



Mr. Chakane Sibaya
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Date:
26 October 2021

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LRP03PLA000_0267/20211012

Dear Mr Sibaya

LETHABO POWER STATION EMISSION MONTHLY REPORT FOR SEPTEMBER 2021

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

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

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

Yours sincerely

SOLLY NGCASHI
GENERAL MANAGER

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Eskom Holdings SOC Ltd Reg No 2002/015527/30



Report


Lethabo Power Station

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

Reference number: **LRP03PLA000_0267/20211012**
Document Type: **Report**
Area of Applicability: **Environment**
Report Date: **October-2021**
Classification: **Controlled Disclosure**

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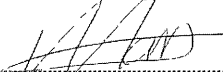
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LETHABO POWER STATION MONTHLY EMISSIONS REPORT

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 Sep-2021
	Coal	Tons	2 000 000	1 211 623
	Fuel Oil	Tons	1 700	451.78

Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Production Rate Sep-2021
	Energy	GWh	2743.2	1 796.10
	Ash	Tons	770 000	453 510.6
	RE Ash	kg/MWh	not specified	252.50

2. ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.656 (Standard)	0.670
Ash Content	%	37.37 (Standard)	37.430

***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 Sep-2021
Unit 1	<i>Electrostatic Precipitator (ESP)</i>	99.84%
Unit 2	<i>Electrostatic Precipitator (ESP)</i>	99.57%
Unit 3	<i>Electrostatic Precipitator (ESP)</i>	99.76%
Unit 4	<i>Electrostatic Precipitator (ESP)</i>	99.86%
Unit 5	<i>Electrostatic Precipitator (ESP)</i>	99.87%
Unit 6	<i>Electrostatic Precipitator (ESP)</i>	Unit Off-line

5. MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO ₂	NO	CO ₂
Unit 1	98.6	99.6	99.6	99.3
Unit 2	96.9	99.6	99.6	99.0
Unit 3	99.0	99.6	99.7	99.4
Unit 4	99.5	99.7	99.7	99.6
Unit 5	99.7	99.6	99.7	99.6
Unit 6				

6. EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of September 2021

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	151.0	2 969	1 686
Unit 2	304.6	3 616	1 327
Unit 3	205.9	3 652	1 740
Unit 4	119.1	3 792	1 714
Unit 5	100.7	3 115	1 315
Unit 6	0.0	0	0
SUM	881.4	17 144	7 781

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

Associated Unit/Stack	Normal	Grace	Section 30	Contraven- tion	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	25	5	0	0	5	93.3
Unit 2	15	8	4	0	12	181.0
Unit 3	21	9	0	0	9	105.4
Unit 4	26	1	0	0	1	63.0
Unit 5	30	0	0	0	0	60.5
Unit 6	0	0	0	0	0	
SUM	117	23	4	0	27	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contraven- tion	Total Exceedance	Average SO _x (mg/Nm ³)
Unit 1	30	0	0	0	0	1 801.9
Unit 2	28	0	0	0	0	1 908.3
Unit 3	30	0	0	0	0	1 878.2
Unit 4	28	0	0	0	0	1 952.5
Unit 5	30	0	0	0	0	1 884.3
Unit 6	0	0	0	0	0	
SUM	146	0	0	0	0	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average NOx (mg/Nm³)
Unit 1	28	0	0	2	2	1 019.2
Unit 2	28	0	0	0	0	692.5
Unit 3	29	0	0	1	1	889.6
Unit 4	28	0	0	0	0	880.1
Unit 5	30	0	0	0	0	793.9
Unit 6	0	0	0	0	0	
SUM	143	0	0	3	3	

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 - September 2021

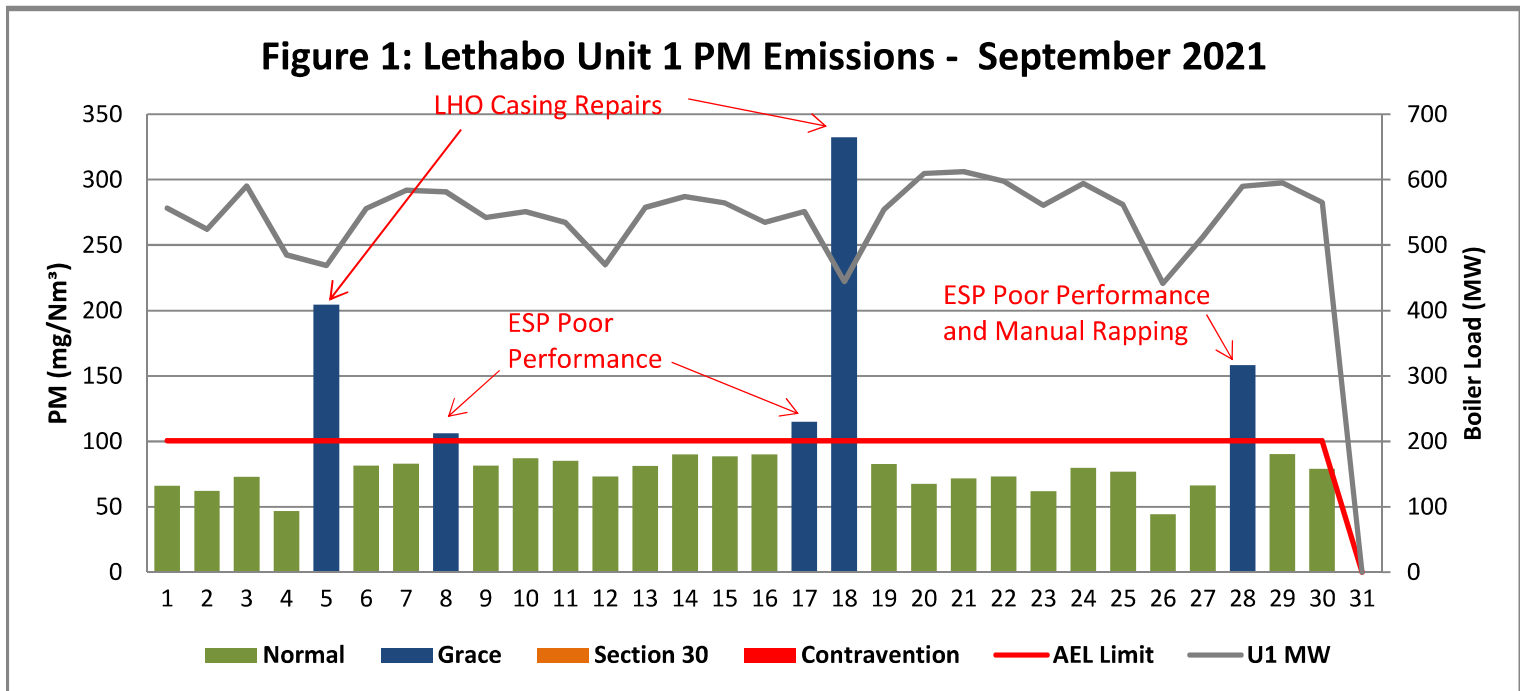


Figure 2: Lethabo Unit 2 PM Emissions - September 2021

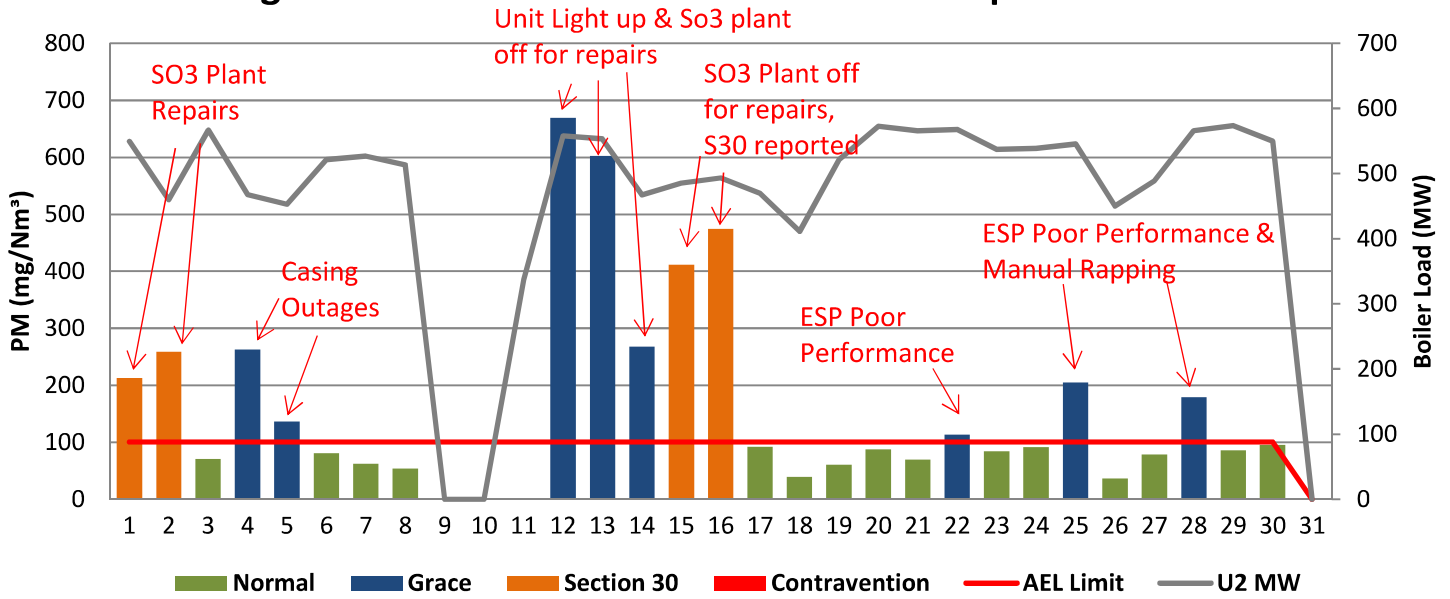


Figure 3: Lethabo Unit 3 PM Emissions - September 2021

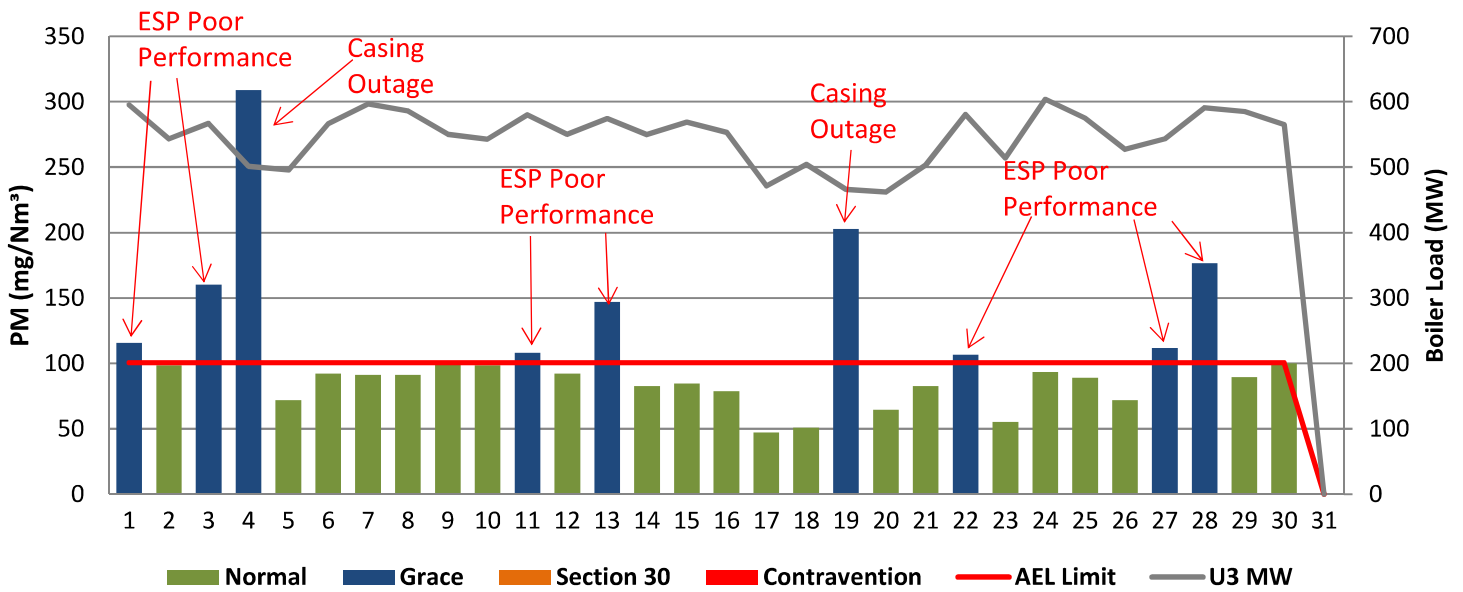


Figure 4: Lethabo Unit 4 PM Emissions - September 2021

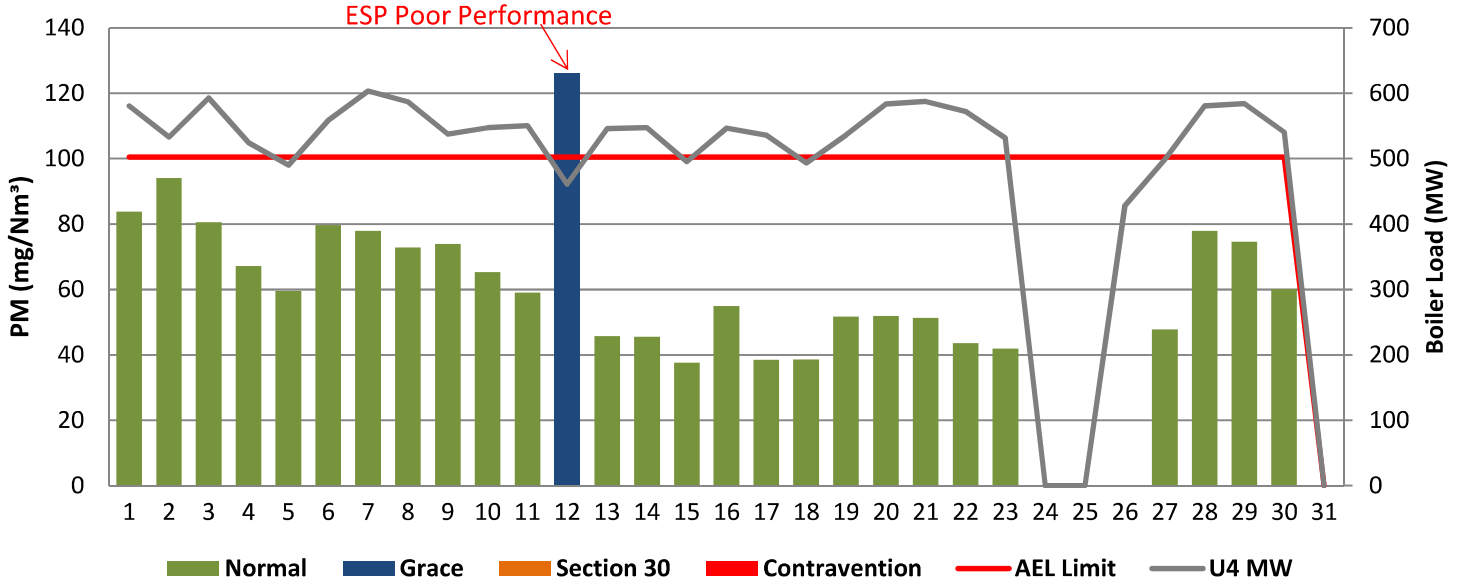


Figure 5: Lethabo Unit 5 PM Emissions - September 2021

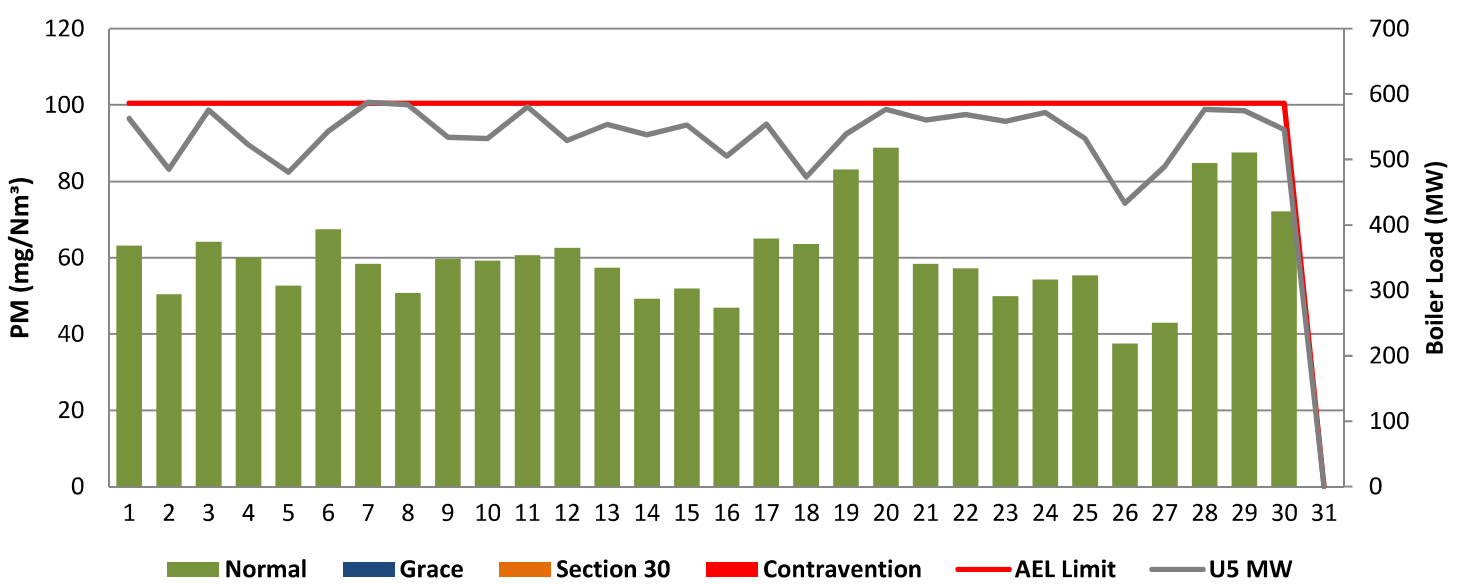


Figure 6: Lethabo Unit 6 PM Emissions - September 2021

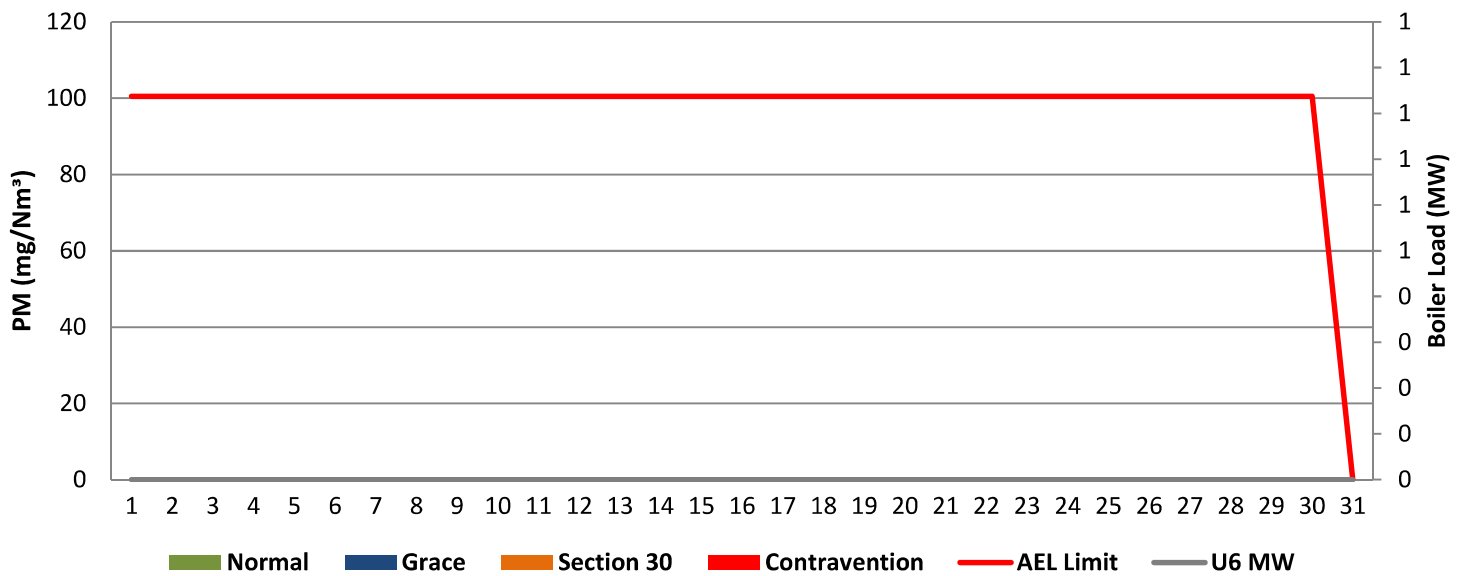


Figure 7: Lethabo Unit 1 SOx Emissions - September 2021

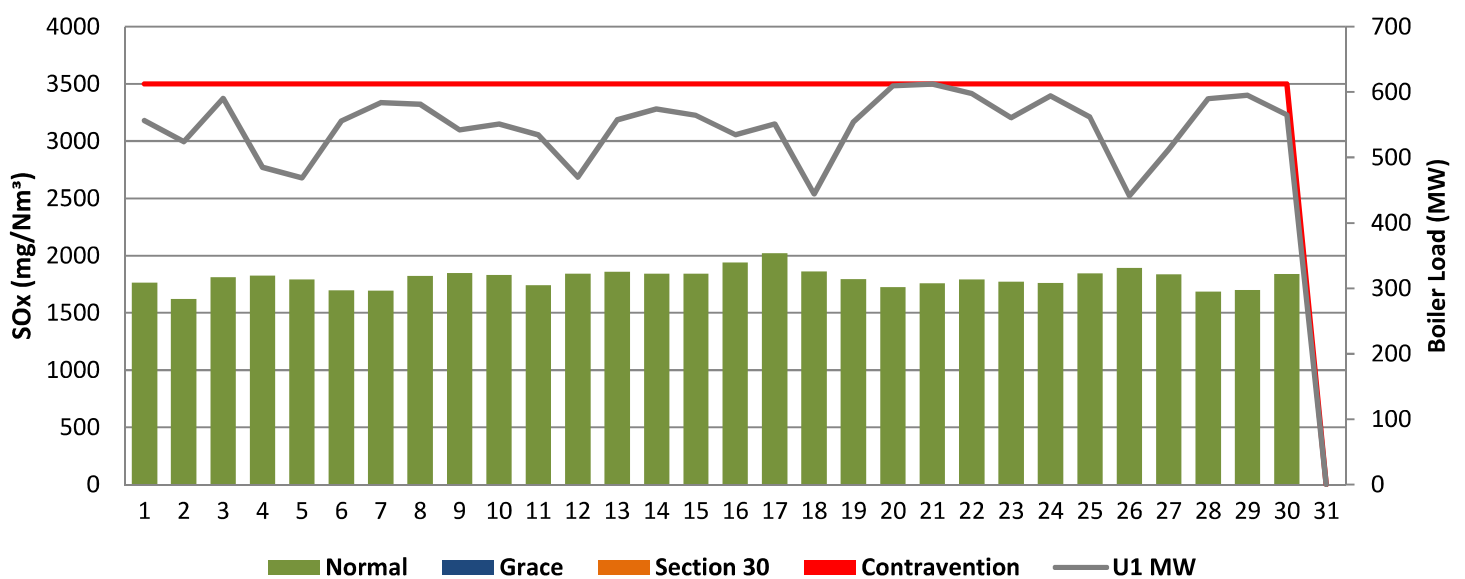


Figure 8: Lethabo Unit 2 SOx Emissions - September 2021

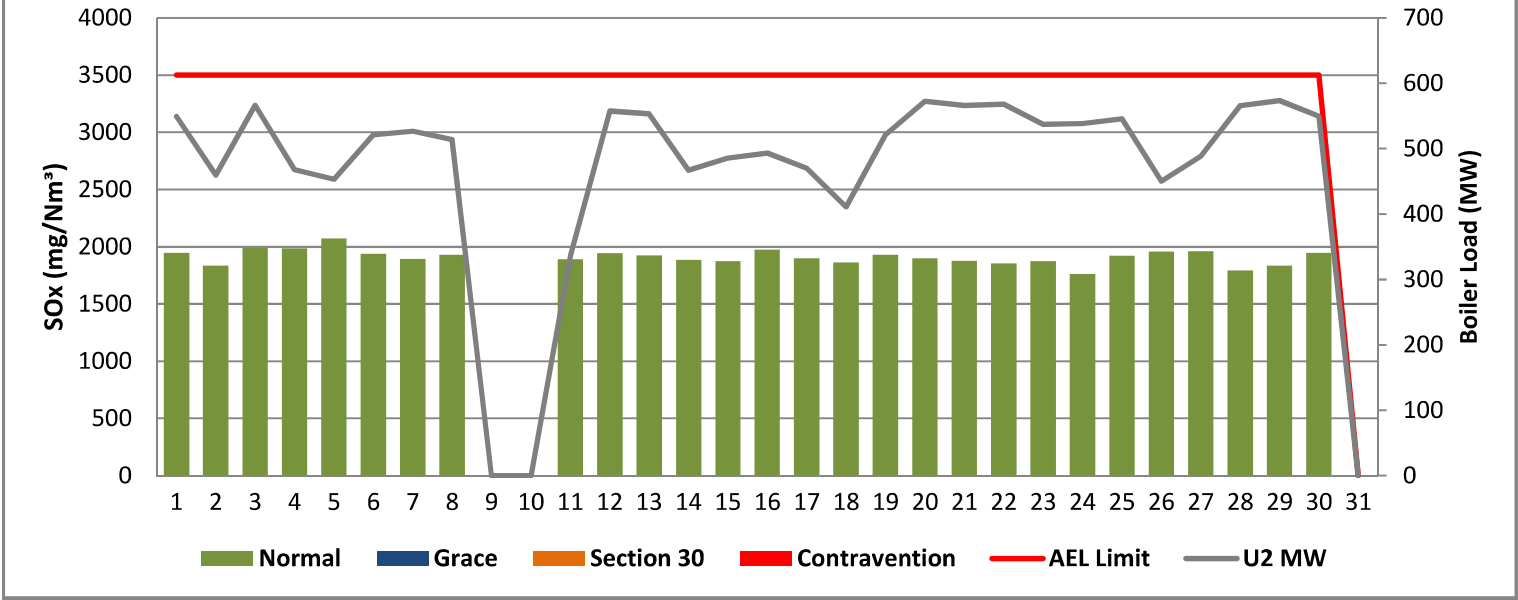


Figure 9: Lethabo Unit 3 SOx Emissions - September 2021

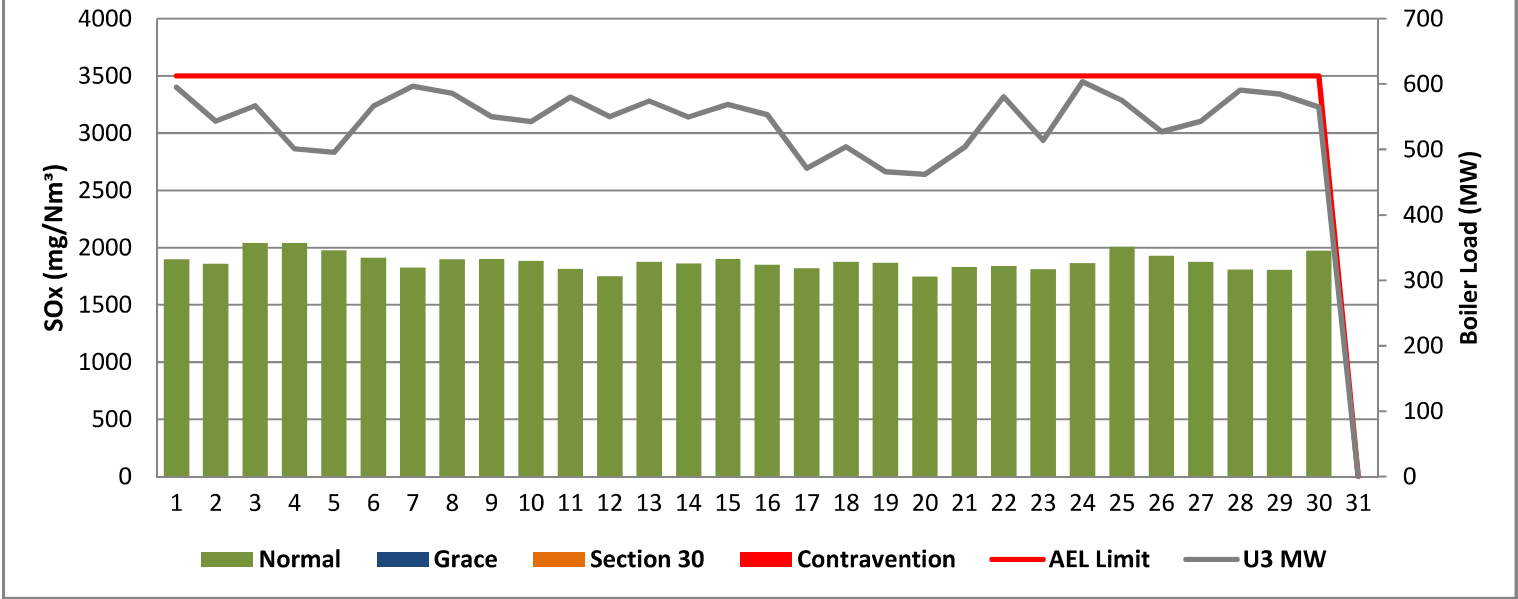


Figure 10: Lethabo Unit 4 SOx Emissions - September 2021

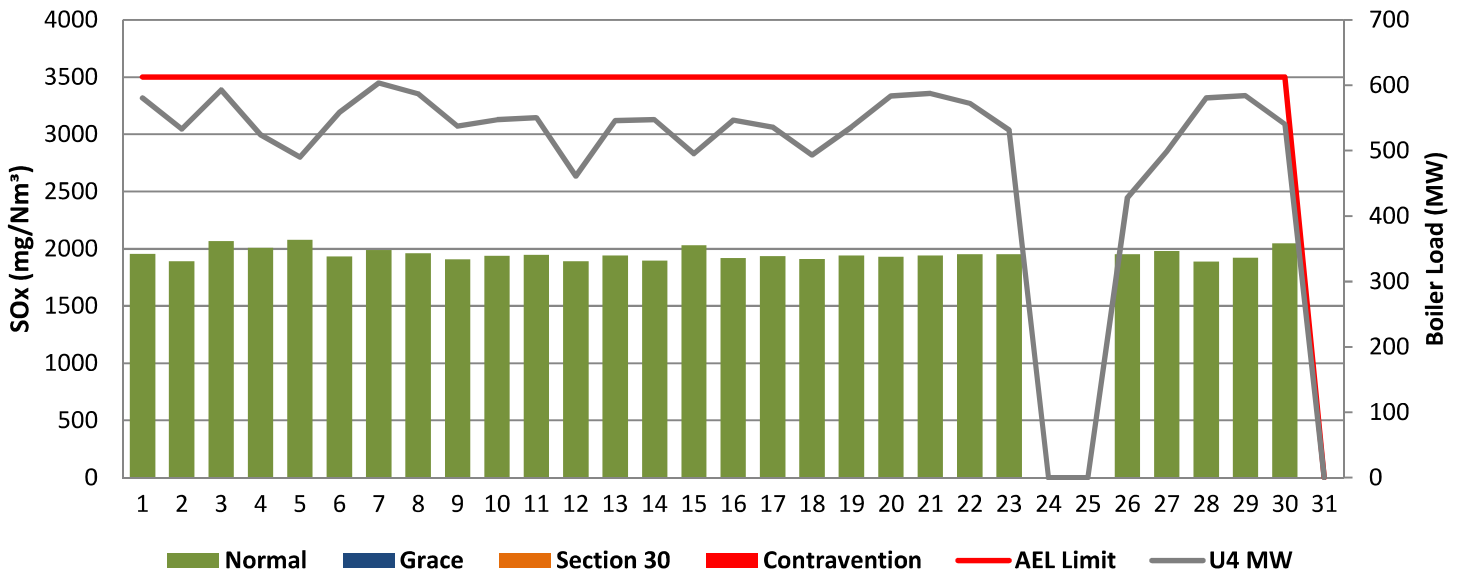


Figure 11: Lethabo Unit 5 SOx Emissions - September 2021

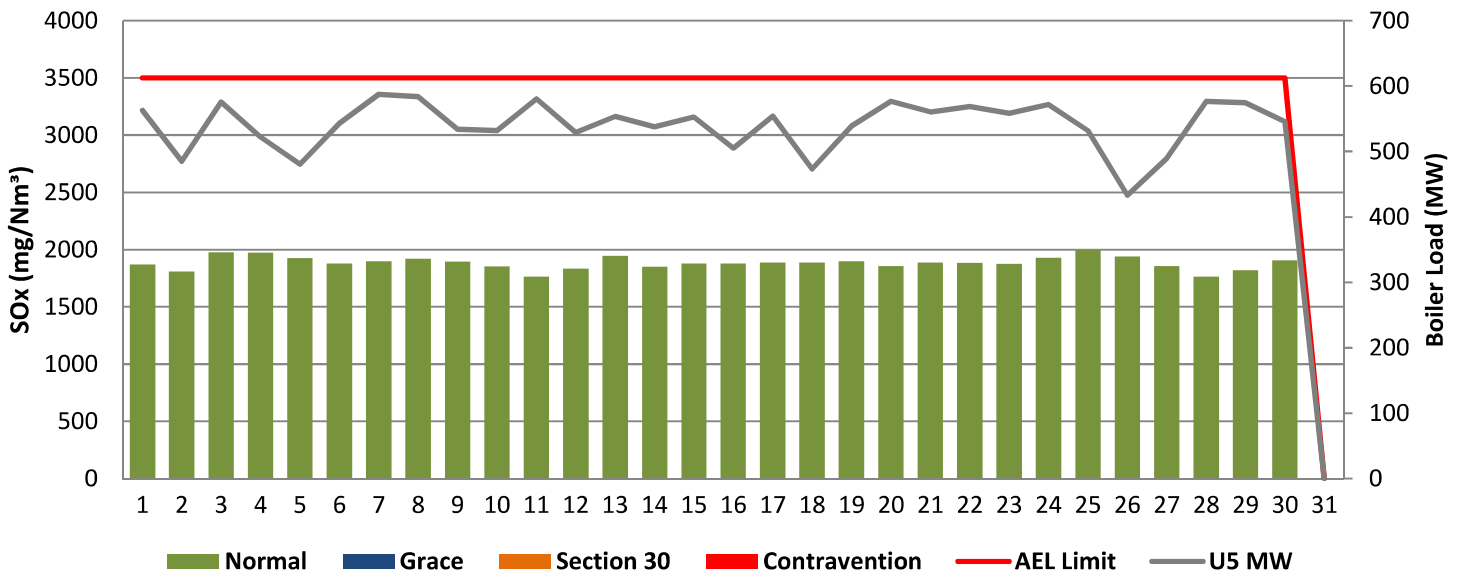


Figure 12: Lethabo Unit 6 SOx Emissions - September 2021

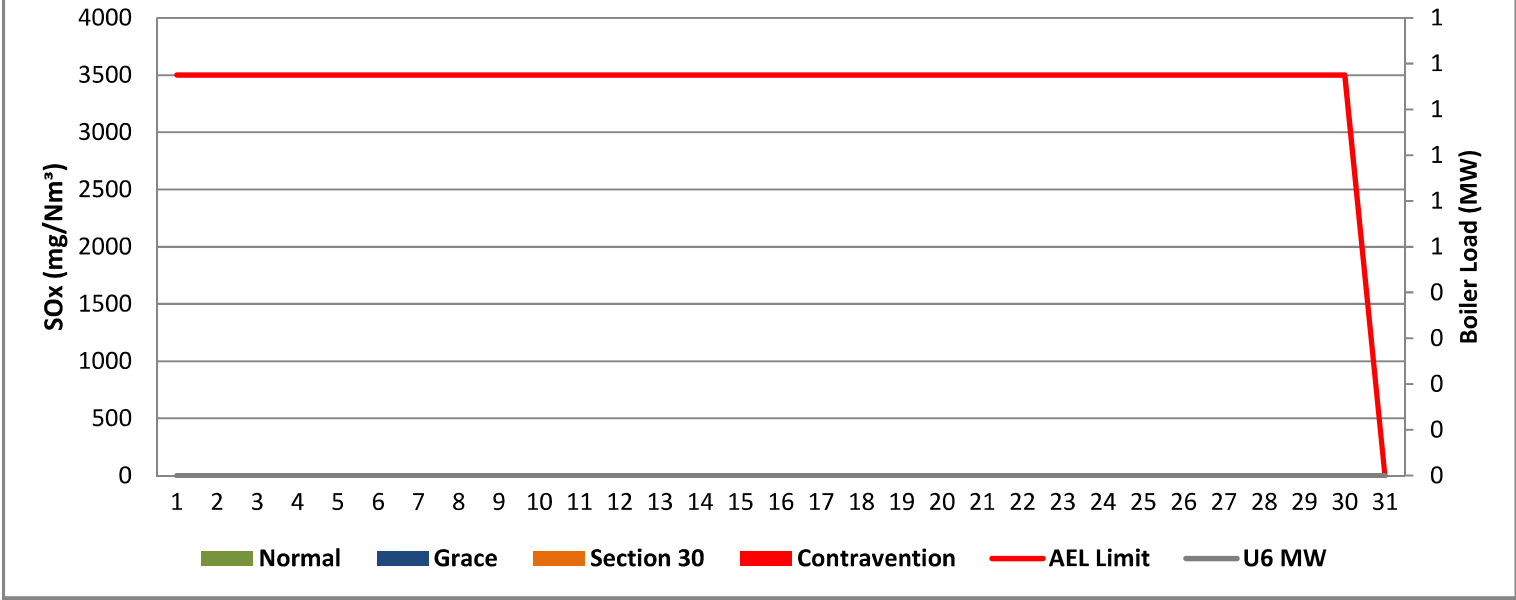


Figure 13: Lethabo Unit 1 NOx Emissions - September 2021

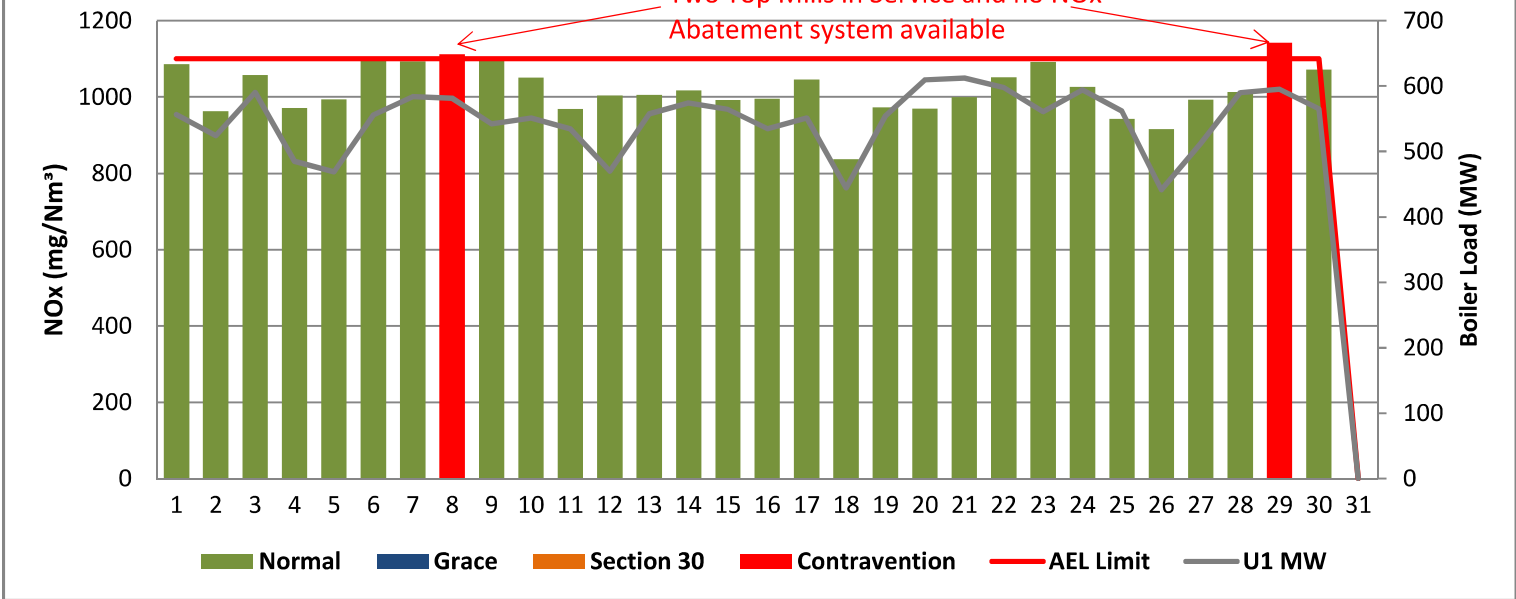


Figure 14: Lethabo Unit 2 NOx Emissions - September 2021

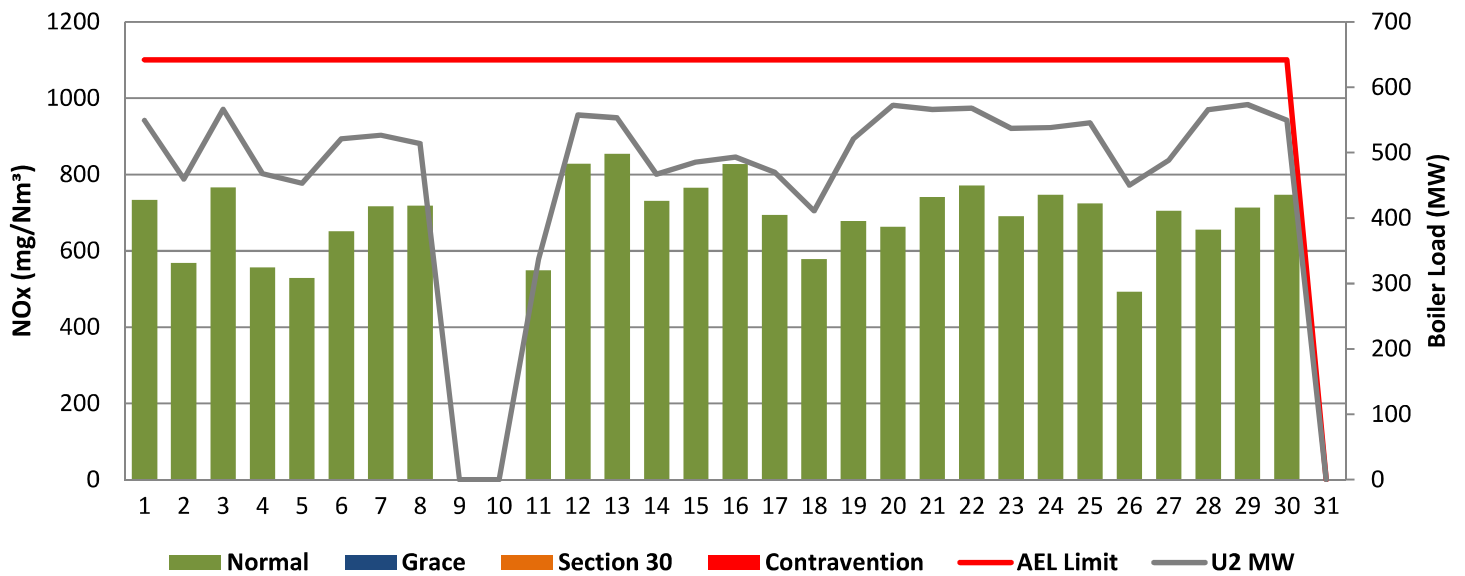


Figure 15: Lethabo Unit 3 NOx Emissions - September 2021

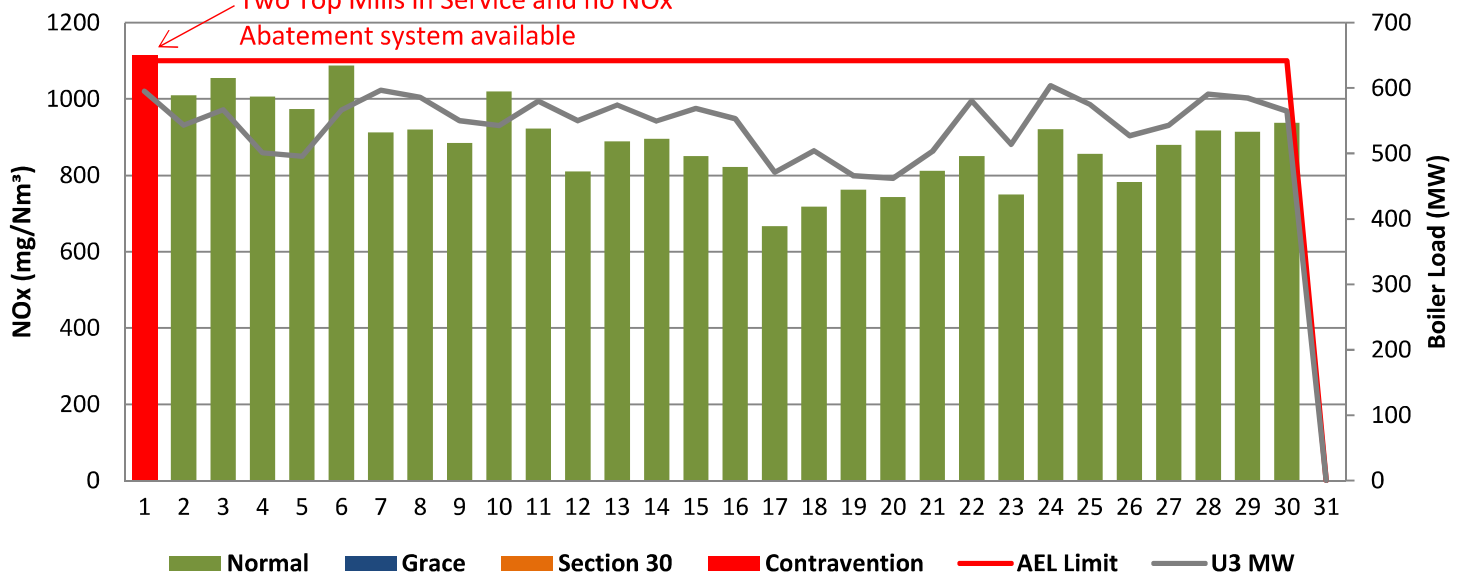


Figure 16: Lethabo Unit 4 NOx Emissions - September 2021

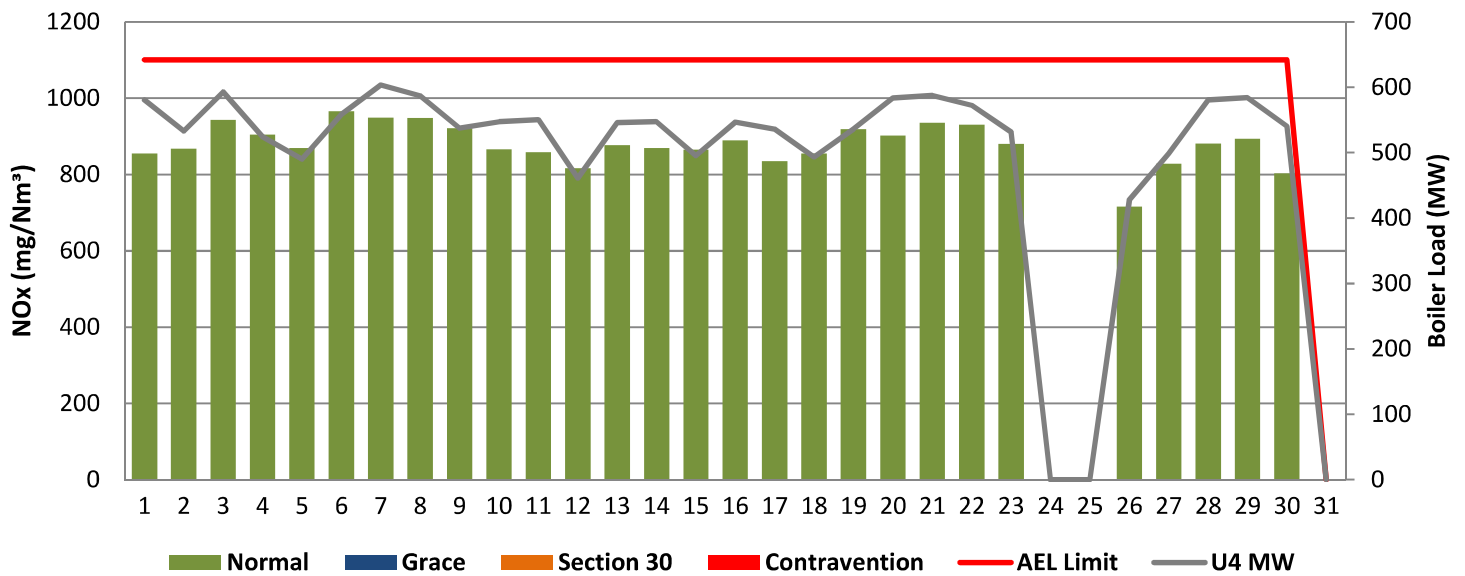


Figure 17: Lethabo Unit 5 NOx Emissions - September 2021

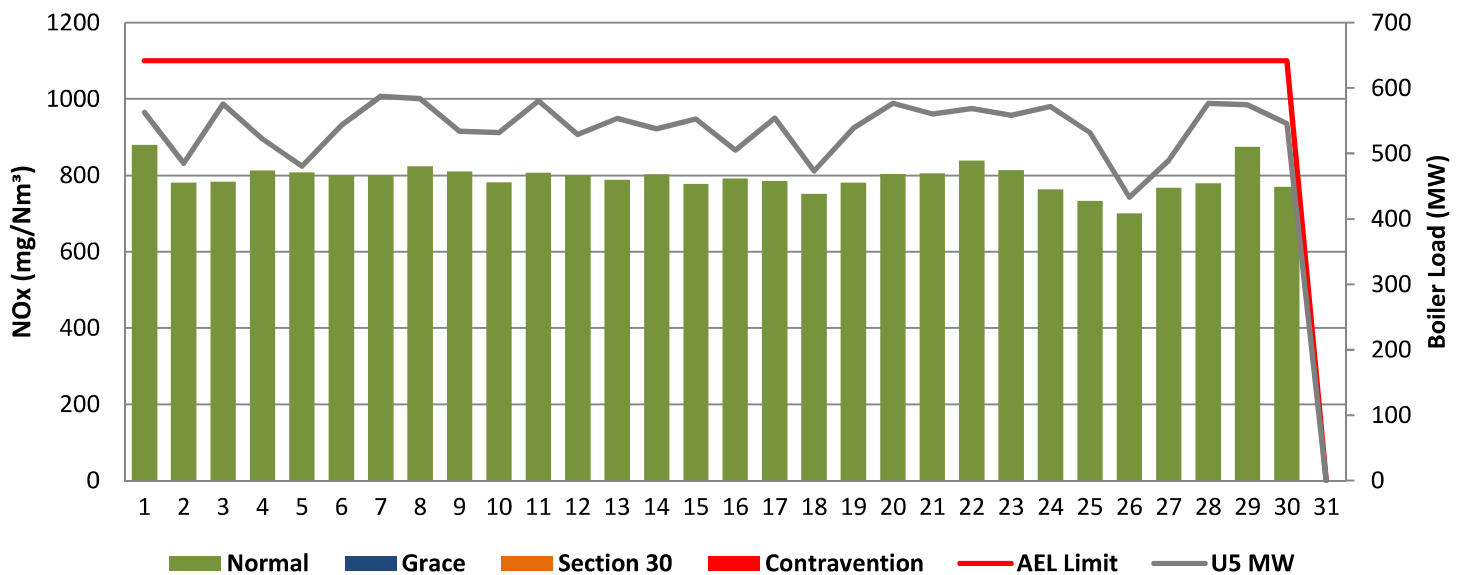
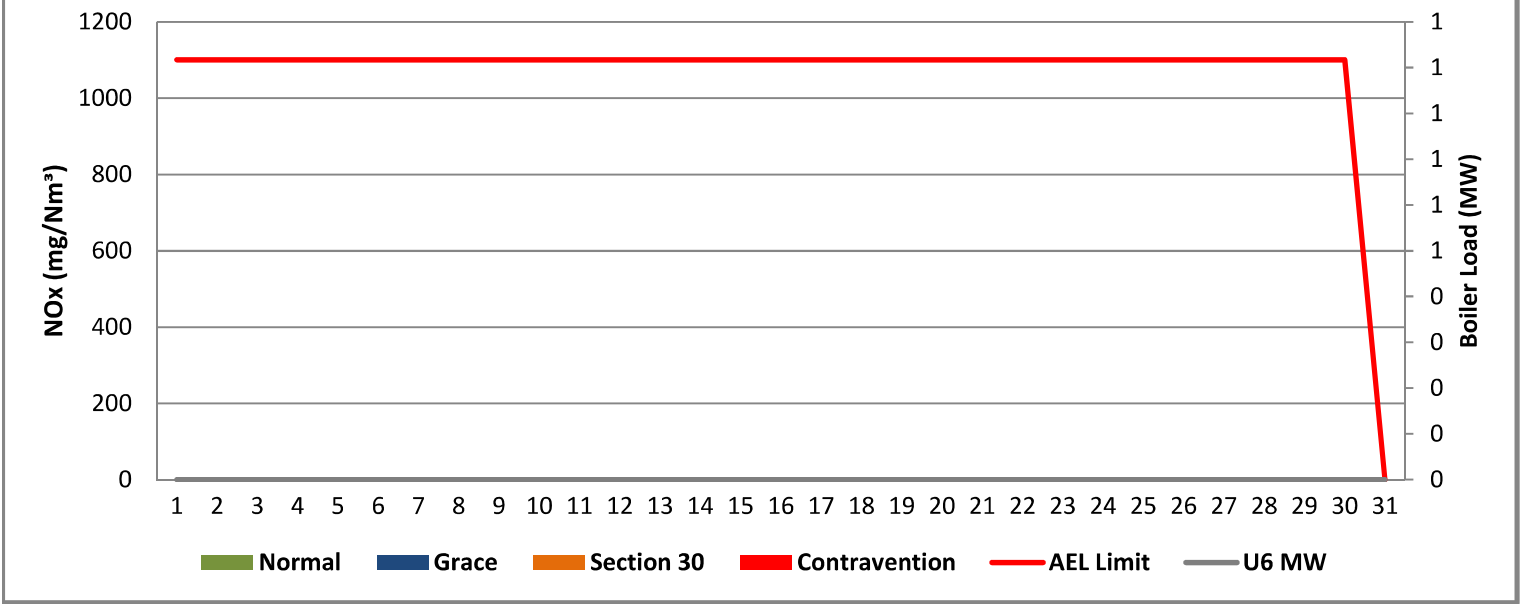


Figure 18: Lethabo Unit 6 NOx Emissions - September 2021



7 SHUT DOWN AND LIGHT UP INFORMATION

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

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>Boiler tube leak repairs</i>		<i>Unit trip on Boiler black furnace.</i>		<i>Generator exciter field switch hot connection</i>		
Breaker Open (BO)	1:20 PM	2021/09/08	4:25 PM	2021/09/11	11:15 PM	2021/09/17	
Draught Group (DG) Shut Down (SD)	1:05 AM	2021/09/09	DG did not trip or SD	DG did not trip or SD	DG did not trip or SD	DG did not trip or SD	
BO to DG SD (duration)	00:11:45	DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM	DD:HH:MM
Fires in time	12:35 PM	2021/09/11					
Synch. to Grid (or BC)	2:02 PM	2021/09/11					
Fires in to BC (duration)	00:01:27	DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
Emissions below limit from BC (end date)	not > limit	not > limit					
Emissions below limit from BC (duration)	n/a	DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM

Unit No.3	<i>Generator exciter field switch hot connection repairs</i>						
Breaker Open (BO)	<i>11:40 PM</i>	<i>2021/09/19</i>					
Draught Group (DG) Shut Down (SD)	<i>DG did not trip or SD</i>	<i>DG did not trip or SD</i>					
BO to DG SD (duration)	<i>n/a</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
Fires in time							
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>Boiler tube leak</i>						
Breaker Open (BO)	<i>8:45 PM</i>	<i>2021/09/23</i>					
Draught Group (DG) Shut Down (SD)	<i>9:30 AM</i>	<i>2021/09/24</i>					
BO to DG SD (duration)	<i>00:12:45</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
Fires in time	<i>6:30 PM</i>	<i>2021/09/25</i>					
Synch. to Grid (or BC)	<i>3:00 AM</i>	<i>2021/09/26</i>					
Fires in to BC (duration)	<i>00:08:30</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM	DD:HH:MM
Emissions below limit from BC (end date)		#N/A					
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 September 2021 in mg/Nm³

8. MAINTENANCE

Unit 1				
Beginning of	2021/09/11 00:16	2021/09/18 00:29		
Reason for Maintenance	LHO outlet damper test run	LHO precip casing repairs		
End (Time):	2021/09/11 01:58	2021/09/18 23:32		
Duration	1:42:00	23:03:00		

Unit 2				
Beginning of	2021/09/02 00:05:00	2021/09/01 00:00:00	2021/09/08 13:53:00	
Reason for Maintenance	LHO precip casing repairs	SO3 plant repairs.	SO3 plant repairs.	
End (Time):	2021/09/02 23:11:00	2021/09/01 07:44:00	2021/09/16 05:00:00	
Duration	23:06:00	7:44:00	183:07:00	

Unit 3				
Beginning of	2021/09/19 00:00:00			
Reason for Maintenance	RHI precip casing repairs.			
End (Time):	2021/09/19 23:40:00			
Duration	23:40:00			

Unit 4				
Beginning of	2021/09/12 00:00			
Reason for Maintenance	LHI precip casing repairs			
End (Time):	2021/09/12 23:59			
Duration	23:59:00			

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

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

9. GENERAL

Unit 1:

NOx Exceedance on 08/09/2021 : There is no NOx Abatement system and aggravated by Two Top Mills in Service.

NOx Exceedance on 29/09/2021 : There is no NOx Abatement system and aggravated by Two Top Mills in Service.

Unit 2:

On the 17/09/2021 Unit 2 was taken off load for Generator Exciter field Switch hot connection repairs. The boiler and draught groups were not shut down, and the boiler was on bypass. Due to this the reporting emissions continued as normal and the 24 hour period of not reporting after the unit was synchronised on load was not observed.

Unit 3:

NOx Exceedance on 01/09/2021 : There is no NOx Abatement system and aggravated by Two Top Mills in Service (B Mill not in service).

Unit 3:

On the 19/09/2021 Unit 3 was taken off load for Generator Exciter field Switch hot connection repairs. The boiler and draught groups were not shut down, and the boiler was on bypass. Due to this the reporting emissions continued as normal and the 24 hour period of not reporting after the unit was synchronised on load was not observed.

Unit 2:

NEMA S30 reported on 30/08/2021 until 02/09/2021 : Unit 2 SO3 plant had to be shut down for repairs on the Air Heater.

NEMA S30 reported on 14/09/2021 until 16/09/2021 : Unit 2 was shut down on 09/09/2021 for boiler tube leak repairs. The SO3 plant was also shut down for repairs. The unit was synchronised on load on 11/09/2021 at 19:00. The SO3 plant remained offline for repairs until 15/09/2021.

Unit 6:

Unit 6 Shut down on 21/08/2021 at 14:32 for Planned IR outage.

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.
2	30/08/2021	03/09/2021	SO3 Plant Repairs	Repair Air Leaks on air heaters	31/08/2021	06/09/2021	None		PM Exceedance >72 hours - NEMA Section 30 Reported
2	15/09/2021	17/09/2021	SO3 Plant Repairs	Repair Leaks on air heater	15/09/2021	24/09/2021	None		PM Exceedance >72 hours - NEMA Section 30 Reported
1	08/09/2021	08/09/2021	There is no NOx Abatement system and aggravated by Two Top Mills in Service.	Install Low NOx Burners.	N/A	N/A	None		NOx exceedances - Legal Contravention
1	29/09/2021	29/09/2021	There is no NOx Abatement system and aggravated by Two Top Mills in Service.	Install Low NOx Burners.	N/A	N/A	None		NOx exceedances - Legal Contravention
3	01/09/2021	01/09/2021	There is no NOx Abatement system and aggravated by Two Top Mills in Service.	Install Low NOx Burners.	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
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
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

ADDENDUM TO MONTHLY EMISSIONS REPORT

12. DAILY EMISSIONS FIGURES

Final Dust Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
01-Sep	66	213	116	84	63	OFF	100
02-Sep	62	259	98	94	50	OFF	100
03-Sep	73	71	160	81	64	OFF	100
04-Sep	47	263	309	67	60	OFF	100
05-Sep	204	137	72	60	53	OFF	100
06-Sep	82	81	92	80	67	OFF	100
07-Sep	83	62	91	78	58	OFF	100
08-Sep	106	54	91	73	51	OFF	100
09-Sep	82	OFF	99	74	60	OFF	100
10-Sep	87	OFF	99	65	59	OFF	100
11-Sep	85	OFF	108	59	61	OFF	100
12-Sep	73	670	92	126	63	OFF	100
13-Sep	81	603	147	46	57	OFF	100
14-Sep	90	268	82	46	49	OFF	100
15-Sep	89	412	85	38	52	OFF	100
16-Sep	90	474	79	55	47	OFF	100
17-Sep	115	92	47	39	65	OFF	100
18-Sep	332	39	51	39	64	OFF	100
19-Sep	83	60	203	52	83	OFF	100
20-Sep	68	88	64	52	89	OFF	100
21-Sep	72	70	82	51	58	OFF	100
22-Sep	73	114	107	44	57	OFF	100
23-Sep	62	84	55	42	50	OFF	100
24-Sep	80	91	93	OFF	54	OFF	100
25-Sep	77	205	89	OFF	55	OFF	100
26-Sep	44	37	72	OFF	37	OFF	100
27-Sep	66	79	112	48	43	OFF	100
28-Sep	158	179	177	78	85	OFF	100
29-Sep	90	86	89	75	88	OFF	100
30-Sep	79	96	100	60	72	OFF	100

ADDENDUM TO MONTHLY EMISSIONS REPORT

Final SOx Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
01-Sep	1765	1945	1898	1953	1870	OFF	3500
02-Sep	1622	1834	1858	1890	1810	OFF	3500
03-Sep	1812	1989	2042	2066	1977	OFF	3500
04-Sep	1827	1986	2041	2007	1973	OFF	3500
05-Sep	1791	2073	1977	2077	1927	OFF	3500
06-Sep	1696	1936	1912	1933	1877	OFF	3500
07-Sep	1695	1892	1826	1988	1897	OFF	3500
08-Sep	1822	1928	1897	1960	1922	OFF	3500
09-Sep	1847	OFF	1901	1906	1895	OFF	3500
10-Sep	1832	OFF	1885	1938	1854	OFF	3500
11-Sep	1741	1891	1814	1944	1764	OFF	3500
12-Sep	1841	1943	1751	1889	1833	OFF	3500
13-Sep	1860	1922	1877	1941	1945	OFF	3500
14-Sep	1843	1883	1862	1894	1849	OFF	3500
15-Sep	1842	1873	1901	2030	1878	OFF	3500
16-Sep	1941	1973	1849	1917	1879	OFF	3500
17-Sep	2020	1898	1819	1934	1887	OFF	3500
18-Sep	1862	1862	1876	1909	1886	OFF	3500
19-Sep	1794	1929	1866	1942	1897	OFF	3500
20-Sep	1724	1898	1747	1929	1857	OFF	3500
21-Sep	1758	1876	1832	1941	1886	OFF	3500
22-Sep	1791	1854	1839	1953	1883	OFF	3500
23-Sep	1773	1874	1811	1952	1875	OFF	3500
24-Sep	1760	1762	1865	OFF	1928	OFF	3500
25-Sep	1846	1920	2007	OFF	1995	OFF	3500
26-Sep	1893	1957	1929	1951	1940	OFF	3500
27-Sep	1836	1960	1876	1978	1857	OFF	3500
28-Sep	1684	1792	1808	1887	1762	OFF	3500
29-Sep	1699	1834	1806	1921	1819	OFF	3500
30-Sep	1840	1947	1973	2046	1907	OFF	3500

ADDENDUM TO MONTHLY EMISSIONS REPORT

Final NOx Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
01-Sep	1086	734	1116	855	880	OFF	1100
02-Sep	963	567	1009	868	781	OFF	1100
03-Sep	1057	766	1055	943	784	OFF	1100
04-Sep	971	556	1006	905	813	OFF	1100
05-Sep	993	529	974	869	808	OFF	1100
06-Sep	1100	651	1087	965	799	OFF	1100
07-Sep	1093	717	912	949	800	OFF	1100
08-Sep	1112	719	920	948	824	OFF	1100
09-Sep	1095	OFF	885	922	811	OFF	1100
10-Sep	1051	OFF	1020	866	782	OFF	1100
11-Sep	969	548	922	858	807	OFF	1100
12-Sep	1004	828	810	817	800	OFF	1100
13-Sep	1006	854	889	877	789	OFF	1100
14-Sep	1017	731	896	869	803	OFF	1100
15-Sep	992	765	851	865	777	OFF	1100
16-Sep	995	828	822	889	792	OFF	1100
17-Sep	1046	694	667	835	785	OFF	1100
18-Sep	838	578	718	855	752	OFF	1100
19-Sep	973	678	763	919	781	OFF	1100
20-Sep	970	663	743	902	804	OFF	1100
21-Sep	999	741	812	936	806	OFF	1100
22-Sep	1052	771	851	931	839	OFF	1100
23-Sep	1092	691	750	881	814	OFF	1100
24-Sep	1027	747	920	OFF	763	OFF	1100
25-Sep	943	724	857	OFF	733	OFF	1100
26-Sep	915	493	783	715	700	OFF	1100
27-Sep	993	705	880	828	768	OFF	1100
28-Sep	1013	656	917	881	780	OFF	1100
29-Sep	1142	713	914	893	875	OFF	1100
30-Sep	1072	747	937	803	770	OFF	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
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
Aug-21	99.33%	0.8	100.00%	0.0	99.26%	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

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
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%	2.7743056	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

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Particulate Emission Monitors

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

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
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%
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

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

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14. EFFICIENCY

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

15. REMARKS

UNIT	MWLOSS	REASON	ACTUALSTARTDATE	ACTUALENDDATE
1	118	LHO outlet damper test run	2021/09/11 00:16:00	2021/09/11 01:58:00
1	118	AM: LHO precip casing repairs	2021/09/18 00:29:00	2021/09/18 23:32:00
2	110	LHO Precip casing repairs	2021/09/02 00:05:00	2021/09/02 23:11:00
2	593	Boiler tube leak repairs.	2021/09/08 13:15:00	2021/09/11 14:02:00
2	369	System Generated Ramp Event for Event id : 1601778 (Recalculated)	2021/09/11 14:02:00	2021/09/11 16:18:00
2	593	Unit trip on Boiler black furnace.	2021/09/11 16:18:00	2021/09/11 19:00:00
2	297	System Generated Ramp Event for Event id : 1603022	2021/09/11 19:00:00	2021/09/11 20:30:00
2	200	SO3 plant repairs.	2021/09/14 00:00:00	2021/09/14 05:33:00
2	220	EF:High stack emissions.	2021/09/14 17:30:00	2021/09/15 00:00:00
2	200	SO3 plant repairs.	2021/09/15 00:00:00	2021/09/15 05:14:00
2	200	SO3 plant repairs.	2021/09/15 21:42:00	2021/09/16 05:00:00
2	200	High stack emissions	2021/09/17 13:25:00	2021/09/17 17:11:00
2	200	High stack emissions	2021/09/17 19:54:00	2021/09/17 23:15:00
2	0	Generator exciter field switch hot connection repairs	2021/09/17 23:15:00	2021/09/18 02:57:00
2	297	System Generated Ramp Event for Event id : 1606990	2021/09/18 02:57:00	2021/09/18 04:27:00
3	118	High stack emissions.	2021/09/02 22:15:00	2021/09/03 00:00:00
3	118	RHI precip casing repairs.	2021/09/19 00:00:00	2021/09/19 23:40:00
3	0	Generator exciter field switch hot connection repairs	2021/09/19 23:40:00	2021/09/20 02:17:00
3	297	System Generated Ramp Event for Event id : 1606219	2021/09/20 02:17:00	2021/09/20 03:47:00
3	68	EF:High stack emissions.	2021/09/29 15:23:00	2021/09/30 00:03:00
4	118	AM: LHI precip casing repairs	2021/09/12 00:00:00	2021/09/12 23:59:00
4	593	boiler tube leak	2021/09/23 20:40:00	2021/09/26 03:00:00
4	297	System Generated Ramp Event for Event id : 1607704	2021/09/26 03:00:00	2021/09/26 06:00:00
6	593	AM: Unit on IR outage.	2021/09/01 00:00:00	2021/09/30 23:59:59

PM Exceedances		
U1.	Attempted to do the LHO casing repairs. Could not take the casing due to outlet damper not closing 100%	05-Sep
U1.	LHO casing performance is deteriorating	08-Sep
U1.	ESP Poor Performance	17-Sep
U1.	Load loss of 118MW taken due to LHO precip casing repairs	18-Sep
U1.	ESP poor performance and manual rapping	28-Sep
U2.	SO3 Plant off for repairs, NEMA S30 reported	01-Sep
U2.	SO3 Plant on load, SO3 plant combustion chamber temperatures are running high LHO Casing was done last night and casing performance improved slightly	02-Sep
U2.	Unit exceeded due to casing outages on LHO and RHO casings	04-Sep
U2.	Unit exceeded due to casing outages on LHO and RHO casings	05-Sep
U2.	Unit off for boiler tube leak repairs SO3 Plant cooling for repairs	09-Sep
U2.	Unit Synchronised on 2021/09/11 @ 19:00, emissions to be below the limit on 2021/09/14 @ 19:00. SO3 plant not in service due to repairs	11-Sep
U2.	Light Up SO3 plant not in service due to repairs	12-Sep
U2.	Light up SO3 plant not in service due to repairs	13-Sep
U2.	Light Up SO3 plant not in service due to repairs NEMA S30 reported	14-Sep
U2.	Communication Faults on casings SO3 plant not in service due to repairs ESP Poor Performance	15-Sep
U2.	SO3 plant ramping up (not in service until the afternoon) ESP Poor Performance	16-Sep
U2.	UNIT SHUTDOWN FOR GENERATOR EXCITER FIELD SWITCH HOT CONNECTION REPAIRS 17/09/2021 23:15 UNIT SYNCRONICED ON LOAD. 18/09/2021 02:59	18-Sep
U2.	ESP poor performance There was permits to work on the LHI and LHF 6 and after working on the fields, F7 was brought to service immediately and that contributed to high emissions New defect on LHO F6 LHO 1 – Under performing LHO 3- Under performing	22-Sep
U2.	ESP poor performance and manual rapping	25-Sep
U2.	ESP poor performance and manual rapping	28-Sep

U3.	ESP Poor Performance	01-Sep
U3.	LHI casing has deteriorated as one additional field tripped yesterday, performing below 200kw at full load.	03-Sep
U3.	LHI Casing outage	04-Sep
U3.	Poor ESP performance	11-Sep
U3.	Poor ESP Performance	13-Sep
	Casing outage taken RHO Inner F7 Build up of Ash Field 6 poorly performing	19-Sep
U3.	Unit 3 Shut down at 23:40 for Generator exciter field switch hot connection	
U3.	Unit Synchronised on load 20/09/2021 02:15	20-Sep
U3.	ESP Poor Performance	22-Sep
	Poor ESP performance at higher loads. PM Emissions high from 16:00 yesterday Reason for high emissions- Unit three exceeds once its on full load. The unit ran high due to higher load LHI 1 – Faulty to be investigated	27-Sep
U3.	Rear slide gates not closing – may contribute to emissions (More air into the system)	
	ESP poor performance De energized wrapping was done	28-Sep
U3.	Rear (7 off) slide gates are not closing- Ops to investigate	
U4.	ESP Casing outage	12-Sep
U4.	Unit 4 shutdown for boiler tube leak 20:40	23-Sep
U4.	Unit SOL 03:00	26-Sep
NOX Exceedances		
U1.	There is no NOx Abatement system and aggravated by Two Top Mills in Service.	08-Sep
U1.	There is no NOx Abatement system and aggravated by Two Top Mills in Service.	29-Sep
U3.	There is no NOx Abatement system and aggravated by Two Top Mills in Service.	01-Sep