

Mr. Chakane Sibaya  
Air Quality Officer  
Fezile Dabi District Municipality  
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Sasolburg  
1947

Date:  
24 June 2021

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**LRP03PLA000 \_0245/20210623**

Dear Mr. Sibaya

**LETHABO POWER STATION EMISSION MONTHLY REPORT FOR MAY 2021**

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

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

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

Yours sincerely



Karabo Rakgolela  
**GENERAL MANAGER**

	<b>Report</b>	<b>Lethabo Power Station</b>
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Report name: **Lethabo Power Station  
May 2021  
Emission Report**

Reference number: **LRP03PLA000  
\_0245/20210623**

Document Type: **Report**


Area of Applicability: **Environment**

Report Date: **June 2021**

Classification: **Controlled  
Disclosure**

**Signatures:**

**Compiled by:**

  
.....  
P Parag  
**System Engineer**

**Verified by :**

  
.....  
W de Klerk  
**Environmental Officer**

**Reviewed by:**

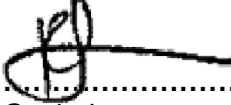
  
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N Mazibuko  
**BPE Manager**

**Date:** 2021/06/23  
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**Date:** 2021 06 23  
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**Date:** 2021/06/24  
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**Reviewed by:**

  
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C Govinden  
**PE Manager**

**Reviewed by:**

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L Nel  
**C&I Manager**

**Reviewed by:**

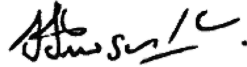
  
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M Hariram  
**Environmental Manager**

**Date:** 2021/06/24  
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**Date:** 2021/06/24  
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**Date:** 2021/06/24  
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**Approved by:**

  
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H Sewsunker  
**Engineering Manager**

**Date:** 2021/06/24  
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**CONTROLLED DISCLOSURE**

**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 May-2021
	Coal	Tons	2 000 000	1 495 022
	Fuel Oil	Tons	1 700	969.53
Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Production Rate May-2021
	Energy	GWh	2834.64	2 137.53
	Ash	Tons	770 000	587 992.1
	RE Ash	kg/MWh	not specified	275.08

**2. ENERGY SOURCE CHARACTERISTICS**

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.656 (Standard)	0.690
Ash Content	%	37.37 (Standard)	39.330

\*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/Nm<sup>3</sup>)

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 May-2021
Unit 1	<i>Electrostatic Precipitator (ESP)</i>	99.87%
Unit 2	<i>Electrostatic Precipitator (ESP)</i>	99.81%
Unit 3	<i>Electrostatic Precipitator (ESP)</i>	99.83%
Unit 4	<i>Electrostatic Precipitator (ESP)</i>	99.79%
Unit 5	<i>Electrostatic Precipitator (ESP)</i>	99.78%
Unit 6	<i>Electrostatic Precipitator (ESP)</i>	99.79%

### 5. MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO <sub>2</sub>	NO	CO <sub>2</sub>
Unit 1	99.0	94.3	94.3	91.0
Unit 2	100.0	99.9	100.0	99.6
Unit 3	94.8	100.0	100.0	99.7
Unit 4	99.7	99.9	99.9	99.9
Unit 5	97.3	100.0	100.0	100.0
Unit 6	99.4	100.0	100.0	100.0

## 6. EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of May 2021

Associated Unit/Stack	PM (tons)	SO <sub>2</sub> (tons)	NO <sub>x</sub> (tons)
Unit 1	94	2 167	1 061
Unit 2	183.7	5 170	2 245
Unit 3	154.8	3 798	1 804
Unit 4	204.9	4 214	1 899
Unit 5	196.8	3 279	1 583
Unit 6	182.9	3 763	1 740
<b>SUM</b>	<b>1 017.6</b>	<b>22 390.7</b>	<b>10 331.9</b>

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

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average PM (mg/Nm <sup>3</sup> )
Unit 1	17	4	0	0	4	92.6
Unit 2	27	4	0	0	4	79.0
Unit 3	24	5	0	0	5	110.2
Unit 4	20	8	1	0	9	104.1
Unit 5	24	6	1	0	7	117.2
Unit 6	20	5	2	0	7	120.6
<b>SUM</b>	<b>132</b>	<b>32</b>	<b>4</b>	<b>0</b>	<b>36</b>	

Table 6.3: Operating days in compliance to SO<sub>x</sub> AEL Limit - May 2021

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average SO <sub>x</sub> (mg/Nm <sup>3</sup> )
Unit 1	24	0	0	0	0	1 877.6
Unit 2	31	0	0	0	0	2 236.1
Unit 3	30	0	0	0	0	2 079.5
Unit 4	30	0	0	0	0	2 014.6
Unit 5	31	0	0	0	0	1 920.8
Unit 6	30	0	0	0	0	2 125.4
<b>SUM</b>	<b>176</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	

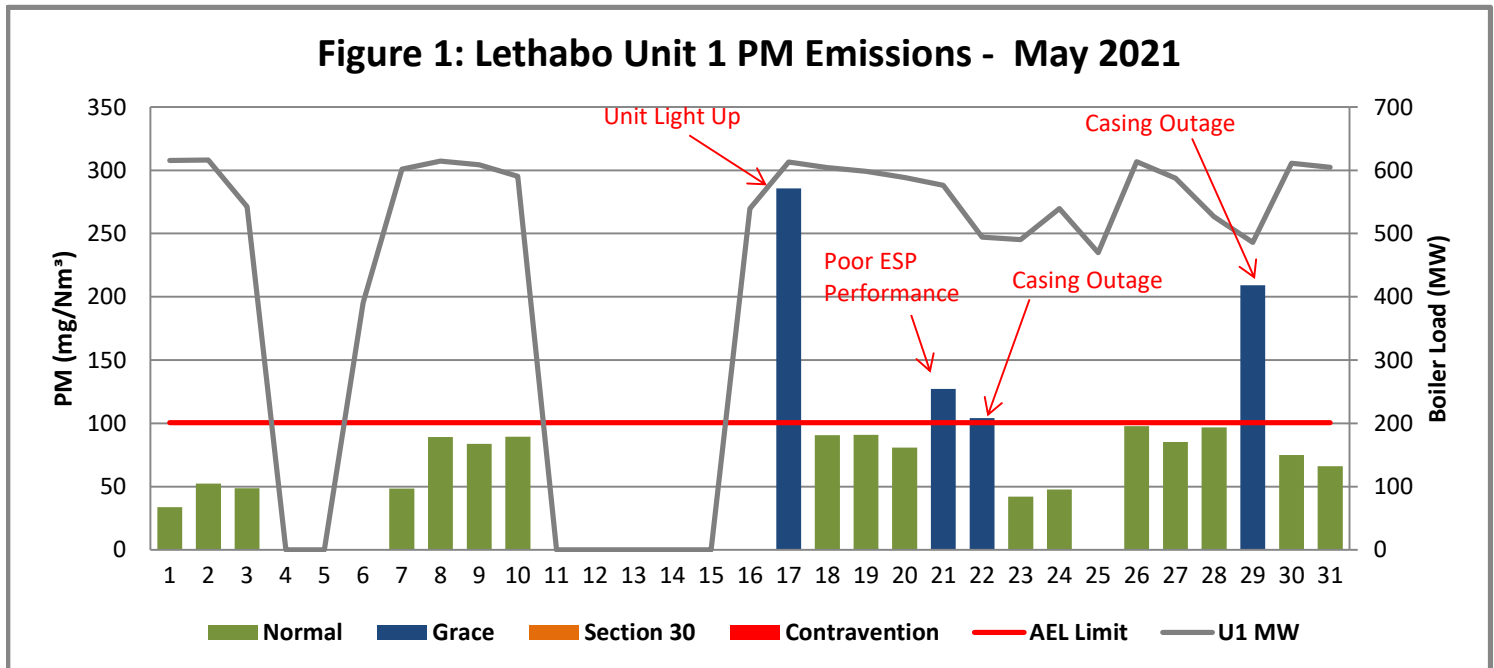
Table 6.4: Operating days in compliance to NOx AEL Limit - May 2021

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average NOx (mg/Nm <sup>3</sup> )
Unit 1	24	0	0	0	0	902.4
Unit 2	31	0	0	0	0	969.1
Unit 3	29	0	0	1	1	957.2
Unit 4	30	0	0	0	0	900.8
Unit 5	31	0	0	0	0	927.2
Unit 6	30	0	0	0	0	970.8
<b>SUM</b>	<b>175</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	

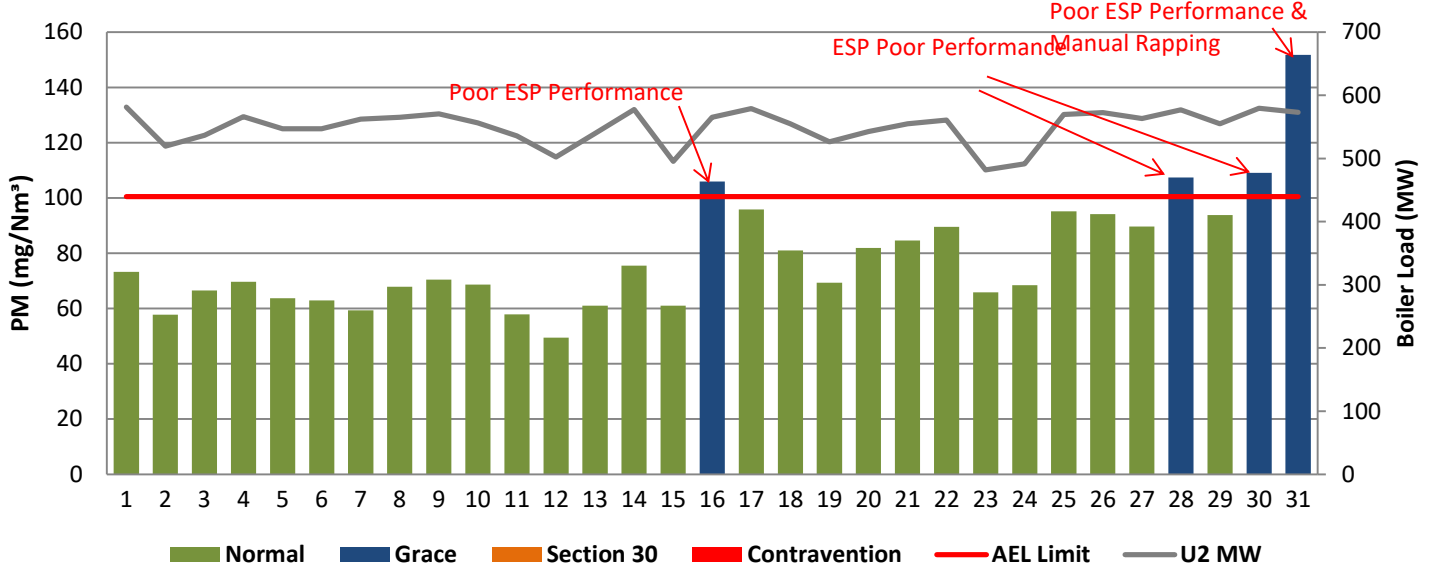
Table 6.5: Legend Description

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

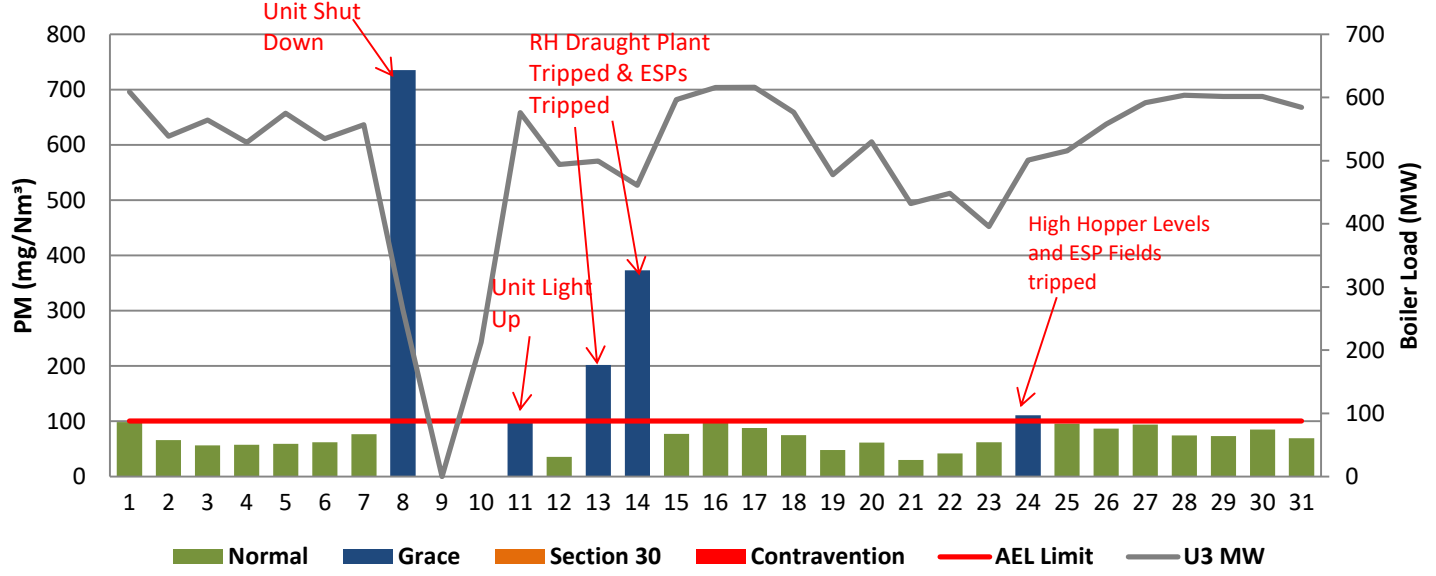
Figure 1: Lethabo Unit 1 PM Emissions - May 2021



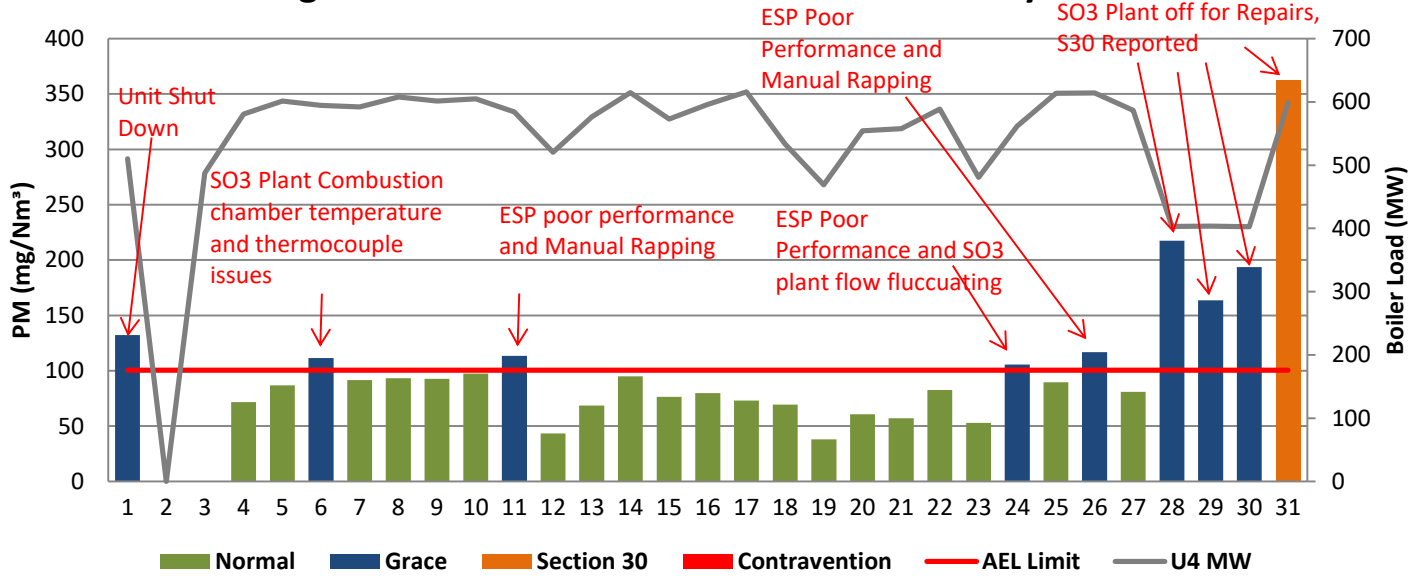
**Figure 2: Lethabo Unit 2 PM Emissions - May 2021**



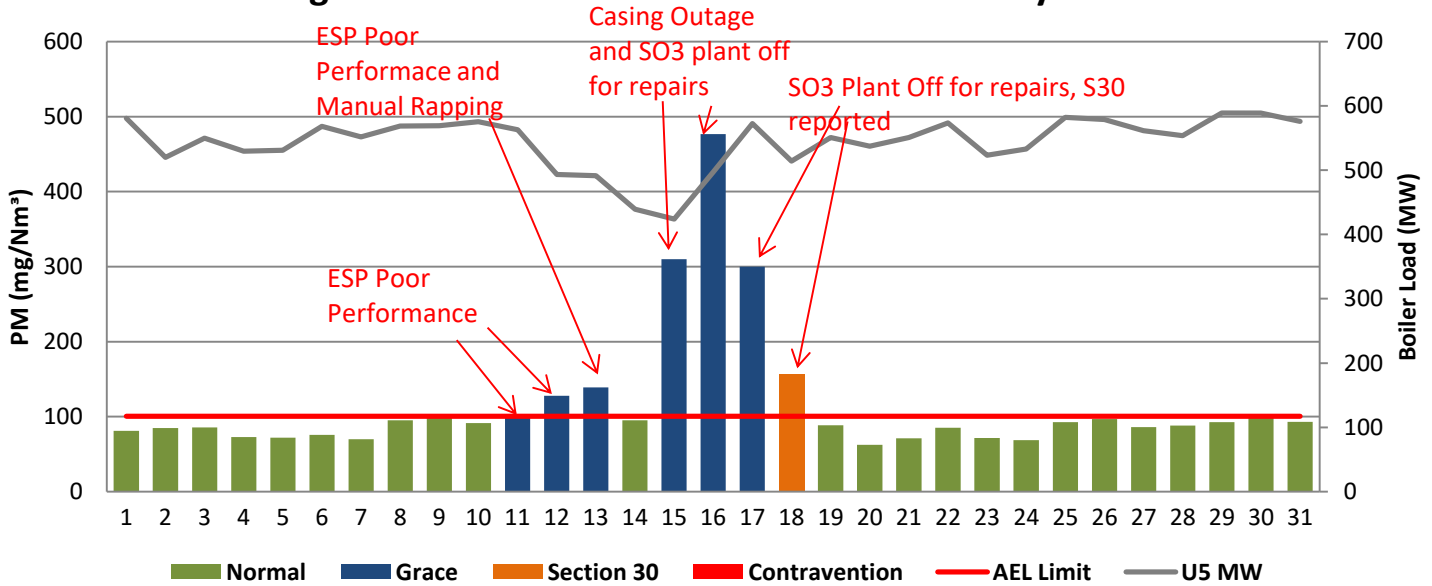
**Figure 3: Lethabo Unit 3 PM Emissions - May 2021**



**Figure 4: Lethabo Unit 4 PM Emissions - May 2021**

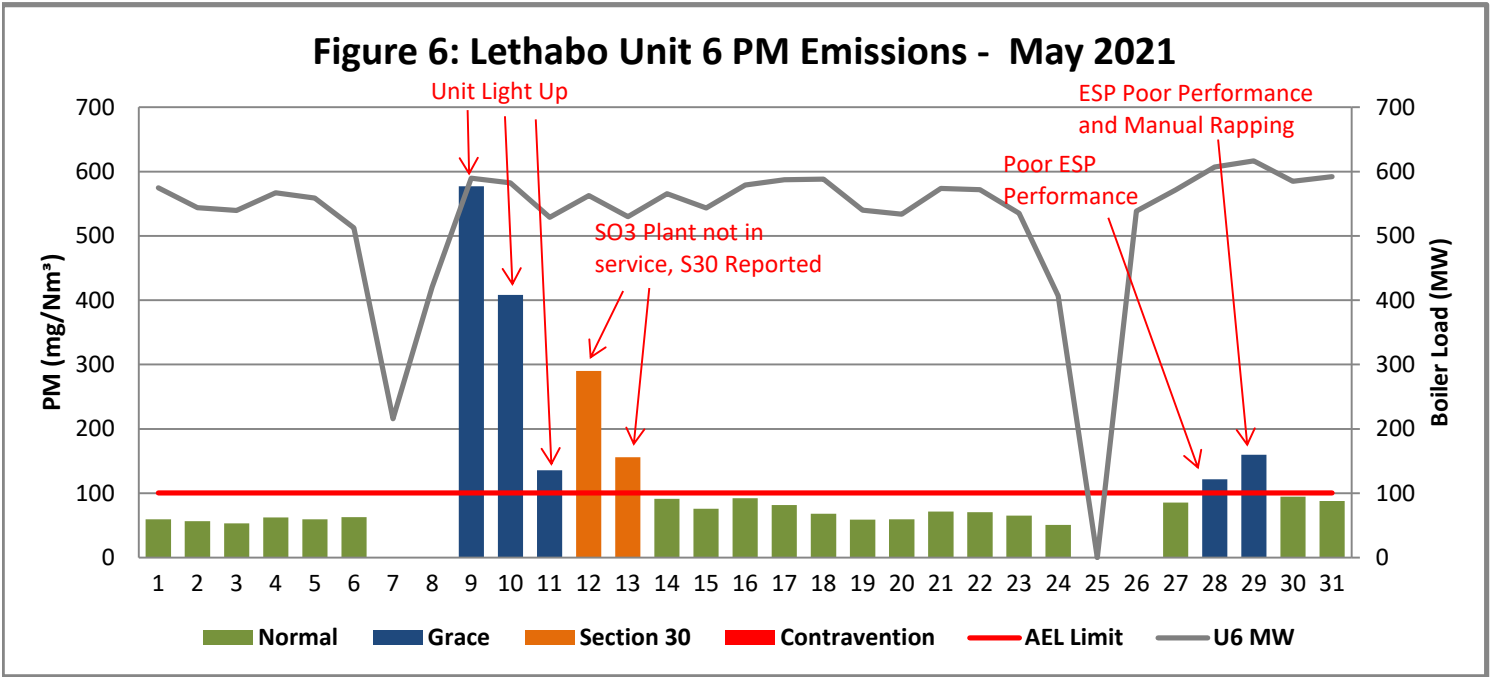


**Figure 5: Lethabo Unit 5 PM Emissions - May 2021**

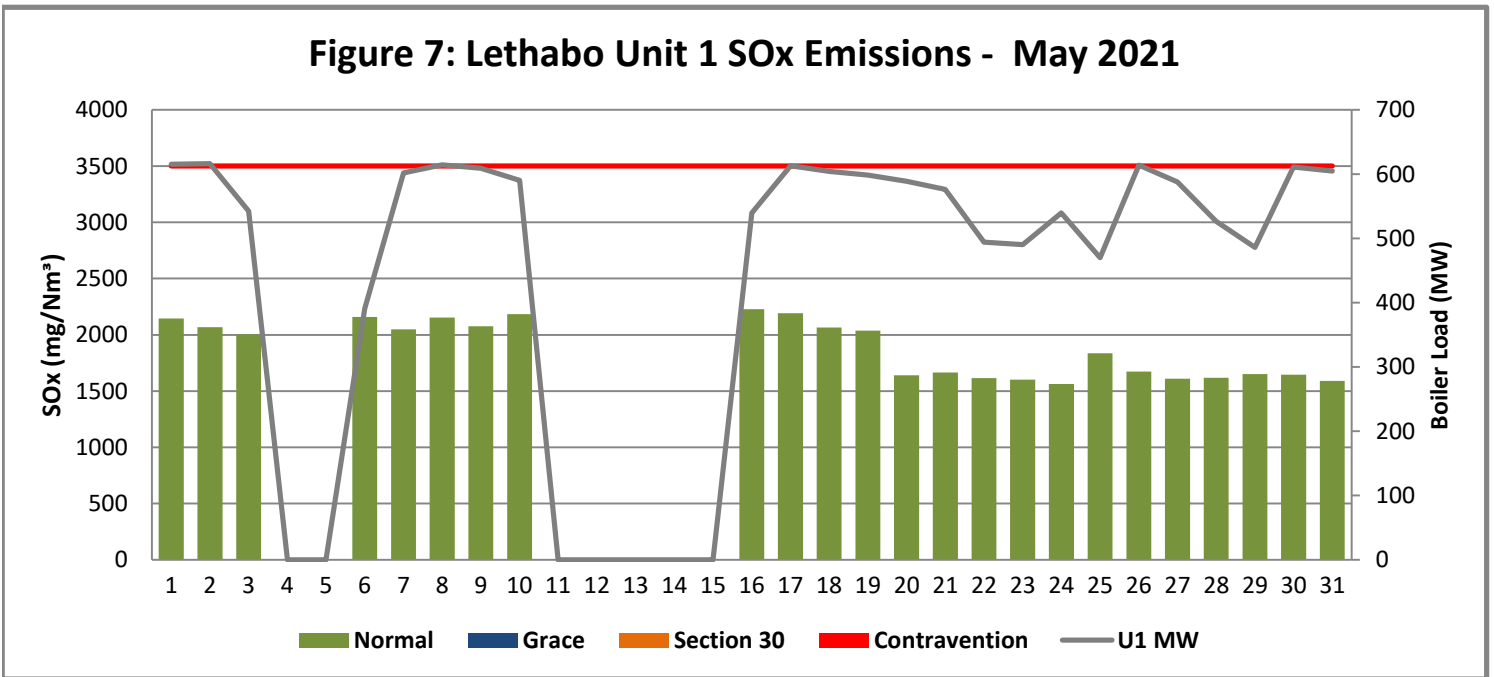




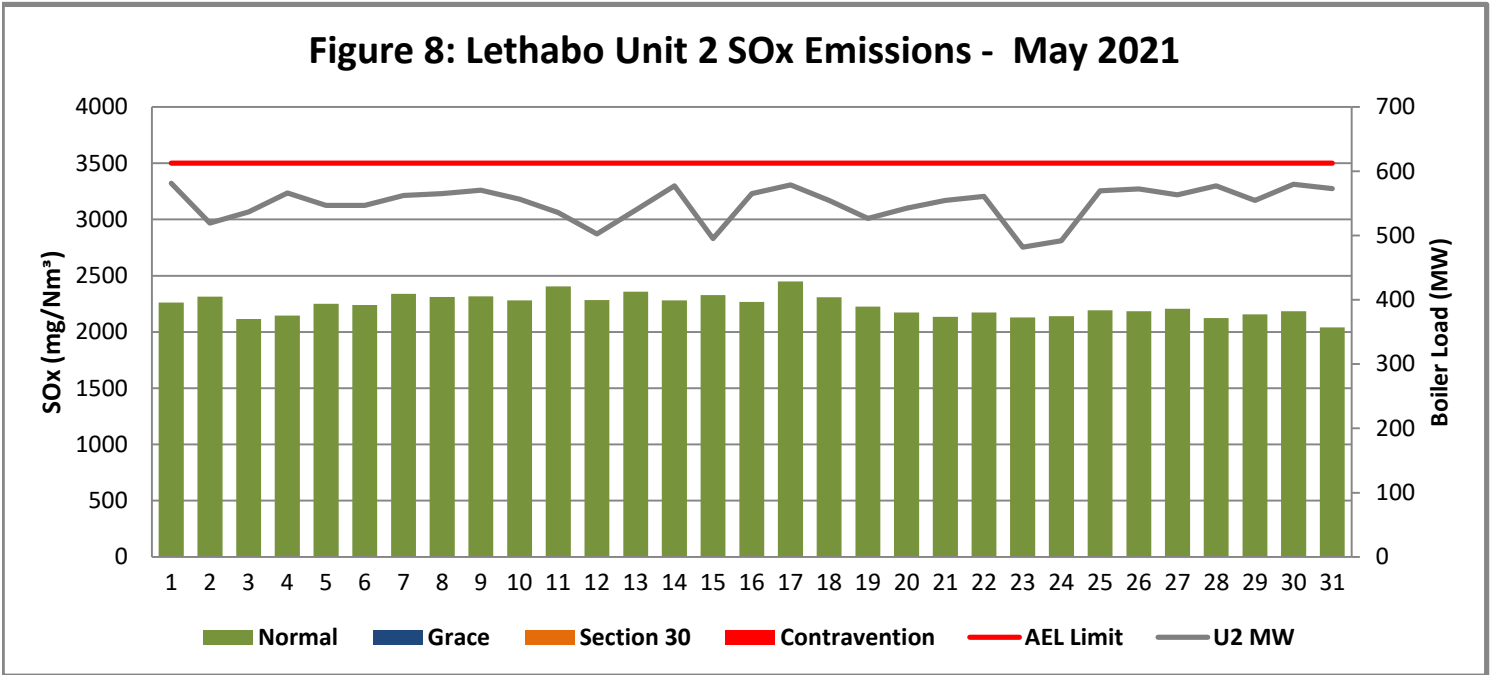
**Figure 6: Lethabo Unit 6 PM Emissions - May 2021**



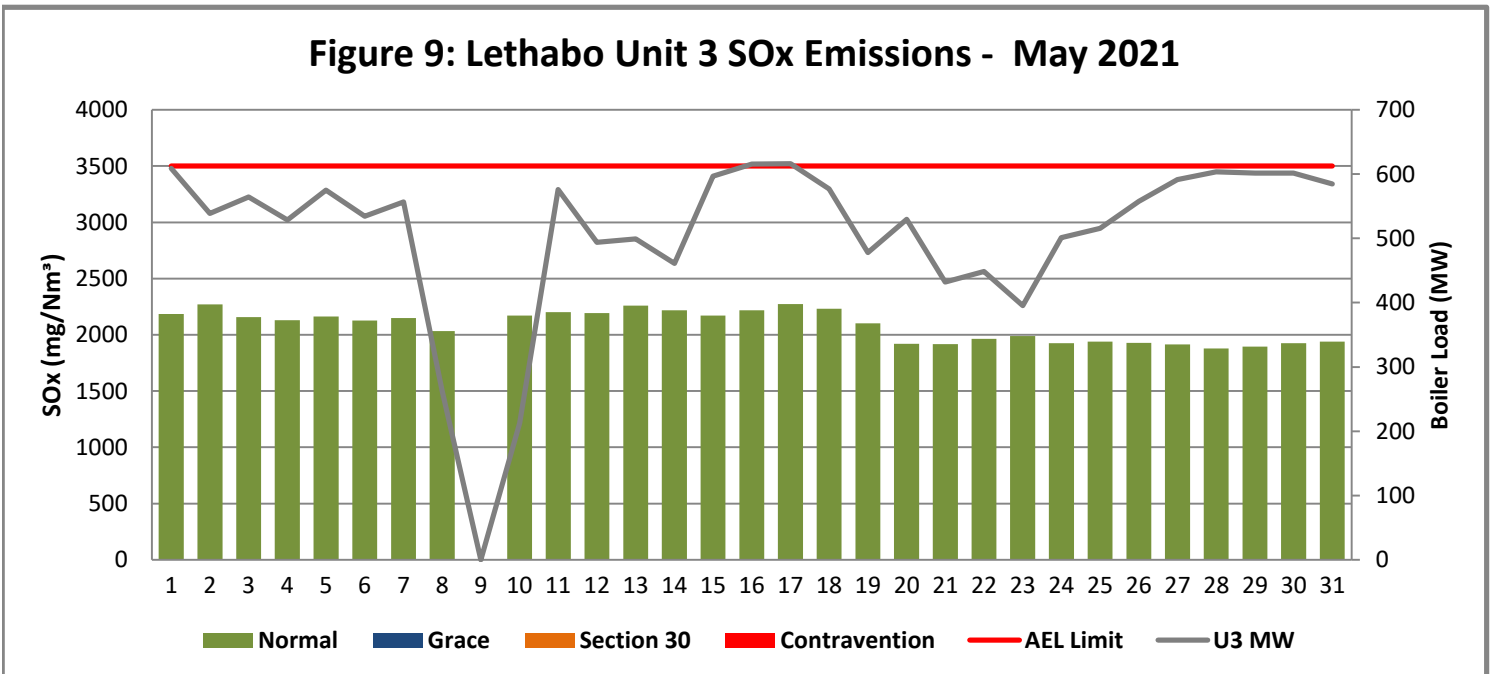
**Figure 7: Lethabo Unit 1 SOx Emissions - May 2021**



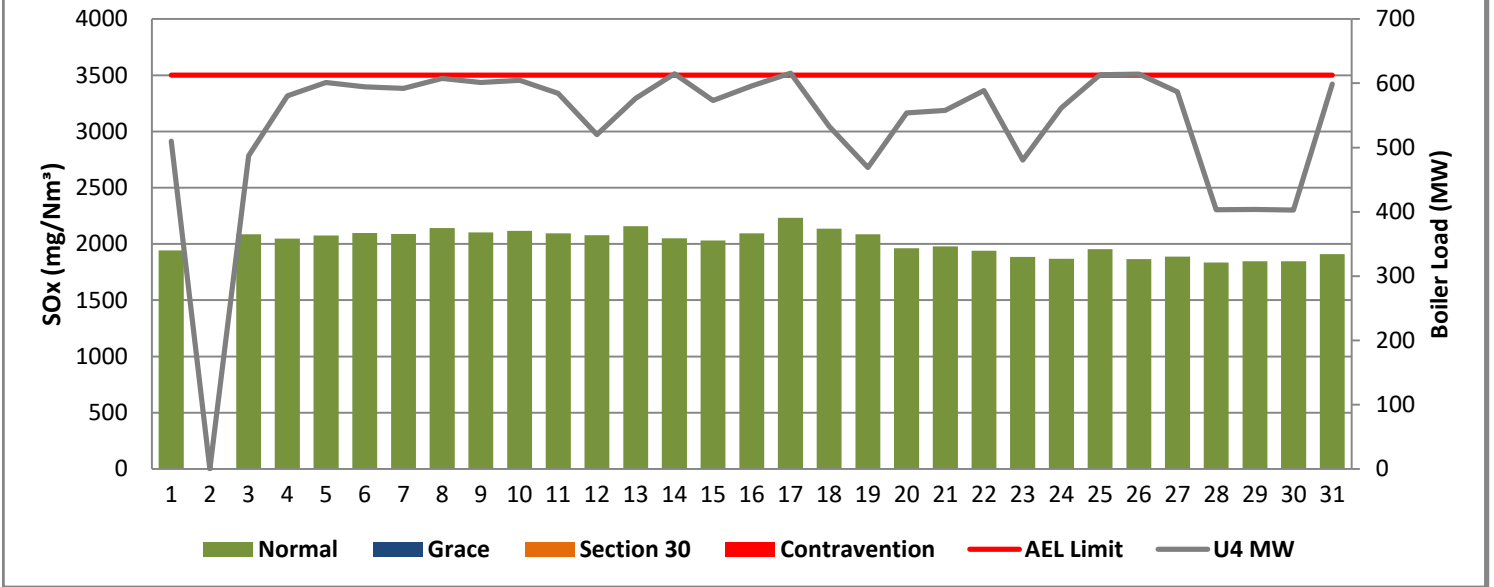
**Figure 8: Lethabo Unit 2 SOx Emissions - May 2021**



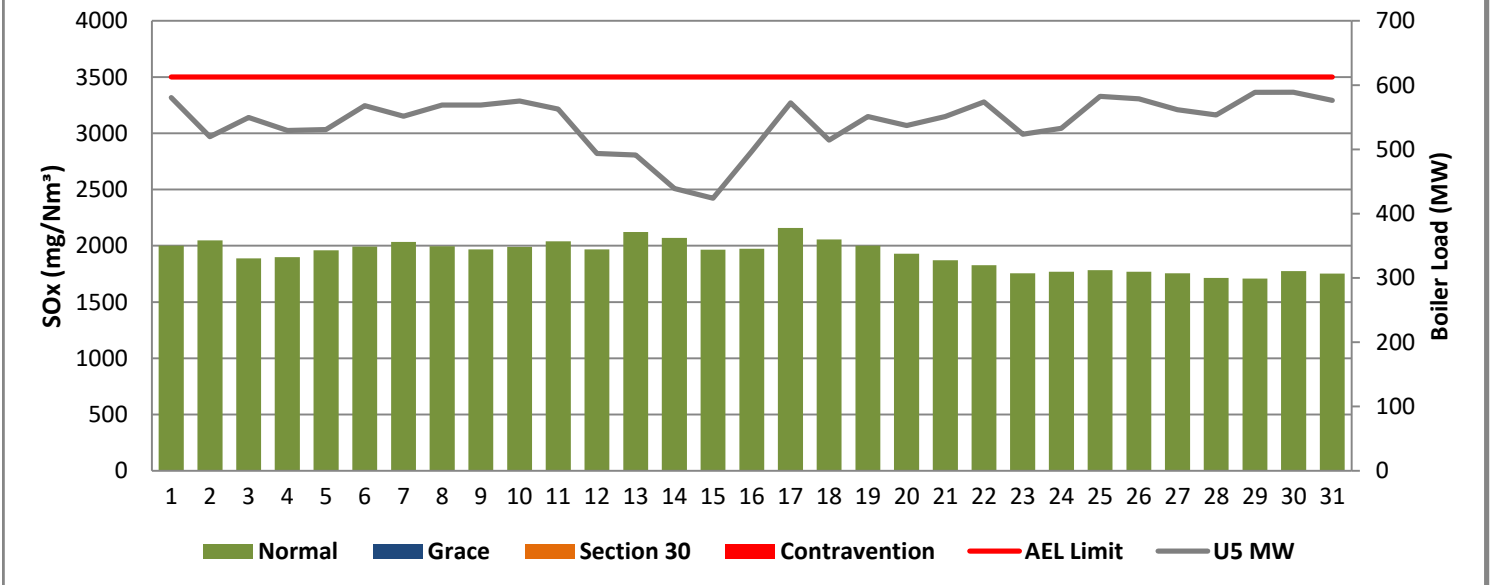
**Figure 9: Lethabo Unit 3 SOx Emissions - May 2021**



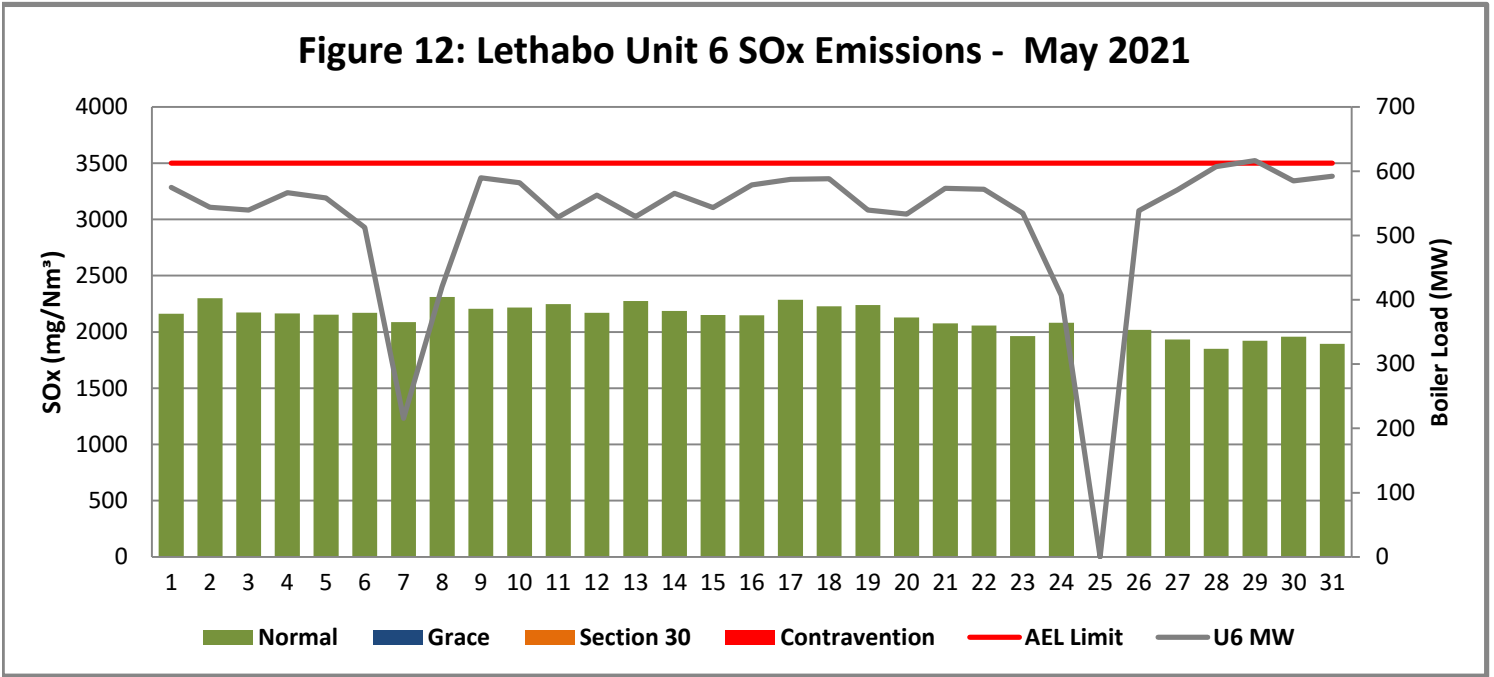
**Figure 10: Lethabo Unit 4 SOx Emissions - May 2021**



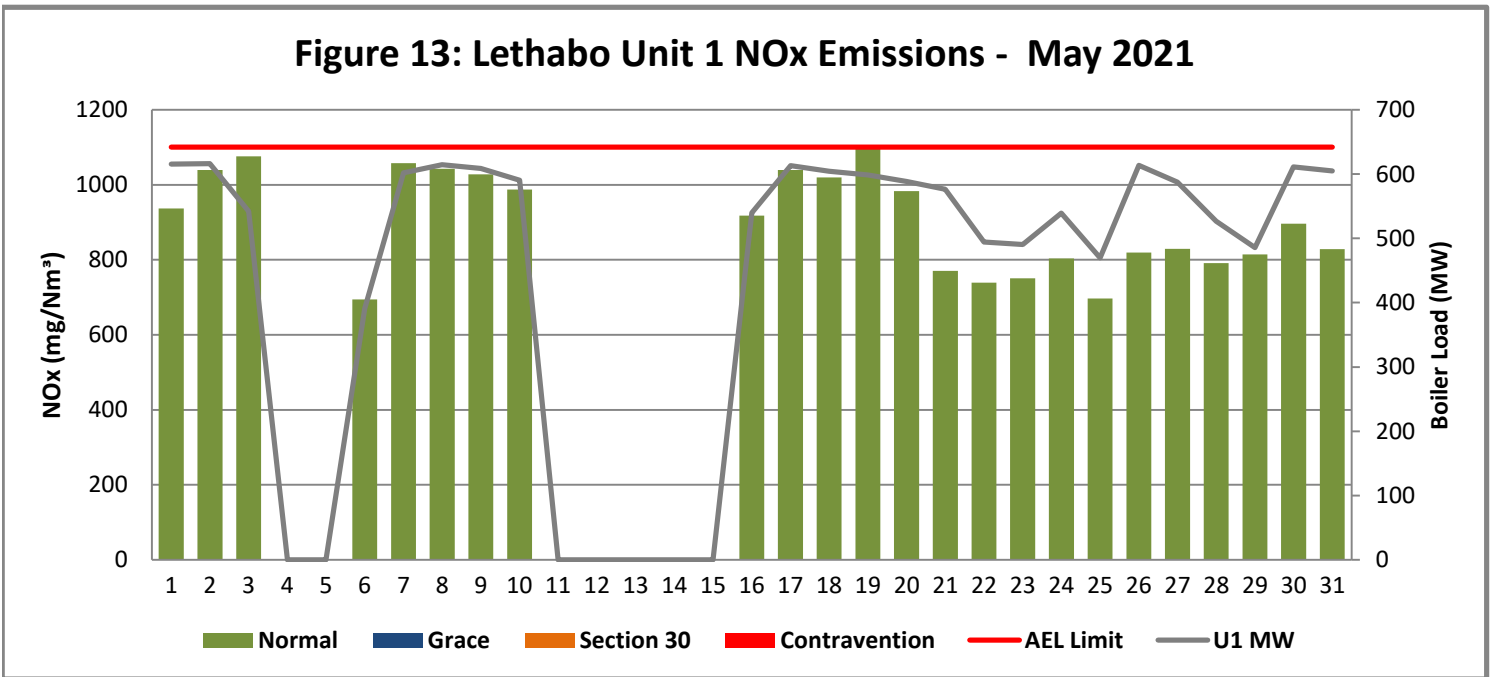
**Figure 11: Lethabo Unit 5 SOx Emissions - May 2021**



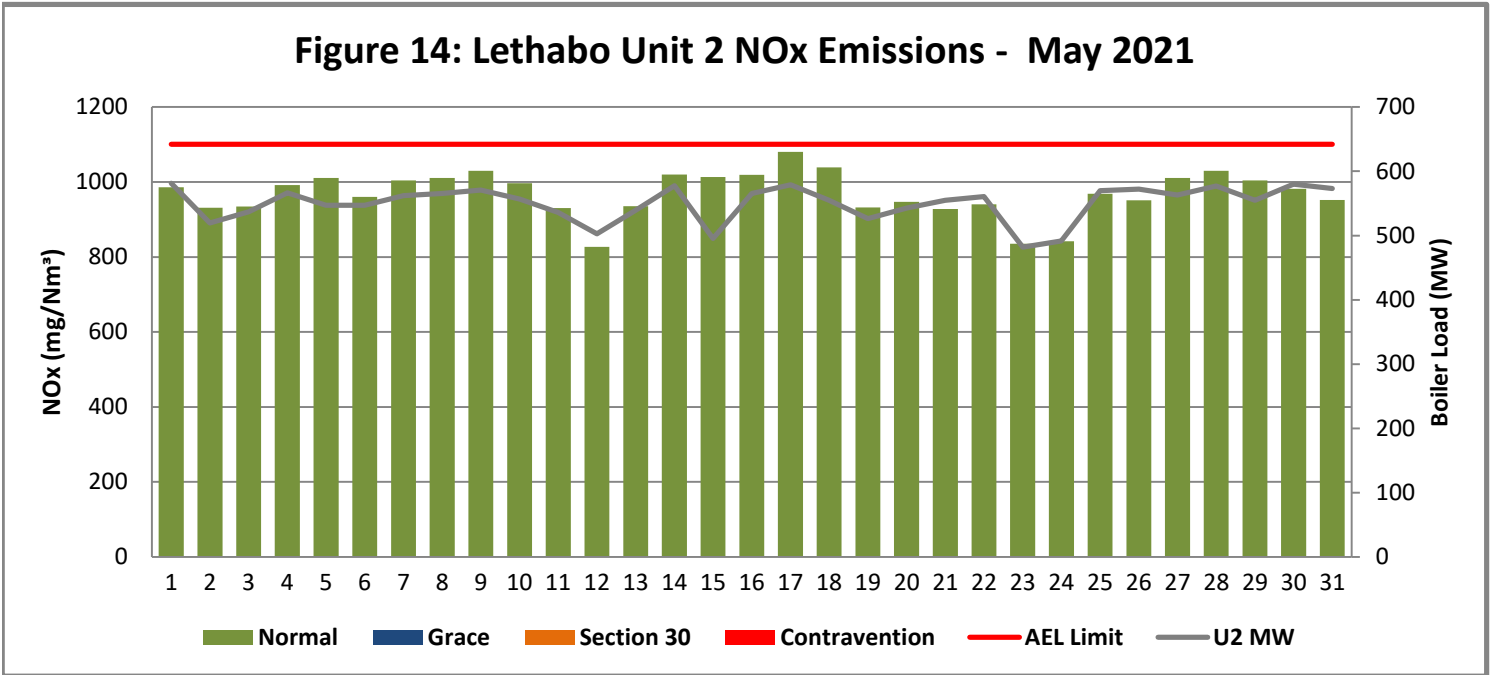
**Figure 12: Lethabo Unit 6 SOx Emissions - May 2021**



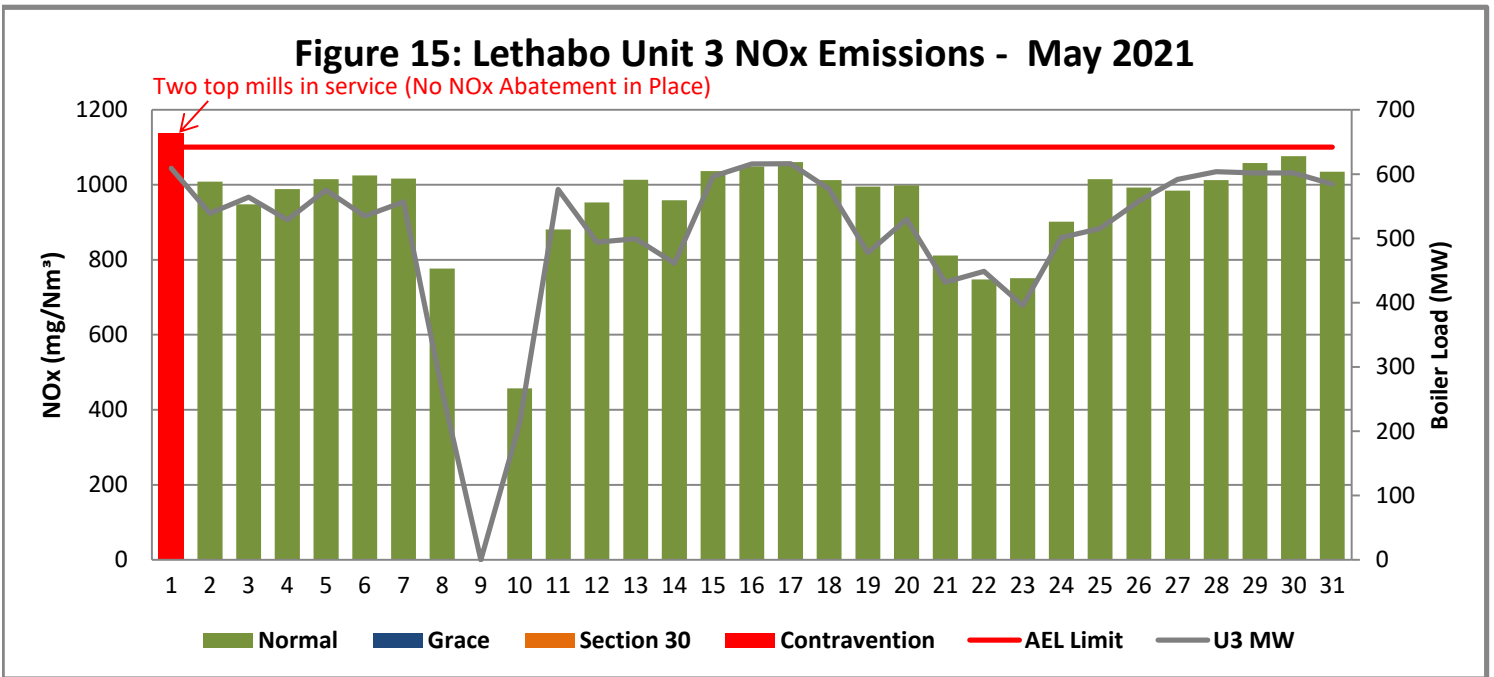
**Figure 13: Lethabo Unit 1 NOx Emissions - May 2021**



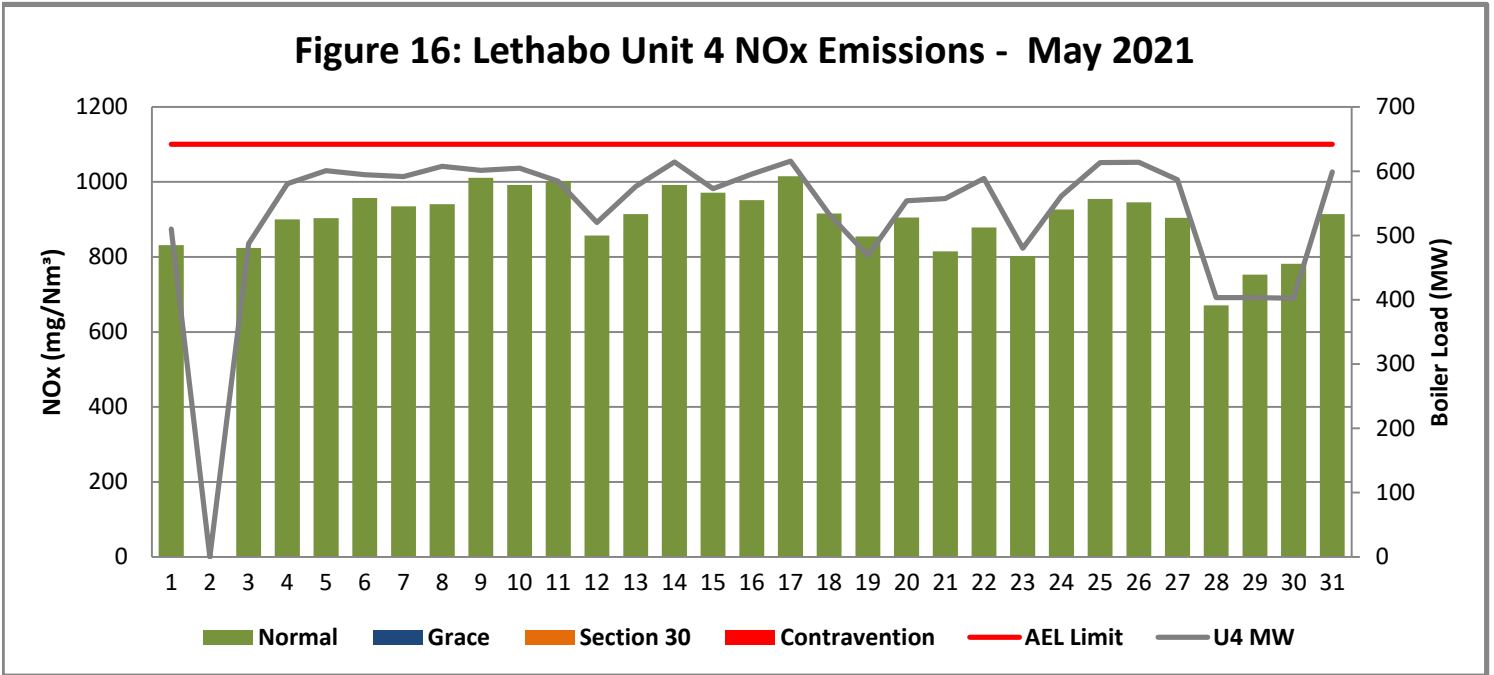
**Figure 14: Lethabo Unit 2 NOx Emissions - May 2021**



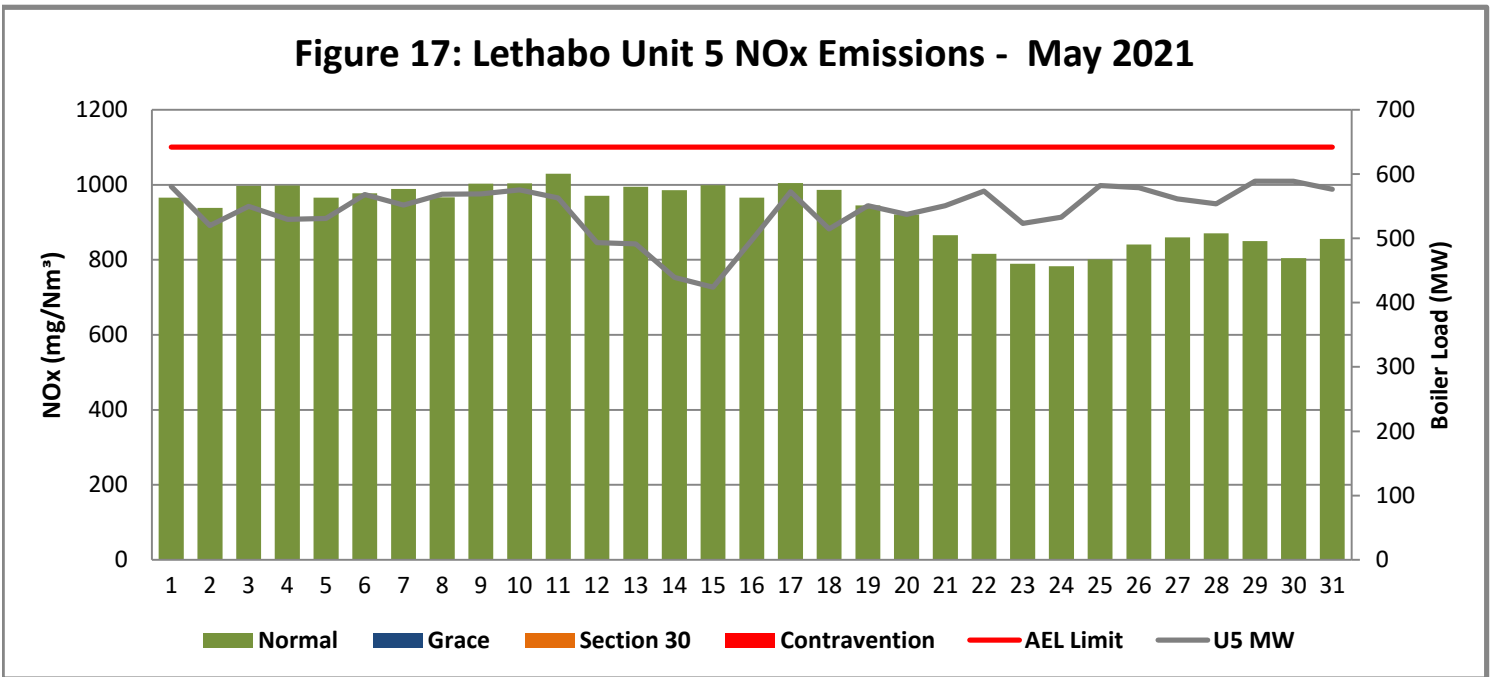
**Figure 15: Lethabo Unit 3 NOx Emissions - May 2021**



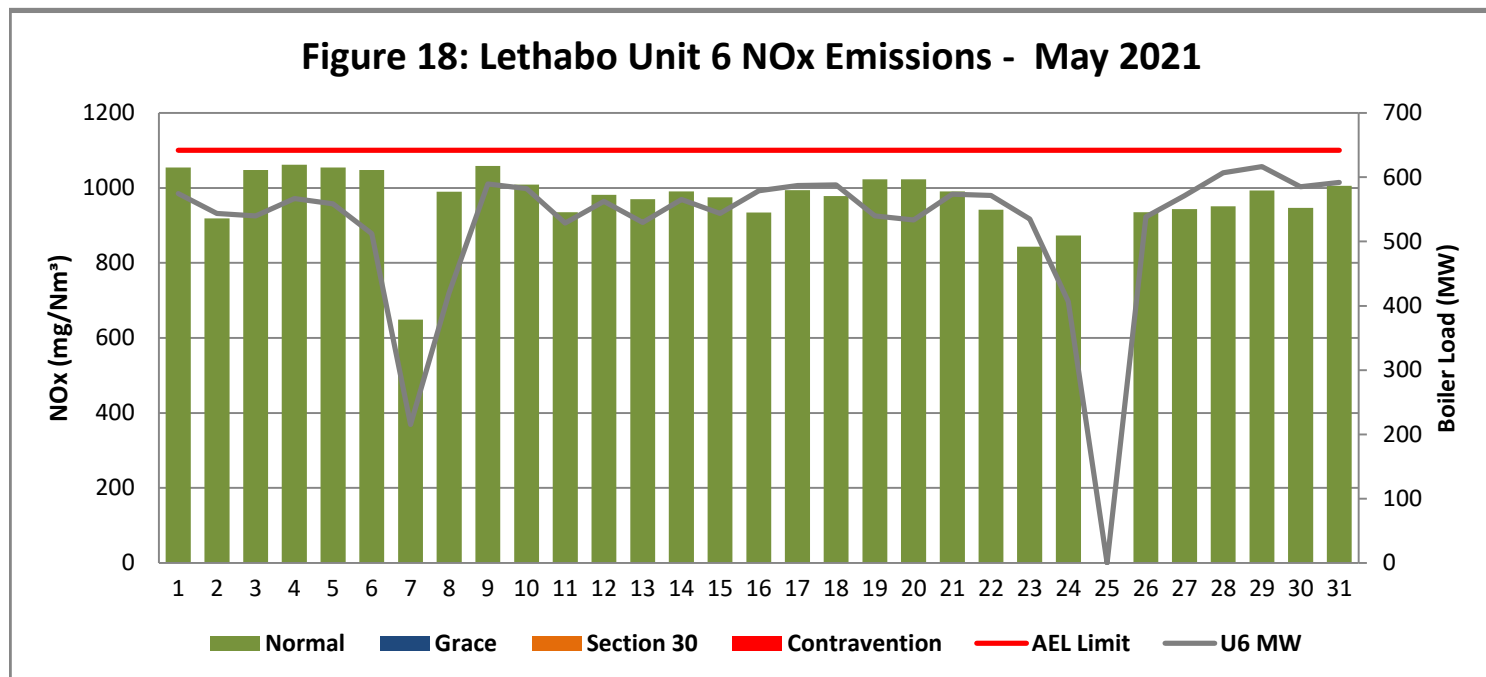
**Figure 16: Lethabo Unit 4 NOx Emissions - May 2021**



**Figure 17: Lethabo Unit 5 NOx Emissions - May 2021**



**Figure 18: Lethabo Unit 6 NOx Emissions - May 2021**



**7. SHUT DOWN AND LIGHT UP INFORMATION**

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

Unit No.1	<i>Boiler tube leak repairs</i>		<i>Boiler tube leak</i>		<i>Boiler tube leak repairs.</i>			
Breaker Open (BO)	9:35 AM	2021/05/03	10:00 PM	2021/05/10	7:35 AM	2021/05/24		
Draught Group (DG) Shut Down (SD)	9:55 PM	2021/05/03	9:20 AM	2021/05/11	7:20 PM	2021/05/24		
BO to DG SD (duration)	00:12:20	DD:HH:MM	00:11:20	DD:HH:MM	00:11:45	DD:HH:MM		
Fires in time	2:45 PM	2021/05/06	1:20 AM	2021/05/16	2:00 PM	2021/05/25		
Synch. to Grid (or BC)	4:40 PM	2021/05/06	3:30 AM	2021/05/16	4:30 PM	2021/05/25		
Fires in to BC (duration)	00:01:55	DD:HH:MM	00:02:10	DD:HH:MM	00:02:30	DD:HH:MM		
Emissions below limit from BC (end date)	12:00 AM	2021/05/07	12:00 AM	2021/05/18	6:00 AM	2021/05/27		
Emissions below limit from BC (duration)	00:07:20	DD:HH:MM	01:20:30	DD:HH:MM	01:13:30	DD:HH:MM		

Unit No.2								
Breaker Open (BO)								
Draught Group (DG) Shut Down (SD)								
BO to DG SD (duration)								
Fires in time								
Synch. to Grid (or BC)								
Fires in to BC (duration)								
Emissions below limit from BC (end date)								
Emissions below limit from BC (duration)								

Unit No.3	<b>Boiler valves repairs.</b>							
Breaker Open (BO)	12:55 AM	2021/05/08						
Draught Group (DG) Shut Down (SD)	12:00 PM	2021/05/08						
BO to DG SD (duration)	00:11:05	DD:HH:MM						
Fires in time	8:15 AM	2021/05/10						
Synch. to Grid (or BC)	8:00 PM	2021/05/10						
Fires in to BC (duration)	00:11:45	DD:HH:MM						
Emissions below limit from BC (end date)	2:00 AM	2021/05/12						
Emissions below limit from BC (duration)	01:06:00	DD:HH:MM						



<b>Unit No.4</b>	<b>Boiler tube leak repairs.</b>						
<b>Breaker Open (BO)</b>	4:10 AM	2021/05/01					
<b>Draught Group (DG) Shut Down (SD)</b>	4:40 PM	2021/05/01					
<b>BO to DG SD (duration)</b>	00:12:30	DD:HH:MM					
<b>Fires in time</b>	3:15 PM	2021/05/02					
<b>Synch. to Grid (or BC)</b>	5:00 AM	2021/05/03					
<b>Fires in to BC (duration)</b>	00:13:45	DD:HH:MM					
<b>Emissions below limit from BC (end date)</b>	4:00 AM	2021/05/04					
<b>Emissions below limit from BC (duration)</b>	00:23:00	DD:HH:MM					

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

<b>Unit No.6</b>	<b><i>HP exhaust temp high, Economizer tube leak, FRF pressure low</i></b>		<b><i>Unit tripped on HP turbine exhaust, SA11T061</i></b>		<b><i>SSC repairs.</i></b>			
<b>Breaker Open (BO)</b>	8:35 AM	2021/05/06	4:16 PM	2021/05/11	10:05 AM	2021/05/24		
<b>Draught Group (DG) Shut Down (SD)</b>	9:35 PM	2021/05/06	<i>DG did not trip or SD</i>	<i>DG did not trip or SD</i>	10:50 AM	2021/05/24		
<b>BO to DG SD (duration)</b>	00:13:00	DD:HH:MM	<i>n/a</i>	DD:HH:MM	00:00:45	DD:HH:MM		
<b>Fires in time</b>	2:15 PM	2021/05/07			12:05 AM	2021/05/26		
<b>Synch. to Grid (or BC)</b>	2:55 PM	2021/05/08			3:10 AM	2021/05/26		
<b>Fires in to BC (duration)</b>	01:00:40	DD:HH:MM		DD:HH:MM	00:03:05	DD:HH:MM		
<b>Emissions below limit from BC (end date)</b>	7:00 AM	2021/05/11			3:00 AM	2021/05/27		
<b>Emissions below limit from BC (duration)</b>	02:16:05	DD:HH:MM		DD:HH:MM	00:23:50	DD:HH:MM		

7.2: Point Source emissions released during start-up (fires-in) and Shut-down (SD) for the month of May 2021 in mg/Nm<sup>3</sup>

## 8. MAINTENANCE

<b>Unit 1</b>				
<b>Beginning of</b>	2021/05/22 00:00	2021/05/29 00:00		
<b>Reason for Maintenance</b>	LHI pricip casing repairs	LHI pricip casing repairs		
<b>End (Time):</b>	2021/05/23 00:00	2021/05/30 00:14		
<b>Duration</b>	24:00:00	24:14:00		

<b>Unit 2</b>				
<b>Beginning of</b>				
<b>Reason for Maintenance</b>				
<b>End (Time):</b>				
<b>Duration</b>				

<b>Unit 3</b>				
<b>Beginning of</b>	2021/05/21 13:21			
<b>Reason for Maintenance</b>	SO3 plant repairs.			
<b>End (Time):</b>	2021/05/24 05:00			
<b>Duration</b>	63:39:00			

<b>Unit 4</b>				
<b>Beginning of</b>	2021/05/28 00:51:00			
<b>Reason for Maintenance</b>	SO3 plant repairs.			
<b>End (Time):</b>	2021/06/01 10:45:00			
<b>Duration</b>	105:54:00			

<b>Unit 5</b>				
<b>Beginning of</b>	2021/05/15 00:00	2021/05/15 23:33	2021/05/14 22:25	
<b>Reason for Maintenance</b>	LHO Precip casing	LHI Precip casing	SO3 plant repairs.	
<b>End (Time):</b>	2021/05/15 23:33	2021/05/16 20:47	2021/05/18 17:11	
<b>Duration</b>	23:33:00	21:14:00	90:46:00	

<b>Unit 6</b>				
<b>Beginning of</b>				
<b>Reason for Maintenance</b>				
<b>End (Time):</b>				
<b>Duration</b>				

## 9. GENERAL

### Monitor Issues:

Unit 1: Dust Monitor was taken off for calibrations and maintenance from 10:00 to 13:40 on 27/05/2021

Unit 3: Dust Monitor maxed out 13/05/2021

Unit 5: Dust Monitor Maxed out 16/05/2021 & 17/05/2021

Unit 6: Start up conditions and/or Dust Monitor Maxed out 10/05/2021

Unit 1 Gaseous Monitor was overhauled by C&I maintenance (unreliable data was deleted between 10:30 on the 19th of May to 17:00 on the 20th of May)

### Unit 4:

A Section 30 was reported for SO<sub>3</sub> Plant repairs, The SO<sub>3</sub> plant was offline from the 28/05/2021 to 31/05/2021, flow was established on the 01/06/2021 however the Unit Exceeded on the 01/06/2021 due to poor ESP performance.

### Unit 5:

A Section 30 was reported for SO<sub>3</sub> Plant repairs and poor ESP performance, The SO<sub>3</sub> plant was offline from the 15/05/2021 to 18/05/2021 leading to exceedances.

### Unit 6:

A Section 30 was reported for extended start up condition, Unit synchronized on 08/05/2021 @ 14:55, needed to be below the limit by 11/05/2021 @ 14:55. Unit tripped on 2021/05/11.

Boiler was not off during the trip however, SO<sub>3</sub> plant tripped when unit tripped and issues occurred which meant plant was not on standby. This led to exceedances from 11/05/2021- 13/05/2021. Even though Emission recorded as below 100mg on 11/05/2021, it is noted that the tool discount hours where unit is not producing MW's. Actual emissions was 135.5mg/Nm<sup>3</sup> for the day. The Unit trip (turbine), SO<sub>3</sub> Plant challenges coupled with start up conditions contributed to the Section 30 being incurred.

### Unit 3:

NO<sub>x</sub> Exceedance on 01/05/2021 due to there being no NO<sub>x</sub> Abatement system and is further aggravated by two top mills in operation (B Mill unavailable)