



## 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: 2020/05/21**

Enquiries: Duvha Environmental Management

☎ +27 13 690 0445

☎ +27 66 212 2105

Enquiries: Ms Simthandile

Nhlapo

☎ +27 13 690 0445

☎ +27 66 212 2105

**Total number of pages: 14**

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## **DUVHA POWER STATION**

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

**GENERAL MANAGER**

2020-06-08

**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 Aug-2019
	Coal	Tons	1 400 000	521 891
Fuel Oil	Tons	5 000	3910.4	

Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Production Rate Aug-2019
	Energy	GWh	3600	833.20
Ash	Tons	not specified	143 989.8	

**2 ENERGY SOURCE CHARACTERISTICS**

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.6 TO >1.2	0.860
Ash Content	%	27 TO 30	27.590

### 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 Aug-2019
Unit 1	Fabric Filter Plant (FFP)	Unit Off-line
Unit 2	Fabric Filter Plant (FFP)	99.83%
Unit 3	Fabric Filter Plant (FFP)	Unit Off-line
Unit 4	Electro Static Precipiator (ESP)	99.75%
Unit 5	Electro Static Precipiator (ESP)	99.76%
Unit 6	Electro Static Precipiator (ESP)	99.36%

### 5 MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO <sub>2</sub>	NO
Unit 2	94.9	94.7	94.7
Unit 4	92.8	99.2	99.2
Unit 5	100.0	99.9	99.9
Unit 6	91.2	98.8	98.8

### 6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of August 2019

Associated Unit/Stack	PM (tons)	SO <sub>2</sub> (tons)	NO <sub>x</sub> (tons)
Unit 2	76.7	4 268	1 995
Unit 4	51.1	1 439	764
Unit 5	97.0	3 846	1 415
Unit 6	152.2	1 718	830
<b>SUM</b>	<b>377.0</b>	<b>11 270</b>	<b>5 003</b>

Table 6.2: Operating days in compliance to PM AEL Limit - August 2019

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm <sup>3</sup> )
Unit 2	26	0	0	0	0	37.1
Unit 4	12	4	0	0	4	88.3
Unit 5	31	0	0	0	0	46.8
Unit 6	4	8	2	0	10	217.6
<b>SUM</b>	<b>73</b>	<b>12</b>	<b>2</b>	<b>0</b>	<b>14</b>	

Table 6.3: Operating days in compliance to SOx AEL Limit - August 2019

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SOx (mg/Nm <sup>3</sup> )
Unit 2	27	0	0	0	0	2 034.5
Unit 4	20	0	0	0	0	1 619.1
Unit 5	31	0	0	0	0	1 856.4
Unit 6	19	0	0	0	0	1 673.2
<b>SUM</b>	<b>97</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	

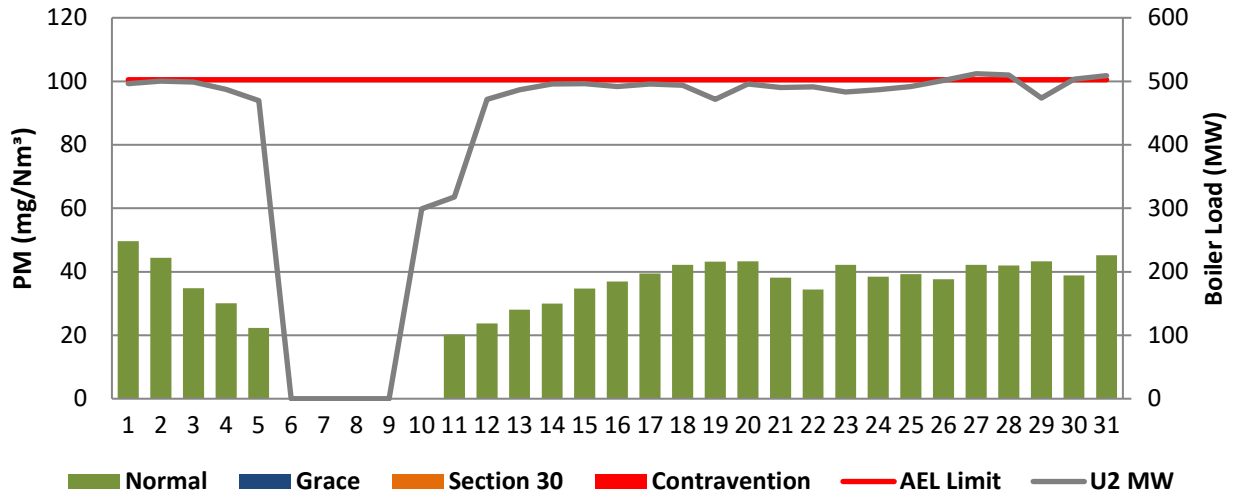
Table 6.4: Operating days in compliance to NOx AEL Limit - August 2019

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm <sup>3</sup> )
Unit 2	27	0	0	0	0	945.1
Unit 4	20	0	0	0	0	853.1
Unit 5	31	0	0	0	0	682.4
Unit 6	19	0	0	0	0	814.0
<b>SUM</b>	<b>97</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	

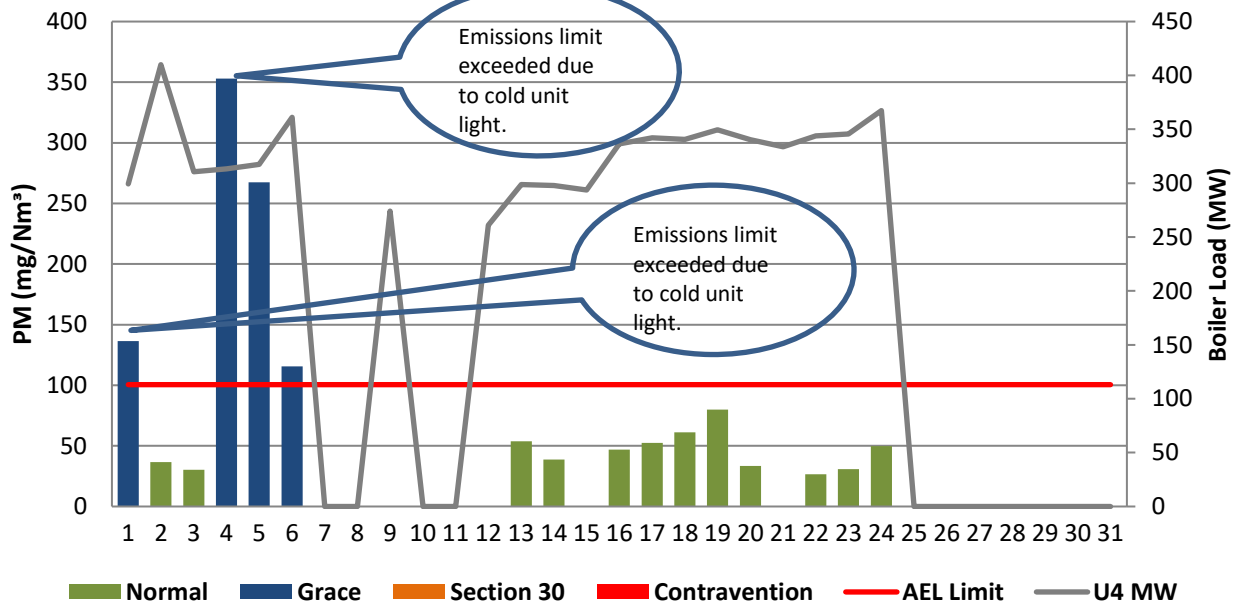
Table 6.5: Legend Description

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

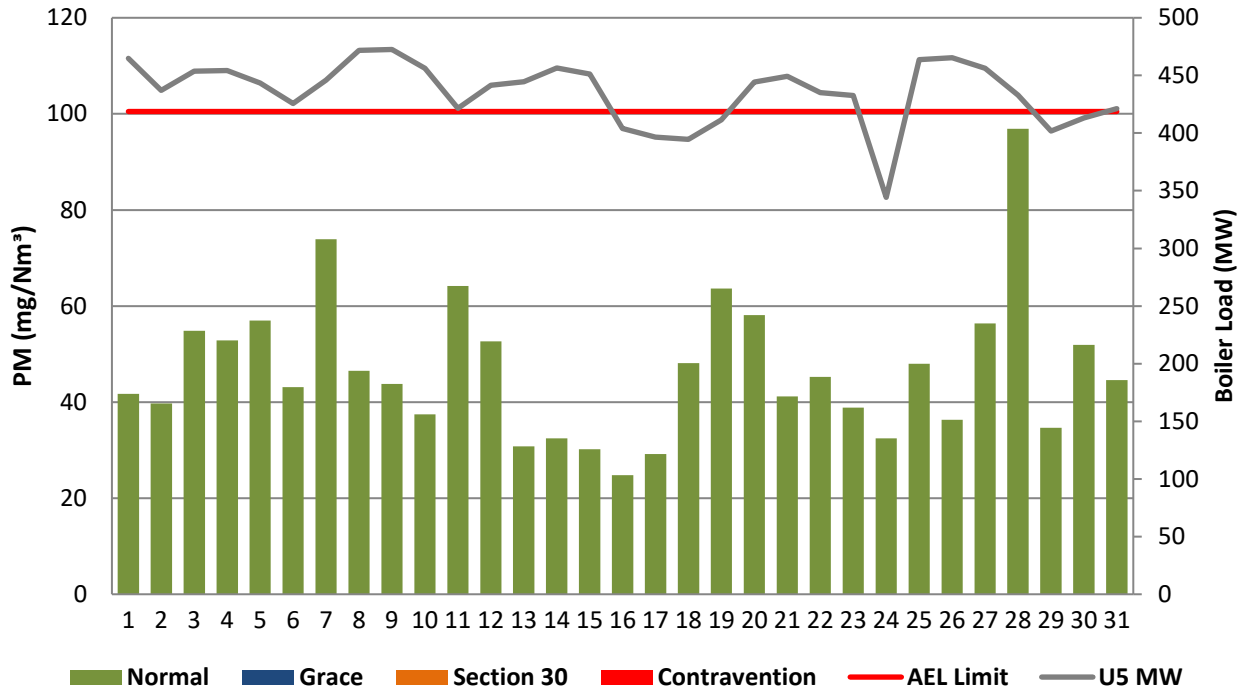
**Figure 2: Duvha Unit 2 PM Emissions - August 2019**



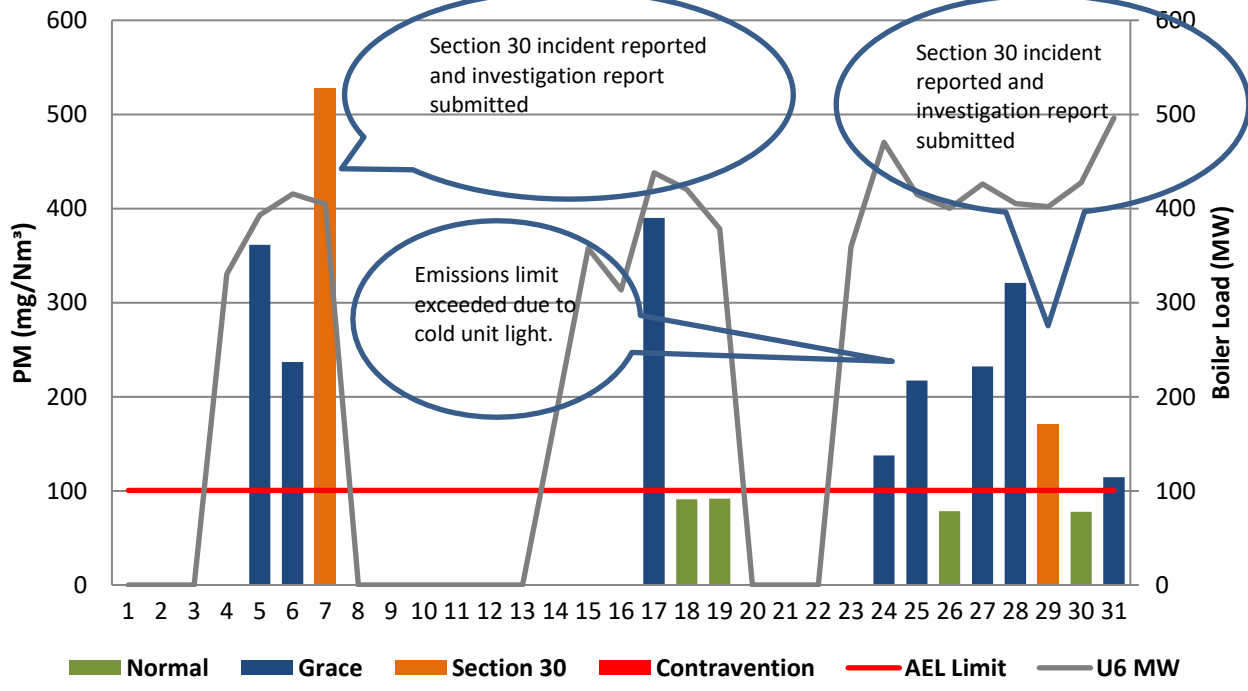
**Figure 4: Duvha Unit 4 PM Emissions - August 2019**



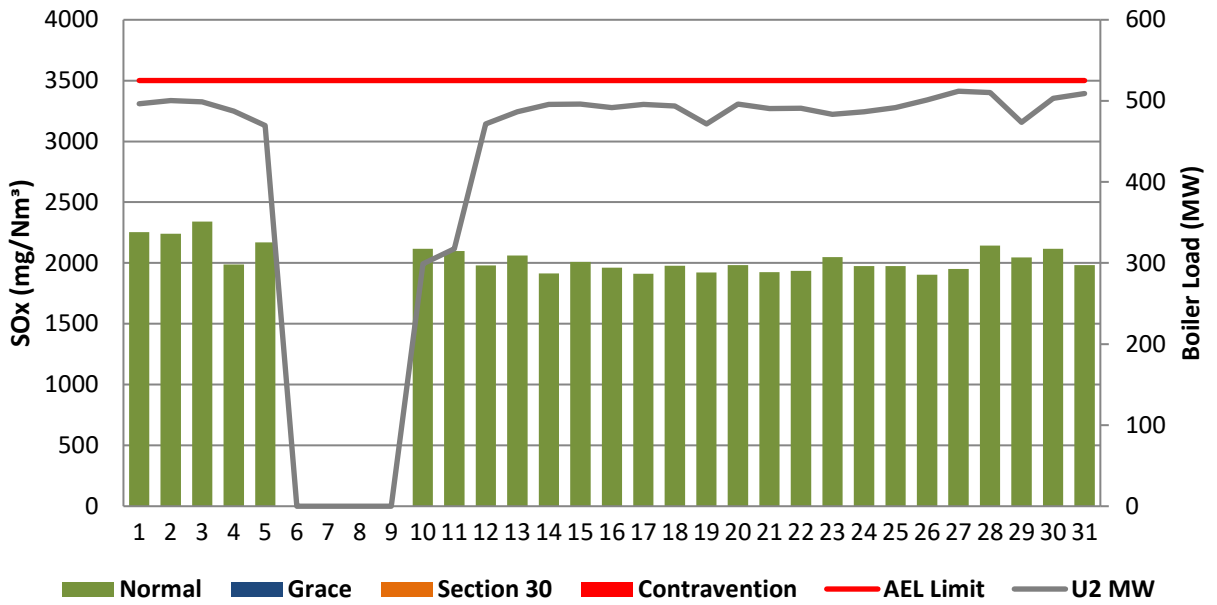
**Figure 5: Duvha Unit 5 PM Emissions - August 2019**



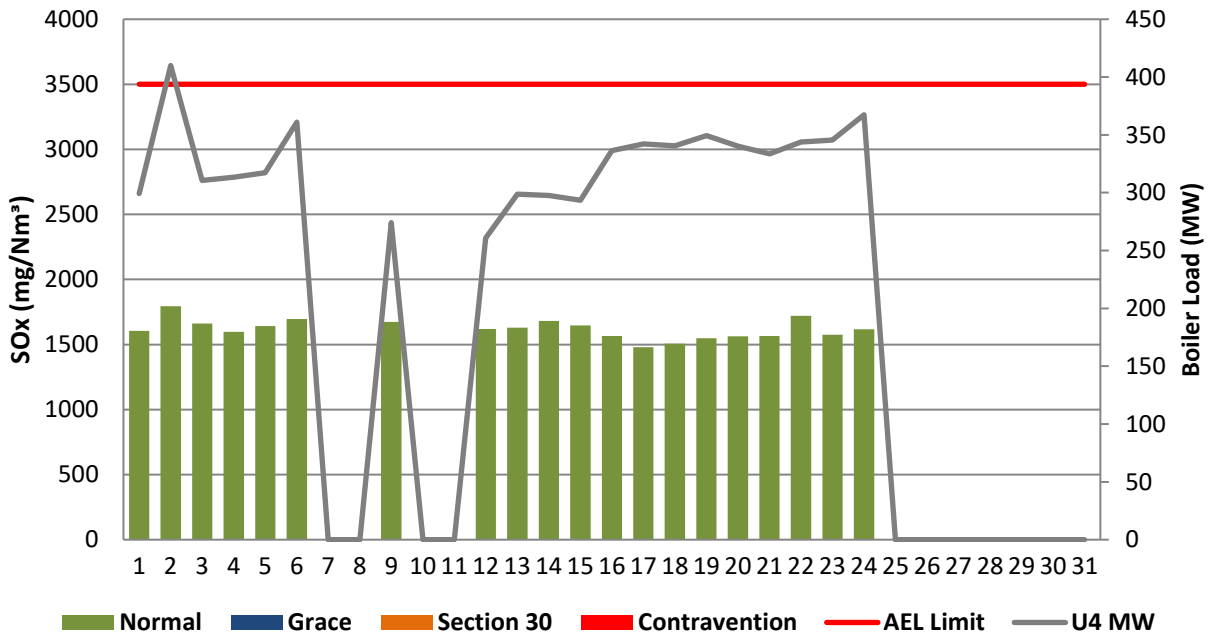
**Figure 6: Duvha Unit 6 PM Emissions - August 2019**



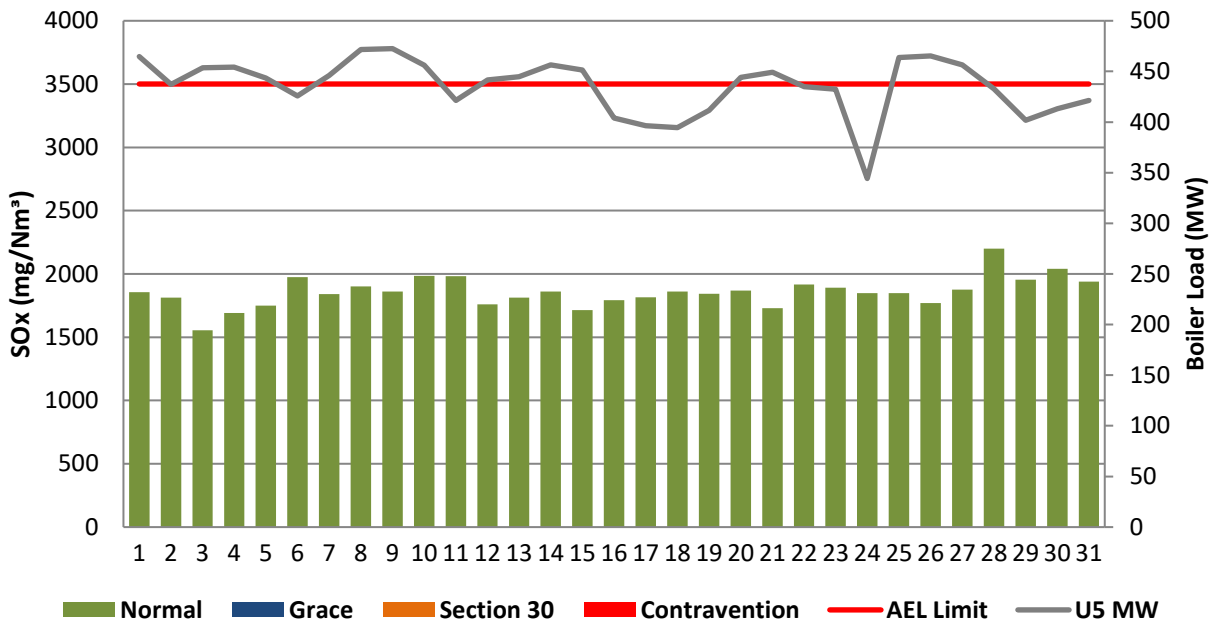
**Figure 8: Duvha Unit 2 SOx Emissions - August 2019**



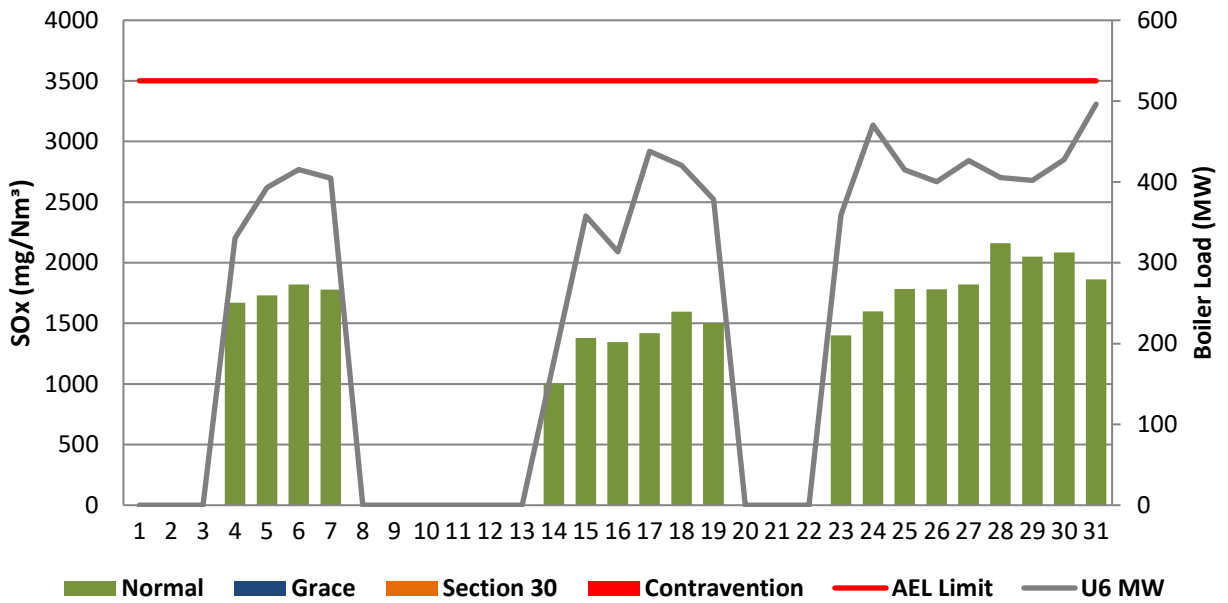
**Figure 10: Duvha Unit 4 SOx Emissions - August 2019**



**Figure 11: Duvha Unit 5 SOx Emissions - August 2019**

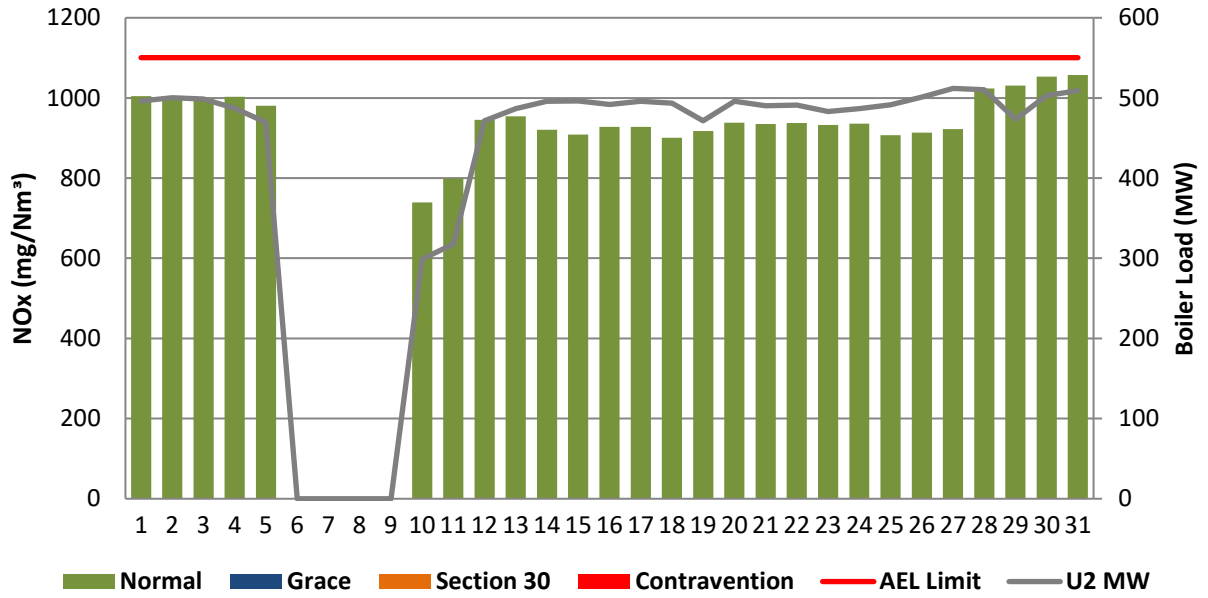


**Figure 12: Duvha Unit 6 SOx Emissions - August 2019**

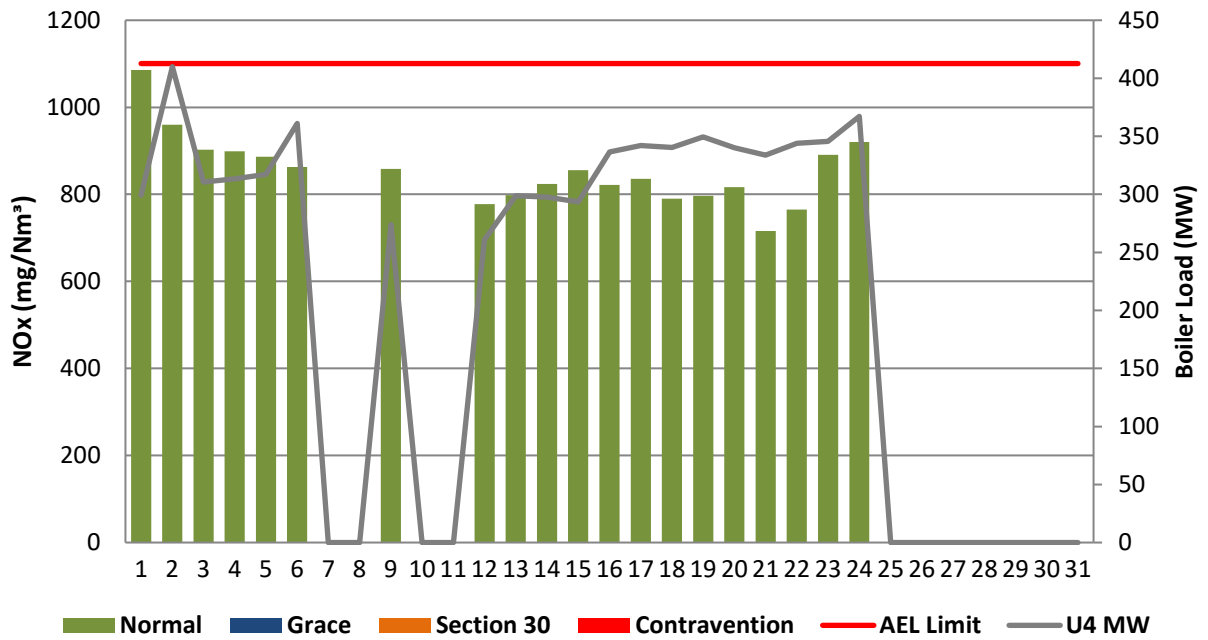




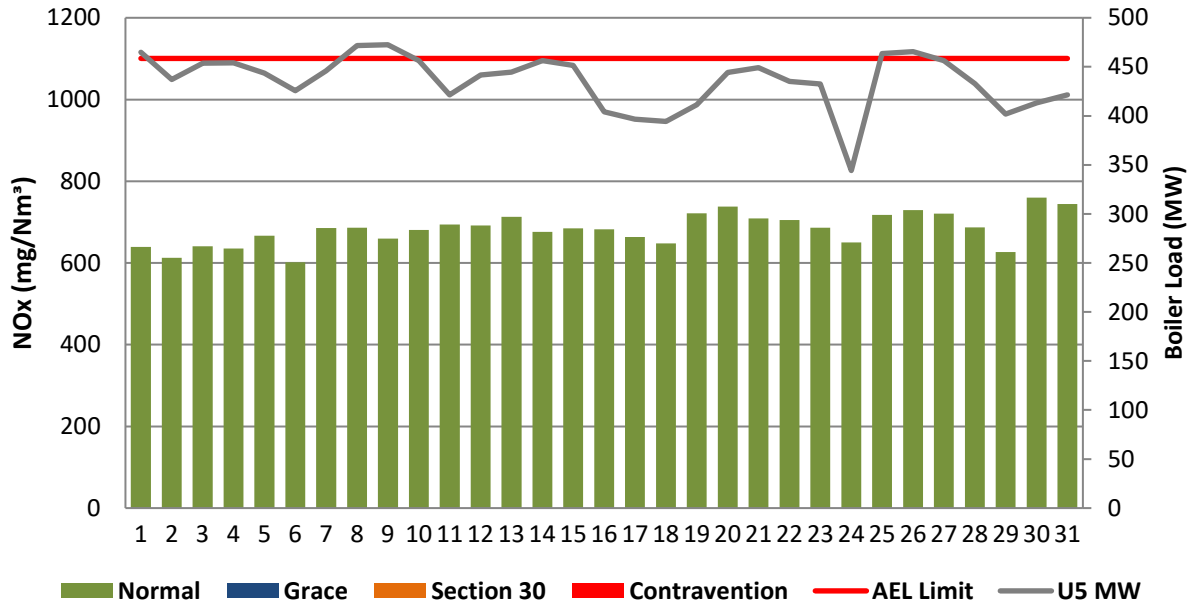
**Figure 14: Duvha Unit 2 NOx Emissions - August 2019**



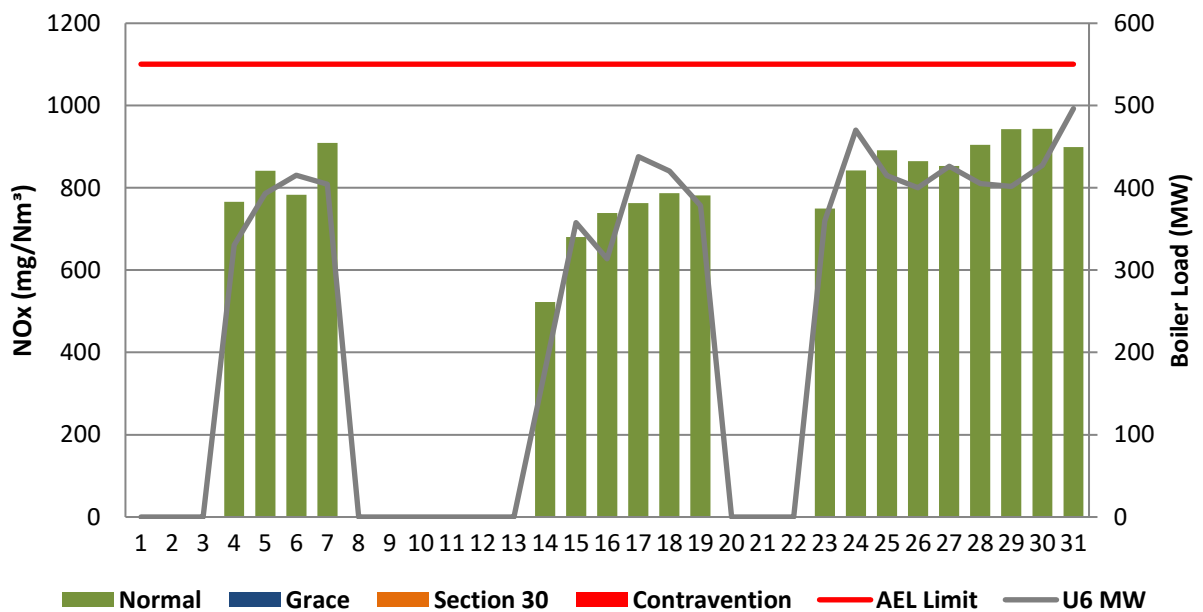
**Figure 16: Duvha Unit 4 NOx Emissions - August 2019**



**Figure 17: Duvha Unit 5 NOx Emissions - August 2019**



**Figure 18: Duvha Unit 6 NOx Emissions - August 2019**



## 7 SHUT DOWN AND LIGHT UP INFORMATION

Tables 7.1: Shut-down and light-up information for the month of August 2019

Unit No.2	<i>Event 1</i>	
Breaker Open (BO)	<i>11:45 AM</i>	<i>2019/08/05</i>
Draught Group (DG) Shut Down (SD)	<i>2:05 AM</i>	<i>2019/08/09</i>
BO to DG SD (duration)	<i>03:14:20</i>	DD:HH:MM
Fires in time	<i>10:35 PM</i>	<i>2019/08/09</i>
Synch. to Grid (or BC)	<i>9:35 AM</i>	<i>2019/08/10</i>
Fires in to BC (duration)	<i>00:11:00</i>	DD:HH:MM
Emissions below limit from BC (end date)	<i>not &gt; limit</i>	<i>not &gt; limit</i>
Emissions below limit from BC (duration)	<i>n/a</i>	DD:HH:MM

Unit No.4	<i>Event 1</i>		<i>Event 2</i>		<i>Event 3</i>		<i>Event 4</i>	
Breaker Open (BO)	<i>7:15 AM</i>	<i>2019/08/03</i>	<i>11:05 PM</i>	<i>2019/08/06</i>	<i>5:55 AM</i>	<i>2019/08/14</i>	<i>4:25 PM</i>	<i>2019/08/20</i>
Draught Group (DG) Shut Down (SD)	<i>8:45 AM</i>	<i>2019/08/03</i>	<i>2:40 PM</i>	<i>2019/08/10</i>	<i>8:50 PM</i>	<i>2019/08/14</i>	<i>5:40 PM</i>	<i>2019/08/20</i>
BO to DG SD (duration)	<i>00:01:30</i>	DD:HH:MM	<i>03:15:35</i>	DD:HH:MM	<i>00:14:55</i>	DD:HH:MM	<i>00:01:15</i>	DD:HH:MM
Fires in time	<i>12:30 PM</i>	<i>2019/08/03</i>	<i>1:50 PM</i>	<i>2019/08/12</i>	<i>5:05 AM</i>	<i>2019/08/15</i>	<i>9:45 PM</i>	<i>2019/08/20</i>
Synch. to Grid (or BC)	<i>4:50 PM</i>	<i>2019/08/03</i>	<i>8:45 PM</i>	<i>2019/08/12</i>	<i>10:00 AM</i>	<i>2019/08/15</i>	<i>12:10 AM</i>	<i>2019/08/21</i>
Fires in to BC (duration)	<i>00:04:20</i>	DD:HH:MM	<i>00:06:55</i>	DD:HH:MM	<i>00:04:55</i>	DD:HH:MM	<i>00:02:25</i>	DD:HH:MM
Emissions below limit from BC (end date)	<i>12:00 AM</i>	<i>2019/08/08</i>	<i>12:00 AM</i>	<i>2019/08/14</i>	<i>12:00 AM</i>	<i>2019/08/16</i>	<i>4:00 AM</i>	<i>2019/08/21</i>
Emissions below limit from BC (duration)	<i>04:07:10</i>	DD:HH:MM	<i>01:03:15</i>	DD:HH:MM	<i>00:14:00</i>	DD:HH:MM	<i>00:03:50</i>	DD:HH:MM

Unit No.6	<i>Event 1</i>		<i>Event 2</i>		<i>Event 3</i>	
Breaker Open (BO)	<i>BO previously</i>	<i>BO previously</i>	<i>9:40 PM</i>	<i>2019/08/07</i>	<i>8:50 PM</i>	<i>2019/08/19</i>
Draught Group (DG) Shut Down (SD)	<i>n/a</i>	<i>n/a</i>	<i>4:45 PM</i>	<i>2019/08/16</i>	<i>9:40 PM</i>	<i>2019/08/19</i>
BO to DG SD (duration)	<i>n/a</i>	DD:HH:MM	<i>08:19:05</i>	DD:HH:MM	<i>00:00:50</i>	DD:HH:MM
Fires in time	<i>12:05 AM</i>	<i>2019/08/04</i>	<i>4:50 PM</i>	<i>2019/08/16</i>	<i>11:10 PM</i>	<i>2019/08/22</i>

Synch. to Grid (or BC)	7:15 AM	2019/08/04	5:15 PM	2019/08/16	12:10 PM	2019/08/23
Fires in to BC (duration)	00:07:10	DD:HH:MM	00:00:25	DD:HH:MM	00:13:00	DD:HH:MM
Emissions below limit from BC (end date)	12:00 AM	2019/08/09	6:00 PM	2019/08/18	12:00 AM	2019/08/25
Emissions below limit from BC (duration)	04:16:45	DD:HH:MM	02:00:45	DD:HH:MM	01:11:50	DD:HH:MM

## 8 General

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.



Boiler Plant Engineering  
Manager

27 May 2020

Date



Environmental  
Manager

2020/05/22

Date



Engineering Manager

27 May 2020

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

## ADDENDUM TO MONTHLY EMISSIONS REPORT

### 9 COMPLAINTS REGISTER

Table 9. Complaints for the month of August 2019

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 August 2019.					

### 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.
Unit 6	07/08/2019	07/08/2019	Lack of management support to Outage Department in failure to manage risks during the starting up of the unit.	General Manager to implement corrective action to address poor outage management.	08/08/2019	21/10/2019	22/08/2019	22/08/2019	14/7/6/2/4/2/1457 - I6333082019

