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Date:
24 February 2023

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Ref. LRP02PLA000 _0326/20221103

Dear Mr. Sibaya,

LETHABO POWER STATION EMISSION MONTHLY REPORT FOR OCTOBER 2022 RESUBMISSION

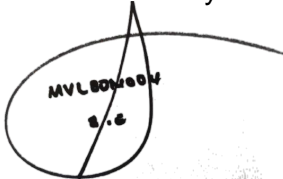
Please find attached revised emissions report for the month of October 2022 for Lethabo Power Station.

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 October 2022.

For additional information please do not hesitate to contact us.

Yours sincerely



Bongani Mvelase
GENERAL MANAGER



Report


Lethabo Power Station

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

Reference number: **LRP02PLA000_0326/20221103**
Document Type: **Report**
Area of Applicability: **Environment**
Report Date: **November-2022**
Classification: **Controlled Disclosure**

Signatures:

Compiled by:


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System Engineer


Date: 2023/02/17
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Verified by :


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Senior Advisor Environment

Date: 2023 02 20
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Reviewed by:

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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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Reviewed by:


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L Nel
C&I Manager


Date: 2023-02-21
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Reviewed by:


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M Hariram
Environmental Manager

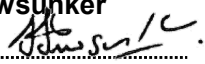
Date: 2023-02-22
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Approved by:

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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 Oct-2022
	Coal	Tons	2 000 000	1 502 579
	Fuel Oil	Tons	1 700	659.51
Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Production Rate Oct-2022
	Energy	GWh	2834.64	2 139.88
	Ash	Tons	770 000	554 451.6
	RE Ash	kg/MWh	Not Specified	259.10

2. ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.656 (Standard)	0.720
Ash Content	%	37.37 (Standard)	36.900

*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 Oct-2022
Unit 1	<i>Electrostatic Precipitator (ESP)</i>	99.78%
Unit 2	<i>Electrostatic Precipitator (ESP)</i>	99.81%
Unit 3	<i>Electrostatic Precipitator (ESP)</i>	99.81%
Unit 4	<i>Electrostatic Precipitator (ESP)</i>	99.83%
Unit 5	<i>Electrostatic Precipitator (ESP)</i>	99.80%
Unit 6	<i>Electrostatic Precipitator (ESP)</i>	99.80%

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	96.6	99.0	78.7
Unit 2	97.3	99.9	100.0
Unit 3	99.4	99.9	99.9
Unit 4	100.0	100.0	100.0
Unit 5	95.1	99.9	99.9
Unit 6	98.7	99.9	99.9

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 October 2022

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	148.7	2 565	1 429
Unit 2	163.3	3 440	1 467
Unit 3	162.6	3 098	1 411
Unit 4	162.9	3 814	1 868
Unit 5	149.2	3303	1190
Unit 6	183.1	3 647	1 678
SUM	969.7	19 867	9 043

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

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	17	7	0	0	7	103.1
Unit 2	28	3	0	0	3	77.8
Unit 3	22	5	0	0	5	92.4
Unit 4	31	0	0	0	0	74.1
Unit 5	23	6	0	0	6	130.2
Unit 6	29	2	0	0	2	90.3
SUM	150	23	0	0	23	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average SO ₂ (mg/Nm ³)
Unit 1	26	0	0	0	0	1 623.8
Unit 2	31	0	0	0	0	1 618.6
Unit 3	29	0	0	0	0	1 679.2
Unit 4	31	0	0	0	0	1 750.6
Unit 5	30	0	0	0	0	1 830.3
Unit 6	31	0	0	0	0	1 816.3
SUM	178	0	0	0	0	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average NOx (mg/Nm ³)
Unit 1	26	0	0	0	0	874.2
Unit 2	31	0	0	0	0	687.6
Unit 3	29	0	0	0	0	752.7
Unit 4	31	0	0	0	0	852.8
Unit 5	30	0	0	0	0	642.7
Unit 6	31	0	0 <td 0	0	832.5	
SUM	178	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 - October 2022

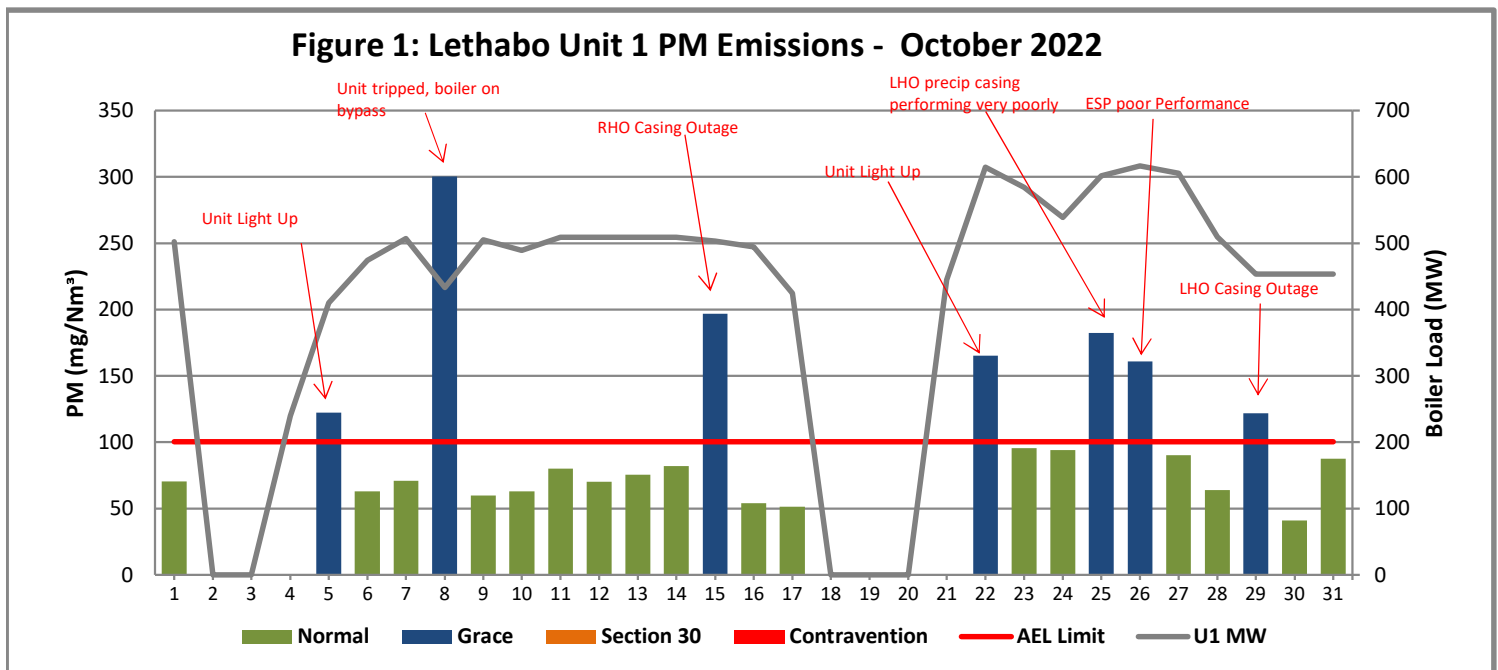


Figure 2: Lethabo Unit 2 PM Emissions - October 2022

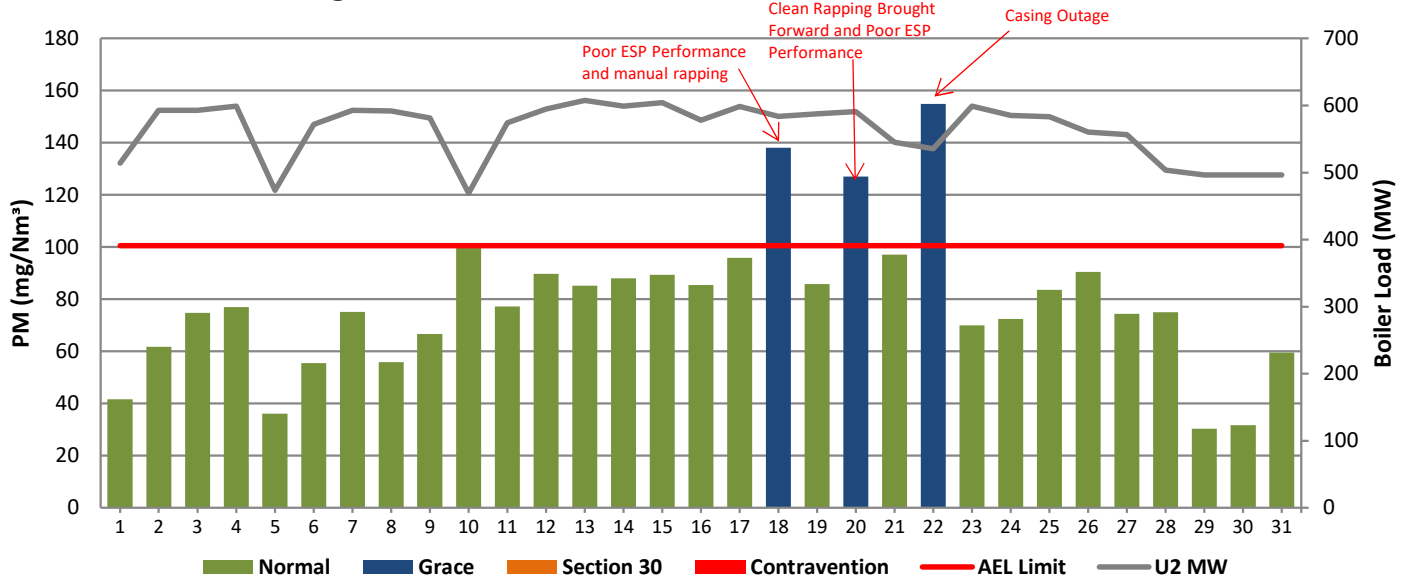


Figure 3: Lethabo Unit 3 PM Emissions - October 2022

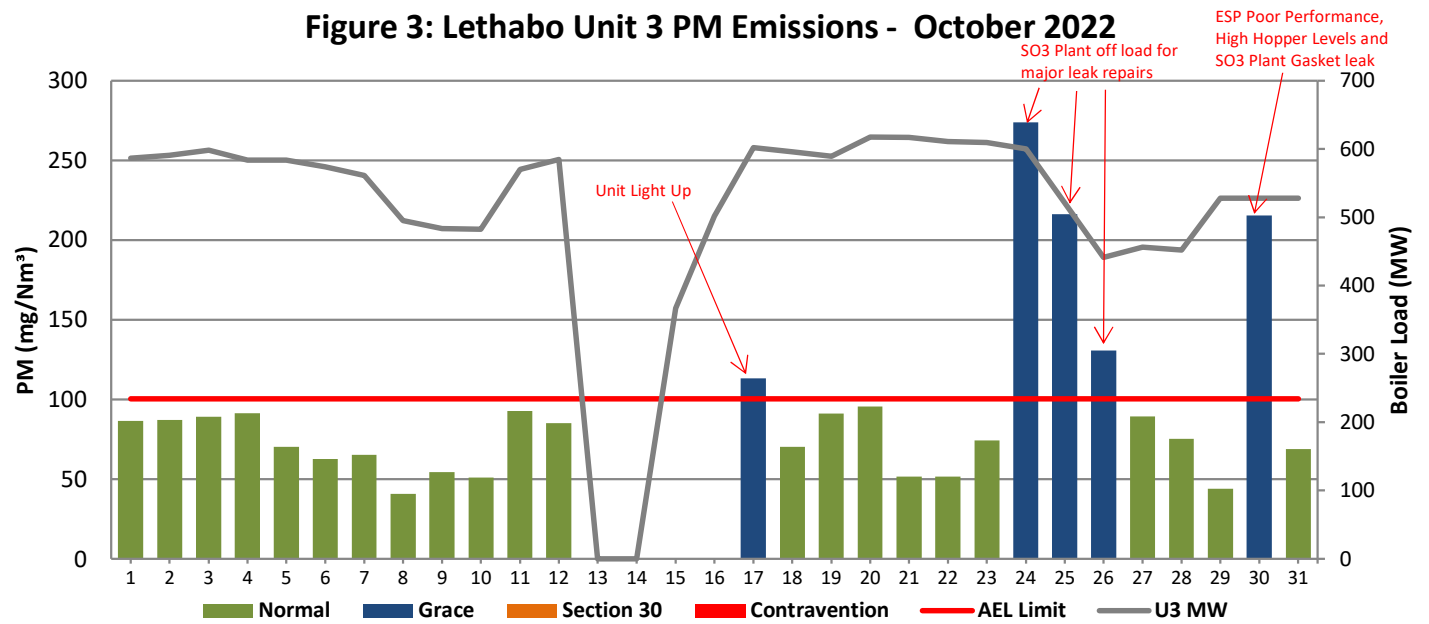


Figure 4: Lethabo Unit 4 PM Emissions - October 2022

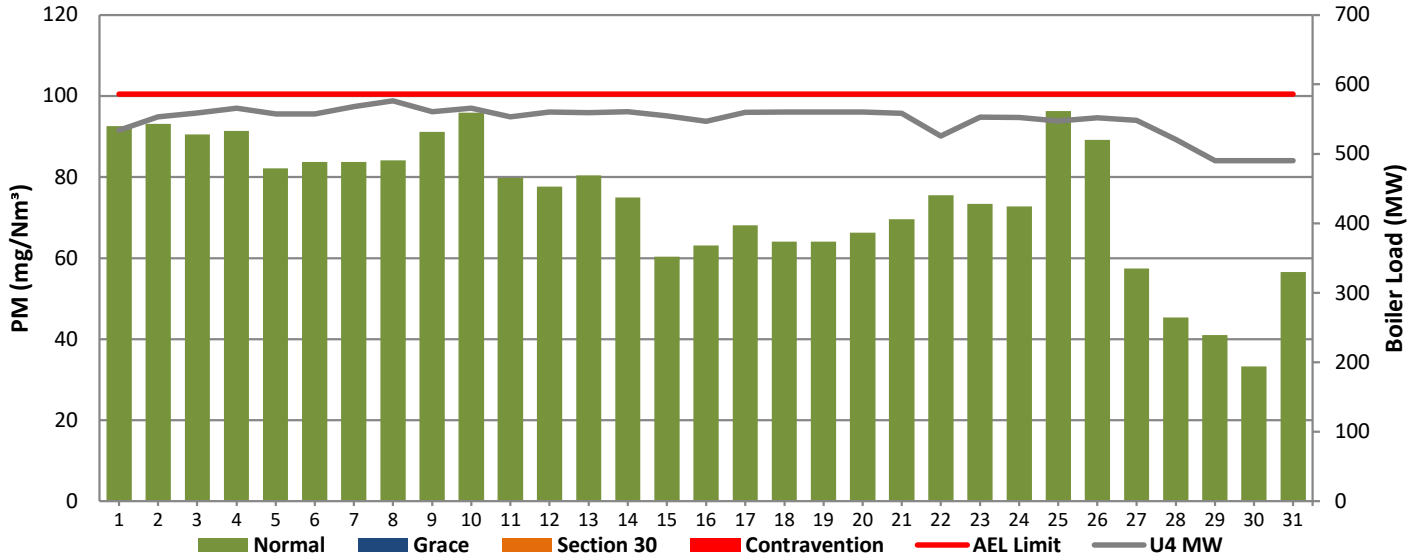


Figure 5: Lethabo Unit 5 PM Emissions - October 2022

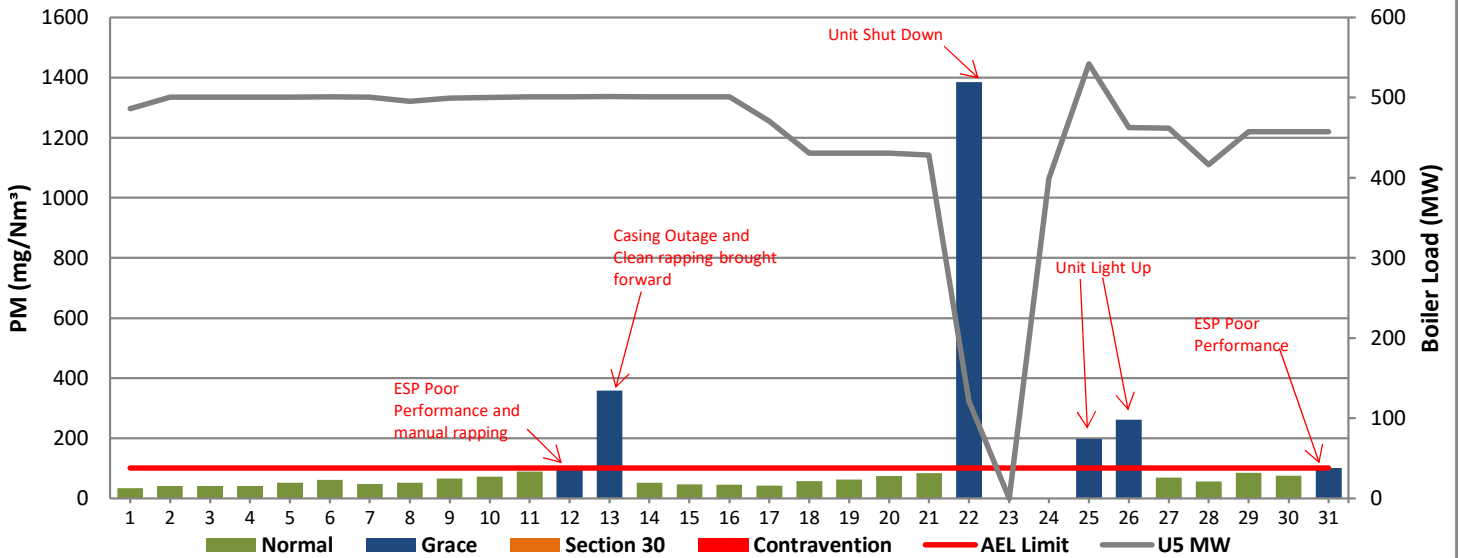


Figure 6: Lethabo Unit 6 PM Emissions - October 2022

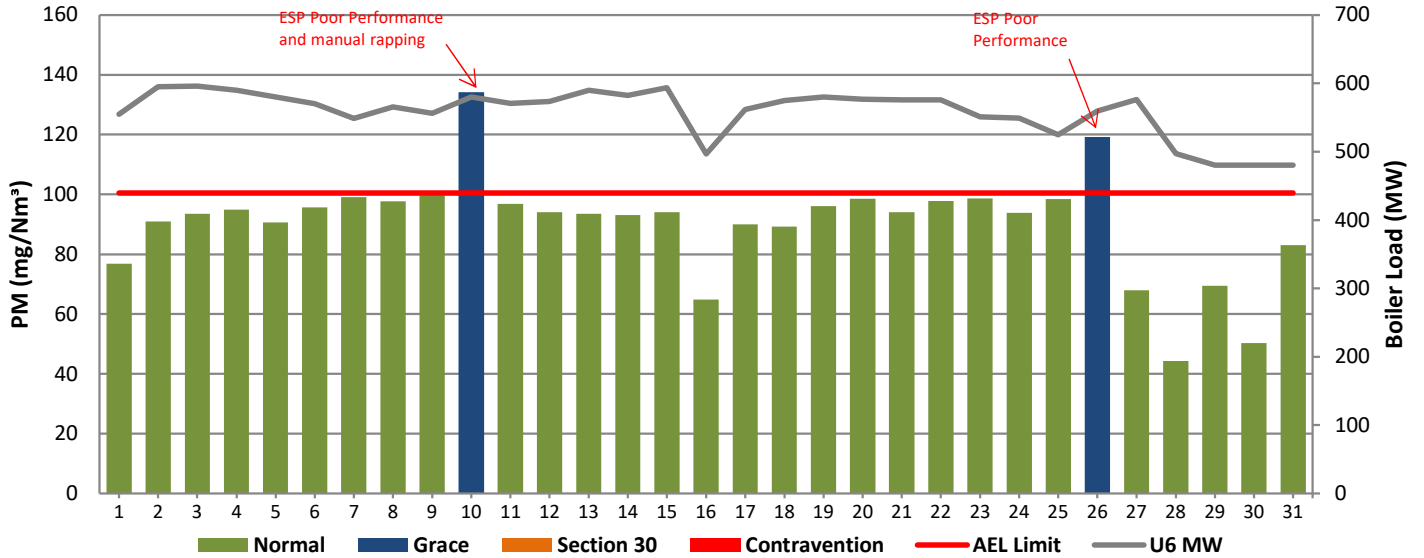


Figure 7: Lethabo Unit 1 SO₂ Emissions - October 2022

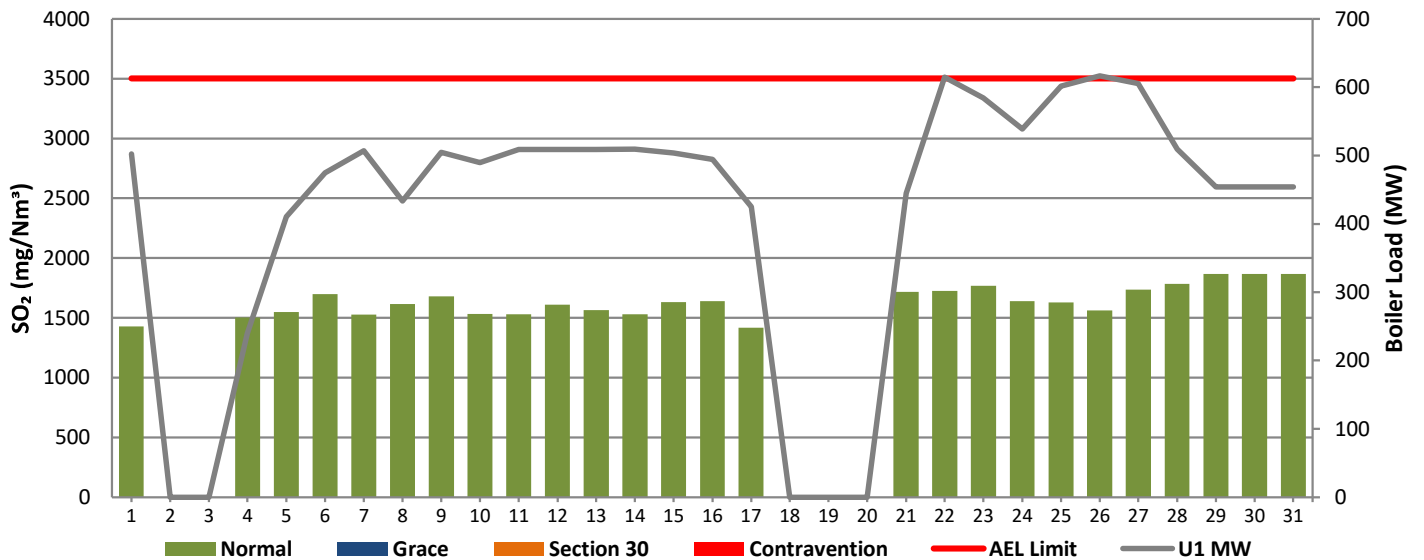


Figure 8: Lethabo Unit 2 SO₂ Emissions - October 2022

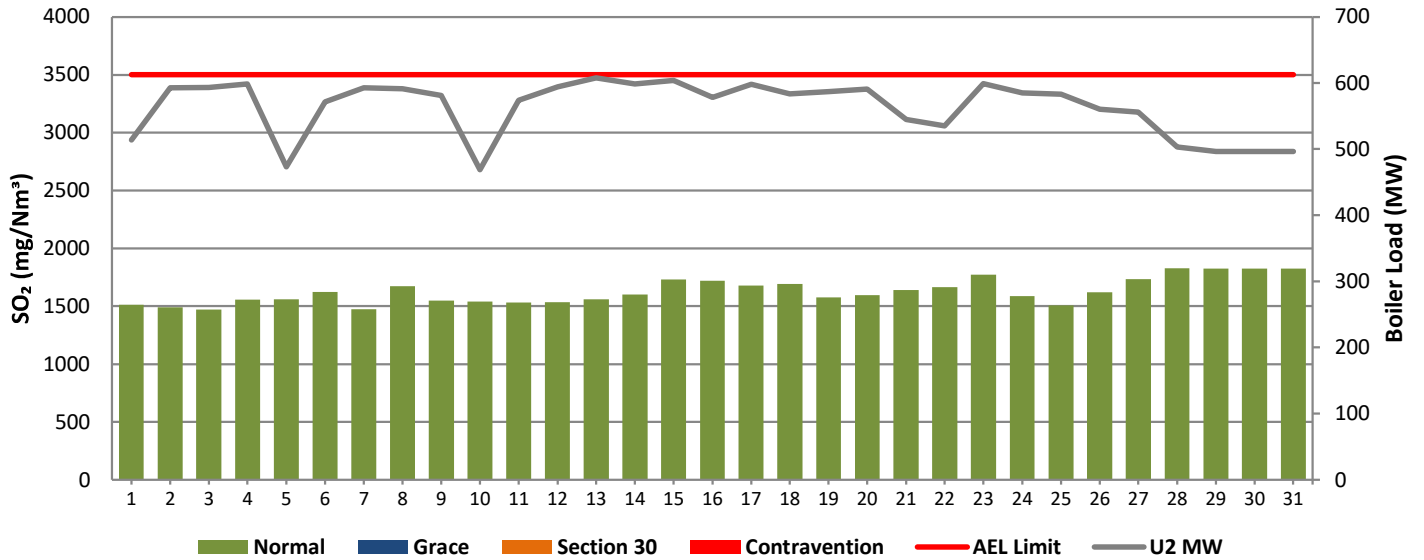


Figure 9: Lethabo Unit 3 SO₂ Emissions - October 2022

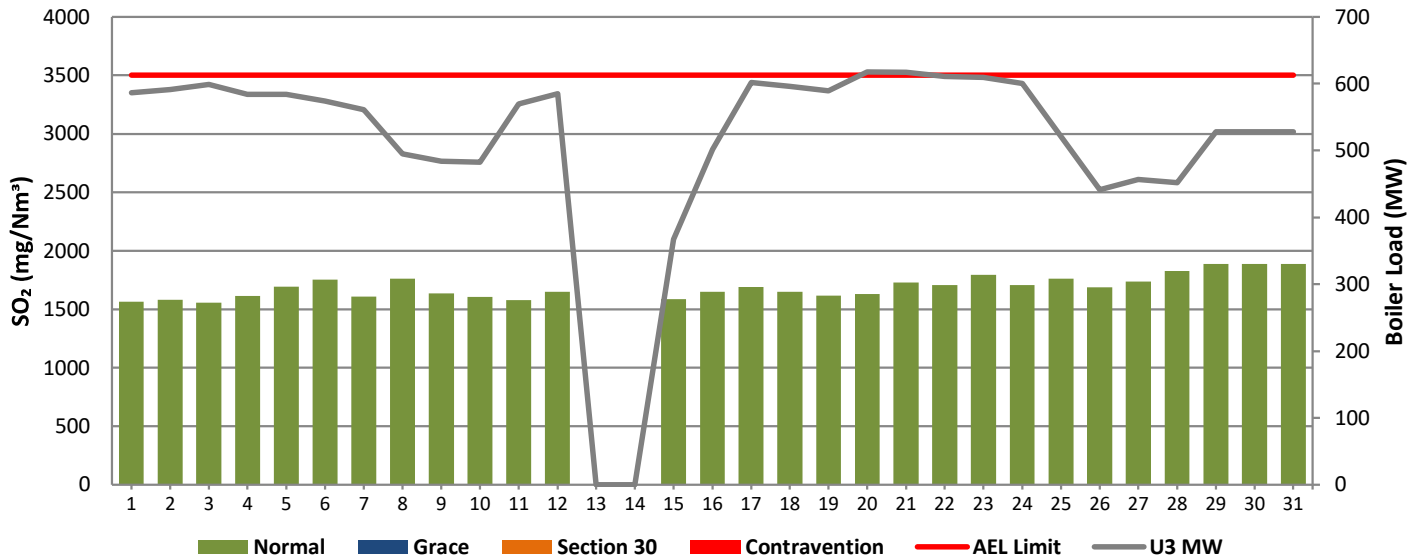


Figure 10: Lethabo Unit 4 SO₂ Emissions - October 2022

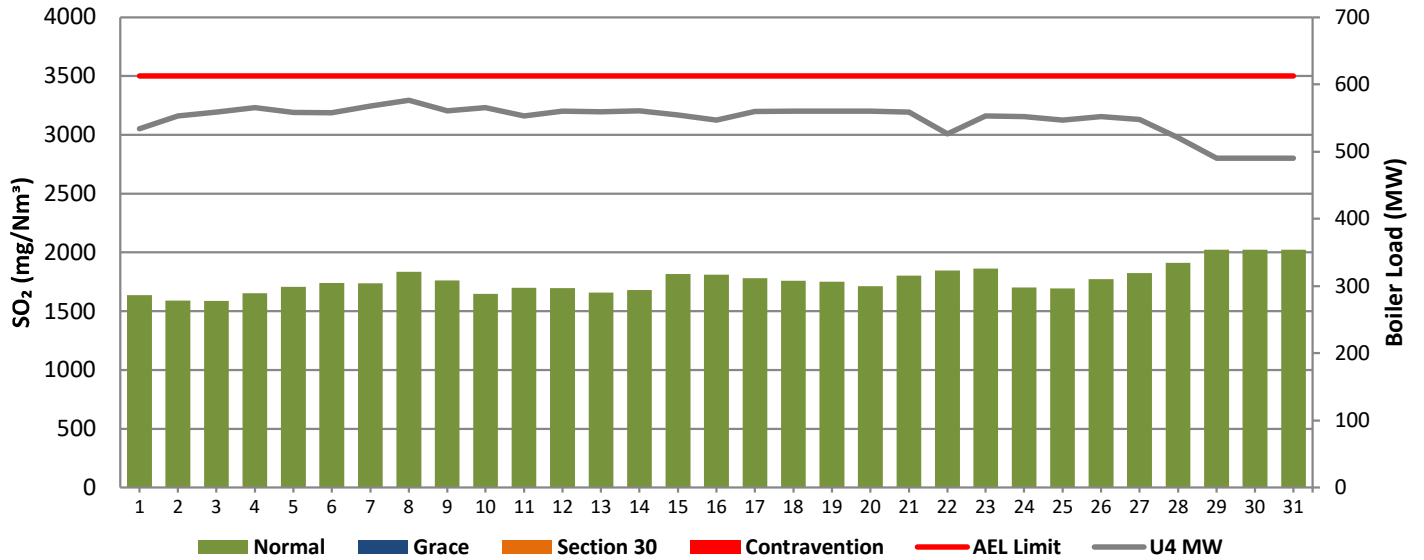


Figure 11: Lethabo Unit 5 SO₂ Emissions - October 2022

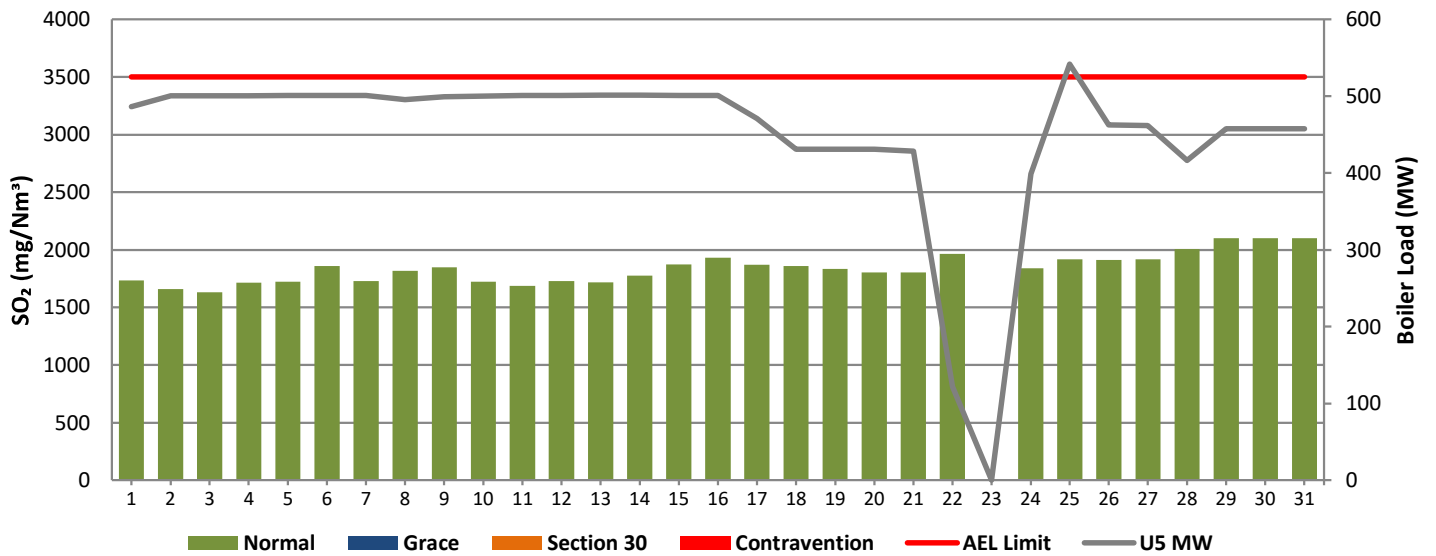


Figure 12: Lethabo Unit 6 SO₂ Emissions - October 2022

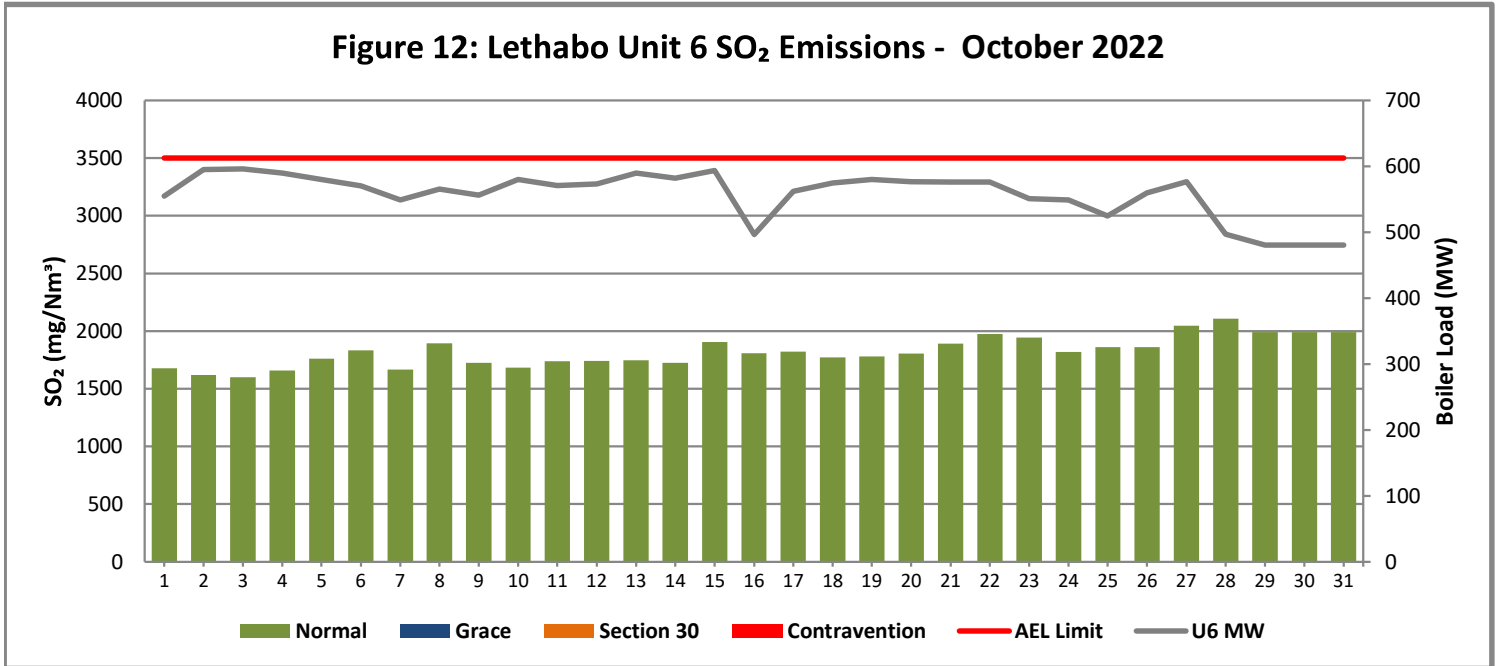


Figure 13: Lethabo Unit 1 NO_x Emissions - October 2022

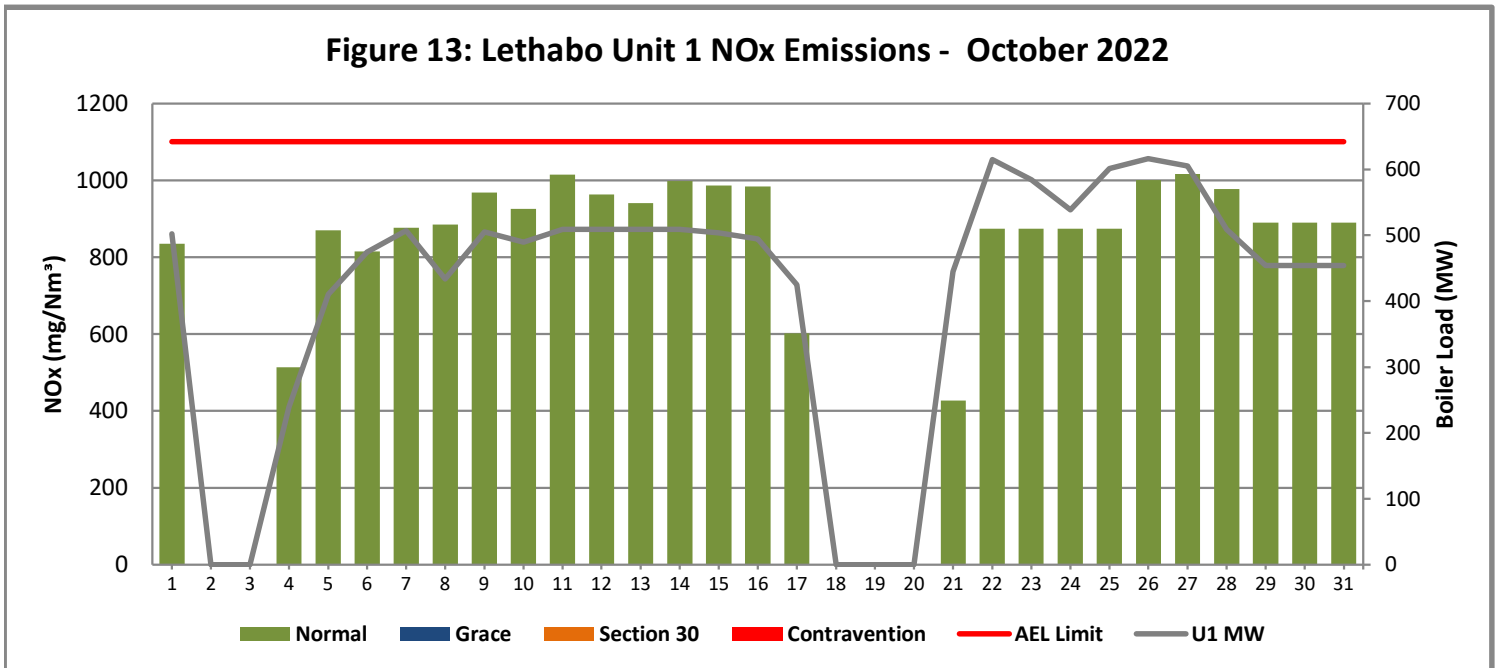


Figure 14: Lethabo Unit 2 NOx Emissions - October 2022

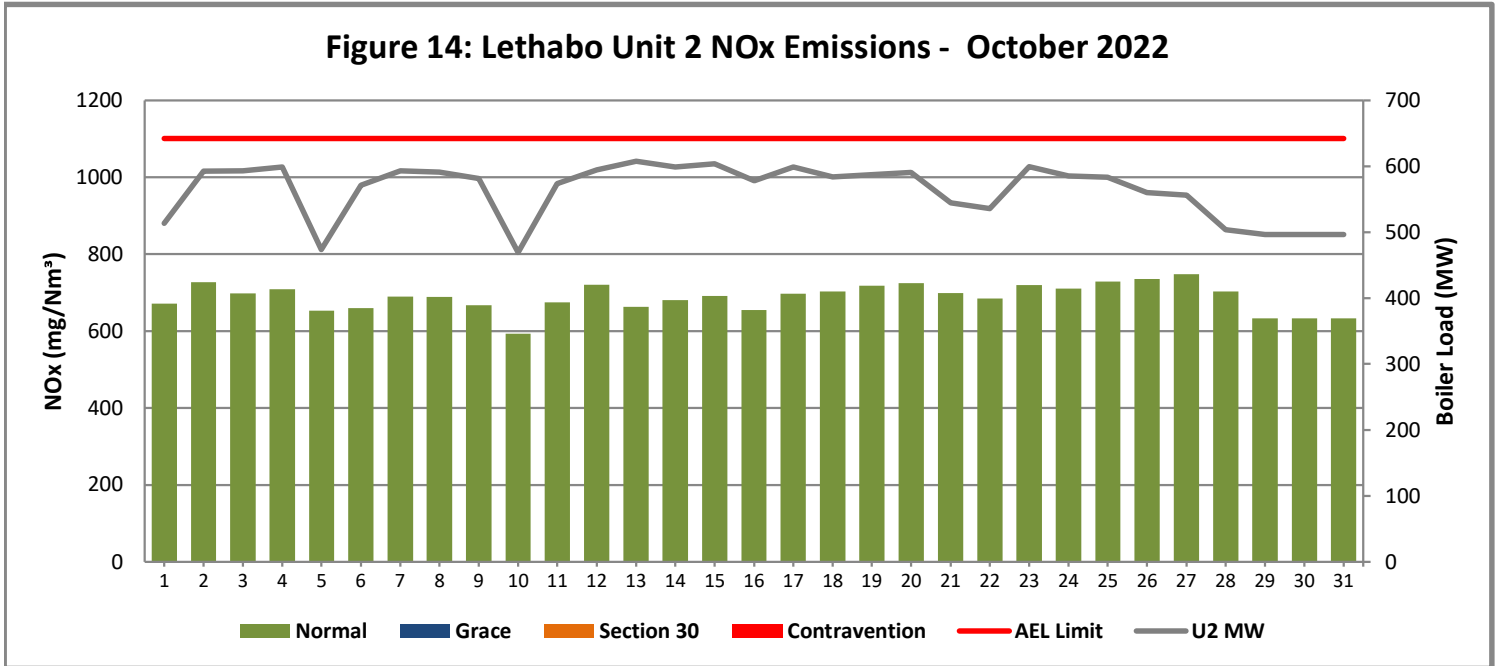


Figure 15: Lethabo Unit 3 NOx Emissions - October 2022

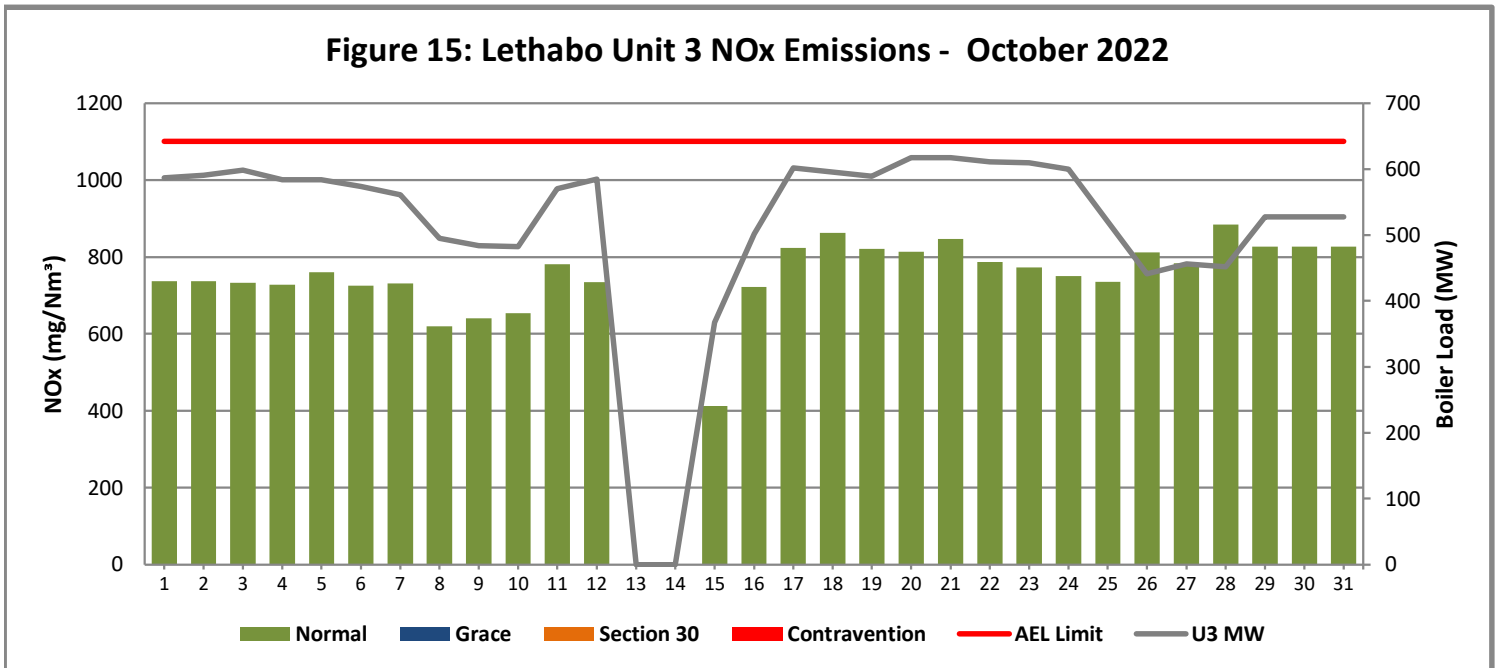


Figure 16: Lethabo Unit 4 NOx Emissions - October 2022

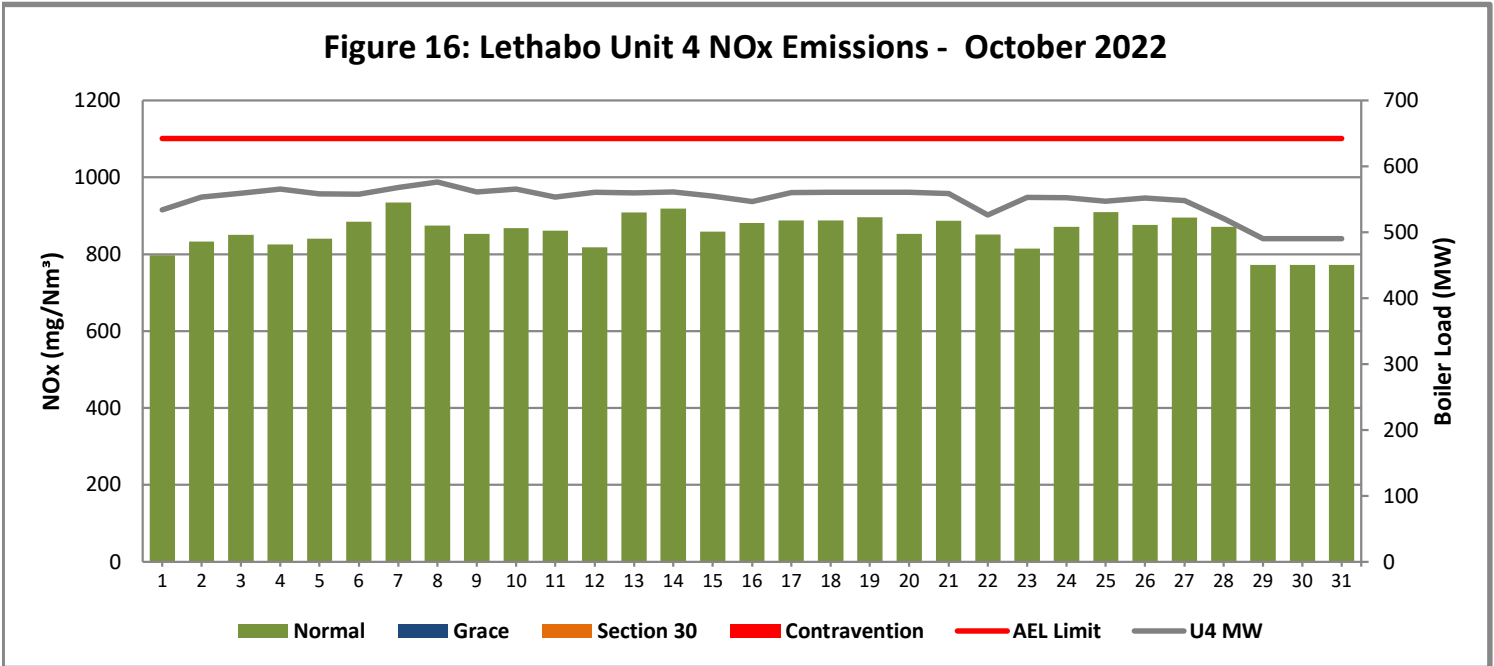


Figure 17: Lethabo Unit 5 NOx Emissions - October 2022

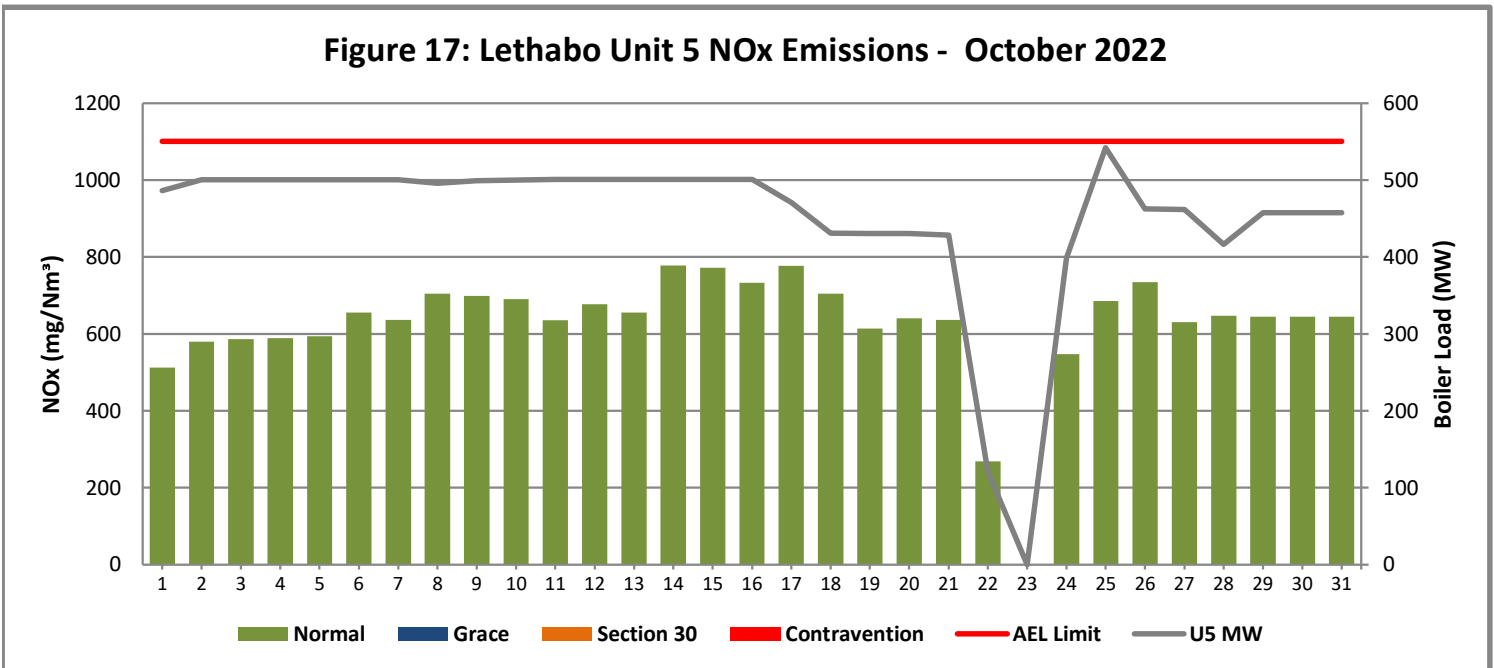
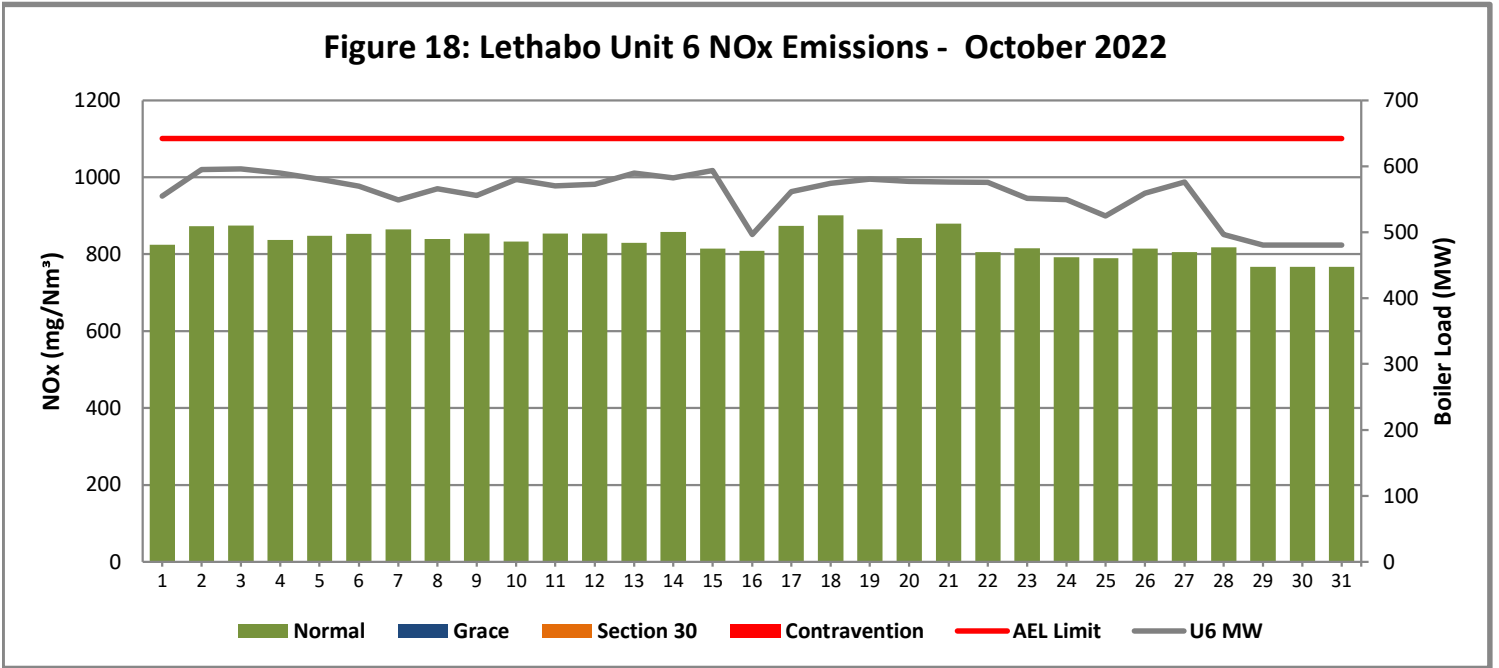


Figure 18: Lethabo Unit 6 NOx Emissions - October 2022



7 SHUT DOWN AND LIGHT UP INFORMATION

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

Unit No.1	<i>Boiler tube leak repairs.</i>		<i>LP1 rearbearing temperature high</i>		<i>LP2 rear bearing temperature high.</i>		<i>LP2 rear bearing temperature high.</i>	
Breaker Open (BO)	11:45 AM	2022/10/01	11:04 AM	2022/10/04	5:21 PM	2022/10/04	12:17 PM	2022/10/08
Draught Group (DG) Shut Down (SD)	11:45 PM	2022/10/01	<i>DG did not trip or SD</i>	<i>DG did not trip or SD</i>	<i>DG did not trip or SD</i>	<i>DG did not trip or SD</i>	<i>DG did not trip or SD</i>	<i>DG did not trip or SD</i>
BO to DG SD (duration)	00:12:00	DD:HH:MM	<i>n/a</i>	DD:HH:MM	<i>n/a</i>	DD:HH:MM	<i>n/a</i>	DD:HH:MM
Fires in time	4:32 AM	2022/10/04						
Synch. to Grid (or BC)	9:48 AM	2022/10/04						
Fires in to BC (duration)	00:05:16	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	12:00 AM	2022/10/06						
Emissions below limit from BC (duration)	01:14:12	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM

Unit No.1	<i>Boiler tube leak.</i>							
Breaker Open (BO)	4:20 AM	2022/10/17						
Draught Group (DG) Shut Down (SD)	4:00 PM	2022/10/17						
BO to DG SD (duration)	00:11:40	DD:HH:MM						
Fires in time	5:32 PM	2022/10/21						
Synch. to Grid (or BC)	5:35 PM	2022/10/21						
Fires in to BC (duration)	00:00:03	DD:HH:MM						
Emissions below limit from BC (end date)	7:00 PM	2022/10/24						
Emissions below limit from BC (duration)	03:01:25	DD:HH:MM						

Unit No.2	<i>Unit tripped on black furnace protection</i>						
Breaker Open (BO)	6:55 AM	2022/10/10					
Draught Group (DG) Shut Down (SD)	<i>DG did not trip or SD</i>	<i>DG did not trip or SD</i>					
BO to DG SD (duration)	<i>n/a</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
Fires in time	10:24 AM	2022/10/10					
Synch. to Grid (or BC)	11:02 AM	2022/10/10					
Fires in to BC (duration)	00:00:38	DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
Emissions below limit from BC (end date)	8:00 AM	2022/10/12					
Emissions below limit from BC (duration)	01:20:58	DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM

Unit No.3							
Breaker Open (BO)	8:15 PM	2022/10/12	9:34 AM	2022/10/16			
Draught Group (DG) Shut Down (SD)	6:17 AM	2022/10/13	<i>DG did not trip or SD</i>	<i>DG did not trip or SD</i>			
BO to DG SD (duration)	00:10:02	DD:HH:MM	<i>n/a</i>	DD:HH:MM		DD:HH:MM	DD:HH:MM
Fires in time	7:20 PM	2022/10/15	11:58 AM	2022/10/16			
Synch. to Grid (or BC)	9:05 PM	2022/10/15	2:11 PM	2022/10/16			
Fires in to BC (duration)	00:01:45	DD:HH:MM	00:02:13	DD:HH:MM		DD:HH:MM	DD:HH:MM
Emissions below limit from BC (end date)	2:00 PM	2022/10/19	2:00 PM	2022/10/19			
Emissions below limit from BC (duration)	03:16:55	DD:HH:MM	02:23:49	DD:HH:MM		DD:HH:MM	DD:HH:MM

Unit No.4							
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.5	<i>HP CV Repairs.</i>					
Breaker Open (BO)	<i>12:05 AM</i>	<i>2022/10/22</i>				
Draught Group (DG) Shut Down (SD)	<i>8:29 AM</i>	<i>2022/10/22</i>				
BO to DG SD (duration)	<i>00:08:24</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	<i>2:10 AM</i>	<i>2022/10/24</i>				
Synch. to Grid (or BC)	<i>4:25 AM</i>	<i>2022/10/24</i>				
Fires in to BC (duration)	<i>00:02:15</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	<i>12:00 AM</i>	<i>2022/10/27</i>				
Emissions below limit from BC (duration)	<i>02:19:35</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM

Unit No.6							
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

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

8. MAINTENANCE

Unit 1				
Beginning of	2022/10/14 23:55	2022/10/29 00:00		
Reason for Maintenance	RHO Casing Repairs	LHO Casing Repairs		
End (Time):	2022/10/15 18:49	2022/10/29 16:42		
Duration	18:54:00	16:42:00	0:00:00	0:00:00

Unit 2				
Beginning of	2022/10/28 00:00:00	2022/10/22 00:30:00		
Reason for Maintenance	LHO Precip Casing	RHI Precip Casing		
End (Time):	2022/10/28 18:25:00	2022/10/22 15:58:00		
Duration	18:25:00	15:28:00	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				
Reason for Maintenance				
End (Time):				
Duration	0:00:00	0:00:00	0:00:00	0:00:00

Unit 5				
Beginning of	2022/10/13 01:00:00			
Reason for Maintenance	RHI Precip Casing			
End (Time):	2022/10/13 23:30:00			
Duration	22:30:00	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 1 Monitor Reliability:

26/10/2022: Monitor Reliability low (79.2%) due to variability greater than 10% between output 1 and output 2.

04/10/2022: CO2 Gaseous Monitor Reliability Low (78.1%) due to unit light up.

Unit 2 Monitor Reliability:

11/10/2022: Monitor Reliability low (69.7%) due to unit light up.

Unit 1 NOx Exceedance:

21/10/2022 - 26/10/2022: Unit 1 Monitor had a fault upon return, a calibration was attempted on the 23/10/2022 and was left to settle, this was not successful, the calibration was redone on the 26/10/2022 and mirror replaced. Due to this the NOx data was removed from 21/10/2022 17:30 to 26/10/2022 13:06 as the monitor was unreliable.

CO2 and Velocity Monitors Low Reliability Units 1-6:

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

ADDENDUM TO MONTHLY EMISSIONS REPORT

10. S30 INCIDENT OR LEGAL CONTRAVENTION REGISTER

To be completed in the case of a S30 incident or a legal contravention:

Unit no	Incident Start Date	Incident End Date	Incident Cause	Remedial action	S30 initial notification sent	Date S30 investigation report sent	Date DEA Acknowledgment	Date DEA Acceptable	Comments / Reference No.

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-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
Sep-22	0.40	0.24	0.31	0.79	0.32	0.40	0.41
Oct-22	0.52	0.39	0.44	0.40	0.45	0.44	0.44

ADDENDUM TO MONTHLY EMISSIONS REPORT

12. DAILY EMISSIONS FIGURES

Final Dust Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
01-Oct	70	42	86	93	34	77	100
02-Oct	OFF	62	87	93	41	91	100
03-Oct	OFF	75	89	91	41	93	100
04-Oct	OFF	77	91	91	41	95	100
05-Oct	88	36	70	82	53	91	100
06-Oct	63	56	63	84	61	96	100
07-Oct	71	75	65	84	49	99	100
08-Oct	300	56	41	84	53	98	100
09-Oct	60	67	54	91	66	100	100
10-Oct	63	39	51	96	72	134	100
11-Oct	80	103	93	80	90	97	100
12-Oct	70	90	85	78	106	94	100
13-Oct	76	85	OFF	80	359	94	100
14-Oct	82	88	OFF	75	52	93	100
15-Oct	197	89	OFF	60	46	94	100
16-Oct	54	86	OFF	63	45	65	100
17-Oct	51	96	70	68	42	90	100
18-Oct	OFF	138	70	64	58	89	100
19-Oct	OFF	86	91	64	63	96	100
20-Oct	OFF	127	95	66	74	98	100
21-Oct	OFF	97	52	70	84	94	100
22-Oct	210	155	52	76	1384	98	100
23-Oct	96	70	74	73	OFF	99	100
24-Oct	94	72	274	73	OFF	94	100
25-Oct	182	84	216	96	214	98	100
26-Oct	161	90	131	89	262	119	100
27-Oct	90	74	89	57	69	68	100
28-Oct	64	75	75	45	56	44	100
29-Oct	122	30	44	41	85	69	100
30-Oct	41	32	215	33	75	50	100
31-Oct	88	59	69	57	100	83	100

ADDENDUM TO MONTHLY EMISSIONS REPORT

Final SOx Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
01-Oct	1429	1511	1563	1638	1735	1676	3500
02-Oct	OFF	1490	1583	1588	1659	1619	3500
03-Oct	OFF	1470	1557	1587	1634	1602	3500
04-Oct	1504	1557	1614	1652	1713	1659	3500
05-Oct	1549	1559	1694	1709	1721	1759	3500
06-Oct	1699	1624	1755	1739	1861	1832	3500
07-Oct	1526	1475	1608	1738	1731	1666	3500
08-Oct	1615	1671	1763	1833	1819	1894	3500
09-Oct	1681	1548	1636	1762	1847	1724	3500
10-Oct	1532	1540	1605	1648	1723	1681	3500
11-Oct	1530	1532	1579	1700	1686	1739	3500
12-Oct	1611	1536	1648	1696	1729	1741	3500
13-Oct	1563	1559	OFF	1657	1717	1748	3500
14-Oct	1531	1599	OFF	1678	1776	1724	3500
15-Oct	1632	1733	1587	1817	1872	1905	3500
16-Oct	1639	1720	1649	1810	1933	1808	3500
17-Oct	1418	1679	1691	1781	1871	1822	3500
18-Oct	OFF	1692	1649	1759	1859	1773	3500
19-Oct	OFF	1577	1616	1749	1836	1782	3500
20-Oct	OFF	1595	1631	1714	1802	1806	3500
21-Oct	1716	1639	1728	1803	1803	1891	3500
22-Oct	1723	1665	1708	1845	1965	1975	3500
23-Oct	1768	1773	1794	1861	OFF	1943	3500
24-Oct	1639	1586	1708	1703	1841	1818	3500
25-Oct	1629	1505	1763	1691	1918	1861	3500
26-Oct	1561	1622	1687	1772	1914	1860	3500
27-Oct	1735	1735	1737	1823	1920	2048	3500
28-Oct	1784	1827	1827	1910	2006	2106	3500
29-Oct	1867	1825	1888	2022	2103	1992	3500
30-Oct	1705	1733	1775	1830	1995	1969	3500
31-Oct	1632	1597	1655	1751	1920	1881	3500

ADDENDUM TO MONTHLY EMISSIONS REPORT

Final NOx Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
01-Oct	834	672	737	797	513	825	1100
02-Oct	OFF	727	737	833	579	873	1100
03-Oct	OFF	698	733	850	586	875	1100
04-Oct	514	709	728	825	588	837	1100
05-Oct	870	652	761	841	594	848	1100
06-Oct	815	660	726	885	655	853	1100
07-Oct	877	690	732	935	637	864	1100
08-Oct	884	689	620	875	705	839	1100
09-Oct	968	667	641	854	699	853	1100
10-Oct	926	593	653	868	690	833	1100
11-Oct	1014	674	781	861	635	854	1100
12-Oct	963	720	735	818	677	853	1100
13-Oct	941	663	OFF	909	655	830	1100
14-Oct	997	680	OFF	919	777	858	1100
15-Oct	986	691	412	859	772	815	1100
16-Oct	984	655	723	881	733	809	1100
17-Oct	602	697	824	888	776	874	1100
18-Oct	OFF	703	862	888	705	901	1100
19-Oct	OFF	718	821	896	614	864	1100
20-Oct	OFF	725	813	853	640	842	1100
21-Oct	426	699	847	887	636	879	1100
22-Oct	874	685	787	851	268	806	1100
23-Oct	874	720	773	814	OFF	815	1100
24-Oct	874	711	750	871	547	792	1100
25-Oct	874	729	735	910	686	790	1100
26-Oct	1001	736	812	876	735	815	1100
27-Oct	1016	748	784	896	630	806	1100
28-Oct	977	702	884	871	647	818	1100
29-Oct	890	633	828	772	644	768	1100
30-Oct	807	580	796	611	581	742	1100
31-Oct	937	687	794	744	675	779	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-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
Sep-22	98.86%	1.4	100.00%	0.0	100.00%	0.0	99.27%	0.9	98.44%	1.9	99.20%	1.0
Oct-22	98.80%	1.5	98.86%	1.4	100.00%	0.0	100.00%	0.0	99.24%	0.9	100.00%	0.0

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
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
Sep-22	100.00%	0.0	99.58%	0.1	100.00%	0.0	94.27%	1.7	97.92%	0.6	100.00%	0.0
Oct-22	89.39%	3.3	100.00%	0.0	82.41%	5.5	99.73%	0.1	79.69%	6.3	100.00%	0.0

ADDENDUM TO MONTHLY EMISSIONS REPORT

Particulate Emission Monitors

Availability						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
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%
Sep-22	98.69%	100.00%	92.89%	96.01%	99.31%	99.17%
Oct-22	96.61%	97.27%	99.38%	100.00%	95.14%	98.66%

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
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%
Sep-22	100.00%	100.00%	100.00%	100.00%	99.62%	100.00%	93.83%	93.83%	94.86%	94.86%	94.86%	94.86%
Oct-22	98.95%	78.72%	99.87%	100.00%	99.86%	99.86%	100.00%	100.00%	99.86%	99.86%	99.87%	99.87%

Oxygen Monitor Availability						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
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%
Sep-22	99.72%	99.71%	99.62%	93.67%	94.72%	94.44%
Oct-22	99.27%	99.87%	99.57%	99.73%	99.72%	99.60%

ADDENDUM TO MONTHLY EMISSIONS REPORT

14. EFFICIENCY

ESP Efficiency (%)						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
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%
Sep-22	99.836%	99.888%	99.868%	99.666%	99.863%	99.815%
Oct-22	99.779%	99.814%	99.807%	99.826%	99.803%	99.796%

15. REMARKS

UNIT	MWLOSS	REASON	ACTUALSTARTDATE	ACTUALENDDATE
1	593	Boiler tube leak repairs.	2022/10/01 11:36:00	2022/10/04 09:48:00
1	467	System Generated Ramp Event for Event id : 1743259 (Recalculated)	2022/10/04 09:48:00	2022/10/04 11:04:00
1	593	LP1 rear bearing temperature high	2022/10/04 11:04:00	2022/10/04 13:27:00
1	297	System Generated Ramp Event for Event id : 1744146	2022/10/04 13:27:00	2022/10/04 14:57:00
1	593	LP2 rear bearing temperature high.	2022/10/04 17:21:00	2022/10/04 22:39:00
1	297	System Generated Ramp Event for Event id : 1744220	2022/10/04 22:39:00	2022/10/05 00:09:00
1	97	Fly ash bunker levels high.	2022/10/05 03:43:00	2022/10/06 02:30:00
1	593	LP2 rear bearing temperature high	2022/10/08 12:17:00	2022/10/08 16:43:00
1	297	System Generated Ramp Event for Event id : 1745824	2022/10/08 16:43:00	2022/10/08 18:13:00
1	110	RHO precip casing repairs.	2022/10/14 23:55:00	2022/10/15 18:49:00
1	593	Boiler tube leak.	2022/10/17 04:11:00	2022/10/21 17:35:00
1	297	System Generated Ramp Event for Event id : 1748736	2022/10/21 17:35:00	2022/10/21 20:35:00
1	108	AM: High stack emissions.	2022/10/24 11:53:00	2022/10/25 03:17:00
1	50	High stack emissions	2022/10/27 20:47:00	2022/10/28 00:00:00
1	118	LHO precip casing repairs	2022/10/29 00:00:00	2022/10/29 16:42:00
2	168	Fly ash bunker levels high.	2022/10/05 03:54:00	2022/10/06 02:25:00
2	593	Unit tripped on black furnace protection	2022/10/10 06:48:00	2022/10/10 11:02:00
2	297	System Generated Ramp Event for Event id : 1746339	2022/10/10 11:02:00	2022/10/10 12:32:00
2	95	High stack emissions	2022/10/21 10:08:00	2022/10/21 16:48:00
2	151	EF: High stack emissions.	2022/10/21 21:05:00	2022/10/22 00:30:00
2	97	RHI Precip Repairs	2022/10/22 00:30:00	2022/10/22 15:58:00
2	90	AM: LHO Precip Casing repairs.	2022/10/28 00:00:00	2022/10/28 18:25:00
3	88	Fly ash bunker levels high.	2022/10/05 03:14:00	2022/10/05 05:18:00
3	67	High stack emissions	2022/10/11 19:16:00	2022/10/12 01:30:00
3	593	Main turbine FRF contaminated	2022/10/12 20:06:00	2022/10/15 21:05:00
3	297	System Generated Ramp Event for Event id : 1747325	2022/10/15 21:05:00	2022/10/16 00:05:00
3	593	Boiler tripped on Drum level low.	2022/10/16 09:34:00	2022/10/16 14:11:00
3	297	System Generated Ramp Event for Event id : 1748529	2022/10/16 14:11:00	2022/10/16 15:41:00
3	118	High stack emissions	2022/10/18 00:35:00	2022/10/18 05:15:00
3	115	High stack emissions.	2022/10/25 00:08:00	2022/10/25 04:49:00
3	118	EF: High stack emissions	2022/10/25 08:56:00	2022/10/26 00:13:00
3	216	EF: High stack emissions	2022/10/26 00:13:00	2022/10/26 07:02:00
3	164	High stack emissions	2022/10/26 06:57:00	2022/10/29 00:52:00
4	68	EF: High stack emissions	2022/10/01 19:27:00	2022/10/02 00:13:00
4	68	EF: High stack emissions.	2022/10/02 18:15:00	2022/10/03 00:15:00
4	66	High stack emissions.	2022/10/03 20:08:00	2022/10/04 00:26:00
4	168	Fly ash bunker levels high	2022/10/05 03:40:00	2022/10/05 05:27:00
4	45	EF: High stack emissions	2022/10/25 22:01:00	2022/10/26 00:09:00
5	593	AM: HP CV Repairs.	2022/10/22 00:00:00	2022/10/24 04:25:00
5	297	System Generated Ramp Event for Event id : 1750367	2022/10/24 04:25:00	2022/10/24 07:25:00
5	106	EF: High stack emissions	2022/10/25 09:14:00	2022/10/25 11:16:00
5	208	EF: High stack emissions	2022/10/25 11:16:00	2022/10/25 16:00:00
5	175	EF: High stack emissions.	2022/10/27 04:00:00	2022/10/27 15:19:00
5	119	High stack emissions.	2022/10/27 15:19:00	2022/10/27 16:54:00

UNIT	MWLOSS	REASON	ACTUALSTARTDATE	ACTUALENDDATE
6	118	EF: High stack emissions	2022/10/04 20:41:00	2022/10/04 23:59:00
6	118	Fly ash bunker levels high.	2022/10/05 03:21:00	2022/10/05 04:56:00
6	118	High stack emissions.	2022/10/07 13:50:00	2022/10/07 15:59:00
6	218	High stack emissions.	2022/10/07 20:30:00	2022/10/08 00:19:00
6	116	High stack emissions	2022/10/08 19:27:00	2022/10/09 00:15:00
6	118	EF: High stack emissions	2022/10/09 12:43:00	2022/10/09 15:57:00
6	118	EF: High stack emissions	2022/10/09 19:17:00	2022/10/09 22:06:00
6	138	EF: High stack emissions	2022/10/09 22:06:00	2022/10/09 23:12:00
6	168	EF: High stack emissions	2022/10/09 23:12:00	2022/10/10 00:44:00
6	112	EF: High stack emissions	2022/10/20 23:29:00	2022/10/21 00:17:00
6	119	High stack emissions.	2022/10/22 20:52:00	2022/10/22 23:58:00
6	117	High stack emissions.	2022/10/23 13:31:00	2022/10/23 16:58:00
6	217	High stack emissions.	2022/10/23 19:52:00	2022/10/23 23:55:00
6	70	AM: High stack emissions.	2022/10/24 11:51:00	2022/10/24 16:41:00
6	64	EF: High stack emissions	2022/10/24 22:35:00	2022/10/25 00:48:00
6	120	EF: High stack emissions	2022/10/25 10:26:00	2022/10/25 20:59:00
6	218	EF: High stack emissions.	2022/10/25 20:59:00	2022/10/26 00:34:00

PM Exceedances

U1.	Unit Light UP Synchronised @ 04/10/2022 09:49 Tripped (boiler on bypass) 11.04 SOL: 13:27 Tripped (boiler fan on and only on fuel oil support) SOL 22:39	04-Oct
U1.	RHO Casing Outage	15-Oct
U1.	The unit synchronised on 2022/10/21 @ 17:32 , the emissions need to be below the limit by 2022/10/24 @ 17:32 and remain below the limit until 2022/10/25 @ 23:59	21-Oct
U1.	Unit Light Up	22-Oct
U1.	LHO Precip casing performing very poorly	25-Oct
U1.	ESP Poor Performance	26-Oct
U2.	Unit Tripped on black furnace (Boiler off) The unit synchronised on 2022/10/10 @ 11:02, the emissions need to be below the limit by 2022/10/13 @ 09:49 and remain below the limit until 2022/10/14 @ 23:59	10-Oct
U2.	Unit Light Up	11-Oct
U2.	Poor ESP Performance and Manual Rapping	18-Oct
U2.	Clean Rapping was brought forward Poor ESP Performance	20-Oct
U2.	Casing Outage	22-Oct
U3.	SO3 Plant off for major leak repairs	24-Oct
U3.	SO3 Plant off for major leak repairs	25-Oct
U3.	SO3 Plant off for major leak repairs	26-Oct
U3.	ESP Poor Performance High Hopper Levels SO3 plant gasket leak	30-Oct
U5.	ESP manual rapping & ESP Poor Performance	12-Oct
U5.	RHI casing outage and Clean Rapping Brought Forward	13-Oct
U5.	Unit Shut Down	22-Oct
U5.	The unit synchronised on 2022/10/24 @ 04:25 , the emissions need to be below the limit by 2022/10/27 @ 04:25 and remain below the limit until 2022/10/20 @ 23:59	24-Oct
U5.	Unit Light Up	25-Oct
U5.	SO3 Plant not in service due to valve gasket leaking	26-Oct
U5.	ESP Poor Performance	31-Oct
U6.	ESP Poor Performance and Manual Rapping	10-Oct
U6.	ESP Poor Performance	26-Oct