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Date: 26 May 2022

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LRP01PLA000 _0297/20220510

Dear Mr. Sibaya

LETHABO POWER STATION EMISSION MONTHLY REPORT FOR APRIL 2022

Please find attached Lethabo Power Station emission report for the month of April 2022.

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

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

Yours sincerely

Karabo Rakgolela
GENERAL MANAGER

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Eskom Holdings SOC Ltd Reg No 2002/015527/30



Report

Lethabo Power Station

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

Reference number: **LRP01PLA000_0297/20220510**
Document Type: **Report**
Area of Applicability: **Environment**
Report Date: **May-2022**
Classification: **Controlled Disclosure**

Signatures:

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LETHABO POWER STATION MONTHLY EMISSIONS REPORT

Atmospheric Emission License FDDM-MET-2011-08-P1


1. RAW MATERIALS AND PRODUCTS

Raw Materials and Products	Raw Material Type	Units	Maximum Permitted Consumption Rate	Consumption Rate Apr-2022
	Coal	Tons	2 000 000	1 282 208
	Fuel Oil	Tons	1 700	892.03
Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Production Rate Apr-2022
	Energy	GWh	2743.2	1 750.96
	Ash	Tons	770 000	504 548.9
	RE Ash	kg/MWh	not specified	288.16

2. ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.656 (Standard)	0.560
Ash Content	%	37.37 (Standard)	39.350

*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	SOx	NOx
Unit 1	100	3500	1100
Unit 2	100	3500	1100
Unit 3	100	3500	1100
Unit 4	100	3500	1100
Unit 5	100	3500	1100
Unit 6	100	3500	1100

4. ABATEMENT TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	Efficiency Apr-2022
Unit 1	<i>Electrostatic Precipitator (ESP)</i>	99.78%
Unit 2	<i>Electrostatic Precipitator (ESP)</i>	99.75%
Unit 3	<i>Electrostatic Precipitator (ESP)</i>	99.79%
Unit 4	<i>Electrostatic Precipitator (ESP)</i>	99.82%
Unit 5	<i>Electrostatic Precipitator (ESP)</i>	<i>Unit Off-line</i>
Unit 6	<i>Electrostatic Precipitator (ESP)</i>	99.84%

5. MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO ₂	NO
Unit 1	96.2	99.3	99.3
Unit 2	94.6	99.6	99.9
Unit 3	99.0	100.0	99.9
Unit 4	99.6	99.4	99.9
Unit 5	<i>Unit Off-Line</i>	<i>Unit Off-Line</i>	<i>Unit Off-Line</i>
Unit 6	100.0	100.0	100.0

6. EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of April 2022

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	173.8	2 379	1 164
Unit 2	233.1	4 159	1 763
Unit 3	197.9	3 824	1 792
Unit 4	170.3	4 133	1 907
Unit 5	0.0	0	0
Unit 6	150.2	3 888	1 689
SUM	925.3	18 383	8 316

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

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	14	6	3	0	9	148.9
Unit 2	21	8	1	0	9	134.0
Unit 3	18	11	0	0	11	106.1
Unit 4	24	5	0	0	5	85.3
Unit 5	0	0	0	0	0	0.0
Unit 6	28	2	0	0	2	82.6
SUM	105	32	4	0	36	

Table 6.3: Operating days in compliance to SO_x AEL Limit - April 2022

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average SO _x (mg/Nm ³)
Unit 1	24	0	0	0	0	1 938.2
Unit 2	30	0	0	0	0	2 137.3
Unit 3	30	0	0	0	0	1 960.8
Unit 4	30	0	0	0	0	1 993.6
Unit 5	0	0	0	0	0	0.0
Unit 6	30	0	0	0	0	2 144.9
SUM	144	0	0	0	0	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average NOx (mg/Nm ³)
Unit 1	24	0	0	0	0	926.6
Unit 2	30	0	0	0	0	896.7
Unit 3	30	0	0	0	0	915.8
Unit 4	30	0	0	0	0	917.9
Unit 5	0	0	0	0	0	0.0
Unit 6	30	0	0	0	0	932.0
SUM	144	0	0	0	0	

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 - April 2022

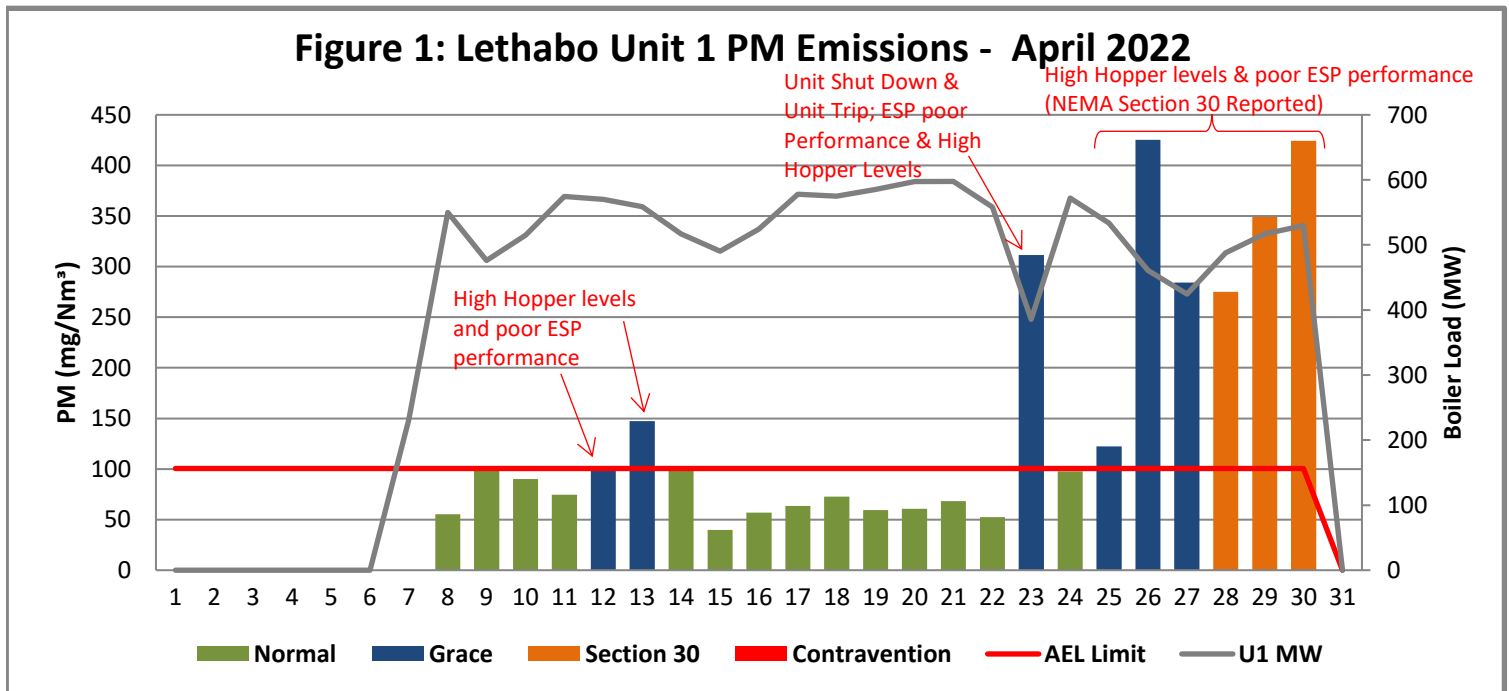


Figure 2: Lethabo Unit 2 PM Emissions - April 2022

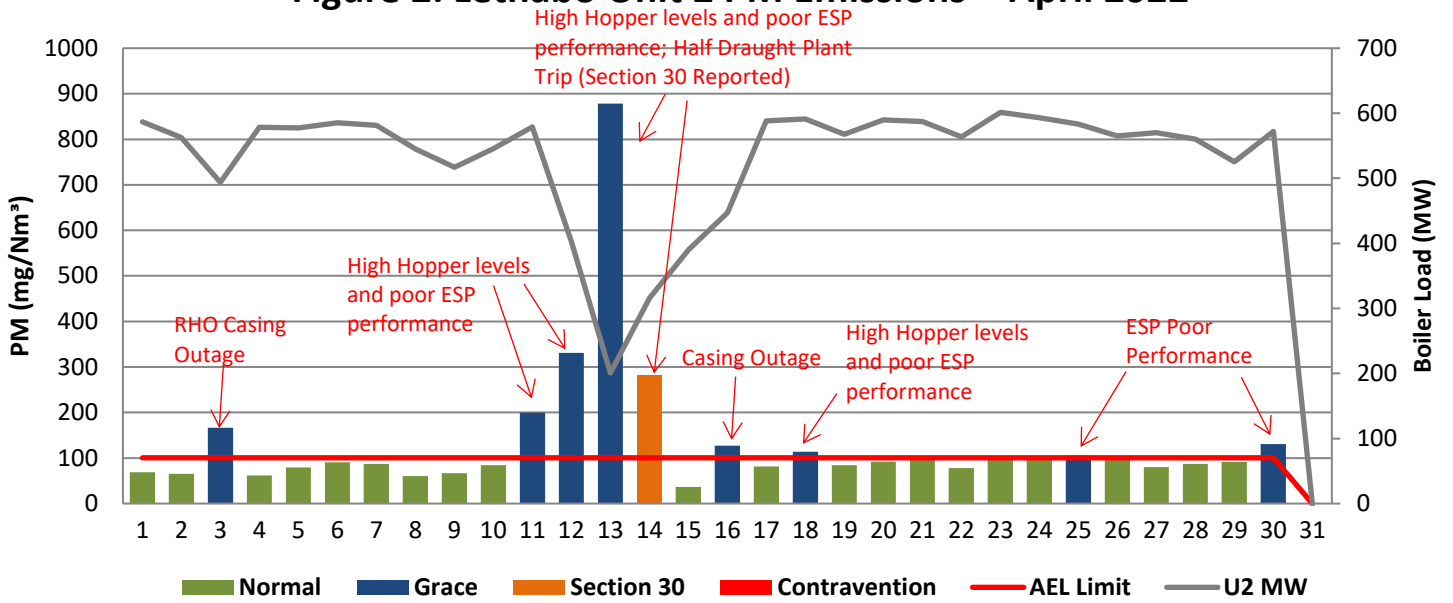


Figure 3: Lethabo Unit 3 PM Emissions - April 2022

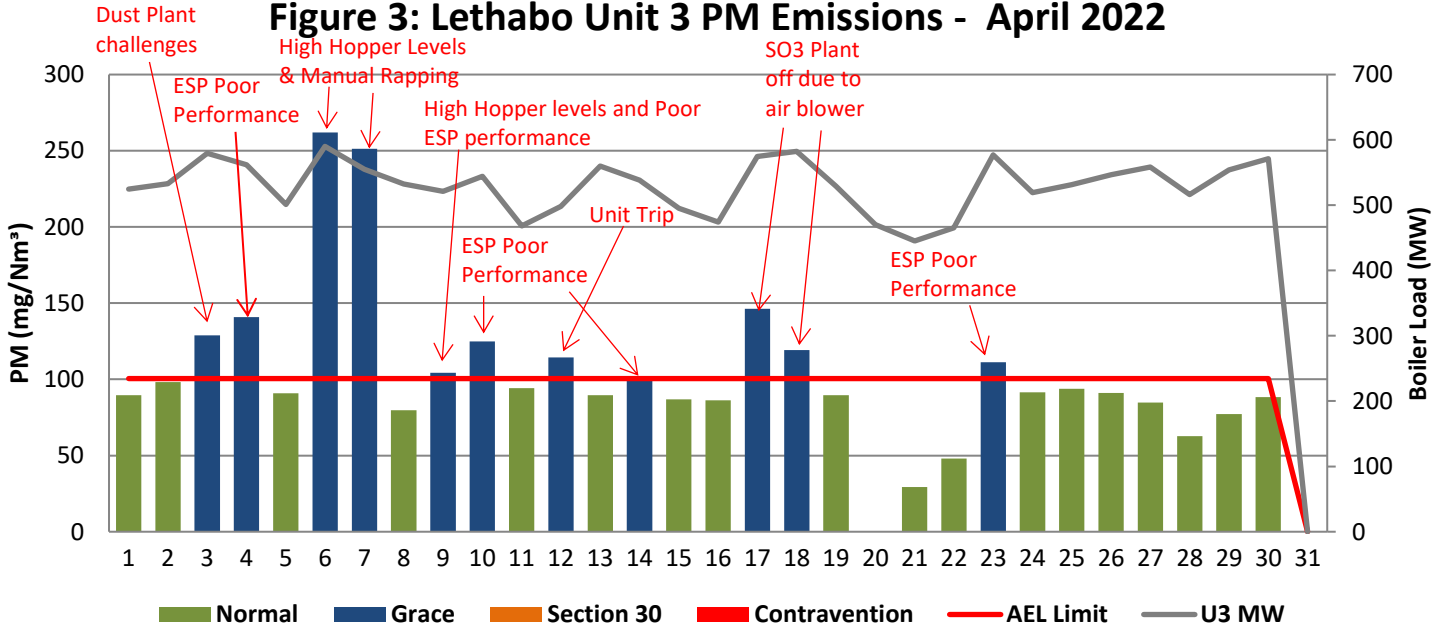


Figure 4: Lethabo Unit 4 PM Emissions - April 2022

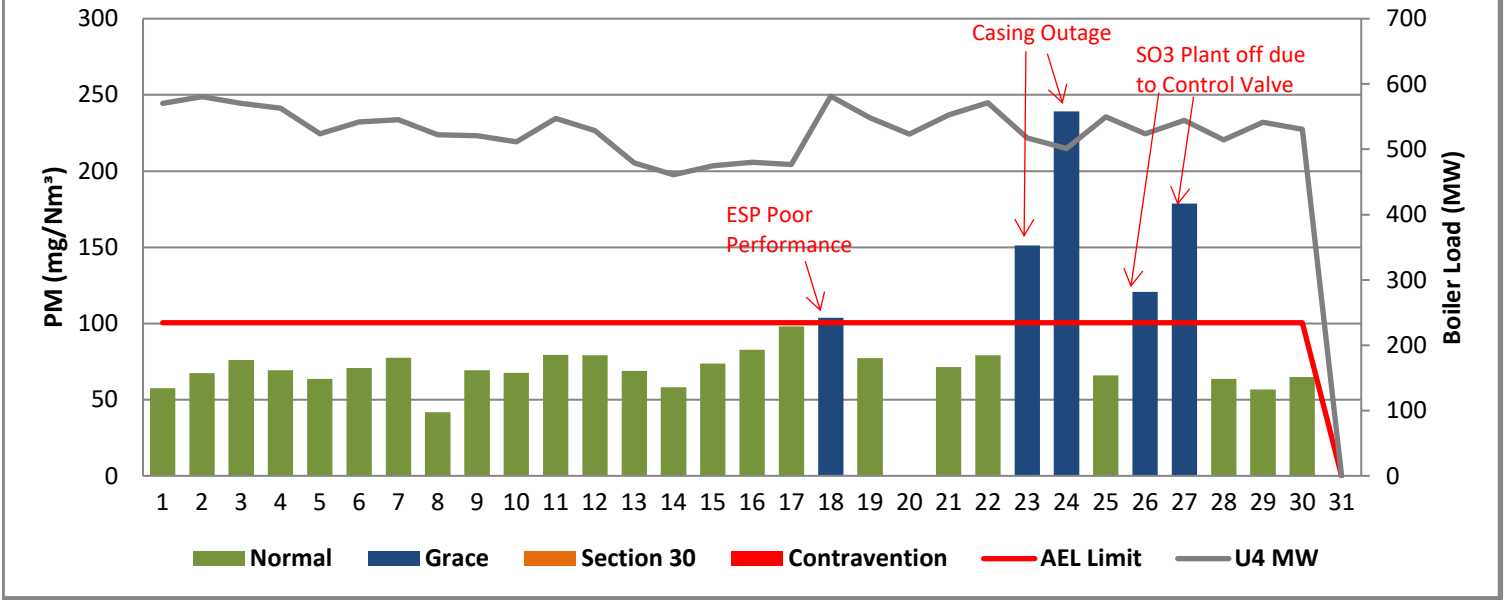


Figure 5: Lethabo Unit 5 PM Emissions - April 2022

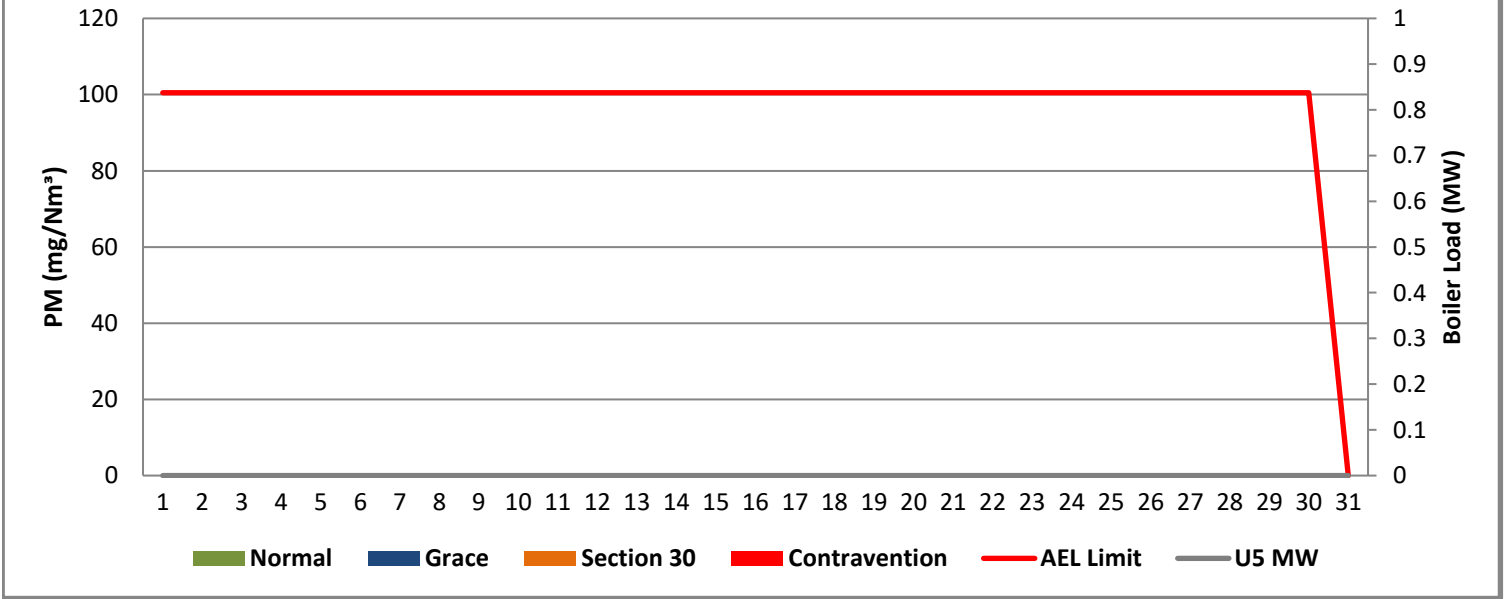


Figure 6: Lethabo Unit 6 PM Emissions - April 2022

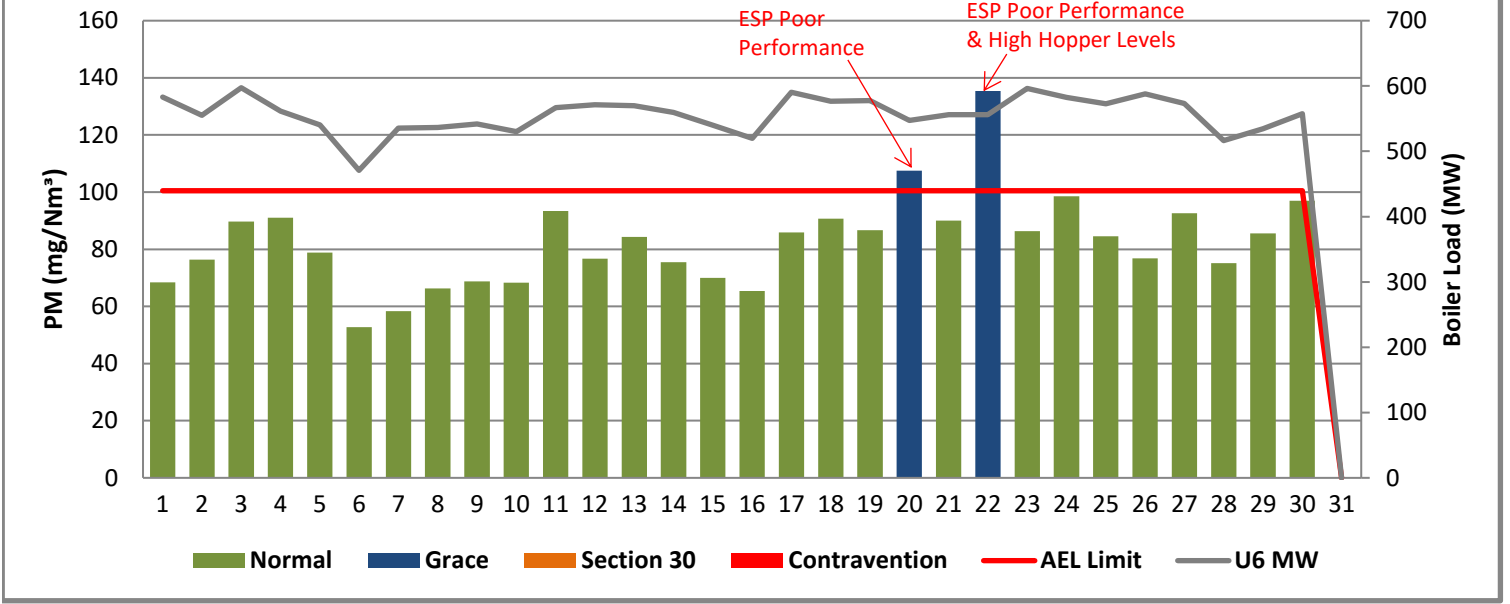


Figure 7: Lethabo Unit 1 SOx Emissions - April 2022

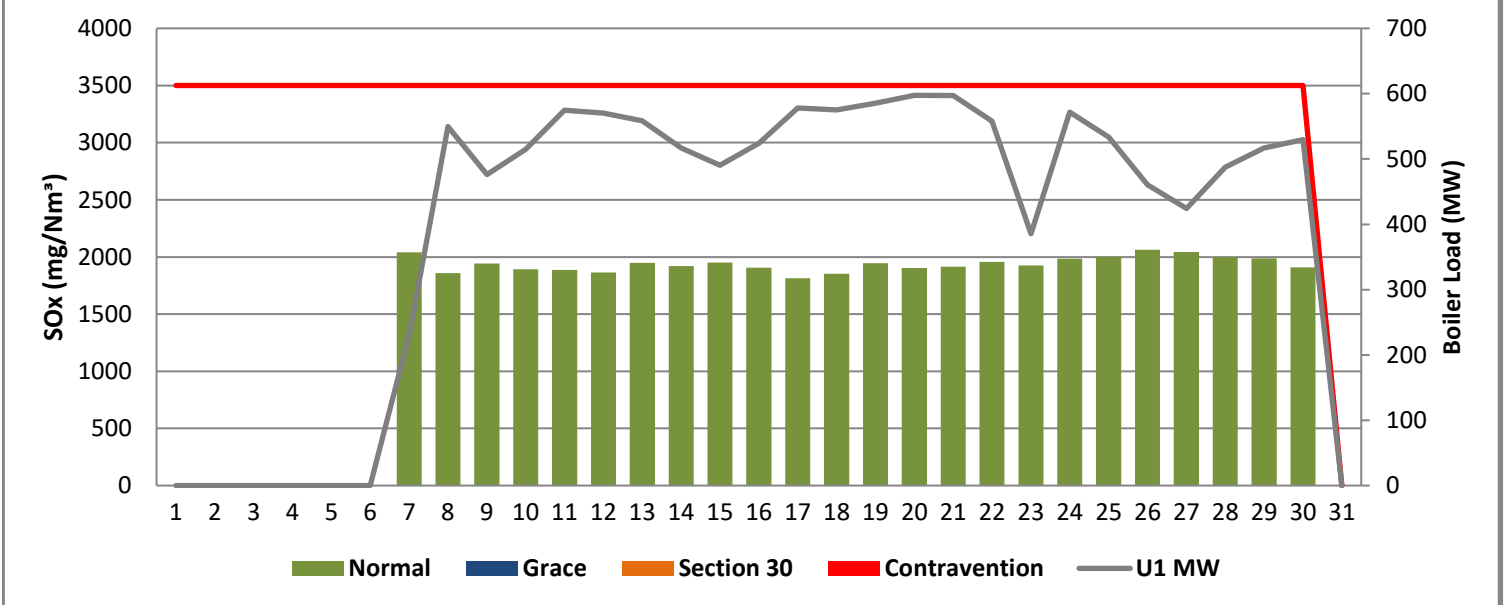


Figure 8: Lethabo Unit 2 SOx Emissions - April 2022

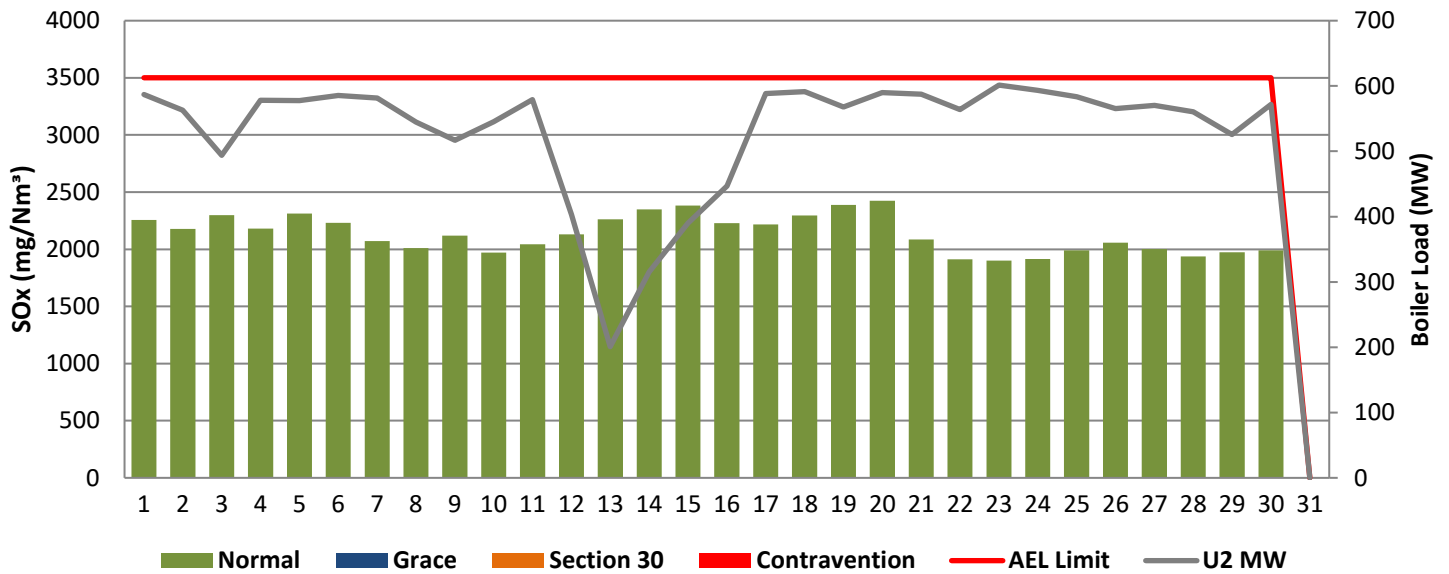


Figure 9: Lethabo Unit 3 SOx Emissions - April 2022

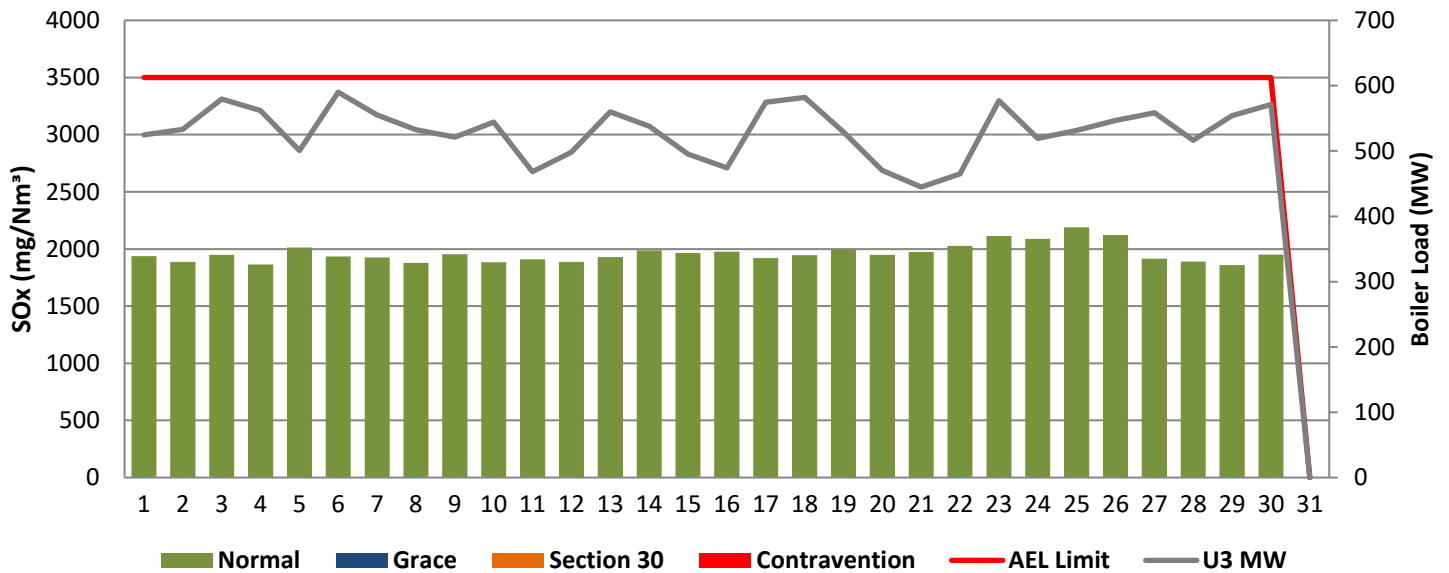


Figure 10: Lethabo Unit 4 SOx Emissions - April 2022

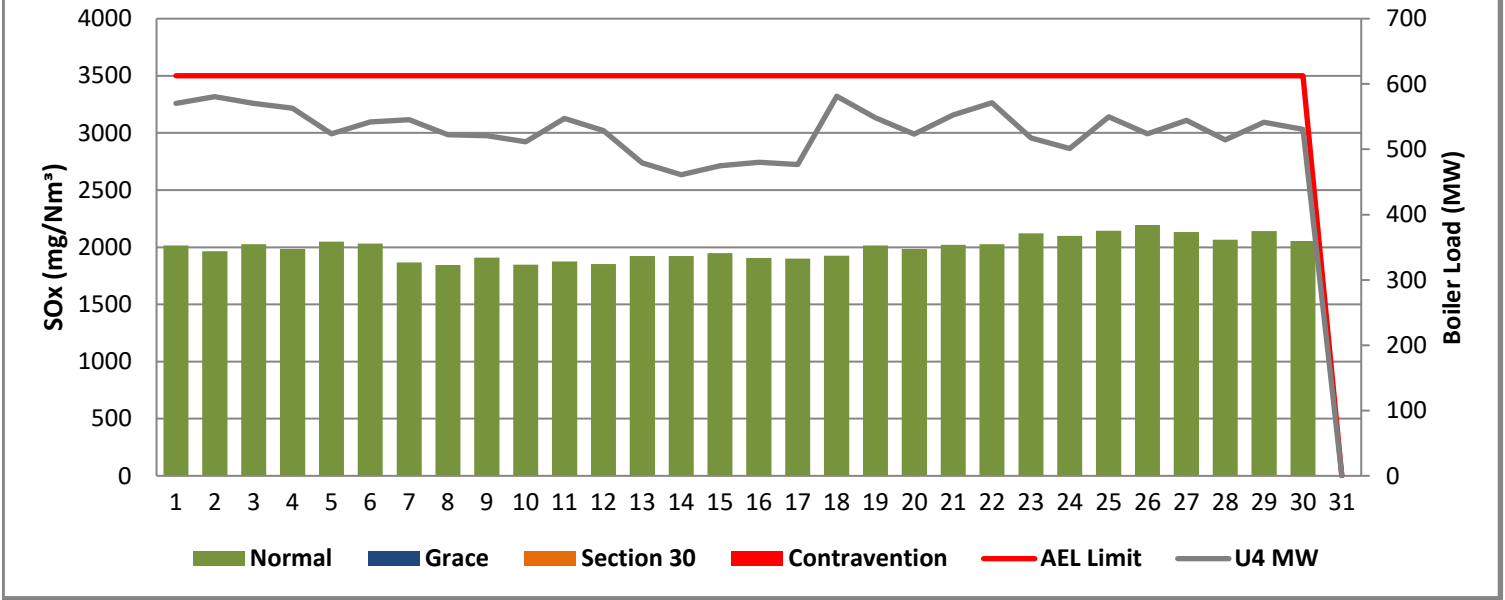


Figure 11: Lethabo Unit 5 SOx Emissions - April 2022

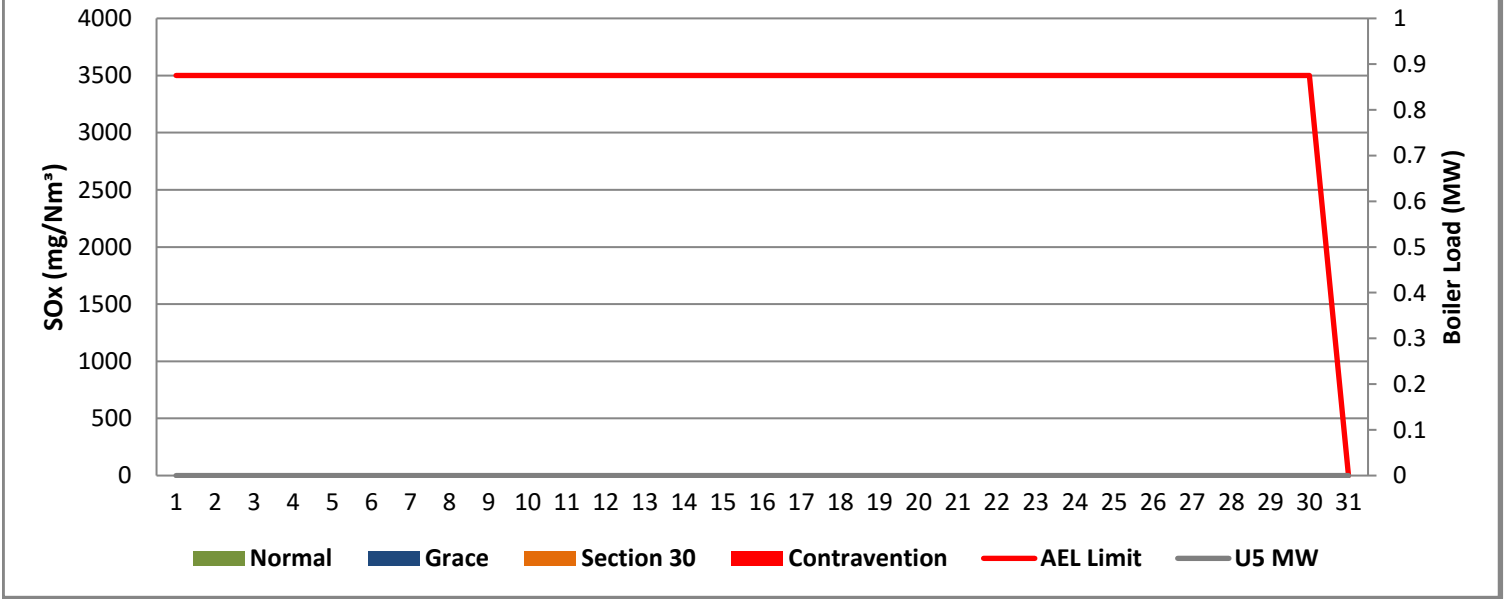


Figure 12: Lethabo Unit 6 SOx Emissions - April 2022

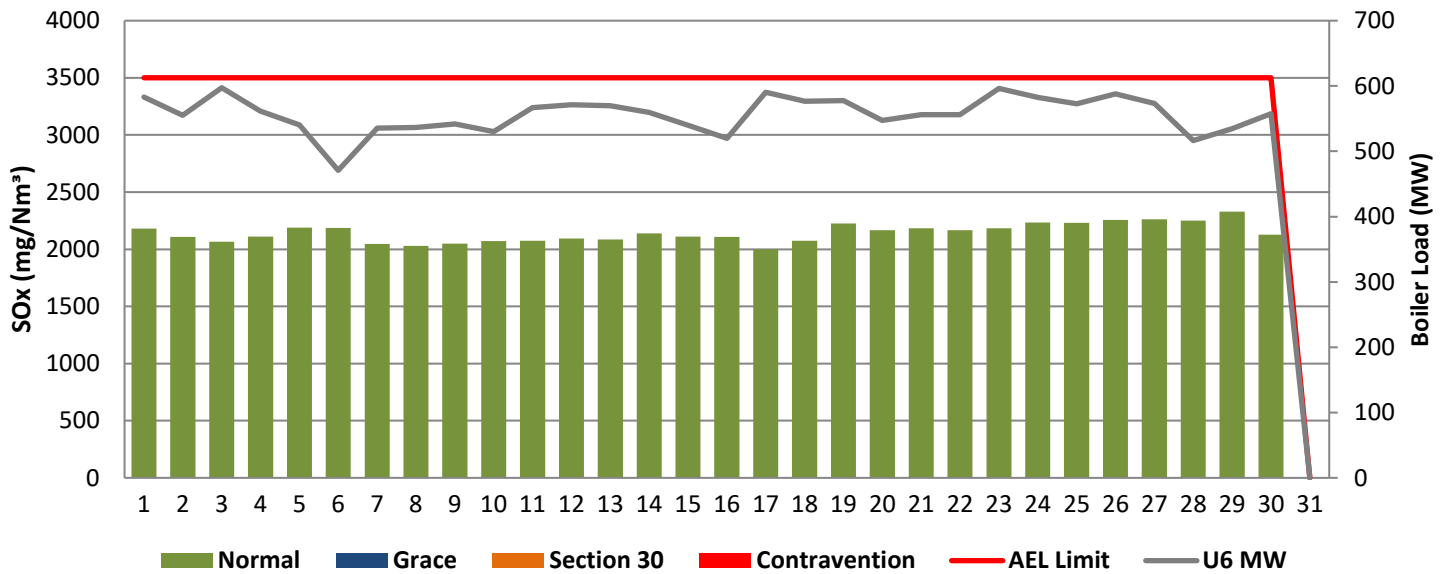


Figure 13: Lethabo Unit 1 NOx Emissions - April 2022

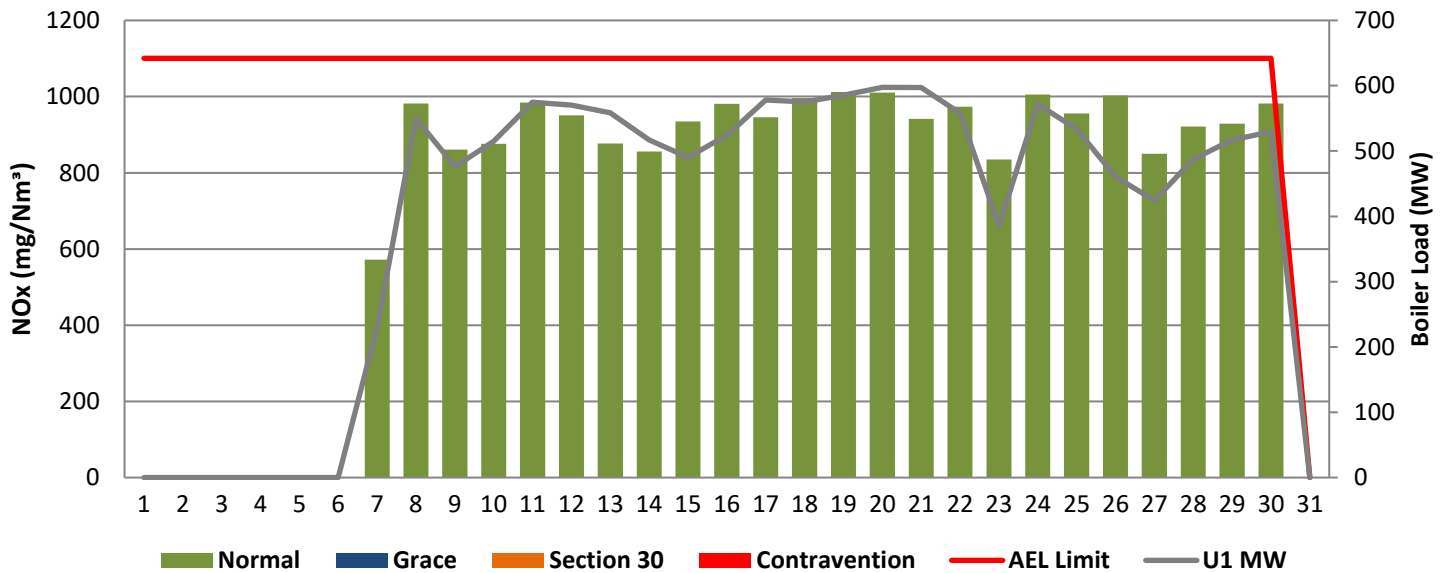


Figure 14: Lethabo Unit 2 NOx Emissions - April 2022

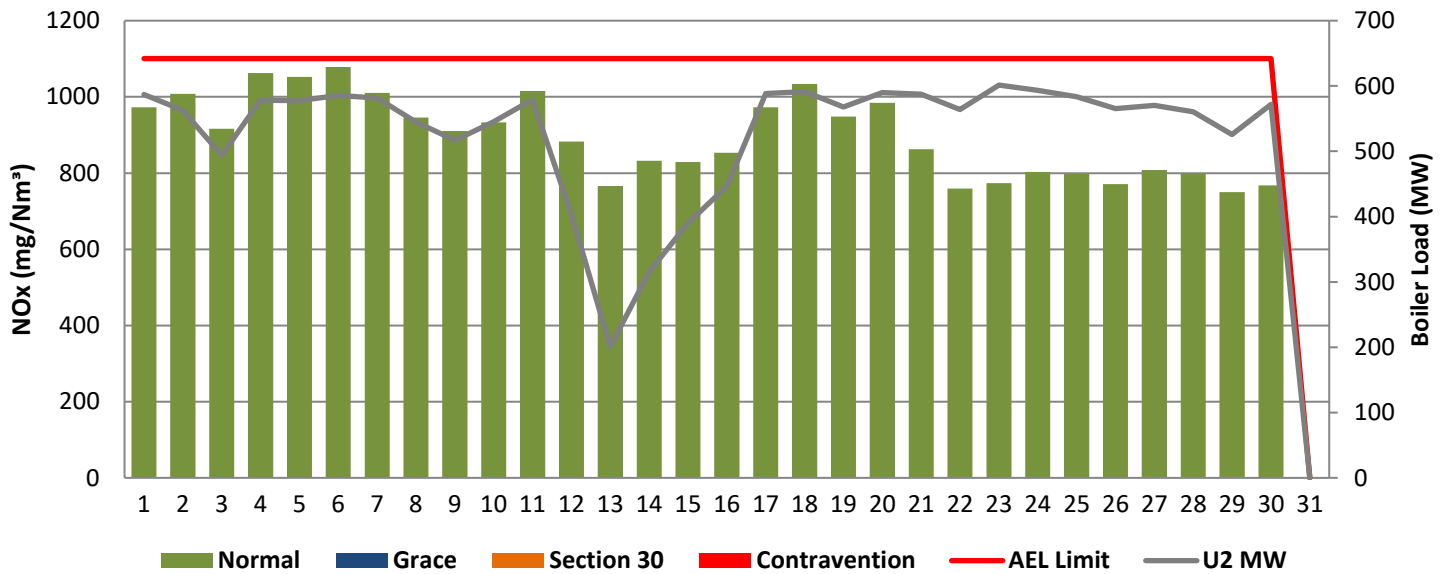


Figure 15: Lethabo Unit 3 NOx Emissions - April 2022

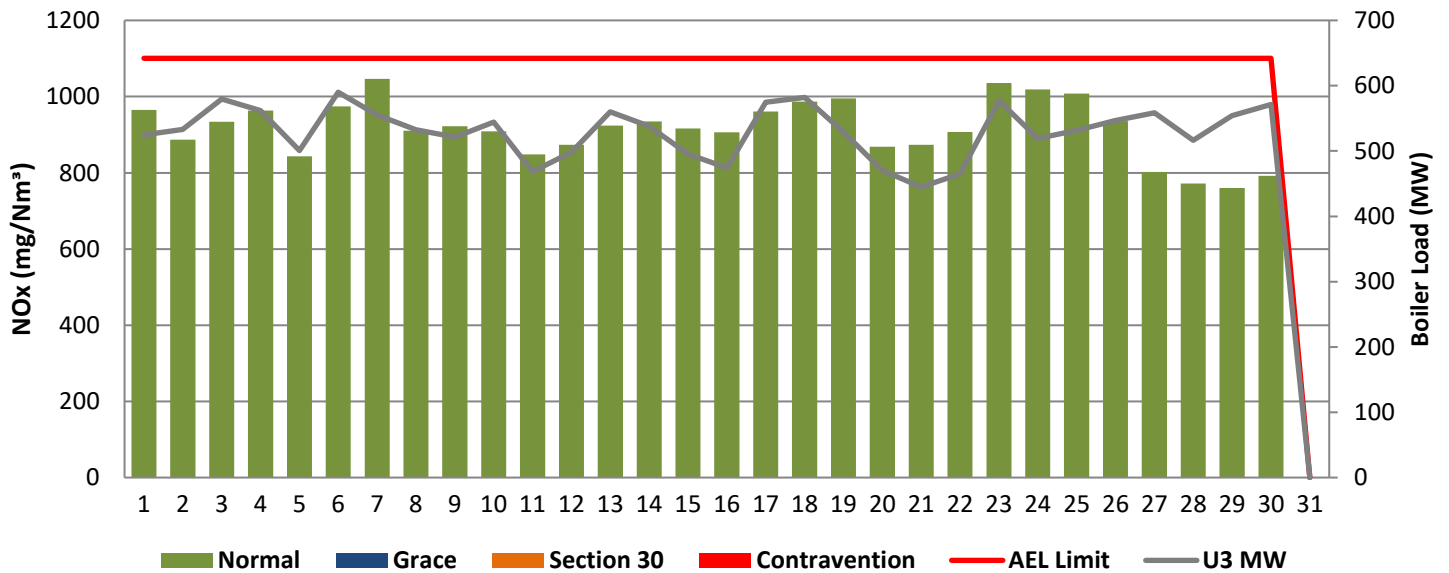


Figure 16: Lethabo Unit 4 NOx Emissions - April 2022

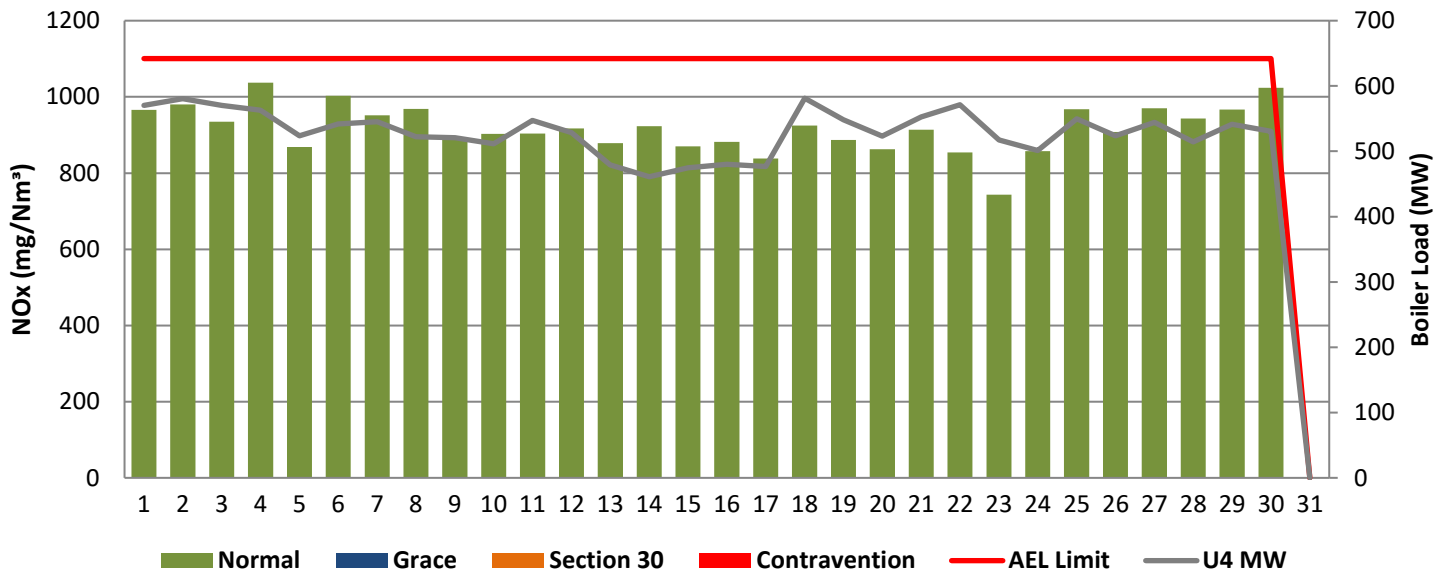


Figure 17: Lethabo Unit 5 NOx Emissions - April 2022

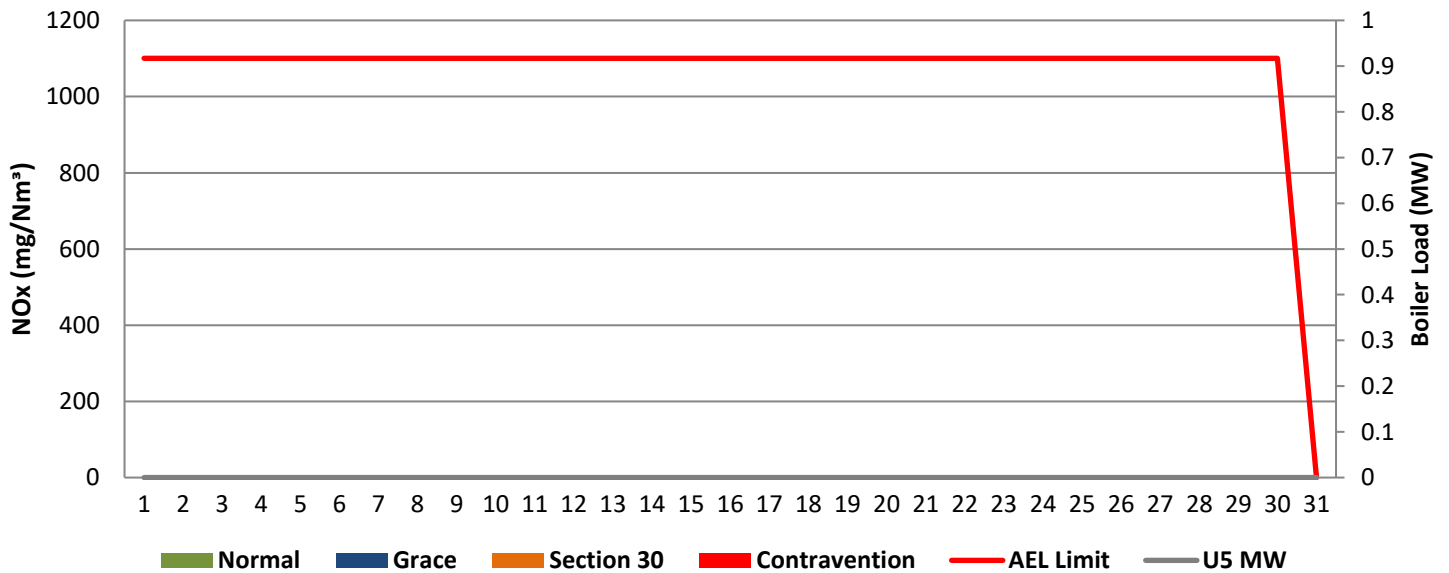
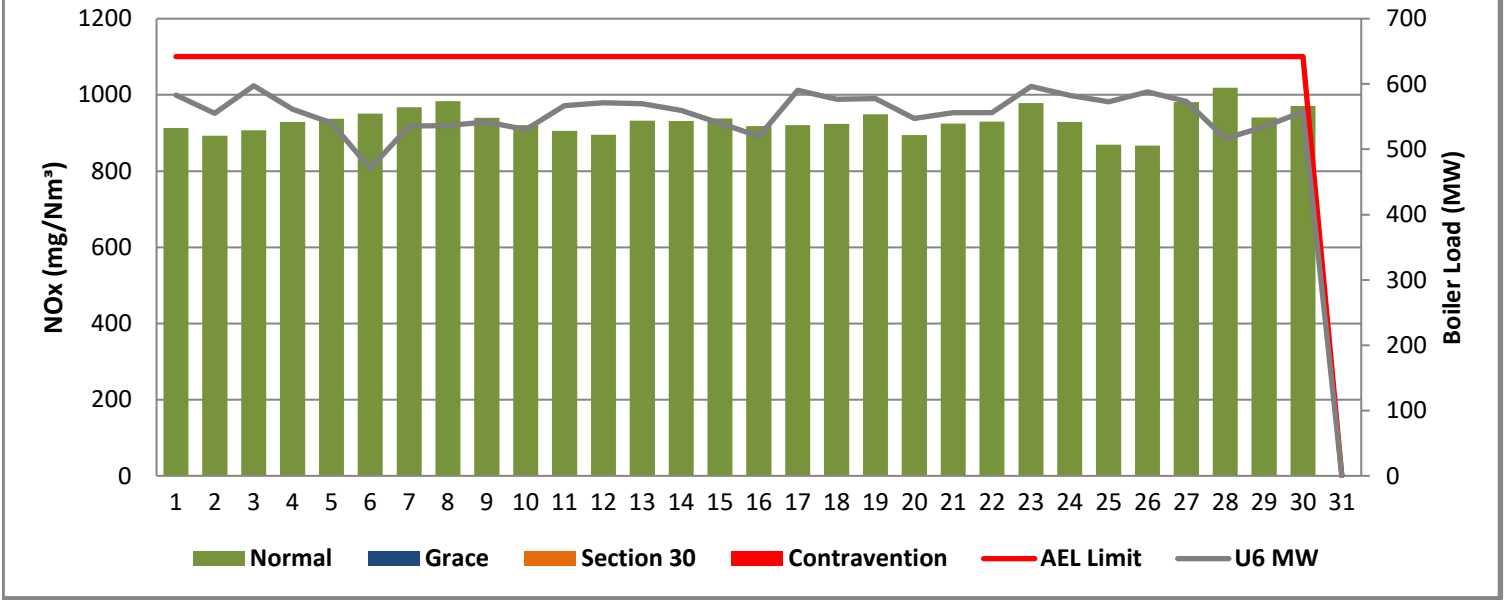


Figure 18: Lethabo Unit 6 NOx Emissions - April 2022



7 SHUT DOWN AND LIGHT UP INFORMATION

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

Unit No.1	<i>Internal inspection</i>		<i>Main turbine overspeed trip test</i>		<i>Generator rotor high vibrations & Unit tripped on Turbine HP Inlet casing delta T protection</i>			
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	8:29 PM	2022/04/07						
Synch. to Grid (or BC)	10:30 PM	2022/04/07						
Fires in to BC (duration)	00:02:01	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	<i>not > limit</i>	<i>not > limit</i>						
Emissions below limit from BC (duration)	<i>n/a</i>	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>Manual trip due to High vacuum</i>		<i>Unit tripped on Black furnace</i>					
Breaker Open (BO)	9:30 AM	2022/04/12	5:30 PM	2022/04/19				
Draught Group (DG) Shut Down (SD)	11:25 AM	2022/04/12	7:20 PM	2022/04/19				
BO to DG SD (duration)	00:01:55	DD:HH:MM	00:01:50	DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	1:03 PM	2022/04/12	3:46 AM	2022/04/20				
Synch. to Grid (or BC)	5:40 PM	2022/04/12	5:00 AM	2022/04/20				
Fires in to BC (duration)	00:04:37	DD:HH:MM	00:01:14	DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	<i>not > limit</i>	<i>not > limit</i>	<i>not > limit</i>	<i>not > limit</i>				
Emissions below limit from BC (duration)	<i>n/a</i>	DD:HH:MM	<i>n/a</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM

Unit No.4	<i>Unit tripped, 11KV A board tripped</i>						
Breaker Open (BO)	5:10 PM	2022/04/19					
Draught Group (DG) Shut Down (SD)	8:50 PM	2022/04/19					
BO to DG SD (duration)	00:03:40	DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
Fires in time	3:25 AM	2022/04/20					
Synch. to Grid (or BC)	6:40 AM	2022/04/20					
Fires in to BC (duration)	00:03:15	DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
Emissions below limit from BC (end date)	<i>not > limit</i>	<i>not > limit</i>					
Emissions below limit from BC (duration)	<i>n/a</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM

Unit No.5							
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.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 April 2022 in mg/Nm³

8. MAINTENANCE

Unit 1				
Beginning of				
Reason for Maintenance				
End (Time):				
Duration				

Unit 2				
Beginning of	2022/04/03 00:22:00	2022/04/16 00:03:00		
Reason for Maintenance	RHO Precip Casing	RHI Precip Casing		
End (Time):	2022/04/03 22:26:00	2022/04/16 17:30:00		
Duration	22:04:00	17:27:00		

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

Unit 4				
Beginning of	2022/04/23 00:35	2022/04/24 00:00		
Reason for Maintenance	RHO Precip Casing	LHI Precip Casing		
End (Time):	2022/04/23 20:29	2022/04/25 00:35		
Duration	19:54:00	24:35:00		

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

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

9. GENERAL

Unit 1 :

PM Monitor Availability on 23/04/2022: The monitor availability was 66.7% due to the monitors at maximum output hence the reporting tool does not take the readings and affects the monitor availability (Unit also shut down and tripped).

PM Monitor Availability on 26/04/2022: The monitor availability was 62.5% due to the monitors at maximum output hence the reporting tool does not take the readings and affects the monitor availability.

Gaseous Monitor Availability on 23/04/2022: The SO_x;NO_x;CO;CO₂;O₂ monitors availability were 79.2% (CO₂ Monitor was 75%) due to Shut down and trip

Unit 2 :

PM Monitor Availability on 12/04/2022 to 14/04/2022: The monitor availability was 66.7%; 0%; 75% respectively due to the monitors at maximum output hence the reporting tool does not take the readings and affects the monitor availability.

Unit 1:

Unit 1 reported a NEMA Section 30 from the 28/04/2022-01/05/2022 due to high hopper levels and poor ESP performance.

Unit 2:

Unit 2 reported a NEMA Section 30 on the 14/04/2022 due to high hopper levels and half draught plant trip (ID fan cables needed to be replaced)

Unit 1:

There was Generator repairs and Unit trip (06:20) on the 23/04/2022 from 00:55-10:55 where the unit was not synchronised (0MW). The Boiler was still on load during this test and trip, a value of 150MW was inserted for the period so as to not discount the reporting hours.

Unit 4:

O₂ Monitor had an incorrect calibration. An investigation was done and it was found that the calibration for this monitor was incorrect. The data for the period 23/03/2022 12:44 to 06/04/2022 12:11 was removed.

ADDENDUM TO MONTHLY EMISSIONS REPORT

10. S30 INCIDENT OR LEGAL CONTRAVENTION REGISTER

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

Unit no	Incident Start Date	Incident End Date	Incident Cause	Remedial action	S30 initial notification sent	Date S30 investigation report sent	Date DEA Acknowledgment	Date DEA Acceptable	Comments / Reference No.
1	28/04/2022	01/05/2022 2	High hopper levels and poor ESP performance.	Backlogging done so that hopper levels could be decreased	29/04/2022	12/05/2022			NEMA Section 30 Reported
2	14/04/2022	15/04/2022	High hopper levels and poor ESP performance.	Draught plant ID fan cables attended to and Backlogging done so that hopper levels could be decreased	14/04/2022	28/04/2022			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
May-21	0.33	0.45	0.42	0.53	0.49	0.49	0.46
Jun-21	0.26	0.63	0.37	0.36	0.35	0.33	0.38
Jul-21	0.23	0.55	0.43	0.31	0.27	0.29	0.35
Aug-21	0.24	0.73	0.41	0.55	0.24	0.28	0.41
Sep-21	0.38	0.92	0.52	0.33	0.26	OFF	0.47
Oct-21	0.63	0.53	0.50	0.50	0.40	OFF	0.51
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	0.00	0.37	0.51

ADDENDUM TO MONTHLY EMISSIONS REPORT

12. DAILY EMISSIONS FIGURES

Final Dust Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
01-Apr	OFF	69	90	57	OFF	68	100
02-Apr	OFF	65	98	67	OFF	76	100
03-Apr	OFF	167	129	76	OFF	90	100
04-Apr	OFF	62	141	69	OFF	91	100
05-Apr	OFF	79	91	64	OFF	79	100
06-Apr	OFF	91	262	71	OFF	53	100
07-Apr	OFF	87	251	78	OFF	58	100
08-Apr	55	60	80	42	OFF	66	100
09-Apr	100	67	104	69	OFF	69	100
10-Apr	90	84	125	68	OFF	68	100
11-Apr	75	200	94	79	OFF	93	100
12-Apr	102	331	114	79	OFF	77	100
13-Apr	147	878	90	69	OFF	84	100
14-Apr	100	282	102	58	OFF	75	100
15-Apr	40	37	87	74	OFF	70	100
16-Apr	57	127	86	83	OFF	65	100
17-Apr	64	82	146	98	OFF	86	100
18-Apr	73	114	119	104	OFF	91	100
19-Apr	59	84	90	77	OFF	87	100
20-Apr	61	92	OFF	OFF	OFF	108	100
21-Apr	68	98	29	71	OFF	90	100
22-Apr	52	78	48	79	OFF	135	100
23-Apr	311	99	111	151	OFF	86	100
24-Apr	98	97	91	239	OFF	99	100
25-Apr	122	105	94	66	OFF	85	100
26-Apr	425	99	91	121	OFF	77	100
27-Apr	284	80	85	179	OFF	93	100
28-Apr	268	87	63	64	OFF	75	100
29-Apr	349	92	77	57	OFF	86	100
30-Apr	424	131	88	65	OFF	97	100

ADDENDUM TO MONTHLY EMISSIONS REPORT

Final SOx Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
01-Apr	OFF	2256	1938	2016	OFF	2181	3500
02-Apr	OFF	2179	1886	1964	OFF	2108	3500
03-Apr	OFF	2298	1947	2028	OFF	2066	3500
04-Apr	OFF	2180	1865	1985	OFF	2110	3500
05-Apr	OFF	2312	2014	2050	OFF	2190	3500
06-Apr	OFF	2232	1936	2034	OFF	2188	3500
07-Apr	2041	2072	1927	1866	OFF	2046	3500
08-Apr	1859	2009	1878	1844	OFF	2031	3500
09-Apr	1943	2121	1955	1909	OFF	2050	3500
10-Apr	1892	1971	1885	1847	OFF	2071	3500
11-Apr	1888	2042	1909	1876	OFF	2075	3500
12-Apr	1865	2130	1886	1854	OFF	2094	3500
13-Apr	1949	2261	1928	1925	OFF	2084	3500
14-Apr	1920	2349	1988	1923	OFF	2140	3500
15-Apr	1952	2382	1964	1950	OFF	2112	3500
16-Apr	1907	2229	1977	1907	OFF	2108	3500
17-Apr	1814	2219	1922	1901	OFF	1999	3500
18-Apr	1853	2297	1945	1925	OFF	2073	3500
19-Apr	1945	2389	2000	2015	OFF	2226	3500
20-Apr	1903	2425	1949	1984	OFF	2168	3500
21-Apr	1916	2085	1974	2021	OFF	2184	3500
22-Apr	1957	1912	2026	2028	OFF	2168	3500
23-Apr	1926	1900	2113	2122	OFF	2183	3500
24-Apr	1984	1915	2088	2099	OFF	2235	3500
25-Apr	2001	1991	2189	2145	OFF	2231	3500
26-Apr	2064	2059	2122	2194	OFF	2256	3500
27-Apr	2044	2002	1914	2133	OFF	2262	3500
28-Apr	1998	1937	1889	2067	OFF	2252	3500
29-Apr	1987	1975	1859	2142	OFF	2329	3500
30-Apr	1910	1991	1952	2055	OFF	2129	3500

ADDENDUM TO MONTHLY EMISSIONS REPORT

Final NOx Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
01-Apr	OFF	973	965	966	OFF	913	1100
02-Apr	OFF	1008	887	980	OFF	893	1100
03-Apr	OFF	917	934	935	OFF	907	1100
04-Apr	OFF	1062	964	1038	OFF	929	1100
05-Apr	OFF	1052	843	868	OFF	937	1100
06-Apr	OFF	1078	975	1003	OFF	950	1100
07-Apr	572	1010	1047	951	OFF	968	1100
08-Apr	982	946	911	968	OFF	983	1100
09-Apr	861	910	922	888	OFF	940	1100
10-Apr	876	934	909	903	OFF	920	1100
11-Apr	984	1015	848	904	OFF	905	1100
12-Apr	951	883	874	917	OFF	896	1100
13-Apr	877	766	924	878	OFF	932	1100
14-Apr	856	832	935	923	OFF	932	1100
15-Apr	935	829	917	870	OFF	938	1100
16-Apr	981	853	906	882	OFF	918	1100
17-Apr	946	972	961	839	OFF	920	1100
18-Apr	996	1034	987	925	OFF	924	1100
19-Apr	1012	949	995	887	OFF	949	1100
20-Apr	1011	985	869	862	OFF	894	1100
21-Apr	942	863	873	914	OFF	925	1100
22-Apr	974	760	907	855	OFF	929	1100
23-Apr	835	773	1036	743	OFF	979	1100
24-Apr	1006	803	1019	857	OFF	929	1100
25-Apr	955	798	1008	968	OFF	869	1100
26-Apr	1003	771	936	908	OFF	867	1100
27-Apr	850	808	802	970	OFF	981	1100
28-Apr	921	799	772	943	OFF	1019	1100
29-Apr	929	750	760	966	OFF	941	1100
30-Apr	982	768	792	1024	OFF	971	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
May-21	88.70%	2.0	100.00%	0.0	100.00%	0.0	100.00%	0.0	88.82%	1.9	100.00%	0.0
Jun-21	98.59%	1.7	99.28%	0.9	99%	1.0	100.00%	0.0	100.00%	0.0	100.00%	0.0
Jul-21	100.00%	0.0	100.00%	0.0	99%	0.8	100.00%	0.0	100.00%	0.0	100.00%	0.0
Aug-21	99.33%	0.8	100.00%	0.0	99%	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	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
May-21	100.00%	0.0	100.00%	0.0	81.77%	2.7	76.09%	4.4	78.12%	3.8	100.00%	0.0
Jun-21	100.00%	0.0	100.00%	0.0	92.28%	2.3	100.00%	0.0	100.00%	0.0	100.00%	0.0
Jul-21	100.00%	0.0	100.00%	0.0	91.05%	2.7743056	100.00%	0.0	100.00%	0.0	100.00%	0.0
Aug-21	100.00%	0.0	47.45%	16.3	100.00%	0.0	99.08%	0.3	100.00%	0.0	100.00%	0.0
Sep-21	100.00%	0.0	71.12%	8.0	100.00%	0.0	100.00%	0.0	100.00%	0.0	OFF	OFF
Oct-21	99.75%	0.1	100.00%	0.0	100.00%	0.0	100.00%	0.0	100.00%	0.0	OFF	OFF
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	100.00%	0.0	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
May-21	99.01%	100.00%	94.83%	99.72%	97.31%	99.38%
Jun-21	99.72%	99.17%	99.31%	99.83%	99.86%	99.82%
Jul-21	98.12%	99.60%	99.87%	99.04%	98.22%	99.06%
Aug-21	100.00%	99.60%	99.60%	99.36%	100.00%	100.00%
Sep-21	98.61%	96.91%	99.03%	99.54%	99.72%	OFF
Oct-21	95.51%	99.06%	99.46%	99.87%	99.87%	OFF
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%

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
May-21	94.33%	94.33%	99.87%	100.00%	100.00%	100.00%	99.87%	99.87%	100.00%	100.00%	100.00%	100.00%
Jun-21	99%	99%	99.72%	99.86%	100%	100%	99.76%	99.76%	99.86%	99.86%	99.71%	99.71%
Jul-21	99.73%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	98.66%	98.66%	98.79%	98.92%
Aug-21	89.25%	89.78%	99.60%	99.73%	99.73%	99.73%	100.00%	100.00%	99.87%	99.87%	95.27%	95.27%
Sep-21	99.58%	99.58%	99.55%	99.55%	99.58%	99.72%	99.70%	99.70%	99.58%	99.72%	OFF	OFF
Oct-21	99.52%	99.36%	99.73%	99.87%	99.87%	99.87%	99.73%	99.87%	100.00%	100.00%	OFF	OFF
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%

Oxygen Monitor Availability						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
May-21	94.16%	99.87%	99.86%	99.87%	99.87%	98.63%
Jun-21	99.58%	99.79%	99.72%	99.76%	99.72%	99.55%
Jul-21	100.00%	99.87%	99.60%	99.52%	98.73%	98.79%
Aug-21	99.46%	99.87%	99.60%	100.00%	100.00%	95.45%
Sep-21	99.72%	99.13%	97.78%	99.55%	99.72%	OFF
Oct-21	99.84%	99.87%	97.04%	99.87%	99.73%	OFF
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%		99.72%

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14. EFFICIENCY

ESP Efficiency (%)						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
May-21	99.866%	99.809%	99.825%	99.791%	99.782%	99.786%
Jun-21	99.894%	99.724%	99.844%	99.856%	99.839%	99.852%
Jul-21	99.916%	99.756%	99.819%	99.879%	99.887%	99.838%
Aug-21	99.894%	99.656%	99.810%	99.759%	99.883%	99.864%
Sep-21	99.836%	99.567%	99.756%	99.855%	99.873%	OFF
Oct-21	99.752%	99.776%	99.789%	99.800%	99.823%	OFF
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%

15. REMARKS

UNIT	MWLOSS	REASON	ACTUALSTARTDATE	ACTUALENDDATE
1	593	Internal inspection	2022/04/01 00:00:00	2022/04/07 22:31:00
1	297	System Generated Ramp Event for Event id : 1672903	2022/04/07 22:31:00	2022/04/08 01:31:00
1	0	Main turbine overspeed trip test	2022/04/09 22:03:00	2022/04/09 23:08:00
1	297	System Generated Ramp Event for Event id : 1677458	2022/04/09 23:08:00	2022/04/10 00:38:00
1	51	High stack emissions.	2022/04/10 14:39:00	2022/04/10 17:01:00
1	98	EF: High stack emissions	2022/04/14 10:37:00	2022/04/14 17:05:00
1	196	High stack emissions.	2022/04/14 20:16:00	2022/04/15 08:41:00
1	50	High stack emissions.	2022/04/15 08:41:00	2022/04/15 10:25:00
1	593	Generator rotor high vibrations	2022/04/23 00:48:00	2022/04/23 06:16:00
1	580	System Generated Ramp Event for Event id : 1682128 (Recalculated)	2022/04/23 06:16:00	2022/04/23 06:19:00
1	593	Unit tripped on Turbine HP Inlet casing delta T protection	2022/04/23 06:19:00	2022/04/23 10:38:00
1	297	System Generated Ramp Event for Event id : 1682179	2022/04/23 10:38:00	2022/04/23 12:08:00
1	46	EF: High stack emissions	2022/04/24 22:06:00	2022/04/24 23:24:00
1	76	Correlation tests	2022/04/25 22:03:00	2022/04/26 05:00:00
1	218	High hopper levels	2022/04/27 20:53:00	2022/04/28 05:45:00
1	218	EF:Correlation test	2022/04/28 22:59:00	2022/04/29 05:06:00
1	218	AM: Manage high hopper levels	2022/04/30 00:00:00	2022/04/30 05:07:00
2	100	RHO precip casing repairs.	2022/04/03 00:22:00	2022/04/03 22:26:00
2	275	AM: R/H Draught tripped.	2022/04/12 14:03:00	2022/04/12 15:18:00
2	357	AM: R/H Draught group tripped	2022/04/12 15:18:00	2022/04/14 05:38:00
2	100	RHI precip casing repairs.	2022/04/16 00:03:00	2022/04/16 17:30:00
2	48	EF: High stack emissions	2022/04/24 21:12:00	2022/04/24 23:24:00
2	100	High stack emissions	2022/04/26 20:17:00	2022/04/27 00:01:00
2	100	EF: High stack emissions	2022/04/29 20:50:00	2022/04/30 00:05:00
3	216	EF: Emission test.	2022/04/01 00:02:00	2022/04/01 05:33:00
3	111	High stack emissions	2022/04/01 11:54:00	2022/04/01 17:27:00
3	218	Emissions test	2022/04/07 23:53:00	2022/04/08 04:57:00
3	218	Emissions test.	2022/04/09 00:00:00	2022/04/09 05:00:00
3	215	AM: High stack emissions.	2022/04/11 09:17:00	2022/04/11 16:46:00
3	218	High stack emissions.	2022/04/11 19:35:00	2022/04/12 04:48:00
3	593	Manual trip due to High vacuum	2022/04/12 09:21:00	2022/04/12 17:38:00
3	296	System Generated Ramp Event for Event id : 1678379	2022/04/12 17:38:00	2022/04/12 20:08:00
3	593	Unit 3 tripped due to electric fault induced on 11KV A board.	2022/04/19 17:24:00	2022/04/19 22:15:00
3	297	System Generated Ramp Event for Event id : 1680917	2022/04/19 22:15:00	2022/04/19 23:45:00
3	593	Unit tripped on Black furnace	2022/04/20 01:33:00	2022/04/20 05:01:00
3	297	System Generated Ramp Event for Event id : 1681051	2022/04/20 05:01:00	2022/04/20 06:31:00
3	118	High stack emissions.	2022/04/24 06:46:00	2022/04/25 00:00:00
3	68	high stack emissions	2022/04/30 19:34:00	2022/04/30 23:59:59
4	90	Correlation test.	2022/04/07 23:59:00	2022/04/08 05:06:00
4	90	NOx optimization	2022/04/09 00:06:00	2022/04/09 05:00:00
4	593	Unit tripped under investigation.U4 11KV A board tripped	2022/04/19 17:02:00	2022/04/20 06:39:00
4	296	System Generated Ramp Event for Event id : 1680901	2022/04/20 06:39:00	2022/04/20 09:09:00
4	78	RHO precip casing repairs.	2022/04/23 00:35:00	2022/04/23 20:29:00
4	78	LHI Precip casing repairs	2022/04/24 00:00:00	2022/04/25 00:35:00
4	78	High stack emissions	2022/04/26 20:24:00	2022/04/26 20:55:00
5	593	G.O.	2022/04/01 00:00:00	2022/04/30 23:59:59
6	117	Correlation test.	2022/04/04 22:00:00	2022/04/05 05:00:00
6	218	AM: Correlation test.	2022/04/05 22:11:00	2022/04/06 06:00:00
6	216	AM: Correlation test.	2022/04/06 22:00:00	2022/04/07 02:50:00
6	218	high stack emissions	2022/04/30 19:48:00	2022/04/30 23:59:59

PM Exceedances		
U1.	High Hopper Levels, and ESP poor Performance	12-Apr
U1.	Two high hopper levels on this unit Three are three casings are not performing	13-Apr
U1.	Unit Shut down for generator repairs @ 00:49, Unit synchronised 06:16, Unit tripped 06:19 LHI and RHI ESP poor performance	23-Apr
U1.	ESP Poor Performance and High hopper levels	25-Apr
U1.	ESP Poor performance and 29 High hopper levels	26-Apr
U1.	ESP poor performance 18 high hopper levels	27-Apr
U1.	ESP poor Performance 8 High hopper levels NEMA Section 30 reported	28-Apr
U1.	ESP Poor Performance and High hopper levels	29-Apr
U1.	ESP Poor Performance and High Hopper levels	30-Apr
U2.	RHO on opportunity maintenance	03-Apr
U2.	Ops reported two high hopper levels on this unit. LHO F1 and F5 tripping on undervoltage. LHI F1, RHI F1 and RHO F6 have no power	11-Apr
U2.	High Hopper Levels and Poor ESP Poor performance	12-Apr
U2.	One draught plant tripped due to ID fan cable fault, mill feeder fires occurred causing load to drop below 300MW and use of oil burner support. Due to this ESP were switched off	13-Apr
U2.	S30 reported	14-Apr
U2.	Casing outage	16-Apr
U2.	ESP Poor Performance and 1 high hopper level	18-Apr
U2.	RHO poor performance	25-Apr
U2.	ESP Poor Performance	30-Apr
U3.	Positive Pressure on the DHP	03-Apr
U3.	RHO poor casing performance	04-Apr
U3.	Manual Rapping was performed & High hopper levels on the DHP	06-Apr
U3.	Manual Rapping was performed and high hopper levels on the DHP	07-Apr
U3.	High Hopper Levels and ESP poor performance	09-Apr
U3.	ESP Poor Performance	10-Apr
U3.	Unit tripped yesterday and synchronized later the afternoon 2022/04/12 @ 17:38. The unit need to be below the limit by 2022/04/15 @ 17:38 and continue below the limit on 2022/04/16	12-Apr
U3.	ESP Poor Performance	14-Apr
U3.	SO3 plant tripped on air blower 09:50	17-Apr
U3.	SO3 Plant Blower Failure and replaced. Plant in service 14:30	18-Apr
U3.	Unit tripped twice last night and synchronized on 2022/04/20 @ 05:01, unit to be below the emissions by 2022/04/23 @ 05:01 and remain below the limit until 2022/04/24	20-Apr
U3.	ESP Poor Performance	23-Apr
U4.	ESP Poor Performance	18-Apr
U4.	Unit tripped last night and synchronized on 2022/04/20 @ 06:39, unit to be below the emissions by 2022/04/23 @ 06:39 and remain below the limit until 2022/04/24	20-Apr
U4.	RHO Casing outage (however abandoned at 16:18 due to dust not allowing team to work)	23-Apr
U4.	LHI Casing repair	24-Apr
U4.	SO3 Plant sulphur control valve failure	26-Apr
U4.	SO3 Plant sulphur control valve failure	27-Apr
U6.	ESP Poor Performance	20-Apr
U6.	ESP Poor Performance and 16 High hopper hopper levels	22-Apr