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Date:
23 August 2021

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LRP03PLA000 _0253/20210804

Dear Mr. Sibaya

LETHABO POWER STATION EMISSION MONTHLY REPORT FOR JULY 2021

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

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

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

Reference number: **LRP03PLA000_0253/20210804**
Document Type: **Report**
Area of Applicability: **Environment**
Report Date: **July-2021**
Classification: **Controlled Disclosure**

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LETHABO POWER STATION MONTHLY EMISSIONS REPORT

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



1. RAW MATERIALS AND PRODUCTS

Raw Materials and Products	Raw Material Type	Units	Maximum Permitted Consumption Rate	Consumption Rate Jul 2021
	Coal	Tons	2 000 000	1 498 386
	Fuel Oil	Tons	1 700	617.87
Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Production Rate Jul-2021
	Energy	GWh	2834.64	2 234.30
	Ash	Tons	770 000	570 585.4
	RE Ash	kg/MWh	not specified	255.38

2. ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.656 (Standard)	0.750
Ash Content	%	37.37 (Standard)	38.080

*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. ABATEMET TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	Efficiency Jul-2021
Unit 1	<i>Electrostatic Precipitator (ESP)</i>	99.90%
Unit 2	<i>Electrostatic Precipitator (ESP)</i>	99.74%
Unit 3	<i>Electrostatic Precipitator (ESP)</i>	99.81%
Unit 4	<i>Electrostatic Precipitator (ESP)</i>	99.87%
Unit 5	<i>Electrostatic Precipitator (ESP)</i>	99.87%
Unit 6	<i>Electrostatic Precipitator (ESP)</i>	99.86%

5. MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO ₂	NO	CO ₂
Unit 1	97.8	99.7	100.0	71.5
Unit 2	99.6	100.0	100.0	100.0
Unit 3	99.9	100.0	100.0	100.0
Unit 4	98.9	100.0	100.0	100.0
Unit 5	98.2	98.7	98.7	98.4
Unit 6	99.1	98.8	98.9	98.7

6. EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of July 2021

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	91.5	3 077	1 387
Unit 2	217.8	4 926	1 967
Unit 3	168.2	4 012	1 817
Unit 4	115.5	3 968	1 737
Unit 5	99.4	2 948	1 320
Unit 6	116.8	4 022	1 817
SUM	809.326	22 953	10 044

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

Associated Unit/Stack	Normal	Grace	Section 30	Contraven- tion	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	29	2	0	0	2	56.5
Unit 2	24	7	0	0	7	96.9
Unit 3	26	5	0	0	5	87.6
Unit 4	26	3	0	0	3	60.8
Unit 5	24	3	0	0	3	67.7
Unit 6	30	1	0	0	1	61.6
SUM	159	21	0	0	21	

Table 6.3: Operating days in compliance to SO_x AEL Limit - July 2021

Associated Unit/Stack	Normal	Grace	Section 30	Contraven- tion	Total Exceedance	Average SO _x (mg/Nm ³)
Unit 1	31	0	0	0	0	1 922.4
Unit 2	31	0	0	0	0	2 215.0
Unit 3	31	0	0	0	0	2 105.7
Unit 4	30	0	0	0	0	2 012.4
Unit 5	28	0	0	0	0	1 929.7
Unit 6	31	0	0	0	0	2 130.0
SUM	182	0	0	0	0	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm³)
Unit 1	31	0	0	0	0	864.4
Unit 2	31	0	0	0	0	881.9
Unit 3	30	0	0	1	1	952.3
Unit 4	30	0	0	0	0	868.8
Unit 5	28	0	0	0	0	861.8
Unit 6	31	0	0	0	0	961.5
SUM	181	0	0	1	1	

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 1: Lethabo Unit 1 PM Emissions - July 2021

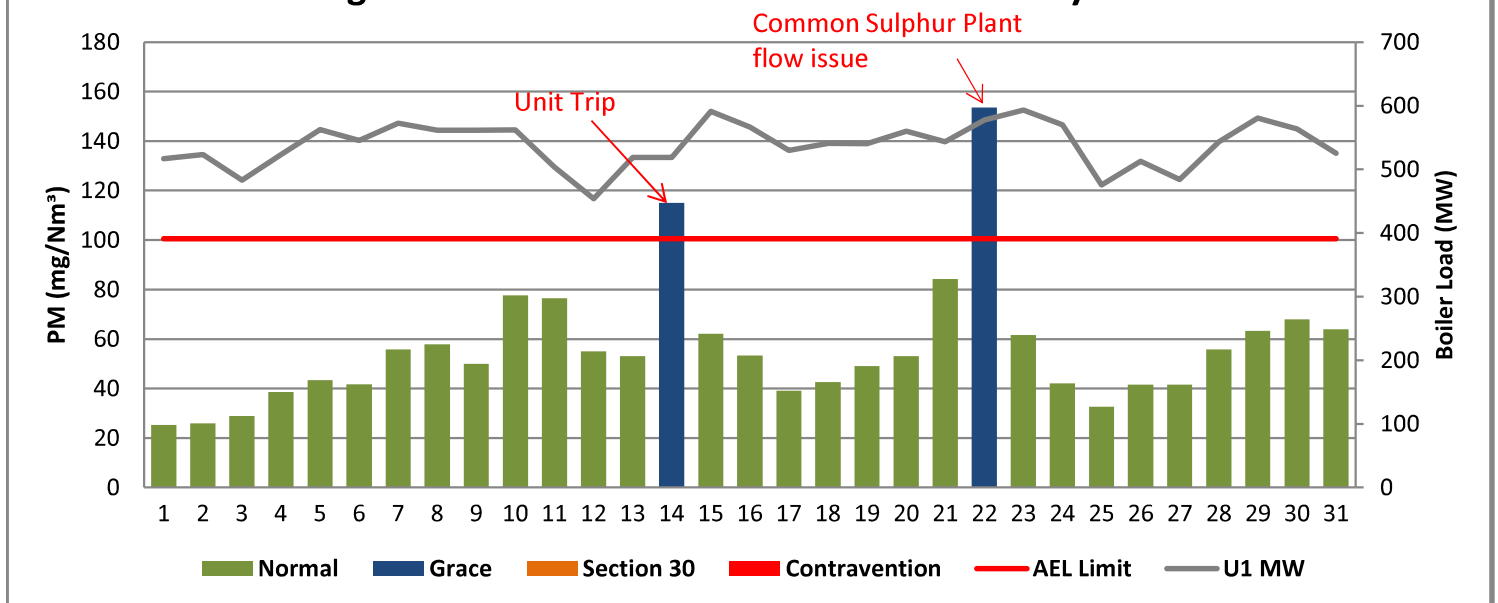


Figure 2: Lethabo Unit 2 PM Emissions - July 2021

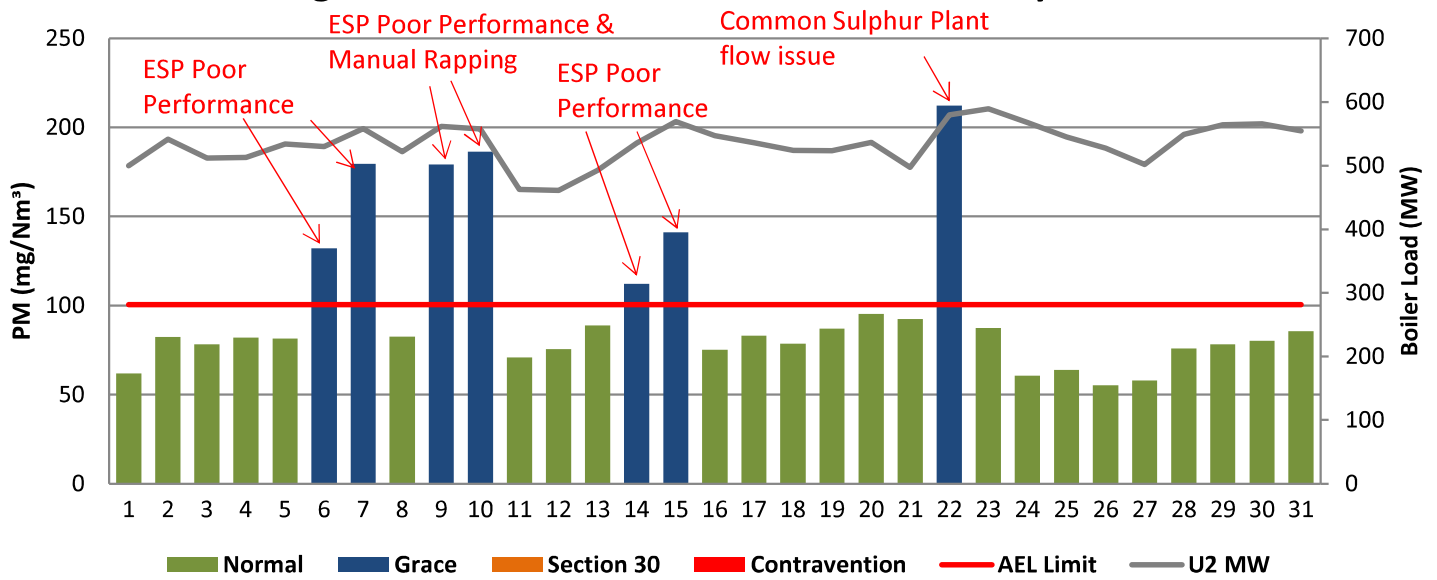


Figure 3: Lethabo Unit 3 PM Emissions - July 2021

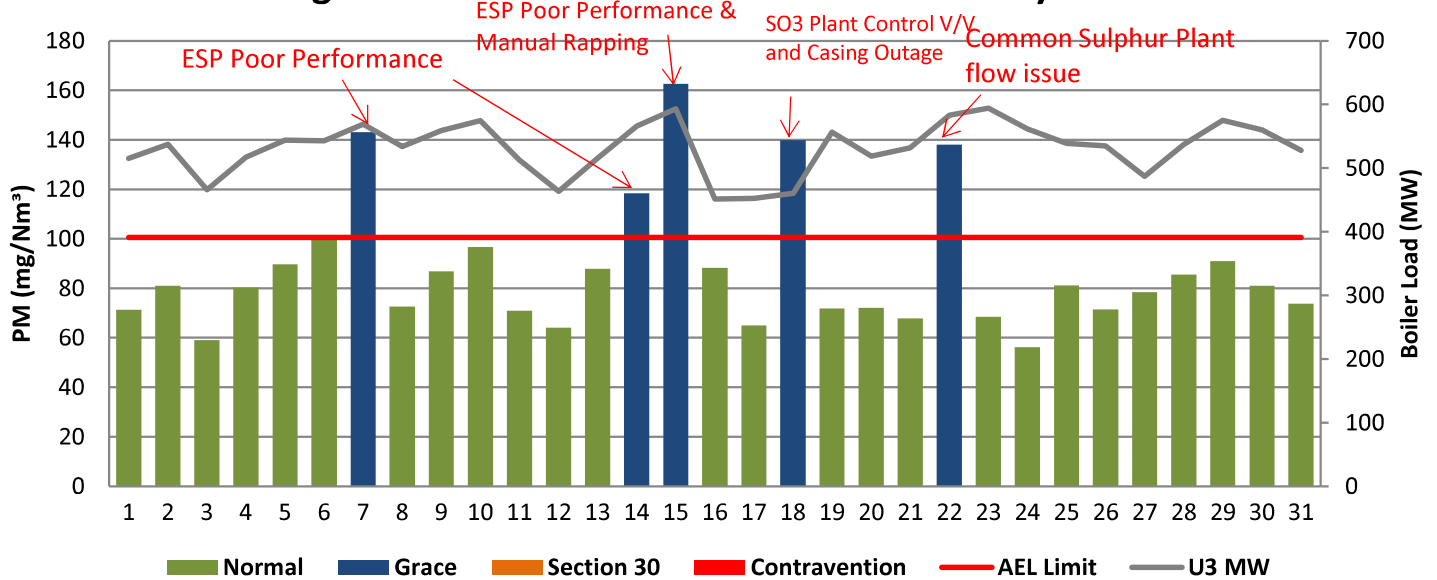


Figure 4: Lethabo Unit 4 PM Emissions - July 2021

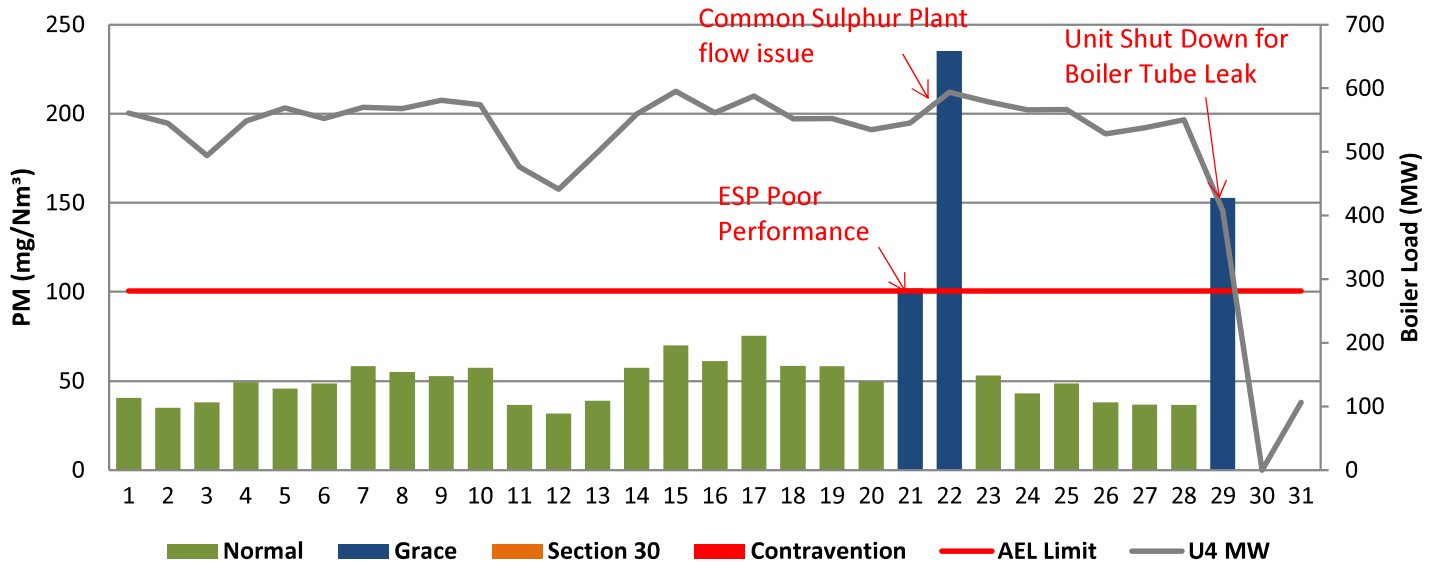


Figure 5: Lethabo Unit 5 PM Emissions - July 2021

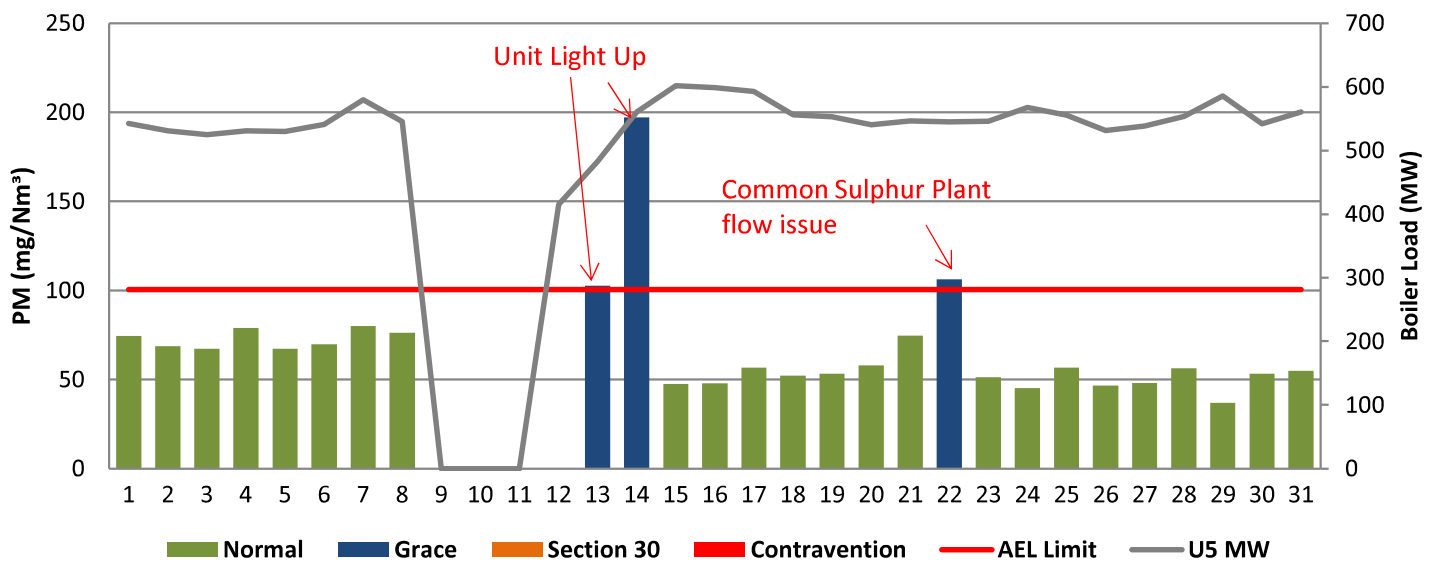


Figure 6: Lethabo Unit 6 PM Emissions - July 2021

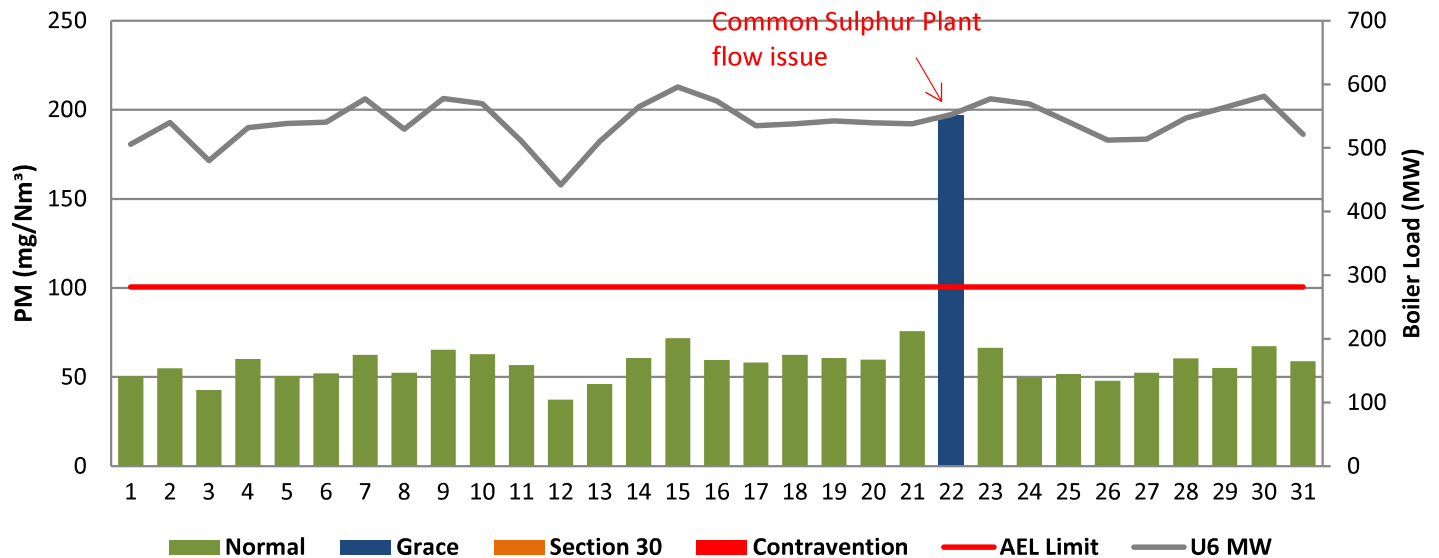


Figure 7: Lethabo Unit 1 SOx Emissions - July 2021

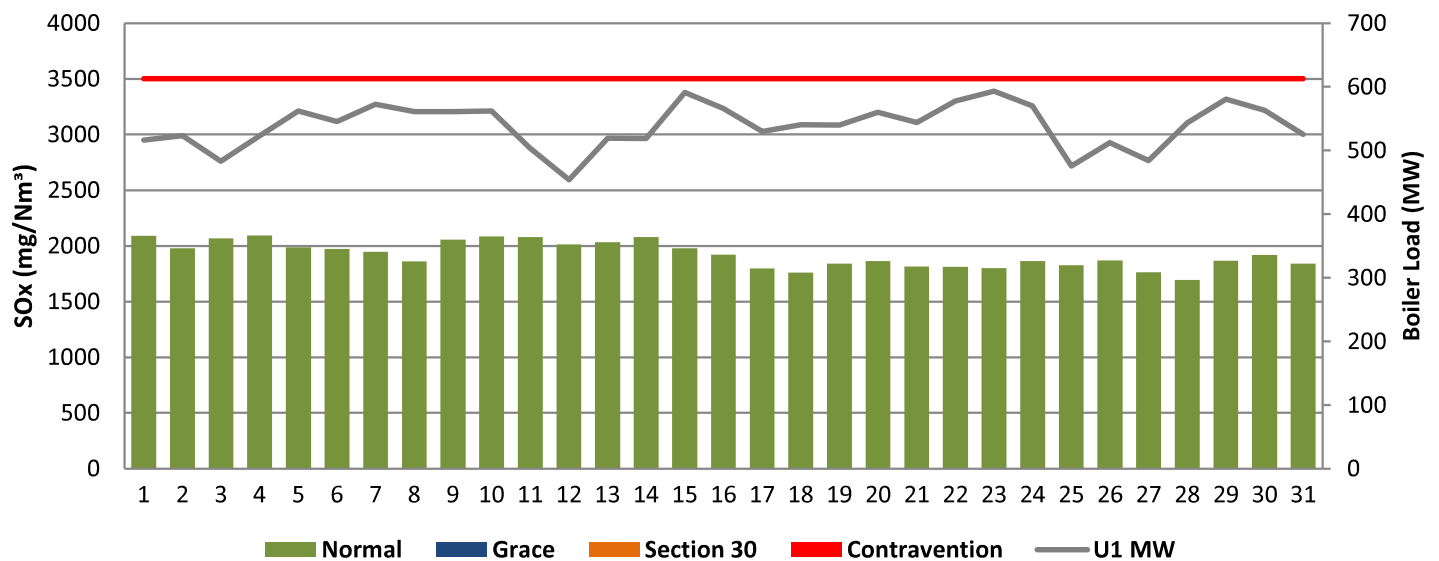


Figure 8: Lethabo Unit 2 SOx Emissions - July 2021

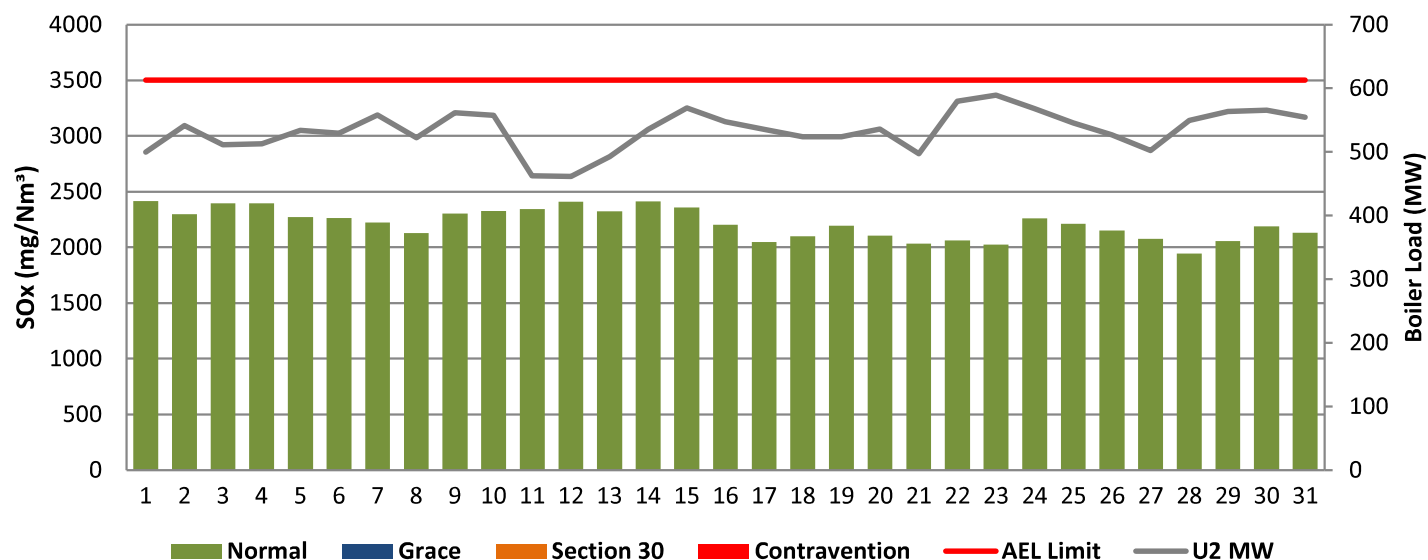


Figure 9: Lethabo Unit 3 SOx Emissions - July 2021

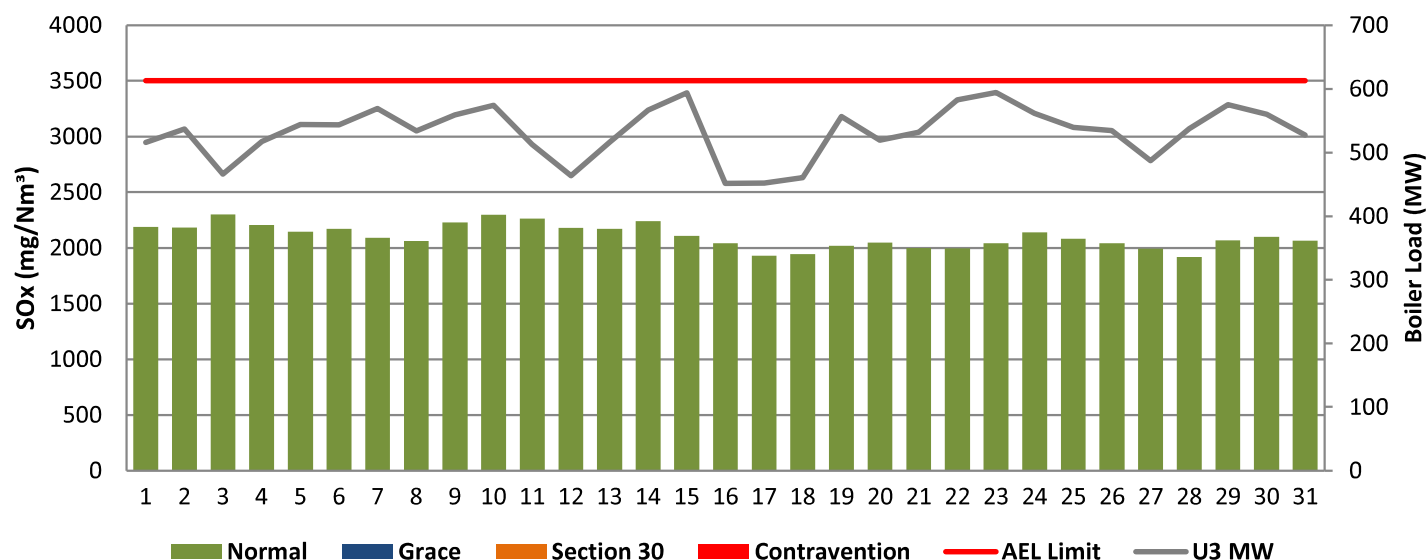


Figure 10: Lethabo Unit 4 SOx Emissions - July 2021

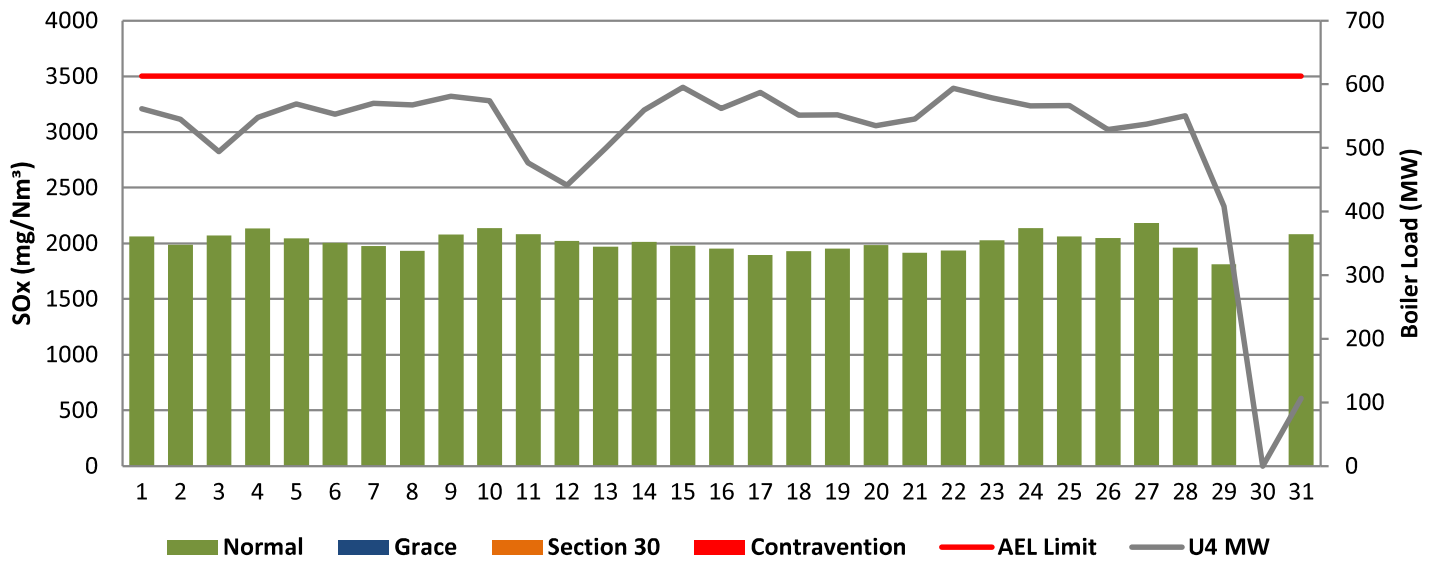


Figure 11: Lethabo Unit 5 SOx Emissions - July 2021

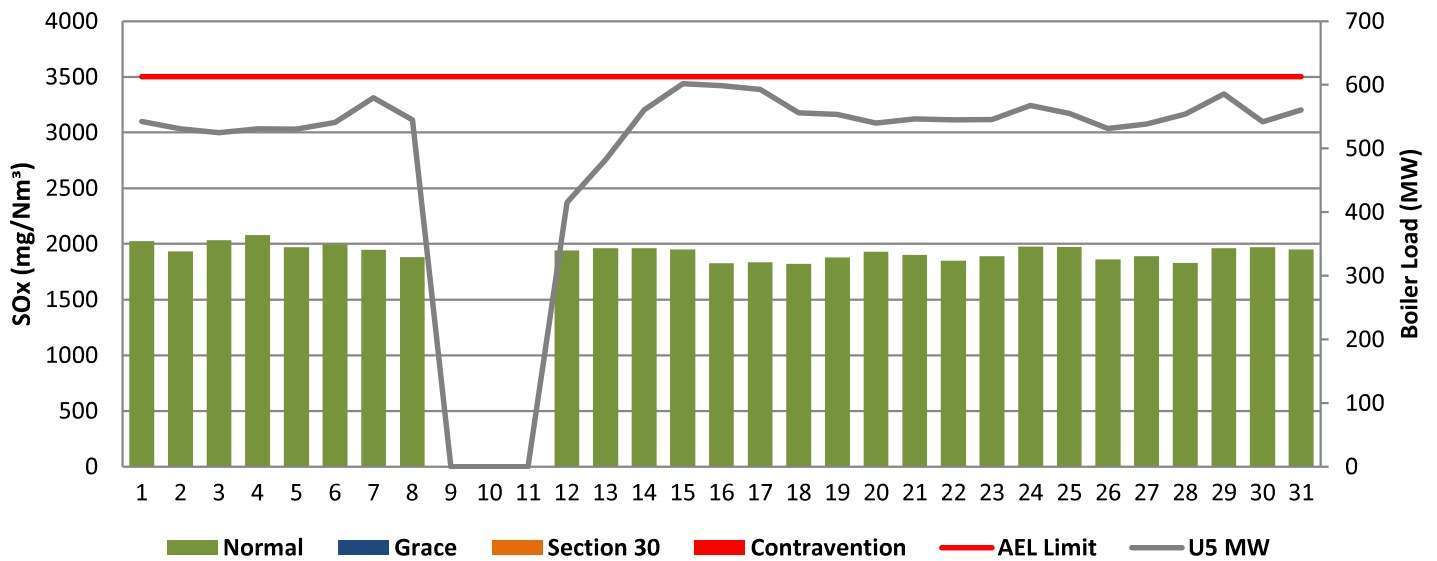


Figure 12: Lethabo Unit 6 SOx Emissions - July 2021

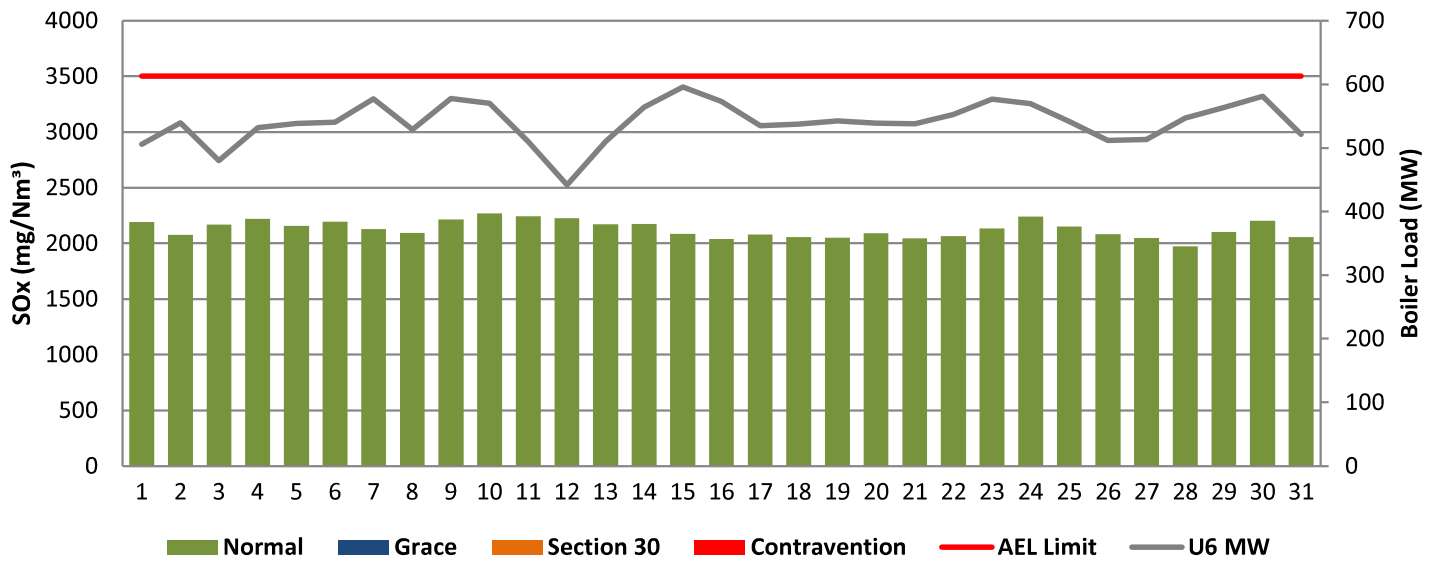


Figure 13: Lethabo Unit 1 NOx Emissions - July 2021

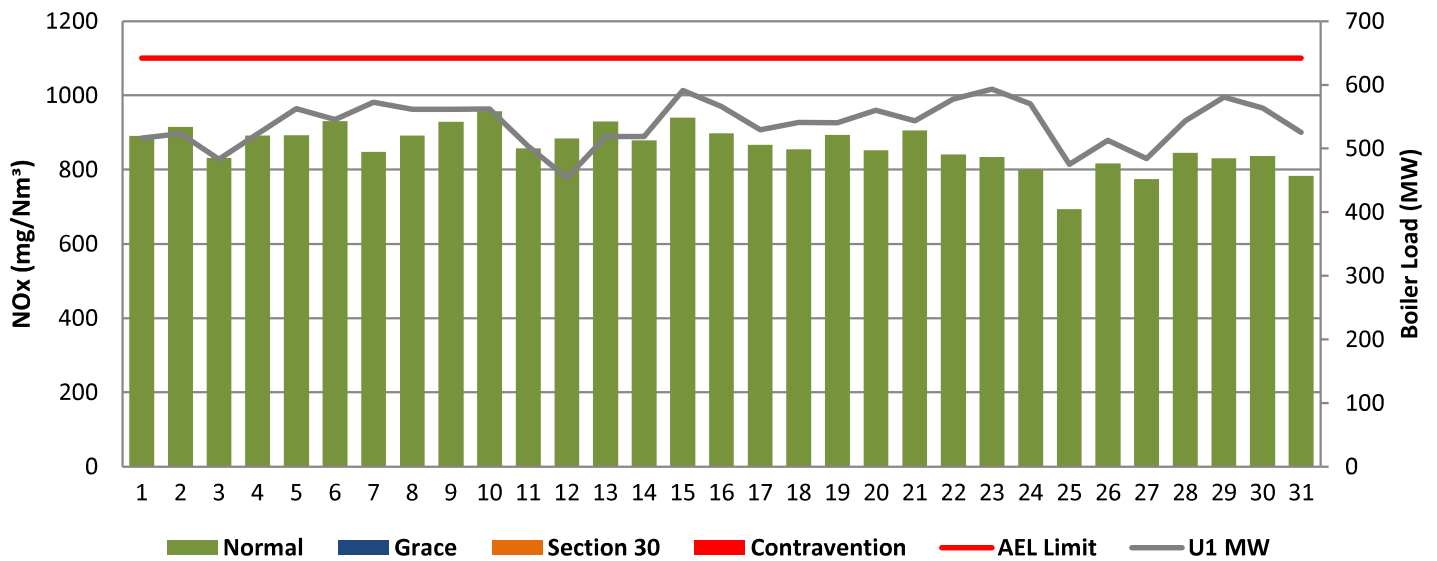


Figure 14: Lethabo Unit 2 NOx Emissions - July 2021

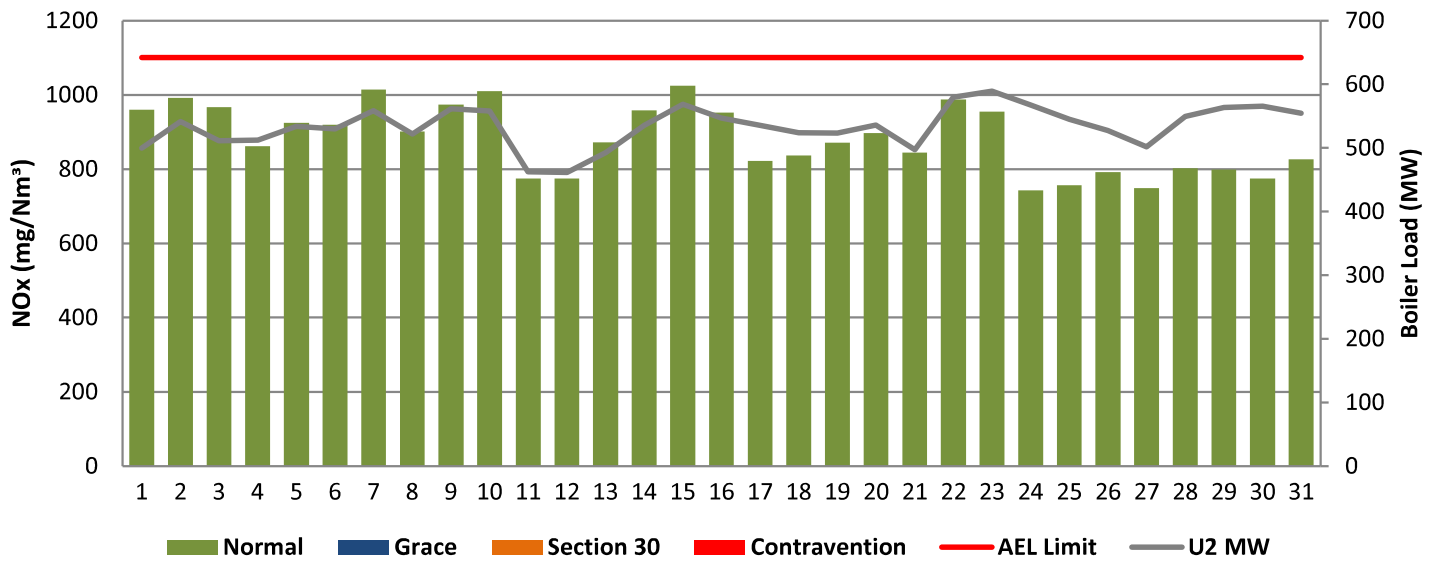


Figure 15: Lethabo Unit 3 NOx Emissions - July 2021

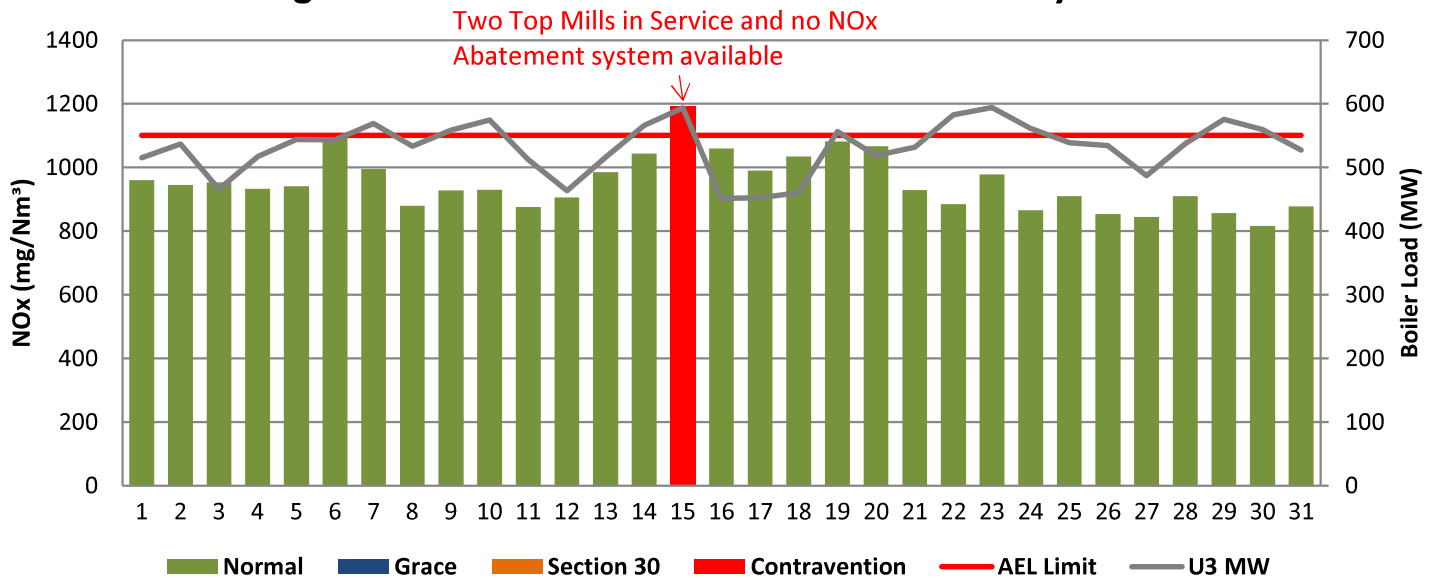


Figure 16: Lethabo Unit 4 NOx Emissions - July 2021

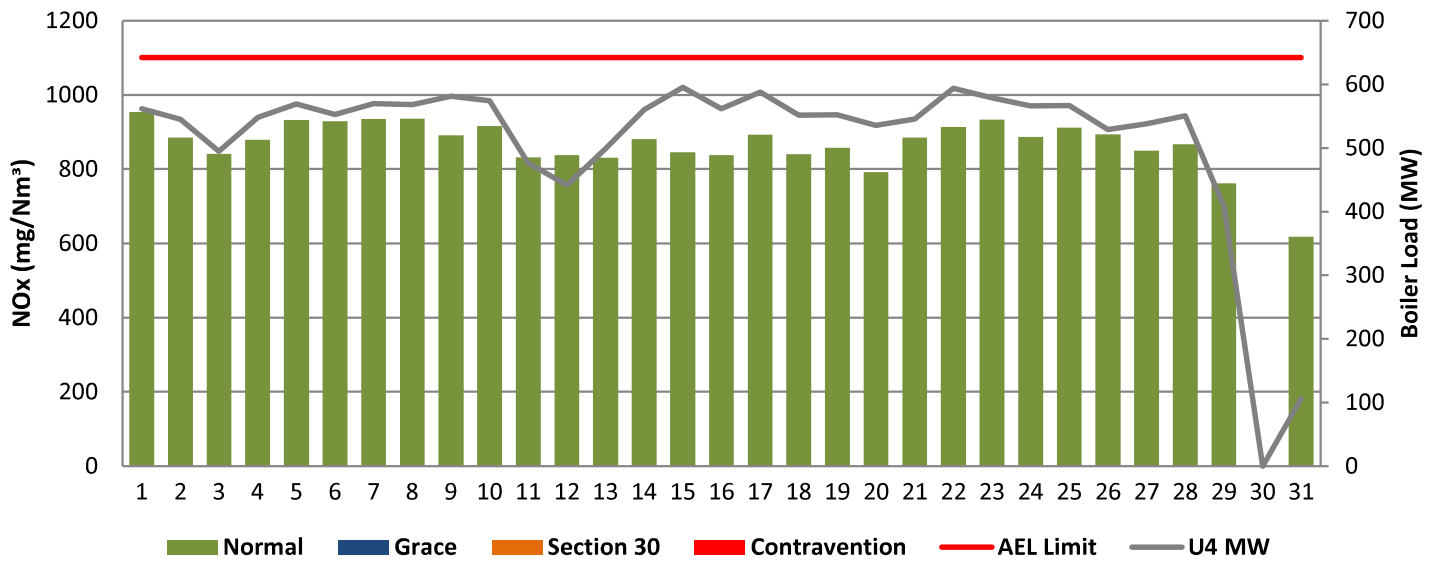


Figure 17: Lethabo Unit 5 NOx Emissions - July 2021

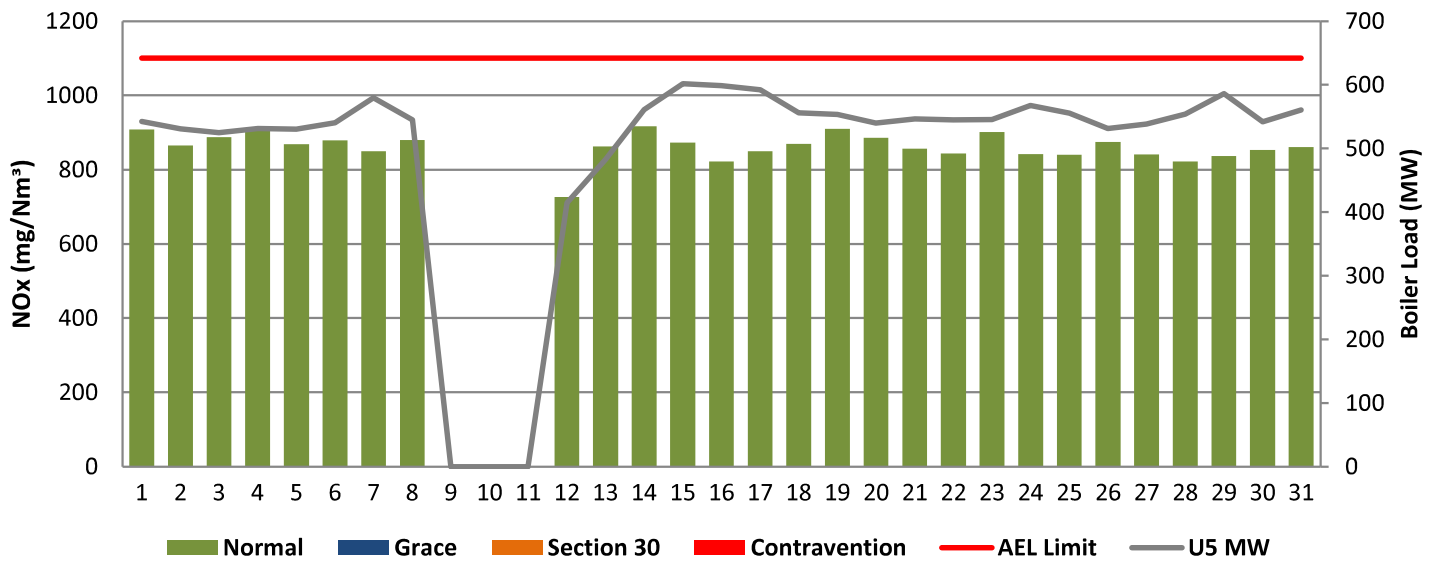
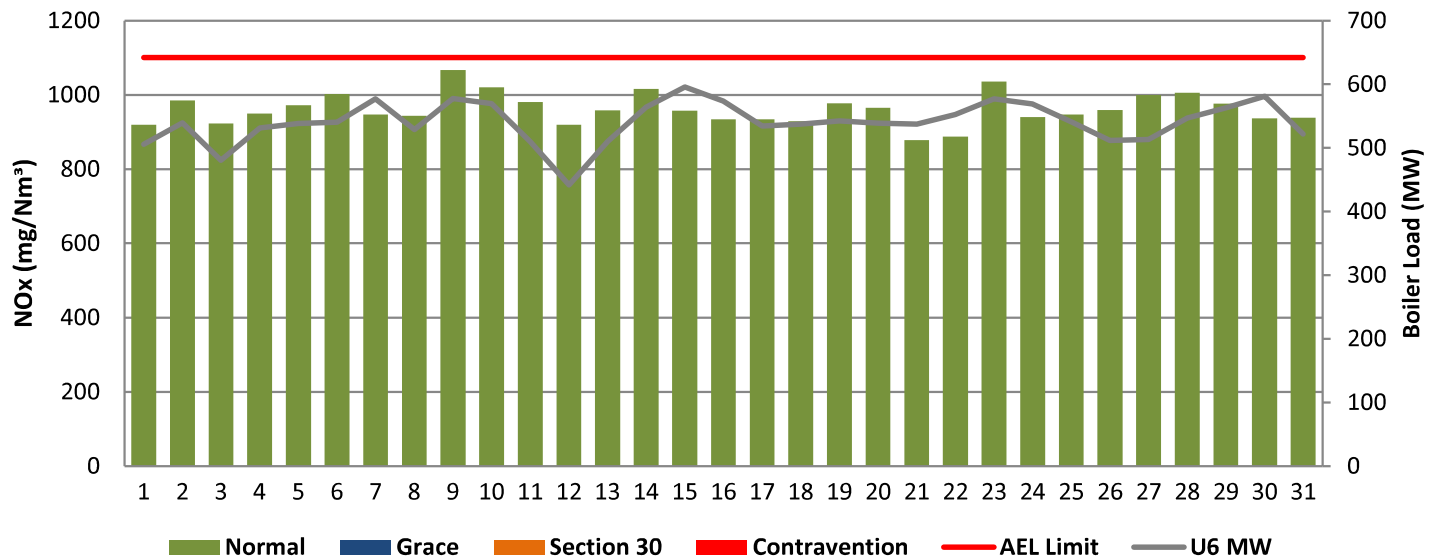


Figure 18: Lethabo Unit 6 NOx Emissions - July 2021



7 SHUT DOWN AND LIGHT UP INFORMATION

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

Unit No.1	Unit tripped due to Turb in/inner case DT protection							
Breaker Open (BO)	9:00 AM	2021/07/14						
Draught Group (DG) Shut Down (SD)	DG did not trip or SD	DG did not trip or SD						
BO to DG SD (duration)	n/a	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								
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								
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>Main turbine over speed test</i>		<i>Boiler tube leak</i>					
Breaker Open (BO)	<i>10:35 PM</i>	<i>2021/07/10</i>	<i>2:20 AM</i>	<i>2021/07/29</i>				
Draught Group (DG) Shut Down (SD)	<i>DG did not trip or SD</i>	<i>DG did not trip or SD</i>	<i>3:40 PM</i>	<i>2021/07/29</i>				
BO to DG SD (duration)	<i>n/a</i>	DD:HH:MM	<i>00:13:20</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time			<i>4:05 PM</i>	<i>2021/07/31</i>				
Synch. to Grid (or BC)			<i>10:54 PM</i>	<i>2021/07/31</i>				
Fires in to BC (duration)		DD:HH:MM	<i>00:06:49</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)			<i>6:00 AM</i>	<i>2021/08/02</i>				
Emissions below limit from BC (duration)		DD:HH:MM	<i>01:07:06</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM

Unit No.5	<i>HP heater & boiler valves repairs</i>							
Breaker Open (BO)	11:30 PM	2021/07/08						
Draught Group (DG) Shut Down (SD)	2:35 AM	2021/07/10						
BO to DG SD (duration)	01:03:05	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	2:45 AM	2021/07/12						
Synch. to Grid (or BC)	6:20 AM	2021/07/12						
Fires in to BC (duration)	00:03:35	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	3:00 AM	2021/07/14						
Emissions below limit from BC (duration)	01:20:40	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 July 2021 in mg/Nm³

8. MAINTENANCE

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

Unit 2				
Beginning of				
Reason for Maintenance				
End (Time):				
Duration				

Unit 3				
Beginning of	2021/07/16 00:01	2021/07/18 00:16		
Reason for Maintenance	SO3 Plant Repair	RHI Precip casing repairs.		
End (Time):	2021/07/18 18:36	2021/07/18 18:36		
Duration	66:35:00	18:20:00		

Unit 4				
Beginning of				
Reason for Maintenance				
End (Time):				
Duration				

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

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

9. GENERAL

Monitor Issues:

Unit 1: A step change was noted on the O2 monitors in Stack 1 from 12/06/2021 23:33 to 16/07/2021 13:00 when it was corrected. A correction factor of reducing the raw values by 6.12% was applied for the period.

Unit 2: A step change was noted on the O2 monitors in Stack 1 from 12/06/2021 23:33 to 16/07/2021 14:15 when it was corrected. A correction factor of reducing the raw values by 7.2% was applied for the period. This lead to a reduction to a NOx exceedance on the 13th June 2021.

Unit 3: A step change was noted on the O2 monitors in Stack 1 from 12/06/2021 23:33 to 16/07/2021 13:16 when it was corrected. A correction factor of reducing the raw values by 9.24% was applied for the period.

The monitor availability and reliabilty was not affected as data was corrected by means of correction factor for all three units.

Unit 3:

NOx Exceedance on 15/07/2021 :Two Top Mills in Service and there is no NOx Abatement system. Correction factor applied to O2 readings due to a step change that was noted on all 3 O2 Monitors in Stack 1. Noted as true Nox exceedance

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.
3	15/07/2021	15/07/2021	Two Top Mills in Service and No Nox Abatement Technology, and O2 Monitor issues	Install Low NOx Burners. Correction factor applied to correct O2 monitor	N/A	N/A	None		NOx exceedances - Legal Contravention

11. PARTICULATE EMISSIONS

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

MONTH	UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 5	UNIT 6	STATION
Aug-20	0.25	0.57	0.41	0.33	0.31	0.39	0.36
Sep-20	0.22	0.51	OFF	0.25	0.20	0.32	0.29
Oct-20	0.30	0.54	OFF	0.26	0.32	0.31	0.34
Nov-20	0.42	0.49	OFF	0.40	0.32	0.41	0.41
Dec-20	0.46	0.94	OFF	0.66	0.54	0.48	0.63
Jan-21	0.75	0.66	0.68	0.39	0.40	0.54	0.53
Feb-21	OFF	0.64	0.59	0.49	0.51	0.52	0.56
Mar-21	OFF	0.80	0.54	0.45	0.46	0.42	0.54
Apr-21	0.78	0.49	0.52	0.43	0.31	0.48	0.47
May-21	0.33	0.45	0.42	0.53	0.49	0.49	0.46
Jun-21	0.26	0.63	0.37	0.36	0.35	0.33	0.38
Jul-21	0.23	0.55	0.43	0.31	0.27	0.29	0.35

ADDENDUM TO MONTHLY EMISSIONS REPORT

12. DAILY EMISSIONS FIGURES

Final Dust Concentration (mg/Nm³)							Limit
Date	U1	U2	U3	U4	U5	U6	
01-Jul	25	62	71	41	75	50	100
02-Jul	26	82	81	35	69	55	100
03-Jul	29	78	59	38	67	43	100
04-Jul	39	82	80	49	79	60	100
05-Jul	43	81	90	46	67	50	100
06-Jul	42	132	100	49	70	52	100
07-Jul	56	180	143	58	80	62	100
08-Jul	58	83	73	55	76	52	100
09-Jul	50	179	87	53	OFF	65	100
10-Jul	78	186	97	58	OFF	63	100
11-Jul	77	71	71	36	OFF	57	100
12-Jul	55	76	64	32	OFF	37	100
13-Jul	53	89	88	39	103	46	100
14-Jul	115	112	118	57	197	61	100
15-Jul	62	141	163	70	48	72	100
16-Jul	53	75	88	61	48	59	100
17-Jul	39	83	65	75	57	58	100
18-Jul	43	79	140	59	52	63	100
19-Jul	49	87	72	58	53	61	100
20-Jul	53	95	72	50	58	60	100
21-Jul	84	92	68	102	75	76	100
22-Jul	154	212	138	235	106	196	100
23-Jul	62	87	68	53	51	66	100
24-Jul	42	61	56	43	45	50	100
25-Jul	33	64	81	48	57	52	100
26-Jul	42	55	71	38	47	48	100
27-Jul	42	58	78	37	48	52	100
28-Jul	56	76	86	37	56	61	100
29-Jul	63	78	91	153	37	55	100
30-Jul	68	80	81	OFF	53	67	100
31-Jul	64	86	74	OFF	55	59	100

ADDENDUM TO MONTHLY EMISSIONS REPORT

Final SOx Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
01-Jul	2093	2415	2189	2060	2025	2192	3500
02-Jul	1979	2298	2184	1987	1934	2077	3500
03-Jul	2068	2394	2302	2071	2034	2170	3500
04-Jul	2095	2394	2206	2134	2079	2219	3500
05-Jul	1989	2272	2148	2044	1971	2157	3500
06-Jul	1974	2264	2170	2005	1997	2194	3500
07-Jul	1948	2224	2091	1976	1948	2127	3500
08-Jul	1861	2128	2061	1931	1881	2093	3500
09-Jul	2056	2304	2229	2081	OFF	2214	3500
10-Jul	2087	2328	2299	2137	OFF	2269	3500
11-Jul	2080	2343	2264	2083	OFF	2242	3500
12-Jul	2012	2409	2179	2021	1941	2226	3500
13-Jul	2032	2325	2173	1970	1963	2173	3500
14-Jul	2080	2413	2238	2015	1961	2176	3500
15-Jul	1980	2358	2107	1978	1951	2084	3500
16-Jul	1922	2203	2043	1954	1826	2040	3500
17-Jul	1800	2048	1930	1894	1835	2080	3500
18-Jul	1759	2100	1943	1928	1822	2056	3500
19-Jul	1840	2194	2020	1953	1878	2051	3500
20-Jul	1864	2106	2049	1985	1931	2091	3500
21-Jul	1817	2035	2001	1916	1900	2044	3500
22-Jul	1813	2064	1998	1935	1848	2066	3500
23-Jul	1802	2024	2042	2028	1892	2133	3500
24-Jul	1864	2261	2142	2137	1976	2241	3500
25-Jul	1828	2213	2083	2062	1974	2154	3500
26-Jul	1869	2153	2043	2046	1862	2081	3500
27-Jul	1763	2077	1994	2181	1891	2048	3500
28-Jul	1695	1943	1918	1963	1829	1972	3500
29-Jul	1866	2058	2068	1814	1963	2101	3500
30-Jul	1918	2188	2099	OFF	1969	2203	3500
31-Jul	1842	2129	2065	2083	1952	2056	3500

ADDENDUM TO MONTHLY EMISSIONS REPORT

Final NOx Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
01-Jul	891	960	960	954	908	920	1100
02-Jul	915	992	945	885	865	985	1100
03-Jul	831	967	952	841	887	923	1100
04-Jul	892	861	933	879	907	950	1100
05-Jul	893	925	941	932	868	972	1100
06-Jul	931	919	1096	929	879	1003	1100
07-Jul	848	1014	995	936	850	947	1100
08-Jul	893	901	879	937	880	943	1100
09-Jul	930	974	928	892	OFF	1067	1100
10-Jul	957	1010	930	916	OFF	1020	1100
11-Jul	858	774	876	832	OFF	980	1100
12-Jul	883	775	906	838	726	920	1100
13-Jul	931	872	985	831	863	958	1100
14-Jul	879	959	1043	881	917	1016	1100
15-Jul	940	1025	1193	845	873	958	1100
16-Jul	898	952	1060	838	822	934	1100
17-Jul	866	822	990	893	850	934	1100
18-Jul	855	837	1034	840	870	929	1100
19-Jul	894	870	1082	858	910	977	1100
20-Jul	852	897	1067	792	886	965	1100
21-Jul	906	844	928	885	857	879	1100
22-Jul	841	987	885	913	844	888	1100
23-Jul	834	955	978	934	901	1036	1100
24-Jul	799	743	866	886	842	940	1100
25-Jul	694	757	910	912	841	947	1100
26-Jul	817	793	853	894	874	959	1100
27-Jul	774	750	844	850	842	1000	1100
28-Jul	846	802	910	867	822	1006	1100
29-Jul	831	799	857	761	837	976	1100
30-Jul	836	774	816	OFF	853	936	1100
31-Jul	784	826	878	618	861	938	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-20	100.00%	0.0	100.00%	0.0	98.39%	2.0	100.00%	0.0	98.39%	2.0	100.00%	0.0
Sep-20	98.33%	2.0	98.33%	2.0	OFF LOAD	0.0	100.00%	0.0	100.00%	0.0	100.00%	0.0
Oct-20	99.19%	1.0	99.19%	1.0	OFF LOAD	0.0	100.00%	0.0	99.19%	1.0	100.00%	0.0
Nov-20	97.50%	3.0	98.33%	2.0	OFF LOAD	0.0	100.00%	0.0	100.00%	0.0	99.17%	1.0
Dec-20	98.39%	2.0	97.58%	3.0	OFF LOAD	0.0	100.00%	0.0	99.19%	1.0	100.00%	0.0
Jan-21	100.00%	0.0	99.19%	1.0	100%	0.0	100.00%	0.0	99.19%	1.0	99.19%	1.0
Feb-21	OFF LOAD	0.0	99.11%	1.0	98%	2.0	100.00%	0.0	100.00%	0.0	100.00%	0.0
Mar-21	OFF LOAD	0.0	97.58%	3.0	99%	1.0	100.00%	0.0	100.00%	0.0	100.00%	0.0
Apr-21	100.00%	0.0	100.00%	0.0	97.75%	2.7	99.23%	0.9	100.00%	0.0	98.48%	1.8
May-21	88.70%	2.0	100.00%	0.0	100.00%	0.0	100.00%	0.0	88.82%	1.9	100.00%	0.0
Jun-21	98.59%	1.7	99.28%	0.9	99.18%	1.0	100.00%	0.0	100.00%	0.0	100.00%	0.0
Jul-21	100.00%	0.0	100.00%	0.0	99.38%	0.8	100.00%	0.0	100.00%	0.0	100.00%	0.0

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-20	93.55%	2.0	100.00%	0.0	100.00%	0.0	100.00%	0.0	77.42%	7.0	100.00%	0.0
Sep-20	100.00%	0.0	93.33%	2.0	100.00%	0.0	100.00%	0.0	100.00%	0.0	100.00%	0.0
Oct-20	100.00%	0.0	100.00%	0.0	100.00%	0.0	100.00%	0.0	100.00%	0.0	100.00%	0.0
Nov-20	100.00%	0.0	96.67%	1.0	OFF LOAD	0.0	100.00%	0.0	100.00%	0.0	100.00%	0.0
Dec-20	100.00%	0.0	100.00%	0.0	OFF LOAD	0.0	100.00%	0.0	93.55%	2.0	100.00%	0.0
Jan-21	57.14%	3.0	100.00%	0.0	84%	5.0	100.00%	0.0	96.77%	1.0	100.00%	0.0
Feb-21	OFF LOAD	0.0	100.00%	0.0	96%	1.0	92.86%	2.0	100.00%	0.0	100.00%	0.0
Mar-21	OFF LOAD	0.0	100.00%	0.0	100%	0.0	100.00%	0.0	87.10%	4.0	100.00%	0.0
Apr-21	85.06%	4.5	100.00%	0.0	88.46%	3.5	100.00%	0.0	99.33%	0.2	100.00%	0.0
May-21	100.00%	0.0	100.00%	0.0	81.77%	2.7	76.09%	4.4	78.12%	3.8	100.00%	0.0
Jun-21	100.00%	0.0	100.00%	0.0	92.28%	2.3	100.00%	0.0	100.00%	0.0	100.00%	0.0
Jul-21	100.00%	0.0	100.00%	0.0	91.05%	2.8	100.00%	0.0	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
Aug-20	100.00%	100.00%	99.85%	100.00%	98.22%	100.00%
Sep-20	99.84%	99.63%	OFF	100.00%	100.00%	100.00%
Oct-20	98.79%	99.19%	OFF	99.33%	99.19%	100.00%
Nov-20	94.04%	94.58%	OFF	97.17%	97.28%	99.69%
Dec-20	98.99%	99.01%	OFF	98.92%	93.67%	99.19%
Jan-21	86.90%	99.60%	99.74%	100.00%	91.53%	99.44%
Feb-21	OFF	99.70%	98.46%	100.00%	94.64%	98.90%
Mar-21	OFF	99.87%	99.06%	96.15%	99.60%	100.00%
Apr-21	83.69%	99.65%	99.28%	99.58%	99.86%	99.87%
May-21	99.01%	100.00%	94.83%	99.72%	97.31%	99.38%
Jun-21	99.72%	99.17%	99.31%	99.83%	99.86%	99.82%
Jul-21	98.12%	99.60%	99.87%	99.04%	98.22%	99.06%

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-20	99.91%	99.91%	100.00%	100.00%	99.85%	99.85%	100.00%	100.00%	100.00%	100.00%	96.55%	96.53%
Sep-20	100.00%	100.00%	99.86%	99.86%	OFF	OFF	100.00%	100.00%	100.00%	100.00%	99.77%	99.77%
Oct-20	99.87%	100.00%	99.87%	99.60%	OFF	OFF	99.46%	99.46%	99.46%	99.46%	99.46%	99.46%
Nov-20	97.66%	97.66%	97.64%	97.78%	OFF	OFF	94.14%	94.14%	94.55%	94.55%	94.64%	94.64%
Dec-20	99.17%	99.17%	98.89%	99.05%	OFF	OFF	99.22%	99.22%	95.32%	95.32%	99.33%	99.33%
Jan-21	99.56%	99.56%	99.60%	99.73%	99.12%	99.12%	92.39%	92.39%	99.87%	99.87%	100.00%	100.00%
Feb-21	OFF	OFF	99.70%	99.70%	99.70%	99.70%	92.56%	92.71%	98.65%	98.65%	98.27%	98.52%
Mar-21	OFF	OFF	100.00%	100.00%	100.00%	100.00%	96.07%	96.07%	99.97%	99.97%	99.60%	99.60%
Apr-21	99.47%	99.76%	99.83%	99.83%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	99.84%	99.84%
May-21	94.33%	94.33%	99.87%	100.00%	100.00%	100.00%	99.87%	99.87%	100.00%	100.00%	100.00%	100.00%
Jun-21	99%	99%	99.72%	99.86%	100%	100%	99.76%	99.76%	99.86%	99.86%	99.71%	99.71%
Jul-21	99.73%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	98.66%	98.66%	98.79%	98.92%

Oxygen Monitor Availability						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Aug-20	99.86%	99.92%	99.85%	100.00%	100.00%	96.67%
Sep-20	99.68%	99.86%	OFF	100.00%	100.00%	98.97%
Oct-20	99.73%	99.87%	0.00%	99.33%	99.33%	99.46%
Nov-20	99.45%	99.72%	OFF	93.97%	94.55%	94.64%
Dec-20	99.31%	98.85%	OFF	99.22%	95.32%	99.33%
Jan-21	99.56%	99.06%	99.54%	100.00%	99.87%	99.87%
Feb-21	OFF	99.70%	99.55%	99.26%	98.32%	98.52%
Mar-21	OFF	100.00%	100.00%	96.43%	99.97%	99.87%
Apr-21	99.40%	98.91%	99.87%	99.72%	100.00%	99.37%
May-21	94.16%	99.87%	99.86%	99.87%	99.87%	98.63%
Jun-21	99.58%	99.79%	99.72%	99.76%	99.72%	99.55%
Jul-21	100.00%	99.87%	99.60%	99.52%	98.73%	98.79%

ADDENDUM TO MONTHLY EMISSIONS REPORT

14. EFFICIENCY

ESP Efficiency (%)						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Aug-20	99.894%	99.738%	99.818%	99.855%	99.856%	99.819%
Sep-20	99.904%	99.757%	OFF	99.882%	99.906%	99.848%
Oct-20	99.866%	99.744%	OFF	99.876%	99.845%	99.850%
Nov-20	99.835%	99.792%	OFF	99.833%	99.863%	99.822%
Dec-20	99.816%	99.605%	OFF	99.734%	99.779%	99.791%
Jan-21	99.622%	99.689%	99.717%	99.832%	99.813%	99.745%
Feb-21	OFF	99.722%	99.736%	99.799%	99.779%	99.775%
Mar-21	OFF	99.659%	99.769%	99.823%	99.802%	99.817%
Apr-21	99.679%	99.788%	99.777%	99.825%	99.858%	99.788%
May-21	99.866%	99.809%	99.825%	99.791%	99.782%	99.786%
Jun-21	99.894%	99.724%	99.844%	99.856%	99.839%	99.852%
Jul-21	99.916%	99.756%	99.819%	99.879%	99.887%	99.838%

ADDENDUM TO MONTHLY EMISSIONS REPORT

15. REMARKS

UNIT	MWLOSS	REASON	ACTUALSTARTDATE	ACTUALENDDATE
1	593	Unit tripped due to Turb in/inner case DT protection	2021/07/14 08:53:00	2021/07/14 10:58:00
1	297	System Generated Ramp Event for Event id : 1580452	2021/07/14 10:58:00	2021/07/14 12:28:00
3	193	S03 plant repairs.	2021/07/16 00:01:00	2021/07/16 10:08:00
3	217	S03 plant repairs	2021/07/16 10:08:00	2021/07/16 17:01:00
3	213	S03 plant repairs.	2021/07/16 22:42:00	2021/07/17 17:29:00
3	118	SO3 plant repairs	2021/07/18 00:16:00	2021/07/18 18:36:00
4	593	Main turbine over speed test	2021/07/10 22:27:00	2021/07/11 00:13:00
4	297	System Generated Ramp Event for Event id : 1579267	2021/07/11 00:13:00	2021/07/11 01:43:00
4	593	Boiler tube leak	2021/07/29 02:15:00	2021/07/31 11:00:00
4	593	AM: Diesel Gen Bd A trfr flr. 275Kv Bkr protec. flr.	2021/07/31 11:00:00	2021/07/31 22:54:00
4	297	System Generated Ramp Event for Event id : 1585806	2021/07/31 22:54:00	2021/07/31 23:59:59
5	593	HP heater & boiler valves repairs	2021/07/08 23:25:00	2021/07/11 13:57:00
5	0	Cold Reserve	2021/07/11 13:57:00	2021/07/12 06:22:00
5	297	System Generated Ramp Event for Event id : 1578567	2021/07/12 06:22:00	2021/07/12 09:22:00

PM Exceedances		
U1.	Unit 1 tripped 08:45 (Boiler also tripped) Unit 1 Synchronised at 10:59	14-Jul
U1.	Common Sulphur plant problems causing high emissions on all units since Wednesday @ 14:00 yesterday. Common Sulphur flow commenced this morning @ around 01:00 and emissions improved on all units.	22-Jul
U2.	ESP poor performance	06-Jul
U2.	ESP Poor Performance	07-Jul
U2.	ESP Poor Performance and manual rapping	09-Jul
U2.	ESP Poor Performance and manual rapping	10-Jul
U2.	High Air Flow Poor ESP Performance	14-Jul
U2.	Poor Esp performance	15-Jul
U2.	Common Sulphur plant problems causing high emissions on all units since Wednesday @ 14:00 yesterday. Common Sulphur flow commenced this morning @ around 01:00 and emissions improved on all units.	22-Jul
U3.	ESP Poor Performance	06-Jul
U3.	ESP Poor Performance	07-Jul
U3.	Poor ESP Performance	14-Jul
U3.	ESP Poor Performance and manual rapping	15-Jul
U3.	RHI Casing outage SO3 plant Sulphur control valve, work commenced	18-Jul
U3.	Common Sulphur plant problems causing high emissions on all units since Wednesday @ 14:00 yesterday. Common Sulphur flow commenced this morning @ around 01:00 and emissions improved on all units.	22-Jul
U4.	Unit 4 SOL 00:13 after physical over speed trip	11-Jul
U4.	ESP Poor performance LHO, LHI and RHO power outage is fluctuating a lot, EMS to stabilize the load.	21-Jul
U4.	Common Sulphur plant problems causing high emissions on all units since Wednesday @ 14:00 yesterday. Common Sulphur flow commenced this morning @ around 01:00 and emissions improved on all units.	22-Jul
U4.	Unit Shut Down For Boiler Tube Leak Repairs	29-Jul
U5.	Unit Shut Down for HP Heater and Boiler Valve Repairs	09-Jul
U5.	Unit Synchronised 06:22	12-Jul
U5.	Unit Light UP	13-Jul
U5.	Unit Light Up and manual rapping	14-Jul
U5.	Common Sulphur plant problems causing high emissions on all units since Wednesday @ 14:00 yesterday. Common Sulphur flow commenced this morning @ around 01:00 and emissions improved on all units.	22-Jul
U6.	Common Sulphur plant problems causing high emissions on all units since Wednesday @ 14:00 yesterday. Common Sulphur flow commenced this morning @ around 01:00 and emissions improved on all units.	22-Jul
NOX Exceedances		
U3.	Two Top Mills in Service and there is no NOx Abatement system. Correction factor applied to O2 readings due to a step change that was noted on all 3 O2 Monitors in Stack 1. Noted as true Nox exceedance	15-Jul