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Date:
24 February 2023

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Ref. LRP01PLA000 _0313/20220808

Dear Mr. Sibaya,

LETHABO POWER STATION EMISSION MONTHLY REPORT FOR JULY 2022 RESUBMISSION

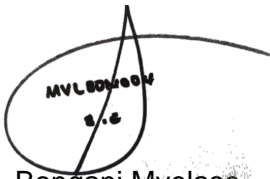
Please find attached revised emissions report for the month of July 2022 for Lethabo Power Station.

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 July 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
July 2022
Emission Report**

Reference number: **LRP01PLA000_0313/20220808**
Document Type: **Report**
Area of Applicability: **Environment**
Report Date: **August-2022**
Classification: **Controlled Disclosure**

Signatures:

Compiled by:


.....
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 20
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Reviewed by:

pp 
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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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Reviewed by:


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L Nel
C&I Manager

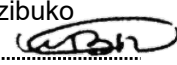
Date: 2023-02-21
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Reviewed by:


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M Hariram
Environmental Manager

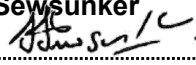
Date: 2023-02-22
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Approved by:

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 Jul-2022
	Coal	Tons	2 000 000	1 408 113
	Fuel Oil	Tons	1 700	1990.11

Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Production Rate Jul-2022
	Energy	GWh	2834.64	1 976.56
	Ash	Tons	770 000	532 689.0
	RE Ash	kg/MWh	Not Specified	269.50

2. ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.656 (Standard)	0.600
Ash Content	%	37.37 (Standard)	37.830

*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 Jul-2022
Unit 1	<i>Electrostatic Precipitator (ESP)</i>	99.85%
Unit 2	<i>Electrostatic Precipitator (ESP)</i>	99.80%
Unit 3	<i>Electrostatic Precipitator (ESP)</i>	99.82%
Unit 4	<i>Electrostatic Precipitator (ESP)</i>	99.75%
Unit 5	<i>Electrostatic Precipitator (ESP)</i>	99.96%
Unit 6	<i>Electrostatic Precipitator (ESP)</i>	99.83%

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	98.9	100.0	100.0
Unit 2	98.8	100.0	100.0
Unit 3	100.0	100.0	100.0
Unit 4	91.1	99.9	100.0
Unit 5	100.0	100.0	100.0
Unit 6	97.5	99.0	98.9

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 July 2022

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	151.6	3 422	1 651
Unit 2	178.0	3 967	1 440
Unit 3	171.9	3 635	1 576
Unit 4	225.5	4 147	1 815
Unit 5	9.3	895	247
Unit 6	137.9	3 462	1 571
SUM	874.3	19 529	8 300

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

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	21	10	0	0	10	85.2
Unit 2	23	8	0	0	8	92.5
Unit 3	28	3	0	0	3	84.6
Unit 4	19	11	0	0	11	116.3
Unit 5	8	0	0	0	0	23.0
Unit 6	27	1	0	0	1	98.1
SUM	126	33	0	0	33	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average SO ₂ (mg/Nm ³)
Unit 1	31	0	0	0	0	1 858.2
Unit 2	31	0	0	0	0	2 059.1
Unit 3	31	0	0	0	0	1 802.6
Unit 4	31	0	0	0	0	2 029.3
Unit 5	10	0	0	0	0	1 885.8
Unit 6	29	0	0	0	0	2 062.8
SUM	163	0	0	0	0	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm³)
Unit 1	31	0	0	0	0	893.4
Unit 2	31	0	0	0	0	745.5
Unit 3	31	0	0	0	0	779.6
Unit 4	31	0	0	0	0	883.8
Unit 5	10	0	0	0	0	498.2
Unit 6	29	0	0	0	0	936.1
SUM	163	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
Contravention	RED	Emissions above ELV but outside grace or S30 incident conditions

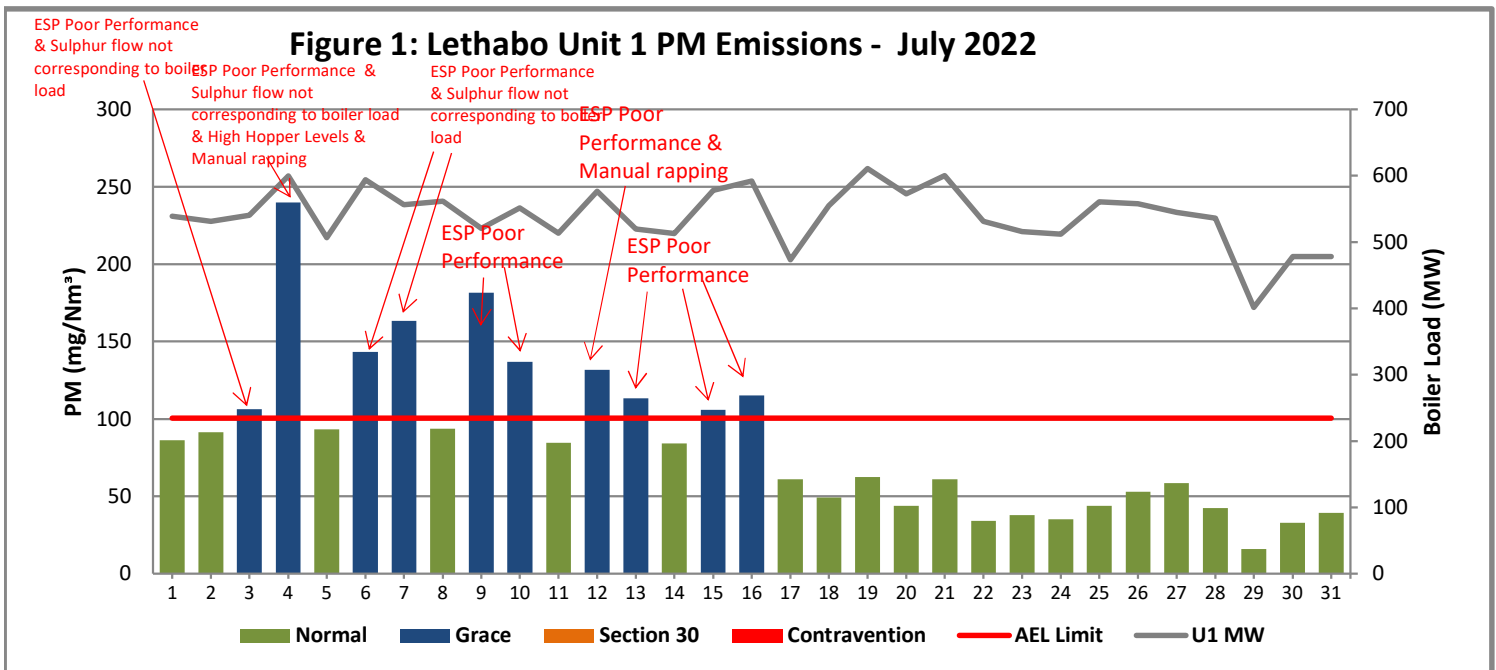


Figure 2: Lethabo Unit 2 PM Emissions - July 2022

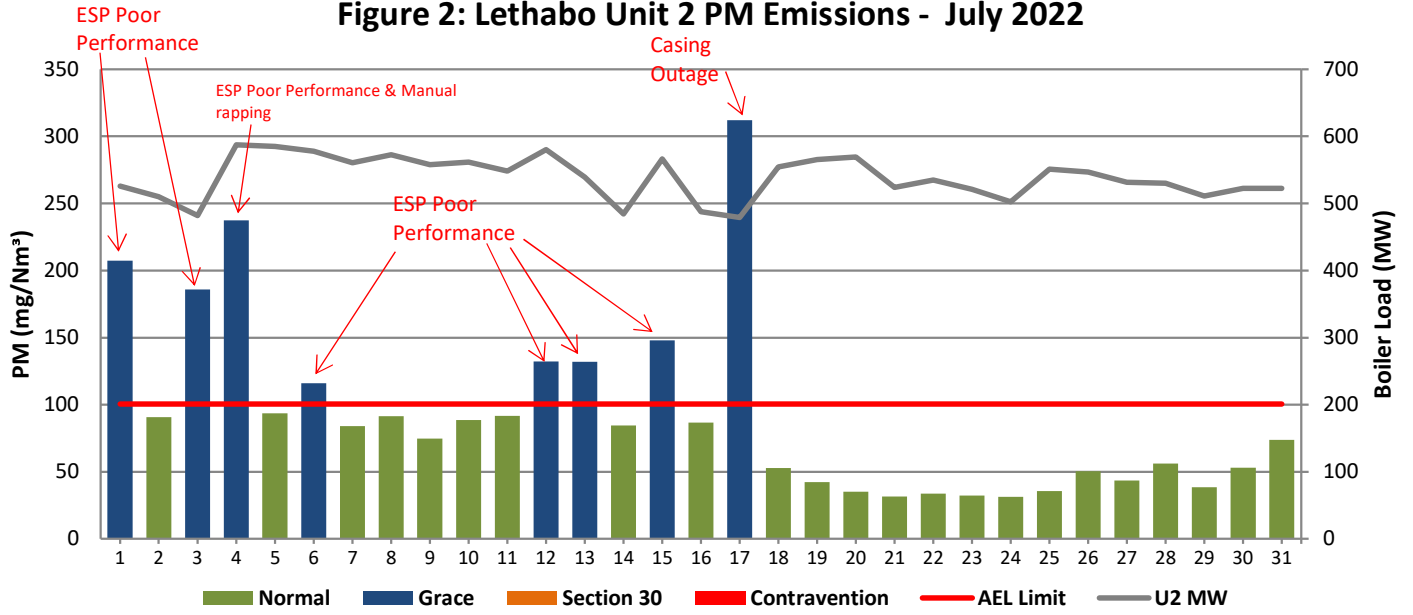


Figure 3: Lethabo Unit 3 PM Emissions - July 2022

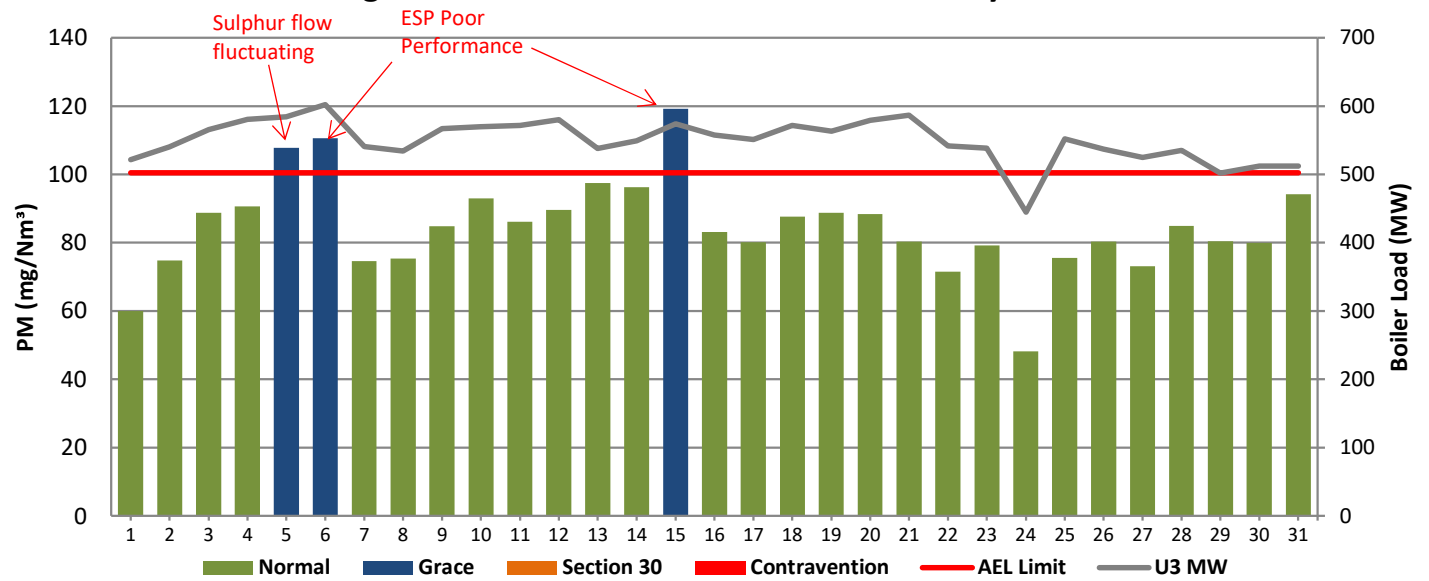


Figure 4: Lethabo Unit 4 PM Emissions - July 2022

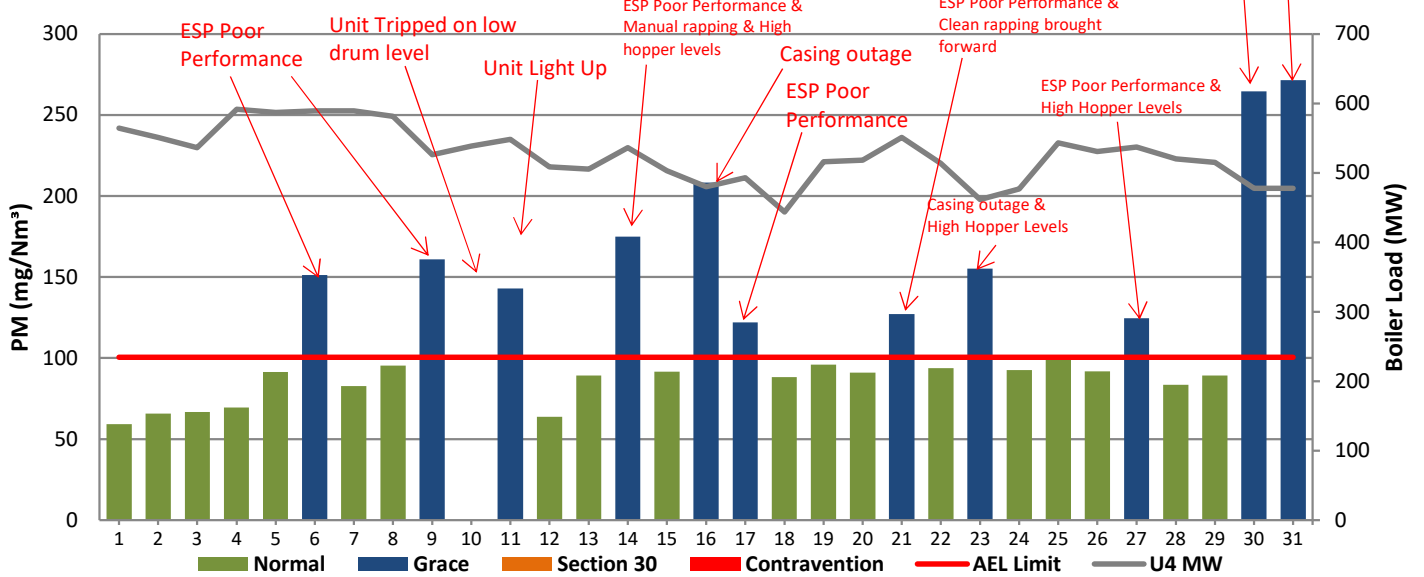


Figure 5: Lethabo Unit 5 PM Emissions - July 2022

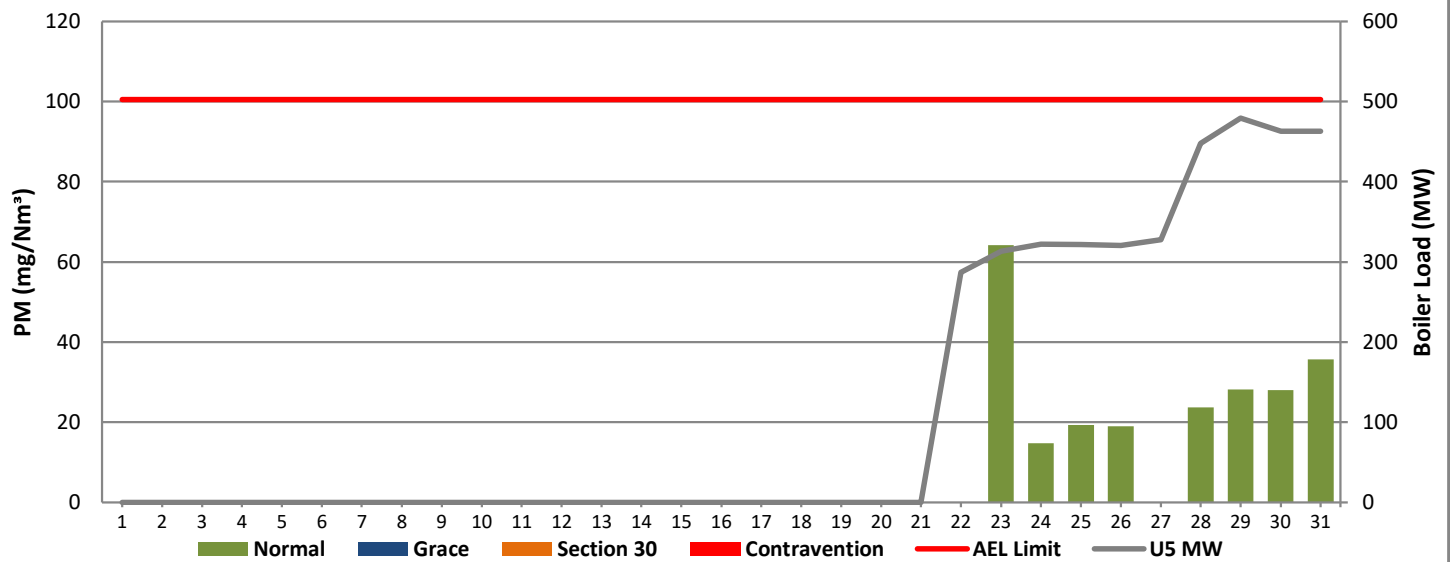


Figure 6: Lethabo Unit 6 PM Emissions - July 2022

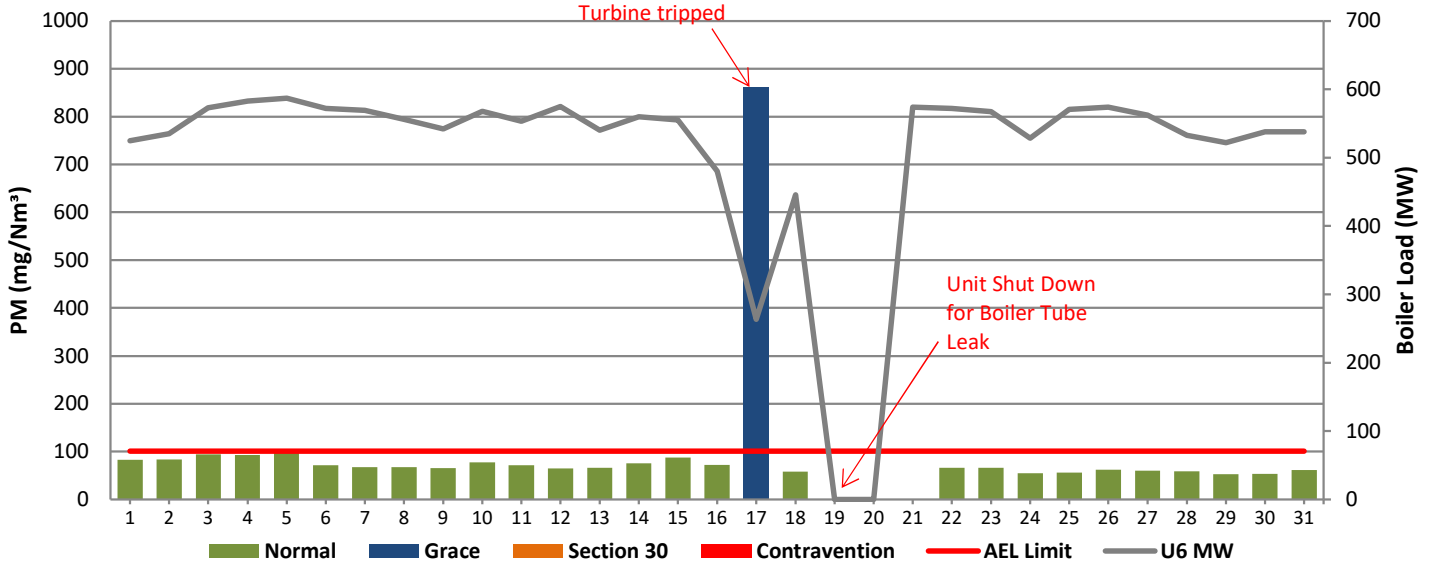


Figure 7: Lethabo Unit 1 SO₂ Emissions - July 2022

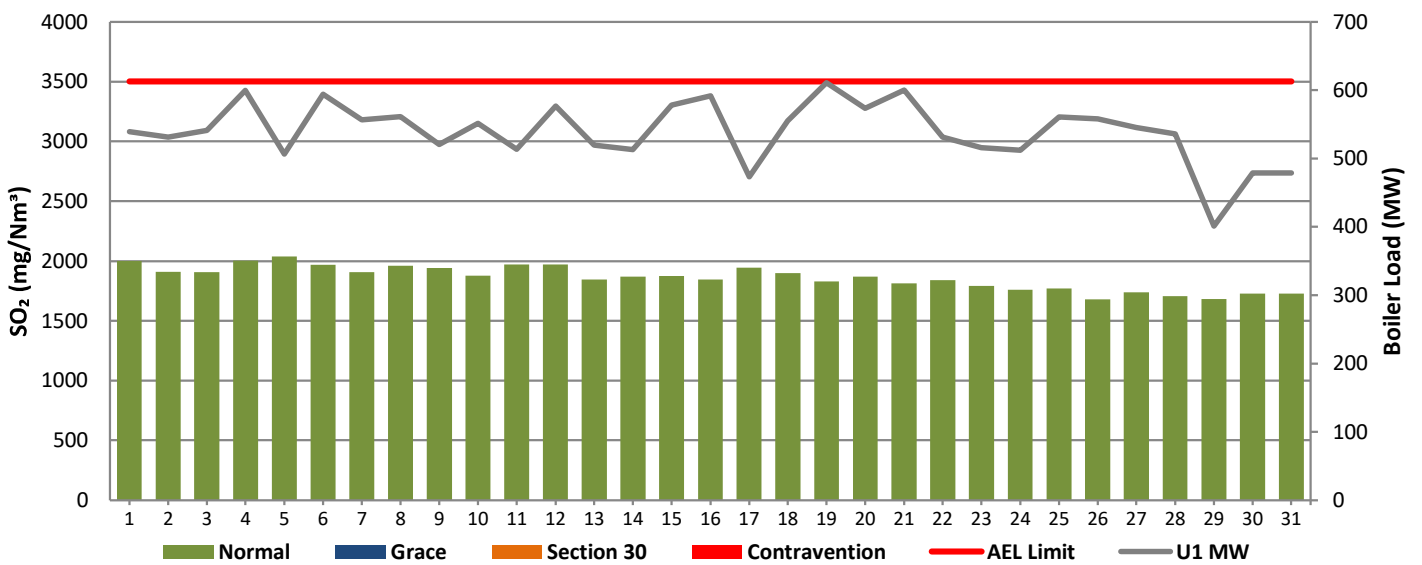


Figure 8: Lethabo Unit 2 SO₂ Emissions - July 2022

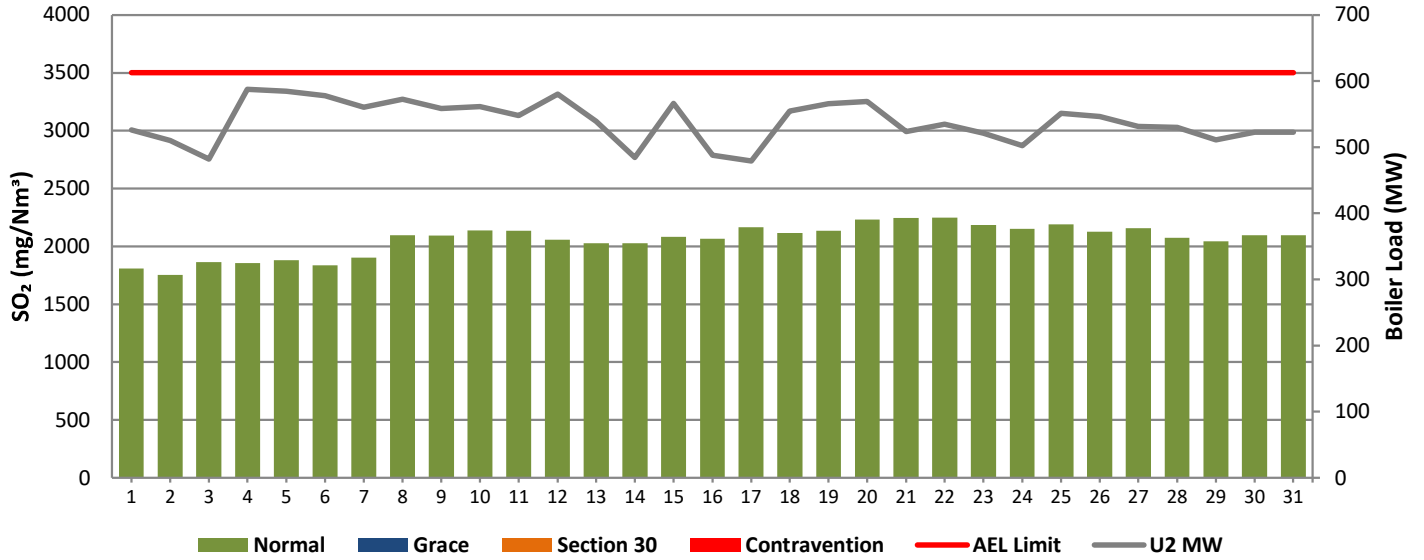


Figure 9: Lethabo Unit 3 SO₂ Emissions - July 2022

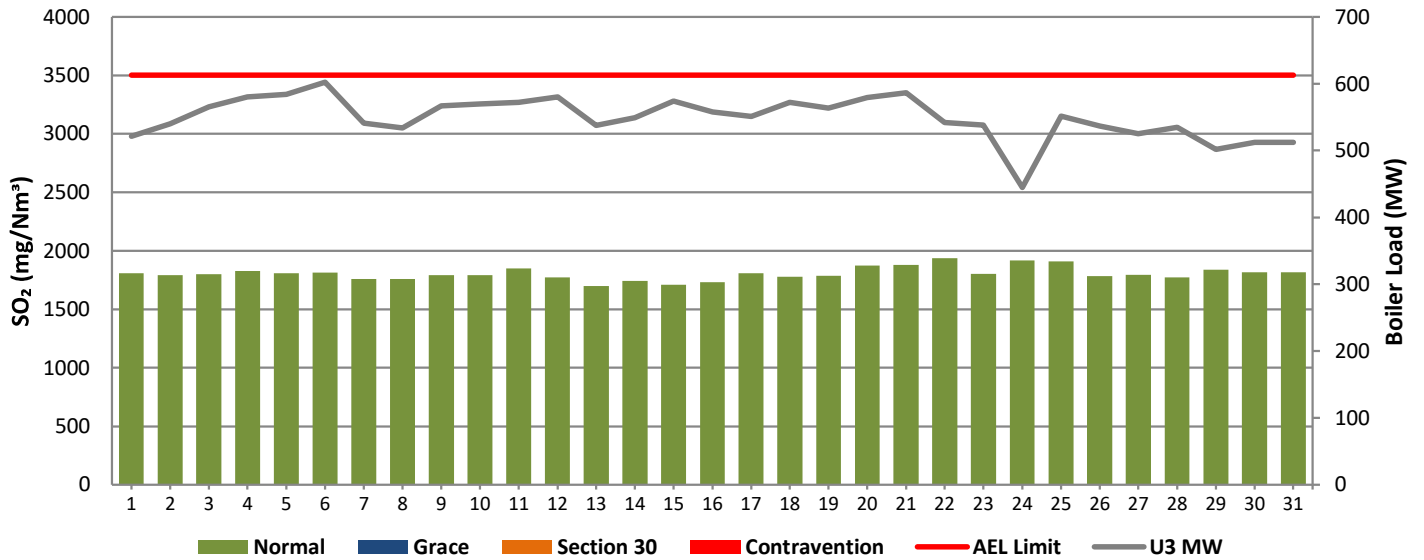


Figure 10: Lethabo Unit 4 SO₂ Emissions - July 2022

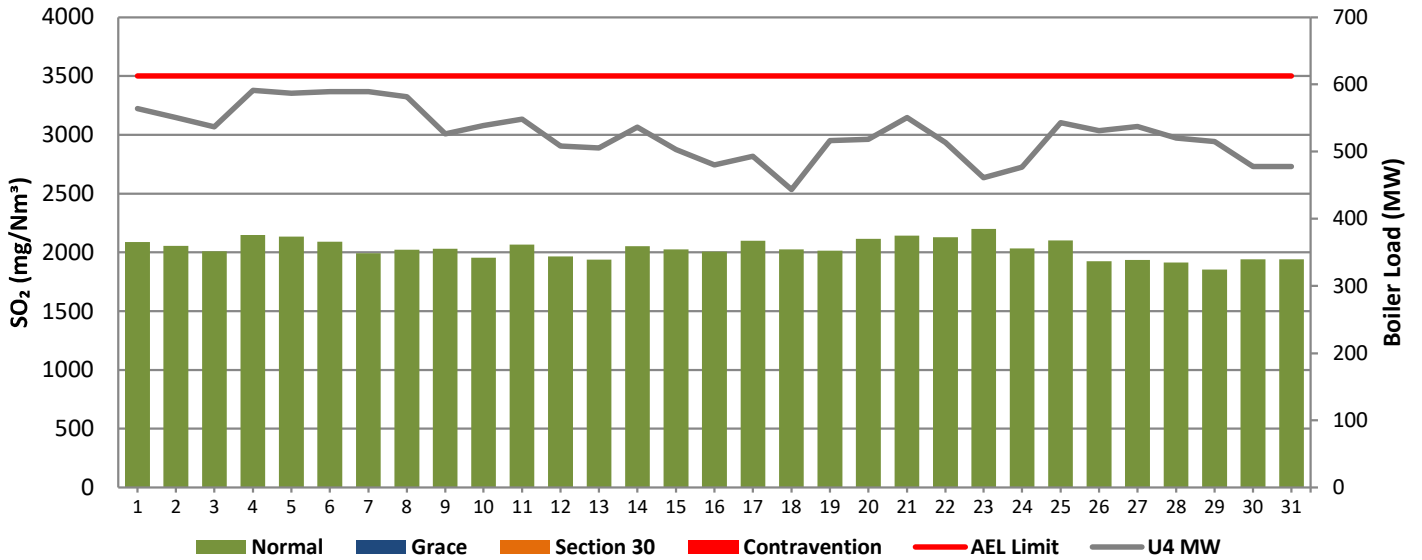


Figure 11: Lethabo Unit 5 SO₂ Emissions - July 2022

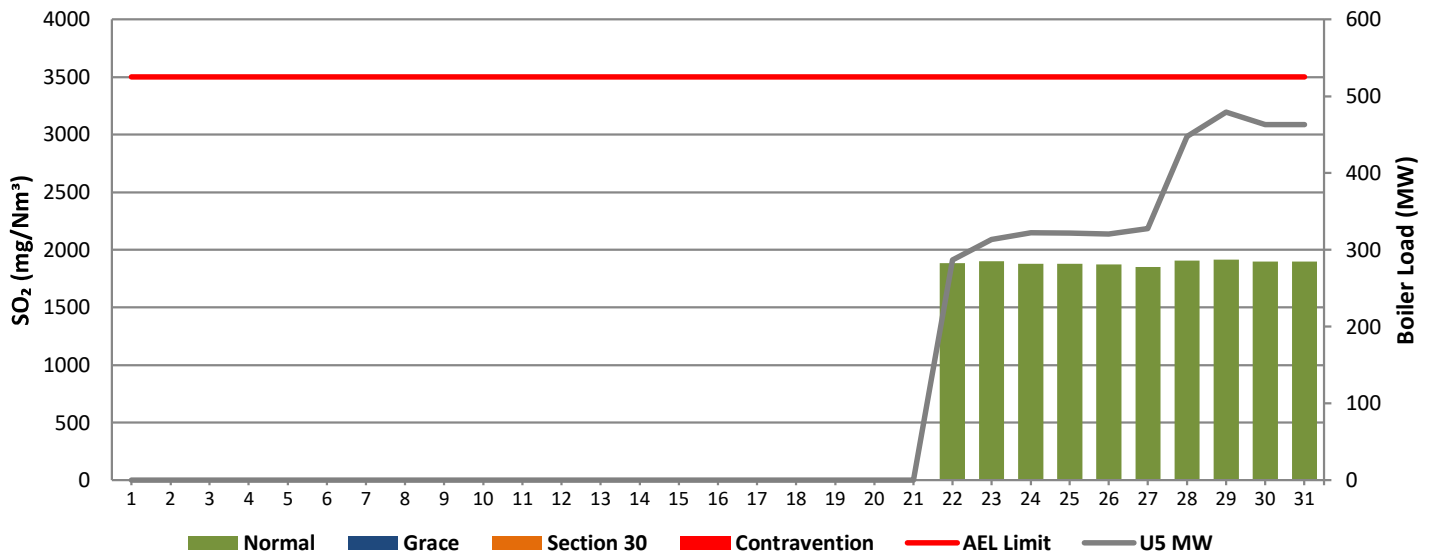


Figure 12: Lethabo Unit 6 SO₂ Emissions - July 2022

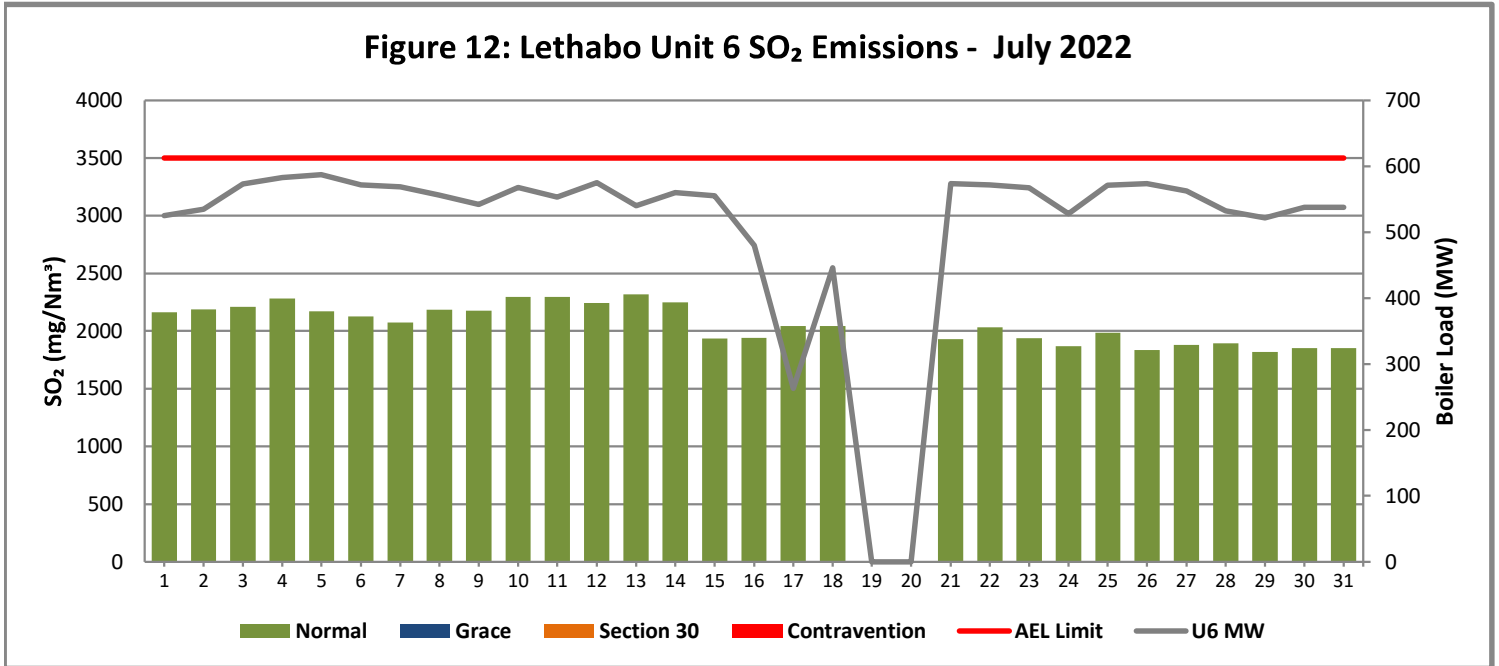


Figure 13: Lethabo Unit 1 NO_x Emissions - July 2022

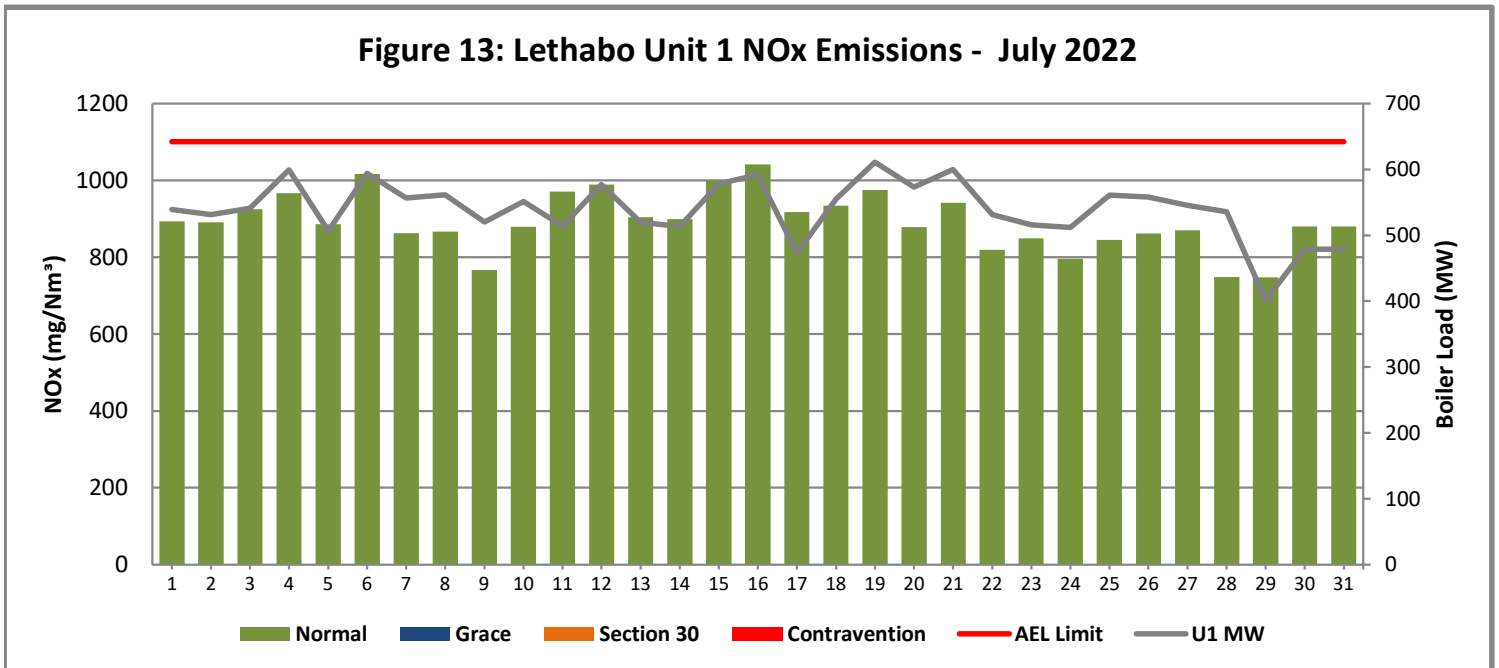


Figure 14: Lethabo Unit 2 NOx Emissions - July 2022

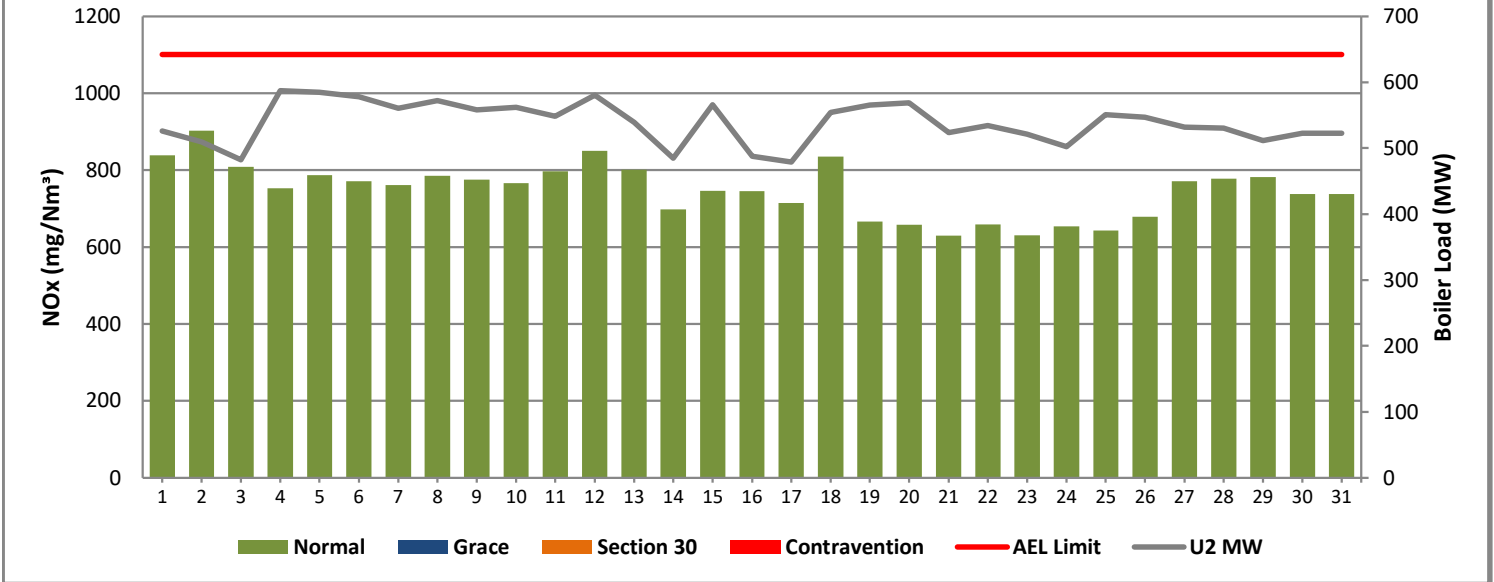


Figure 15: Lethabo Unit 3 NOx Emissions - July 2022

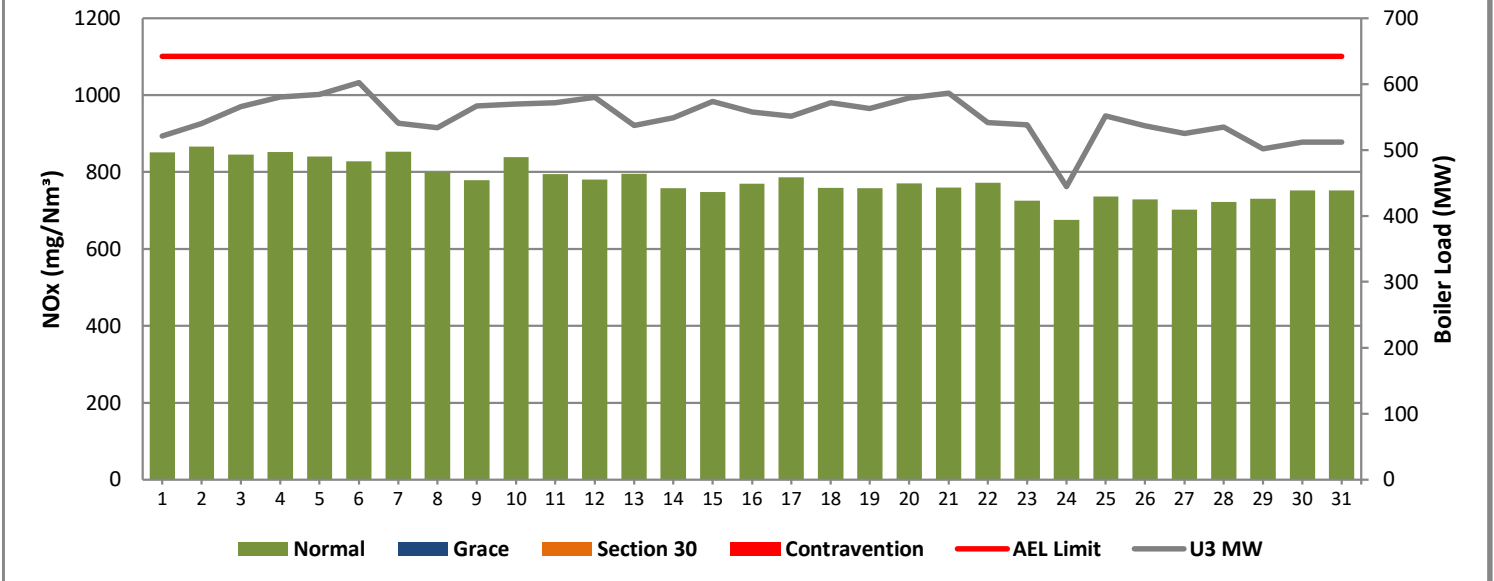


Figure 16: Lethabo Unit 4 NOx Emissions - July 2022

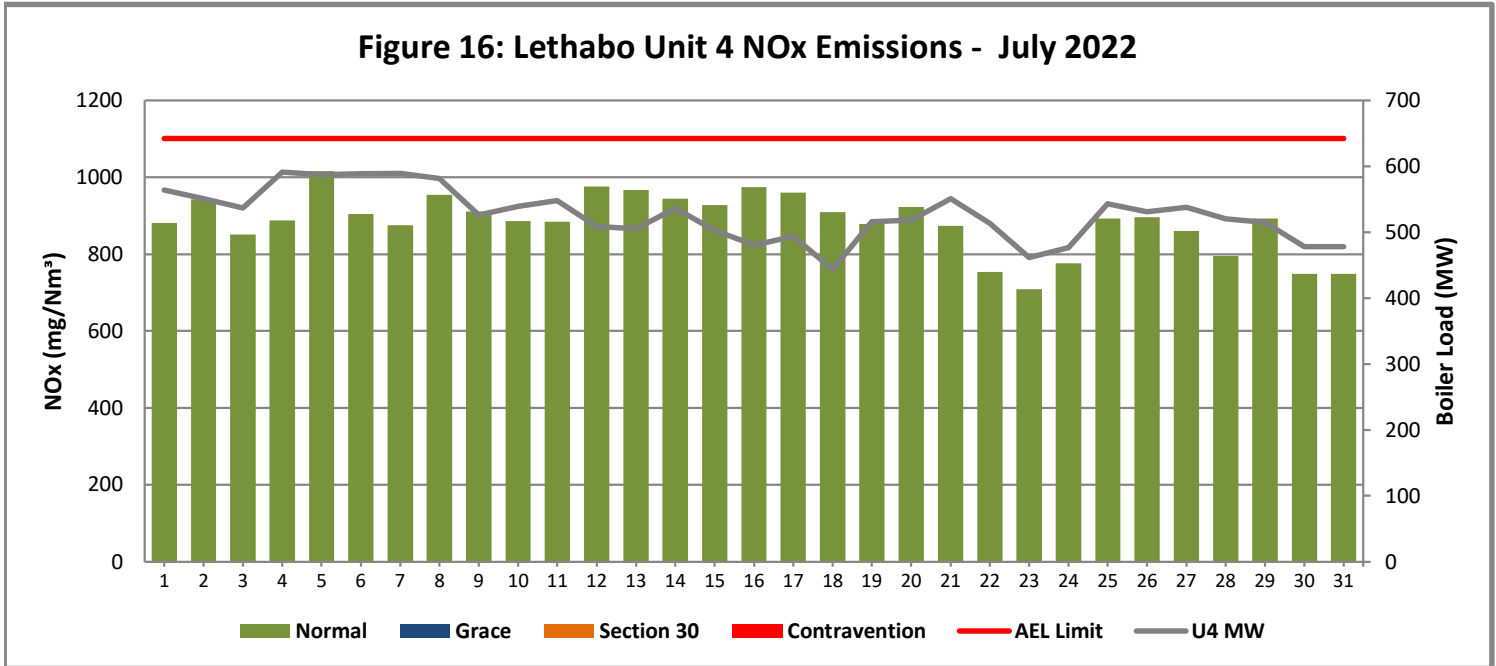


Figure 17: Lethabo Unit 5 NOx Emissions - July 2022

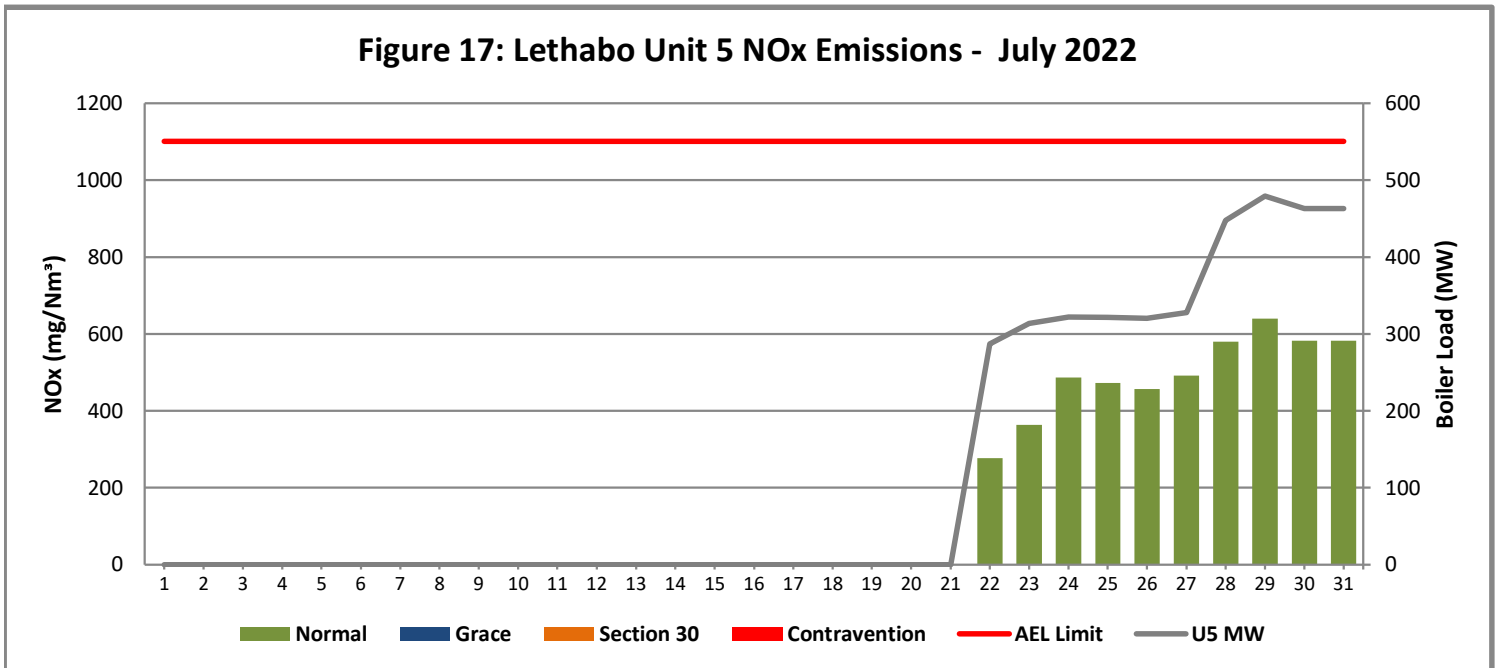
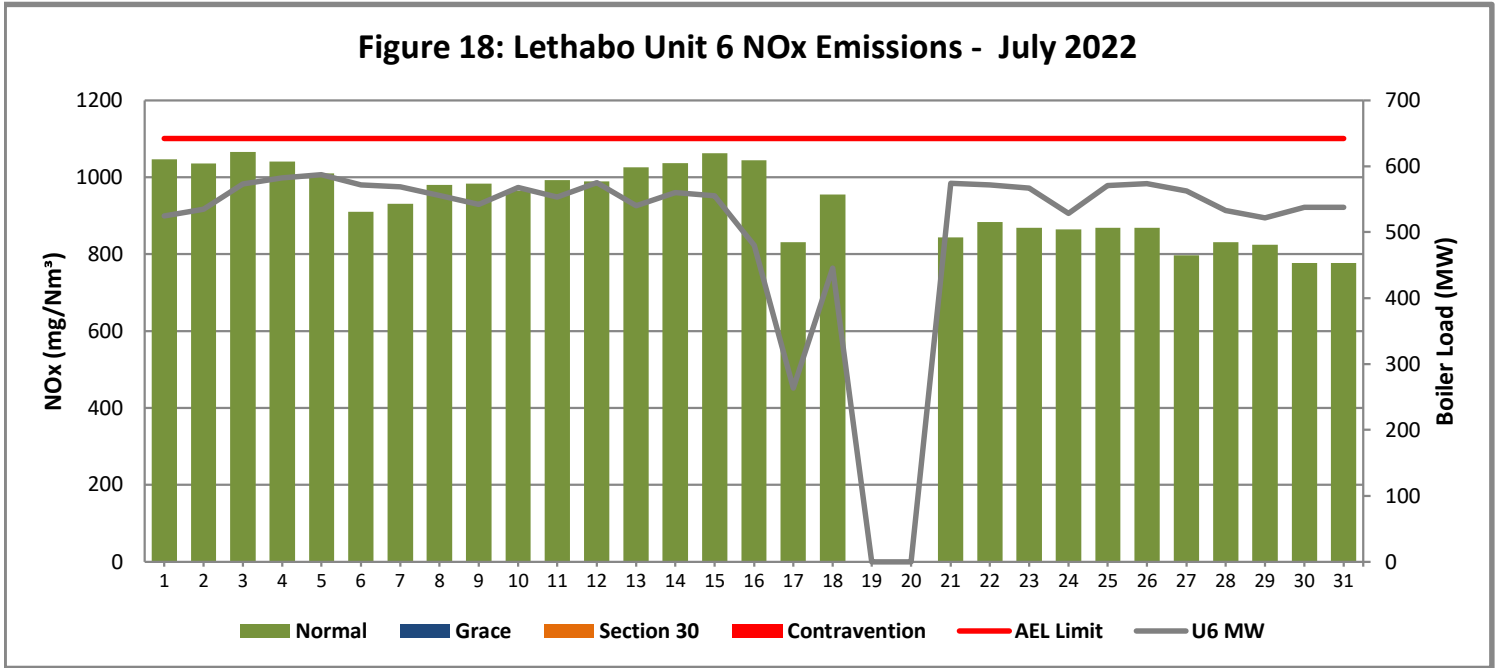


Figure 18: Lethabo Unit 6 NOx Emissions - July 2022



7 SHUT DOWN AND LIGHT UP INFORMATION

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

Unit No.1							
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.2	<i>0:00:00</i>					
Breaker Open (BO)						
Draught Group (DG) Shut Down (SD)						
BO to DG SD (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time						
Synch. to Grid (or BC)						
Fires in to BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)						
Emissions below limit from BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM

Unit No.3							
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.4	<i>Generator earthing brush replacement & Boiler Low Drum Level Trip</i>					
Breaker Open (BO)	10:05 PM	2022/07/09				
Draught Group (DG) Shut Down (SD)	10:17 PM	2022/07/09				
BO to DG SD (duration)	00:00:12	DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	12:58 AM	2022/07/10				
Synch. to Grid (or BC)	2:07 AM	2022/07/10				
Fires in to BC (duration)	00:01:09	DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	12:00 AM	2022/07/12				
Emissions below limit from BC (duration)	01:21:53	DD:HH:MM		DD:HH:MM		DD:HH:MM

Unit No.5	G.O.		Boiler black furnace.					
Breaker Open (BO)			9:40 PM	2022/07/26				
Draught Group (DG) Shut Down (SD)			10:30 PM	2022/07/26				
BO to DG SD (duration)		DD:HH:MM	00:00:50	DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	12:23 AM	2022/07/22	11:22 PM	2022/07/26				
Synch. to Grid (or BC)	7:25 AM	2022/07/22	4:25 AM	2022/07/27				
Fires in to BC (duration)	00:07:02	DD:HH:MM	00:05:03	DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	1:00 PM	2022/07/23	12:00 AM	2022/07/28				
Emissions below limit from BC (duration)	01:05:35	DD:HH:MM	00:19:35	DD:HH:MM		DD:HH:MM		DD:HH:MM

Unit No.6	Generator earth brush replacememnt.		Unit Tripped due to poor vacuum		Boiler tube leak.			
Breaker Open (BO)	9:46 PM	2022/07/16	12:57 PM	2022/07/17	4:00 PM	2022/07/18		
Draught Group (DG) Shut Down (SD)	DG did not trip or SD	DG did not trip or SD	DG did not trip or SD	DG did not trip or SD	1:40 AM	2022/07/19		
BO to DG SD (duration)	n/a	DD:HH:MM	n/a	DD:HH:MM	00:09:40	DD:HH:MM		DD:HH:MM
Fires in time					1:07 AM	2022/07/21		
Synch. to Grid (or BC)					4:44 AM	2022/07/21		
Fires in to BC (duration)		DD:HH:MM		DD:HH:MM	00:03:37	DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)					12:00 AM	2022/07/22		
Emissions below limit from BC (duration)		DD:HH:MM		DD:HH:MM	00:19:16	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 July 2022 in mg/Nm³

8. MAINTENANCE

Unit 1				
Beginning of	2022/07/09 00:01:00			
Reason for Maintenance	LHO Precip repairs.			
End (Time):	2022/07/09 18:43:00			
Duration	18:42:00			

Unit 2				
Beginning of	2022/07/03 00:01	2022/07/17 00:00		
Reason for Maintenance	LHO Precip repairs.	RHO Precip repairs.		
End (Time):	2022/07/03 17:32	2022/07/17 18:19:00		
Duration	17:31:00	18:19:00		

Unit 3				
Beginning of	2023/01/01 00:00:00	2023/01/07 00:19	2023/01/08 00:18	2023/01/20 00:29
Reason for Maintenance	LHO Precip casing repairs	RHO Precip Casing	RHI precip casing repairs	LHI Precip Casing repairs
End (Time):	2023/01/01 00:37:00	2023/01/08 00:18	2023/01/08 23:59	2023/01/21 00:00
Duration	0:37:00	23:59:00	23:41:00	23:31:00

Unit 4				
Beginning of	2022/07/16 00:00	2022/07/23 00:00	2022/07/23 06:36	2022/07/24 00:00
Reason for Maintenance	RHO precip casing repairs	RHO precip casing	RHO precip casing	RHO precip casing
End (Time):	2022/07/16 15:59	2022/07/23 06:36	2022/07/24 00:00	2022/07/24 02:08
Duration	15:59:00	6:36:00	17:24:00	2:08:00

Unit 4				
Beginning of	2022/07/30 00:00	2022/07/31 00:00		
Reason for Maintenance	LHI precip casing repairs	RHO precip casing		
End (Time):	2022/07/30 20:00	2022/07/31 20:20		
Duration	20:00:00	20:20:00		

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

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

9. GENERAL

Unit 4 :

PM Monitor Availability on 16/07/2022: The monitor availability was 79.2% due to the monitors at maximum output and variability greater than 10% between output 1 and output 2 hence the reporting tool does not take the readings and affects the monitor availability

PM Monitor Availability on 21/07/2022: The monitor availability was 70.8% due to the monitors at maximum output and variability greater than 10% between output 1 and output 2 hence the reporting tool does not take the readings and affects the monitor availability

PM Monitor Availability on 30/07/2022: The monitor availability was 50% due to the monitors at maximum output and variability greater than 10% between output 1 and output 2 hence the reporting tool does not take the readings and affects the monitor availability

PM Monitor Availability on 31/07/2022: The monitor availability was 16.7% due to the monitors at maximum output and variability greater than 10% between output 1 and output 2 hence the reporting tool does not take the readings and affects the monitor availability

Unit 6:

16/07/2022: Generator earth brushes were replaced. Unit not on load however boiler on bypass. A value of 150MW was used in the raw data so as to not discount reporting hours

Non-conformance:

Station's fuel oil usage was exceeded for the month of July 2022. This was largely due to light up activities that were taking place on Unit 5. Further investigation will be conducted and communicated to the Licensing authority.

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
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
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

ADDENDUM TO MONTHLY EMISSIONS REPORT

12. DAILY EMISSIONS FIGURES

Final Dust Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
01-Jul	86	207	60	59	OFF	83	100
02-Jul	91	91	75	66	OFF	84	100
03-Jul	106	186	89	67	OFF	94	100
04-Jul	240	237	91	69	OFF	93	100
05-Jul	93	93	108	91	OFF	97	100
06-Jul	143	116	111	151	OFF	71	100
07-Jul	163	84	75	83	OFF	68	100
08-Jul	94	91	75	95	OFF	68	100
09-Jul	182	75	85	161	OFF	65	100
10-Jul	137	89	93	OFF	OFF	77	100
11-Jul	85	92	86	128	OFF	71	100
12-Jul	132	132	89	64	OFF	65	100
13-Jul	113	132	97	89	OFF	66	100
14-Jul	84	84	96	175	OFF	75	100
15-Jul	106	148	119	92	OFF	88	100
16-Jul	115	87	83	208	OFF	72	100
17-Jul	61	312	80	122	OFF	862	100
18-Jul	49	53	88	88	OFF	58	100
19-Jul	62	42	89	96	OFF	OFF	100
20-Jul	44	35	88	91	OFF	OFF	100
21-Jul	61	32	80	127	OFF	OFF	100
22-Jul	34	34	72	94	OFF	67	100
23-Jul	38	32	79	155	14	66	100
24-Jul	35	31	48	93	15	54	100
25-Jul	44	36	76	99	19	56	100
26-Jul	53	50	80	92	19	62	100
27-Jul	59	43	73	125	OFF	59	100
28-Jul	42	56	85	84	25	59	100
29-Jul	16	38	80	89	28	52	100
30-Jul	33	53	80	265	28	53	100
31-Jul	39	74	94	271	36	62	100

ADDENDUM TO MONTHLY EMISSIONS REPORT

Final SOx Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
01-Jul	2000	1807	1808	2087	OFF	2161	3500
02-Jul	1911	1753	1790	2055	OFF	2186	3500
03-Jul	1908	1864	1800	2008	OFF	2210	3500
04-Jul	2003	1857	1829	2149	OFF	2284	3500
05-Jul	2038	1880	1806	2136	OFF	2171	3500
06-Jul	1967	1836	1815	2091	OFF	2127	3500
07-Jul	1907	1903	1760	1992	OFF	2074	3500
08-Jul	1960	2096	1760	2025	OFF	2186	3500
09-Jul	1942	2094	1791	2031	OFF	2177	3500
10-Jul	1878	2139	1792	1954	OFF	2296	3500
11-Jul	1971	2136	1849	2068	OFF	2297	3500
12-Jul	1969	2057	1771	1965	OFF	2244	3500
13-Jul	1847	2025	1698	1938	OFF	2318	3500
14-Jul	1868	2025	1743	2053	OFF	2248	3500
15-Jul	1873	2081	1709	2026	OFF	1937	3500
16-Jul	1845	2066	1732	2006	OFF	1942	3500
17-Jul	1945	2166	1807	2099	OFF	2045	3500
18-Jul	1897	2114	1777	2027	OFF	2045	3500
19-Jul	1831	2137	1785	2014	OFF	OFF	3500
20-Jul	1869	2233	1872	2117	OFF	OFF	3500
21-Jul	1814	2245	1880	2143	OFF	1932	3500
22-Jul	1840	2249	1937	2130	1886	2033	3500
23-Jul	1791	2185	1803	2200	1902	1939	3500
24-Jul	1759	2151	1918	2035	1878	1870	3500
25-Jul	1771	2190	1911	2100	1880	1986	3500
26-Jul	1680	2127	1783	1924	1876	1837	3500
27-Jul	1740	2156	1795	1935	1851	1879	3500
28-Jul	1707	2075	1772	1913	1907	1893	3500
29-Jul	1681	2045	1840	1856	1915	1819	3500
30-Jul	1726	2096	1817	1943	1899	1854	3500
31-Jul	1666	2041	1730	1888	1864	1829	3500

ADDENDUM TO MONTHLY EMISSIONS REPORT

Final NOx Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
01-Jul	893	839	851	881	OFF	1046	1100
02-Jul	891	902	866	943	OFF	1036	1100
03-Jul	925	809	846	851	OFF	1065	1100
04-Jul	967	754	852	888	OFF	1041	1100
05-Jul	886	787	840	1016	OFF	1010	1100
06-Jul	1017	771	828	905	OFF	910	1100
07-Jul	863	761	853	876	OFF	931	1100
08-Jul	866	786	800	954	OFF	980	1100
09-Jul	767	775	779	911	OFF	983	1100
10-Jul	878	766	839	886	OFF	965	1100
11-Jul	970	797	795	884	OFF	992	1100
12-Jul	989	850	780	976	OFF	989	1100
13-Jul	904	801	795	966	OFF	1026	1100
14-Jul	899	698	757	944	OFF	1036	1100
15-Jul	1001	746	748	928	OFF	1063	1100
16-Jul	1041	746	769	974	OFF	1044	1100
17-Jul	918	715	786	960	OFF	831	1100
18-Jul	934	836	759	910	OFF	955	1100
19-Jul	975	666	757	879	OFF	OFF	1100
20-Jul	878	658	770	923	OFF	OFF	1100
21-Jul	942	630	760	874	OFF	843	1100
22-Jul	819	659	772	754	277	884	1100
23-Jul	849	631	725	708	364	869	1100
24-Jul	795	654	675	776	487	865	1100
25-Jul	845	643	736	892	472	868	1100
26-Jul	862	679	728	896	457	868	1100
27-Jul	870	771	702	861	491	797	1100
28-Jul	749	777	722	796	580	832	1100
29-Jul	748	782	731	892	640	824	1100
30-Jul	879	738	752	749	582	777	1100
31-Jul	878	682	794	748	633	816	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
Aug-21	99.33%	0.8	100.00%	0.0	99%	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
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

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
Aug-21	100.00%	0.0	47.45%	16.3	100.00%	0.0	100.00%	0.3	100.00%	0.0	100.00%	0.0
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

ADDENDUM TO MONTHLY EMISSIONS REPORT

Particulate Emission Monitors

Availability						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
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
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%

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
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
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%

Oxygen Monitor Availability						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
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
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%

ADDENDUM TO MONTHLY EMISSIONS REPORT

14. EFFICIENCY

ESP Efficiency (%)						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
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
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%

15. REMARKS

UNIT	MWLOSS	REASON	ACTUALSTARTDATE	ACTUALENDDATE
1	218	EF:High stack emissions	2022/07/05 10:03:00	2022/07/05 16:18:00
1	218	High stack emissions.	2022/07/05 19:09:00	2022/07/06 00:03:00
1	117	EF:High stack emissions	2022/07/07 12:29:00	2022/07/07 15:44:00
1	68	AM: Hi stack emissions.	2022/07/08 09:53:00	2022/07/08 16:04:00
1	68	EF:High stack emissions	2022/07/08 21:34:00	2022/07/09 00:01:00
1	119	LHO precip casing repairs.	2022/07/09 00:01:00	2022/07/09 18:43:00
1	67	High stack emissions	2022/07/11 08:22:00	2022/07/11 15:56:00
1	218	AM: High stack emissions.	2022/07/11 20:46:00	2022/07/11 23:34:00
1	218	High stack emissions	2022/07/14 09:54:00	2022/07/14 16:00:00
1	218	AM: Emissions test	2022/07/15 01:04:00	2022/07/15 05:15:00
2	200	High stack emissions.	2022/07/01 00:00:00	2022/07/01 00:02:00
2	98	high stack emissions	2022/07/02 20:42:00	2022/07/02 23:30:00
2	148	High stack emission	2022/07/02 23:30:00	2022/07/03 00:01:00
2	100	LHO precipe casing repairs	2022/07/03 00:01:00	2022/07/03 17:32:00
2	49	High stack emissions.	2022/07/05 19:16:00	2022/07/06 00:03:00
2	48	High stack emissions	2022/07/08 19:20:00	2022/07/09 00:05:00
2	200	High stack emissions.	2022/07/14 09:46:00	2022/07/14 15:48:00
2	50	High stack emissions.	2022/07/14 15:48:00	2022/07/14 21:15:00
2	100	Ef: High stack emissions	2022/07/14 21:15:00	2022/07/15 00:20:00
2	200	AM:Emission test	2022/07/15 01:07:00	2022/07/15 05:02:00
2	200	AM: High stack emissions.	2022/07/16 09:57:00	2022/07/16 16:35:00
2	50	high stack emission	2022/07/16 20:07:00	2022/07/16 22:18:00
2	97	High stack emissions.	2022/07/16 22:18:00	2022/07/17 00:00:00
2	100	RHO precip casing repairs.	2022/07/17 00:00:00	2022/07/17 18:19:00
3	65	EF: High stack emissions	2022/07/05 21:17:00	2022/07/05 21:57:00
3	116	Ef: High stack emissions	2022/07/14 20:11:00	2022/07/15 01:49:00
4	593	Generator earthing brush replacement.	2022/07/09 21:43:00	2022/07/10 02:07:00
4	297	System Generated Ramp Event for Event id : 1711774	2022/07/10 02:07:00	2022/07/10 03:37:00
4	180	AD: Emission test.	2022/07/11 23:54:00	2022/07/12 04:43:00
4	70	emission test	2022/07/12 10:52:00	2022/07/12 15:23:00
4	170	AM: Emissions tests	2022/07/13 00:00:00	2022/07/13 04:51:00
4	70	LHO precip casing ash conveyor chain broken.	2022/07/15 08:30:00	2022/07/15 15:59:00
4	100	high stack emissions	2022/07/15 12:27:00	2022/07/15 15:35:00
4	168	EF:high stack emissions	2022/07/15 19:22:00	2022/07/16 00:00:00
4	70	AM: For RHO precip casing repairs	2022/07/16 00:00:00	2022/07/16 15:59:00
4	49	High stack emissions.	2022/07/18 09:50:00	2022/07/18 13:10:00
4	169	High stack emissions	2022/07/18 13:10:00	2022/07/18 23:54:00
4	70	High stackemissions.	2022/07/19 10:40:00	2022/07/19 23:41:00
4	64	Ef: High stack emissions	2022/07/20 13:48:00	2022/07/20 16:34:00
4	58	High stack emissions.	2022/07/20 18:53:00	2022/07/21 00:05:00
4	60	EF: High stack emissions	2022/07/21 14:52:00	2022/07/21 15:38:00
4	77	High stack emissions	2022/07/22 10:06:00	2022/07/22 15:58:00
4	75	EF: High stack emissions	2022/07/22 19:06:00	2022/07/23 00:00:00
4	74	AM: RHO precip casing repairs	2022/07/23 00:00:00	2022/07/23 06:36:00
4	80	AM: RHO precip casing repairs	2022/07/23 06:36:00	2022/07/24 00:00:00
4	80	AM: RHO precip casing repairs	2022/07/24 00:00:00	2022/07/24 02:08:00
4	200	Emissions test.	2022/07/27 00:00:00	2022/07/27 05:02:00
4	75	AM: LHI precip casing repairs	2022/07/30 00:00:00	2022/07/30 20:00:00
4	75	AM:RH Outer precip casing repairs	2022/07/31 00:00:00	2022/07/31 20:20:00

UNIT	MWLOSS	REASON	ACTUALSTARTDATE	ACTUALENDDATE
5	593	G.O.	2022/07/01 00:00:00	2022/07/14 02:18:00
5	593	System Generated Slip Event linked to PCLF Event : 1671835	2022/07/14 02:18:00	2022/07/21 02:18:00
5	593	System Generated Slip Event linked to PCLF Event : 1671835	2022/07/21 02:18:00	2022/07/22 07:25:00
5	297	System Generated Ramp Event for Event id : 1671835	2022/07/22 07:25:00	2022/07/22 10:25:00
5	593	Boiler black furnace.	2022/07/26 21:35:00	2022/07/27 04:25:00
5	297	System Generated Ramp Event for Event id : 1717904	2022/07/27 04:25:00	2022/07/27 05:55:00
6	218	EF:High stack emissions	2022/07/01 00:00:00	2022/07/01 02:06:00
6	593	Generator earth brush replacemmnt.	2022/07/16 21:46:00	2022/07/17 05:42:00
6	593	System Generated Slip Event linked to PCLF Event : 1714257	2022/07/17 05:42:00	2022/07/17 12:31:00
6	540	System Generated Ramp Event for Event id : 1714257 (Recalculated)	2022/07/17 12:31:00	2022/07/17 12:57:00
6	593	Unit Tripped due to poor vacuum	2022/07/17 12:57:00	2022/07/17 13:42:00
6	297	System Generated Ramp Event for Event id : 1714457	2022/07/17 13:42:00	2022/07/17 15:12:00
6	593	Boiler tube leak.	2022/07/18 15:54:00	2022/07/21 04:44:00
6	297	System Generated Ramp Event for Event id : 1714783	2022/07/21 04:44:00	2022/07/21 07:44:00

PM Exceedances		
U1.	ESP poor performance & Sulphur flow not corresponding to boiler load	03-Jul
U1.	ESP poor performance & Sulphur flow not corresponding to boiler load; 6 high hopper levels; Manual rapping	04-Jul
U1.	ESP poor performance & Sulphur flow not corresponding to boiler load	06-Jul
U1.	ESP Poor Performance	09-Jul
U1.	ESP Poor Performance	10-Jul
U1.	ESP poor performance and Manual rapping	11-Jul
U1.	ESP Poor Performance	12-Jul
U1.	ESP poor performance	13-Jul
U1.	ESP Poor Performance	15-Jul
U1.	ESP Poor Performance	16-Jul
U2.	Esp poor performance	01-Jul
U2.	ESP poor performance	03-Jul
U2.	Esp poor performance and manual rapping	04-Jul
U2.	ESP Poor Performance	06-Jul
U2.	ESP Poor Performance	12-Jul
U2.	ESP poor performance	13-Jul
U2.	ESP Poor Performance	15-Jul
U2.	Poor ESP Performance; RHI Casing Outage	17-Jul
U3.	Sulphur flow fluctuating and ESP poor performance	05-Jul
U3.	ESP poor performance	06-Jul
U3.	ESP Poor Performance	15-Jul
U4.	ESP poor performance	06-Jul
U4.	ESP poor performance	09-Jul
U4.	Unit synchronised on 2022/07/10 at 02:08 after overspeed test and boiler trip on low drum level	10-Jul
U4.	Unit light up	11-Jul
U4.	ESP Poor performance, manual rapping and 4 high hopper levels.	14-Jul
U4.	ESP Poor Performance	16-Jul
U4.	RHO Casing Outage attempted but cancelled	16-Jul
U4.	ESP Poor Performance	17-Jul
U4.	Clean rapping brought forward and ESP poor Performance	21-Jul
U4.	RHO casing outage and 2 high hopper levels	23-Jul
U4.	11 high hopper levels; ESP Poor Performance	27-Jul
U4.	Casing Outage	30-Jul
U4.	Casing Outage	31-Jul
U6.	Unit Tripped 12:57; Synchronised 13:42	17-Jul
U6.	Unit Shut Down for Boiler Tube Leak	18-Jul
U6.	Unit synchronized on 2022/07/21 @ 04:44, Unit need to be below the limit by 2024/07/24 @ 04:44 and remain below the limit until 2022/07/25 @ 23:59	21-Jul