



Mr. Chakane Sibaya
Air Quality Officer
Fezile Dabi District Municipality
P.O Box 10
Sasolburg
1947

Date:
21 September 2021

Enquiries:
W de Klerk
Tel +27 16 457 5308

LRP03PLA000_0258/20210908

Dear Mr. Sibaya

LETHABO POWER STATION EMISSION MONTHLY REPORT FOR AUGUST 2021

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

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

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

Yours sincerely

Harry Sewsunker
GENERAL MANAGER - ACTING

Generation Division (Cluster 1)
Lethabo; Duvha; Grootvlei; Kusile & Matla Power Stations
Vijjoensdrif / Deneysville Free State
Private Bag X415 Vereeniging 1930 SA
Tel +27 16 457 5111 Fax +27 16 457 5712 www.eskom.co.za
Eskom Holdings SOC Ltd Reg No 2002/015527/30



Report


Lethabo Power Station

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

Reference number: **LRP03PLA000_0258/20210908**
Document Type: **Report**
Area of Applicability: **Environment**
Report Date: **September-2021**
Classification: **Controlled Disclosure**

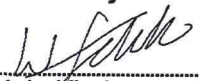
Signatures:

Compiled by:


.....
P Parag
System Engineer

Date: 2021/09/20
.....

Verified by :


.....
W de Klerk
Environmental Officer

Date: 2021-09-17
.....

Reviewed by:


.....
N Mazibuko
BPE Manager

Date: 2021-09-20
.....

Reviewed by:


.....
C Govinden
PE Manager


Date: 2021-09-20
.....

Reviewed by:


.....
L Nel
C&I Manager

Date: 2021-09-21
.....

Reviewed by:


.....
M Hariram
Environmental Manager

Date: 2021-09-21
.....

Approved by:


.....
N Motosiwa
Engineering Manager (Acting)

Date: 2021-09-21
.....

CONTROLLED DISCLOSURE

When downloaded from the database, this document is uncontrolled and it is the responsibility of the user to ensure that it is the same as the authorised revision on the data base
Copyright © 2008, Eskom Generation, Lethabo Power Station

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 Aug-2021
	Coal	Tons	2 000 000	1 395 712
Fuel Oil	Tons	1 700	507.24	

Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Production Rate Aug-2021
	Energy	GWh	2834.64	2 085.30
Ash	Tons	770 000	524 089.9	
RE Ash	kg/MWh	not specified	251.33	

2. ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.656 (Standard)	0.690
Ash Content	%	37.37 (Standard)	37.550

*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 Aug-2021
Unit 1	<i>Electrostatic Precipitator (ESP)</i>	99.89%
Unit 2	<i>Electrostatic Precipitator (ESP)</i>	99.66%
Unit 3	<i>Electrostatic Precipitator (ESP)</i>	99.81%
Unit 4	<i>Electrostatic Precipitator (ESP)</i>	99.76%
Unit 5	<i>Electrostatic Precipitator (ESP)</i>	99.88%
Unit 6	<i>Electrostatic Precipitator (ESP)</i>	99.86%

5. MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO ₂	NO	CO ₂
Unit 1	100.0	89.2	89.8	84.5
Unit 2	99.6	99.6	99.7	99.6
Unit 3	99.6	99.7	99.7	99.6
Unit 4	99.4	100.0	100.0	99.9
Unit 5	100.0	99.9	99.9	99.9
Unit 6	100.0	99.8	99.8	99.8

6. EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of August 2021

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	97.1	3 217	1 707
Unit 2	274.2	4 448	1 551
Unit 3	164.6	4 067	1 826
Unit 4	180.5	3 563	1 493
Unit 5	98.6	3 389	1 528
Unit 6	73.8	2 637	1 181
SUM	888.815	21 321	9 287

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

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	30	1	0	0	1	62.0
Unit 2	17	12	2	0	14	124.3
Unit 3	26	5	0	0	5	85.0
Unit 4	16	10	0	0	10	129.3
Unit 5	31	0	0	0	0	56.5
Unit 6	21	0	0	0	0	59.0
SUM	141	28	2	0	30	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average SO _x (mg/Nm ³)
Unit 1	31	0	0	0	0	1 977.0
Unit 2	31	0	0	0	0	2 054.3
Unit 3	31	0	0	0	0	2 052.2
Unit 4	28	0	0	0	0	2 007.0
Unit 5	31	0	0	0	0	1 950.4
Unit 6	21	0	0	0	0	2 132.0
SUM	173	0	0	0	0	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average NOx (mg/Nm ³)
Unit 1	24	0	0	7	7	1 041.7
Unit 2	31	0	0	0	0	710.6
Unit 3	30	0	0	1	1	917.5
Unit 4	28	0	0	0	0	834.0
Unit 5	31	0	0	0	0	878.6
Unit 6	21	0	0	0	0	948.5
SUM	165	0	0	8	8	

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 - August 2021

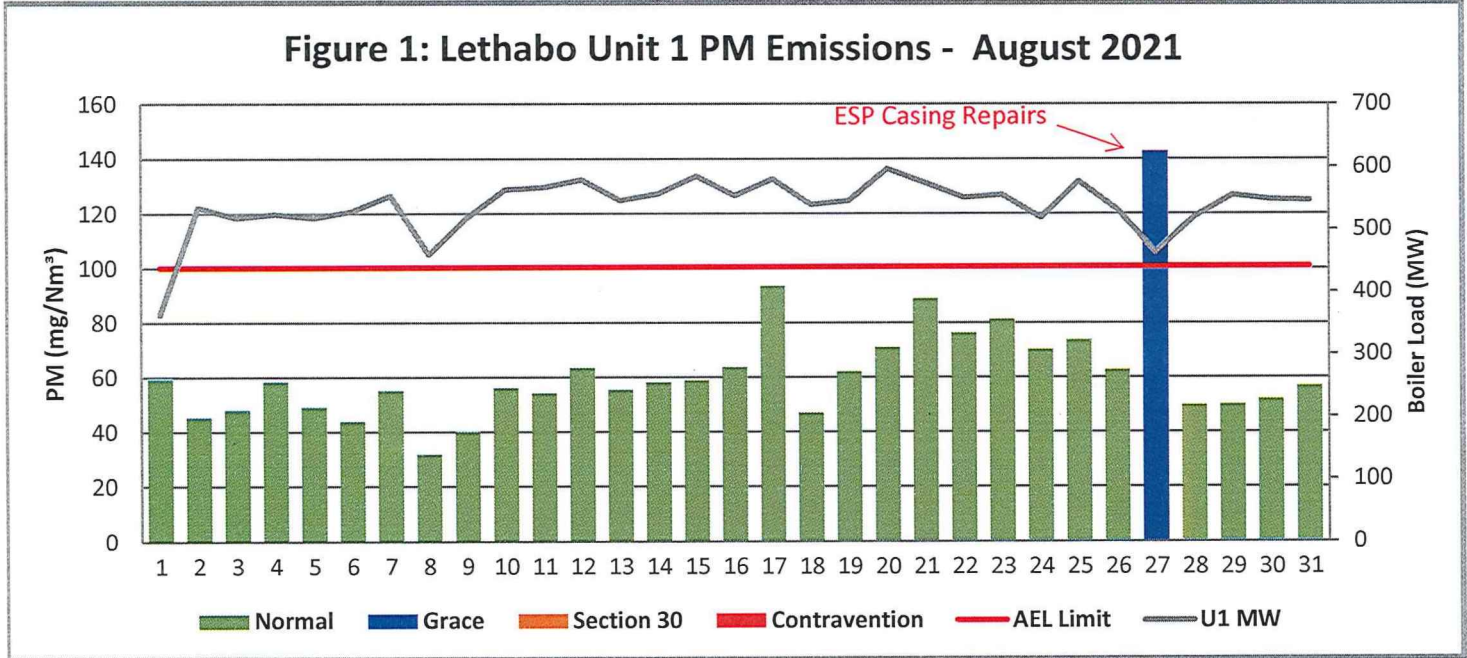


Figure 2: Lethabo Unit 2 PM Emissions - August 2021

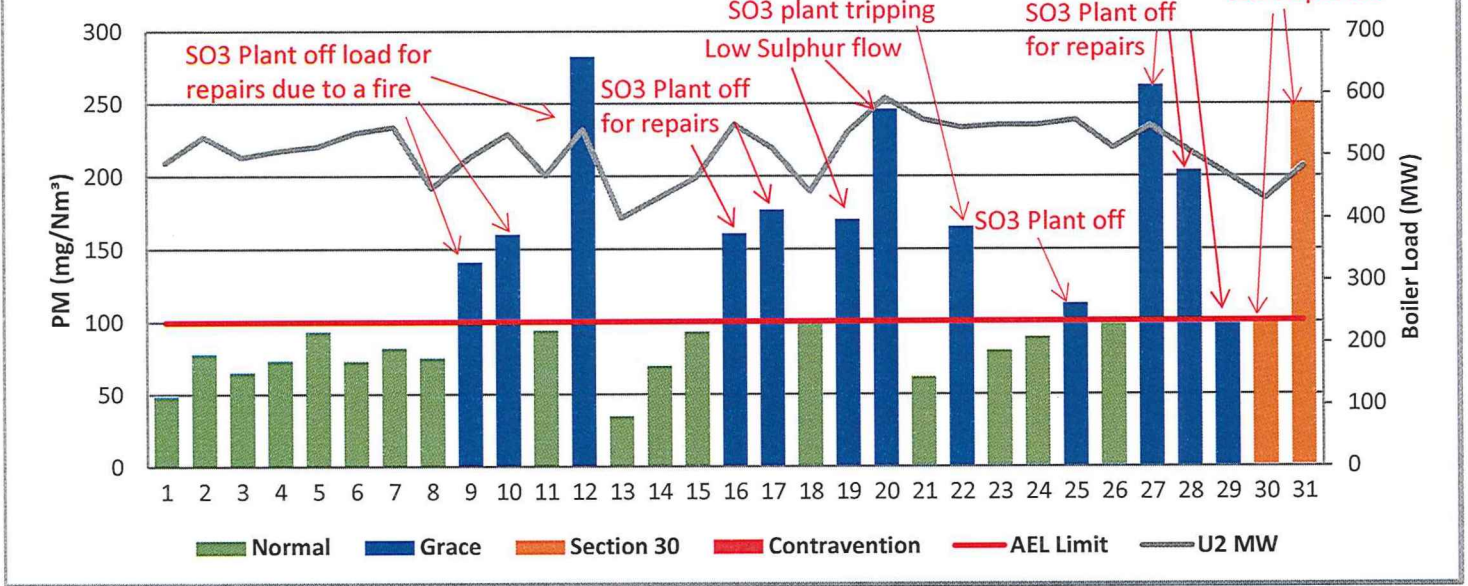


Figure 3: Lethabo Unit 3 PM Emissions - August 2021

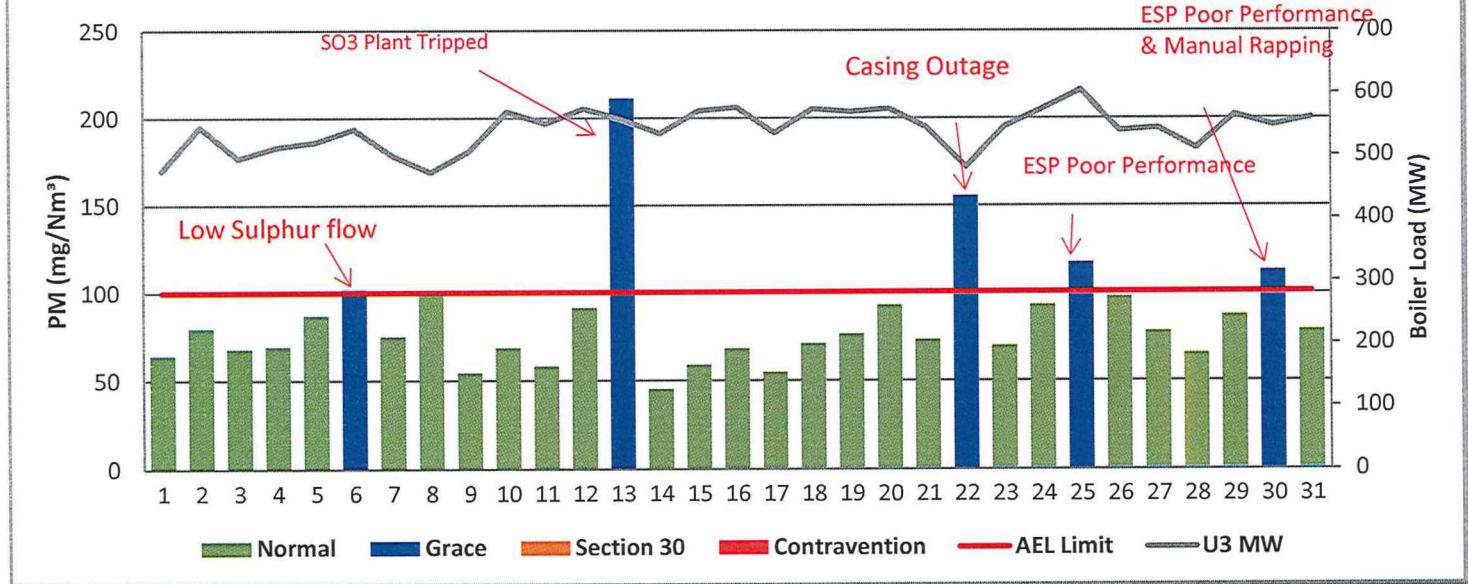


Figure 4: Lethabo Unit 4 PM Emissions - August 2021

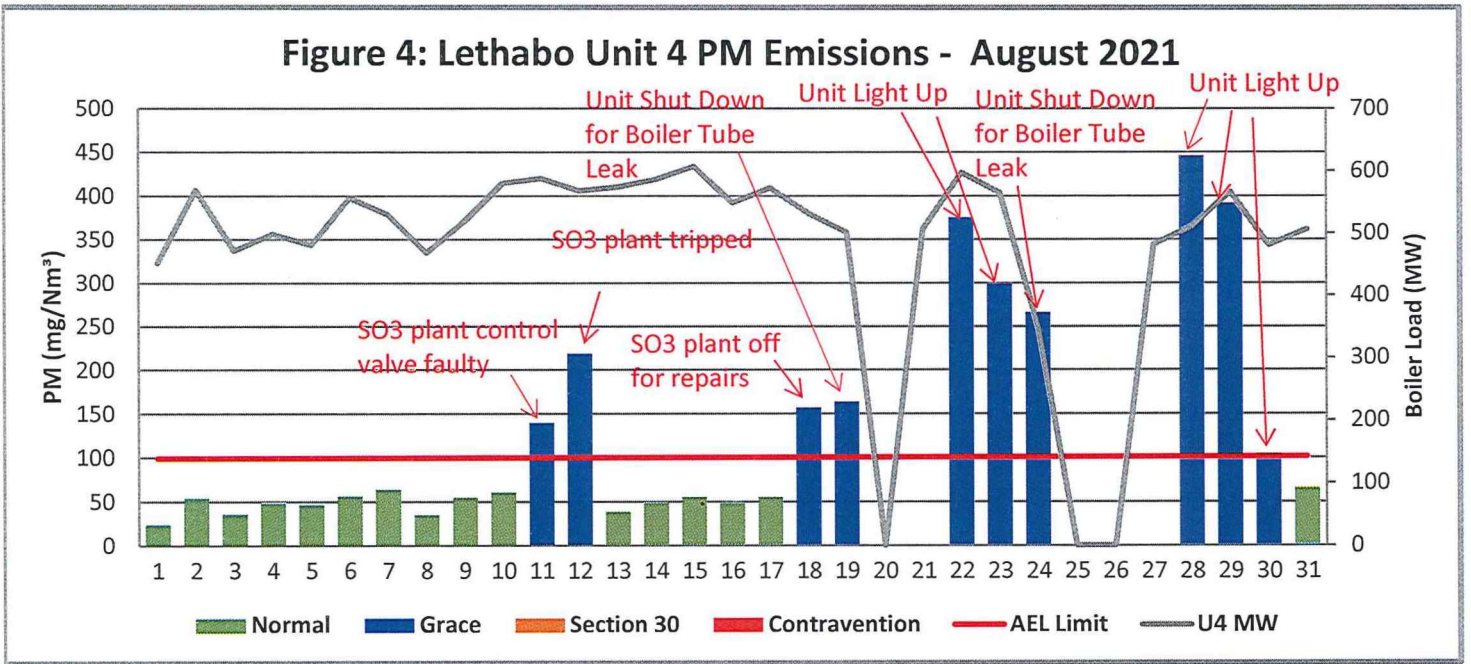


Figure 5: Lethabo Unit 5 PM Emissions - August 2021

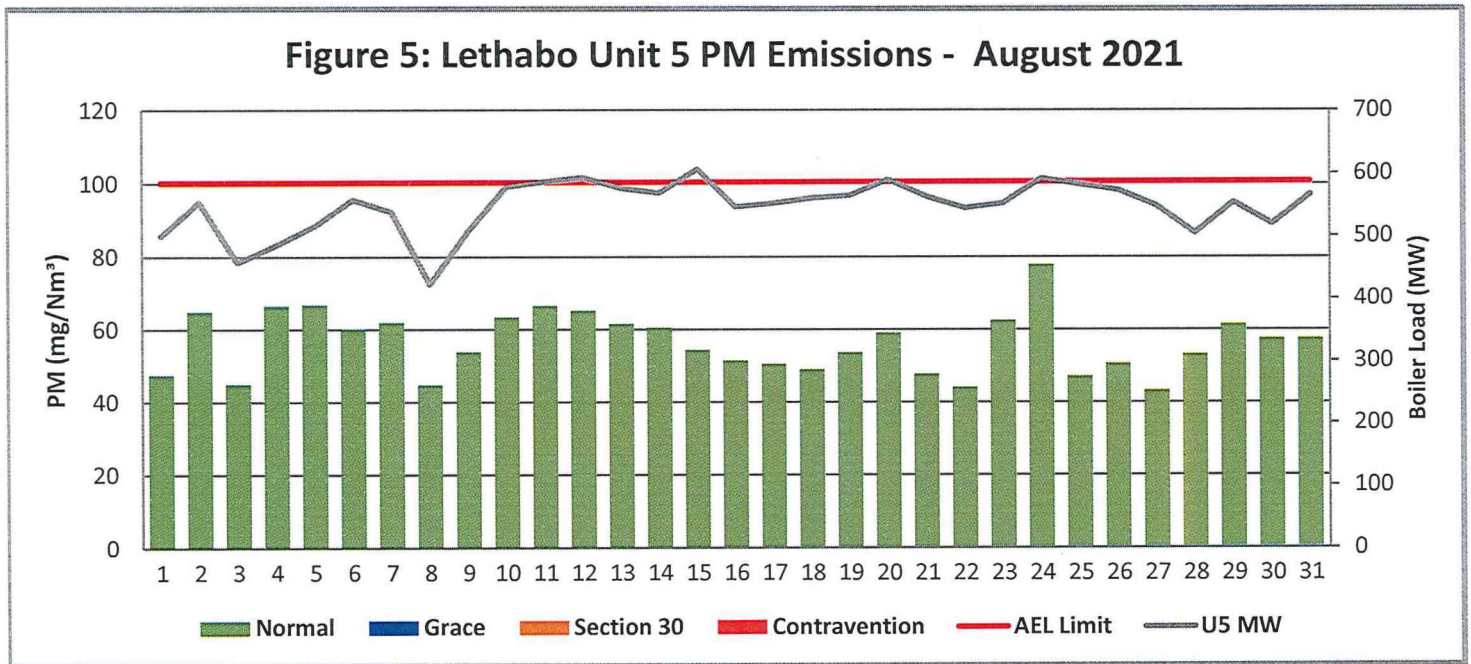


Figure 6: Lethabo Unit 6 PM Emissions - August 2021

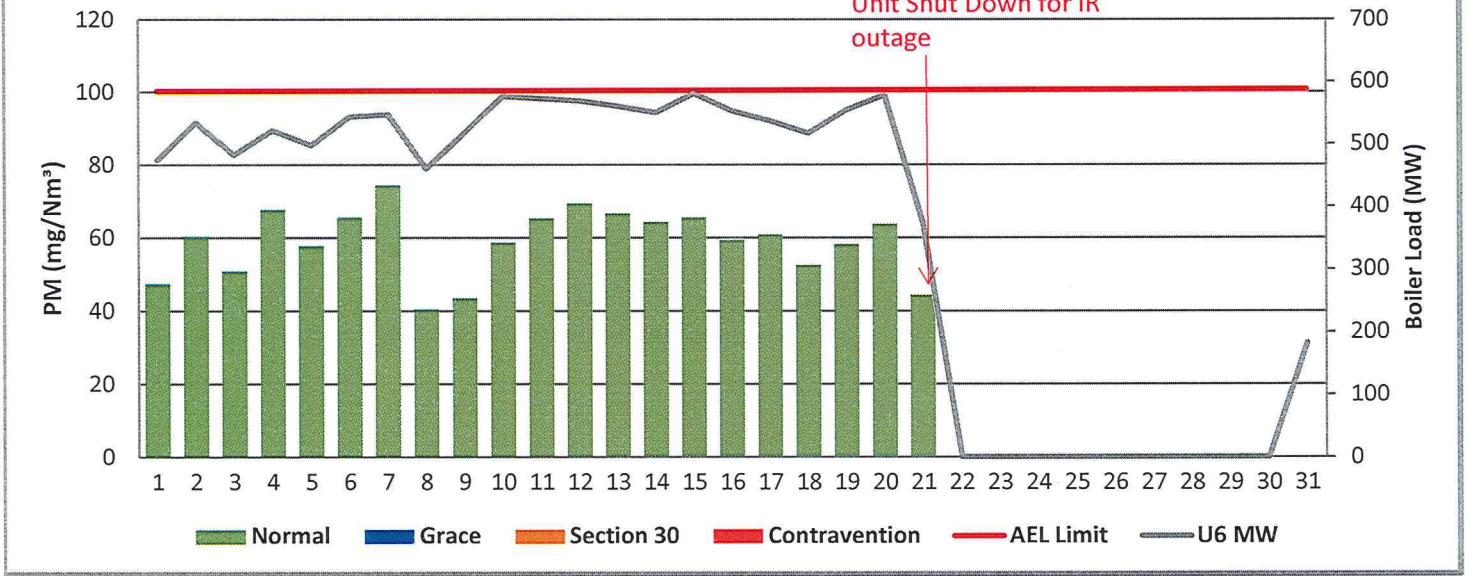


Figure 7: Lethabo Unit 1 SOx Emissions - August 2021

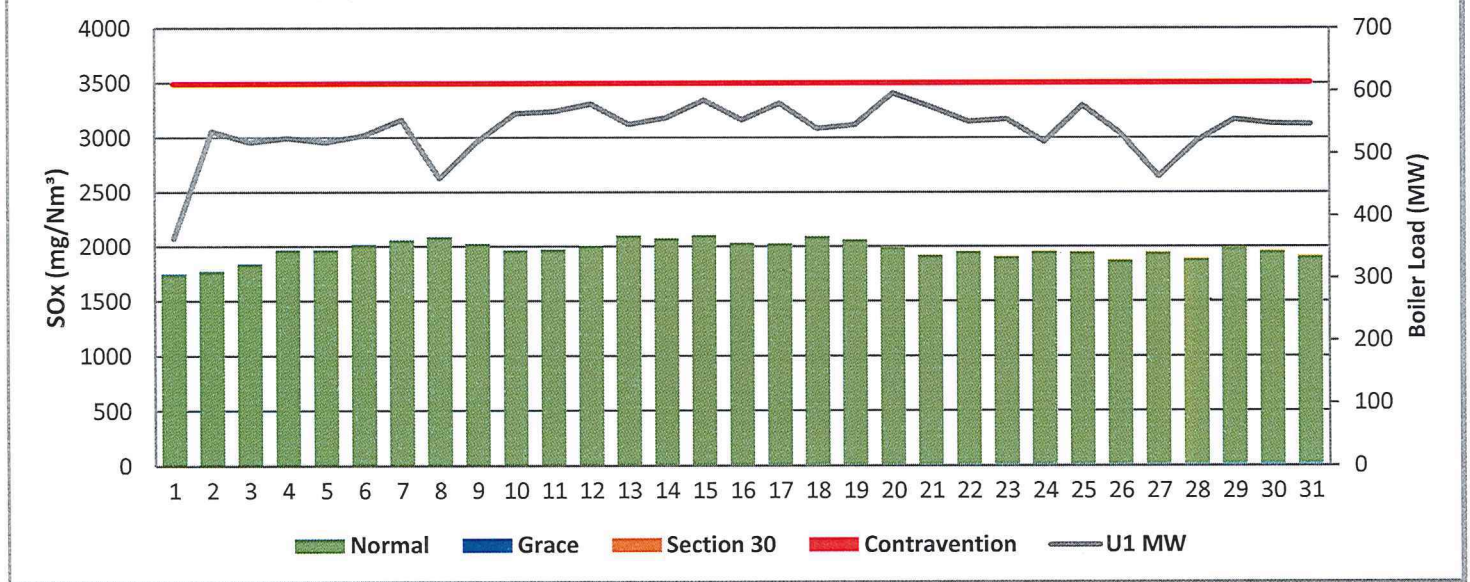


Figure 8: Lethabo Unit 2 SOx Emissions - August 2021

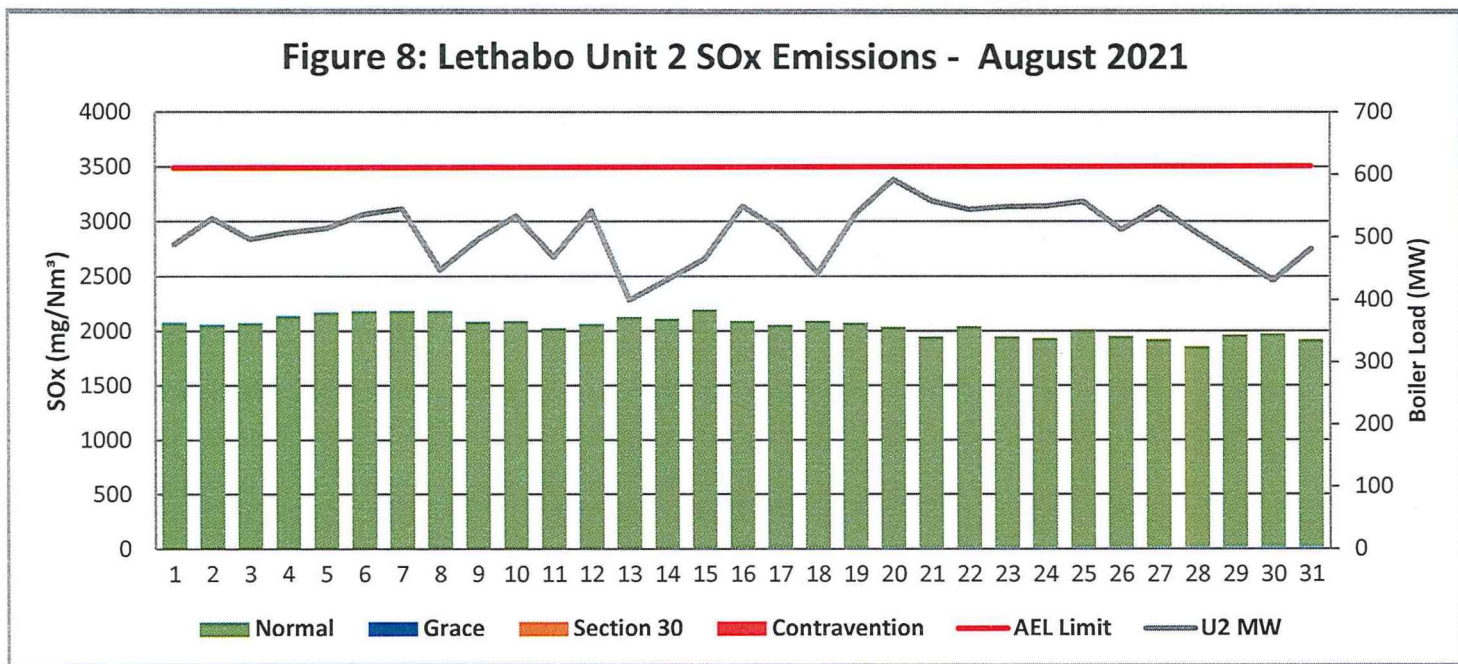


Figure 9: Lethabo Unit 3 SOx Emissions - August 2021

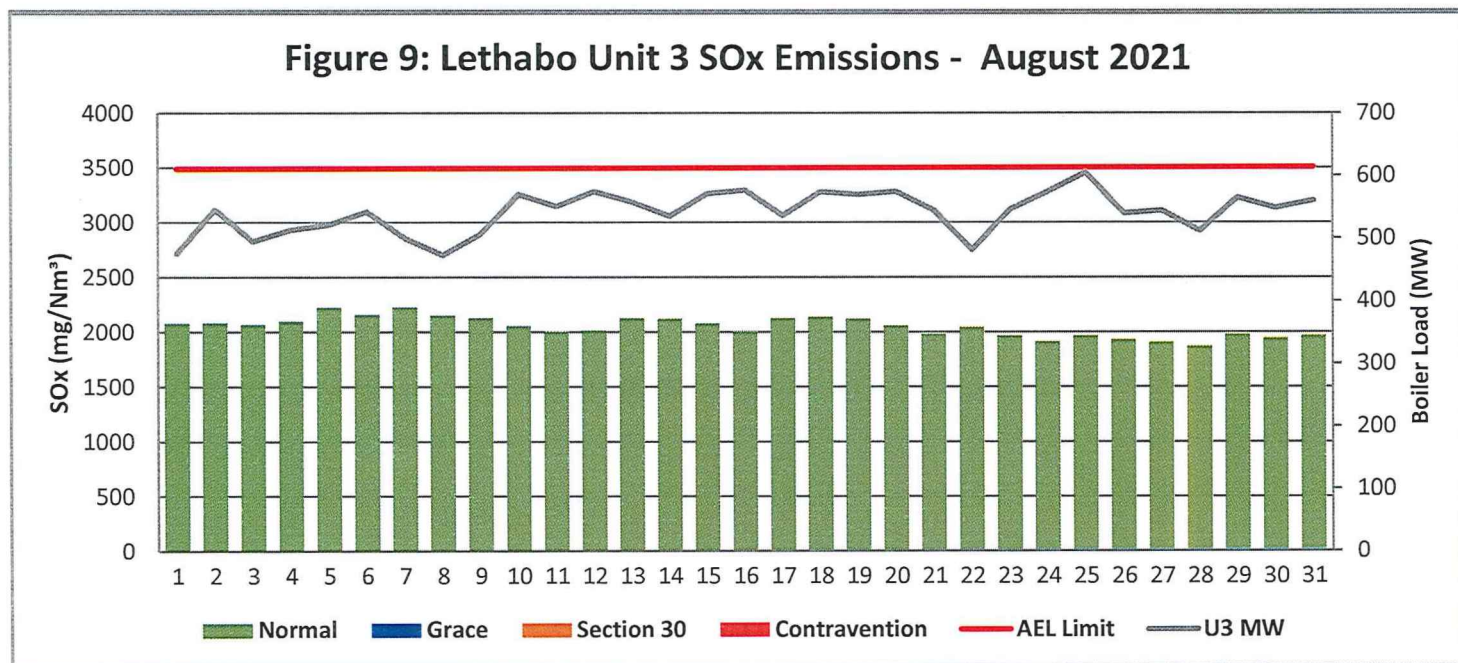


Figure 10: Lethabo Unit 4 SOx Emissions - August 2021

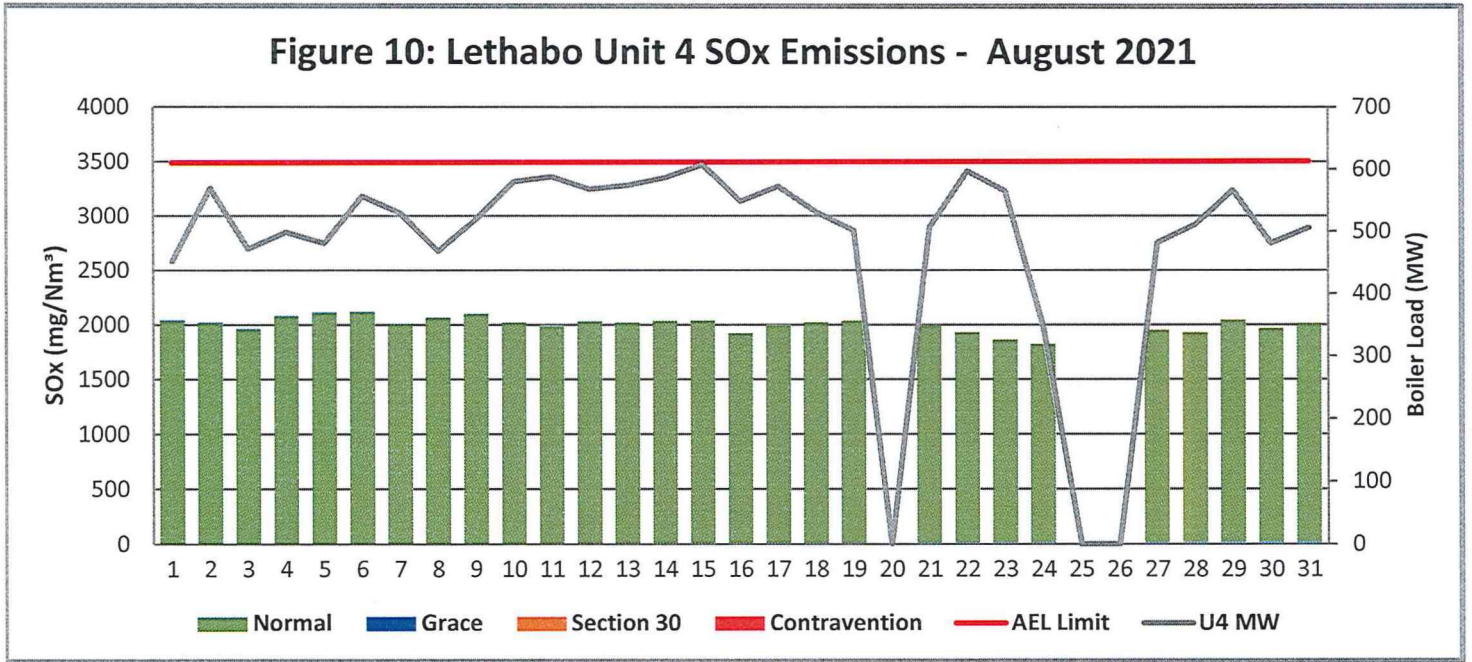


Figure 11: Lethabo Unit 5 SOx Emissions - August 2021

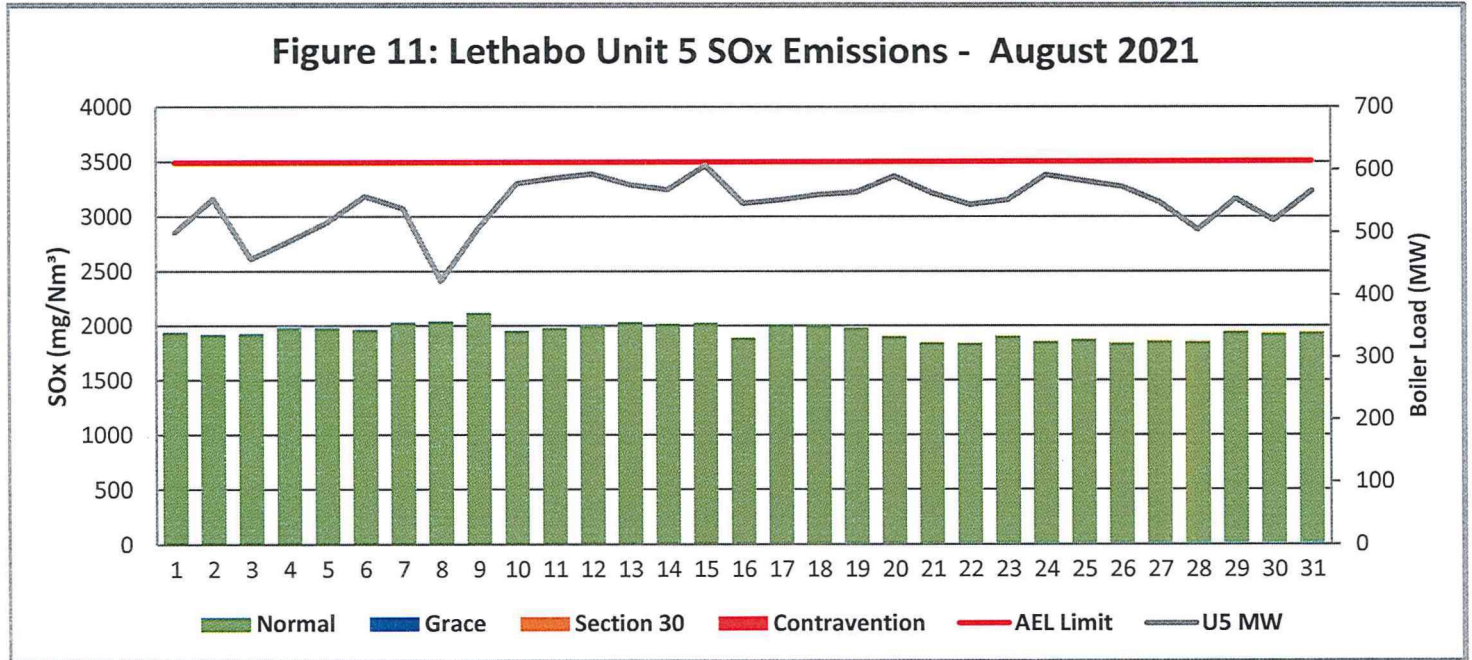


Figure 12: Lethabo Unit 6 SOx Emissions - August 2021

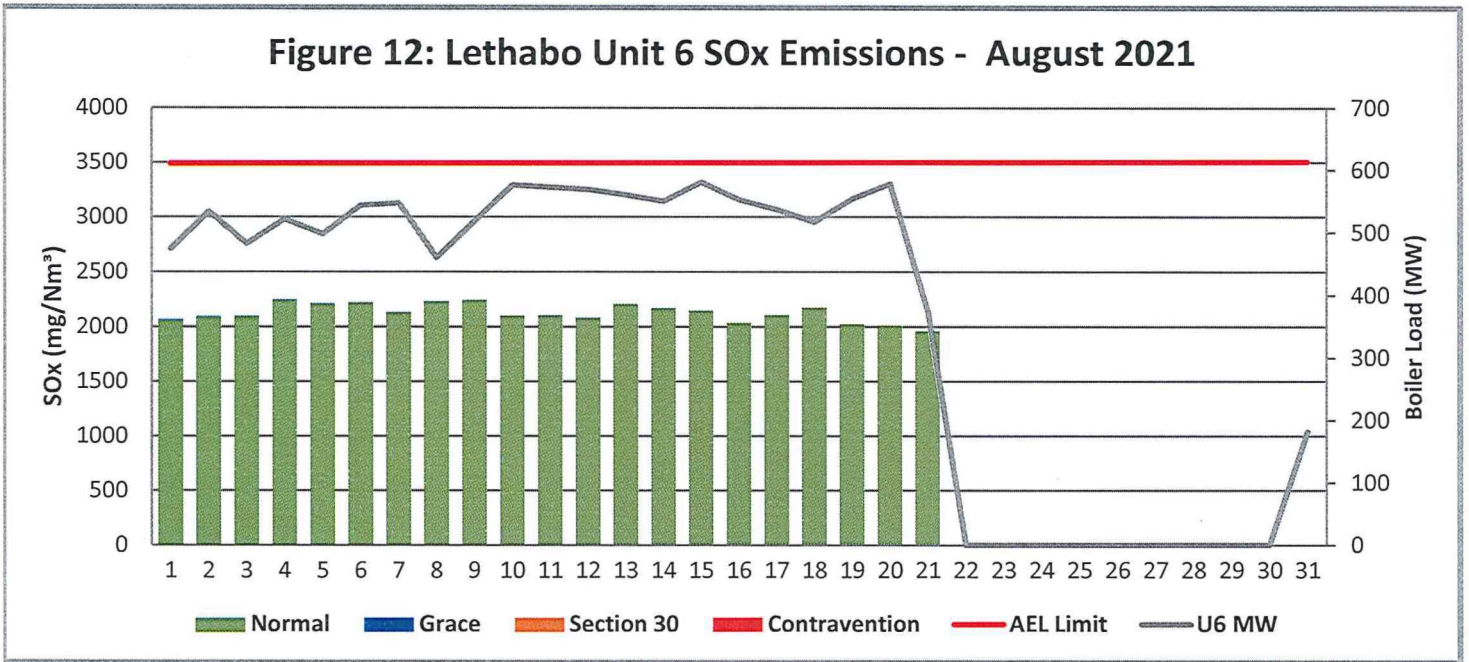


Figure 13: Lethabo Unit 1 NOx Emissions - August 2021

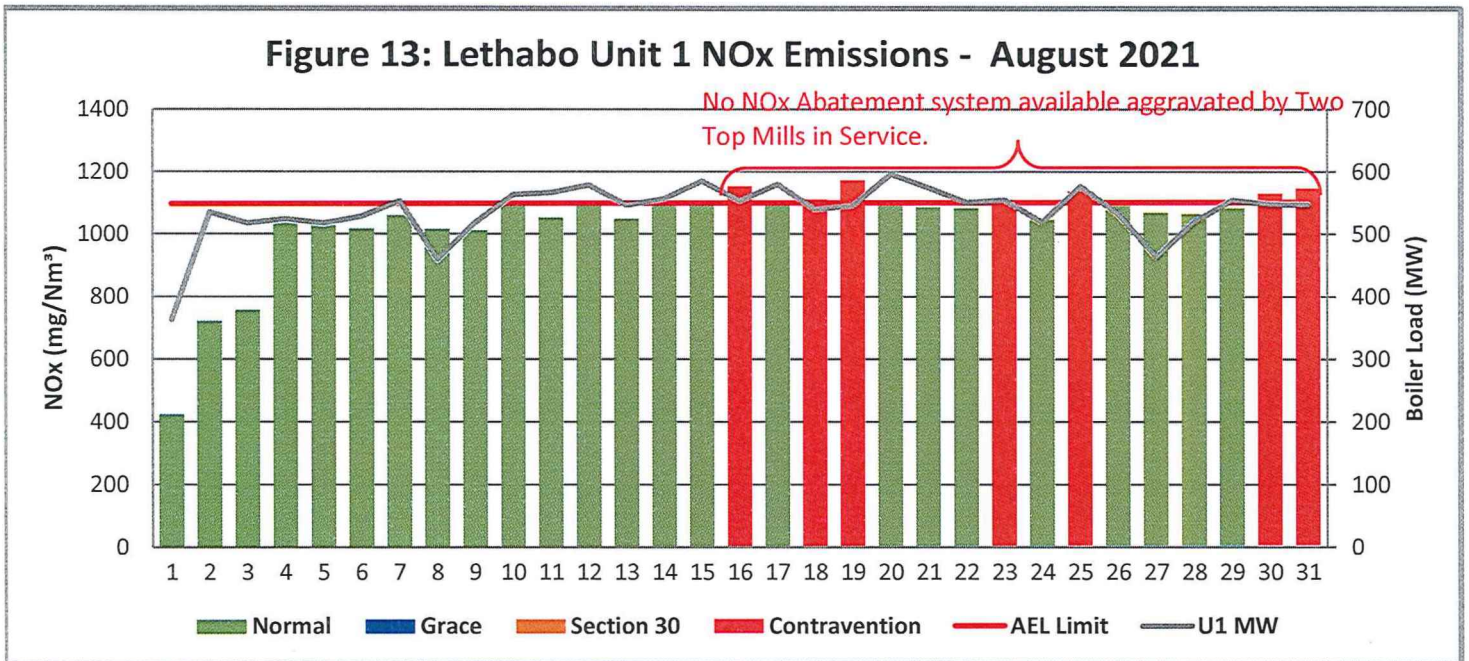


Figure 14: Lethabo Unit 2 NOx Emissions - August 2021

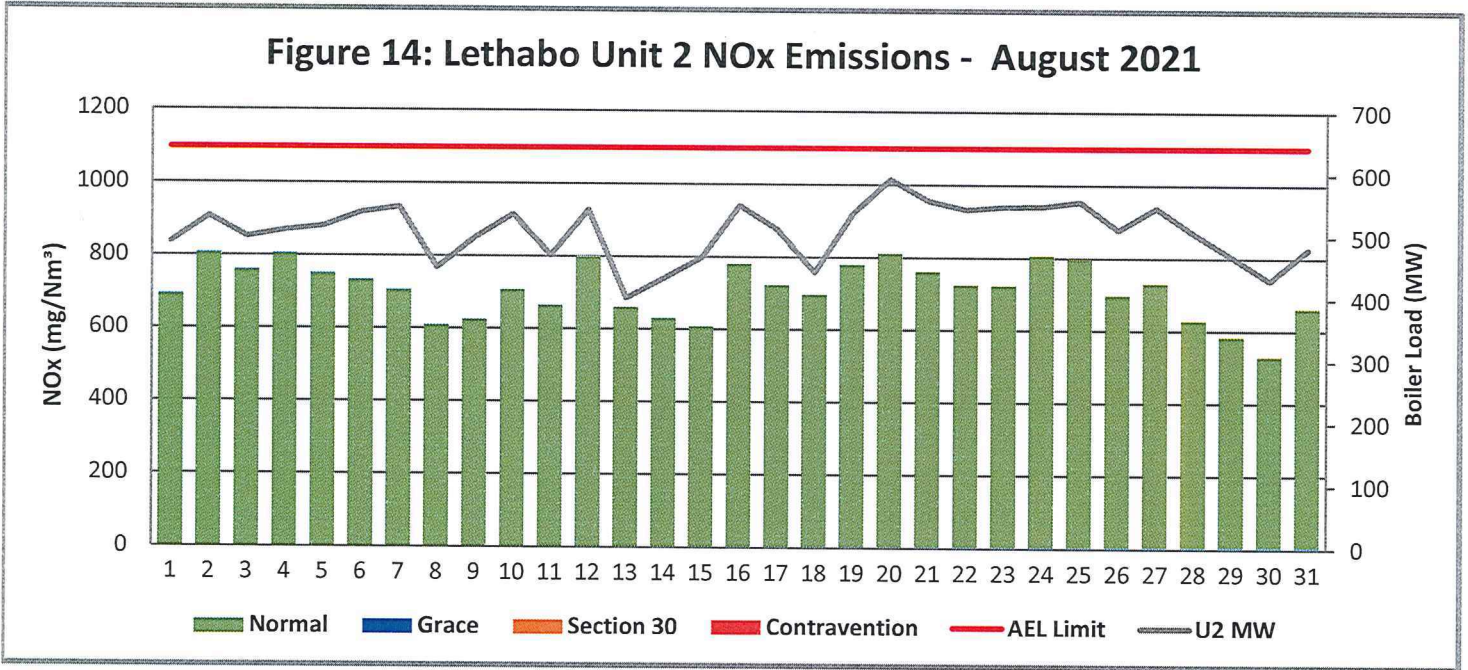


Figure 15: Lethabo Unit 3 NOx Emissions - August 2021

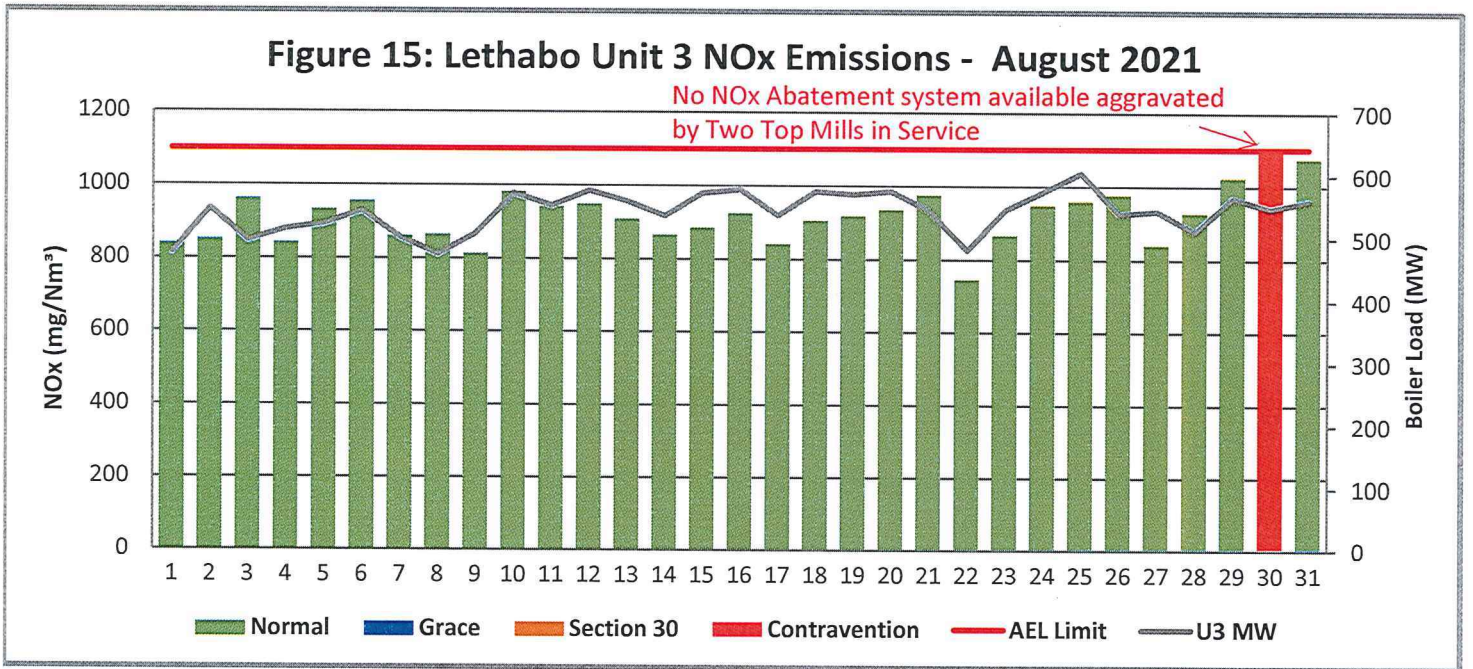


Figure 16: Lethabo Unit 4 NOx Emissions - August 2021

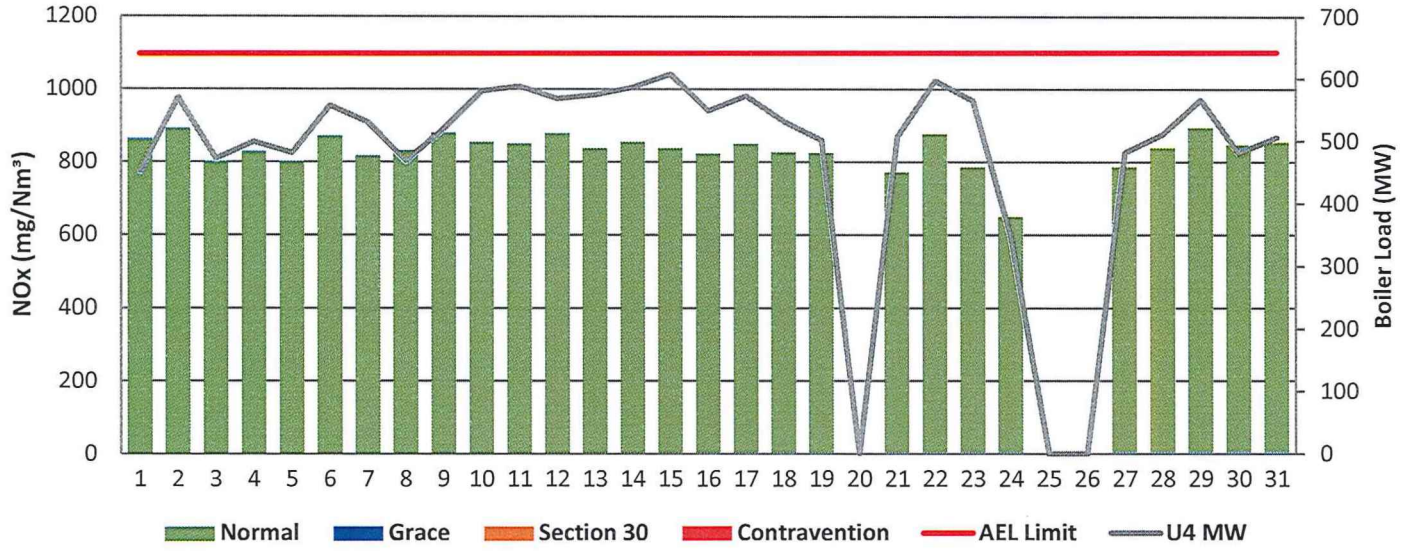


Figure 17: Lethabo Unit 5 NOx Emissions - August 2021

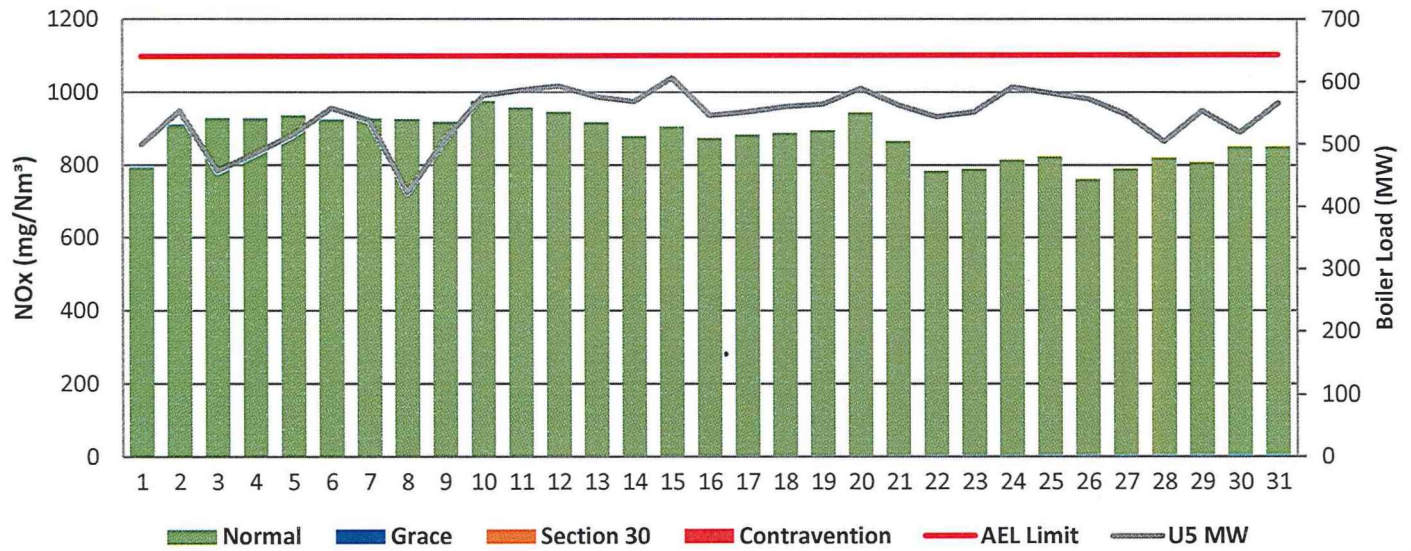
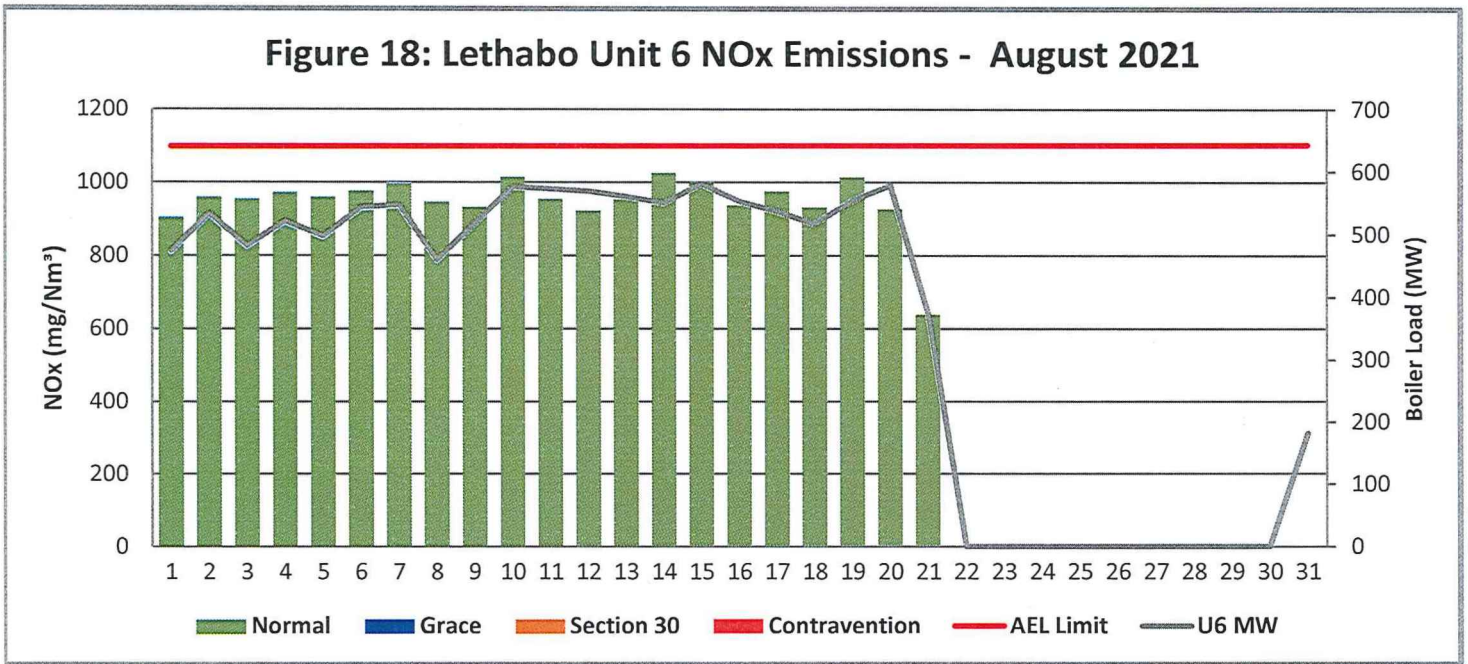


Figure 18: Lethabo Unit 6 NOx Emissions - August 2021



7 SHUT DOWN AND LIGHT UP INFORMATION

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

Unit No.1	Drum level low protection.					
Breaker Open (BO)	12:10 PM	2021/08/24				
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
Fires in time	2:27 PM	2021/08/24				
Synch. to Grid (or BC)	2:50 PM	2021/08/24				
Fires in to BC (duration)	00:00:23	DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	12:10 PM	2021/08/24				
Emissions below limit from BC (duration)		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>Poor vacuum due to main CW pump tripped</i>		<i>AM: Main condenser vac. protection.</i>				
Breaker Open (BO)	10:25 AM	2021/08/13	2:55 PM	2021/08/20			
Draught Group (DG) Shut Down (SD)	<i>DG did not trip or SD</i>	<i>DG did not trip or SD</i>	<i>DG did not trip or SD</i>	<i>DG did not trip or SD</i>			
BO to DG SD (duration)	<i>n/a</i>	DD:HH:MM	<i>n/a</i>	DD:HH:MM		DD:HH:MM	DD:HH:MM
Fires in time			4:56 PM	2021/08/20			
Synch. to Grid (or BC)			5:20 PM	2021/08/20			
Fires in to BC (duration)		DD:HH:MM	00:00:24	DD:HH:MM		DD:HH:MM	DD:HH:MM
Emissions below limit from BC (end date)			2:55 PM	2021/08/20			
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 repairs</i>		<i>Boiler tube leak repairs</i>					
Breaker Open (BO)	<i>11:00 AM</i>	<i>2021/08/19</i>	<i>1:25 AM</i>	<i>2021/08/24</i>				
Draught Group (DG) Shut Down (SD)	<i>10:50 PM</i>	<i>2021/08/19</i>	<i>4:40 PM</i>	<i>2021/08/24</i>				
BO to DG SD (duration)	<i>00:11:50</i>	<i>DD:HH:MM</i>	<i>00:15:15</i>	<i>DD:HH:MM</i>		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>
Fires in time	<i>3:50 AM</i>	<i>2021/08/21</i>	<i>10:45 AM</i>	<i>2021/08/27</i>				
Synch. to Grid (or BC)	<i>10:10 AM</i>	<i>2021/08/21</i>	<i>3:45 PM</i>	<i>2021/08/27</i>				
Fires in to BC (duration)	<i>00:06:20</i>	<i>DD:HH:MM</i>	<i>00:05:00</i>	<i>DD:HH:MM</i>		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>
Emissions below limit from BC (end date)	<i>not > limit</i>	<i>not > limit</i>	<i>11:00 PM</i>	<i>2021/08/30</i>				
Emissions below limit from BC (duration)	<i>n/a</i>	<i>DD:HH:MM</i>	<i>03:07:15</i>	<i>DD:HH:MM</i>		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>

Unit No.5								
Breaker Open (BO)								
Draught Group (DG) Shut Down (SD)								
BO to DG SD (duration)		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>
Fires in time								
Synch. to Grid (or BC)								
Fires in to BC (duration)		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>
Emissions below limit from BC (end date)								
Emissions below limit from BC (duration)		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>		<i>DD:HH:MM</i>

Unit No.6	<i>AM: Unit on IR outage.</i>						
Breaker Open (BO)	2:40 PM	2021/08/21					
Draught Group (DG) Shut Down (SD)	8:35 AM	2021/08/22					
BO to DG SD (duration)	00:17:55	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 August 2021 in mg/Nm³

8. MAINTENANCE

Unit 1				
Beginning of	2021/08/27 00:00:00			
Reason for Maintenance	LHI precip casing repairs			
End (Time):	2021/08/27 19:50:00			
Duration	19:50:00			

Unit 2				
Beginning of	2021/08/08 02:59:00	2021/08/26 12:26:00		
Reason for Maintenance	SO3 Plant Repairs	SO3 Plant Repairs		
End (Time):	2021/08/19 04:27:00	2021/08/31 17:57:00		
Duration	265:28:00	125:31:00		

Unit 3				
Beginning of	2021/08/22 00:00:00			
Reason for Maintenance	RHI Precip casing repairs.			
End (Time):	2021/08/22 21:58:00			
Duration	21:58:00			

Unit 4				
Beginning of	2021/08/18 22:04:00			
Reason for Maintenance	SO3 Plant Repairs			
End (Time):	2021/08/19 04:56:00			
Duration	6:52:00			

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 Monitor was reading lower than normally observed, C&I opted to change the monitor with a spare to observe the difference as the cause of the low readings was unknown. Furthermore, the old monitor could not accept calibrations thus data on the SOx, Nox, CO, CO2, and H2O were removed from 03/08/2021 09:45 until when the old monitor was changed on the 06/08/2021 at 14:00.

Unit 1:

NOx Exceedance on 16/08/2021 : There is no NOx Abatement system and aggravated by Two Top Mills in Service (C mill not available)

NOx Exceedance on 18/08/2021 : There is no NOx Abatement system and aggravated by Two Top Mills in Service (C mill not available)

NOx Exceedance on 19/08/2021 : There is no NOx Abatement system and aggravated by Two Top Mills in Service (C mill not available)

NOx Exceedance on 23/08/2021 : There is no NOx Abatement system and aggravated by Two Top Mills in Service (C mill not available)

NOx Exceedance on 25/08/2021 : There is no NOx Abatement system and aggravated by Two Top Mills in Service (C mill not available)

NOx Exceedance on 30/08/2021 : There is no NOx Abatement system and aggravated by Two Top Mills in Service (C mill not available)

NOx Exceedance on 31/08/2021 : There is no NOx Abatement system and aggravated by Two Top Mills in Service (E mill had Tempering Damper issues).

Unit 3:

NOx Exceedance on 30/08/2021 : There is no NOx Abatement system and aggravated by Two Top Mills in Service (B mill not available)

Unit 2:

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

Unit 6:

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

Unit 3:

On the 13/08/2021 Unit 3 tripped on poor vacuum due to a cooling water pump trip. The boiler and draught groups did not trip, 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.

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	16/08/2021	16/08/2021	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	18/08/2021	19/08/2021	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	23/08/2021	23/08/2021	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	25/08/2021	25/08/2021	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	30/08/2021	31/08/2021	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	30/08/2021	30/08/2021	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
2	30/08/2021	02/09/2021	SO3 Plant Air Heater Repairs	Repair Air heater blown gasket, damaged components, leaks identified, clear sulphur build up in combustion chamber	31/08/2021	19/09/2021	None		PM Exceedance >72 hours - 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
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
Aug-21	0.24	0.73	0.41	0.55	0.24	0.28	0.41

ADDENDUM TO MONTHLY EMISSIONS REPORT

12. DAILY EMISSIONS FIGURES

Final Dust Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
01-Aug	60	49	65	25	48	48	100
02-Aug	46	79	80	55	65	61	100
03-Aug	48	66	69	37	45	51	100
04-Aug	59	74	70	49	67	68	100
05-Aug	49	94	88	47	67	58	100
06-Aug	44	74	102	57	60	66	100
07-Aug	55	82	76	65	62	75	100
08-Aug	32	76	100	36	45	41	100
09-Aug	40	141	55	55	54	44	100
10-Aug	56	160	69	61	63	59	100
11-Aug	54	95	59	140	67	65	100
12-Aug	64	283	92	220	65	69	100
13-Aug	56	35	212	39	62	67	100
14-Aug	58	70	45	49	61	64	100
15-Aug	59	93	59	56	55	66	100
16-Aug	64	161	69	48	52	59	100
17-Aug	94	177	55	55	51	61	100
18-Aug	47	99	71	157	49	53	100
19-Aug	62	171	77	164	54	58	100
20-Aug	71	246	93	OFF	59	64	100
21-Aug	89	62	74	OFF	48	44	100
22-Aug	76	166	156	376	44	OFF	100
23-Aug	81	80	70	299	62	OFF	100
24-Aug	70	90	93	266	78	OFF	100
25-Aug	74	113	117	OFF	47	OFF	100
26-Aug	63	100	98	OFF	51	OFF	100
27-Aug	143	263	78	OFF	43	OFF	100
28-Aug	50	204	66	446	53	OFF	100
29-Aug	50	101	88	392	61	OFF	100
30-Aug	52	101	113	104	58	OFF	100
31-Aug	57	250	79	65	58	OFF	100

ADDENDUM TO MONTHLY EMISSIONS REPORT

Final SOx Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
01-Aug	1762	2088	2087	2052	1951	2077	3500
02-Aug	1785	2068	2095	2030	1930	2103	3500
03-Aug	1849	2083	2077	1970	1933	2105	3500
04-Aug	1977	2148	2108	2088	1990	2256	3500
05-Aug	1977	2181	2230	2122	1989	2219	3500
06-Aug	2027	2191	2167	2127	1970	2228	3500
07-Aug	2066	2194	2237	2017	2038	2140	3500
08-Aug	2097	2194	2156	2073	2045	2237	3500
09-Aug	2033	2092	2133	2105	2124	2250	3500
10-Aug	1971	2097	2061	2024	1961	2106	3500
11-Aug	1980	2030	2006	1990	1985	2110	3500
12-Aug	2009	2068	2015	2032	1999	2086	3500
13-Aug	2105	2133	2131	2021	2039	2212	3500
14-Aug	2078	2117	2124	2038	2021	2172	3500
15-Aug	2107	2200	2081	2042	2031	2150	3500
16-Aug	2037	2093	2005	1924	1893	2037	3500
17-Aug	2029	2057	2128	1997	2010	2111	3500
18-Aug	2098	2095	2140	2022	2003	2175	3500
19-Aug	2062	2075	2123	2037	1982	2025	3500
20-Aug	1994	2037	2058	OFF	1905	2012	3500
21-Aug	1920	1945	1981	1989	1845	1959	3500
22-Aug	1955	2043	2042	1928	1839	OFF	3500
23-Aug	1908	1945	1966	1862	1903	OFF	3500
24-Aug	1954	1932	1912	1820	1855	OFF	3500
25-Aug	1946	2005	1965	OFF	1873	OFF	3500
26-Aug	1874	1948	1930	OFF	1838	OFF	3500
27-Aug	1944	1920	1906	1948	1857	OFF	3500
28-Aug	1887	1853	1868	1927	1850	OFF	3500
29-Aug	1991	1959	1980	2041	1943	OFF	3500
30-Aug	1957	1972	1940	1967	1925	OFF	3500
31-Aug	1910	1918	1965	2003	1935	OFF	3500

ADDENDUM TO MONTHLY EMISSIONS REPORT

Final NOx Concentration (mg/Nm³)

Date	U1	U2	U3	U4	U5	U6	Limit
01-Aug	427	695	841	865	795	906	1100
02-Aug	725	809	854	894	914	962	1100
03-Aug	761	763	964	803	931	957	1100
04-Aug	1042	808	844	831	931	973	1100
05-Aug	1042	754	935	803	938	962	1100
06-Aug	1020	736	957	874	928	979	1100
07-Aug	1064	708	862	819	930	998	1100
08-Aug	1019	611	867	833	928	947	1100
09-Aug	1014	627	814	881	920	934	1100
10-Aug	1100	709	983	856	977	1016	1100
11-Aug	1054	666	943	851	958	956	1100
12-Aug	1095	799	950	879	947	923	1100
13-Aug	1050	662	909	838	918	953	1100
14-Aug	1100	631	866	856	879	1026	1100
15-Aug	1100	608	886	838	905	1001	1100
16-Aug	1154	781	925	823	874	939	1100
17-Aug	1093	724	841	851	883	976	1100
18-Aug	1112	698	906	827	888	931	1100
19-Aug	1172	780	918	825	895	1014	1100
20-Aug	1095	812	935	OFF	944	927	1100
21-Aug	1088	763	976	772	866	639	1100
22-Aug	1085	726	745	877	783	OFF	1100
23-Aug	1109	724	867	786	789	OFF	1100
24-Aug	1047	808	948	649	814	OFF	1100
25-Aug	1137	797	960	OFF	823	OFF	1100
26-Aug	1095	698	977	OFF	761	OFF	1100
27-Aug	1069	731	839	787	790	OFF	1100
28-Aug	1065	627	926	838	819	OFF	1100
29-Aug	1083	583	1024	893	807	OFF	1100
30-Aug	1128	529	1104	846	850	OFF	1100
31-Aug	1145	662	1075	854	850	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
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
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

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
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%	2.7743056	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

ADDENDUM TO MONTHLY EMISSIONS REPORT

Particulate Emission Monitors

Availability						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
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%
Aug-21	100.00%	99.60%	99.60%	99.36%	100.00%	100.00%

Gaseous Emission Monitors

Availability												
Month	Unit 1		Unit 2		Unit 3		Unit 4		Unit 5		Unit 6	
	SO_x	NO_x	SO_x	NO_x	SO_x	NO_x	SO_x	NO_x	SO_x	NO_x	SO_x	NO_x
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%
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%

Oxygen Monitor Availability						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
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%
Aug-21	99.46%	99.87%	99.60%	100.00%	100.00%	95.45%

ADDENDUM TO MONTHLY EMISSIONS REPORT

14. EFFICIENCY

ESP Efficiency (%)						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
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%
Aug-21	99.894%	99.656%	99.810%	99.759%	99.883%	99.864%

ADDENDUM TO MONTHLY EMISSIONS REPORT

15. REMARKS

UNIT	MWLOSS	REASON	ACTUALSTARTDATE	ACTUALENDDATE
1	593	Drum level low protection.	2021/08/24 12:03:00	2021/08/24 14:50:00
1	318	AM: LH PA Fan actuator faulty.	2021/08/24 16:30:00	2021/08/24 17:51:00
1	118	LHI precip casing repairs	2021/08/27 00:00:00	2021/08/27 19:50:00
2	210	SO3 plant repairs.	2021/08/10 00:00:00	2021/08/10 04:58:00
2	210	SO3 Plant repairs	2021/08/10 22:47:00	2021/08/11 06:54:00
2	60	EF: High stack emissions	2021/08/11 09:57:00	2021/08/11 10:41:00
2	110	Ef: High stack emissions	2021/08/11 10:41:00	2021/08/11 20:30:00
2	218	AM: SO3 Plant repairs.	2021/08/11 20:30:00	2021/08/12 00:08:00
2	210	AM: SO 3 plant repairs	2021/08/12 21:28:00	2021/08/14 01:40:00
2	210	SO3 plant repairs.	2021/08/14 10:55:00	2021/08/15 08:47:00
2	210	SO3 plant repairs.	2021/08/15 13:40:00	2021/08/15 16:52:00
2	210	SO3 Plant repairs	2021/08/15 19:25:00	2021/08/16 00:21:00
2	210	SO3 plant repairs.	2021/08/17 21:44:00	2021/08/18 04:37:00
2	210	High stack emissions	2021/08/18 11:56:00	2021/08/18 21:00:00
2	210	AM: SO3 plant repairs	2021/08/18 21:00:00	2021/08/19 04:53:00
2	210	EF: High stack emissions	2021/08/26 21:04:00	2021/08/26 22:25:00
2	227	EF: High stack emissions	2021/08/26 22:25:00	2021/08/27 00:00:00
2	210	SO3 Plant repairs.	2021/08/29 00:00:00	2021/08/29 04:23:00
2	210	High stack emission.	2021/08/29 22:32:00	2021/08/30 05:13:00
2	210	AM: High stack emissions. SO3 Plant o/c.	2021/08/30 08:45:00	2021/08/30 18:19:00
2	210	High stack emissions.	2021/08/30 19:34:00	2021/08/31 00:00:00
2	210	SO3 plant repairs	2021/08/31 00:00:00	2021/08/31 05:52:00
3	593	Poor vacuum due to main CW pump tripped	2021/08/13 10:19:00	2021/08/13 13:20:00
3	593	AM: Main condenser vac. protection.	2021/08/20 14:49:00	2021/08/20 17:22:00
3	118	RHI precip casing repairs.	2021/08/22 00:00:00	2021/08/22 21:58:00
3	68	EF: High stack emissions	2021/08/26 20:39:00	2021/08/27 00:00:00
4	218	AM: SO3 plant repairs	2021/08/18 22:04:00	2021/08/19 04:56:00
4	593	Boiler tube leak repais	2021/08/19 10:54:00	2021/08/21 10:10:00
4	593	Boiler tube leak repairs	2021/08/24 01:19:00	2021/08/27 15:47:00
4	218	High stack emissions	2021/08/30 20:40:00	2021/08/31 00:18:00
6	118	Boiler tube leak.	2021/08/20 22:20:00	2021/08/20 22:37:00
6	245	Boiler tube leak	2021/08/20 22:37:00	2021/08/21 14:32:00
6	593	AM: Unit on IR outage.	2021/08/21 14:32:00	2021/08/31 23:59:59

PM Exceedances		
U1.	LHI ESP Casing Repairs	27-Aug
U2.	SO3 plant fire occurred due to combustion chamber flooded due to control valve, plant is on natural cooling for repairs	09-Aug
U2.	SO3 Plant off for repairs	10-Aug
U2.	SO3 Plant off for repairs	11-Aug
U2.	SO3 Plant off for repairs	12-Aug
U2.	LHO casing power output is fluctuating 10 wire rappers with broken shearing pins reported on ESPs SO3 plant off for repairs in process	16-Aug
U2.	SO3 plant off for repairs . Manual rapping was done	17-Aug
U2.	Sulphur plant started and flow established 03:00 SO3 plant tripped 07:24, plant in service 09:45 Sulphur flow is low and steam temperature are low. Steam temperatures are low on all units, however Unit 2 is most affected as there was no Sulphur flow yesterday	19-Aug
U2.	SO3 plant in service, however Sulphur flow is low and steam temperature are low	20-Aug
U2.	LHI F4 High hopper level SO3 plant is in service, however it is still tripping on high outlet temperature	22-Aug
U2.	SO3 plant is purging due to suspected blockage, combustion temperatures are stabilizing	25-Aug
U2.	SO3 plant is off for repairs and cooling taking place	27-Aug
U2.	SO3 Plant off for repairs	28-Aug
U2.	SO3 Plant off for repairs	29-Aug
U2.	SO3 Plant off for repairs, Nema S30 reported	30-Aug
U2.	SO3 Plant off for repairs, Nema S30 reported LHO and LHI performing poor	31-Aug
U3.	SO3 plant flow issues	06-Aug
U3.	LHO F7 high hopper level, Ops reported a blocked suction pipe SO3 plant tripped back in service 17:05	13-Aug
U3.	RHI outage done this weekend LHO F7, high hopper level	22-Aug
U3.	Poor Esp performance RHI F4 high hopper level	25-Aug
U3.	ESP Poor Performance and Manual Rapping	30-Aug
U4.	Sulphur plant control valve faulty, no Sulphur flow. Valve was repaired, Baux to heat up line for Sulphur flow to be established. Manual rapping implemented	11-Aug
U4.	SO3 plant tripped this morning and also tripped multiple times yesterday on combustion outlet temperature high.	12-Aug
U4.	SO3 plant off for repairs, plant is still cooling	18-Aug
U4.	Unit Shut down for Boiler Tube leak @ 10:54	19-Aug
U4.	Unit Synchronized on 2021/08/21 @ 14:32, unit need to be below the limit on 2021/08/24 @ 14:32 SO3 plant in service, ramping up.	22-Aug
U4.	Unit Light up	23-Aug
U4.	Unit light up and shutdown for Boiler tube leak	24-Aug
U4.	Unit off for boiler tube leak repairs	27-Aug
U4.	Unit Light Up Unit synchronized on 2021/08/27 @ 15:47, need to be below the limit by 2021/08/30 @ 15:47	28-Aug
U4.	Unit Light Up Unit synchronized on 2021/08/27 @ 15:47, need to be below the limit by 2021/08/30 @ 15:47	29-Aug
U4.	Unit Light Up Unit synchronized on 2021/08/27 @ 15:47, need to be below the limit by 2021/08/30 @ 15:47	30-Aug
U6.	Unit Off load for IR Outage	22-Aug

NOX Exceedances		
U1.	There is no NOx Abatement system and aggravated by Two Top Mills in Service (C mill not available)	16-Aug
U1.	There is no NOx Abatement system and aggravated by Two Top Mills in Service (C mill not available)	18-Aug
U1.	There is no NOx Abatement system and aggravated by Two Top Mills in Service (C mill not available)	19-Aug
U1.	There is no NOx Abatement system and aggravated by Two Top Mills in Service (C mill not available)	23-Aug
U1.	There is no NOx Abatement system and aggravated by Two Top Mills in Service (C mill not available)	25-Aug
U1.	There is no NOx Abatement system and aggravated by Two Top Mills in Service (C mill not available)	30-Aug
U1.	There is no NOx Abatement system and aggravated by Two Top Mills in Service (E mill had Tempering Damper issues)	31-Aug
U3.	There is no NOx Abatement system and aggravated by Two Top Mills in Service (B mill not available)	30-Aug