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Date 23 November 2021

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**LRP03PLA000\_0275/20211111**

Dear Mr Sibaya

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

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

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

For any additional information please do not hesitate to contact us

Yours sincerely

**SOLLY NGCASHI**  
**GENERAL MANAGER (ACTING)**



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Eskom Holdings SOC Ltd Reg No 2002/015527/30



Report

Lethabo Power Station

Report name: **Lethabo Power Station  
October 2021  
Emission Report**

Reference number: **LRP03PLA000\_0275/20211111**  
Document Type: **Report**  
Area of Applicability: **Environment**  
Report Date: **November-2021**  
Classification: **Controlled Disclosure**

Signatures:

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**Date:** 19/11/2021

**Verified by :**

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**CONTROLLED DISCLOSURE**

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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 Oct-2021
	Coal	Tons	2 000 000	1 379 226
	Fuel Oil	Tons	1 700	836.11

Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Production Rate Oct-2021
	Energy	GWh	2834.64	1 958.29
	Ash	Tons	770 000	543 553.0
	RE Ash	kg/MWh	<i>not specified</i>	277.57

**2. ENERGY SOURCE CHARACTERISTICS**

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.656 (Standard)	0.540
Ash Content	%	37.37 (Standard)	39.410

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

### 3. EMISSION LIMITS (mg/Nm<sup>3</sup>)

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

### 4. ABATEMET TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	Efficiency Oct-2021
Unit 1	<i>Electrostatic Precipitator (ESP)</i>	99.75%
Unit 2	<i>Electrostatic Precipitator (ESP)</i>	99.78%
Unit 3	<i>Electrostatic Precipitator (ESP)</i>	99.79%
Unit 4	<i>Electrostatic Precipitator (ESP)</i>	99.80%
Unit 5	<i>Electrostatic Precipitator (ESP)</i>	99.82%
Unit 6	<i>Electrostatic Precipitator (ESP)</i>	Unit Off-line

### 5. MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO <sub>2</sub>	NO	CO <sub>2</sub>
Unit 1	95.5	99.5	99.4	99.4
Unit 2	99.1	99.7	99.9	99.7
Unit 3	99.5	99.9	99.9	99.7
Unit 4	99.9	99.7	99.9	99.7
Unit 5	99.9	100.0	100.0	99.7
Unit 6	OFF	OFF	OFF	OFF

## 6. EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of October 2021

Associated Unit/Stack	PM (tons)	SO <sub>2</sub> (tons)	NO <sub>x</sub> (tons)
Unit 1	215.5	2 527	1 413
Unit 2	219.8	4 482	1 523
Unit 3	216.9	4 233	2 044
Unit 4	218.3	4 771	2 260
Unit 5	164.2	3 122	1 369
Unit 6	0.0	0	0
<b>SUM</b>	<b>1 034.7</b>	<b>19 133</b>	<b>8 609</b>

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

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average PM (mg/Nm <sup>3</sup> )
Unit 1	12	9	5	0	14	155.5
Unit 2	24	7	0	0	7	97.4
Unit 3	22	9	0	0	9	100.4
Unit 4	27	4	0	0	4	89.7
Unit 5	26	5	0	0	5	92.6
Unit 6	0	0	0	0	0	
<b>SUM</b>	<b>111</b>	<b>34</b>	<b>5</b>	<b>0</b>	<b>39</b>	

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

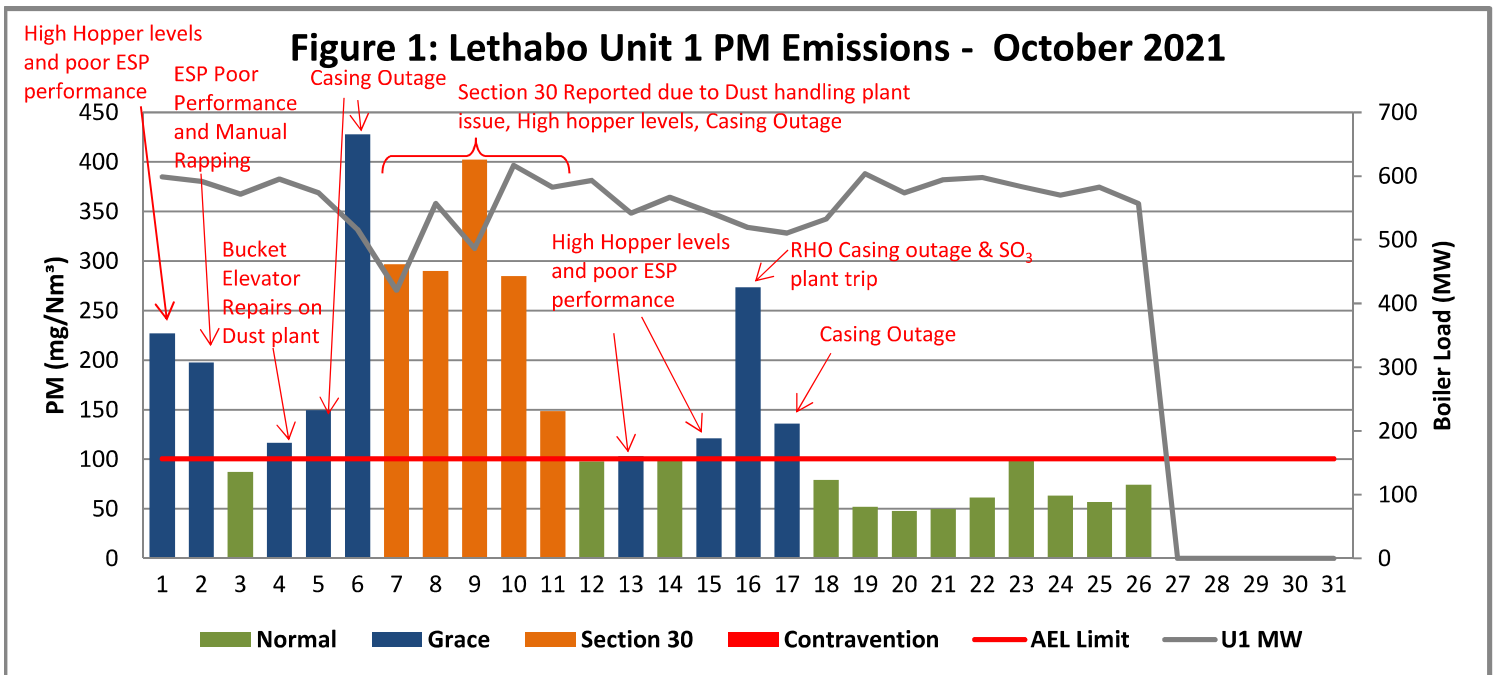
Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average SO <sub>x</sub> (mg/Nm <sup>3</sup> )
Unit 1	26	0	0	0	0	1 780.4
Unit 2	31	0	0	0	0	1 913.2
Unit 3	31	0	0	0	0	1 953.8
Unit 4	31	0	0	0	0	1 966.5
Unit 5	31	0	0	0	0	1 764.7
Unit 6	0	0	0	0	0	
<b>SUM</b>	<b>150</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	

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

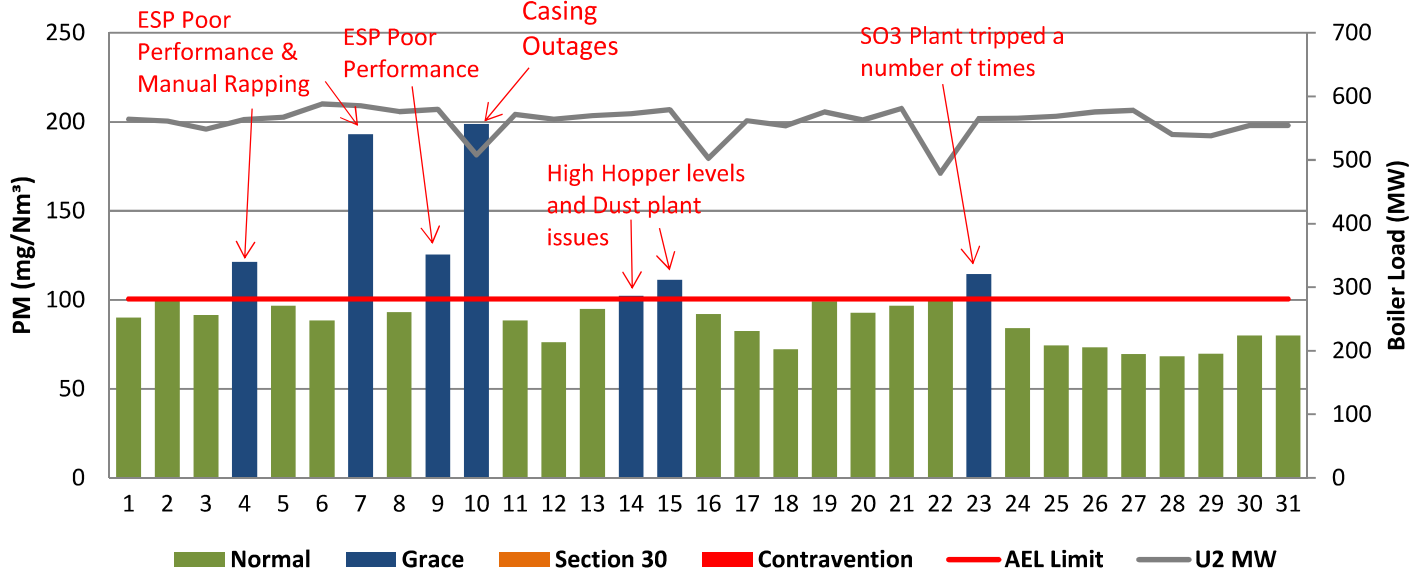
Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average NOx (mg/Nm³)
Unit 1	24	0	0	2	2	994.2
Unit 2	31	0	0	0	0	649.0
Unit 3	31	0	0	0	0	942.0
Unit 4	31	0	0	0	0	931.6
Unit 5	31	0	0	0	0	774.4
Unit 6	0	0	0	0	0	
<b>SUM</b>	<b>148</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>	

Table 6.5: Legend Description

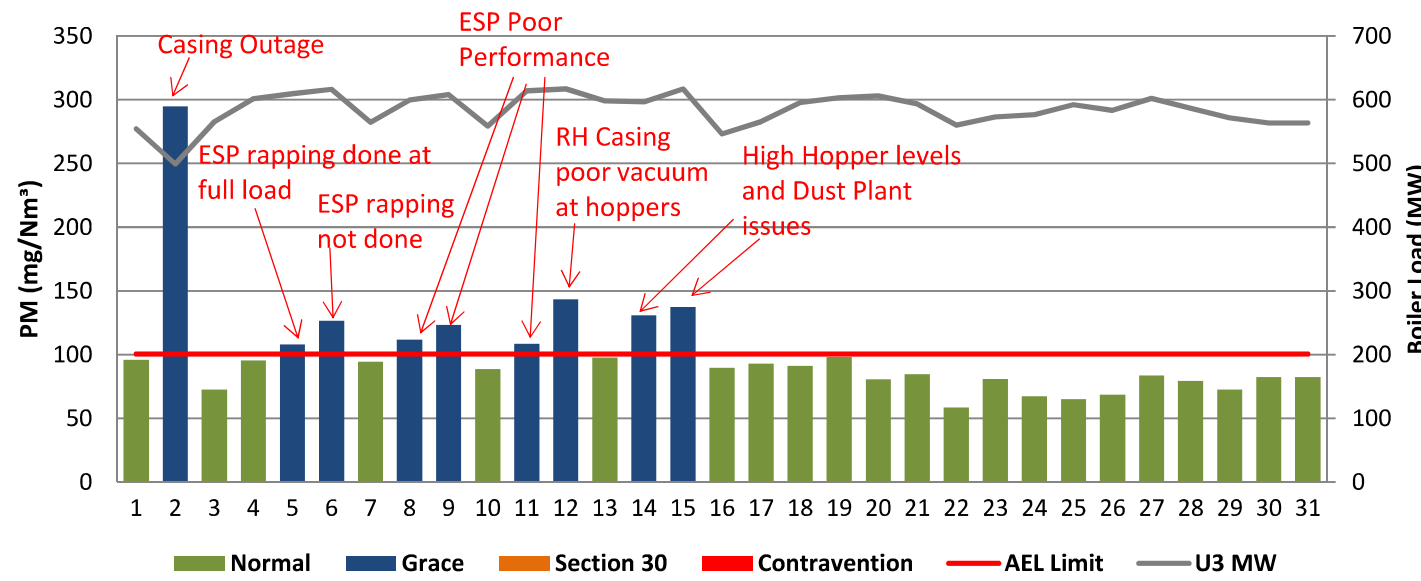
Condition	Colour	Description
Normal	GREEN	Emissions below Emission Limit Value (ELV)
Grace	BLUE	Emissions above the ELV during grace period
Section 30	ORANGE	Emissions above ELV during a NEMA S30 incident
Contra-vention	RED	Emissions above ELV but outside grace or S30 incident conditions



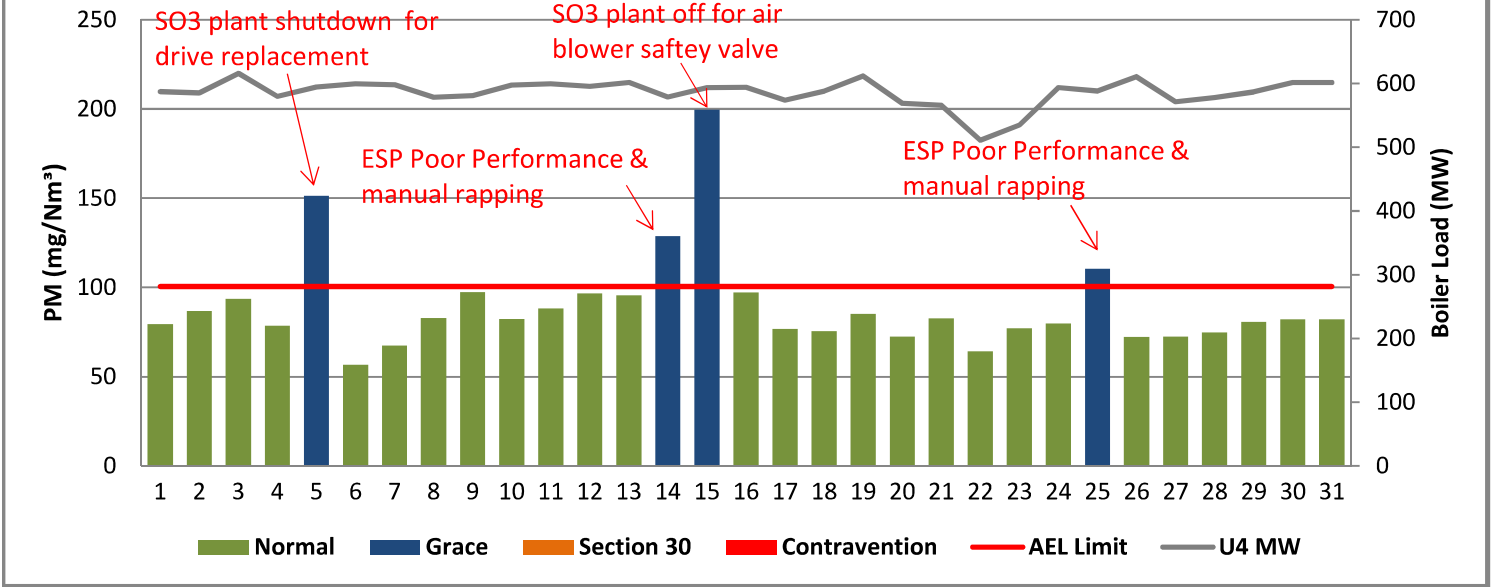
**Figure 2: Lethabo Unit 2 PM Emissions - October 2021**



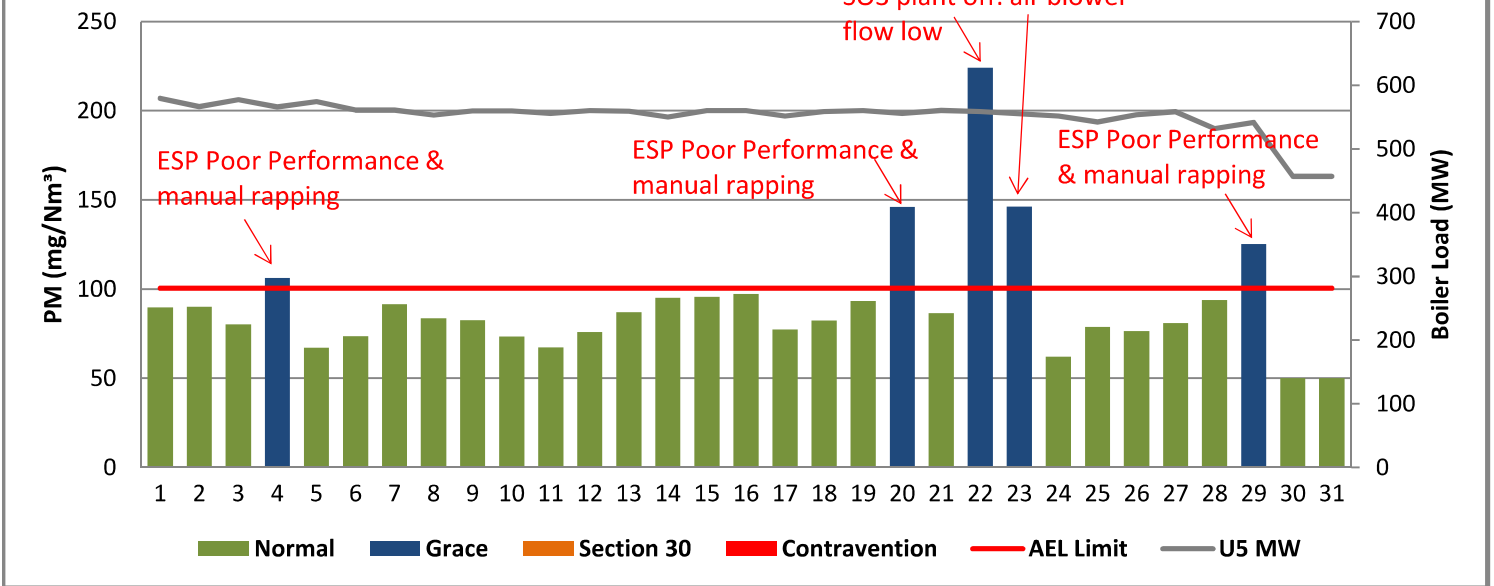
**Figure 3: Lethabo Unit 3 PM Emissions - October 2021**



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

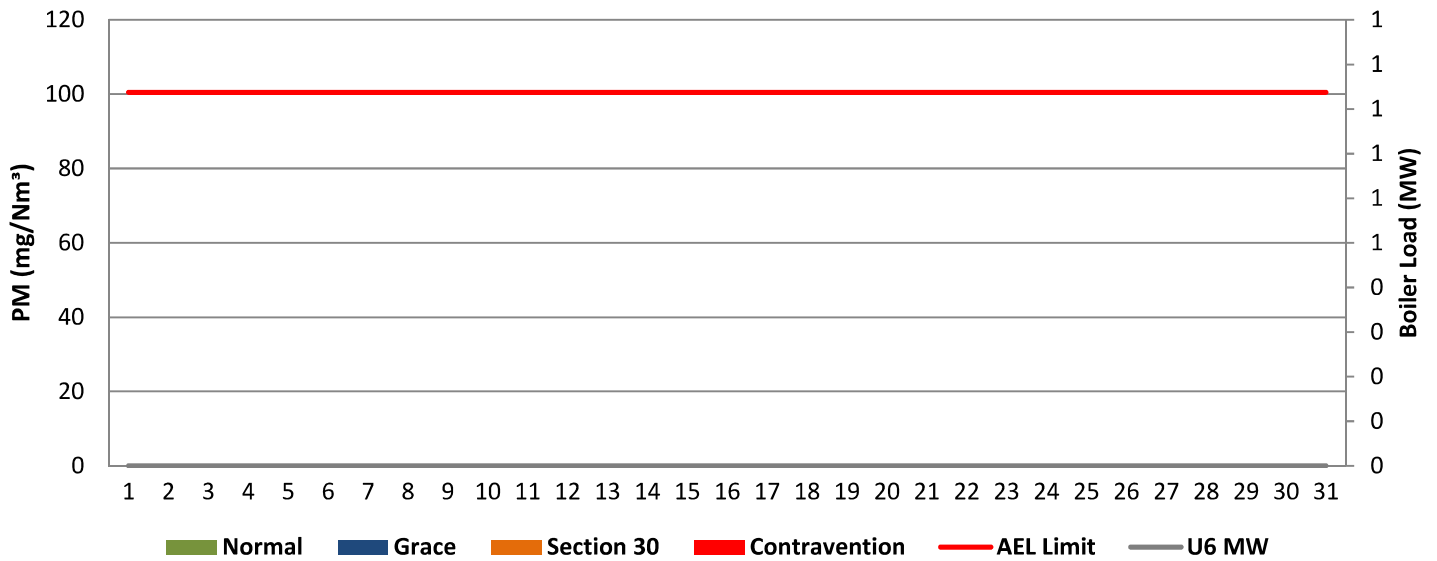


**Figure 5: Lethabo Unit 5 PM Emissions - October 2021**

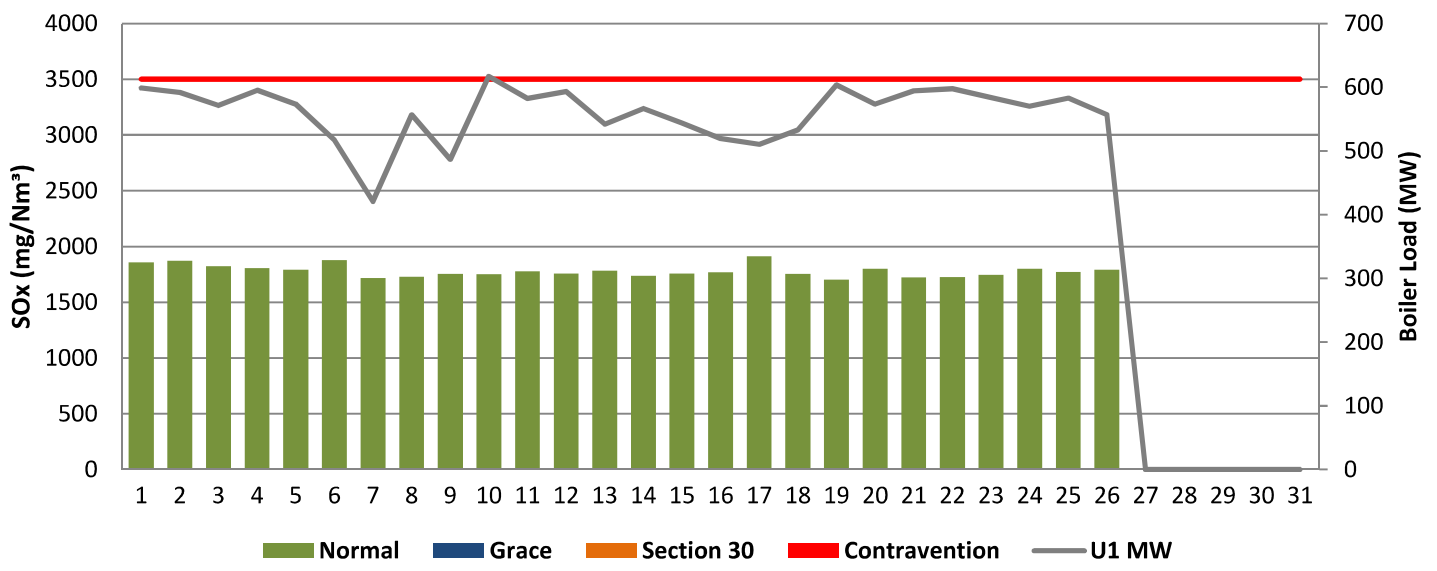




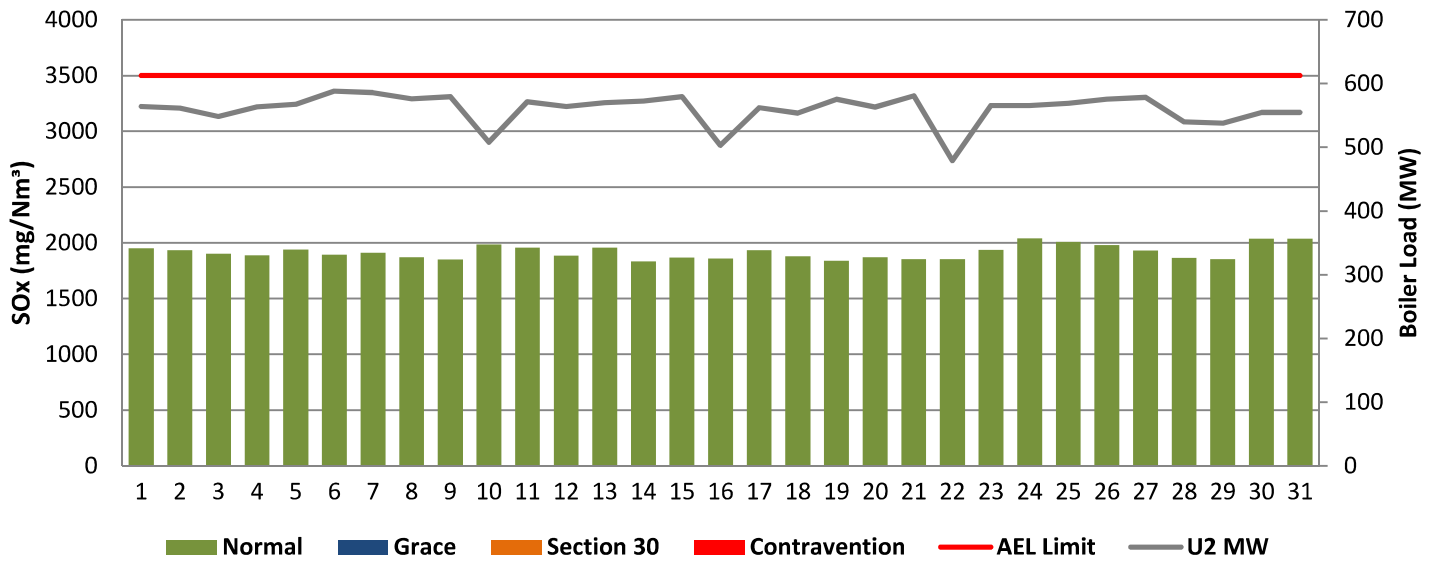
**Figure 6: Lethabo Unit 6 PM Emissions - October 2021**



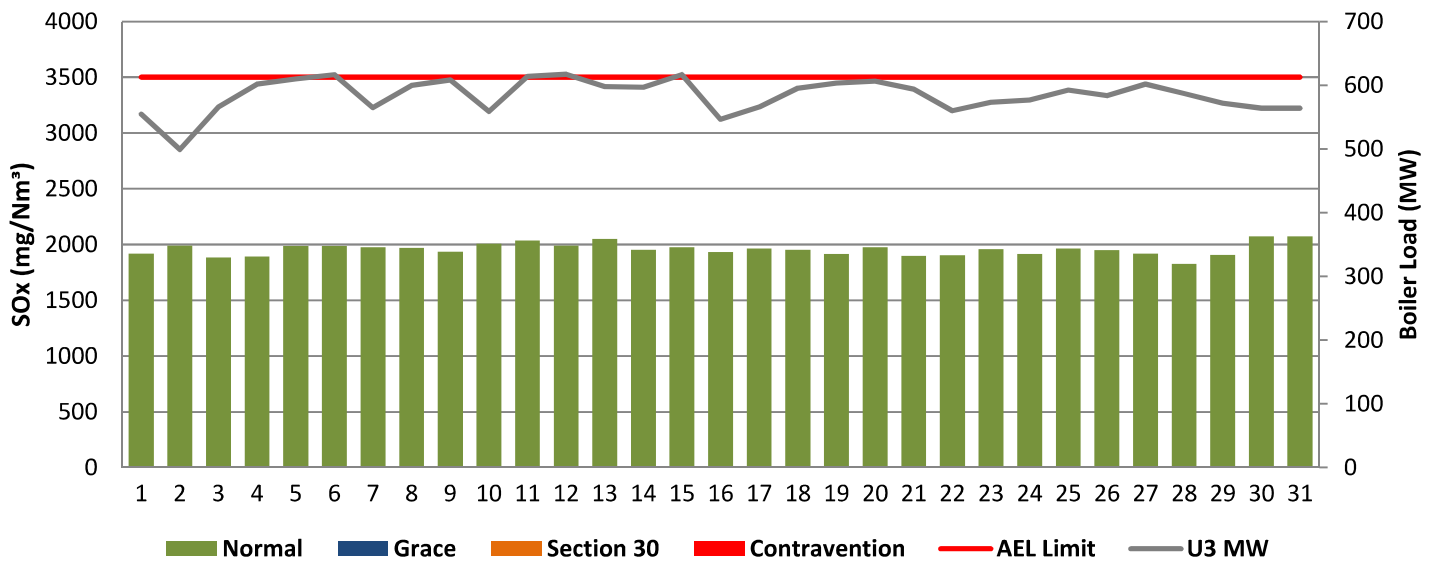
**Figure 7: Lethabo Unit 1 SOx Emissions - October 2021**



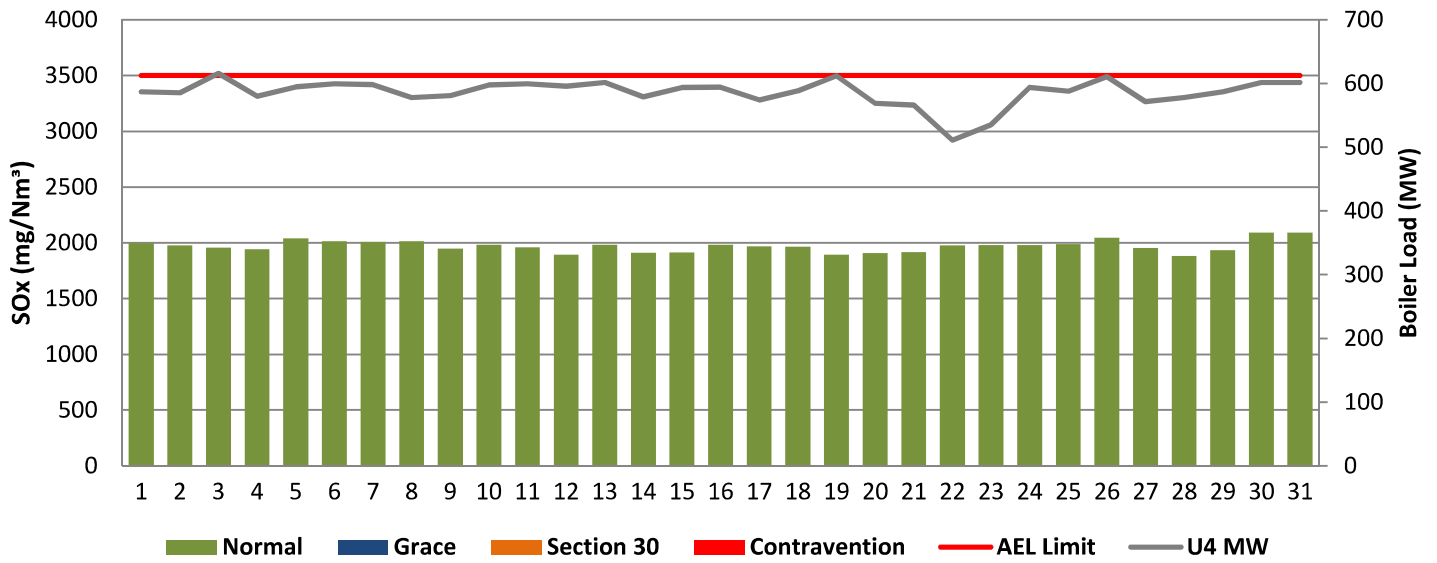
**Figure 8: Lethabo Unit 2 SOx Emissions - October 2021**



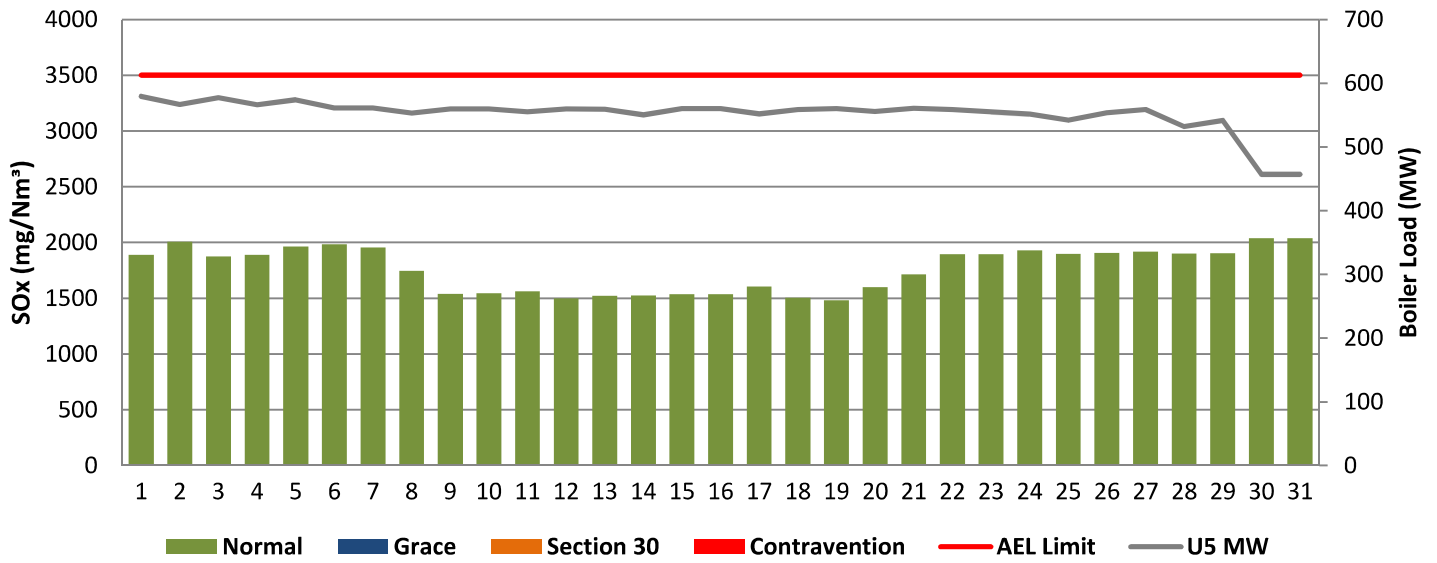
**Figure 9: Lethabo Unit 3 SOx Emissions - October 2021**



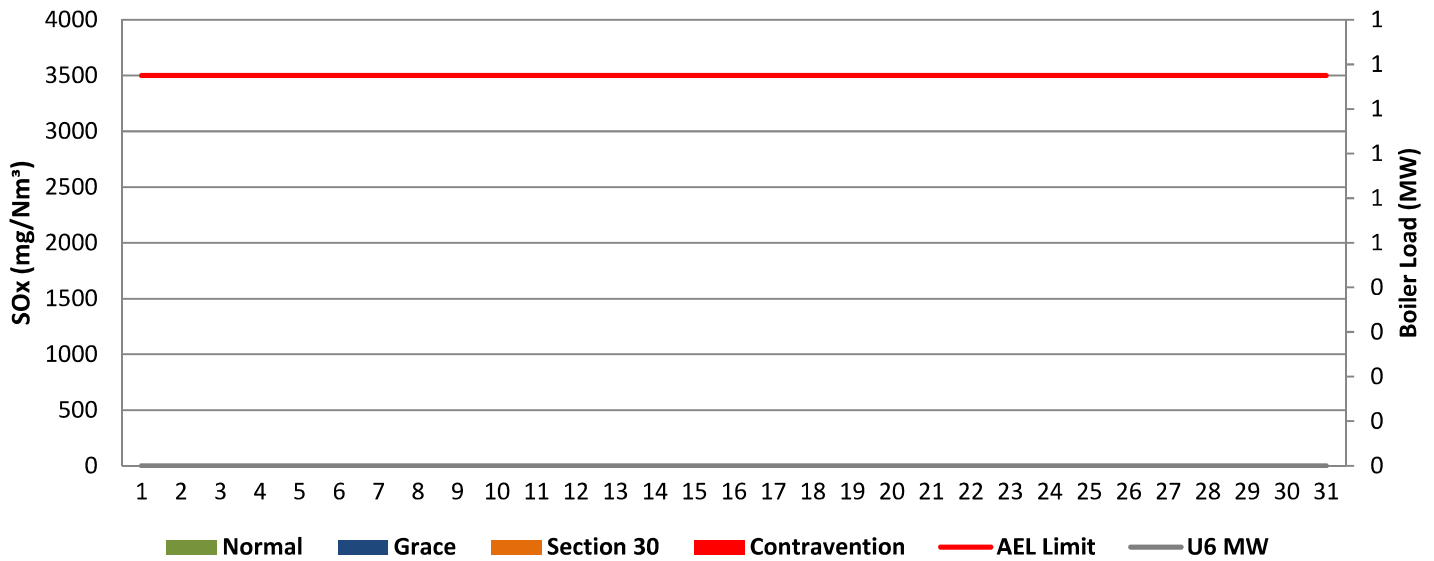
**Figure 10: Lethabo Unit 4 SOx Emissions - October 2021**



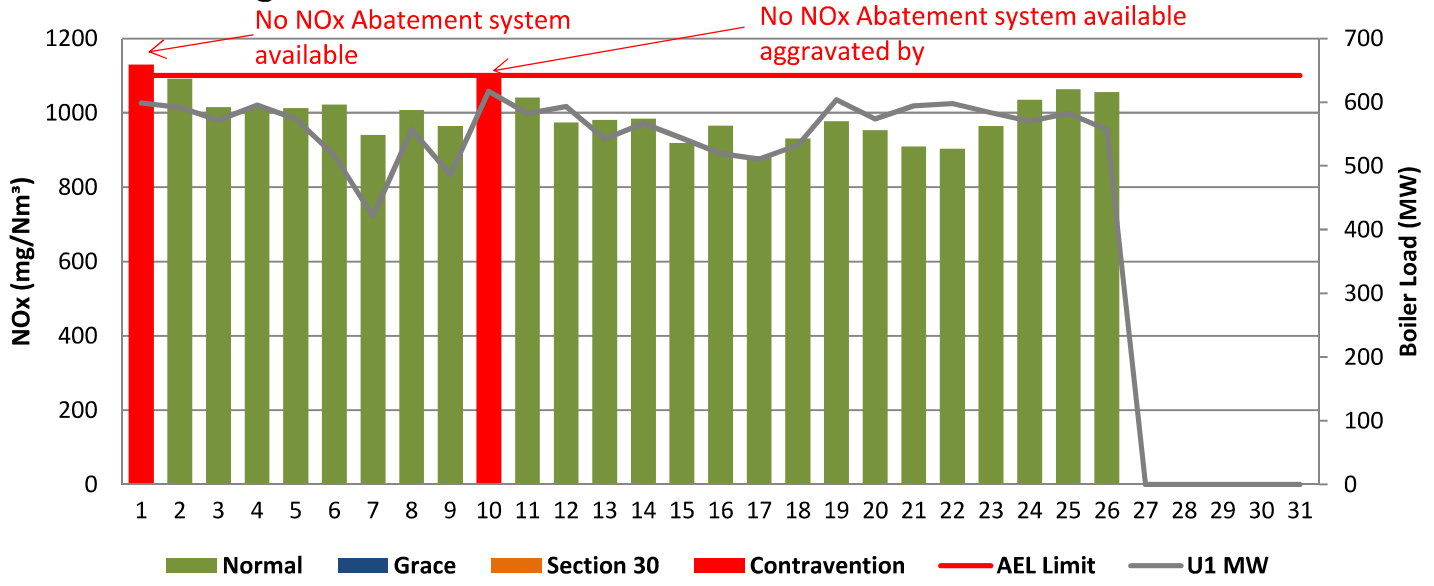
**Figure 11: Lethabo Unit 5 SOx Emissions - October 2021**



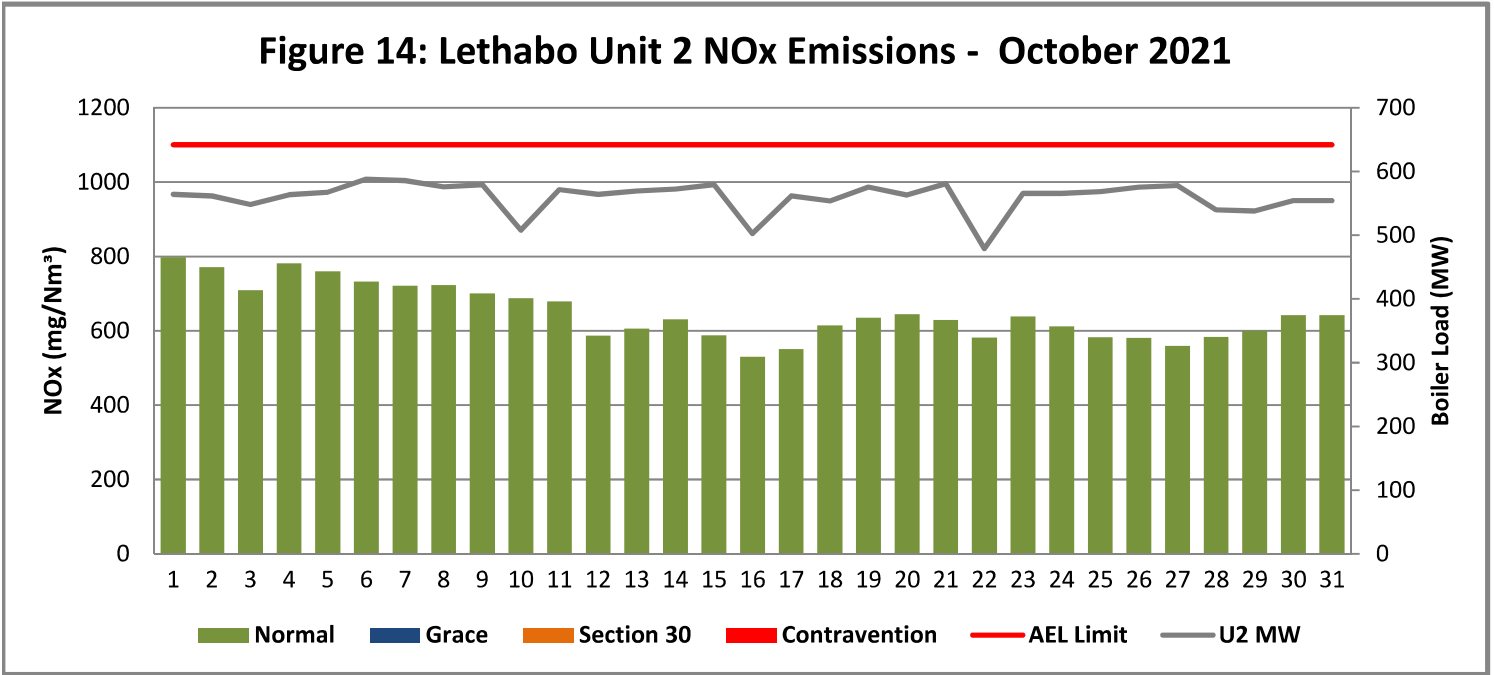
**Figure 12: Lethabo Unit 6 SOx Emissions - October 2021**



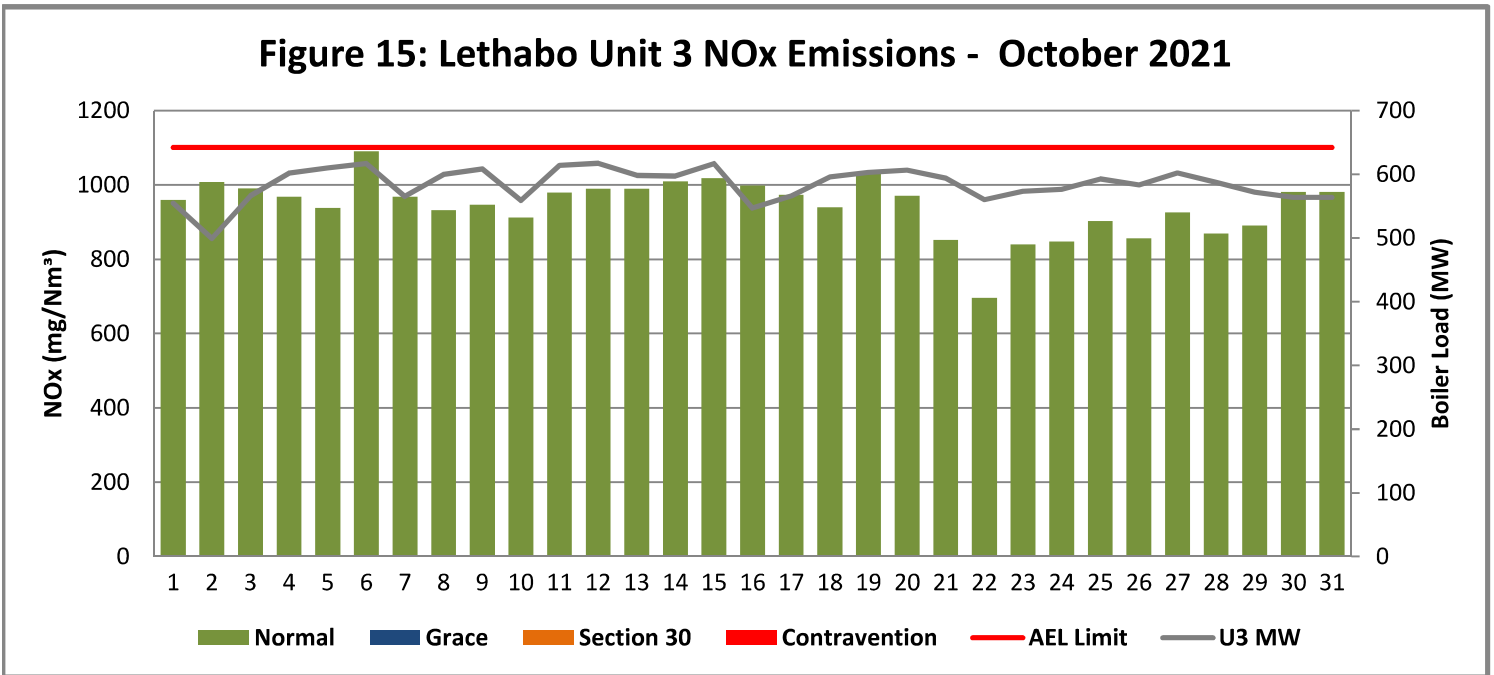
**Figure 13: Lethabo Unit 1 NOx Emissions - October 2021**



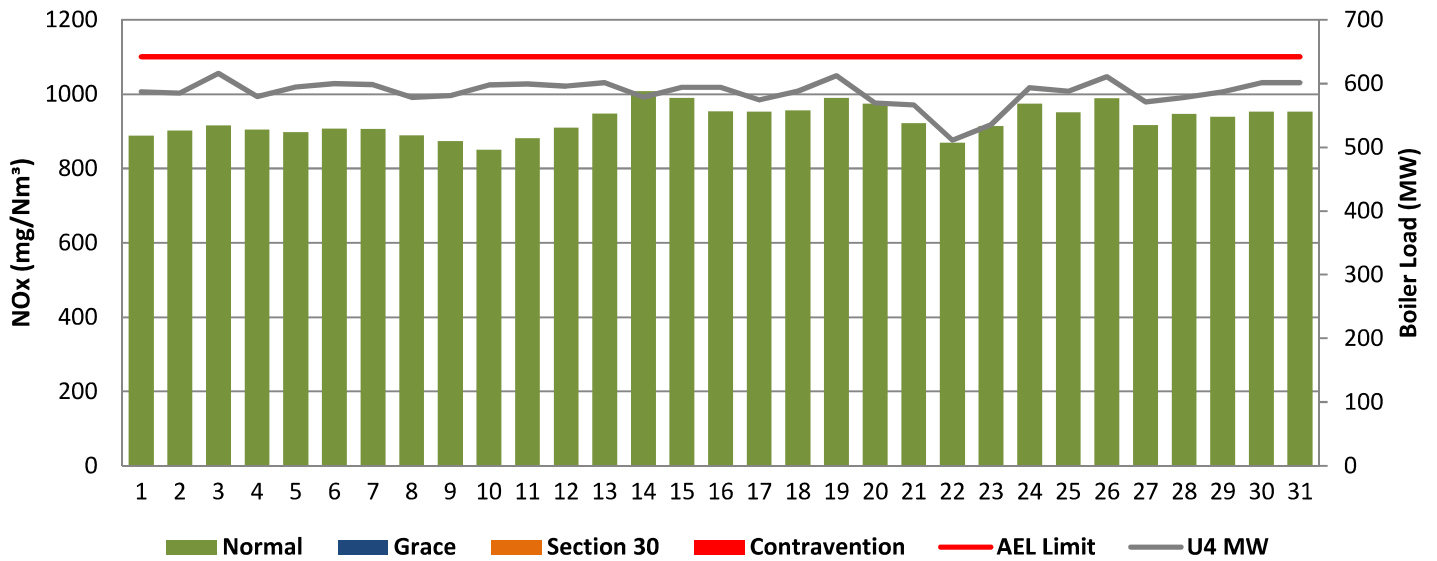
**Figure 14: Lethabo Unit 2 NOx Emissions - October 2021**



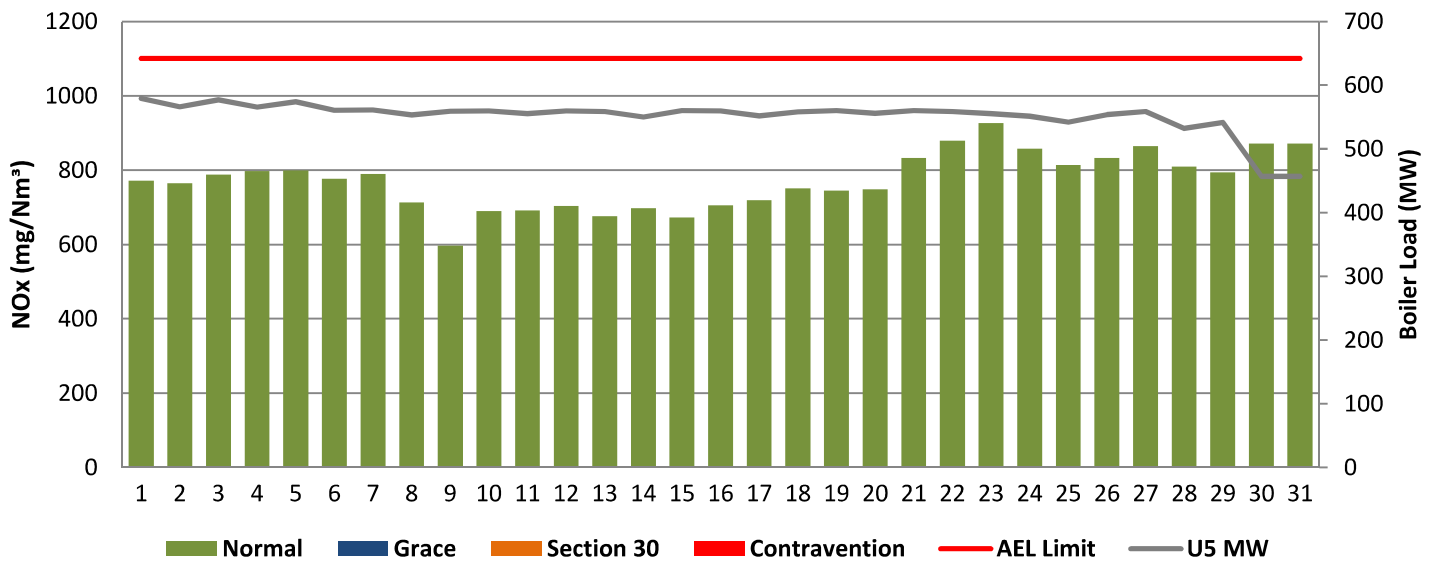
**Figure 15: Lethabo Unit 3 NOx Emissions - October 2021**



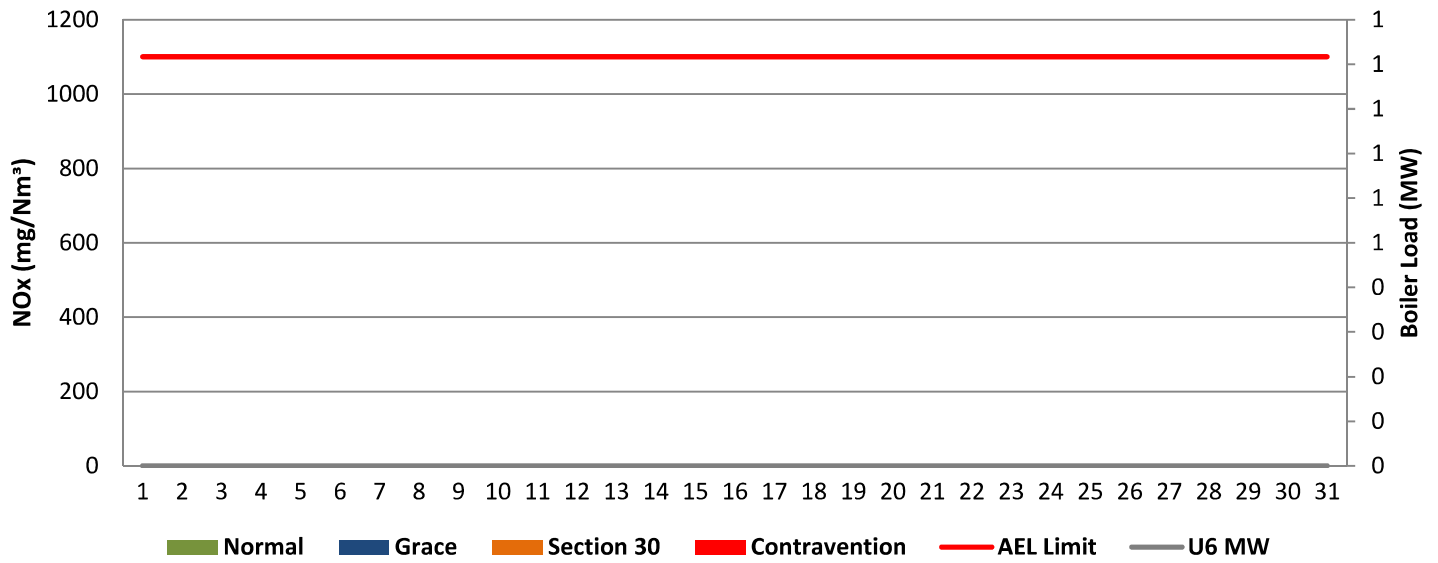
**Figure 16: Lethabo Unit 4 NOx Emissions - October 2021**



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



**Figure 18: Lethabo Unit 6 NOx Emissions - October 2021**



## 7 SHUT DOWN AND LIGHT UP INFORMATION

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

Unit No.1	Boiler tripped on Low drum level		Boiler tube leak					
Breaker Open (BO)	2:25 PM	2021/10/18	12:45 PM	2021/10/26				
Draught Group (DG) Shut Down (SD)	DG did not trip or SD	DG did not trip or SD	7:55 AM	2021/10/28				
BO to DG SD (duration)	n/a	DD:HH:MM	01:19:10	DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	3:57 PM	2021/10/19						
Synch. to Grid (or BC)	5:25 PM	2021/10/18						
Fires in to BC (duration)	#####	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)		#N/A						
Emissions below limit from BC (duration)	n/a	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM

Unit No.2	Boiler tripped on drum level low							
Breaker Open (BO)	1:35 PM	2021/10/22						
Draught Group (DG) Shut Down (SD)	3:05 PM	2021/10/22						
BO to DG SD (duration)	00:01:30	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	3:10 PM	2021/10/22						
Synch. to Grid (or BC)	4:30 PM	2021/10/22						
Fires in to BC (duration)	00:01:20	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)		#N/A						
Emissions below limit from BC (duration)	n/a	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM



<b>Unit No.3</b>								
<b>Breaker Open (BO)</b>								
<b>Draught Group (DG) Shut Down (SD)</b>								
<b>BO to DG SD (duration)</b>		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.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>							
<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.6</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

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

## 8. MAINTENANCE

<b>Unit 1</b>				
<b>Beginning of</b>	2021/10/05 23:59	2021/10/09 00:02	2021/10/16 01:08	2021/10/17 00:29
<b>Reason for Maintenance</b>	LHI precip casing repairs	LHO precip casing repairs	RHO precip casing repairs	LHI precip casing repairs
<b>End (Time):</b>	2021/10/06 18:24	2021/10/10 00:00	2021/10/16 19:06	2021/10/17 19:57
<b>Duration</b>	18:25:00	23:58:00	17:58:00	19:28:00

<b>Unit 1 cont.</b>				
<b>Beginning of</b>	2021/10/18 09:23			
<b>Reason for Maintenance</b>	SO3 plant out of service			
<b>End (Time):</b>	2021/10/18 11:14			
<b>Duration</b>	1:51:00			

<b>Unit 2</b>				
<b>Beginning of</b>	2021/10/10 00:00:00			
<b>Reason for Maintenance</b>	LHI precip casing repairs			
<b>End (Time):</b>	2021/10/10 18:57:00			
<b>Duration</b>	18:57:00			

<b>Unit 3</b>				
<b>Beginning of</b>	2021/10/02 05:00:00			
<b>Reason for Maintenance</b>	LHI precip casing repairs			
<b>End (Time):</b>	2021/10/03 00:58:00			
<b>Duration</b>	19:58:00			

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

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

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

## 9. GENERAL

Unit 1:

NOx Exceedance on 01/10/2021 : There is no NOx Abatement system.

NOx Exceedance on 11/10/2021 : There is no NOx Abatement system and aggravated by Two Top Mills in Service. E mill was not in service to attend to defects.

Unit 1:

Opacity PM Monitor Availabilty on 06/10/2021 : The monitor availability was 70.8% due to the monitor maxing out.

Opacity PM Monitor Availabilty on 10/10/2021 : The monitor availability was 58.3% due to variability between Output 1 and Output 2. This causes the tool to exclude those values rendering a low availability.

Unit 1:

NEMA S30 reported on 07/10/2021 until 11/10/2021 : NEMA S30 reported due ro dust handling plant issues and high hopper levels.

Unit 2:

Opacity PM Monitor Availabilty on 26/10/2021 : The monitor tripped between 08:05am - 12:10pm, the raw data was removed for this period.

Unit 6:

Unit 6 Shut down on 21/08/2021 at 14:32 for Planned IR outage.

**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	07/10/2021	11/10/2021	Dust Handling Plant Repairs	Dust handling plant bucket elevator A repairs and backlogging of full ESP ash hoppers	08/10/2021	21/10/2021	None		PM Exceedance >72 hours - NEMA Section 30 Reported
1	01/10/2021	01/10/2021	There is no NOx Abatement system	Install Low NOx Burners.	N/A	N/A	None		NOx exceedances - Legal Contravention
1	11/10/2021	11/10/2021	There is no NOx Abatement system and aggravated by Two Top Mills in Service.	Install Low NOx Burners.	N/A	N/A	None		NOx exceedances - Legal Contravention

**11. PARTICULATE EMISSIONS**

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

MONTH	UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 5	UNIT 6	STATION
Nov-20	0.42	0.49	OFF	0.40	0.32	0.41	0.41
Dec-20	0.46	0.94	OFF	0.66	0.54	0.48	0.63
Jan-21	0.75	0.66	0.68	0.39	0.40	0.54	0.53
Feb-21	OFF	0.64	0.59	0.49	0.51	0.52	0.56
Mar-21	OFF	0.80	0.54	0.45	0.46	0.42	0.54
Apr-21	0.78	0.49	0.52	0.43	0.31	0.48	0.47
May-21	0.33	0.45	0.42	0.53	0.49	0.49	0.46
Jun-21	0.26	0.63	0.37	0.36	0.35	0.33	0.38
Jul-21	0.23	0.55	0.43	0.31	0.27	0.29	0.35
Aug-21	0.24	0.73	0.41	0.55	0.24	0.28	0.41
Sep-21	0.38	0.92	0.52	0.33	0.26	OFF	0.47
Oct-21	0.63	0.53	0.50	0.50	0.40	OFF	0.51

**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-Oct	227	90	96	79	90	OFF	100
02-Oct	198	100	295	87	90	OFF	100
03-Oct	87	92	73	94	80	OFF	100
04-Oct	116	121	96	79	106	OFF	100
05-Oct	150	97	108	151	67	OFF	100
06-Oct	428	89	127	57	74	OFF	100
07-Oct	296	193	95	67	92	OFF	100
08-Oct	290	93	112	83	84	OFF	100
09-Oct	402	126	123	97	83	OFF	100
10-Oct	285	199	89	82	73	OFF	100
11-Oct	149	88	109	88	67	OFF	100
12-Oct	98	76	143	97	76	OFF	100
13-Oct	103	95	98	95	87	OFF	100
14-Oct	98	102	131	129	95	OFF	100
15-Oct	121	111	137	200	96	OFF	100
16-Oct	274	92	90	97	97	OFF	100
17-Oct	136	83	93	77	77	OFF	100
18-Oct	79	72	91	75	82	OFF	100
19-Oct	52	99	98	85	93	OFF	100
20-Oct	48	93	81	73	146	OFF	100
21-Oct	50	97	85	83	87	OFF	100
22-Oct	62	100	59	64	224	OFF	100
23-Oct	98	115	81	77	146	OFF	100
24-Oct	63	84	67	80	62	OFF	100
25-Oct	57	74	65	110	79	OFF	100
26-Oct	74	73	69	72	76	OFF	100
27-Oct	OFF	70	84	72	81	OFF	100
28-Oct	OFF	68	79	75	94	OFF	100
29-Oct	OFF	70	73	81	125	OFF	100
30-Oct	OFF	80	83	82	50	OFF	100
31-Oct	OFF	78	85	93	90	OFF	100

**ADDENDUM TO MONTHLY EMISSIONS REPORT**

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

Date	U1	U2	U3	U4	U5	U6	Limit
01-Oct	1858	1951	1918	1998	1889	OFF	3500
02-Oct	1873	1934	1989	1977	2008	OFF	3500
03-Oct	1823	1901	1886	1958	1875	OFF	3500
04-Oct	1808	1889	1894	1942	1890	OFF	3500
05-Oct	1792	1937	1985	2042	1964	OFF	3500
06-Oct	1877	1895	1985	2013	1985	OFF	3500
07-Oct	1717	1912	1974	2007	1957	OFF	3500
08-Oct	1728	1871	1969	2014	1744	OFF	3500
09-Oct	1754	1853	1934	1947	1541	OFF	3500
10-Oct	1752	1988	2008	1982	1544	OFF	3500
11-Oct	1775	1955	2036	1959	1561	OFF	3500
12-Oct	1757	1884	1989	1895	1499	OFF	3500
13-Oct	1782	1955	2049	1981	1522	OFF	3500
14-Oct	1737	1835	1952	1911	1526	OFF	3500
15-Oct	1757	1867	1976	1913	1536	OFF	3500
16-Oct	1769	1860	1931	1983	1538	OFF	3500
17-Oct	1911	1935	1963	1967	1604	OFF	3500
18-Oct	1754	1880	1953	1965	1505	OFF	3500
19-Oct	1703	1840	1916	1895	1483	OFF	3500
20-Oct	1801	1871	1974	1910	1597	OFF	3500
21-Oct	1724	1854	1898	1919	1713	OFF	3500
22-Oct	1725	1854	1905	1978	1894	OFF	3500
23-Oct	1746	1935	1957	1979	1896	OFF	3500
24-Oct	1802	2041	1916	1979	1931	OFF	3500
25-Oct	1771	2008	1963	1988	1897	OFF	3500
26-Oct	1794	1980	1949	2046	1906	OFF	3500
27-Oct	OFF	1930	1917	1955	1920	OFF	3500
28-Oct	OFF	1865	1825	1881	1900	OFF	3500
29-Oct	OFF	1855	1907	1934	1903	OFF	3500
30-Oct	OFF	2038	2073	2091	2037	OFF	3500
31-Oct	OFF	1937	1980	1952	1942	OFF	3500

**ADDENDUM TO MONTHLY EMISSIONS REPORT**

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

Date	U1	U2	U3	U4	U5	U6	Limit
01-Oct	1129	798	959	888	772	OFF	1100
02-Oct	1092	771	1008	903	765	OFF	1100
03-Oct	1015	710	991	916	788	OFF	1100
04-Oct	1016	781	967	905	798	OFF	1100
05-Oct	1013	760	938	899	799	OFF	1100
06-Oct	1022	732	1090	907	777	OFF	1100
07-Oct	940	721	968	907	790	OFF	1100
08-Oct	1008	723	932	889	713	OFF	1100
09-Oct	965	701	946	874	597	OFF	1100
10-Oct	1106	687	912	851	690	OFF	1100
11-Oct	1041	679	979	882	692	OFF	1100
12-Oct	974	587	990	910	704	OFF	1100
13-Oct	981	606	990	948	676	OFF	1100
14-Oct	984	631	1010	1008	698	OFF	1100
15-Oct	919	588	1017	990	673	OFF	1100
16-Oct	965	530	998	954	706	OFF	1100
17-Oct	884	551	973	953	719	OFF	1100
18-Oct	931	615	940	956	751	OFF	1100
19-Oct	978	635	1034	990	745	OFF	1100
20-Oct	953	644	970	974	748	OFF	1100
21-Oct	909	629	852	922	833	OFF	1100
22-Oct	903	582	696	869	879	OFF	1100
23-Oct	965	639	840	915	927	OFF	1100
24-Oct	1035	613	848	974	857	OFF	1100
25-Oct	1064	583	903	952	814	OFF	1100
26-Oct	1056	581	856	989	833	OFF	1100
27-Oct	OFF	559	926	917	865	OFF	1100
28-Oct	OFF	583	869	947	809	OFF	1100
29-Oct	OFF	599	891	938	794	OFF	1100
30-Oct	OFF	641	981	953	872	OFF	1100
31-Oct	OFF	659	928	999	923	OFF	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
Nov-20	97.50%	3.0	98.33%	2.0	OFF LOAD	0.0	100.00%	0.0	100.00%	0.0	99.17%	1.0
Dec-20	98.39%	2.0	97.58%	3.0	OFF LOAD	0.0	100.00%	0.0	99.19%	1.0	100.00%	0.0
Jan-21	100.00%	0.0	99.19%	1.0	100%	0.0	100.00%	0.0	99.19%	1.0	99.19%	1.0
Feb-21	OFF LOAD	0.0	99.11%	1.0	98%	2.0	100.00%	0.0	100.00%	0.0	100.00%	0.0
Mar-21	OFF LOAD	0.0	97.58%	3.0	99%	1.0	100.00%	0.0	100.00%	0.0	100.00%	0.0
Apr-21	100.00%	0.0	100.00%	0.0	97.75%	2.7	99.23%	0.9	100.00%	0.0	98.48%	1.8
May-21	88.70%	2.0	100.00%	0.0	100.00%	0.0	100.00%	0.0	88.82%	1.9	100.00%	0.0
Jun-21	98.59%	1.7	99.28%	0.9	99.18%	1.0	100.00%	0.0	100.00%	0.0	100.00%	0.0
Jul-21	100.00%	0.0	100.00%	0.0	99.38%	0.8	100.00%	0.0	100.00%	0.0	100.00%	0.0
Aug-21	99.33%	0.8	100.00%	0.0	99.26%	0.9	100.00%	0.0	100.00%	0.0	100.00%	0.0
Sep-21	95.94%	1.0	96.00%	1.0	95.98%	1.0	95.97%	1.0	100.00%	0.0	OFF	OFF
Oct-21	97.32%	3.3	99.36%	0.8	99.33%	0.8	100.00%	0.0	100.00%	0.0	OFF	OFF

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
Nov-20	100.00%	0.0	96.67%	1.0	OFF LOAD	0.0	100.00%	0.0	100.00%	0.0	100.00%	0.0
Dec-20	100.00%	0.0	100.00%	0.0	OFF LOAD	0.0	100.00%	0.0	93.55%	2.0	100.00%	0.0
Jan-21	57.14%	3.0	100.00%	0.0	84%	5.0	100.00%	0.0	96.77%	1.0	100.00%	0.0
Feb-21	OFF LOAD	0.0	100.00%	0.0	96%	1.0	92.86%	2.0	100.00%	0.0	100.00%	0.0
Mar-21	OFF LOAD	0.0	100.00%	0.0	100%	0.0	100.00%	0.0	87.10%	4.0	100.00%	0.0
Apr-21	85.06%	4.5	100.00%	0.0	88.46%	3.5	100.00%	0.0	99.33%	0.2	100.00%	0.0
May-21	100.00%	0.0	100.00%	0.0	81.77%	2.7	76.09%	4.4	78.12%	3.8	100.00%	0.0
Jun-21	100.00%	0.0	100.00%	0.0	92.28%	2.3	100.00%	0.0	100.00%	0.0	100.00%	0.0
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

**ADDENDUM TO MONTHLY EMISSIONS REPORT**

Particulate Emission Monitors

Availability						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Nov-20	94.04%	94.58%	OFF	97.17%	97.28%	99.69%
Dec-20	98.99%	99.01%	OFF	98.92%	93.67%	99.19%
Jan-21	86.90%	99.60%	99.74%	100.00%	91.53%	99.44%
Feb-21	OFF	99.70%	98.46%	100.00%	94.64%	98.90%
Mar-21	OFF	99.87%	99.06%	96.15%	99.60%	100.00%
Apr-21	83.69%	99.65%	99.28%	99.58%	99.86%	99.87%
May-21	99.01%	100.00%	94.83%	99.72%	97.31%	99.38%
Jun-21	99.72%	99.17%	99.31%	99.83%	99.86%	99.82%
Jul-21	98.12%	99.60%	99.87%	99.04%	98.22%	99.06%
Aug-21	100.00%	99.60%	99.60%	99.36%	100.00%	100.00%
Sep-21	98.61%	96.91%	99.03%	99.54%	99.72%	OFF
Oct-21	95.51%	99.06%	99.46%	99.87%	99.87%	OFF

## 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>
Nov-20	97.66%	97.66%	97.64%	97.78%	OFF	OFF	94.14%	94.14%	94.55%	94.55%	94.64%	94.64%
Dec-20	99.17%	99.17%	98.89%	99.05%	OFF	OFF	99.22%	99.22%	95.32%	95.32%	99.33%	99.33%
Jan-21	99.56%	99.56%	99.60%	99.73%	99.12%	99.12%	92.39%	92.39%	99.87%	99.87%	100.00%	100.00%
Feb-21	OFF	OFF	99.70%	99.70%	99.70%	99.70%	92.56%	92.71%	98.65%	98.65%	98.27%	98.52%
Mar-21	OFF	OFF	100.00%	100.00%	100.00%	100.00%	96.07%	96.07%	99.97%	99.97%	99.60%	99.60%
Apr-21	99.47%	99.76%	99.83%	99.83%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	99.84%	99.84%
May-21	94.33%	94.33%	99.87%	100.00%	100.00%	100.00%	99.87%	99.87%	100.00%	100.00%	100.00%	100.00%
Jun-21	99%	99%	99.72%	99.86%	100%	100%	99.76%	99.76%	99.86%	99.86%	99.71%	99.71%
Jul-21	99.73%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	98.66%	98.66%	98.79%	98.92%
Aug-21	89.25%	89.78%	99.60%	99.73%	99.73%	99.73%	100.00%	100.00%	99.87%	99.87%	95.27%	95.27%
Sep-21	99.58%	99.58%	99.55%	99.55%	99.58%	99.72%	99.70%	99.70%	99.58%	99.72%	OFF	OFF
Oct-21	99.52%	99.36%	99.73%	99.87%	99.87%	99.87%	99.73%	99.87%	100.00%	100.00%	OFF	OFF

Oxygen Monitor Availability						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Nov-20	99.45%	99.72%	OFF	93.97%	94.55%	94.64%
Dec-20	99.31%	98.85%	OFF	99.22%	95.32%	99.33%
Jan-21	99.56%	99.06%	99.54%	100.00%	99.87%	99.87%
Feb-21	OFF	99.70%	99.55%	99.26%	98.32%	98.52%
Mar-21	OFF	100.00%	100.00%	96.43%	99.97%	99.87%
Apr-21	99.40%	98.91%	99.87%	99.72%	100.00%	99.37%
May-21	94.16%	99.87%	99.86%	99.87%	99.87%	98.63%
Jun-21	99.58%	99.79%	99.72%	99.76%	99.72%	99.55%
Jul-21	100.00%	99.87%	99.60%	99.52%	98.73%	98.79%
Aug-21	99.46%	99.87%	99.60%	100.00%	100.00%	95.45%
Sep-21	99.72%	99.13%	97.78%	99.55%	99.72%	OFF
Oct-21	99.84%	99.87%	97.04%	99.87%	99.73%	OFF

### ADDENDUM TO MONTHLY EMISSIONS REPORT

#### 14. EFFICIENCY

ESP Efficiency (%)						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Nov-20	99.835%	99.792%	OFF	99.833%	99.863%	99.822%
Dec-20	99.816%	99.605%	OFF	99.734%	99.779%	99.791%
Jan-21	99.622%	99.689%	99.717%	99.832%	99.813%	99.745%
Feb-21	OFF	99.722%	99.736%	99.799%	99.779%	99.775%
Mar-21	OFF	99.659%	99.769%	99.823%	99.802%	99.817%
Apr-21	99.679%	99.788%	99.777%	99.825%	99.858%	99.788%
May-21	99.866%	99.809%	99.825%	99.791%	99.782%	99.786%
Jun-21	99.894%	99.724%	99.844%	99.856%	99.839%	99.852%
Jul-21	99.916%	99.756%	99.819%	99.879%	99.887%	99.838%
Aug-21	99.894%	99.656%	99.810%	99.759%	99.883%	99.864%
Sep-21	99.836%	99.567%	99.756%	99.855%	99.873%	OFF
Oct-21	99.752%	99.776%	99.789%	99.800%	99.823%	OFF

15. REMARKS

UNIT	MWLOSS	REASON	ACTUALSTARTDATE	ACTUALENDDATE
1	218	AM: A-Bucket keeps on tripping	2021/10/03 02:21:00	2021/10/03 06:07:00
1	218	AM: 1ABucket elevator repairs.	2021/10/05 00:23:00	2021/10/05 05:04:00
1	118	LHI precip casing repairs	2021/10/05 23:59:00	2021/10/06 18:24:00
1	118	AM: Dust plant standing	2021/10/06 21:46:00	2021/10/07 00:21:00
1	218	AM: BE A on PTW for belt replacement causing high Emissions	2021/10/07 00:21:00	2021/10/07 03:04:00
1	238	AM: BE A on PTW for belt replacement causing high Emissions	2021/10/07 03:04:00	2021/10/07 17:24:00
1	238	AM:Dust plant standing	2021/10/07 20:55:00	2021/10/08 06:05:00
1	118	LHO Pricip casing repairs	2021/10/09 00:02:00	2021/10/10 00:00:00
1	100	AM: Dust plant standing.	2021/10/09 13:51:00	2021/10/09 17:00:00
1	118	High Hopper levels Ash back lock.	2021/10/11 10:01:00	2021/10/11 16:21:00
1	18	High stack emissions.	2021/10/12 18:15:00	2021/10/12 19:30:00
1	68	EF: High stack emissions.	2021/10/12 19:30:00	2021/10/12 20:30:00
1	118	EF: High stack emissions.	2021/10/12 20:30:00	2021/10/13 00:00:00
1	118	EF: Ash hopper backlogging.	2021/10/13 00:00:00	2021/10/13 00:58:00
1	200	EF:High stack emissions.	2021/10/13 12:02:00	2021/10/13 16:46:00
1	200	High stack emissions.	2021/10/13 21:46:00	2021/10/13 22:15:00
1	218	High stack emissions.	2021/10/13 22:15:00	2021/10/14 00:32:00
1	118	High stack emissions.	2021/10/14 00:32:00	2021/10/14 04:15:00
1	218	High stack emissions.	2021/10/15 11:18:00	2021/10/15 17:35:00
1	118	AM: RHO precip casing repairs	2021/10/16 01:08:00	2021/10/16 19:06:00
1	50	AM: LHI precip casing repairs	2021/10/17 00:29:00	2021/10/17 19:57:00
1	118	EF: High stack emissions due to SO3 plant out of service	2021/10/18 09:23:00	2021/10/18 11:14:00
1	593	Boiler tripeed on Low drum level	2021/10/18 14:15:00	2021/10/18 17:28:00
1	297	System Generated Ramp Event for Event id : 1616177	2021/10/18 17:28:00	2021/10/18 18:58:00
1	593	Boiler tube leak	2021/10/26 12:37:00	2021/10/31 23:59:59
2	100	EF: High stack emissions	2021/10/03 19:38:00	2021/10/04 00:10:00
2	100	High stack emissions.	2021/10/05 20:15:00	2021/10/06 00:37:00
2	100	LHI precip casing repairs.	2021/10/10 00:00:00	2021/10/10 18:57:00
2	100	High stack emissions due to high hopper levels	2021/10/14 23:20:00	2021/10/15 00:17:00
2	50	High stack emissions due to high hopper levels	2021/10/16 09:32:00	2021/10/16 14:03:00
2	100	High stack emissions due to high hopper levels	2021/10/16 14:03:00	2021/10/16 16:28:00
2	200	High stack emissions due to high stack emissions	2021/10/16 16:28:00	2021/10/17 00:35:00
2	593	Boiler tripped on drum level low	2021/10/22 13:27:00	2021/10/22 16:30:00
2	297	System Generated Ramp Event for Event id : 1617485	2021/10/22 16:30:00	2021/10/22 18:00:00
3	50	EF: High stack emissions	2021/10/01 08:39:00	2021/10/01 19:27:00
3	118	EF: High stack emissions	2021/10/01 19:27:00	2021/10/01 21:00:00
3	118	AM: E-mill ball loading hopper repairs	2021/10/01 21:00:00	2021/10/02 05:00:00
3	118	AM: LHI precip casing repairs	2021/10/02 05:00:00	2021/10/03 00:01:00
3	118	AM: LHI precip casing stil air test failed, back on permit	2021/10/03 00:01:00	2021/10/03 00:58:00
3	118	EF: High stack emissions	2021/10/07 10:03:00	2021/10/07 17:24:00
3	118	EF:High stack emissions	2021/10/07 20:38:00	2021/10/08 02:28:00
3	118	High stack emissions.	2021/10/10 00:21:00	2021/10/10 05:10:00
3	118	EF: High stack emissions	2021/10/10 10:00:00	2021/10/10 17:07:00
3	118	EF: High stack emissions test	2021/10/13 01:08:00	2021/10/13 05:00:00
3	118	High stack emissions	2021/10/16 09:44:00	2021/10/17 01:40:00
3	68	EF: High stack emissions.	2021/10/17 19:45:00	2021/10/18 04:22:00
4	50	EF: High stack emissions	2021/10/12 19:26:00	2021/10/12 21:35:00
4	90	EF: High stack emissions	2021/10/12 21:35:00	2021/10/13 00:31:00
6	593	AM: Unit on IR outage.	2021/10/01 00:00:00	2021/10/15 14:31:00
6	593	System Generated Slip Event linked to PCLF Event : 1594798	2021/10/15 14:31:00	2021/10/31 23:59:59

PM Exceedances		
U1.	High Hopper Levels and ESP poor performance	01-Oct
U1.	ESP Poor performance and Manual rapping	02-Oct
U1.	LHO and LHI casings are underperforming A bucket elevator is open for repairs and could contribute to high emissions, work to be completed on Thursday evening, MMS are working 24/7 to reduce downtime.	04-Oct
U1.	Casing taken	05-Oct
U1.	LHI & LHO Casing taken Manual rapping A Bucket elevator work still on track to be completed High hopper levels are contributing to high emissions, B line was blocked overnight and A line is off for repairs, so unit 1 did not have any DHP	06-Oct
U1.	NEMA S30 reported Ops confirmed 10 High Hopper levels on the DHP, backlogging taking place, however two belts tripped on RHI due to carry over	07-Oct
U1.	Ops confirmed 10 High Hopper levels on the DHP, backlogging taking place, however two belts tripped on RHI due to carry over	08-Oct
U1.	LHO precip casing	09-Oct
U1.	High hopper levels on plant contributing to high emissions, 10 high hopper levels confirmed. 21/42 conveyor is standing, causing issues on DHP. MMS attended to it last night, but it is standing again. LHI casing performance is not performing at all ESP Performance level low due to high hopper levels on DHP	10-Oct
U1.	Ops reported four high hopper levels, LHI and RHO, three are flowing one is still closed. Backlogging in progress. LHO F7 program fault LHI and RHO remaining defects	11-Oct
U1.	Ops confirmed that there are one high hopper level left RHO F1 fault Unit 1 has two comms fault, LHI F3 and RHI F7	13-Oct
U1.	ESP Poor Performance One high hopper level, Ops need to ensure that the hopper levels are flowing as it is the same status as yesterday. LHI F3 and RHI F7 did not do clean rapping LHI F3 is on PTW SO3 plant tripped 03:12-04:53	15-Oct
U1.	RHO casing outage SO3 plant tripped	16-Oct
U1.	LH Casing repairs	17-Oct
U1.	Unit off load for boiler tube leak	26-Oct
U2.	ESP Poor Performance and Manual Rapping	04-Oct
U2.	ESP Poor Performance and manual rapping	07-Oct
U2.	ESP poor performnce	09-Oct
U2.	LHI precip casing repairs	10-Oct
U2.	High hopper levels have increased yesterday. Ops reported 20 high hopper levels, due to 02WX12 tripped and bucket elevator flopper which didn't want to change. Issues were corrected and backlogging is in progress.	14-Oct
U2.	Ops reported 20 high hopper levels, due to 02WX12 tripped and bucket elevator flopper Issues were corrected and backlogging is in progress. Unit exceeded on Friday due to DHP, OPE advised that slide gates were closed, but backlogging was not done which caused excessive emissions.	15-Oct
U2.	SO3 plant trip 00:05-02:15 comm fault SO3 plant trip 09:44- 09:51 comm fault SO3 plant trip 14:56- 15:10 comm fault	23-Oct
U2.	Opacity meter tripped 08:05-12:10 (Raw data removed)	25-Oct

U3.	LHI casing outage	02-Oct
U3.	Rapping was done this morning at full load, negatively affecting the emissions today.	05-Oct
U3.	Clean rapping did not take place OPE reported that DHP is not under negative pressure, MMS need to resolve issues by inspecting all suction pipes for blockages	06-Oct
U3.	Poor ESP performance	08-Oct
U3.	ESP poor performance	11-Oct
U3.	BPE reported, RH side casings do not have enough vacuum at the hoppers and might cause the excessive emissions	12-Oct
U3.	Ops reported three high hopper levels. Elec eng reported that yesterday's emissions could be due to due to DHP back logging and ID fans running close to max	14-Oct
U3.	Ops reported three high hopper levels. OPE and MMS are busy to address the DHP problems	15-Oct
U4.	SO3 plant was shutdown yesterday for VSD replacement, thus high emissions from 13:00-23:59. VSD is operating with no issues Manual rapping was done	05-Oct
U4.	Manual rapping was done last night.	14-Oct
U4.	Unit exceeded due to SO3 plant is off since the morning due to air blower safety valve that has broken off	15-Oct
U4.	ESP Poor Performance and Manual Rapping	25-Oct
U5.	ESP Poor Performance and Manual Rapping	04-Oct
U5.	ESP Poor Performance and Manual rapping	20-Oct
U5.	SO3 Plant tripped on 21/10/2021 22:15 on air blower flow low. Back in service 23/10/2021 07:26	22-Oct
U5.	SO3 plant offline Back in service 23/10/2021 07:26	23-Oct
U5.	ESP Poor performance and Manual rapping	29-Oct
<b>NOX Exceedances</b>		
U1.	There is no NOx Abatement system	01-Oct
U1.	There is no NOx Abatement system and aggravated by Two Top Mills in Service.	11-Oct