



## Generation

Nkangala District Municipality  
P O Box 437  
Middleburg  
1050

**Attention:**

Mr V Mahlangu

AND

Directorate: Air Quality Management  
Services  
The Chief Director:  
Mr S S Maluleka  
Department of Environmental Services  
Private Bag X447  
PRETORIA  
0001  
Tel: (012) 310 3263  
Fax: (012) 320 0488

**Date: 2021/02/10**

Enquiries: Duvha Environmental Management

☎ +27 13 690 0445

☎ +27 66 212 2105

Enquiries: Ms Simthandile  
Nhlapo

☎ +27 13 690 0421

☎ +27 66 212 2105

**Total number of pages: 14**

**Total number of annexes:1**

## DUVHA POWER STATION

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

GENERAL MANAGER

2021/02/18

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 Dec-2020
	Coal	Tons	1 400 000	435 643.86
	Fuel Oil	Tons	5 000	1596.84

Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Production Rate Dec-2020
	Energy	GWh	3600	757.98
	Ash	Tons	not specified	115140.67
	RE Ash	kg/MWh	not specified	0.38

**2 ENERGY SOURCE CHARACTERISTICS**

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.6 TO >1.2	0.68
Ash Content	%	27 TO 30	26.43

### 3 EMISSION LIMITS (mg/Nm<sup>3</sup>)

Associated Unit/Stack	PM	SO <sub>x</sub>	NO <sub>x</sub>
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 Dec-2020	Utilization Dec-2020
Unit 1	Fabric Filter Plant (FFP)	99.73%	100%
Unit 2	Fabric Filter Plant (FFP)	99.81%	100%
Unit 3	Fabric Filter Plant (FFP)	Unit Off-line	Unit Off-line
Unit 4	Electro Static Precipiator (ESP)	99.60%	100%
Unit 5	Electro Static Precipiator (ESP)	Unit Off-line	Unit Off-line
Unit 6	Electro Static Precipiator (ESP)	99.53%	100%
Unit 4	Chemithon (SO <sub>3</sub> )	90.00%	99.00%
Unit 5	Chemithon (SO <sub>3</sub> )	Unit Off-line	Unit Off-line
Unit 6	Chemithon (SO <sub>3</sub> )	90.00%	80.00%

### 5 MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO <sub>2</sub>	NO
Unit 1	96.7	96.2	96.2
Unit 2	100.0	99.7	99.0
Unit 4	97.1	100.0	100.0
Unit 6	99.2	100.0	100.0

### 6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of December 2020

Associated Unit/Stack	PM (tons)	SO <sub>2</sub> (tons)	NO <sub>x</sub> (tons)
Unit 1	81.7	3 211	1 367
Unit 2	66.1	2 604	1 352
Unit 4	129.4	2 385	1 413
Unit 6	26.7	480	256
<b>SUM</b>	<b>303.8</b>	<b>8 679</b>	<b>4 388</b>

Table 6.2: Operating days in compliance to PM AEL Limit - December 2020

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm <sup>3</sup> )
Unit 1	21	4	0	0	4	55.9
Unit 2	26	0	0	0	0	43.5
Unit 4	22	5	0	0	5	76.4
Unit 6	4	1	0	0	1	84.3
<b>SUM</b>	<b>73</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>10</b>	





Table 6.3: Operating days in compliance to SOx AEL Limit - December 2020

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SOx (mg/Nm <sup>3</sup> )
Unit 1	27	0	0	0	0	1 900.4
Unit 2	28	0	0	0	0	1 584.9
Unit 4	27	0	0	0	0	1 410.7
Unit 6	5	0	0	0	0	1 733.6
<b>SUM</b>	<b>87</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	

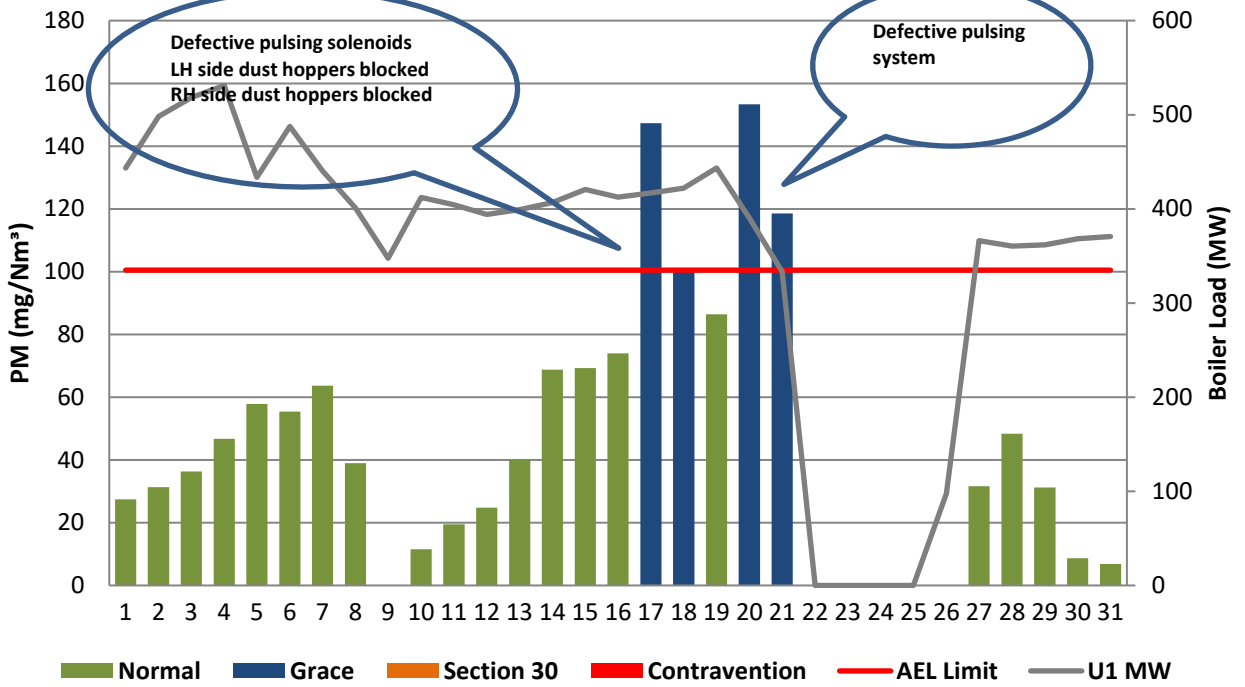
Table 6.4: Operating days in compliance to NOx AEL Limit - December 2020

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm <sup>3</sup> )
Unit 1	27	0	0	0	0	803.9
Unit 2	28	0	0	0	0	825.7
Unit 4	27	0	0	0	0	837.7
Unit 6	5	0	0	0	0	887.1
<b>SUM</b>	<b>87</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	

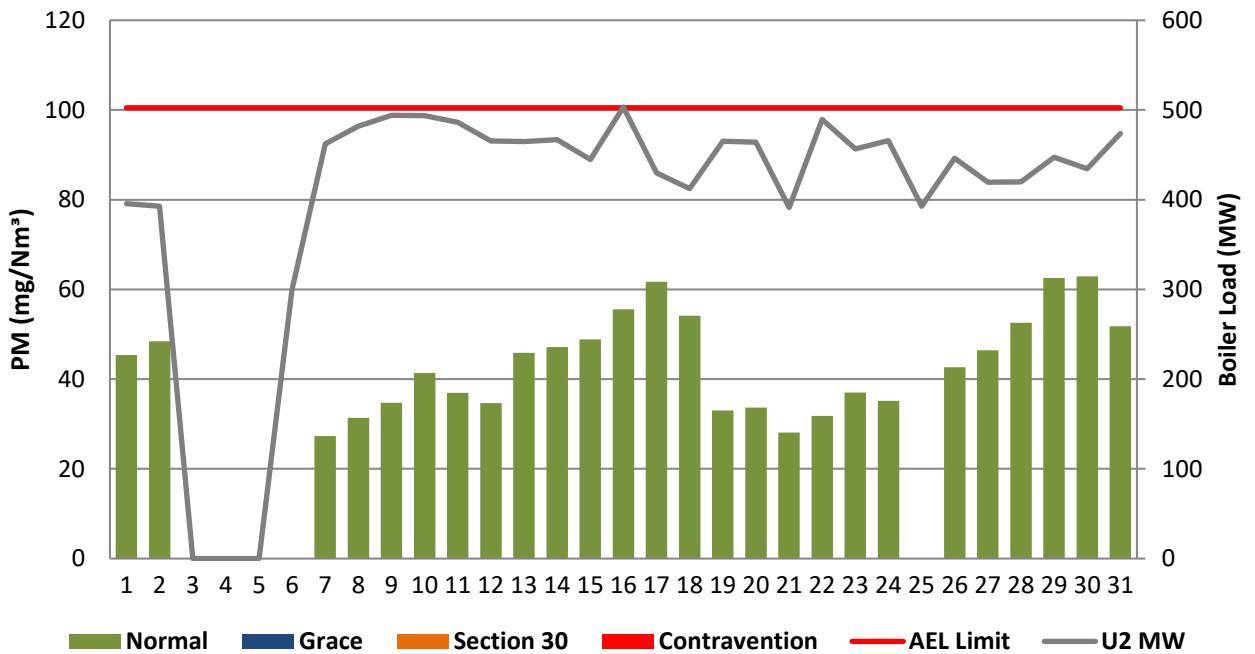
Table 6.5: Legend Description

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

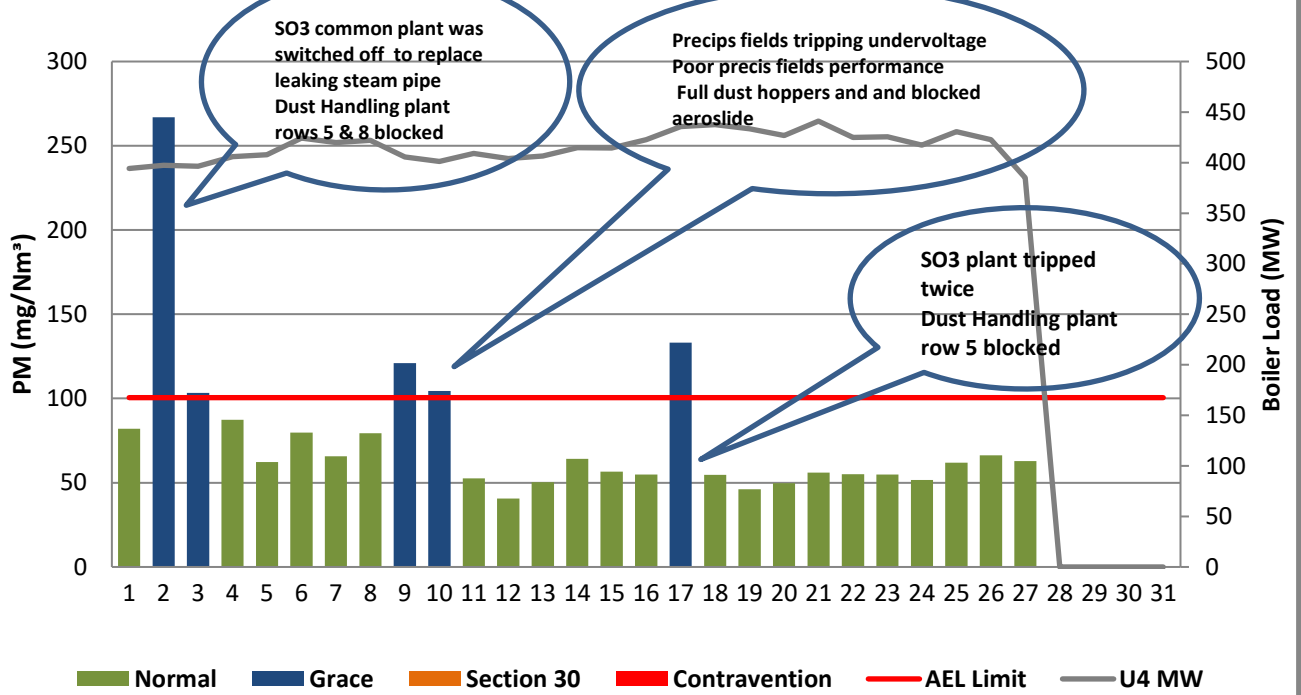
**Figure 1: Duvha Unit 1 PM Emissions - December 2020**



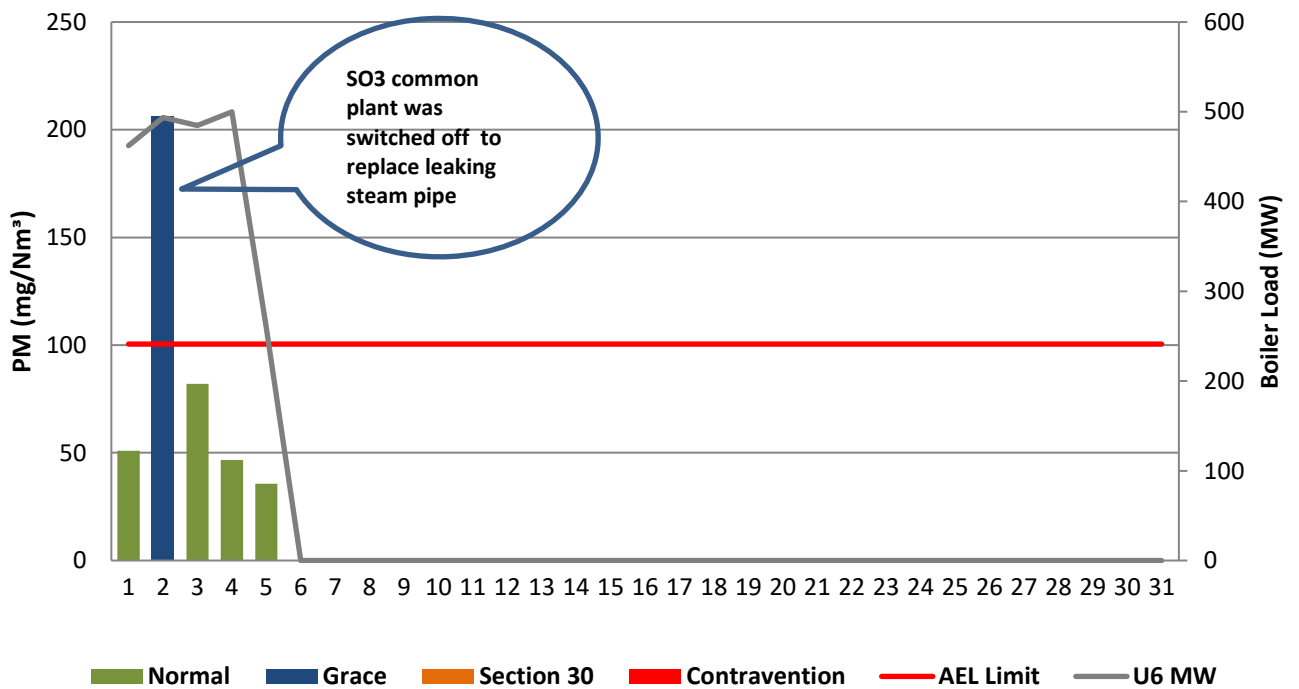
**Figure 2: Duvha Unit 2 PM Emissions - December 2020**



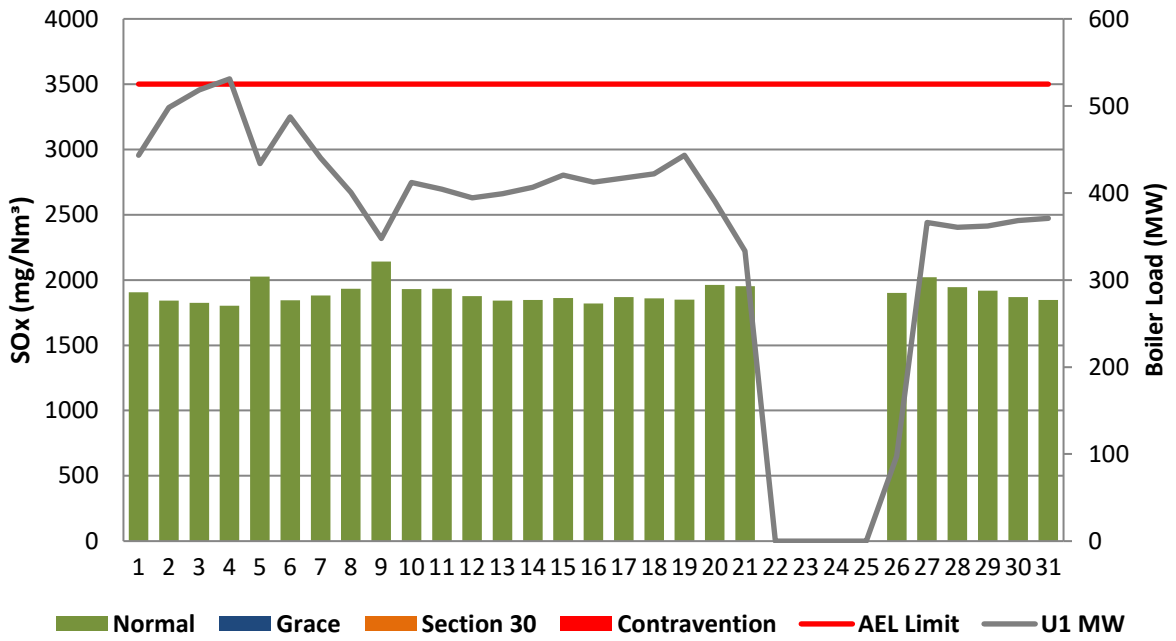
**Figure 4: Duvha Unit 4 PM Emissions - December 2020**



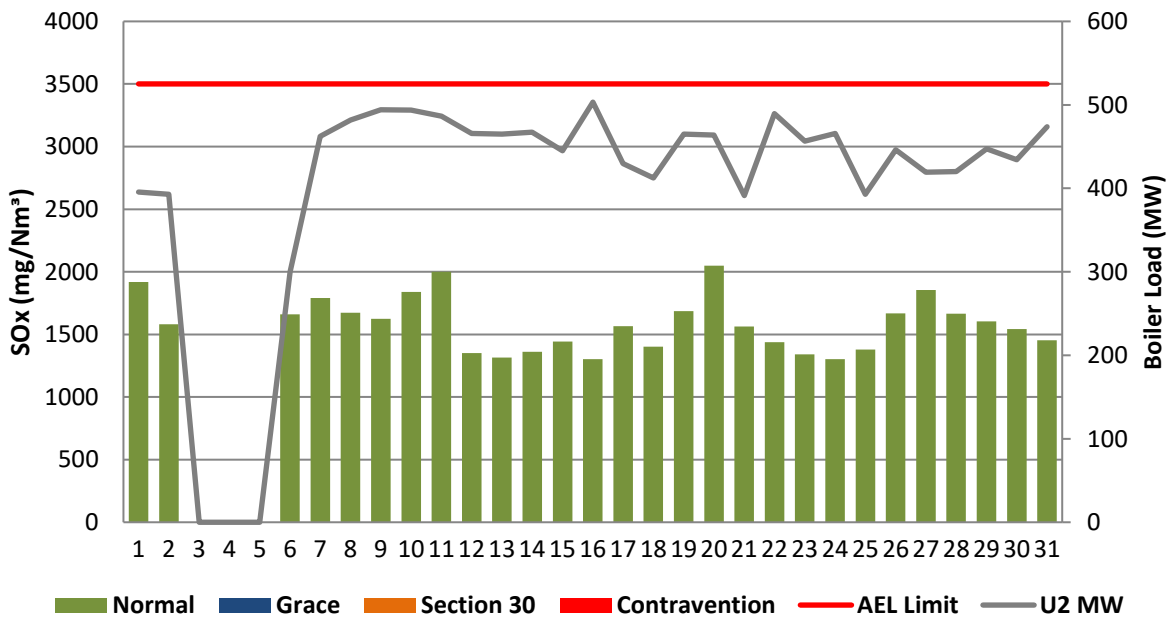
**Figure 6: Duvha Unit 6 PM Emissions - December 2020**



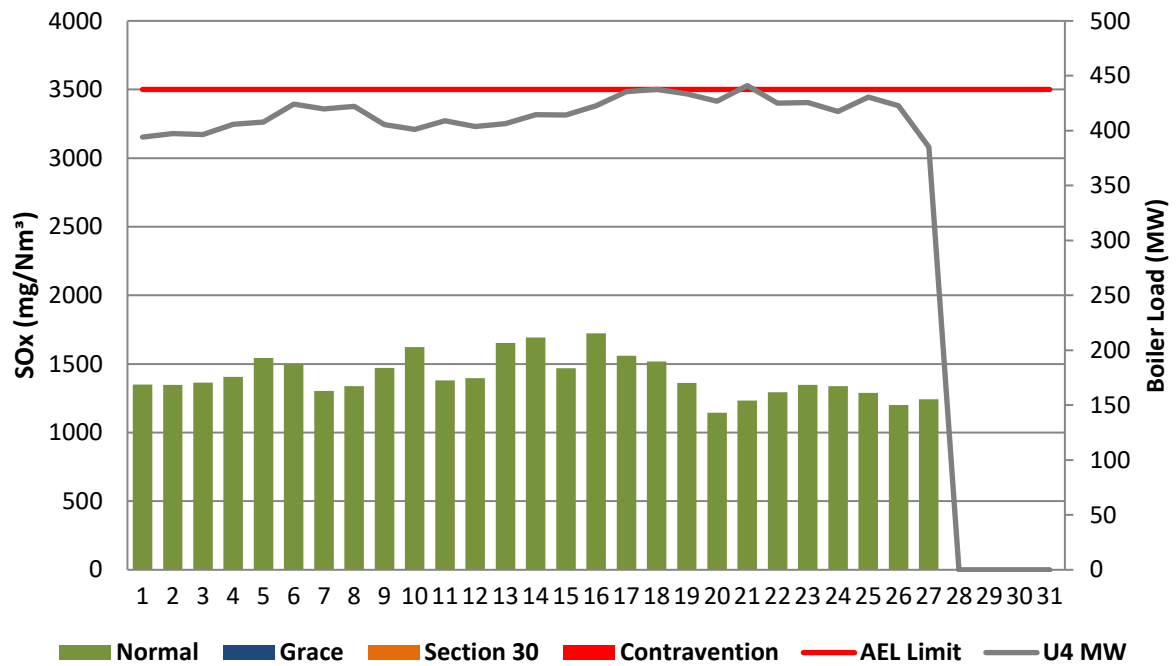
**Figure 7: Duvha Unit 1 SOx Emissions - December 2020**



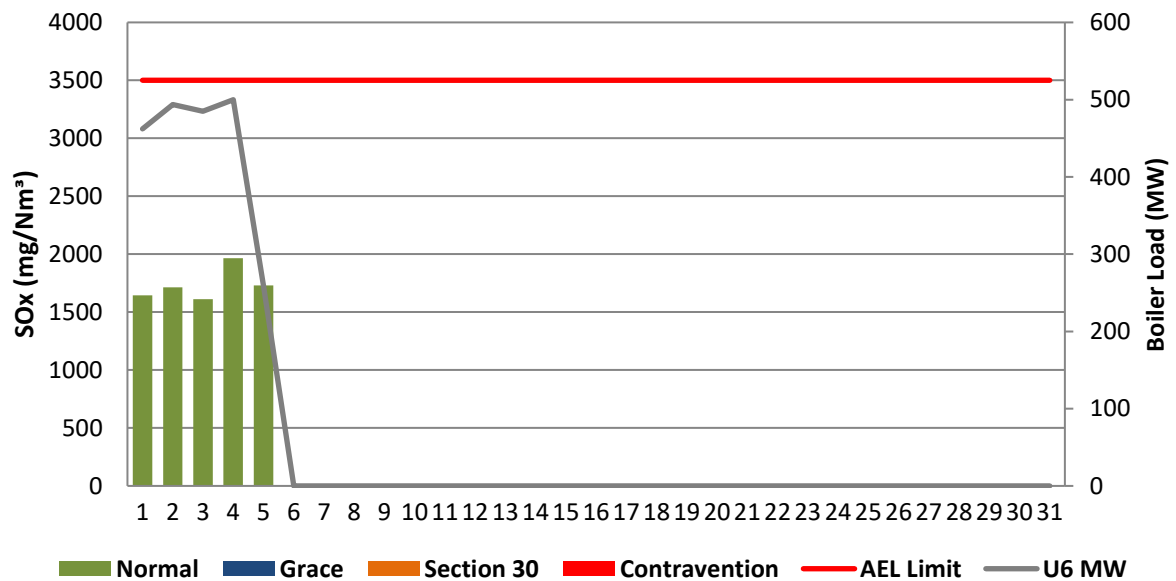
**Figure 8: Duvha Unit 2 SOx Emissions - December 2020**



**Figure 10: Duvha Unit 4 SOx Emissions - December 2020**

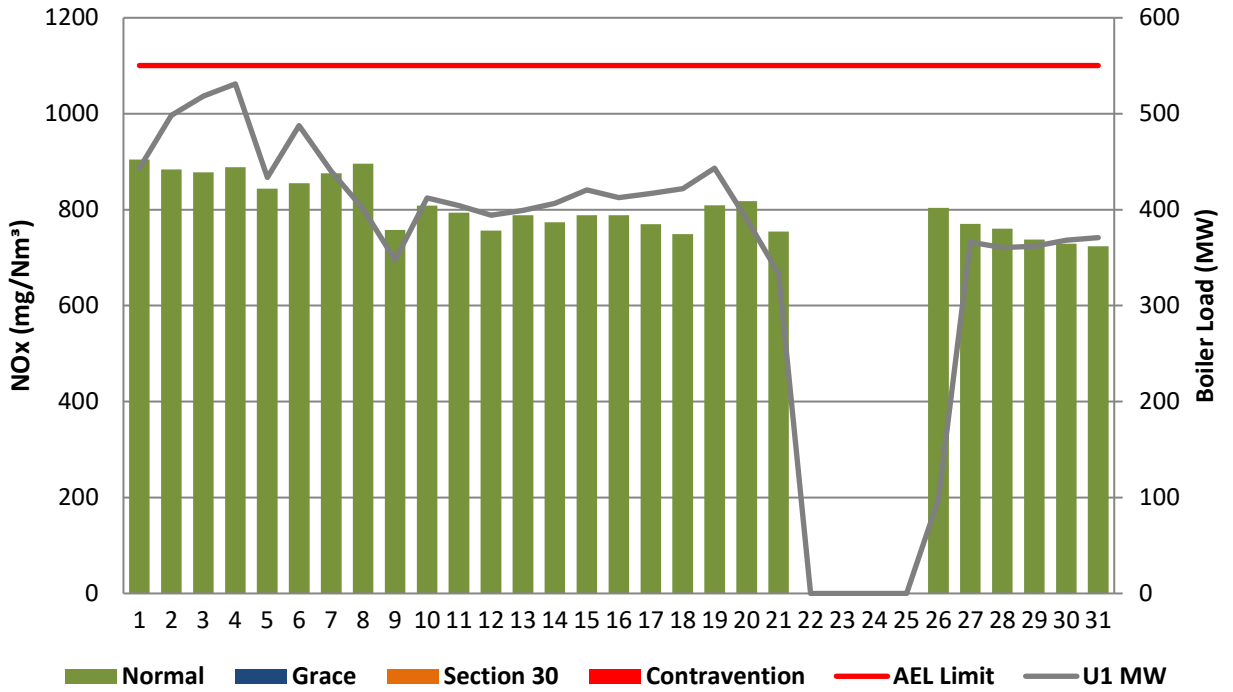


**Figure 12: Duvha Unit 6 SOx Emissions - December 2020**

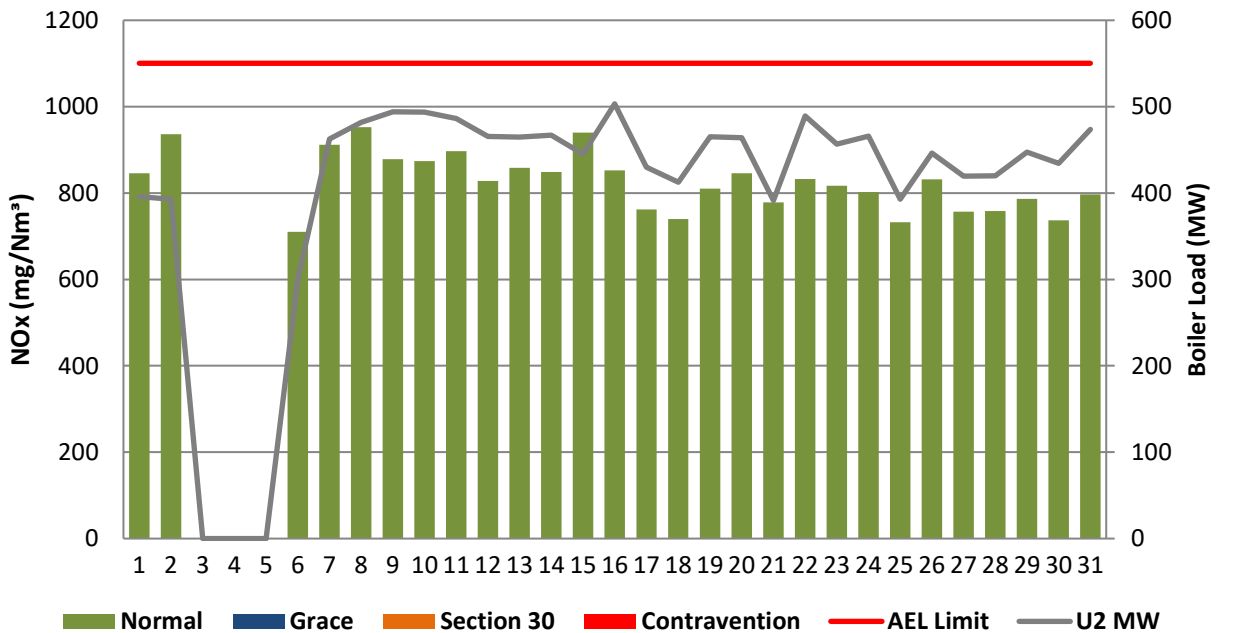




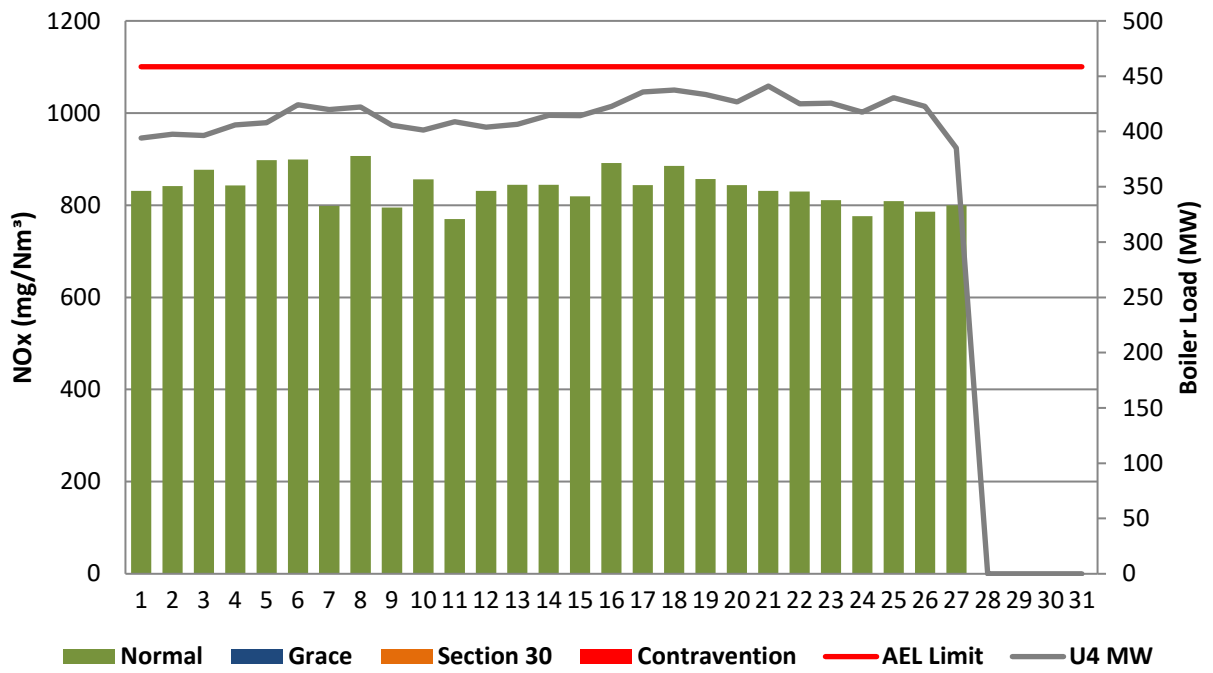
**Figure 13: Duvha Unit 1 NOx Emissions - December 2020**



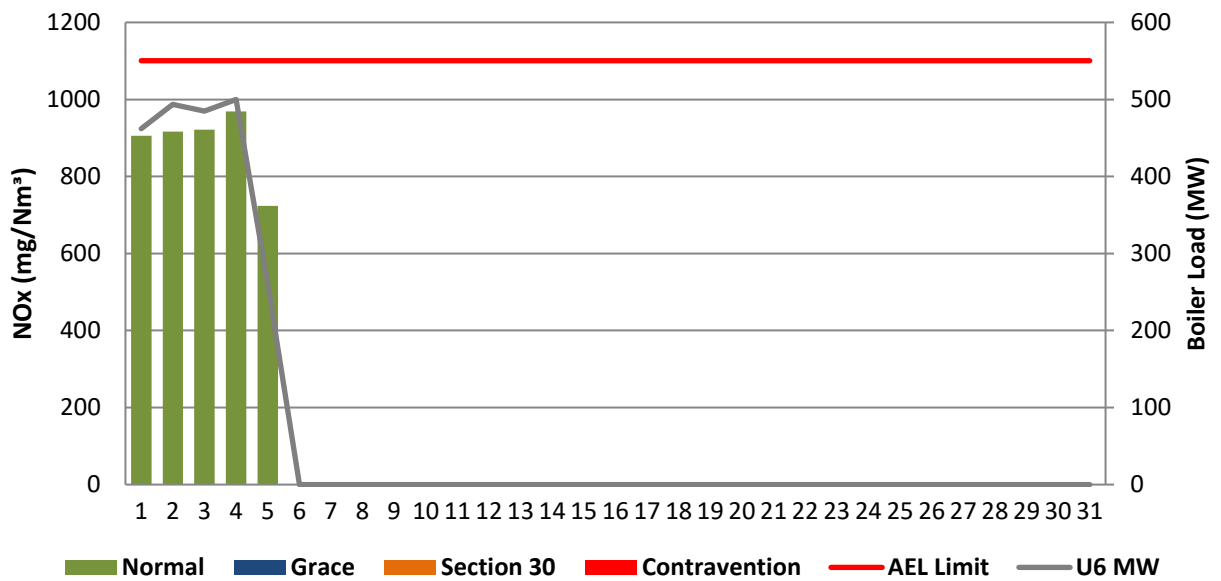
**Figure 14: Duvha Unit 2 NOx Emissions - December 2020**



**Figure 16: Duvha Unit 4 NOx Emissions - December 2020**



**Figure 18: Duvha Unit 6 NOx Emissions - December 2020**



## 7 SHUT DOWN AND LIGHT UP INFORMATION

Tables 7.1: Shut-down and light-up information for the month of December 2020

Unit No.1	<i>Event 1</i>		<i>Event 2</i>		<i>Event 3</i>	
Breaker Open (BO)	<i>8:15 AM</i>	<i>2020/12/05</i>	<i>8:00 PM</i>	<i>2020/12/08</i>	<i>9:25 AM</i>	<i>2020/12/21</i>
Draught Group (DG) Shut Down (SD)	<i>DG did not trip or SD</i>	<i>DG did not trip or SD</i>	<i>9:30 PM</i>	<i>2020/12/08</i>	<i>11:15 AM</i>	<i>2020/12/21</i>
BO to DG SD (duration)	<i>n/a</i>	DD:HH:MM	<i>00:01:30</i>	DD:HH:MM	<i>00:01:50</i>	DD:HH:MM
Fires in time			<i>11:30 PM</i>	<i>2020/12/08</i>	<i>5:20 PM</i>	<i>2020/12/26</i>
Synch. to Grid (or BC)			<i>4:40 AM</i>	<i>2020/12/09</i>	<i>11:25 PM</i>	<i>2020/12/26</i>
Fires in to BC (duration)		DD:HH:MM	<i>00:05:10</i>	DD:HH:MM	<i>00:06:05</i>	DD:HH:MM
Emissions below limit from BC (end date)			<i>not &gt; limit</i>	<i>not &gt; limit</i>	<i>not &gt; limit</i>	<i>not &gt; limit</i>
Emissions below limit from BC (duration)		DD:HH:MM	<i>n/a</i>	DD:HH:MM	<i>n/a</i>	DD:HH:MM

Unit No.2	<i>Event 1</i>		<i>Event 2</i>	
Breaker Open (BO)	<i>3:00 AM</i>	<i>2020/12/02</i>	<i>4:10 AM</i>	<i>2020/12/24</i>
Draught Group (DG) Shut Down (SD)	<i>9:20 PM</i>	<i>2020/12/02</i>	<i>12:35 PM</i>	<i>2020/12/24</i>
BO to DG SD (duration)	<i>00:18:20</i>	DD:HH:MM	<i>00:08:25</i>	DD:HH:MM
Fires in time	<i>8:50 AM</i>	<i>2020/12/06</i>	<i>1:05 AM</i>	<i>2020/12/25</i>
Synch. to Grid (or BC)	<i>2:35 PM</i>	<i>2020/12/06</i>	<i>11:40 AM</i>	<i>2020/12/25</i>
Fires in to BC (duration)	<i>00:05:45</i>	DD:HH:MM	<i>00:10:35</i>	DD:HH:MM
Emissions below limit from BC (end date)	<i>not &gt; limit</i>	<i>not &gt; limit</i>	<i>not &gt; limit</i>	<i>not &gt; limit</i>
Emissions below limit from BC (duration)	<i>n/a</i>	DD:HH:MM	<i>n/a</i>	DD:HH:MM

Unit No.4	<i>Event 1</i>	
Breaker Open (BO)	<i>3:35 AM</i>	<i>2020/12/27</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
Fires in time		
Synch. to Grid (or BC)		
Fires in to BC (duration)		DD:HH:MM

Emissions below limit from BC (end date)		
Emissions below limit from BC (duration)		DD:HH:MM

Unit No.6	<i>Event 1</i>	
Breaker Open (BO)	<i>12:25 AM</i>	<i>2020/12/05</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
Fires in time		
Synch. to Grid (or BC)		
Fires in to BC (duration)		DD:HH:MM
Emissions below limit from BC (end date)		
Emissions below limit from BC (duration)		DD:HH:MM

## 8

### General

Units 3 and 5 were offload during the month of December 2020.

Unit 6 oxygen monitor was faulty and giving faulty readings from the 1st to the 5th. The average Oxygen Standard Reference Method value from unit 6 QAL 2 report was used to generate averages for this period.

The NOx and SOx monitors on unit 1 and 2 had a faulty communication network during the month of December 2020. The communication fault was between the analyser control unit (ACU) and the distributed control system (DCS) and the visual automation (VA). It causes the gas analyser signals not to be transmitted from the monitors to the DCS and VA. The raw data is available, was downloaded, and was used on the Emissions reporting tool.

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


17/02/2021

Date

  
Environmental  
Manager

2021/02/11

Date

  
Engineering Manager

2021/02/18

Date

Compiled by: Environmental Officer

For: Nkangala District  
Municipality

Air Quality Officer

Copies: Eskom Environmental  
Management

D Herbst  
B  
Mccourt

Group Technology Engineering

R  
Rampiar  
E Patel

Duvha Power Station:

Engineering  
Manager  
Operating Manager  
Maintenance  
Manager  
Production  
Manager  
Boiler Engineering Manager  
System Engineer  
Environmental  
Manager

