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Date:
24 February 2023

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Ref. LRP02PLA000 _0316/20220907

Dear Mr. Sibaya,

LETHABO POWER STATION EMISSION MONTHLY REPORT FOR AUGUST 2022 RESUBMISSION

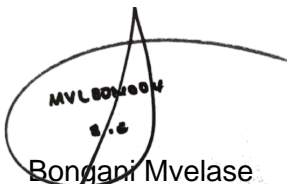
Please find attached revised emissions report for the month of August 2022 for Lethabo Power Station.

The resubmission is made due to the Unit 5 gaseous correlation curve that expired in July 2022 and the data was backfitted with a valid correlation curve which was implemented in December 2022. As such, the monthly reports for this period were revised. Additionally, a revised emissions reporting tool were used to improve the integrity of reported data.

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

For additional information please do not hesitate to contact us.

Yours sincerely



MVELASE
B.G.

Bongani Mvelase
GENERAL MANAGER



Report


Lethabo Power Station

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

Reference number: **LRP02PLA000 _0316/20220907**
Document Type: **Report**
Area of Applicability: **Environment**
Report Date: **September-2022**
Classification: **Controlled Disclosure**


Signatures:

Compiled by:


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P Parag
System Engineer


Date: 2023/02/17
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Verified by :


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W de Klerk
Senior Advisor Environment

Date: 2023 02 17
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Reviewed by:


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N Mazibuko
BPE Manager

Date: 20/02/2023
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Reviewed by:


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C Govinden
PE Manager

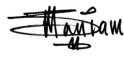
Date: 2023-02-21
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Date: 2023-02-21
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Reviewed by:


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Environmental Manager

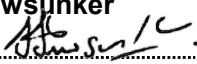
Date: 2023-02-22
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Approved by:

Nathi Mazibuko

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Engineering Manager

Date: 2023/02/23
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Approved by:

H Sewsunker

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Technical Plant Manager

Date: 2023/02/23
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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 Aug-2022
	Coal	Tons	2 000 000	1 428 082
	Fuel Oil	Tons	1 700	807.07
Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Production Rate Aug-2022
	Energy	GWh	2834.64	2 066.77
	Ash	Tons	770 000	517 679.7
	RE Ash	kg/MWh	Not Specified	250.48

2. ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.656 (Standard)	0.590
Ash Content	%	37.37 (Standard)	36.250

*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 Aug-2022
Unit 1	<i>Electrostatic Precipitator (ESP)</i>	99.88%
Unit 2	<i>Electrostatic Precipitator (ESP)</i>	99.78%
Unit 3	<i>Electrostatic Precipitator (ESP)</i>	99.77%
Unit 4	<i>Electrostatic Precipitator (ESP)</i>	99.68%
Unit 5	<i>Electrostatic Precipitator (ESP)</i>	99.87%
Unit 6	<i>Electrostatic Precipitator (ESP)</i>	99.85%

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	99.8	100.0	100.0
Unit 2	96.8	100.0	100.0
Unit 3	100.0	99.8	99.8
Unit 4	96.2	99.9	99.7
Unit 5	98.6	99.7	99.6
Unit 6	100.0	99.6	99.7

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 August 2022

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	93.7	2 999	1 473
Unit 2	184.3	3 215	1 396
Unit 3	148.8	2 637	1 230
Unit 4	264.3	3 489	1 685
Unit 5	94.7	3618	1266
Unit 6	130.5	3 700	1 590
SUM	916.4	19 658	8 640

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

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	26	1	0	0	1	54.1
Unit 2	24	7	0	0	7	94.4
Unit 3	15	7	0	0	7	107.6
Unit 4	19	5	7	0	12	142.9
Unit 5	24	3	0	0	3	56.4
Unit 6	31	0	0	0	0	67.7
SUM	139	23	7	0	30	

Table 6.3: Operating days in compliance to SO₂ AEL Limit - August 2022

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average SO ₂ (mg/Nm ³)
Unit 1	28	0	0	0	0	1 680.1
Unit 2	31	0	0	0	0	1 634.0
Unit 3	25	0	0	0	0	1 807.6
Unit 4	31	0	0	0	0	1 847.8
Unit 5	28	0	0	0	0	2 039.2
Unit 6	31	0	0	0	0	1 932.3
SUM	174	0	0	0	0	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average NOx (mg/Nm ³)
Unit 1	28	0	0	0	0	823.7
Unit 2	31	0	0	0	0	707.7
Unit 3	25	0	0	0	0	836.7
Unit 4	31	0	0	0	0	889.6
Unit 5	28	0	0	0	0	709.5
Unit 6	31	0	0 <td 0	0	828.3	
SUM	174	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 - August 2022

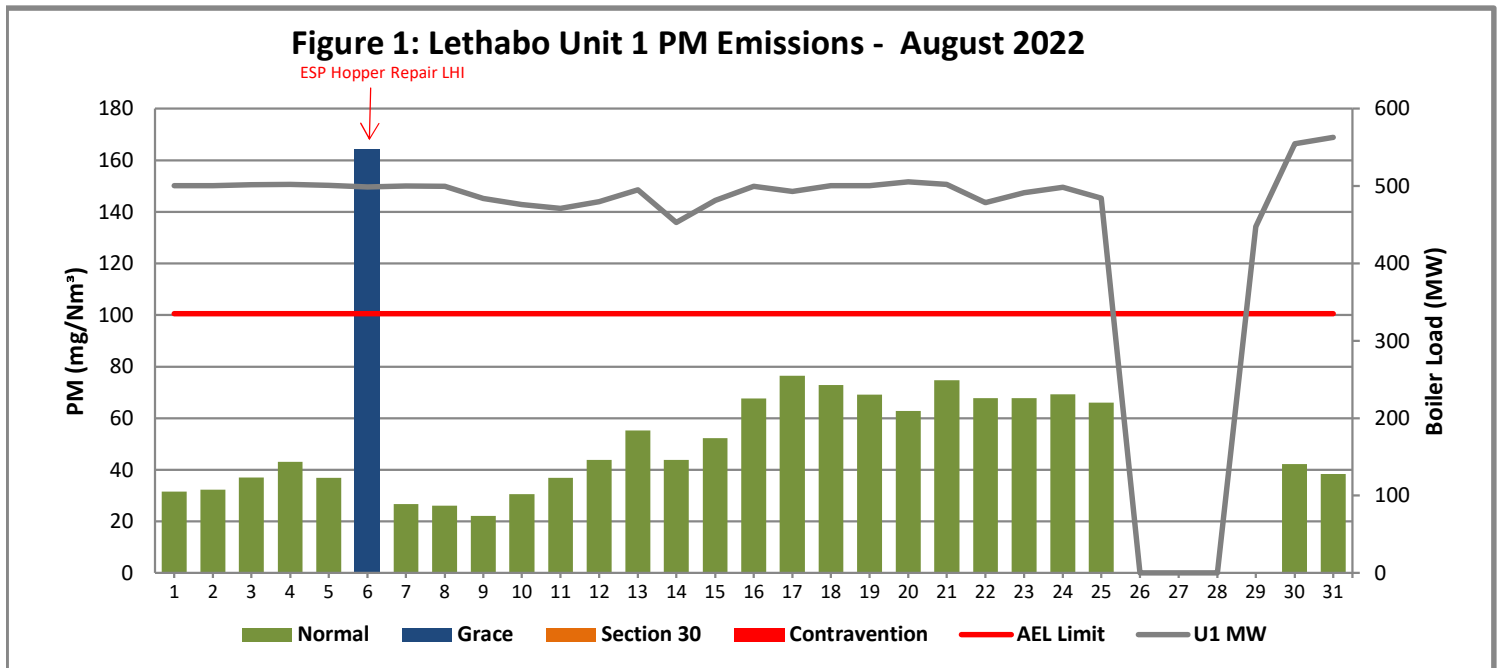


Figure 2: Lethabo Unit 2 PM Emissions - August 2022

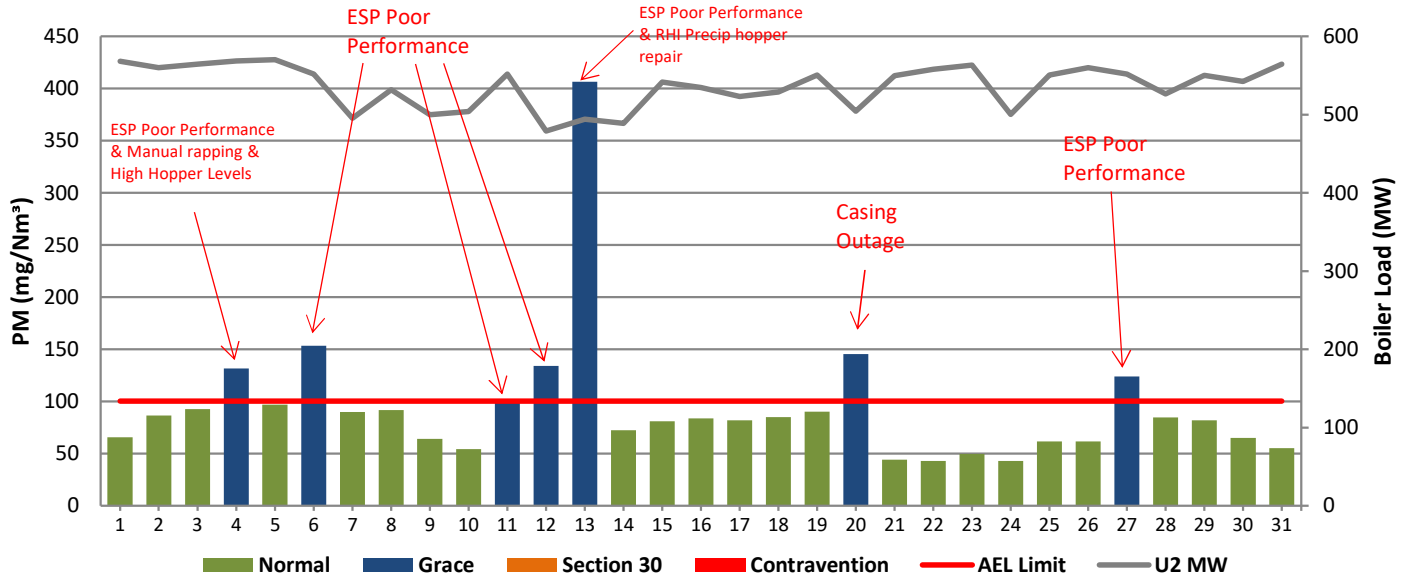


Figure 3: Lethabo Unit 3 PM Emissions - August 2022

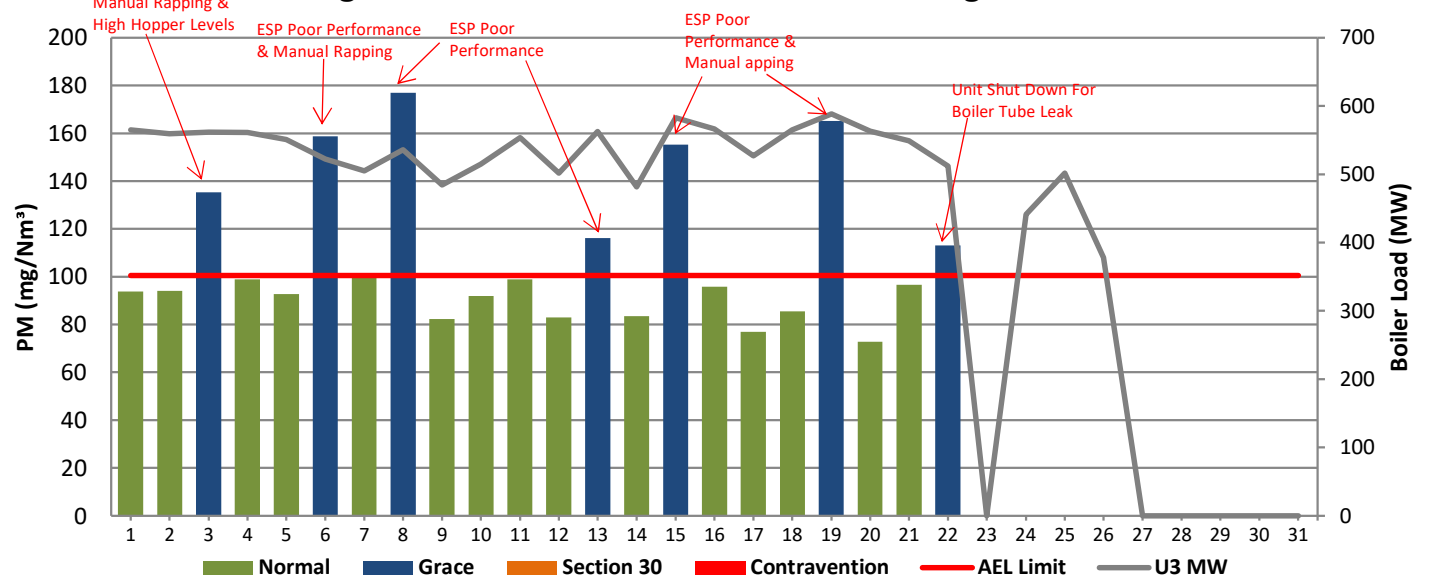


Figure 4: Lethabo Unit 4 PM Emissions - August 2022

SO3 Plant Off for Repairs (Air Inlet Pipe Repaire and Burnt Turbulator Pipe). NEMA Section 30 Reported

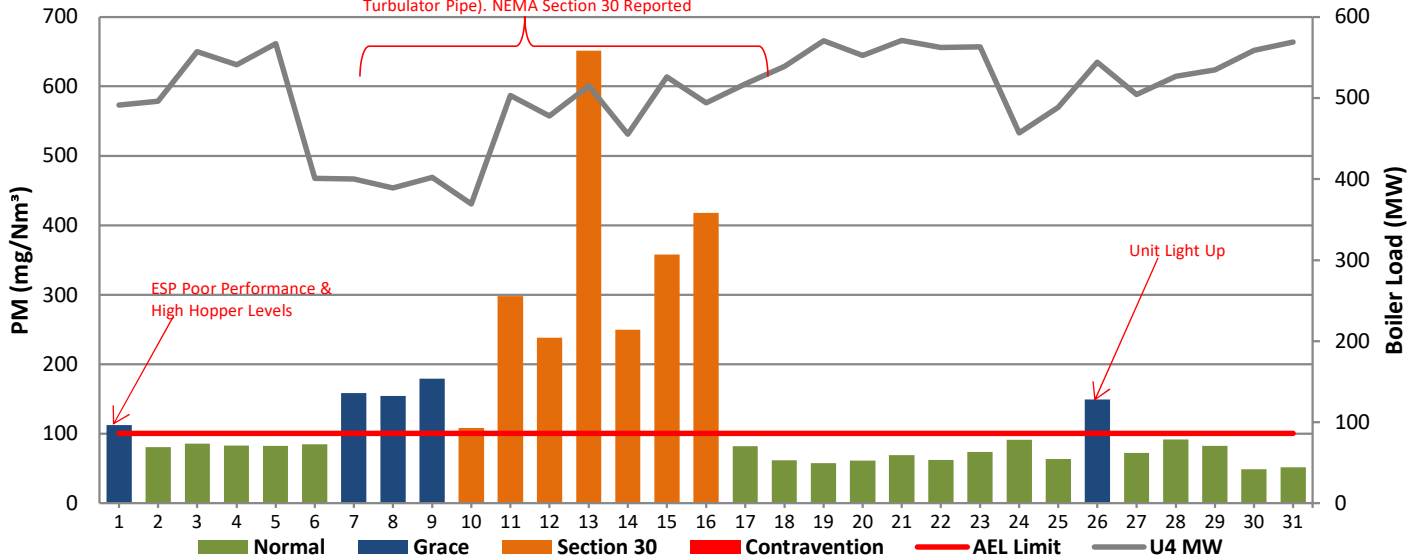


Figure 5: Lethabo Unit 5 PM Emissions - August 2022

SO3 Plant off for faulty module
SO3 Plant off for faulty module & Manual Rapping

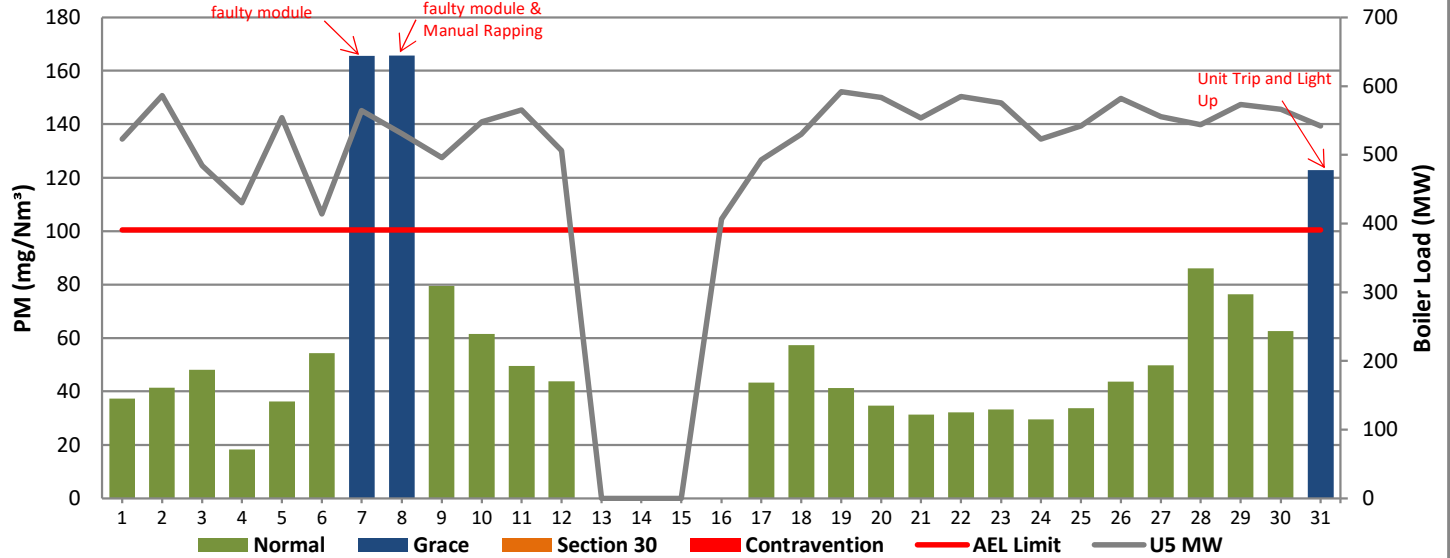


Figure 6: Lethabo Unit 6 PM Emissions - August 2022

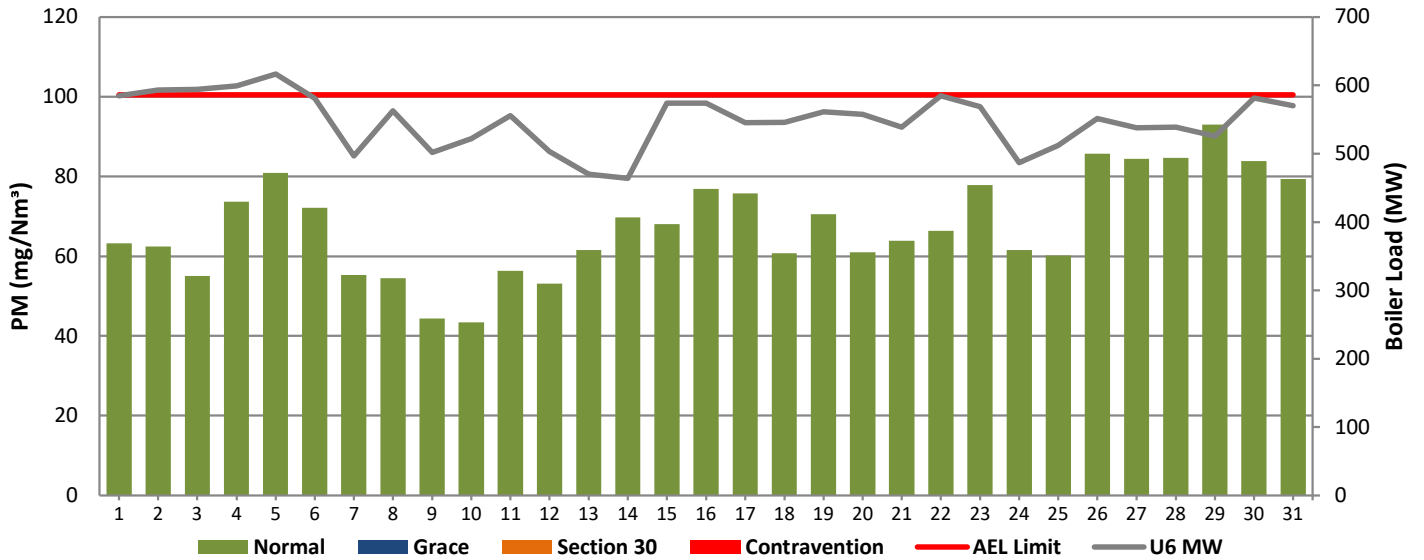


Figure 7: Lethabo Unit 1 SO₂ Emissions - August 2022

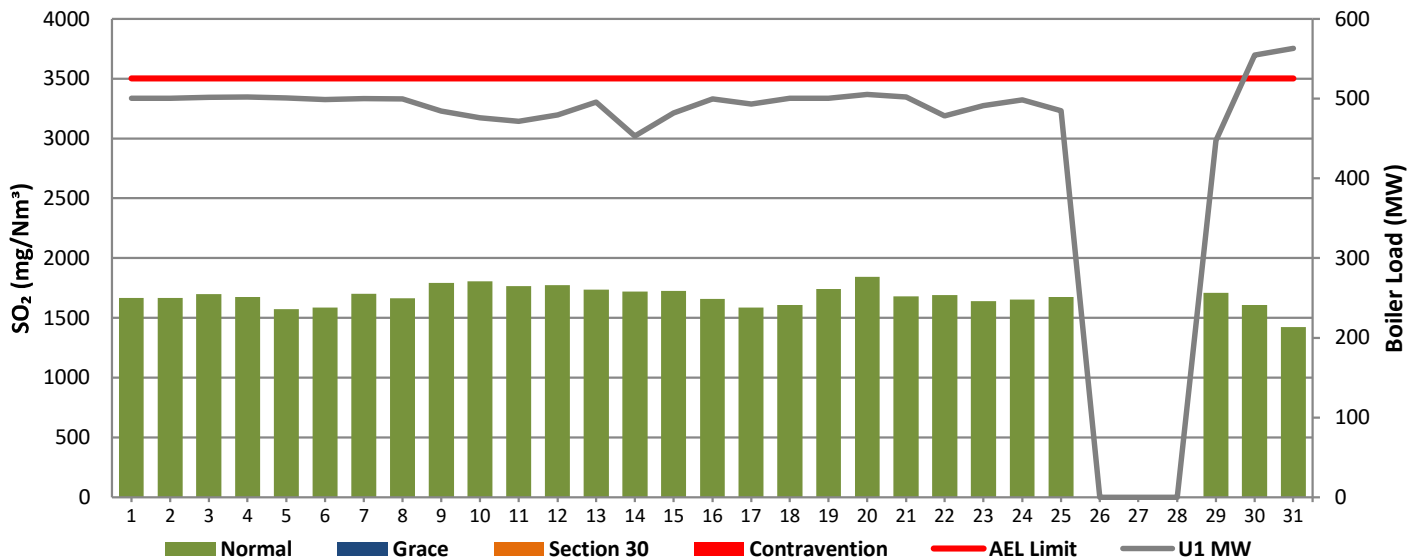


Figure 8: Lethabo Unit 2 SO₂ Emissions - August 2022

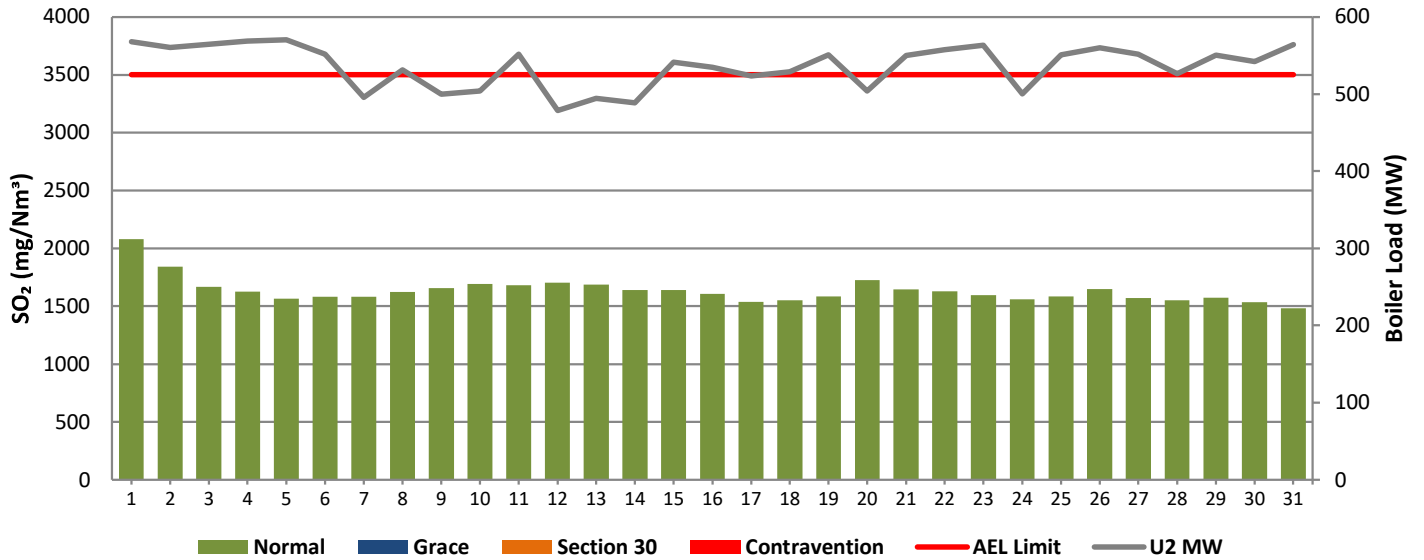


Figure 9: Lethabo Unit 3 SO₂ Emissions - August 2022

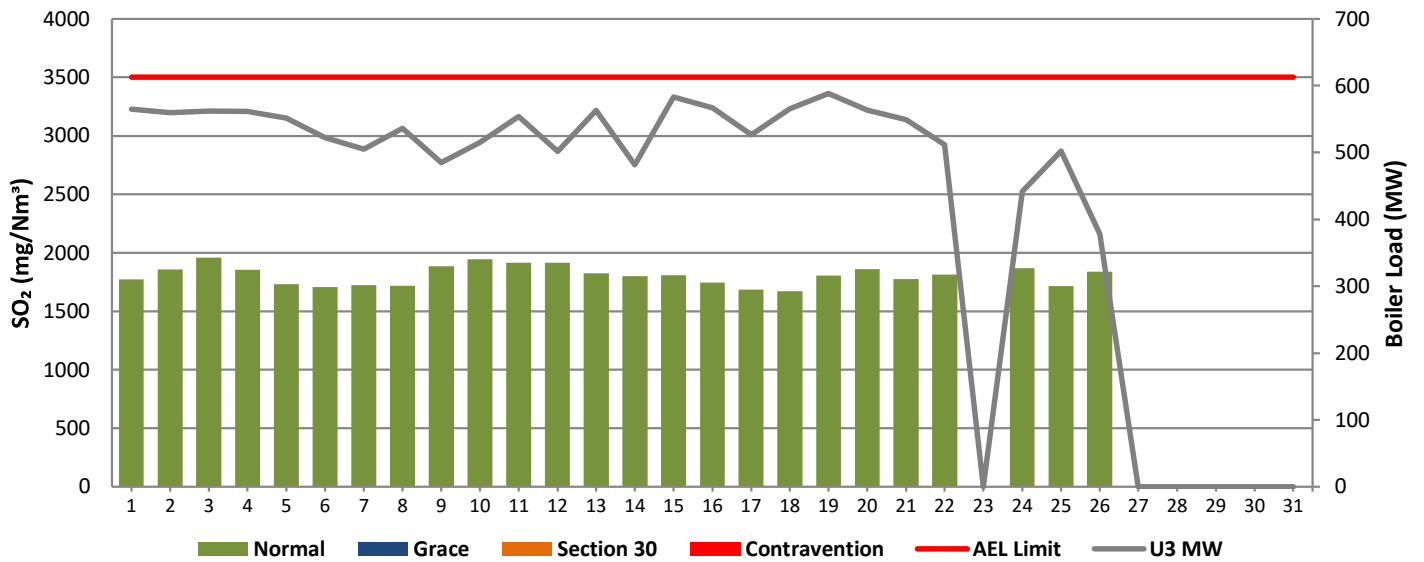


Figure 10: Lethabo Unit 4 SO₂ Emissions - August 2022

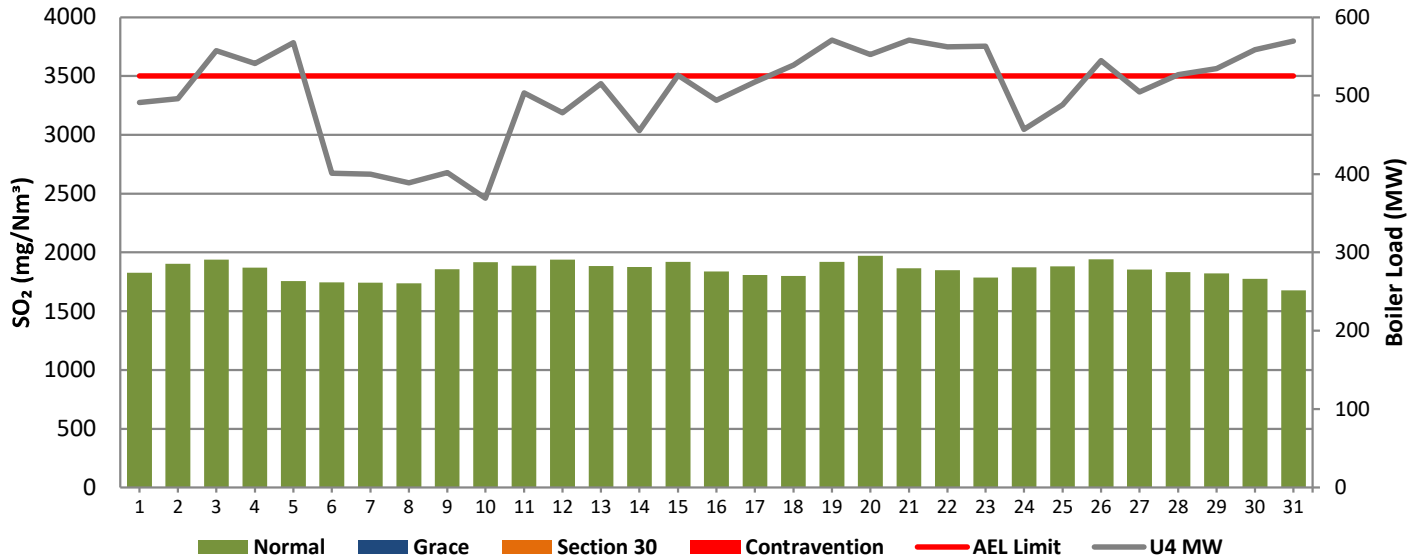


Figure 11: Lethabo Unit 5 SO₂ Emissions - August 2022

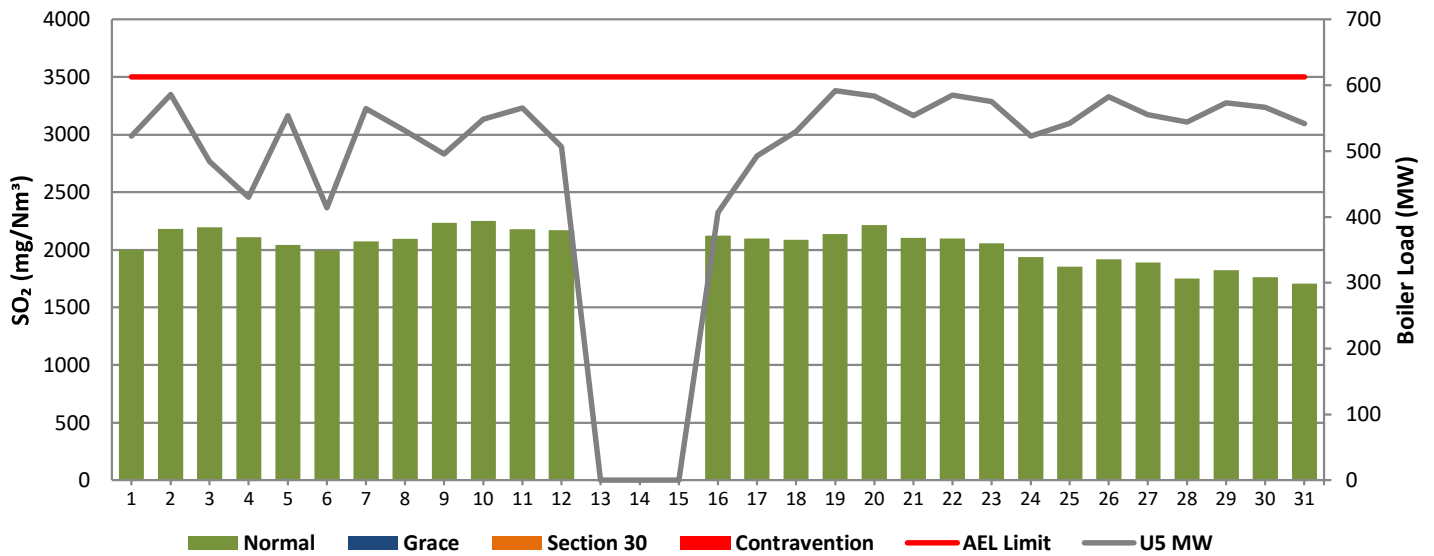


Figure 12: Lethabo Unit 6 SO₂ Emissions - August 2022

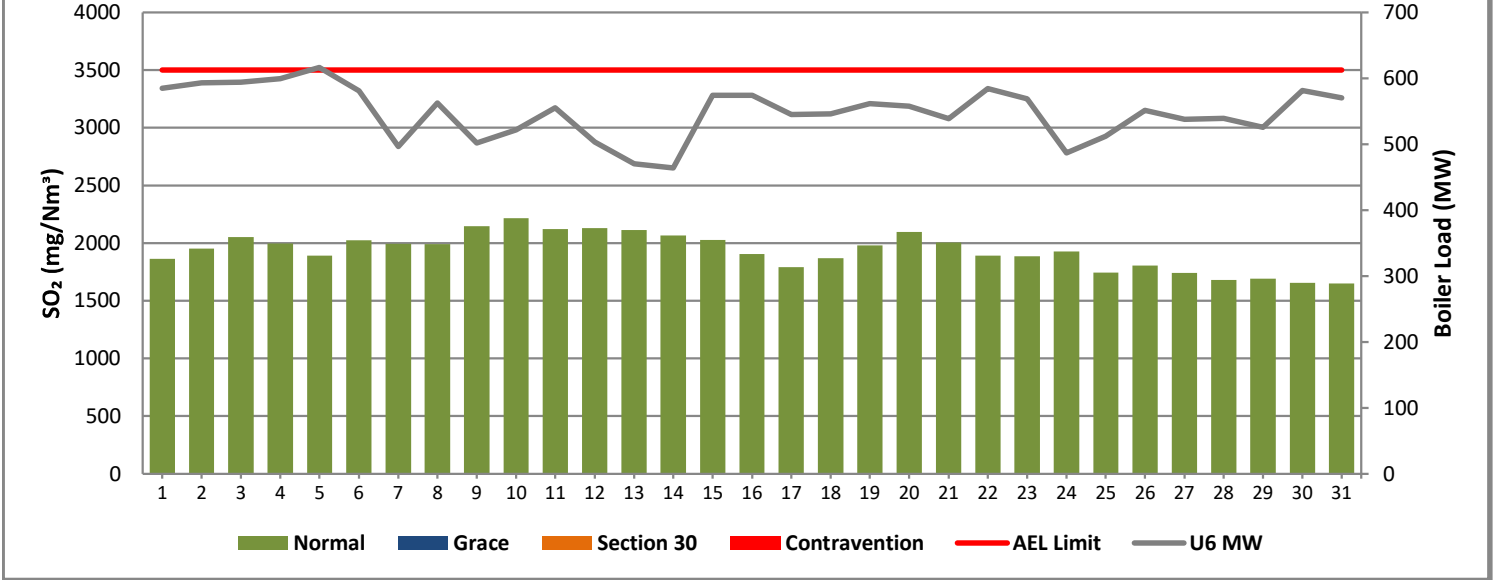


Figure 13: Lethabo Unit 1 NO_x Emissions - August 2022

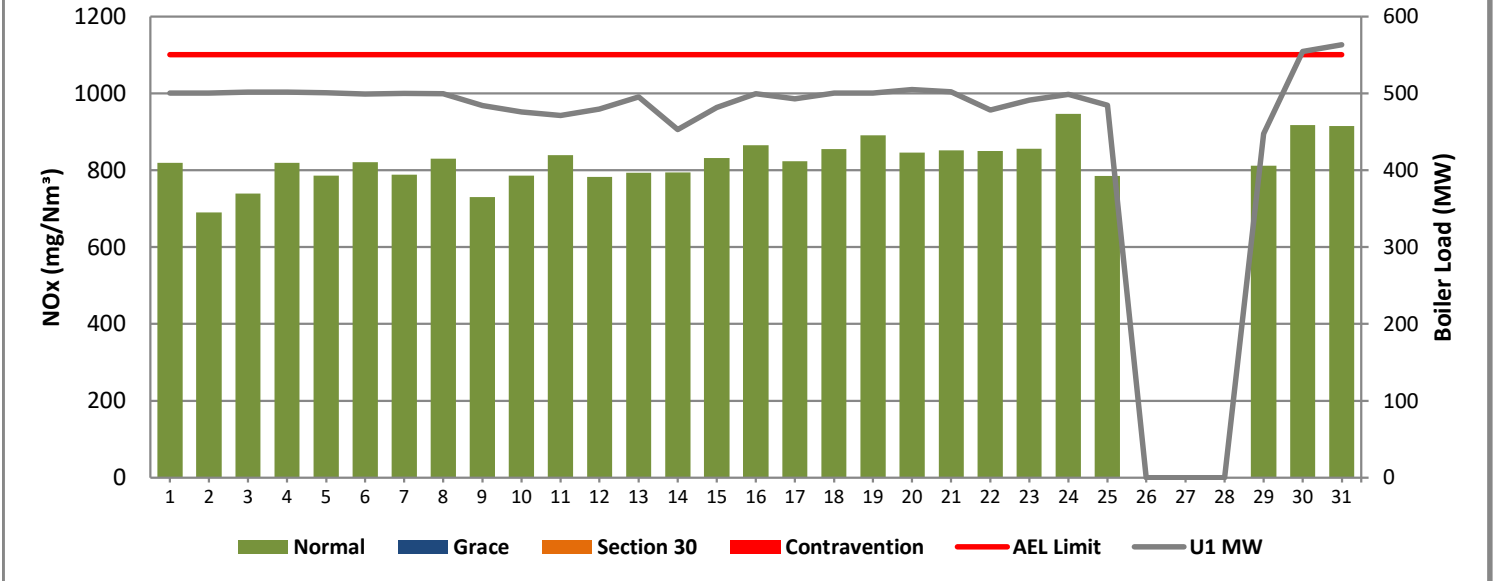


Figure 14: Lethabo Unit 2 NOx Emissions - August 2022

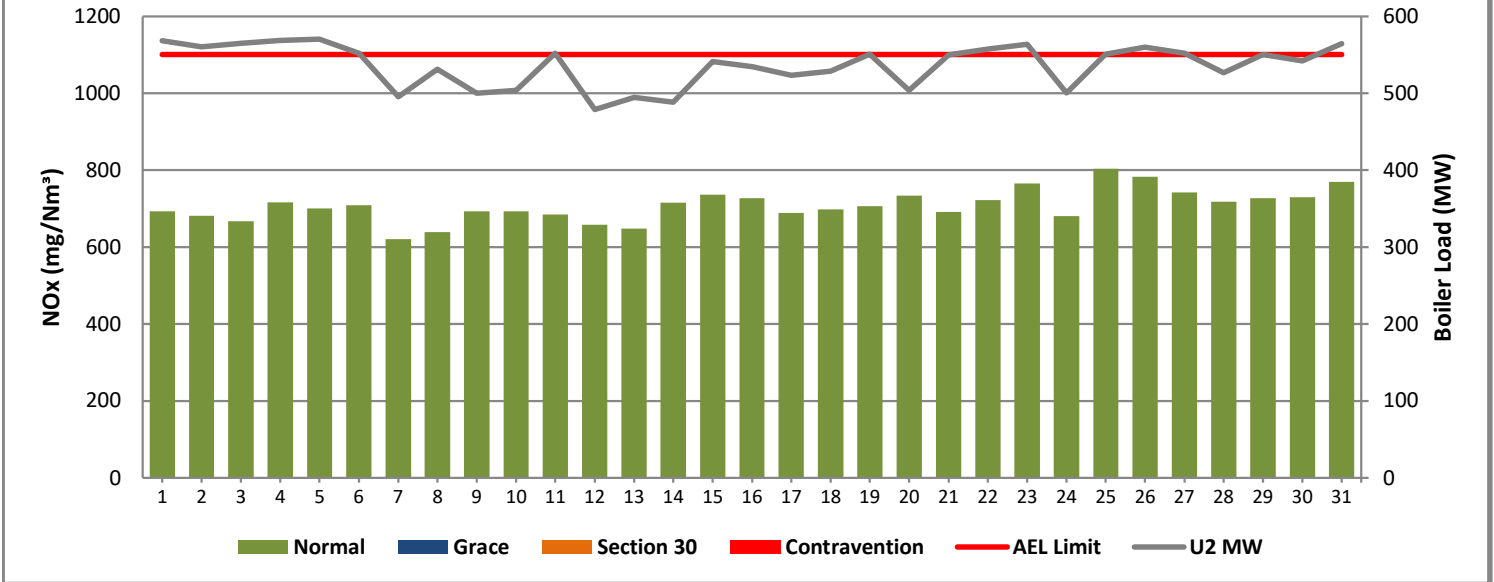


Figure 15: Lethabo Unit 3 NOx Emissions - August 2022

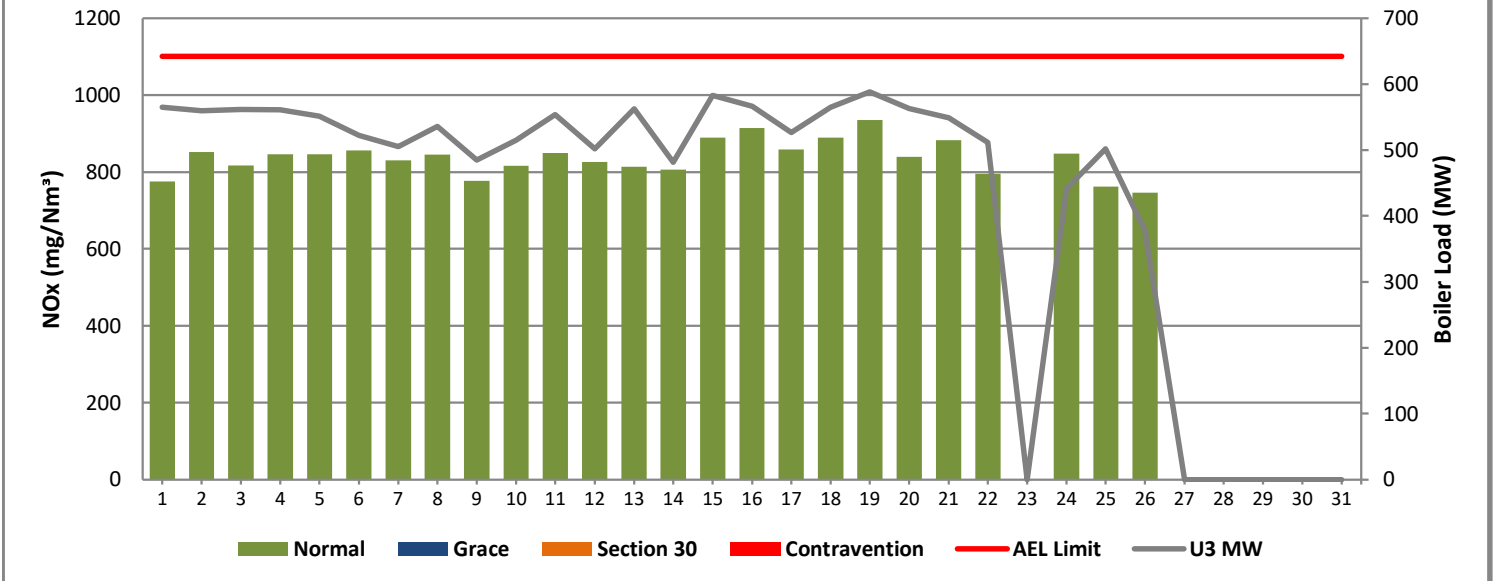


Figure 16: Lethabo Unit 4 NOx Emissions - August 2022

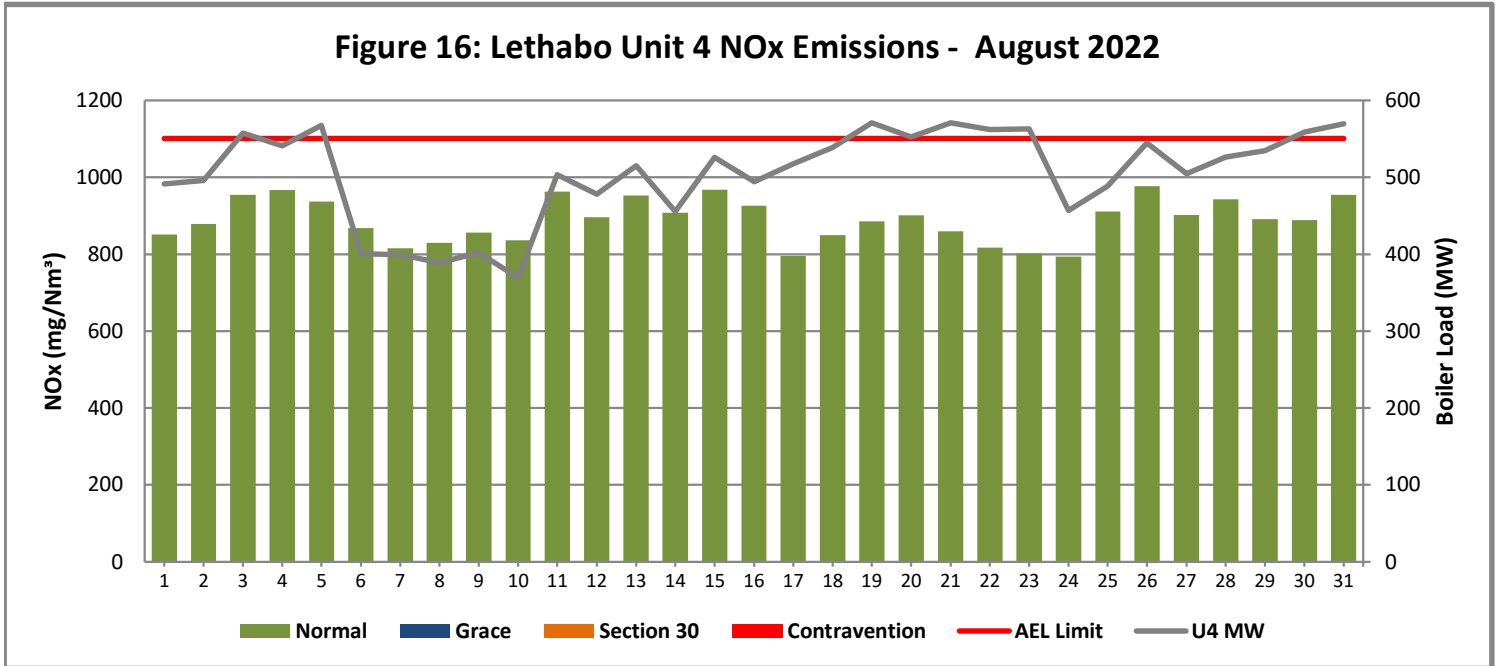


Figure 17: Lethabo Unit 5 NOx Emissions - August 2022

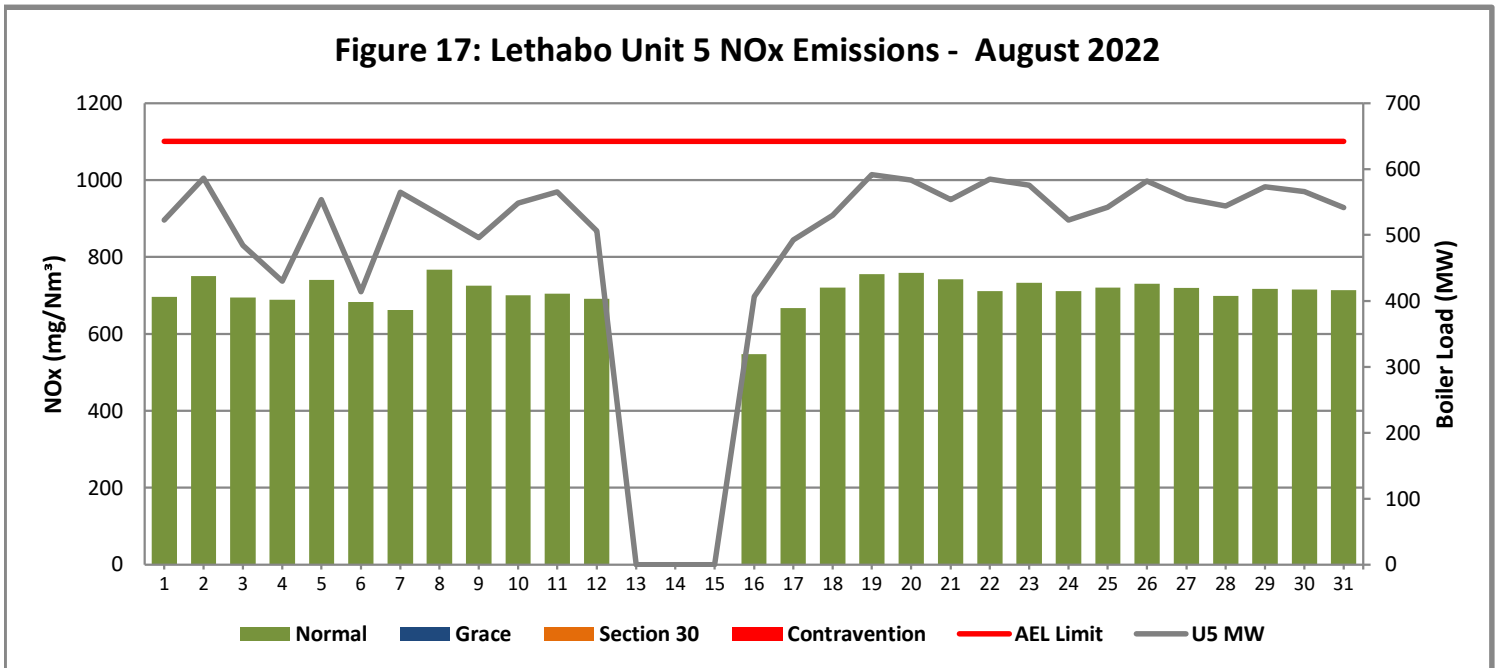
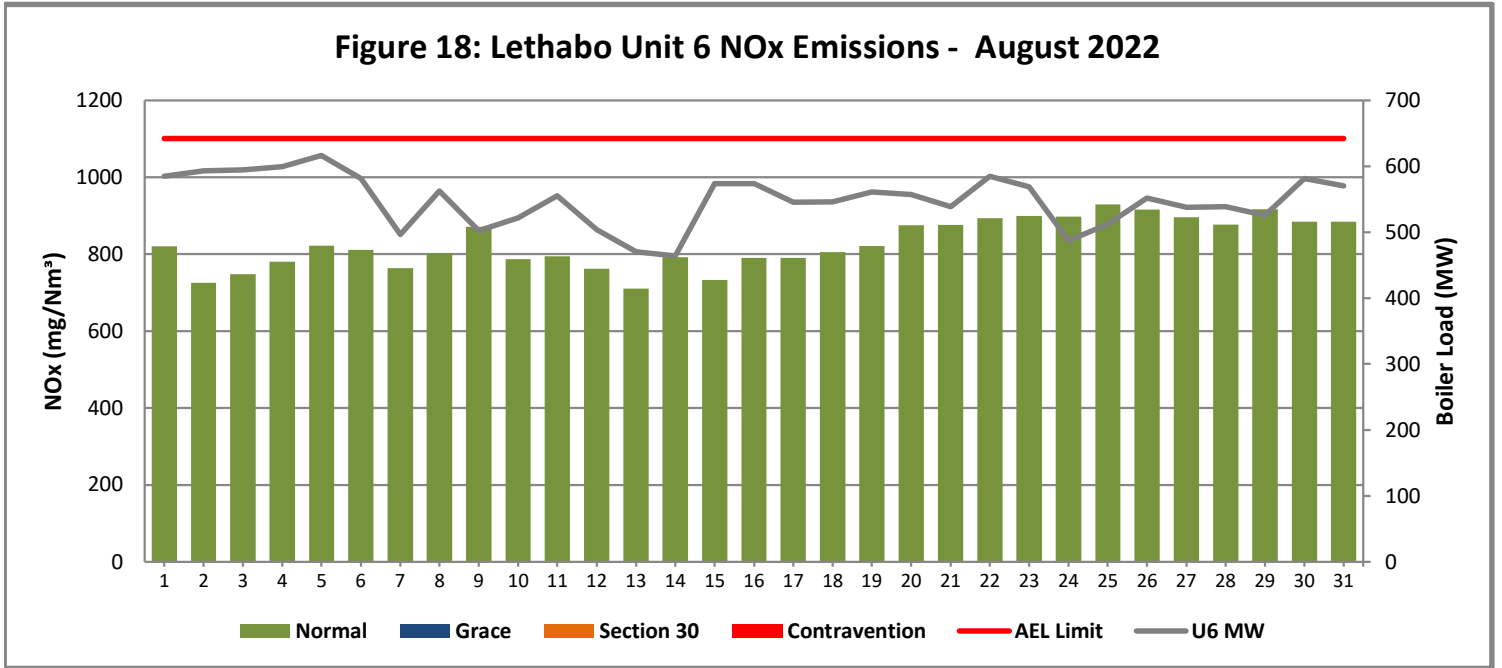


Figure 18: Lethabo Unit 6 NOx Emissions - August 2022



7 SHUT DOWN AND LIGHT UP INFORMATION

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

Unit No.1	<i>Boiler tube leak</i>						
Breaker Open (BO)	11:50 PM	2022/08/25					
Draught Group (DG) Shut Down (SD)	5:10 PM	2022/08/26					
BO to DG SD (duration)	00:17:20	DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
Fires in time	11:10 AM	2022/08/29					
Synch. to Grid (or BC)	11:55 AM	2022/08/29					
Fires in to BC (duration)	00:00:45	DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
Emissions below limit from BC (end date)	12:00 AM	2022/08/30					
Emissions below limit from BC (duration)	00:12:05	DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM

Unit No.2							
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.3	<i>Boiler tube leak</i>		<i>Tripped on low drum level</i>		<i>IN outage</i>			
Breaker Open (BO)	10:42 AM	2022/08/22	8:07 AM	2022/08/25	10:59 AM	2022/08/26		
Draught Group (DG) Shut Down (SD)	10:30 PM	2022/08/22	10:05 AM	2022/08/25	5:59 PM	2022/08/28		
BO to DG SD (duration)	00:11:48	DD:HH:MM	00:01:58	DD:HH:MM	02:07:00	DD:HH:MM		DD:HH:MM
Fires in time	6:36 AM	2022/08/24	10:01 PM	2022/08/25				
Synch. to Grid (or BC)	8:32 AM	2022/08/24	10:21 PM	2022/08/25				
Fires in to BC (duration)	00:01:56	DD:HH:MM	00:00:20	DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	<i>not > limit</i>	<i>not > limit</i>	12:00 AM	2022/08/29				
Emissions below limit from BC (duration)	<i>n/a</i>	DD:HH:MM	03:01:39	DD:HH:MM		DD:HH:MM		DD:HH:MM

Unit No.4	<i>Boiler drum level low</i>							
Breaker Open (BO)	9:19 AM	2022/08/25						
Draught Group (DG) Shut Down (SD)	9:30 AM	2022/08/25						
BO to DG SD (duration)	00:00:11	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	11:30 AM	2022/08/25						
Synch. to Grid (or BC)	12:15 PM	2022/08/25						
Fires in to BC (duration)	00:00:45	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	5:00 AM	2022/08/27						
Emissions below limit from BC (duration)	01:16:45	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM

Unit No.5	<i>Unit tripped due to high vacuum.</i>		<i>Feed water tank manhole cover leak repairs & Main Steam drain line bend to blow down vessel leaking badly</i>		<i>Low Drum level</i>			
Breaker Open (BO)	<i>5:33 PM</i>	<i>2022/08/03</i>	<i>10:45 PM</i>	<i>2022/08/12</i>	<i>4:35 AM</i>	<i>2022/08/31</i>		
Draught Group (DG) Shut Down (SD)	<i>DG did not trip or SD</i>	<i>DG did not trip or SD</i>	<i>3:05 AM</i>	<i>2022/08/13</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>00:04:20</i>	<i>DD:HH:MM</i>	<i>n/a</i>	<i>DD:HH:MM</i>		<i>DD:HH:MM</i>
Fires in time			<i>10:42 AM</i>	<i>2022/08/16</i>	<i>10:30 AM</i>	<i>2022/08/31</i>		
Synch. to Grid (or BC)			<i>10:48 AM</i>	<i>2022/08/16</i>	<i>10:54 AM</i>	<i>2022/08/31</i>		
Fires in to BC (duration)		<i>DD:HH:MM</i>	<i>00:00:06</i>	<i>DD:HH:MM</i>	<i>00:00:24</i>	<i>DD:HH:MM</i>		<i>DD:HH:MM</i>
Emissions below limit from BC (end date)			<i>2:00 AM</i>	<i>2022/08/17</i>	<i>12:00 AM</i>	<i>2022/09/01</i>		
Emissions below limit from BC (duration)		<i>DD:HH:MM</i>	<i>00:15:12</i>	<i>DD:HH:MM</i>	<i>00:13:06</i>	<i>DD:HH:MM</i>		<i>DD:HH:MM</i>

Unit No.6								
Breaker Open (BO)								
Draught Group (DG) Shut Down (SD)								
BO to DG SD (duration)		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>
Fires in time								
Synch. to Grid (or BC)								
Fires in to BC (duration)		<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)								
Emissions below limit from BC (duration)		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>

7.2: Point Source emissions released during start-up (fires-in) and Shut-down (SD) for the month of August 2022 in mg/Nm³

8. MAINTENANCE

Unit 1				
Beginning of	2022/08/06 00:00			
Reason for Maintenance	LHI Hopper Repairs			
End (Time):	2022/08/06 17:22			
Duration	17:22:00	0:00:00	0:00:00	0:00:00

Unit 2				
Beginning of	2022/08/13 00:00:00	2022/08/20 00:00:00		
Reason for Maintenance	RHO Precip Casing	RHO Precip Casing		
End (Time):	2022/08/13 18:17:00	2022/08/20 21:13:00		
Duration	18:17:00	21:13:00	0:00:00	0:00:00

Unit 3				
Beginning of				
Reason for Maintenance				
End (Time):				
Duration	0:00:00	0:00:00	0:00:00	0:00:00

Unit 4				
Beginning of	2022/08/15 22:02			
Reason for Maintenance	RHO Precip Casing			
End (Time):	2022/08/16 18:14			
Duration	20:12:00	0:00:00	0:00:00	0:00:00

Unit 5				
Beginning of				
Reason for Maintenance				
End (Time):				
Duration	0:00:00	0:00:00	0:00:00	0:00:00

Unit 6				
Beginning of				
Reason for Maintenance				
End (Time):				
Duration	0:00:00	0:00:00	0:00:00	0:00:00

9. GENERAL

Unit 4 Monitor Reliability

06/08/2022: Monitor Reliability low (62.5%) due to greater than 10% variability between out 1 and 2.

13/08/2022: Monitor Reliability low (70.8%) due to monitors maxing out during clean rapping and also due to greater than 10% variability between output 1 and 2.

Unit 5 Monitor Reliability

08/08/2022: Monitor Reliability low (75%) due to monitor maxing out during clean rapping.

Unit 4:

Unit 4 Nema Section 30 reported (10/08/2022-17/08/2022) due to SO3 plant repairs required after air inlet pipe failure and burnt turbulator pipe.

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	10/08/2022	16/08/2022	S03 Plant off for repairs	So3 Plant Repairs were completed and plant was put back in service	11/08/2022	23/08/2022			NEMA Section 30 Reported

11. PARTICULATE EMISSIONS

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

MONTH	UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 5	UNIT 6	STATION
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
Nov-21	0.34	0.59	0.52	0.52	0.41	0.41	0.46
Dec-21	0.39	OFF	0.55	0.57	0.34	0.29	0.42
Jan-22	0.37	OFF	0.52	0.46	0.47	0.36	0.44
Feb-22	0.47	1.06	0.62	0.44	0.38	0.59	0.56
Mar-22	0.73	0.90	0.66	0.58	0.33	0.43	0.57
Apr-22	0.60	0.61	0.53	0.45	OFF	0.37	0.51
May-22	0.55	0.59	0.33	0.19	OFF	0.44	0.45
Jun-22	0.55	0.63	0.37	0.77	OFF	0.48	0.56
Jul-22	0.38	0.44	0.42	0.58	0.11	0.37	0.43
Aug-22	0.29	0.46	0.50	0.71	0.27	0.32	0.43

ADDENDUM TO MONTHLY EMISSIONS REPORT

12. DAILY EMISSIONS FIGURES

Final Dust Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
01-Aug	31	66	94	113	37	63	100
02-Aug	32	87	94	81	41	62	100
03-Aug	37	93	135	86	48	55	100
04-Aug	43	132	99	83	18	74	100
05-Aug	37	97	93	82	36	81	100
06-Aug	164	154	159	85	54	72	100
07-Aug	27	90	100	158	166	55	100
08-Aug	26	92	177	154	166	54	100
09-Aug	22	64	82	179	80	44	100
10-Aug	30	54	92	108	61	43	100
11-Aug	37	102	99	298	50	56	100
12-Aug	44	134	83	238	44	53	100
13-Aug	55	406	116	652	OFF	61	100
14-Aug	44	72	84	250	OFF	70	100
15-Aug	52	81	155	358	OFF	68	100
16-Aug	68	84	96	418	OFF	77	100
17-Aug	77	82	77	82	25	76	100
18-Aug	73	85	86	62	57	61	100
19-Aug	69	90	165	58	41	71	100
20-Aug	63	146	73	61	35	61	100
21-Aug	75	44	97	69	31	64	100
22-Aug	68	43	113	62	32	66	100
23-Aug	68	50	OFF	74	33	78	100
24-Aug	69	43	OFF	91	30	62	100
25-Aug	66	62	OFF	50	34	60	100
26-Aug	OFF	62	OFF	131	44	86	100
27-Aug	OFF	124	OFF	72	50	84	100
28-Aug	OFF	85	OFF	91	86	85	100
29-Aug	OFF	82	OFF	83	76	93	100
30-Aug	46	65	OFF	49	63	84	100
31-Aug	38	55	OFF	52	86	79	100

ADDENDUM TO MONTHLY EMISSIONS REPORT

Final SOx Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
01-Aug	1664	2081	1773	1826	2002	1863	3500
02-Aug	1664	1842	1858	1905	2182	1951	3500
03-Aug	1699	1668	1959	1937	2197	2052	3500
04-Aug	1675	1626	1857	1868	2111	1997	3500
05-Aug	1571	1565	1731	1755	2044	1893	3500
06-Aug	1586	1582	1706	1745	1996	2024	3500
07-Aug	1701	1581	1722	1742	2073	1994	3500
08-Aug	1663	1624	1717	1738	2095	1991	3500
09-Aug	1791	1657	1885	1856	2233	2146	3500
10-Aug	1804	1692	1946	1917	2250	2215	3500
11-Aug	1766	1680	1914	1888	2179	2119	3500
12-Aug	1773	1703	1915	1938	2173	2130	3500
13-Aug	1735	1686	1824	1884	OFF	2113	3500
14-Aug	1719	1639	1799	1877	OFF	2066	3500
15-Aug	1723	1641	1807	1919	OFF	2025	3500
16-Aug	1658	1607	1744	1837	2122	1906	3500
17-Aug	1588	1539	1685	1808	2100	1792	3500
18-Aug	1609	1552	1671	1800	2087	1871	3500
19-Aug	1741	1583	1805	1918	2136	1981	3500
20-Aug	1840	1726	1860	1971	2214	2096	3500
21-Aug	1679	1647	1777	1863	2106	2005	3500
22-Aug	1690	1630	1814	1848	2100	1893	3500
23-Aug	1640	1596	OFF	1787	2055	1887	3500
24-Aug	1652	1560	1869	1874	1937	1926	3500
25-Aug	1673	1584	1714	1882	1854	1743	3500
26-Aug	OFF	1647	1837	1941	1918	1805	3500
27-Aug	OFF	1570	OFF	1853	1889	1740	3500
28-Aug	OFF	1551	OFF	1832	1750	1679	3500
29-Aug	1709	1574	OFF	1821	1824	1693	3500
30-Aug	1607	1536	OFF	1774	1762	1654	3500
31-Aug	1425	1482	OFF	1675	1707	1650	3500

ADDENDUM TO MONTHLY EMISSIONS REPORT

Final NOx Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
01-Aug	819	693	776	851	696	820	1100
02-Aug	690	682	852	878	750	726	1100
03-Aug	739	667	816	955	694	748	1100
04-Aug	819	716	846	967	689	780	1100
05-Aug	786	700	846	937	740	822	1100
06-Aug	820	709	857	868	683	811	1100
07-Aug	788	620	830	815	662	764	1100
08-Aug	830	639	845	830	767	802	1100
09-Aug	730	693	777	856	725	872	1100
10-Aug	786	693	816	837	701	786	1100
11-Aug	840	685	850	962	705	794	1100
12-Aug	783	658	826	896	691	763	1100
13-Aug	793	648	814	953	OFF	711	1100
14-Aug	794	716	806	907	OFF	792	1100
15-Aug	831	737	889	968	OFF	733	1100
16-Aug	865	727	914	926	547	791	1100
17-Aug	823	689	859	795	667	790	1100
18-Aug	855	698	890	850	720	805	1100
19-Aug	891	707	936	886	756	822	1100
20-Aug	846	733	839	901	759	875	1100
21-Aug	852	691	883	859	742	877	1100
22-Aug	850	722	796	817	711	894	1100
23-Aug	855	766	OFF	803	733	900	1100
24-Aug	947	680	848	793	712	898	1100
25-Aug	785	803	762	911	720	930	1100
26-Aug	OFF	782	746	977	731	916	1100
27-Aug	OFF	742	OFF	901	719	896	1100
28-Aug	OFF	718	OFF	943	699	877	1100
29-Aug	812	727	OFF	892	717	917	1100
30-Aug	918	729	OFF	889	715	884	1100
31-Aug	915	769	OFF	954	714	884	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
Sep-21	95.94%	1.0	96.00%	1.0	95.98%	1.0	95.97%	1.0	100.00%	0.0	OFF	OFF
Oct-21	97.32%	3.3	99.36%	0.8	99.33%	0.8	100.00%	0.0	100.00%	0.0	OFF	OFF
Nov-21	100.00%	0.0	100.00%	0.0	100.00%	0.0	96.26%	0.6	95.79%	1.2	100.00%	0.0
Dec-21	99.44%	0.7	OFF	OFF	98.24%	2.2	98.02%	2.5	100.00%	0.0	100.00%	0.0
Jan-22	98.50%	1.9	OFF	OFF	99.32%	0.8	100.00%	0.0	100.00%	0.0	100.00%	0.0
Feb-22	100.00%	0.0	100.00%	0.0	100.00%	0.0	100.00%	0.0	100.00%	0.0	98.54%	1.6
Mar-22	98.73%	1.6	98.70%	1.6	100.00%	0.0	100.00%	0.0	100.00%	0.0	100.00%	0.0
Apr-22	100.00%	0.0	98.63%	1.6	100.00%	0.0	98.46%	1.9	OFF	OFF	100.00%	0.0
May-22	98.73%	1.6	98.13%	2.3	100.00%	0.0	100.00%	0.0	OFF	OFF	100.00%	0.0
Jun-22	98.33%	2.0	99.05%	1.1	100.00%	0.0	100.00%	0.0	OFF	OFF	97.53%	3.0
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

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
Sep-21	100.00%	0.0	71.12%	8.0		0.0	100.00%	0.0	100.00%	0.0	OFF	OFF
Oct-21	99.75%	0.1	100.00%	0.0	100.00%	0.0	100.00%	0.0	100.00%	0.0	OFF	OFF
Nov-21	100.00%	0.0	100.00%	0.0	100.00%	0.0	88.62%	2.5	100.00%	0.0	90.27%	2.0
Dec-21	97.72%	0.7	OFF	OFF	96.64%	1.0	97.18%	0.9	99.87%	0.0	100.00%	0.0
Jan-22	95.79%	1.3	OFF	OFF	83.10%	5.2	100.00%	0.0	100.00%	0.0	100.00%	0.0
Feb-22	99.40%	0.2	85.42%	4.1	97.47%	0.7	100.00%	0.0	100.00%	0.0	97.17%	0.8
Mar-22	87.77%	3.8	100.00%	0.0	100.00%	0.0	87.23%	4.0	100.00%	0.0	100.00%	0.0
Apr-22	99.72%	0.1	100.00%	0.0	95.69%	1.3	98.33%	0.5	OFF	OFF	100.00%	0.0
May-22	98.66%	0.4	100.00%	0.0	97.45%	0.8	98.92%	0.3	OFF	OFF	96.51%	1.1
Jun-22	97.78%	0.7	96.25%	1.1	98.19%	0.5	46.67%	16.0	OFF	OFF	98.06%	0.6
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

ADDENDUM TO MONTHLY EMISSIONS REPORT

Particulate Emission Monitors

Availability						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Sep-21	98.61%	96.91%	99.03%	99.54%	99.72%	OFF
Oct-21	95.51%	99.06%	99.46%	99.87%	99.87%	OFF
Nov-21	99.60%	99.54%	99.86%	99.00%	98.61%	99.80%
Dec-21	98.39%	OFF	96.12%	96.81%	99.87%	100.00%
Jan-22	98.66%	OFF	99.19%	99.87%	99.70%	100.00%
Feb-22	98.28%	95.56%	99.67%	100.00%	99.85%	99.40%
Mar-22	94.33%	95.83%	95.56%	99.67%	98.38%	98.79%
Apr-22	96.20%	94.58%	98.99%	99.57%	OFF	100.00%
May-22	97.32%	99.06%	99.65%	99.72%	OFF	100.00%
Jun-22	90.56%	97.50%	97.33%	98.56%	OFF	98.71%
Jul-22	98.92%	98.79%	100.00%	91.10%	100.00%	97.54%
Aug-22	99.85%	96.77%	100.00%	96.24%	98.61%	100.00%

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
Sep-21	99.58%	99.58%	99.55%	99.55%	99.58%	99.72%	99.70%	99.70%	99.58%	99.72%	OFF	OFF
Oct-21	99.52%	99.36%	99.73%	99.87%	99.87%	99.87%	99.73%	99.87%	100.00%	100.00%	OFF	OFF
Nov-21	99.62%	99.81%	94.79%	94.79%	100.00%	99.86%	99.84%	99.84%	100.00%	100.00%	99.81%	99.81%
Dec-21	97.85%	97.85%	OFF	OFF	91.28%	91.42%	100.00%	99.87%	100.00%	100.00%	99.87%	100.00%
Jan-22	99.87%	100.00%	0.00%	0.00%	99.87%	100.00%	99.87%	100.00%	99.72%	100.00%	99.48%	99.48%
Feb-22	100.00%	100.00%	100.00%	100.00%	99.85%	100.00%	99.40%	99.40%	99.26%	99.40%	99.55%	99.55%
Mar-22	98.30%	98.30%	98.92%	99.06%	99.06%	99.33%	99.84%	100.00%	98.88%	98.88%	98.79%	98.66%
Apr-22	99.31%	99.31%	99.58%	99.86%	100.00%	99.86%	99.44%	99.86%	OFF	OFF	100.00%	100.00%
May-22	99.71%	99.86%	99.60%	99.60%	99.83%	99.83%	90.93%	91.16%	OFF	OFF	99.83%	99.83%
Jun-22	99.86%	99.86%	99.86%	99.86%	100.00%	100.00%	98.92%	99.07%	OFF	OFF	98.89%	99.17%
Jul-22	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	99.87%	100.00%	100.00%	100.00%	98.99%	98.85%
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%

Oxygen Monitor Availability						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Sep-21	99.72%	99.13%	97.78%	99.55%	99.72%	OFF
Oct-21	99.84%	99.87%	97.04%	99.87%	99.73%	OFF
Nov-21	99.05%	89.58%	98.06%	100.00%	99.86%	99.81%
Dec-21	97.58%	OFF	91.28%	94.76%	99.86%	100.00%
Jan-22	100.00%	OFF	99.87%	98.25%	99.17%	99.22%
Feb-22	100.00%	100.00%	98.74%	99.55%	99.40%	99.55%
Mar-22	98.30%	98.92%	99.19%	99.84%	98.88%	98.52%
Apr-22	99.13%	100.00%	100.00%	81.67%	OFF	99.72%
May-22	100.00%	99.73%	99.83%	99.75%	OFF	99.83%
Jun-22	99.72%	97.22%	99.52%	98.77%	OFF	98.75%
Jul-22	99.87%	99.87%	99.46%	99.87%	100.00%	98.99%
Aug-22	99.73%	99.60%	99.67%	99.73%	99.40%	99.60%

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14. EFFICIENCY

ESP Efficiency (%)						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Sep-21	99.836%	99.567%	99.756%	99.855%	99.873%	OFF
Oct-21	99.752%	99.776%	99.789%	99.800%	99.823%	OFF
Nov-21	99.870%	99.743%	99.780%	99.798%	99.820%	99.831%
Dec-21	99.834%	OFF	99.744%	99.757%	99.837%	99.864%
Jan-22	99.845%	OFF	99.765%	99.807%	99.788%	99.834%
Feb-22	99.825%	99.561%	99.743%	99.823%	99.839%	99.745%
Mar-22	99.725%	99.623%	99.726%	99.768%	99.862%	99.816%
Apr-22	99.778%	99.748%	99.786%	99.822%	OFF	99.842%
May-22	99.672%	99.488%	99.880%	99.961%	OFF	99.844%
Jun-22	99.769%	99.712%	99.833%	99.657%	OFF	99.778%
Jul-22	99.850%	99.800%	99.818%	99.753%	99.955%	99.832%
Aug-22	99.878%	99.780%	99.768%	99.680%	99.872%	99.846%

15. REMARKS

UNIT	MWLOSS	REASON	ACTUALSTARTDATE	ACTUALENDDATE
1	118	AM: LHI Hopper repairs	2022/08/06 00:00:00	2022/08/06 17:22:00
1	593	boiler tube leak repairs	2022/08/25 23:44:00	2022/08/29 11:55:00
1	297	System Generated Ramp Event for Event id : 1729963	2022/08/29 11:55:00	2022/08/29 14:55:00
2	30	EF:High stack emissions	2022/08/05 12:39:00	2022/08/05 16:59:00
2	29	EF:High emissions	2022/08/06 14:25:00	2022/08/06 15:59:00
2	29	High stack emissions.	2022/08/12 18:12:00	2022/08/12 19:25:00
2	129	AM: High stack emissions	2022/08/12 19:25:00	2022/08/13 00:00:00
2	80	AM: RHI Precip hopper repairs.	2022/08/13 00:00:00	2022/08/13 18:17:00
2	80	EF:High stack emissions	2022/08/16 19:25:00	2022/08/16 23:56:00
2	77	EF: High stack emissions	2022/08/18 19:41:00	2022/08/19 00:00:00
2	80	RHO precip casing repairs	2022/08/20 00:00:00	2022/08/20 21:13:00
3	117	EF: High stack emissions	2022/08/01 19:56:00	2022/08/02 00:02:00
3	117	High stack emissions.	2022/08/02 21:30:00	2022/08/03 00:09:00
3	218	High stack emissions.	2022/08/04 22:22:00	2022/08/04 23:59:00
3	67	EF:High emissions	2022/08/06 14:22:00	2022/08/06 16:00:00
3	168	High stack emissions.	2022/08/08 13:11:00	2022/08/08 15:55:00
3	165	High stack emissions	2022/08/09 10:00:00	2022/08/09 15:59:00
3	114	High stack emissions	2022/08/09 18:33:00	2022/08/09 18:54:00
3	168	High stack emissions.	2022/08/09 18:54:00	2022/08/10 00:00:00
3	116	High stack emissions.	2022/08/10 19:41:00	2022/08/10 20:26:00
3	167	High stack emissions.	2022/08/10 20:26:00	2022/08/11 01:51:00
3	114	EF: High stack emissions	2022/08/16 10:09:00	2022/08/16 16:09:00
3	117	EF:High stack emissions	2022/08/16 19:28:00	2022/08/16 23:57:00
3	66	EF: High stack emissions	2022/08/18 19:41:00	2022/08/19 00:00:00
3	116	High stack emissions.	2022/08/21 20:35:00	2022/08/22 00:00:00
3	115	EF:High stack emissions	2022/08/22 08:57:00	2022/08/22 10:42:00
3	593	Boiler tube leak	2022/08/22 10:42:00	2022/08/24 08:32:00
3	297	System Generated Ramp Event for Event id : 1728538	2022/08/24 08:32:00	2022/08/24 11:32:00
3	593	Tripped on low drum level	2022/08/25 08:07:00	2022/08/25 22:21:00
3	296	System Generated Ramp Event for Event id : 1729690	2022/08/25 22:21:00	2022/08/26 00:51:00
3	593	Shut down for Interim repairs.	2022/08/26 10:59:00	2022/08/31 23:59:59
4	199	EF: High stack emissions	2022/08/01 12:41:00	2022/08/01 17:30:00
4	196	EF: High stack emissions	2022/08/01 20:00:00	2022/08/02 00:00:00
4	196	emissions test	2022/08/02 00:00:00	2022/08/02 05:37:00
4	200	High stack emissions.	2022/08/02 10:12:00	2022/08/02 15:51:00
4	200	EF: Emission test.	2022/08/04 00:10:00	2022/08/04 04:55:00
4	200	AM: SO3 plant air inlet v/v replacement	2022/08/06 00:08:00	2022/08/09 00:00:00
4	198	AM: SO3 plant air inlet v/v replacement	2022/08/09 00:00:00	2022/08/11 06:18:00
4	51	High stack emissions	2022/08/10 08:36:00	2022/08/11 06:18:00
4	170	AM: High stack emissions.	2022/08/15 10:39:00	2022/08/15 11:51:00
4	70	AM:RH Outer precip casing repairs	2022/08/15 22:02:00	2022/08/16 18:14:00
4	18	AM: High stack emissions.	2022/08/17 20:08:00	2022/08/17 23:59:00
4	593	Boiler drum level low	2022/08/25 09:19:00	2022/08/25 12:15:00
4	297	System Generated Ramp Event for Event id : 1729716	2022/08/25 12:15:00	2022/08/25 13:45:00

PM Exceedances		
U1.	LHI Casing outage	06-Aug
U2.	ESP POOR PERFORMANCE & MANUAL RAPPING & HIGH HOPPER LEVELS	04-Aug
U2.	Poor casing performance	06-Aug
U2.	ESP Casing (RHI/ RHO) poor performance	11-Aug
U2.	RHI Casing Outage	13-Aug
U2.	RHO casing Outage	20-Aug
U3.	ESP POOR PERFORMANCE & MANUAL RAPPING & HIGH HOPPER LEVELS	03-Aug
U3.	ESP poor performance & manuall rapping carried out.	06-Aug
U3.	ESP LHI Casing poor performance	08-Aug
U3.	ESP Poor Performance	13-Aug
U3.	ESP poor Performance and manual rapping	15-Aug
U3.	ESP Poor Performance and Manual Rapping	19-Aug
U3.	Unit Shut Down for boile tube leak	22-Aug
U3.	Unit synchronised on 2022/08/24 @ 08:33, emissions below the limit by 2022/08/27 @08:33 and remain below the limit until 2022/08/28 @ 23:59	24-Aug
U3.	Unit Tripped @08:07 on low drum level Unit synchronised on 2022/08/25 @ 22:21, emissions below the limit by 2022/08/28 @22:21 and remain below the limit until 2022/08/29 @ 23:59	25-Aug
U4.	High hopper level and poor esp performance	01-Aug
U4.	SO3 plant off for air inlet repairs/ ESP poor performance	07-Aug
U4.	SO3 plant off and ESP casing poor performance & manual rapping carried out.	08-Aug
U4.	SO3 plant off and ESP casing poor performance	09-Aug
U4.	SO3 plant off and ESP casing poor performance. NEMA S30	10-Aug
U4.	SO3 plant repairs/ Esp poor performance (RHO/LHO casings)	11-Aug
U4.	SO3 plant off due to burnt turbulator pipe/ poor casing performance	12-Aug
U4.	SO3 plant off due to burnt turbulator pipe/ poorl casing performance	13-Aug
U4.	SO3 plant off due to burnt turbulator pipe/ poor casing performance	14-Aug
U4.	SO3 plant off due to burnt turbulator pipe/ poor casing performance	15-Aug
U4.	SO3 plant off due to burnt turbulator pipe/ poor casing performance	16-Aug
U4.	Unit Light up Unit synchronised on 2022/08/25 @ 12:15, emissions below the limit by 2022/08/28 @ 12:15 and remain below the limit until 2022/08/29 @ 23:59	26-Aug
U5.	SO3 plant off to replace faulty module.	07-Aug
U5.	SO3 plant still ramping up after module card replacement. And manual rapping carried out.	08-Aug
U5.	Unit Shut down for feed q\water tank manhole cover repairs	12-Aug
U5.	Unit synchronized on 2022/08/16 @ 10:48, Unit need to be below the limit by 2022/08/19 @ 10:48 and remain below the limit until 2022/08/20 @ 23:59.	16-Aug