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Date:  
30 October 2023

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**Ref: LRP01PLA111 \_0331/20231010**

Dear Mr. Sibaya

**LETHABO POWER STATION EMISSION MONTHLY REPORT FOR SEPTEMBER 2023**

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

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

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

Yours sincerely



Karabo Rakgolela  
**GENERAL MANAGER**



Report

Lethabo Power Station

Report name: **Lethabo Power Station  
September 2023  
Emission Report**

Reference number: **LRP01PLA111\_0331/20231010**  
Document Type: **Report**  
Area of Applicability: **Environment**  
Report Date: **October-2023**  
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 Sep-2023
	Coal	Tons	2 000 000	1 464 431
	Fuel Oil	Tons	1 700	749.3
Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Indicative Production Rate Sep-2023
	Energy	GWh	2743.2	2 061.00
	Ash	Tons	770 000	544 914.8
	RE Ash	kg/MWh	<i>Not Specified</i>	0.39

**2. ENERGY SOURCE CHARACTERISTICS**

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.656 (Standard)	0.640
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/Nm<sup>3</sup>)

Associated Unit/Stack	PM	SO <sub>2</sub>	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 Sep-2023	Technology Type	SO <sub>3</sub> Utilization Sep-2023
Unit 1	<i>Electrostatic Precipitator (ESP)</i>	99.90%	SO <sub>3</sub>	100.0%
Unit 2	<i>Electrostatic Precipitator (ESP)</i>	99.87%	SO <sub>3</sub>	98.2%
Unit 3	<i>Electrostatic Precipitator (ESP)</i>	99.79%	SO <sub>3</sub>	98.8%
Unit 4	<i>Electrostatic Precipitator (ESP)</i>	99.82%	SO <sub>3</sub>	99.7%
Unit 5	<i>Electrostatic Precipitator (ESP)</i>	99.86%	SO <sub>3</sub>	99.6%
Unit 6	<i>Electrostatic Precipitator (ESP)</i>	99.77%	SO <sub>3</sub>	95.8%

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

### 5. MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO <sub>2</sub>	NO
Unit 1	99.4	100.0	100.0
Unit 2	98.6	100.0	100.0
Unit 3	98.9	100.0	100.0
Unit 4	99.0	100.0	100.0
Unit 5	98.0	100.0	100.0
Unit 6	98.0	99.9	99.9

Note: NOx emissions is measured as NO in PPM. Final NOx value is expressed as total NO<sub>2</sub>

## 6. EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of September 2023

Associated Unit/Stack	PM (tons)	SO <sub>2</sub> (tons)	NO <sub>x</sub> (tons)
Unit 1	97.0	3 122	1 824
Unit 2	111.0	2 774	1 249
Unit 3	161.0	3 147	1 479
Unit 4	143.4	2 790	1 728
Unit 5	120.3	3166	1259
Unit 6	161.2	2 912	1 373
<b>SUM</b>	<b>793.8</b>	<b>17 910</b>	<b>8 912</b>

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

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average PM (mg/Nm <sup>3</sup> )
Unit 1	28	2	0	0	2	49.1
Unit 2	28	2	0	0	2	65.4
Unit 3	24	6	0	0	6	87.7
Unit 4	27	3	0	0	3	80.3
Unit 5	24	6	0	0	6	70.2
Unit 6	20	6	0	0	6	111.8
<b>SUM</b>	<b>151</b>	<b>25</b>	<b>0</b>	<b>0</b>	<b>25</b>	

Table 6.3: Operating days in compliance to SO<sub>2</sub> AEL Limit - September 2023

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average SO <sub>2</sub> (mg/Nm <sup>3</sup> )
Unit 1	30	0	0	0	0	1 592.5
Unit 2	30	0	0	0	0	1 683.2
Unit 3	30	0	0	0	0	1 725.0
Unit 4	30	0	0	0	0	1 568.0
Unit 5	30	0	0	0	0	1 756.6
Unit 6	28	0	0	0	0	1 844.9
<b>SUM</b>	<b>178</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	

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

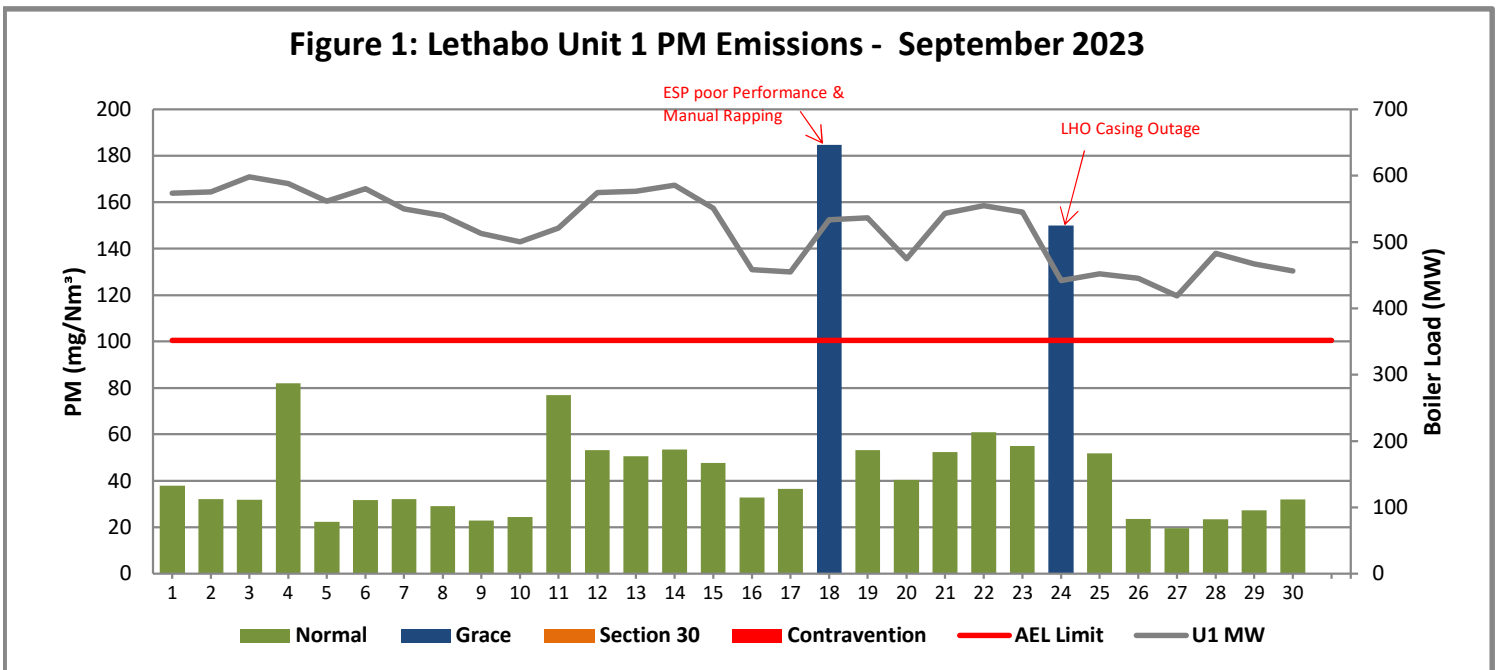
Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average NOx (mg/Nm³)
Unit 1	30	0	0	0	0	926.3
Unit 2	30	0	0	0	0	748.9
Unit 3	30	0	0	0	0	809.2
Unit 4	29	0	0	1	1	965.9
Unit 5	30	0	0	0	0	700.3
Unit 6	28	0	0	0	0	863.4
<b>SUM</b>	<b>177</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	

Note: NOx emissions is measured as NO in PPM. Final NOx value is expressed as total NO<sub>2</sub>

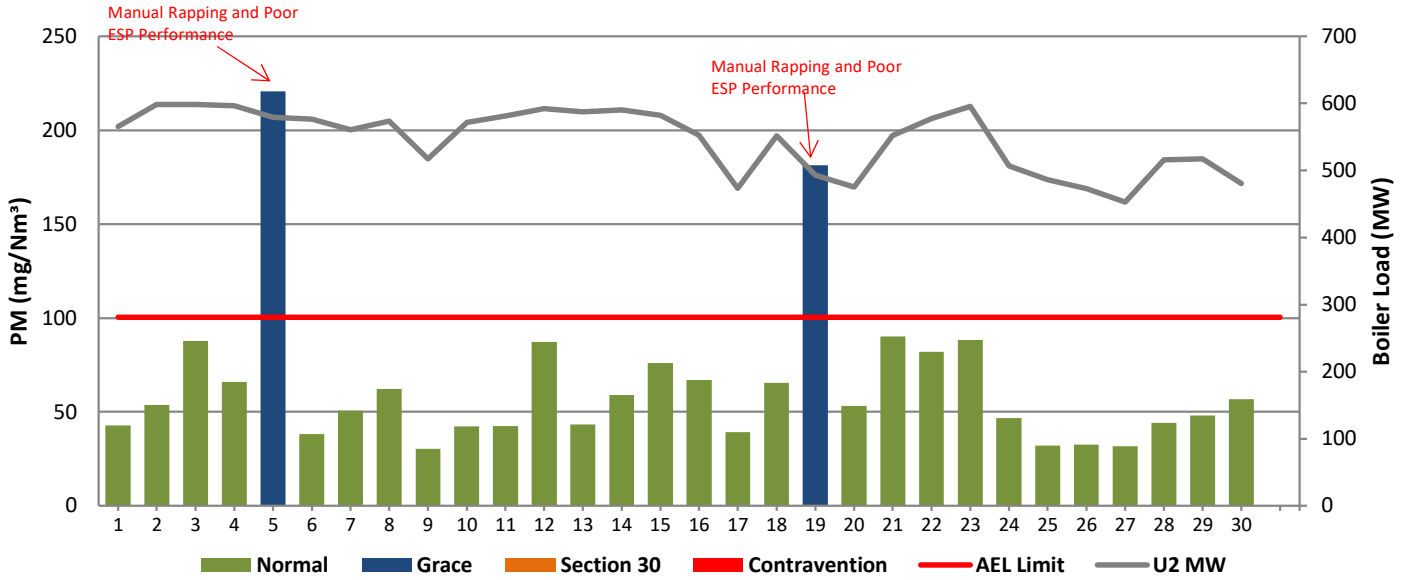
Table 6.5: Legend Description

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

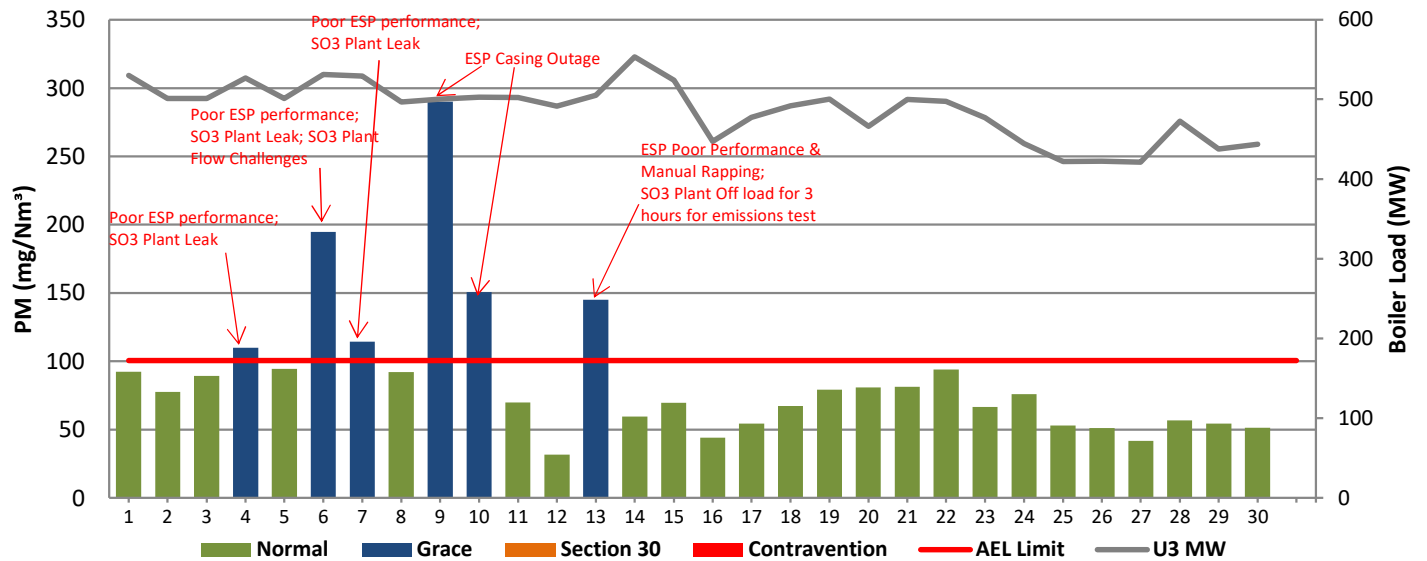
Figure 1: Lethabo Unit 1 PM Emissions - September 2023



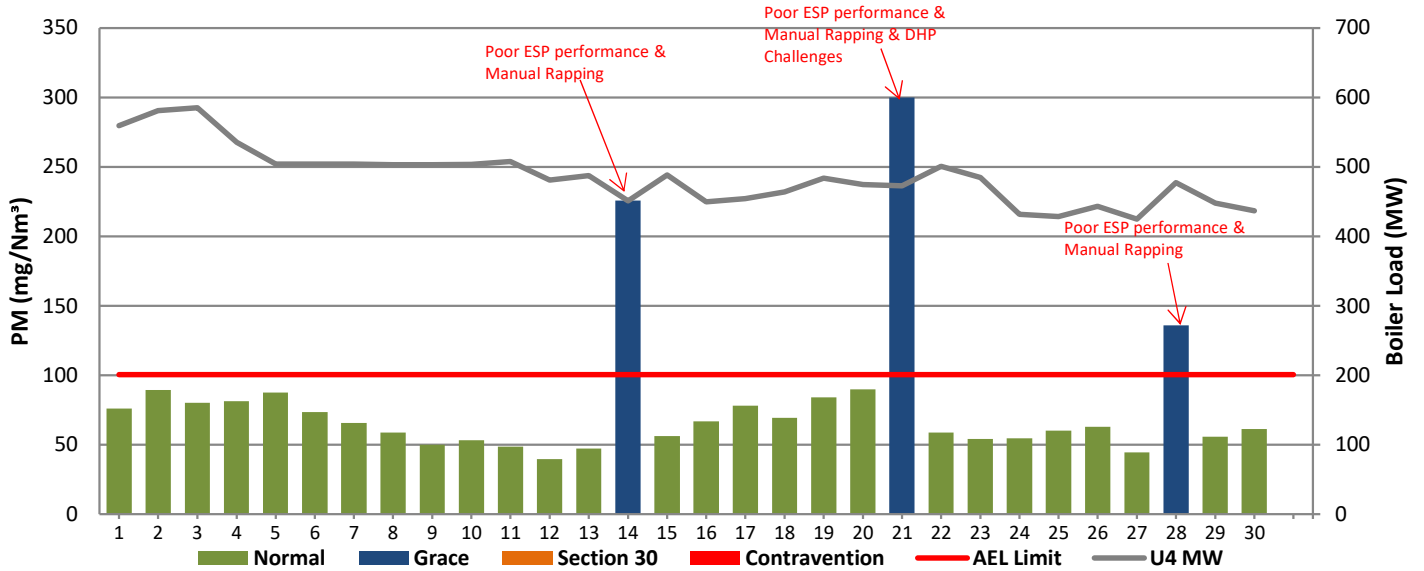
**Figure 2: Lethabo Unit 2 PM Emissions - September 2023**



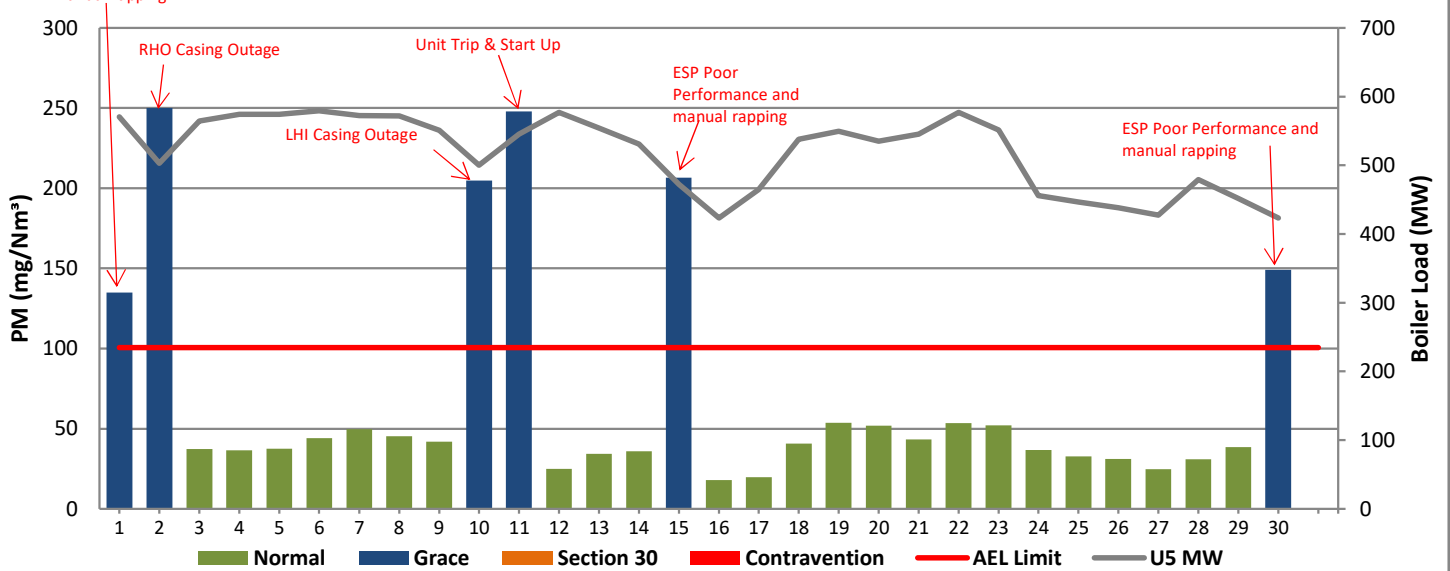
**Figure 3: Lethabo Unit 3 PM Emissions - September 2023**



**Figure 4: Lethabo Unit 4 PM Emissions - September 2023**

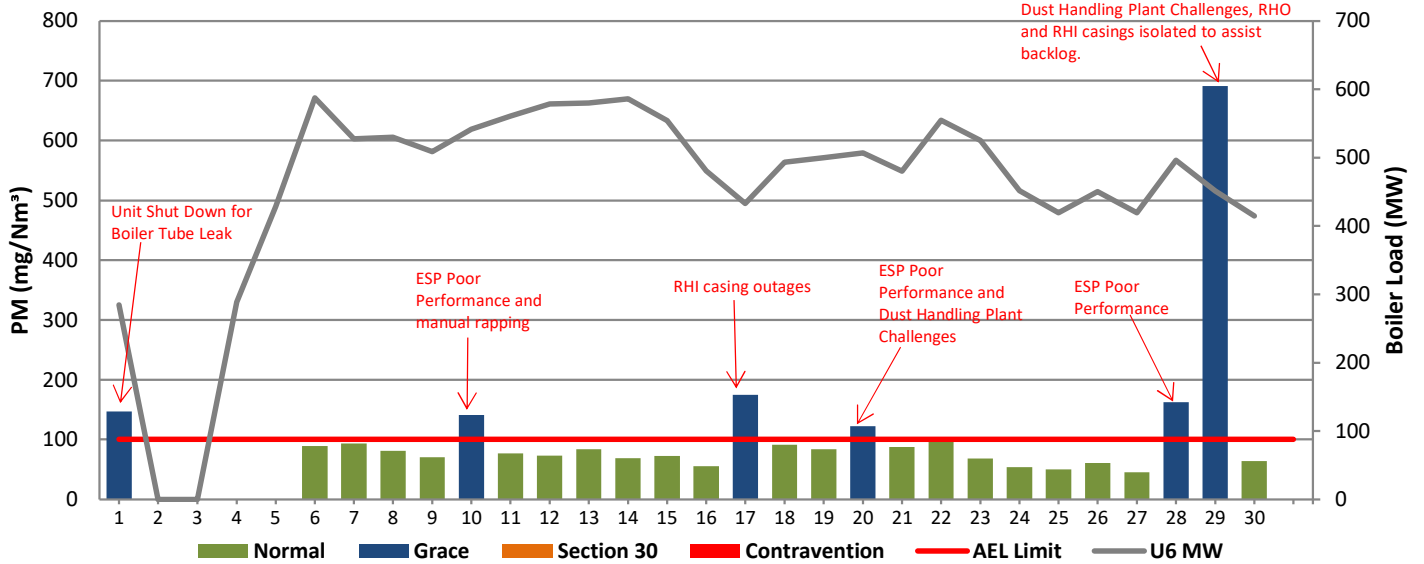


**Figure 5: Lethabo Unit 5 PM Emissions - September 2023**

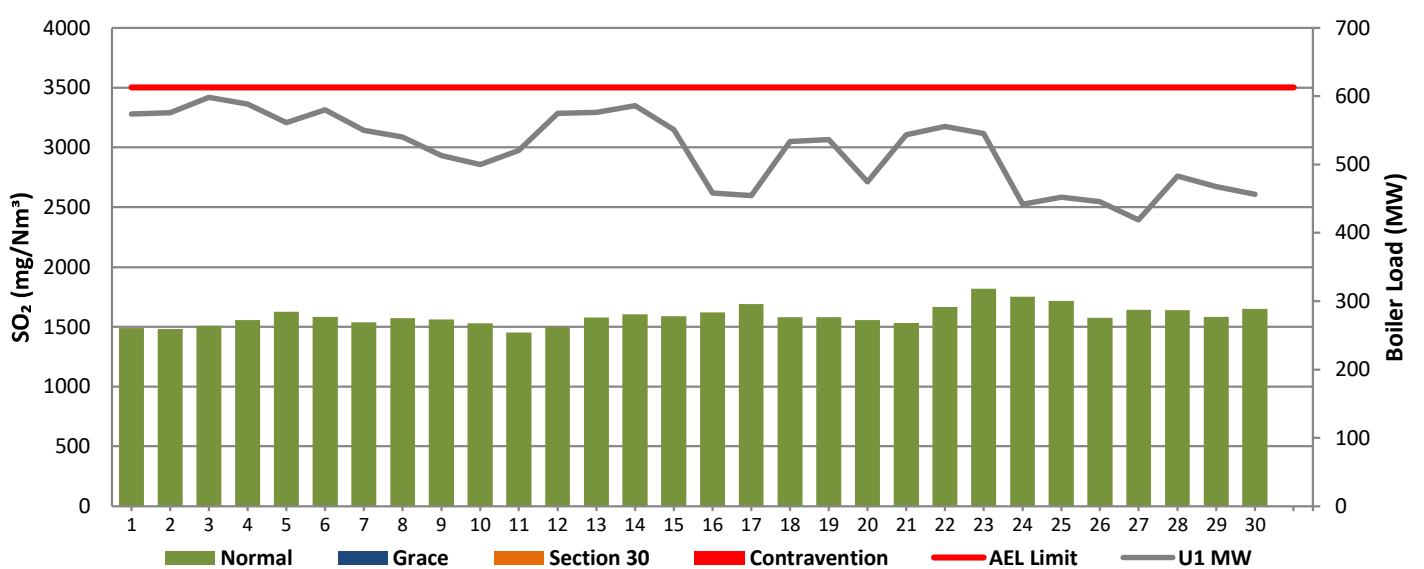




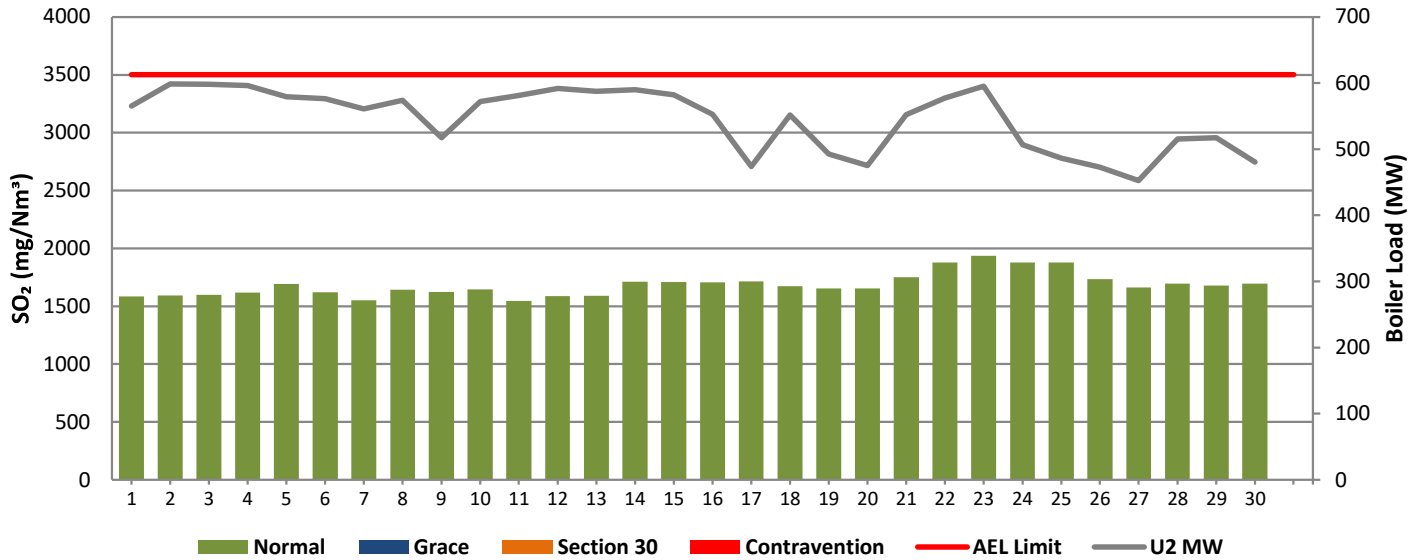
**Figure 6: Lethabo Unit 6 PM Emissions - September 2023**



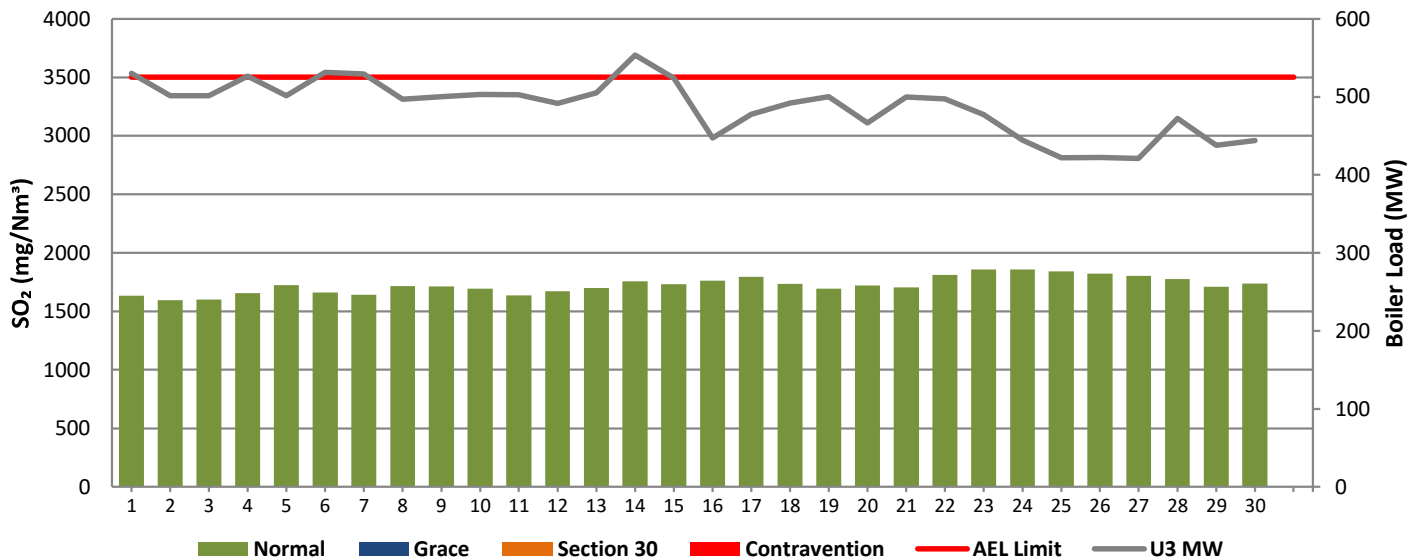
**Figure 7: Lethabo Unit 1 SO<sub>2</sub> Emissions - September 2023**



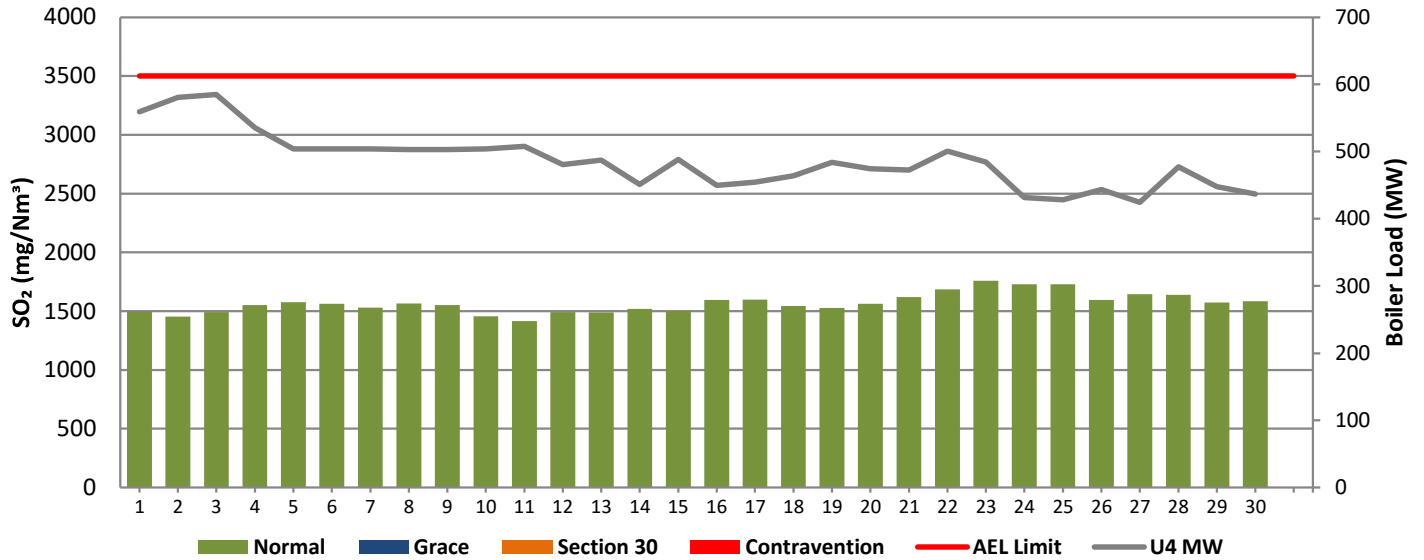
**Figure 8: Lethabo Unit 2 SO<sub>2</sub> Emissions - September 2023**



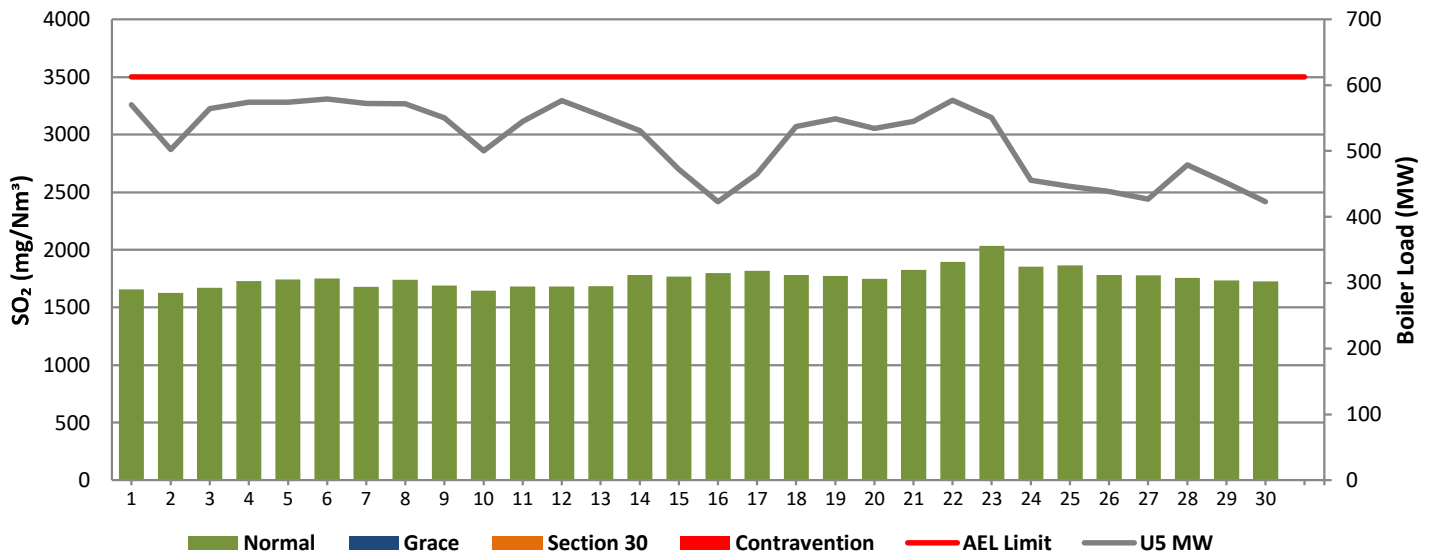
**Figure 9: Lethabo Unit 3 SO<sub>2</sub> Emissions - September 2023**



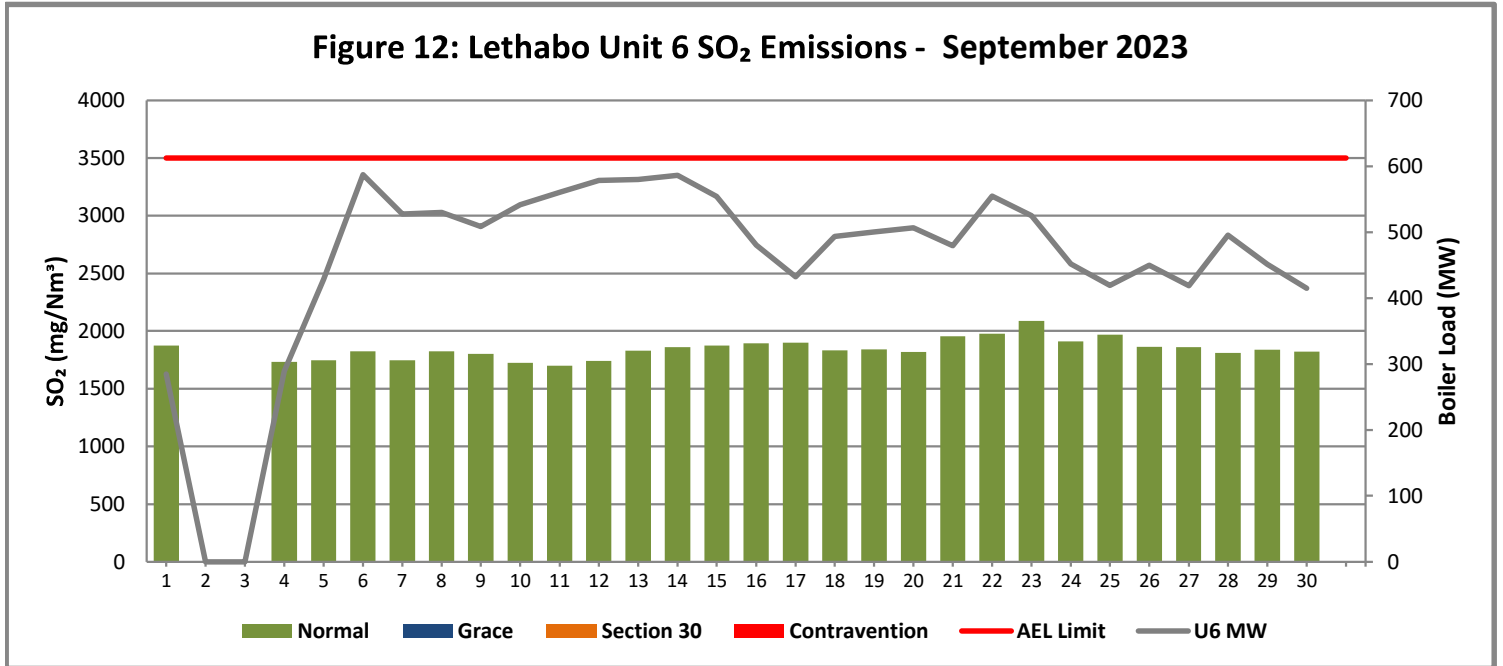
**Figure 10: Lethabo Unit 4 SO<sub>2</sub> Emissions - September 2023**



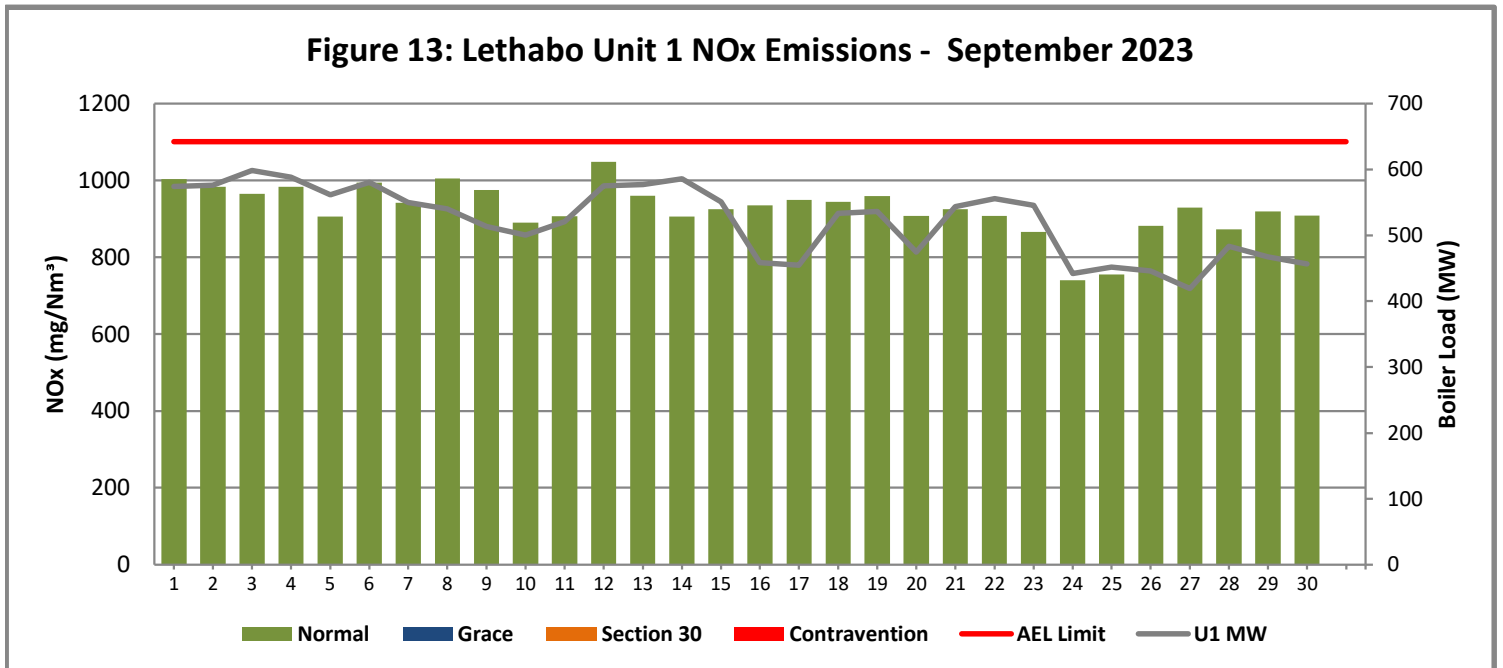
**Figure 11: Lethabo Unit 5 SO<sub>2</sub> Emissions - September 2023**



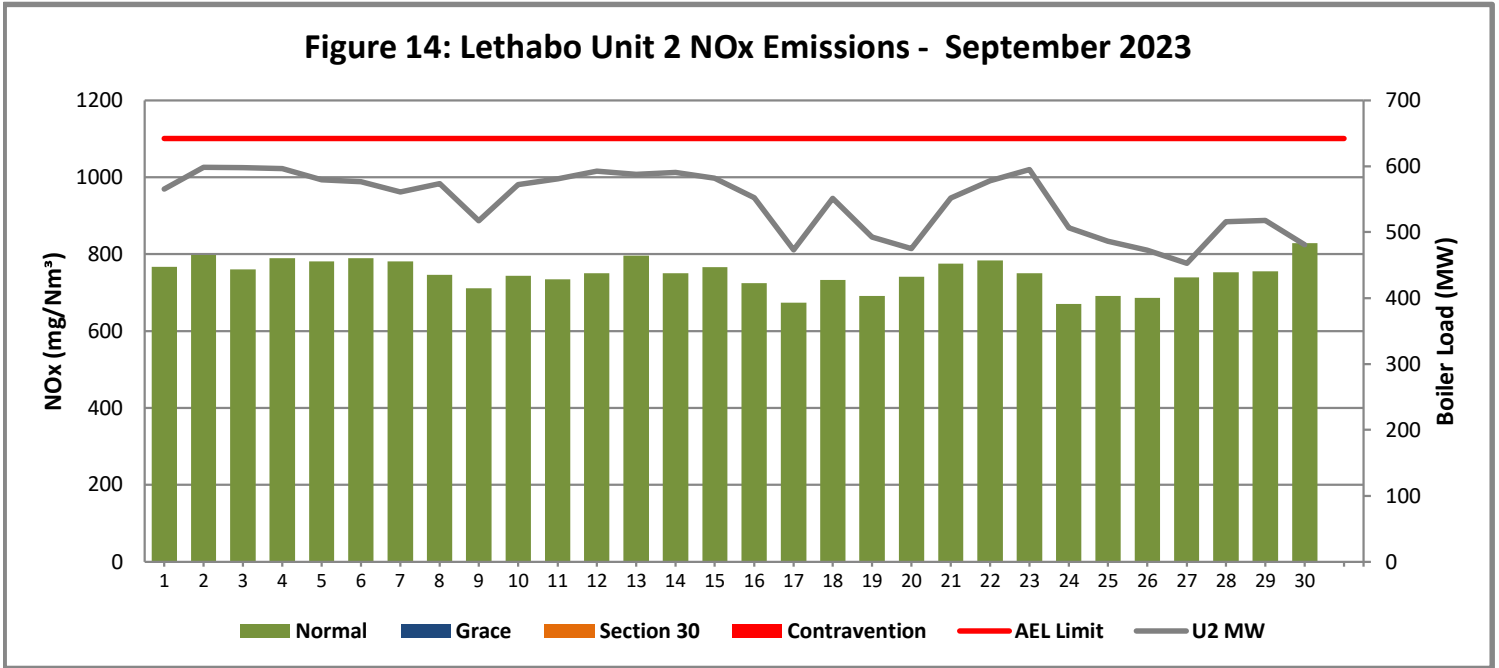
**Figure 12: Lethabo Unit 6 SO<sub>2</sub> Emissions - September 2023**



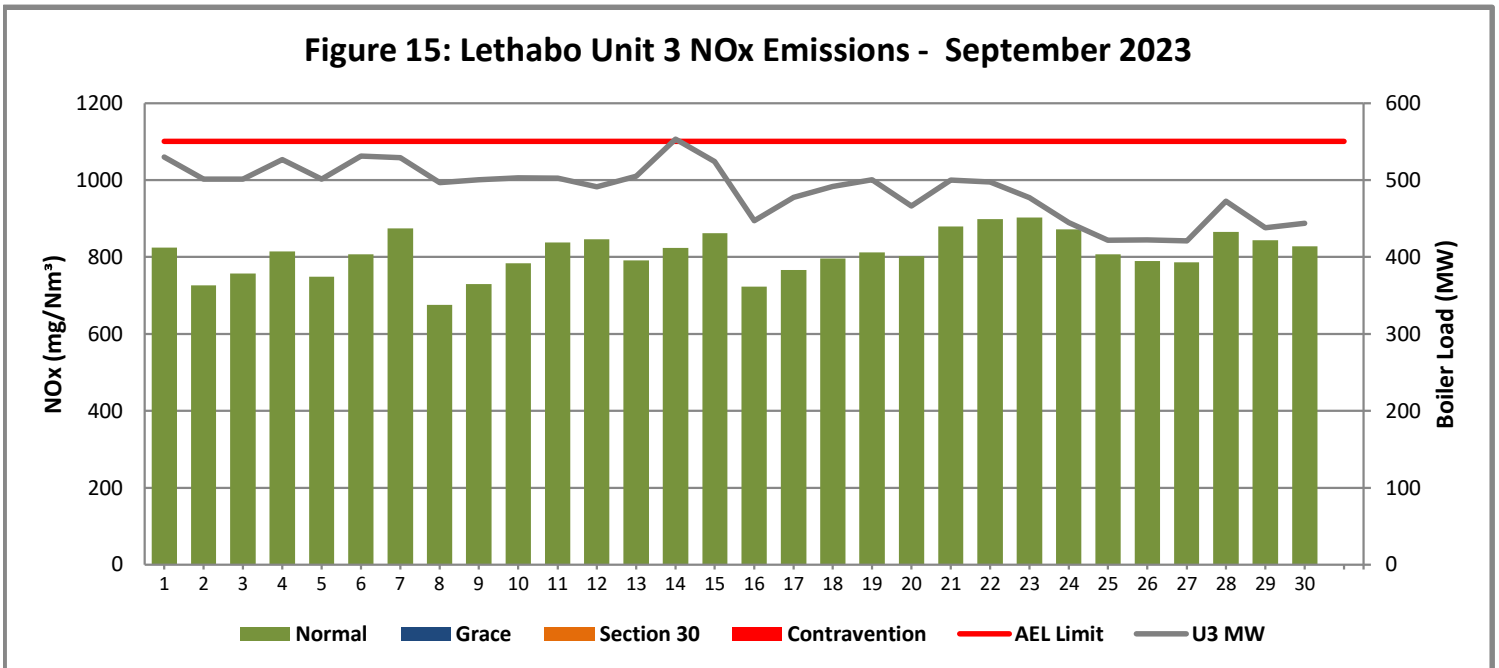
**Figure 13: Lethabo Unit 1 NO<sub>x</sub> Emissions - September 2023**



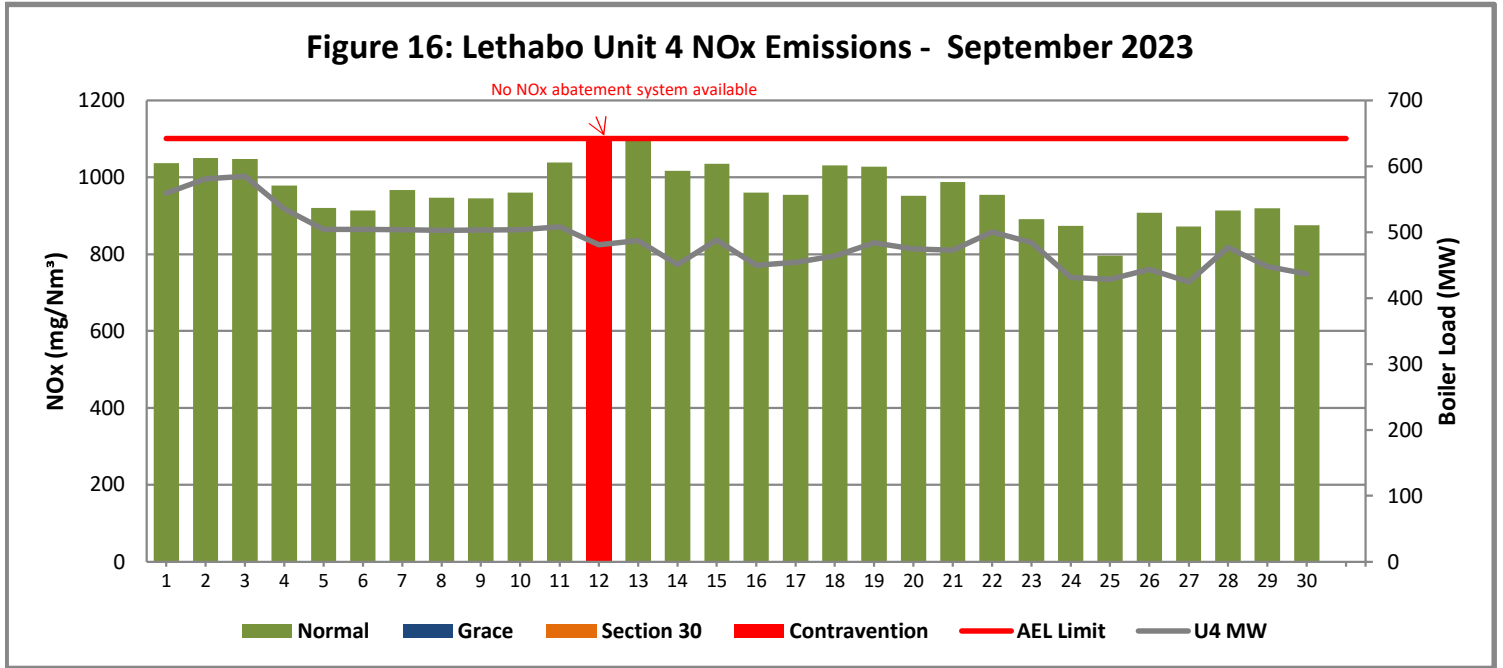
**Figure 14: Lethabo Unit 2 NOx Emissions - September 2023**



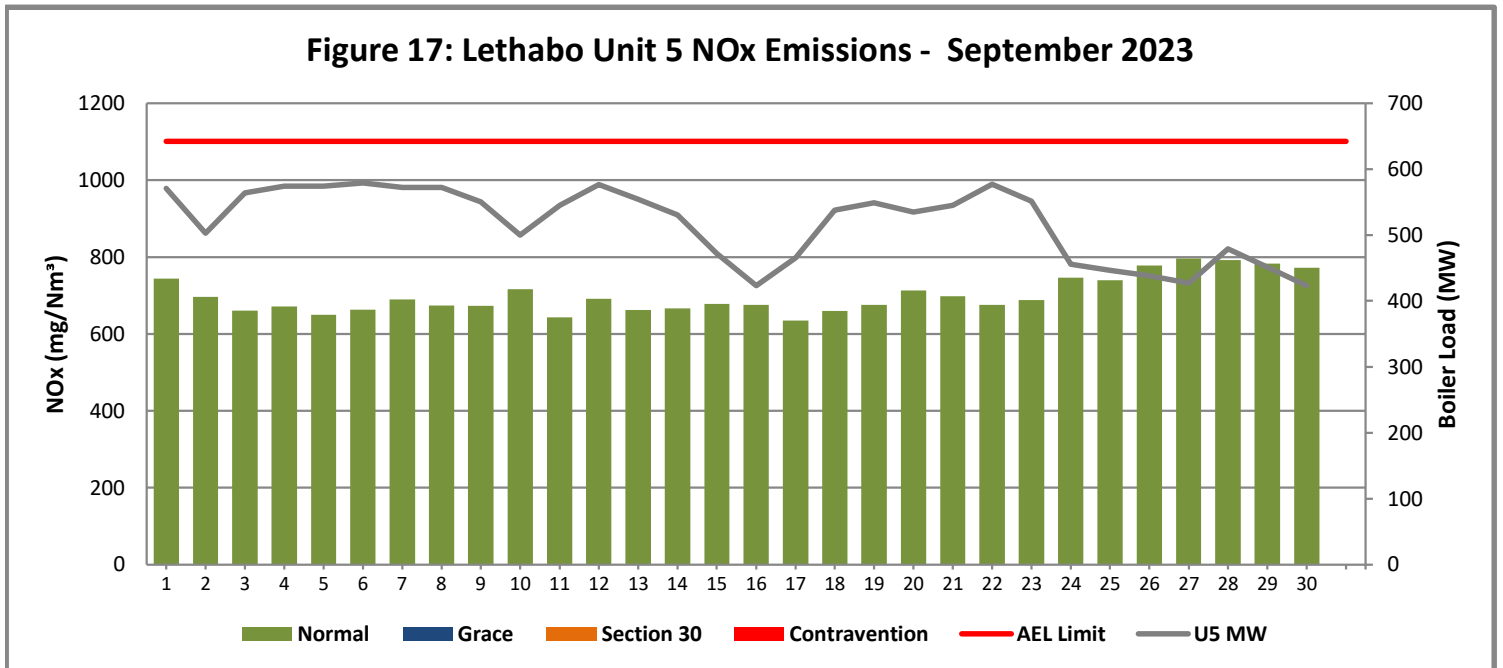
**Figure 15: Lethabo Unit 3 NOx Emissions - September 2023**



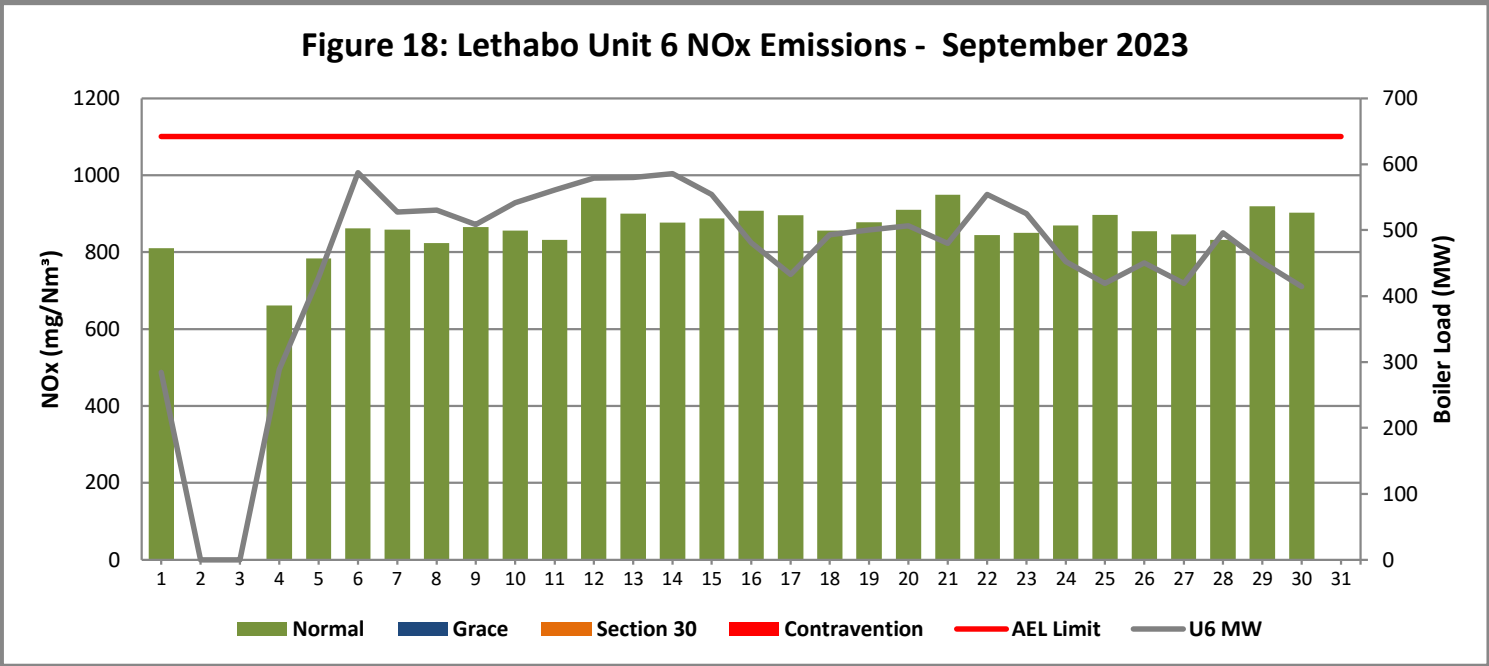
**Figure 16: Lethabo Unit 4 NOx Emissions - September 2023**



**Figure 17: Lethabo Unit 5 NOx Emissions - September 2023**



**Figure 18: Lethabo Unit 6 NOx Emissions - September 2023**



## 7 SHUT DOWN AND LIGHT UP INFORMATION

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

<b>Unit No.1</b>							
<b>Breaker Open (BO)</b>							
<b>Draught Group (DG) Shut Down (SD)</b>							
<b>BO to DG SD (duration)</b>		DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
<b>Fires in time</b>							
<b>Synch. to Grid (or BC)</b>							
<b>Fires in to BC (duration)</b>		DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
<b>Emissions below limit from BC (end date)</b>							
<b>Emissions below limit from BC (duration)</b>		DD:HH:MM		DD:HH:MM		DD:HH:MM	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>		DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
<b>Fires in time</b>							
<b>Synch. to Grid (or BC)</b>							
<b>Fires in to BC (duration)</b>		DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
<b>Emissions below limit from BC (end date)</b>							
<b>Emissions below limit from BC (duration)</b>		DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM



<b>Unit No.3</b>	<i>Turbine manually tripped due to loss of both CEP</i>						
<b>Breaker Open (BO)</b>	2:43 PM	2023/09/11					
<b>Draught Group (DG) Shut Down (SD)</b>	<i>DG did not trip or SD</i>	<i>DG did not trip or SD</i>					
<b>BO to DG SD (duration)</b>	n/a	DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
<b>Fires in time</b>	7:36 PM	2023/09/11					
<b>Synch. to Grid (or BC)</b>	10:38 PM	2023/09/11					
<b>Fires in to BC (duration)</b>	00:03:02	DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
<b>Emissions below limit from BC (end date)</b>	4:00 AM	2023/09/13					
<b>Emissions below limit from BC (duration)</b>	01:05:22	DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM

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

<b>Unit No.5</b>	<i>Unit tripped due to generator seal oil system protection operated</i>						
<b>Breaker Open (BO)</b>	<i>2:22 PM</i>	<i>2023/09/11</i>					
<b>Draught Group (DG) Shut Down (SD)</b>	<i>DG did not trip or SD</i>	<i>DG did not trip or SD</i>					
<b>BO to DG SD (duration)</b>	<i>n/a</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
<b>Fires in time</b>	<i>8:52 PM</i>	<i>2023/09/11</i>					
<b>Synch. to Grid (or BC)</b>	<i>9:20 PM</i>	<i>2023/09/11</i>					
<b>Fires in to BC (duration)</b>	<i>00:00:28</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
<b>Emissions below limit from BC (end date)</b>	<i>3:00 AM</i>	<i>2023/09/12</i>					
<b>Emissions below limit from BC (duration)</b>	<i>00:05:40</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM

<b>Unit No.6</b>	<i>boiler tube leak.</i>		<i>Steam leak in cold reheat drain port</i>				
<b>Breaker Open (BO)</b>	<i>12:42 AM</i>	<i>2023/09/01</i>	<i>12:54 AM</i>	<i>2023/09/05</i>			
<b>Draught Group (DG) Shut Down (SD)</b>	<i>12:53 PM</i>	<i>2023/09/01</i>	<i>DG did not trip or SD</i>	<i>DG did not trip or SD</i>			
<b>BO to DG SD (duration)</b>	<i>00:12:11</i>	DD:HH:MM	<i>n/a</i>	DD:HH:MM		DD:HH:MM	DD:HH:MM
<b>Fires in time</b>	<i>2:50 AM</i>	<i>2023/09/04</i>	<i>12:48 PM</i>	<i>2023/09/05</i>			
<b>Synch. to Grid (or BC)</b>	<i>4:06 AM</i>	<i>2023/09/04</i>	<i>3:21 PM</i>	<i>2023/09/05</i>			
<b>Fires in to BC (duration)</b>	<i>00:01:16</i>	DD:HH:MM	<i>00:02:33</i>	DD:HH:MM		DD:HH:MM	DD:HH:MM
<b>Emissions below limit from BC (end date)</b>	<i>9:00 PM</i>	<i>2023/09/06</i>	<i>9:00 PM</i>	<i>2023/09/06</i>			
<b>Emissions below limit from BC (duration)</b>	<i>02:16:54</i>	DD:HH:MM	<i>01:05:39</i>	DD:HH:MM		DD:HH:MM	DD:HH:MM

**7.2: Point Source emissions released during start-up (fires-in) and Shut-down (SD) for the month of September 2023 in mg/Nm<sup>3</sup>**

## 8. MAINTENANCE

<b>Unit 1</b>				
<b>Beginning of</b>	2023/09/24 00:00			
<b>Reason for Maintenance</b>	LHO precip casing repairs			
<b>End (Time):</b>	2023/09/24 23:50			
<b>Duration</b>	23:50:00			

<b>Unit 2</b>				
<b>Beginning of</b>				
<b>Reason for Maintenance</b>				
<b>End (Time):</b>				
<b>Duration</b>				

<b>Unit 3</b>				
<b>Beginning of</b>	2023/09/09 00:00:00	2023/09/09 23:59		
<b>Reason for Maintenance</b>	RHI precip casing repairs	LHO casing repairs		
<b>End (Time):</b>	2023/09/09 22:00:00	2023/09/10 21:02		
<b>Duration</b>	22:00:00	21:03:00		

<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>	2023/09/01 23:59:00	2023/09/10 02:00		
<b>Reason for Maintenance</b>	RHO precip casing repairs.	LHI precip hopper repairs.		
<b>End (Time):</b>	2023/09/02 23:56:00	2023/09/11 01:57		
<b>Duration</b>	23:57:00	23:57:00		

<b>Unit 6</b>				
<b>Beginning of</b>	2023/09/17 00:05:00			
<b>Reason for Maintenance</b>	RH inner precip casing			
<b>End (Time):</b>	2023/09/18 00:01:00			
<b>Duration</b>	23:56:00			

## 9. GENERAL

### **Unit 3 Monitor Reliability**

15/09/2023: PM Monitor Reliability - there was an issue with the opacity meter causing maximum reading from 02:00 to 06:00, C&I was called out to reset. The data was removed for this period.

### **Unit 6 Monitor Reliability**

29/09/2023: PM Monitor Reliability low (54.2%) due to monitors reading maximum

### **Unit 4 NOx Exceedance**

12/09/2023: NOx limit Exceeded (1106 mg/Nm<sup>3</sup>) due to Lethabo Power Station does not have abatement technology for NOx installed, having varying coal qualities due to import coal and concurrent operation of both top mills with one middle mill out of service (due to mill unavailability). A Legal Contravention was reported.

### **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. Velocity data and CO2 data that are of poor quality or falling out of norm 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.
4	12/09/2023	12/09/2023	No abatement technology and Concurrent operation of both top mills	Biasing of top mills, Optimisation of air flows, Return the bottom mill					A Legal Contravention was 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>Oct-22</b>	0.54	0.39	0.44	0.40	0.47	0.44	0.44
<b>Nov-22</b>	0.62	0.39	0.33	0.59	0.59	0.57	0.52
<b>Dec-22</b>	0.58	0.67	0.58	OFF	0.94	0.50	0.65
<b>Jan-23</b>	0.40	0.69	0.59	OFF	0.74	0.45	0.57
<b>Feb-23</b>	0.51	0.48	0.53	OFF	0.83	0.63	0.59
<b>Mar-23</b>	0.51	0.37	0.52	0.54	0.63	0.39	0.50
<b>Apr-23</b>	OFF	0.29	0.61	0.35	0.86	OFF	0.56
<b>May-23</b>	OFF	0.48	0.46	0.32	0.79	0.41	0.50
<b>Jun-23</b>	0.13	0.64	0.47	0.30	0.46	0.30	0.36
<b>Jul-23</b>	0.21	0.27	0.42	0.27	0.25	0.32	0.30
<b>Aug-23</b>	0.21	0.60	0.63	0.42	0.42	0.50	0.46
<b>Sep-23</b>	0.26	0.28	0.46	0.41	0.33	0.51	0.37

**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-Aug	32	38	78	65	96	122	100
01-Sep	38	43	92	76	135	147	100
02-Sep	32	54	78	89	250	OFF	100
03-Sep	32	88	89	80	37	OFF	100
04-Sep	82	66	110	81	36	OFF	100
05-Sep	22	221	94	87	38	OFF	100
06-Sep	32	38	195	73	44	89	100
07-Sep	32	51	114	66	50	93	100
08-Sep	29	62	92	59	45	81	100
09-Sep	23	30	290	50	42	71	100
10-Sep	24	42	151	53	205	141	100
11-Sep	77	42	70	49	248	77	100
12-Sep	53	87	32	40	25	73	100
13-Sep	51	43	145	47	34	84	100
14-Sep	53	59	59	226	36	69	100
15-Sep	48	76	70	56	207	73	100
16-Sep	33	67	44	67	18	56	100
17-Sep	36	39	54	78	20	175	100
18-Sep	185	65	67	69	41	91	100
19-Sep	53	181	79	84	54	84	100
20-Sep	40	53	81	90	52	122	100
21-Sep	52	90	81	300	43	88	100
22-Sep	61	82	94	59	53	96	100
23-Sep	55	88	67	54	52	69	100
24-Sep	150	47	76	55	37	54	100
25-Sep	52	32	53	60	33	50	100
26-Sep	24	33	51	63	31	61	100
27-Sep	20	32	42	44	25	45	100
28-Sep	23	44	57	136	31	163	100
29-Sep	27	48	54	56	38	691	100
30-Sep	32	57	51	61	149	64	100

**ADDENDUM TO MONTHLY EMISSIONS REPORT**

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

Date	U1	U2	U3	U4	U5	U6	Limit
31-Aug	1528	1560	1687	1536	1668	1765	3500
01-Sep	1490	1582	1632	1492	1657	1874	3500
02-Sep	1482	1593	1595	1454	1627	OFF	3500
03-Sep	1509	1600	1599	1490	1670	OFF	3500
04-Sep	1554	1618	1657	1553	1730	1732	3500
05-Sep	1626	1692	1725	1579	1742	1744	3500
06-Sep	1583	1621	1662	1561	1750	1823	3500
07-Sep	1537	1552	1642	1530	1678	1745	3500
08-Sep	1574	1643	1714	1566	1741	1824	3500
09-Sep	1563	1623	1712	1551	1689	1802	3500
10-Sep	1528	1645	1693	1456	1646	1724	3500
11-Sep	1452	1545	1635	1416	1682	1699	3500
12-Sep	1498	1589	1672	1490	1681	1739	3500
13-Sep	1578	1592	1697	1488	1683	1830	3500
14-Sep	1604	1713	1756	1520	1780	1860	3500
15-Sep	1589	1710	1733	1503	1767	1875	3500
16-Sep	1619	1706	1762	1595	1799	1894	3500
17-Sep	1689	1715	1794	1598	1819	1900	3500
18-Sep	1581	1674	1735	1543	1784	1831	3500
19-Sep	1580	1653	1692	1529	1773	1841	3500
20-Sep	1556	1652	1719	1561	1748	1819	3500
21-Sep	1532	1750	1704	1621	1826	1956	3500
22-Sep	1667	1878	1813	1685	1897	1978	3500
23-Sep	1821	1935	1858	1758	2035	2089	3500
24-Sep	1752	1878	1857	1730	1852	1910	3500
25-Sep	1715	1877	1842	1728	1865	1970	3500
26-Sep	1576	1732	1824	1598	1781	1864	3500
27-Sep	1643	1660	1802	1644	1778	1863	3500
28-Sep	1640	1695	1776	1639	1756	1811	3500
29-Sep	1584	1679	1710	1573	1735	1839	3500
30-Sep	1652	1697	1738	1587	1727	1821	3500

**ADDENDUM TO MONTHLY EMISSIONS REPORT**

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

Date	U1	U2	U3	U4	U5	U6	Limit
31-Aug	977	697	806	1030	757	912	1100
01-Sep	1003	767	824	1037	743	811	1100
02-Sep	983	798	726	1050	696	OFF	1100
03-Sep	965	760	757	1047	661	OFF	1100
04-Sep	983	790	815	978	672	661	1100
05-Sep	905	782	749	920	650	784	1100
06-Sep	994	790	807	913	663	862	1100
07-Sep	942	782	874	967	690	858	1100
08-Sep	1005	746	676	947	674	823	1100
09-Sep	975	711	729	945	673	866	1100
10-Sep	890	743	783	960	717	856	1100
11-Sep	907	735	837	1039	644	832	1100
12-Sep	1048	750	847	1106	692	942	1100
13-Sep	960	796	792	1100	663	900	1100
14-Sep	905	750	824	1017	667	877	1100
15-Sep	925	766	862	1035	678	888	1100
16-Sep	935	725	723	960	675	907	1100
17-Sep	949	674	767	955	634	896	1100
18-Sep	944	733	796	1030	660	856	1100
19-Sep	959	691	812	1027	676	878	1100
20-Sep	908	741	802	952	713	910	1100
21-Sep	925	775	880	988	698	950	1100
22-Sep	907	784	899	955	676	844	1100
23-Sep	866	751	903	891	688	850	1100
24-Sep	740	670	872	874	746	870	1100
25-Sep	755	691	807	797	739	897	1100
26-Sep	881	687	790	908	778	854	1100
27-Sep	929	739	786	872	796	846	1100
28-Sep	872	753	866	913	792	832	1100
29-Sep	920	756	844	920	783	920	1100
30-Sep	909	829	828	876	771	903	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
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
Jul-23	100.00%	0.0	100.00%	0.0	99.19%	1.0	100.00%	0.0	100.00%	0.0	99.22%	1.0
Aug-23	100.00%	0.0	100.00%	0.0	98.46%	1.9	100.00%	0.0	99.23%	1.0	99.12%	1.1
Sep-23	99.17%	1.0	100.00%	0.0	98.51%	1.8	100.00%	0.0	98.34%	2.0	99.17%	1.0

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
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
Jul-23	97.98%	0.6	97.83%	0.7	100.00%	0.0	97.85%	0.7	99.67%	0.1	100.00%	0.0
Aug-23	90.05%	3.1	93.82%	1.9	100.00%	0.0	0.00%	31.0	91.52%	2.6	100.00%	0.0
Sep-23	100.00%	0.0	98.19%	0.5	98.75%	0.4	99.72%	0.1	99.58%	0.1	95.83%	1.3

**ADDENDUM TO MONTHLY EMISSIONS REPORT**

Particulate Emission Monitors

Availability						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
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%
Jul-23	98.92%	100.00%	99.60%	99.73%	98.33%	99.87%
Aug-23	99.73%	92.28%	99.22%	98.85%	97.85%	98.79%
Sep-23	99.44%	98.61%	98.89%	99.03%	97.99%	97.98%

## Gaseous Emission Monitors

Availability												
Month	Unit 1		Unit 2		Unit 3		Unit 4		Unit 5		Unit 6	
	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>
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%
Jul-23	98.39%	98.39%	98.08%	97.95%	98.12%	98.39%	98.39%	98.25%	97.92%	97.92%	98.25%	98.39%
Aug-23	100.00%	100.00%	99.83%	99.83%	100.00%	100.00%	99.86%	100.00%	100.00%	100.00%	100.00%	100.00%
Sep-23	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	99.85%	99.85%

Oxygen Monitor Availability						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
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%
Jul-23	98.12%	97.76%	98.12%	98.25%	100.00%	97.72%
Aug-23	100.00%	99.83%	99.87%	100.00%	100.00%	99.60%
Sep-23	100.00%	100.00%	100.00%	100.00%	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
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%
Jul-23	99.904%	99.864%	99.793%	99.869%	99.879%	99.837%
Aug-23	99.912%	99.715%	99.715%	99.816%	99.818%	99.770%
Sep-23	99.895%	99.867%	99.793%	99.825%	99.860%	99.766%

15. REMARKS

UNIT	MWLOSS	REASON	ACTUALSTARTDATE	ACTUALENDDATE
1	100	FAB levels high.	2023/09/09 03:55:00	2023/09/11 18:02:00
1	70	LHO precip casing repairs	2023/09/24 00:00:00	2023/09/24 23:50:00
2	100	FAB levels high	2023/09/09 03:33:00	2023/09/10 05:41:00
2	50	high stack emissions	2023/09/21 21:11:00	2023/09/21 22:40:00
3	68	EF: High stack emissions	2023/09/01 09:37:00	2023/09/01 17:00:00
3	60	AM: Precip. clean rapping.	2023/09/07 01:00:00	2023/09/07 02:40:00
3	60	High stack emissions.	2023/09/07 13:03:00	2023/09/08 00:18:00
3	160	High stack emissions	2023/09/08 00:18:00	2023/09/08 04:47:00
3	60	High stack emissions.	2023/09/08 11:25:00	2023/09/09 00:00:00
3	60	RHI precip casing repairs	2023/09/09 00:00:00	2023/09/09 22:00:00
3	60	FAB levels high	2023/09/09 22:00:00	2023/09/09 23:59:00
3	59	LHO casing repairs	2023/09/09 23:59:00	2023/09/10 21:02:00
3	593	Turbine manually tripped due to loss of both CEP	2023/09/11 14:43:00	2023/09/11 22:38:00
3	297	System Generated Ramp Event for Event id : 1855700	2023/09/11 22:38:00	2023/09/12 00:08:00
3	118	SO3 plant test	2023/09/13 10:02:00	2023/09/13 18:05:00
3	100	AM: High FAB levels	2023/09/23 20:42:00	2023/09/23 21:00:00
4	103	High NOx	2023/09/12 19:35:00	2023/09/13 00:17:00
4	100	high NOx	2023/09/13 20:19:00	2023/09/14 00:14:00
4	124	High emissions	2023/09/14 10:40:00	2023/09/14 16:07:00
4	226	EF: High NOX	2023/09/14 20:18:00	2023/09/15 00:46:00
4	32	AM: High FAB levels	2023/09/23 20:46:00	2023/09/24 04:50:00
5	200	High stack emissions.	2023/09/01 00:00:00	2023/09/01 01:14:00
5	97	High stack emissions.	2023/09/01 01:14:00	2023/09/01 04:24:00
5	100	RHO precip casing repairs.	2023/09/01 23:59:00	2023/09/02 23:56:00
5	98	High stack emissions.	2023/09/03 01:38:00	2023/09/03 05:17:00
5	100	High FAB levels.	2023/09/09 12:11:00	2023/09/10 02:00:00
5	100	LHI precip hopper 2 repairs.	2023/09/10 02:00:00	2023/09/11 01:57:00
5	593	Unit tripped due to generator seal oil system protection operated	2023/09/11 14:22:00	2023/09/11 21:20:00
5	297	System Generated Ramp Event for Event id : 1855693	2023/09/11 21:20:00	2023/09/11 22:50:00
6	593	boiler tube leak.	2023/09/01 00:42:00	2023/09/04 04:06:00
6	297	System Generated Ramp Event for Event id : 1852017	2023/09/04 04:06:00	2023/09/04 07:06:00
6	593	Steam leak in cold reheat drain port	2023/09/05 00:54:00	2023/09/05 15:21:00
6	296	System Generated Ramp Event for Event id : 1853326	2023/09/05 15:21:00	2023/09/05 17:51:00
6	80	FAB levels high	2023/09/09 04:06:00	2023/09/10 05:59:00
6	80	High stack emissions.	2023/09/10 13:24:00	2023/09/10 17:08:00
6	103	RH inner precip casing repairs	2023/09/17 00:05:00	2023/09/18 00:01:00
6	198	EF: High stack emissions	2023/09/21 17:47:00	2023/09/22 00:26:00
6	46	EF: High stack emissions	2023/09/22 21:04:00	2023/09/23 00:00:00
6	102	AM: High ash hoppers.	2023/09/29 16:58:00	2023/09/30 17:17:00
6	98	High stack emissions.	2023/09/29 23:40:00	2023/09/30 03:33:00

<b>PM Exceedances</b>		
U1.	Manual Rapping	18-Sep
U1.	LHO Casing Outage	24-Sep
U2.	ESP Poor Performance and Manual Rapping	05-Sep
U2.	Manual Rapping	19-Sep
U3.	ESP Poor Performance & SO3 plant leak	04-Sep
U3.	ESP Poor Performance, SO3 plant leak, Challenges with SO3 plant sulphur flow	06-Sep
U3.	ESP Poor Performance SO3 plant leak	07-Sep
U3.	ESP Casing Outage	09-Sep
U3.	LHO ESP Casing Outage	10-Sep
U3.	SO3 plant off for three hours for a test. ESP Manual rapping	13-Sep
U4.	ESP Poor Performance and Manual Rapping	14-Sep
U4.	DHP challenges ESP Poor Performance Manual Rapping	21-Sep
U4.	ESP Poor Performance and Manual Rapping	28-Sep
U5.	ESP Poor Performance & Manual Rapping	01-Sep
U5.	RHO Casing Outage	02-Sep
U5.	LHI ESP Casing Outage	10-Sep
U5.	Unit Trip The unit synchronised on 2023/09/11 @ 21:21 and the emissions needs to be below the limit by 2023/09/14 @ 21:21 and remain below the limit until 2023/09/15 @ 23:59	11-Sep
U5.	Manual Rapping	15-Sep
U6.	Unit Shut down for boiler tube leak repairs	01-Sep
U6.	ESP Poor Performance and Manual Rapping	10-Sep
U6.	RHI Casing Outage	17-Sep
U6.	ESP Poor Performance Dust Handling Plant Challenges	20-Sep
U6.	ESP Poor performance RHO <50 kW RHI <150 kW	28-Sep
<b>NOX Exceedances</b>		
U4.	No abatement technology, Varing Coal Qualities and Concurrent operation of both top mills	12-Sep