



Generation

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Total number of pages: 15

Total number of annexes:1

DUVHA POWER STATION

Atmospheric Emission License 17/4/AEL/MP312/11/07



GENERAL MANAGER

2021/05/26

DATE

DUVHA POWER STATION MONTHLY EMISSIONS REPORT
Atmospheric Emission License 17/4/AEL/MP312/11/07



1 RAW MATERIALS AND PRODUCTS

Raw Materials and Products	Raw Material Type	Units	Maximum Permitted Consumption Rate	Consumption Rate Mar-2021
	Coal	Tons	1 400 000	443 957.03
Fuel Oil	Tons	5 000	3008.12	

Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Production Rate Mar-2021
	Energy	GWh	3600	723.42
	Ash	Tons	not specified	119779.61
	RE Ash	kg/MWh	not specified	0.36

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.6 TO >1.2	0.86
Ash Content	%	27 TO 30	26.98

3 EMISSION LIMITS (mg/Nm³)

Associated Unit/Stack	PM	SO _x	NO _x
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	Minimum Control Efficiency	Efficiency March-2021	Minimum Utilization	Utilization March-2021
Unit 1	<i>Fabric Filter Plant (FFP)</i>	99%	99.69%	100%	100%
Unit 2	<i>Fabric Filter Plant (FFP)</i>	99%	99.87%	100%	100%
Unit 4	<i>Electro Static Precipitator (ESP)</i>	99.6%	99.78%	100%	100%
Unit 5	<i>Electro Static Precipitator (ESP)</i>	99.6%	Off load	100%	Off load
Unit 6	<i>Electro Static Precipitator (ESP)</i>	99.6%	99.74%	100%	100%
Unit 4	<i>Chemithon (SO₃)</i>	99.6%	100%	96%	97.0%
Unit 5	<i>Chemithon (SO₃)</i>	99.6%	Off load	96%	Off load
Unit 6	<i>Chemithon (SO₃)</i>	99.6%	100%	96%	96.0%

5 MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO ₂	NO
Unit 1	100.0	100.0	100.0
Unit 2	100.0	100.0	100.0
Unit 4	100.0	75.8	77.3
Unit 6	99.9	81.4	81.4

6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of March 2021

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	118.5	4 016	1 795
Unit 2	20.1	927	639
Unit 4	18.6	646	336
Unit 6	119.7	3 877	1 700
SUM	276.9	9 467	4 469

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	26	2	3	0	5	56.6
Unit 2	11	0	0	0	0	31.7
Unit 4	5	0	0	0	0	62.8
Unit 6	28	0	0	0	0	63.9
SUM	70	2	3	0	5	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO _x (mg/Nm ³)
Unit 1	31	0	0	0	0	1 841.1
Unit 2	12	0	0	0	0	1 301.8
Unit 4	11	0	0	0	0	1 325.1
Unit 6	29	0	0	0	0	2 003.1
SUM	83	0	0	0	0	

Table 6.4: Operating days in compliance to NO_x AEL Limit - March 2021

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NO _x (mg/Nm ³)
Unit 1	31	0	0	0	0	817.7
Unit 2	12	0	0	0	0	883.0
Unit 4	11	0	0	0	0	678.2
Unit 6	29	0	0	0	0	876.6
SUM	83	0	0	0	0	

Table 6.5: Legend Description

Condition	Colour	Description
Normal		Emissions below Emission Limit Value (ELV)
Grace		Emissions above the ELV during grace period
Section 30		Emissions above ELV during a NEMA S30 incident
Contravention		Emissions above ELV but outside grace or S30 incident conditions

Figure 1: Duvha Unit 1 PM Emissions - March 2021

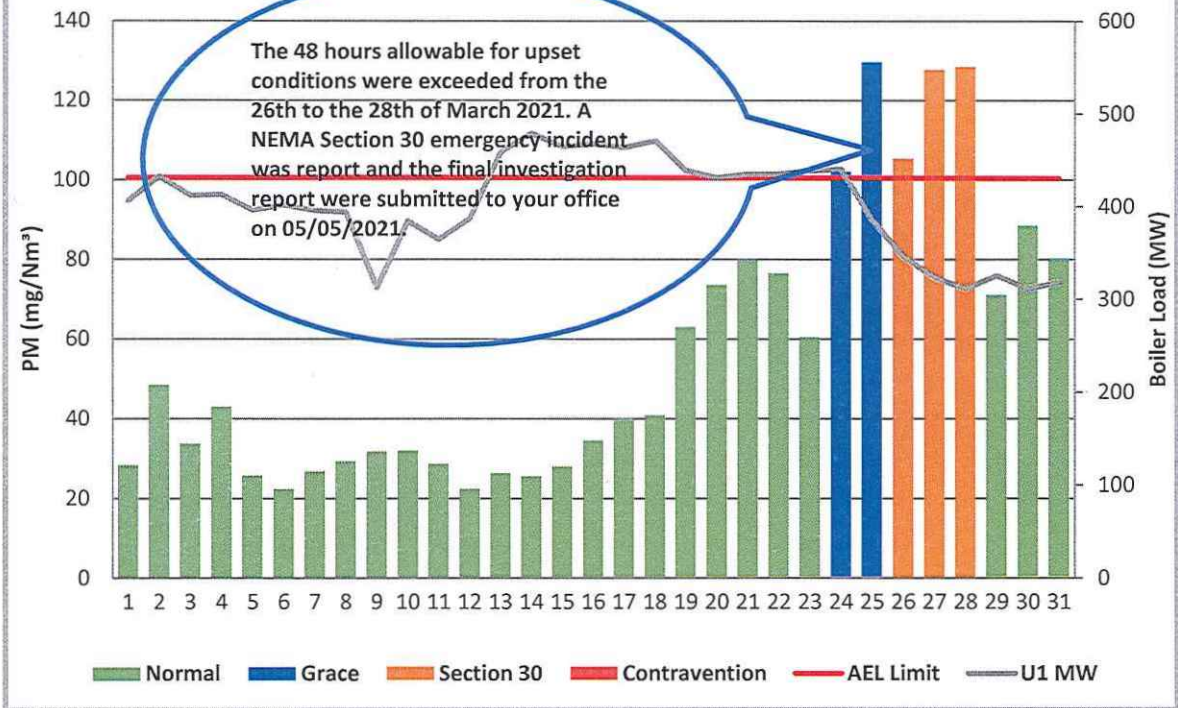


Figure 2: Duvha Unit 2 PM Emissions - March 2021

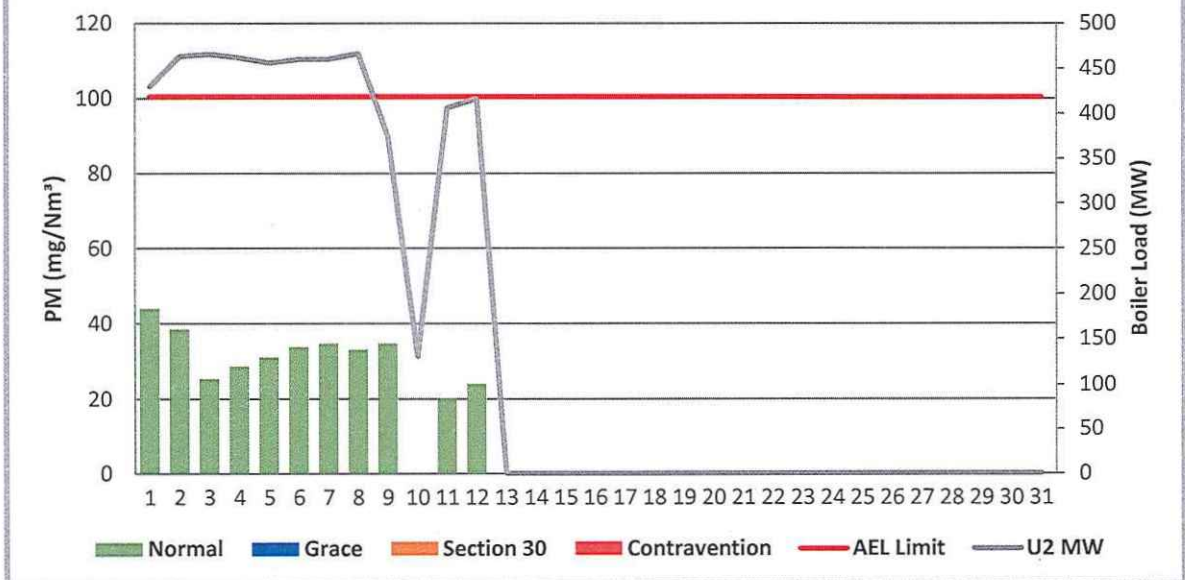


Figure 4: Duvha Unit 4 PM Emissions - March 2021

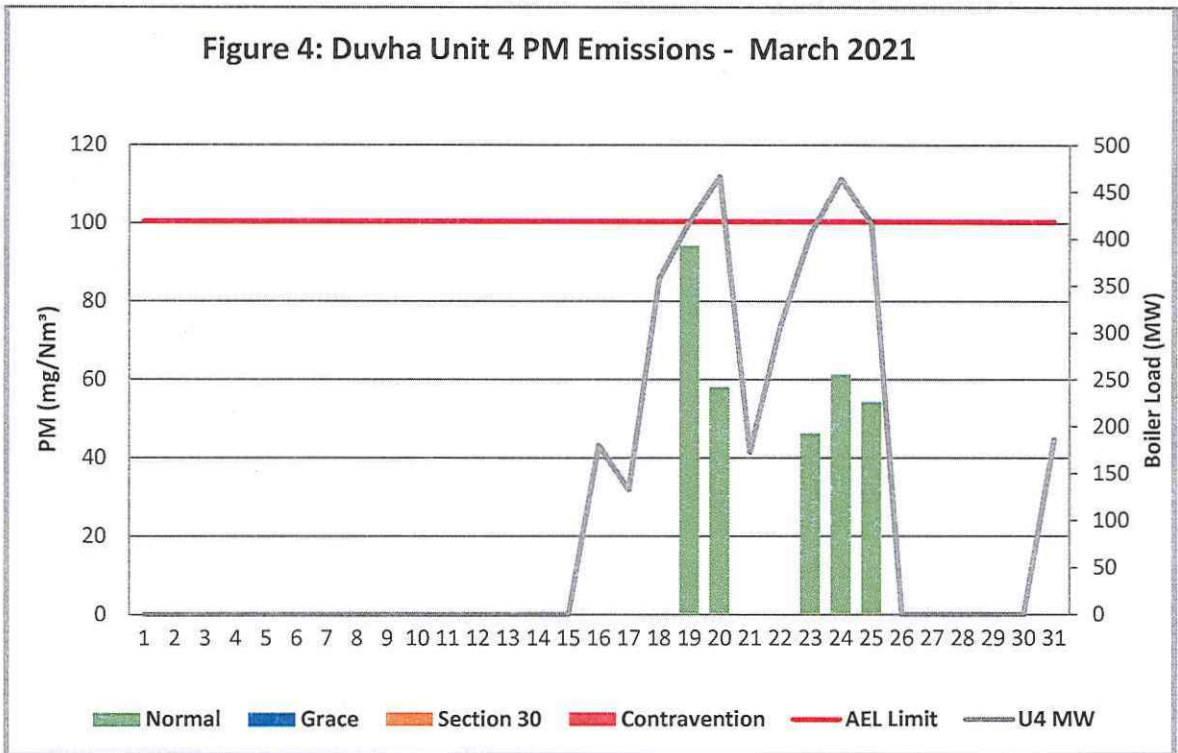


Figure 6: Duvha Unit 6 PM Emissions - March 2021

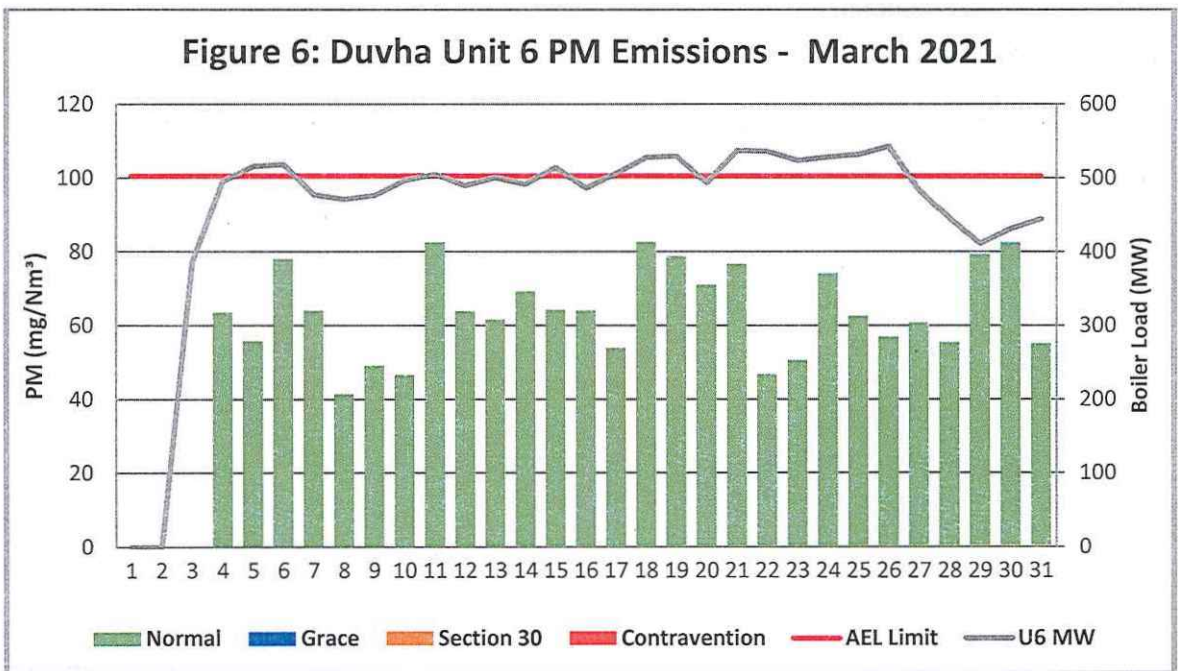


Figure 7: Duvha Unit 1 SOx Emissions - March 2021

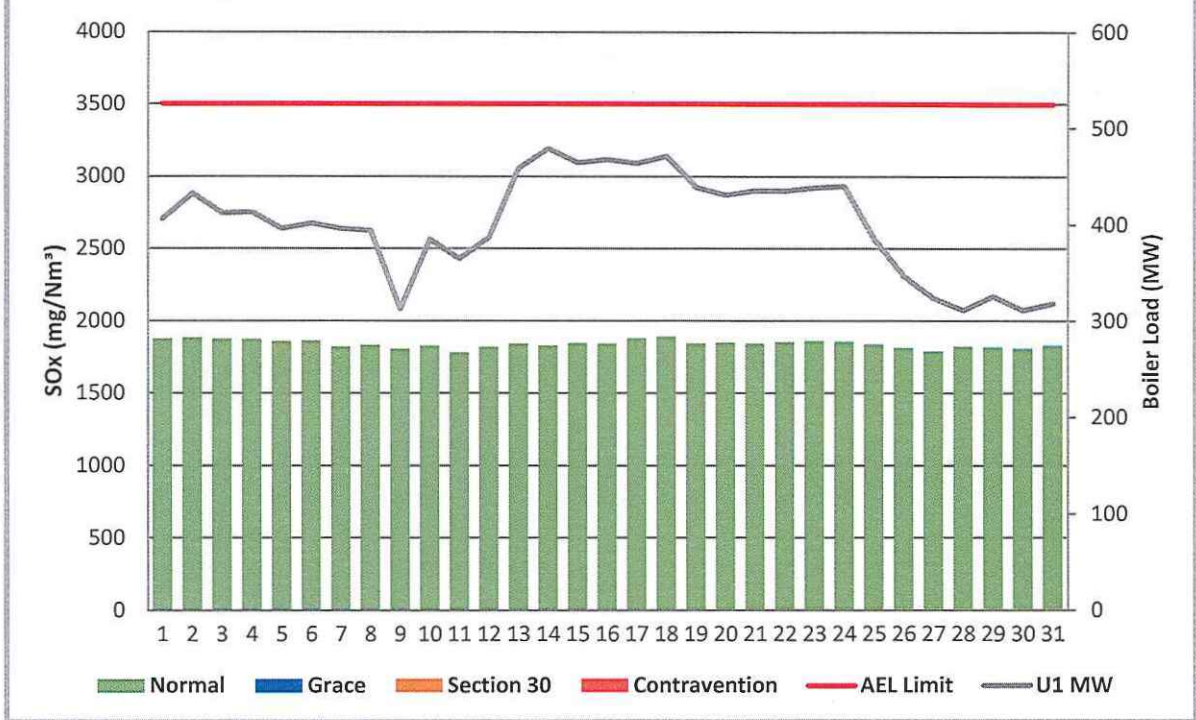


Figure 8: Duvha Unit 2 SOx Emissions - March 2021

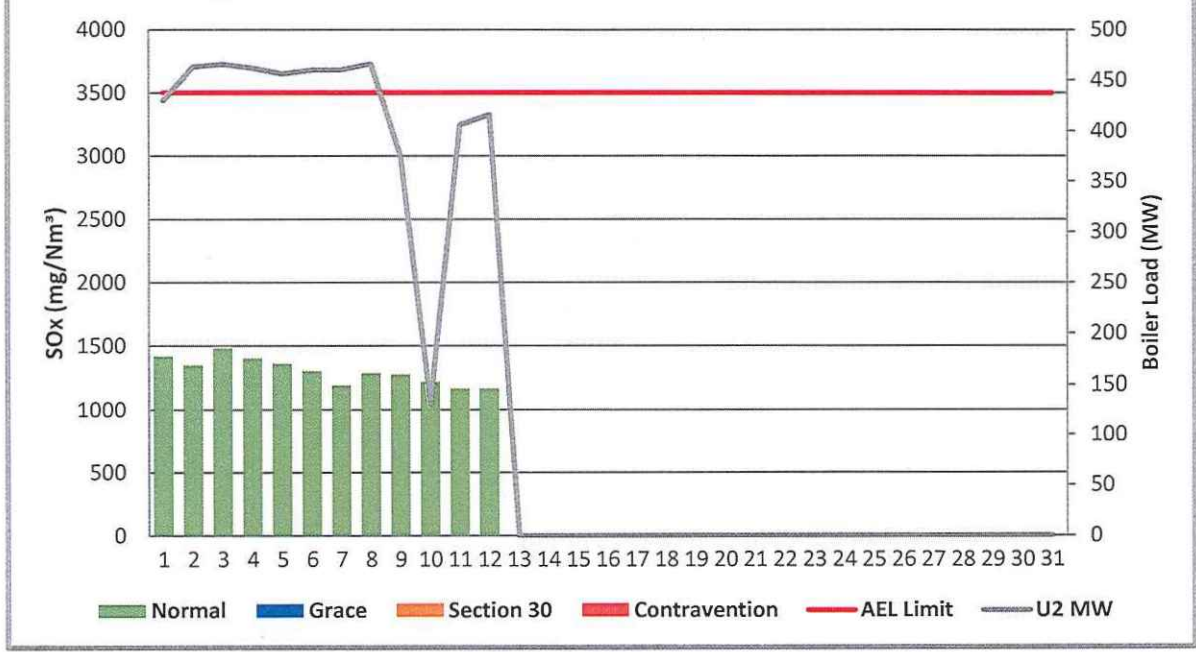


Figure 10: Duvha Unit 4 SOx Emissions - March 2021

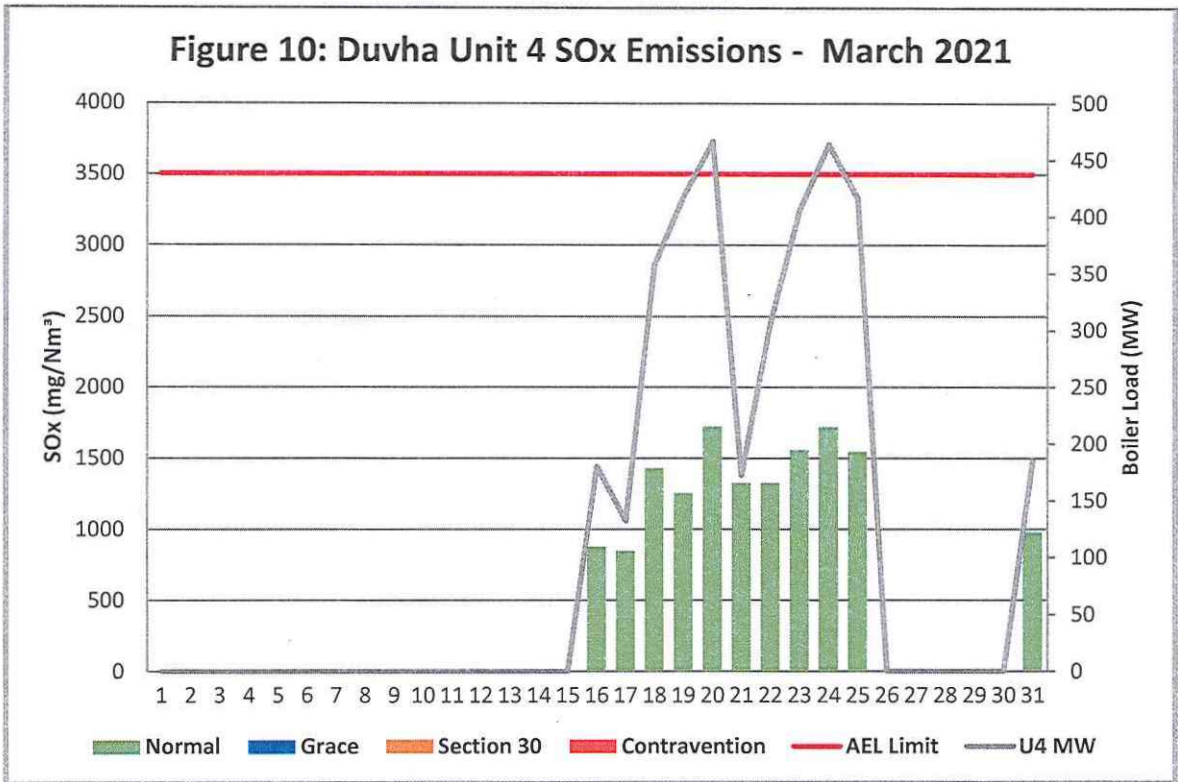


Figure 12: Duvha Unit 6 SOx Emissions - March 2021

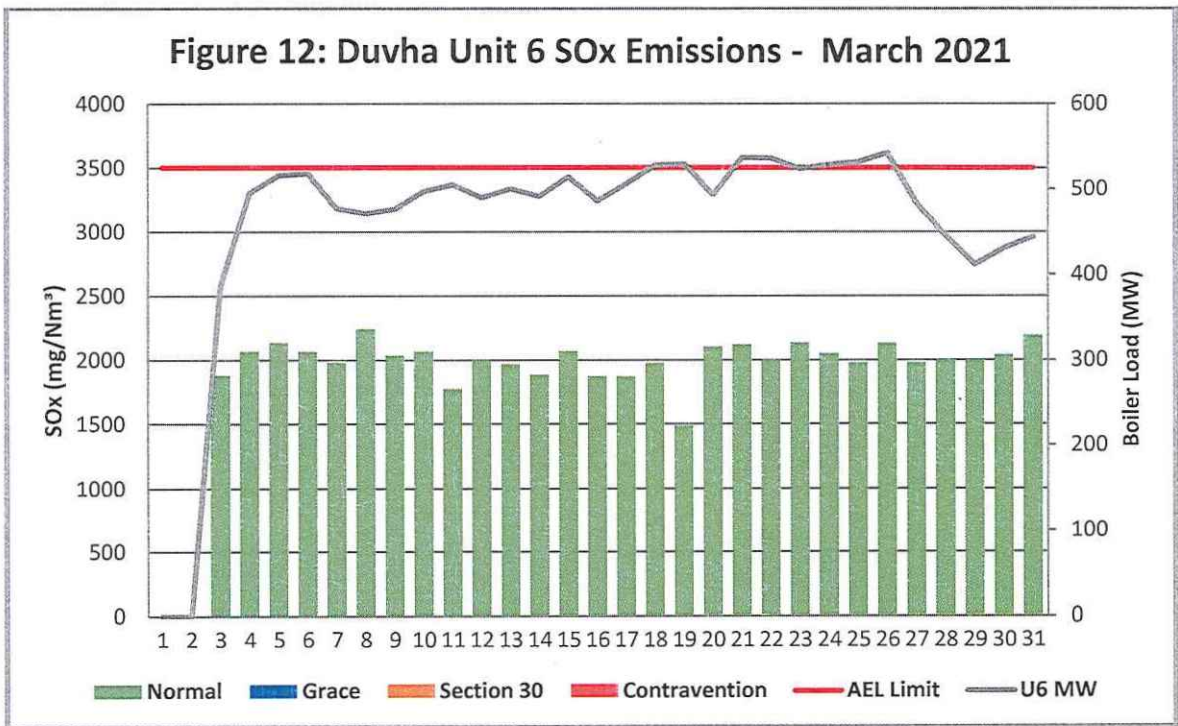


Figure 13: Duvha Unit 1 NOx Emissions - March 2021

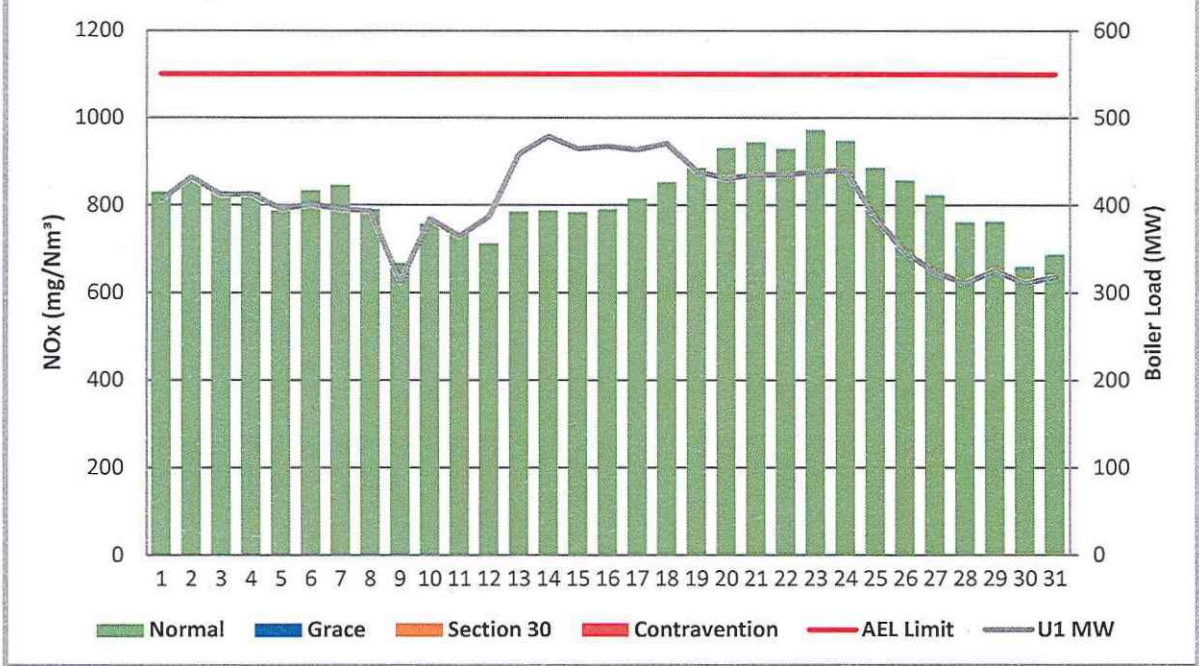


Figure 14: Duvha Unit 2 NOx Emissions - March 2021

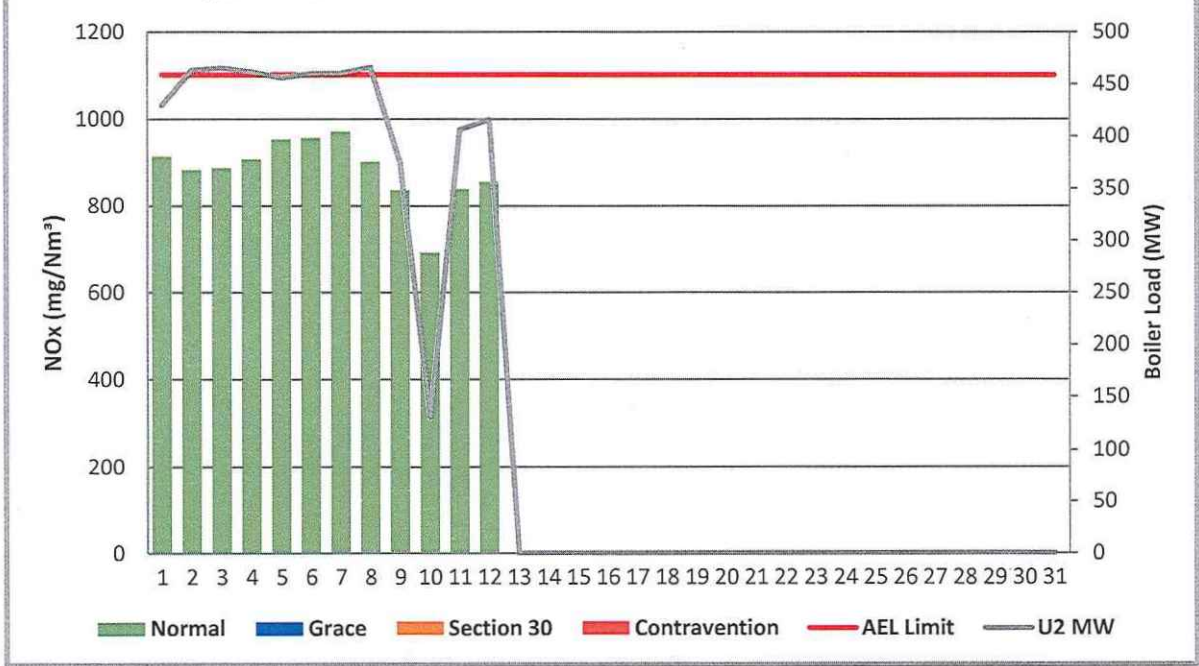


Figure 16: Duvha Unit 4 NOx Emissions - March 2021

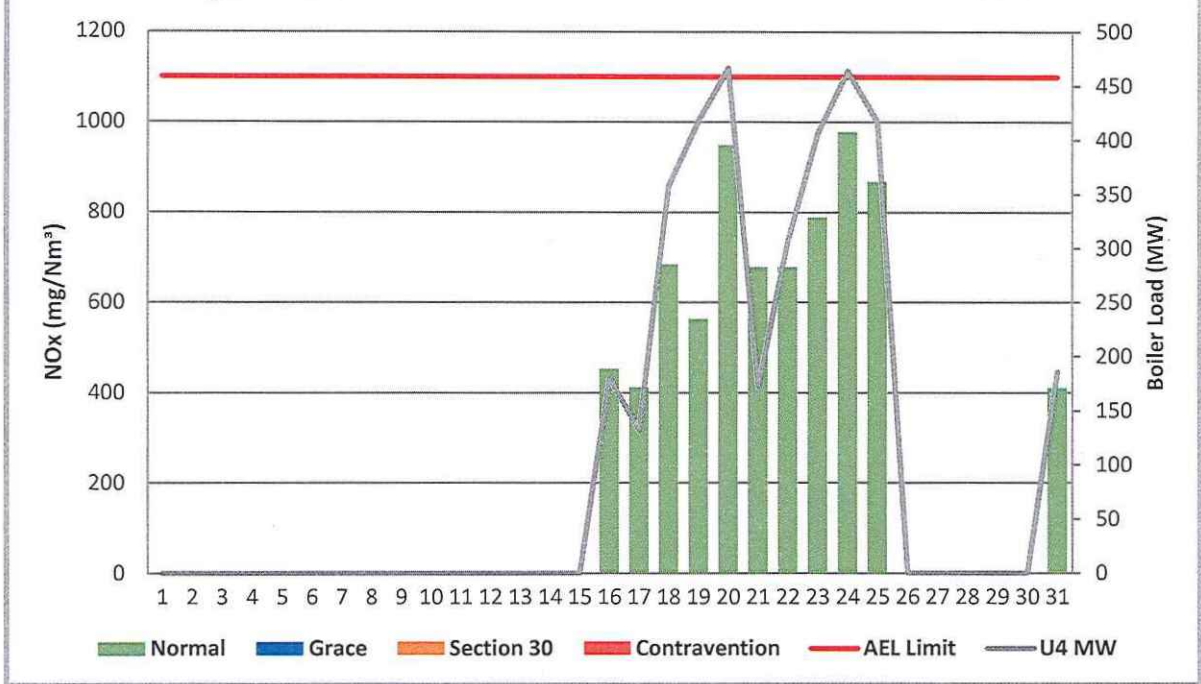
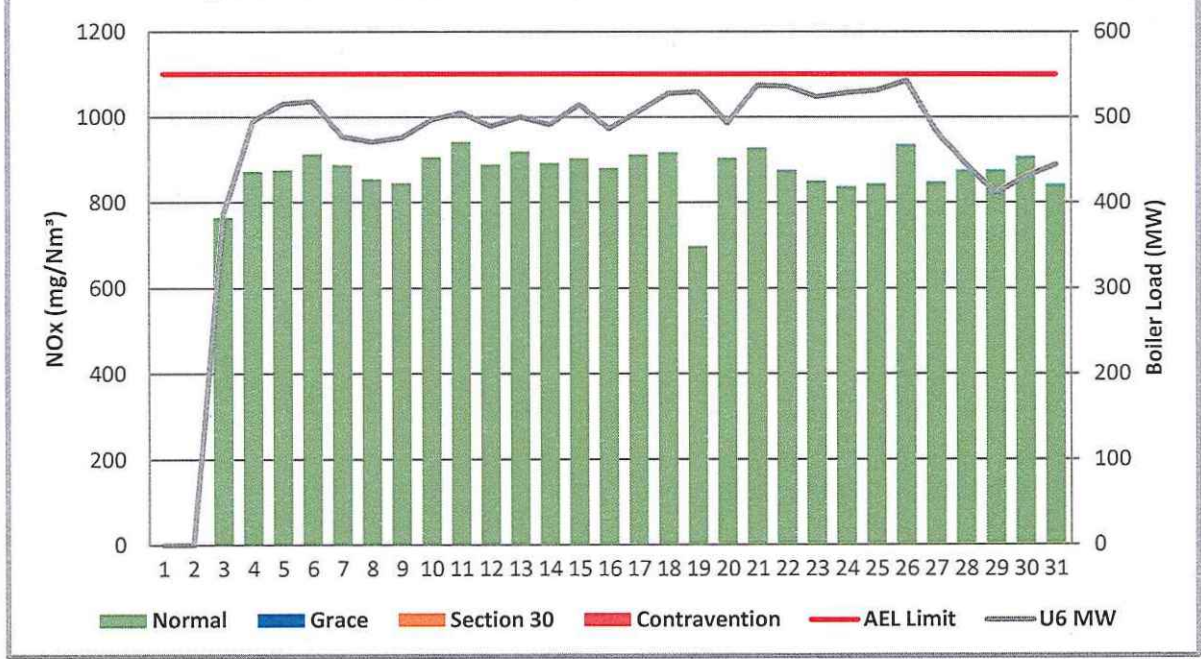


Figure 18: Duvha Unit 6 NOx Emissions - March 2021



7 SHUT DOWN AND LIGHT UP INFORMATION

Tables 7.1: Shut-down and light-up information for the month of March 2021

Unit No.1	<i>Event 1</i>	
Breaker Open (BO)	<i>3:20 am</i>	<i>2021/03/09</i>
Draught Group (DG) Shut Down (SD)	<i>8:15 am</i>	<i>2021/03/09</i>
BO to DG SD (duration)	<i>00:04:55</i>	DD:HH:MM
Fires in time	<i>9:30 am</i>	<i>2021/03/09</i>
Synch. to Grid (or BC)	<i>2:10 pm</i>	<i>2021/03/09</i>
Fires in to BC (duration)	<i>00:04:40</i>	DD:HH:MM
Emissions below limit from BC (end date)	<i>not > limit</i>	<i>not > limit</i>
Emissions below limit from BC (duration)	<i>n/a</i>	DD:HH:MM

Unit No.2	<i>Event 1</i>		<i>Event 2</i>	
Breaker Open (BO)	<i>3:35 am</i>	<i>2021/03/09</i>	<i>9:55 pm</i>	<i>2021/03/12</i>
Draught Group (DG) Shut Down (SD)	<i>6:55 pm</i>	<i>2021/03/09</i>	<i>DG did not trip or SD</i>	<i>DG did not trip or SD</i>
BO to DG SD (duration)	<i>00:15:20</i>	DD:HH:MM	<i>n/a</i>	DD:HH:MM
Fires in time	<i>5:40 pm</i>	<i>2021/03/10</i>		
Synch. to Grid (or BC)	<i>10:40 pm</i>	<i>2021/03/10</i>		
Fires in to BC (duration)	<i>00:05:00</i>	DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	<i>not > limit</i>	<i>not > limit</i>		
Emissions below limit from BC (duration)	<i>n/a</i>	DD:HH:MM		DD:HH:MM

Unit No.4	<i>Event 1</i>		<i>Event 2</i>		<i>Event 3</i>	
Breaker Open (BO)	<i>BO previously</i>	<i>BO previously</i>	<i>8:50 pm</i>	<i>2021/03/20</i>	<i>8:10 pm</i>	<i>2021/03/25</i>
Draught Group (DG) Shut Down (SD)	<i>n/a</i>	<i>n/a</i>	<i>5:00 am</i>	<i>2021/03/21</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>00:08:10</i>	DD:HH:MM	<i>n/a</i>	DD:HH:MM
Fires in time	<i>7:50 pm</i>	<i>2021/03/17</i>	<i>1:40 pm</i>	<i>2021/03/21</i>		
Synch. to Grid (or BC)	<i>1:30 am</i>	<i>2021/03/18</i>	<i>12:55 am</i>	<i>2021/03/22</i>		
Fires in to BC (duration)	<i>00:05:40</i>	DD:HH:MM	<i>00:11:15</i>	DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	<i>12:00 am</i>	<i>2021/03/19</i>	<i>2:00 pm</i>	<i>2021/03/22</i>		
Emissions below limit from BC (duration)	<i>00:22:30</i>	DD:HH:MM	<i>00:13:05</i>	DD:HH:MM		DD:HH:MM

Unit No.6	Event 1	
Breaker Open (BO)	BO previously	BO previously
Draught Group (DG) Shut Down (SD)	n/a	n/a
BO to DG SD (duration)	n/a	DD:HH:MM
Fires in time	12:55 am	2021/03/03
Synch. to Grid (or BC)	5:50 am	2021/03/03
Fires in to BC (duration)	00:04:55	DD:HH:MM
Emissions below limit from BC (end date)	12:00 am	2021/03/04
Emissions below limit from BC (duration)	00:18:10	DD:HH:MM

8 General

Units 3 and 5 were offload during the month of March 2021.

Units 1, 4 and 6 oxygen monitors were faulty and giving faulty readings. The average Oxygen Standard Reference Method values from QAL 2 reports were used to generate averages for this period.

Unit 4 NOx and SOx monitors reliability were below 80% threshold due to a communication fault between Analyser Control Unit (ACU) and the fuel plant Programmable Logic Controller (PLC). The communication fault between the ACU and the PLC was rectified.

The rest of the information demonstrating compliance with the emission license conditions is supplied in the annual emission report which will be sent to your office.


9 Complaints and 10 Incidents Register

Refer to addendum A


 Boiler Plant Engineering
 Manager


25 May 2021

Date


 Environmental Manager

2021/05/25

Date


 Engineering Manager

25 May 2021

Date

Compiled by: Environmental Officer

For: Nkangala District Municipality Air Quality Officer

Copies: Eskom Environmental Management D Herbst
B Mccourt

Group Technology Engineering

Duvha Power Station:

R Rampiar
E Patel
Engineering Manager
Operating Manager
Maintenance Manager
Production Manager
Boiler Engineering Manager
System Engineer
Environmental Manager

ADDENDUM TO MONTHLY EMISSIONS REPORT

9 COMPLAINTS REGISTER

Table 9. Complaints for the month of March 2021

Source Code / Name	Root Cause Analysis	Calculation of Impacts / emissions associated with the incident	Dispersion modeling of pollutants where applicable	Measures implemented to prevent reoccurrence	Date measure will be implemented
No complaints were received during the month of March 2021.					

