released during start-up (fires-in) and Shut-down (SD) for the month of June 2023 in mg/Nm³

8. MAINTENANCE

Unit 1				
Beginning of				
Reason for Maintenance				
End (Time):				
Duration				

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

Unit 3				
Beginning of	2023/06/23 00:40:00			
Reason for Maintenance	LHI Casing Outage			
End (Time):	2023/06/23 17:45:00			
Duration	17:05:00			

Unit 4				
Beginning of	2023/06/13 01:00	2023/06/14 00:40		
Reason for Maintenance	RHO Casing Outage	RHI Casing Outage		
End (Time):	2023/06/13 23:06	2023/06/15 03:15		
Duration	22:06:00	26:35:00		

Unit 5				
Beginning of	2023/06/24 03:02:00	2023/06/17 00:00		
Reason for Maintenance	LHO precip casing repairs.	LHI Casing Ouage		
End (Time):	2023/06/24 21:20:00	2023/06/18 00:26		
Duration	18:18:00	24:26:00		

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

9. GENERAL

Unit 2 Monitor Reliability

03/06/2023: PM Monitor Reliability low (79.2%) due to monitors reading maximum

27/06/2023: PM Monitor Reliability Low (76.9%) due to monitors reading maximum

Unit 4 Monitor Reliability

14/06/2023: PM Monitor Reliability low (79.2%) due to monitors reading maximum

Unit 5

The daily average emissions limit was exceeded from the 16th June 2023 at 23h59 to 19 June 2023 at 23h59, and the emission's exceedance for the period mentioned in the report was caused by the SO₃ plant taken off load for repairs and very poor ESP performance. A legal contravention was incurred as a result.

CO₂ and Velocity Monitors Low Reliability Units 1-6:

Due to correction of bad data as per internal emission data integrity review actions in 2021 and 2022. Bad Velocity data and Bad CO₂ data were corrected/removed as per the review actions and findings.

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.
5	16/06/2023	19/06/2023	SO3 Plant taken off load for repairs Very Poor ESP Performance	Repair SO3 and ESP defects, take production load losses.					Legal Contravention incurred

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-22	0.36	0.42	0.42	0.54	0.11	0.33	0.40
Aug-22	0.28	0.41	0.50	0.64	0.27	0.32	0.40
Sep-22	0.40	0.24	0.31	0.80	0.33	0.40	0.42
Oct-22	0.54	0.39	0.44	0.40	0.47	0.44	0.44
Nov-22	0.62	0.39	0.33	0.59	0.59	0.57	0.52
Dec-22	0.58	0.67	0.58	OFF	0.94	0.50	0.65
Jan-23	0.40	0.69	0.59	OFF	0.74	0.45	0.57
Feb-23	0.51	0.48	0.53	OFF	0.83	0.63	0.59
Mar-23	0.51	0.37	0.52	0.54	0.63	0.39	0.50
Apr-23	OFF	0.29	0.61	0.35	0.86	OFF	0.56
May-23	OFF	0.48	0.46	0.32	0.79	0.41	0.50
Jun-23	0.13	0.64	0.47	0.30	0.46	0.30	0.36

ADDENDUM TO MONTHLY EMISSIONS REPORT

12. DAILY EMISSIONS FIGURES

Final Dust Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
31-May	OFF	101	141	50	90	49	100
01-Jun	OFF	68	86	51	92	43	100
02-Jun	OFF	71	66	82	75	49	100
03-Jun	OFF	93	OFF	46	64	49	100
04-Jun	147	96	OFF	55	95	31	100
05-Jun	119	75	382	53	83	37	100
06-Jun	82	OFF	96	67	76	42	100
07-Jun	13	OFF	57	47	110	52	100
08-Jun	11	OFF	126	67	96	46	100
09-Jun	9	OFF	OFF	35	139	54	100
10-Jun	7	OFF	81	45	98	101	100
11-Jun	7	OFF	95	47	84	43	100
12-Jun	14	OFF	79	51	88	198	100
13-Jun	12	OFF	82	167	62	101	100
14-Jun	12	OFF	86	384	64	48	100
15-Jun	13	OFF	96	62	98	53	100
16-Jun	13	OFF	89	OFF	107	56	100
17-Jun	18	OFF	80	OFF	396	52	100
18-Jun	21	OFF	125	OFF	124	57	100
19-Jun	52	OFF	93	OFF	228	46	100
20-Jun	21	OFF	92	OFF	68	49	100
21-Jun	17	OFF	96	55	75	53	100
22-Jun	21	OFF	83	38	46	60	100
23-Jun	20	OFF	167	38	59	61	100
24-Jun	26	OFF	82	48	151	80	100
25-Jun	25	OFF	95	47	48	44	100
26-Jun	72	OFF	92	51	44	65	100
27-Jun	22	586	91	35	42	69	100
28-Jun	22	208	84	31	47	67	100
29-Jun	23	77	150	27	51	89	100
30-Jun	23	48	75	174	101	87	100

ADDENDUM TO MONTHLY EMISSIONS REPORT

Final SO_x Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
31-May	OFF	2122	2009	1952	2051	2094	3500
01-Jun	OFF	1865	1946	1872	1961	1940	3500
02-Jun	OFF	1909	1995	1899	1987	1991	3500
03-Jun	1661	1878	OFF	1825	1992	1979	3500
04-Jun	1680	1864	1984	1813	1978	1988	3500
05-Jun	1642	1861	1944	1841	1982	1986	3500
06-Jun	1675	OFF	2019	1871	1988	2047	3500
07-Jun	1699	OFF	1957	1809	1976	1956	3500
08-Jun	1597	OFF	1862	1747	1947	1945	3500
09-Jun	1637	OFF	1852	1800	1971	1952	3500
10-Jun	1677	OFF	1954	1907	1975	1972	3500
11-Jun	1778	OFF	2039	1876	2021	1981	3500
12-Jun	1703	OFF	1952	1837	1949	1967	3500
13-Jun	1693	OFF	1981	1823	1974	1966	3500
14-Jun	1813	OFF	1947	1832	1946	1988	3500
15-Jun	1849	OFF	2006	1882	2068	2076	3500
16-Jun	1969	OFF	2037	OFF	1926	1990	3500
17-Jun	1884	OFF	1972	OFF	1936	1933	3500
18-Jun	1803	OFF	1930	OFF	1846	1860	3500
19-Jun	1656	OFF	1857	OFF	1902	1824	3500
20-Jun	1663	OFF	1784	1951	1847	1813	3500
21-Jun	1724	OFF	1839	1910	1905	1843	3500
22-Jun	1741	OFF	1979	1917	1973	1899	3500
23-Jun	1803	OFF	1979	1880	1956	1919	3500
24-Jun	1693	OFF	1919	1730	1874	1810	3500
25-Jun	1692	OFF	1883	1732	1863	1850	3500
26-Jun	1652	1907	1812	1797	1868	1853	3500
27-Jun	1684	1760	1817	1755	1561	1806	3500
28-Jun	1658	1796	1864	1745	1539	1817	3500
29-Jun	1613	1749	1833	1709	1484	1710	3500
30-Jun	1588	1694	1737	1763	1511	1757	3500

ADDENDUM TO MONTHLY EMISSIONS REPORT

Final NOx Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
31-May	OFF	850	879	914	730	921	1100
01-Jun	OFF	857	907	845	696	887	1100
02-Jun	OFF	860	882	863	642	849	1100
03-Jun	399	834	OFF	874	620	817	1100
04-Jun	372	856	744	936	663	757	1100
05-Jun	714	829	870	939	698	781	1100
06-Jun	798	OFF	894	953	698	869	1100
07-Jun	866	OFF	837	829	643	829	1100
08-Jun	907	OFF	781	856	674	853	1100
09-Jun	894	OFF	750	787	722	934	1100
10-Jun	922	OFF	894	799	748	939	1100
11-Jun	904	OFF	965	768	707	896	1100
12-Jun	858	OFF	943	747	757	869	1100
13-Jun	971	OFF	871	790	741	895	1100
14-Jun	975	OFF	836	811	792	882	1100
15-Jun	1085	OFF	853	859	760	943	1100
16-Jun	1080	OFF	826	OFF	720	903	1100
17-Jun	1077	OFF	748	OFF	723	924	1100
18-Jun	1064	OFF	824	OFF	742	908	1100
19-Jun	1047	OFF	819	OFF	736	884	1100
20-Jun	1046	OFF	836	790	792	875	1100
21-Jun	1055	OFF	864	919	755	935	1100
22-Jun	1066	OFF	840	892	707	889	1100
23-Jun	1007	OFF	795	863	720	862	1100
24-Jun	996	OFF	838	778	685	880	1100
25-Jun	979	OFF	907	825	805	880	1100
26-Jun	1018	720	838	890	772	928	1100
27-Jun	958	869	870	799	615	906	1100
28-Jun	1002	846	892	905	651	861	1100
29-Jun	1022	788	959	888	634	907	1100
30-Jun	1023	848	886	879	662	880	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-22	99.37%	0.8	98.80%	1.5	100.00%	0.0	97.23%	3.4	100.00%	0.0	100.00%	0.0
Aug-22	99.42%	0.7	98.67%	1.6	100.00%	0.0	99.32%	0.8	100.00%	0.0	100.00%	0.0
Sep-22	98.86%	1.4	100.00%	0.0	100.00%	0.0	99.27%	0.9	98.44%	1.9	99.20%	1.0
Oct-22	98.80%	1.5	98.86%	1.4	100.00%	0.0	100.00%	0.0	99.24%	0.9	100.00%	0.0
Nov-22	99.29%	0.9	100.00%	0.0	100.00%	0.0	100.00%	0.0	98.86%	1.4	98.56%	1.7
Dec-22	99.29%	0.9	98.58%	1.8	98.66%	1.7	OFF	OFF	99.36%	0.8	98.46%	1.9
Jan-23	98.91%	1.3	99.90%	0.1	97.59%	3.0	OFF	OFF	99.23%	1.0	98.42%	2.0
Feb-23	99.19%	0.9	100.00%	0.0	96.88%	3.5	OFF	OFF	100.00%	0.0	99.16%	0.9
Mar-23	99.30%	0.9	99.19%	1.0	99.22%	1.0	100.00%	0.0	98.57%	1.8	99.19%	1.0
Apr-23	OFF	OFF	100.00%	0.0	97.91%	2.5	100.00%	0.0	99.24%	0.9	OFF	OFF
May-23	OFF	OFF	98.56%	1.8	99.36%	0.8	100.00%	0.0	96.91%	3.8	100.00%	0.0
Jun-23	100.00%	0.0	100.00%	0.0	99.41%	0.7	98.31%	2.0	98.52%	1.8	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
Jul-22	100.00%	0.0	100.00%	0.0	100.00%	0.0	100.00%	0.0	86.67%	4.0	98.61%	0.4
Aug-22	98.52%	0.5	100.00%	0.0	96.51%	1.1	65.19%	10.8	99.33%	0.2	100.00%	0.0
Sep-22	100.00%	0.0	99.58%	0.1	100.00%	0.0	94.27%	1.7	97.92%	0.6	100.00%	0.0
Oct-22	89.39%	3.3	100.00%	0.0	82.41%	5.5	99.73%	0.1	79.69%	6.3	100.00%	0.0
Nov-22	100.00%	0.0	100.00%	0.0	97.21%	0.8	88.86%	3.3	100.00%	0.0	100.00%	0.0
Dec-22	85.12%	4.6	98.28%	0.5	99.88%	0.0	OFF	OFF	62.90%	11.5	100.00%	0.0
Jan-23	90.05%	3.1	93.82%	1.9	100.00%	0.0	OFF	OFF	91.52%	2.6	100.00%	0.0
Feb-23	89.39%	3.0	100.00%	0.0	82.41%	4.9	OFF	OFF	79.69%	5.7	100.00%	0.0
Mar-23	100.00%	0.0	98.89%	0.3	95.16%	1.5	95.50%	1.4	99.33%	0.2	95.00%	1.6
Apr-23	OFF	OFF	99.66%	0.1	100.00%	0.0	98.93%	0.3	94.58%	1.6	OFF	OFF
May-23	OFF	OFF	100.00%	0.0	99.89%	0.0	99.33%	0.2	100.00%	0.0	90.67%	2.9
Jun-23	85.96%	4.2	81.82%	5.5	96.56%	1.0	97.86%	0.6	86.81%	4.0	97.50%	0.8

ADDENDUM TO MONTHLY EMISSIONS REPORT

Particulate Emission Monitors

Availability						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Jul-22	98.92%	98.75%	100.00%	91.10%	100.00%	97.54%
Aug-22	99.85%	96.77%	100.00%	96.24%	98.61%	100.00%
Sep-22	98.69%	100.00%	92.89%	96.01%	99.31%	99.17%
Oct-22	96.61%	97.27%	99.38%	100.00%	95.14%	98.66%
Nov-22	94.72%	95.66%	97.08%	98.85%	98.92%	97.64%
Dec-22	99.09%	93.78%	98.73%	OFF	67.20%	98.66%
Jan-23	99.46%	90.07%	98.79%	OFF	96.28%	98.39%
Feb-23	99.11%	96.87%	98.72%	OFF	93.83%	96.29%
Mar-23	99.68%	98.75%	99.06%	97.17%	97.33%	99.12%
Apr-23	OFF	99.43%	98.61%	99.57%	94.31%	OFF
May-23	OFF	97.07%	99.85%	99.46%	95.56%	99.50%
Jun-23	99.23%	95.11%	99.19%	98.33%	99.03%	99.86%

Gaseous Emission Monitors

Availability												
	Unit 1		Unit 2		Unit 3		Unit 4		Unit 5		Unit 6	
Month	SO _x	NO _x	SO _x	NO _x	SO _x	NO _x	SO _x	NO _x	SO _x	NO _x	SO _x	NO _x
Jul-22	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	99.87%	100.00%	100.00%	100.00%	98.96%	98.81%
Aug-22	100.00%	100.00%	100.00%	100.00%	99.83%	99.83%	99.87%	99.73%	99.70%	99.57%	99.60%	99.73%
Sep-22	100.00%	100.00%	100.00%	100.00%	99.62%	100.00%	93.83%	93.83%	94.86%	94.86%	94.86%	94.86%
Oct-22	98.95%	78.72%	99.87%	100.00%	99.86%	99.86%	100.00%	100.00%	99.86%	99.86%	99.87%	99.87%
Nov-22	99.86%	99.86%	99.72%	99.86%	99.81%	99.81%	100.00%	100.00%	99.72%	99.72%	99.44%	99.44%
Dec-22	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	OFF	OFF	100.00%	99.87%	99.87%	100.00%
Jan-23	97.85%	97.85%	99.69%	99.69%	100.00%	100.00%	OFF	OFF	99.85%	99.85%	99.60%	99.60%
Feb-23	99.85%	99.85%	100.00%	100.00%	100.00%	100.00%	OFF	OFF	100.00%	99.28%	100.00%	100.00%
Mar-23	100.00%	100.00%	100.00%	100.00%	99.87%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Apr-23	OFF	OFF	100.00%	100.00%	99.86%	99.86%	99.95%	99.95%	100.00%	100.00%	OFF	OFF
May-23	OFF	OFF	100.00%	100.00%	100.00%	100.00%	99.60%	99.87%	99.73%	99.87%	99.52%	99.68%
Jun-23	99.70%	99.85%	99.58%	100.00%	99.71%	100.00%	100.00%	100.00%	100.00%	100.00%	99.86%	100.00%

Oxygen Monitor Availability						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Jul-22	99.87%	99.87%	99.46%	99.87%	100.00%	98.96%
Aug-22	99.73%	99.60%	99.67%	99.73%	99.40%	99.60%
Sep-22	99.72%	99.71%	99.62%	93.67%	94.72%	94.44%
Oct-22	99.27%	99.87%	99.57%	99.73%	99.72%	99.60%
Nov-22	99.72%	99.72%	99.62%	98.82%	99.44%	99.58%
Dec-22	99.65%	99.72%	99.72%	OFF	99.87%	99.87%
Jan-23	97.45%	99.04%	99.87%	OFF	99.70%	99.73%
Feb-23	100.00%	100.00%	100.00%	OFF	99.51%	100.00%
Mar-23	100.00%	100.00%	100.00%	86.16%	99.87%	99.81%
Apr-23	OFF	99.83%	99.86%	99.83%	99.86%	OFF
May-23	OFF	100.00%	100.00%	100.00%	99.87%	99.84%
Jun-23	100.00%	99.55%	99.86%	99.68%	100.00%	100.00%

ADDENDUM TO MONTHLY EMISSIONS REPORT

14. EFFICIENCY

ESP Efficiency (%)						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Jul-22	99.857%	99.812%	99.818%	99.768%	99.955%	99.850%
Aug-22	99.881%	99.804%	99.768%	99.708%	99.873%	99.846%
Sep-22	99.834%	99.888%	99.868%	99.660%	99.857%	99.815%
Oct-22	99.772%	99.814%	99.807%	99.826%	99.795%	99.796%
Nov-22	99.761%	99.828%	99.859%	99.769%	99.752%	99.756%
Dec-22	99.788%	99.724%	99.768%	OFF	99.637%	99.799%
Jan-23	99.848%	99.709%	99.766%	OFF	99.702%	99.813%
Feb-23	99.808%	99.800%	99.785%	OFF	99.669%	99.733%
Mar-23	99.797%	99.858%	99.780%	99.780%	99.745%	99.831%
Apr-23	OFF	99.893%	99.731%	99.854%	99.646%	OFF
May-23	OFF	99.812%	99.802%	99.868%	99.667%	99.822%
Jun-23	99.948%	99.717%	99.787%	99.864%	99.796%	99.858%

15. REMARKS

UNIT	MWLOSS	REASON	ACTUALSTARTDATE	ACTUALENDDATE
1	593	System Generated Slip Event linked to PCLF Event : 1795947	2023/06/01 00:00:00	2023/06/03 17:10:00
1	297	System Generated Ramp Event for Event id : 1795918 First Outage	2023/06/03 17:10:00	2023/06/03 18:40:00
1	297	System Generated Ramp Event for Event id : 1795947	2023/06/03 18:40:00	2023/06/03 20:10:00
1	593	Top/bottom delta t's.	2023/06/15 09:04:00	2023/06/15 10:48:00
1	297	System Generated Ramp Event for Event id : 1826474	2023/06/15 10:48:00	2023/06/15 12:18:00
1	593	Top/bottom delta t's.	2023/06/15 14:46:00	2023/06/15 18:50:00
1	297	System Generated Ramp Event for Event id : 1826536	2023/06/15 18:50:00	2023/06/15 20:20:00
2	84	Manual rapping	2023/06/01 00:00:00	2023/06/01 00:54:00
2	593	Unit 2 tripped on black furnace due to no oil burners available while deloading	2023/06/05 21:56:00	2023/06/06 00:00:00
2	593	H2 leak repairs on generator	2023/06/06 00:00:00	2023/06/26 00:33:00
2	297	System Generated Ramp Event for Event id : 1823307 First Outage	2023/06/26 00:33:00	2023/06/26 02:03:00
2	297	System Generated Ramp Event for Event id : 1823391	2023/06/26 02:03:00	2023/06/26 03:33:00
2	118	High stack emissions.	2023/06/29 09:06:00	2023/06/29 17:00:00
2	68	High stack emissions.	2023/06/29 17:00:00	2023/06/29 18:00:00
3	593	Spray water repairs.	2023/06/02 22:45:00	2023/06/04 07:05:00
3	296	System Generated Ramp Event for Event id : 1822283	2023/06/04 07:05:00	2023/06/04 09:35:00
3	100	EF: High stack emissions	2023/06/06 19:43:00	2023/06/07 00:04:00
3	593	Leak on the main turbine FRF.	2023/06/08 18:02:00	2023/06/09 03:13:00
3	296	System Generated Ramp Event for Event id : 1824543	2023/06/09 03:13:00	2023/06/09 05:43:00
3	18	High furnace pressure.	2023/06/09 12:15:00	2023/06/17 14:25:00
3	93	High stack emissions.	2023/06/11 19:28:00	2023/06/12 01:43:00
3	593	Unit 3 Islanded due to bus zone protection trip.	2023/06/17 14:25:00	2023/06/17 15:27:00
3	297	System Generated Ramp Event for Event id : 1827105	2023/06/17 15:27:00	2023/06/17 16:57:00
3	18	High furnace pressure.	2023/06/17 16:57:00	2023/06/30 23:59:59
3	150	EF: High stack emissions	2023/06/19 10:54:00	2023/06/19 17:21:00
3	96	High stack emissions.	2023/06/19 20:04:00	2023/06/20 02:30:00
3	98	High stack emissions	2023/06/20 12:31:00	2023/06/20 16:55:00
3	148	High stack emissions.	2023/06/20 18:33:00	2023/06/21 00:05:00
3	150	High stack emissions.	2023/06/21 20:18:00	2023/06/21 23:10:00
3	97	High stack emissions	2023/06/25 20:12:00	2023/06/26 00:08:00
3	97	EF: High stack emissions	2023/06/26 10:42:00	2023/06/26 16:33:00
4	593	LP and HP turbine v/v water leak repairs.	2023/06/15 23:45:00	2023/06/20 06:53:00
4	297	System Generated Ramp Event for Event id : 1826655	2023/06/20 06:53:00	2023/06/20 09:53:00
5	87	EF: High stack emissions	2023/06/04 19:28:00	2023/06/04 21:37:00
5	187	EF: High stack emissions	2023/06/04 21:37:00	2023/06/05 00:09:00
5	188	High stack emissions.	2023/06/10 19:51:00	2023/06/11 02:25:00
5	200	S03 plant repairs.	2023/06/16 04:32:00	2023/06/19 04:29:00
5	18	High stack emissions	2023/06/18 16:17:00	2023/06/19 00:00:00
5	100	High stack emissions.	2023/06/19 19:32:00	2023/06/19 20:00:00
5	100	manual rapping.	2023/06/19 21:04:00	2023/06/19 23:09:00
5	100	LHO precip casing repairs.	2023/06/24 03:02:00	2023/06/24 21:20:00
6	593	Delta T's	2023/06/04 04:06:00	2023/06/04 06:03:00
6	297	System Generated Ramp Event for Event id : 1822675	2023/06/04 06:03:00	2023/06/04 07:33:00
6	115	High emissions and velocity test.	2023/06/15 21:39:00	2023/06/16 04:19:00
6	215	High Emissions and velocity Tests	2023/06/16 21:56:00	2023/06/17 03:55:00

PM Exceedances		
U1.	Unit synchronised on Saturday, 2023/06/03 and need to be below the limit on Tuesday, 2023/06/06 at 17h11 8 and remain below the limit until at least 2023/06/07 @ 23:59	03-Jun
U1.	Unit Light Up	04-Jun
U1.	Unit Light Up	05-Jun
U2.	Unit synchronised on Monday, 2023/06/26 @ 00:33, emissions to be below the limit by Thursday, 2023/06/29 @ 00:33 and remain below the limit until at least Friday, 2023/06/20 @ 23:59	27-Jun
U2.	Unit synchronised on Monday, 2023/06/26 @ 00:33, emissions to be below the limit by Thursday, 2023/06/29 @ 00:33 and remain below the limit until at least Friday, 2023/06/20 @ 23:59	28-Jun
U3.	Unit synchronised on Sunday, 2023/06/04 at 07h00 and has to be below by Wednesday, 2023/06/07 and remain below the limit until at least Thursday, 2023/06/08 @ 23:59	04-Jun
U3.	Unit Light up	05-Jun
U3.	ESP Poor Performance	08-Jun
U3.	Unit synchronised on Saturday, 2023/06/17 @ 15:27, emissions to be below the limit by Monday, 2023/06/19 @ 15:27 and remain below the limit until at least Tuesday, 2023/06/20 @ 23:59	18-Jun
U3.	LHI casing opportunity outage	23-Jun
U3.	Manual rapping routine carried out.	29-Jun
U4.	ESP Poor Performance RHO Casing outage	13-Jun
U4.	ESP Poor Performance RHI Casing Outage High Hopper Levels	14-Jun
U5.	ESP Poor Performance and Manual Rapping	07-Jun
U5.	ESP Poor Performance and Manual rapping	09-Jun
U5.	SO3 Plant taken off load for repairs Very Poor ESP Poerformance	16-Jun
U5.	LHI Casing Outage SO3 Plant taken off load for repairs Very Poor ESP Poerformance	17-Jun
U5.	SO3 Plant taken off load for repairs Very Poor ESP Poerformance	18-Jun
U5.	SO plant in service at 14:30 ESP poor Performance Legal Contravention Reported	19-Jun
U5.	LHO casing opportunity outage	24-Jun
U6.	ESP Poor Performance and manual rapping	10-Jun
U6.	High Emission Correlation tests done	12-Jun
U6.	High Emission Correlation tests done	13-Jun