



Generation

Nkangala District Municipality
P O Box 437
Middleburg
1050

Date: 2020/02/24

Enquiries: Duvha Environmental Management

Attention:
Mr V Mahlangu

Enquiries:

AND

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DUVHA POWER STATION

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

STATION GENERAL MANAGER

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 Jan-2020
	Coal	Tons/month	1 400 000	448 436
	Fuel Oil	Tons/month	5 000	5656

Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Production Rate Jan-2020
	Energy	GWh	3600	790.74
	Ash	Tons	not specified	116 997.0
	RE Ash	kg/MWh	not specified	0.437

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
CV Content	MJ/kg	18-24	
Sulphur Content	%	0.6 to 1.2	0.760
Ash Content	%	27 to 30	26.090

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 Jan-2020
Unit 1	Fabric Filter Plant (FFP)	Unit Off-line
Unit 2	Fabric Filter Plant (FFP)	99.84%
Unit 3	Fabric Filter Plant (FFP)	Unit Off-line
Unit 4	Electro Static Precipiator (ESP)	99.54%
Unit 5	Electro Static Precipiator (ESP)	99.49%
Unit 6	Electro Static Precipiator (ESP)	99.60%

5 MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO ₂	NO	CO ₂
Unit 1				
Unit 2	100.0	0.0	0.0	
Unit 3				
Unit 4	99.4	67.7	72.4	
Unit 5	88.1	93.1	93.1	
Unit 6	99.2	82.3	85.4	

6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of January 2020

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)	CO ₂ (tons)
Unit 1	0.0	0	0	
Unit 2	57.6	3 246	1 358	
Unit 3	0.0	0	0	
Unit 4	173.4	3 992	2 029	
Unit 5	55.6	1 662	531	
Unit 6	85.3	1 974	863	
SUM	371.9	10 873	4 781	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	0	0	0	0	0	
Unit 2	30	0	0	0	0	31.3
Unit 3	0	0	0	0	0	
Unit 4	18	3	6	0	9	93.4
Unit 5	8	3	0	0	3	139.4
Unit 6	13	4	0	0	4	89.7
SUM	69	10	6	0	16	

Table 6.3: Operating days in compliance to SO_x AEL Limit - January 2020

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average SO _x (mg/Nm ³)
Unit 1	0	0	0	0	0	
Unit 2	30	0	0	0	0	1 620.5
Unit 3	0	0	0	0	0	
Unit 4	30	0	0	0	0	2 064.1
Unit 5	16	0	0	0	0	2 288.1
Unit 6	18	0	0	0	0	1 894.1
SUM	94	0	0	0	0	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average NOx (mg/Nm³)
Unit 1	0	0	0	0	0	
Unit 2	30	0	0	0	0	678.2
Unit 3	0	0	0	0	0	
Unit 4	23	7	0	0	7	1 025.4
Unit 5	16	0	0	0	0	722.0
Unit 6	18	0	0	0	0	816.9
SUM	87	7	0	0	7	

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
Contra-vention		Emissions above ELV but outside grace or S30 incident conditions

Figure 2: Duvha Unit 2 PM Emissions - January 2020

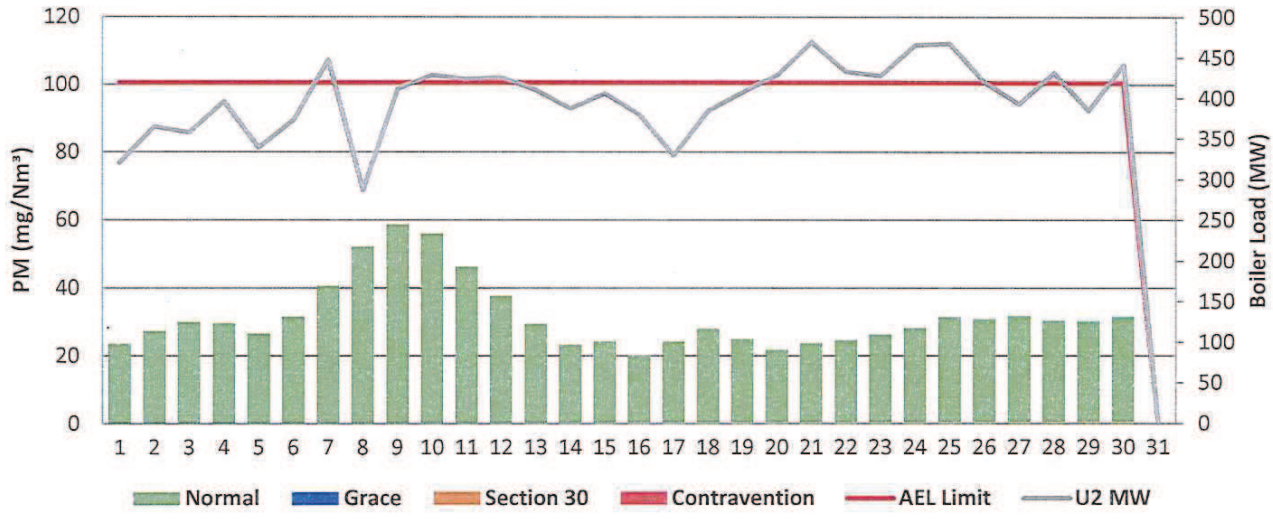


Figure 4: Duvha Unit 4 PM Emissions - January 2020

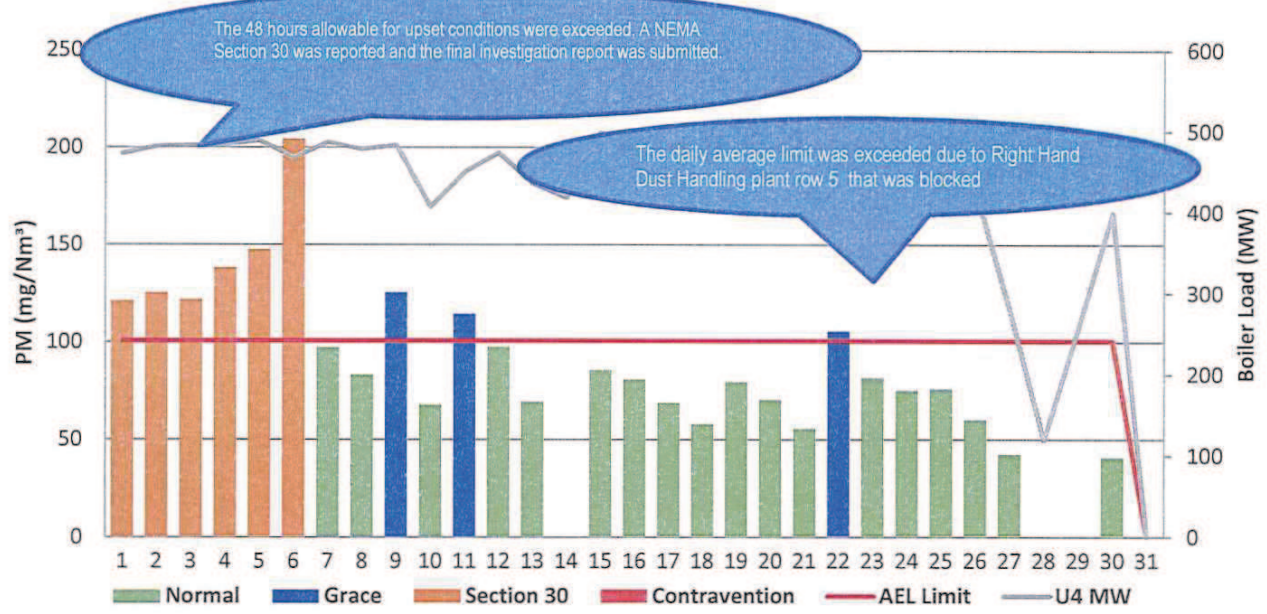


Figure 5: Duvha Unit 5 PM Emissions - January 2020

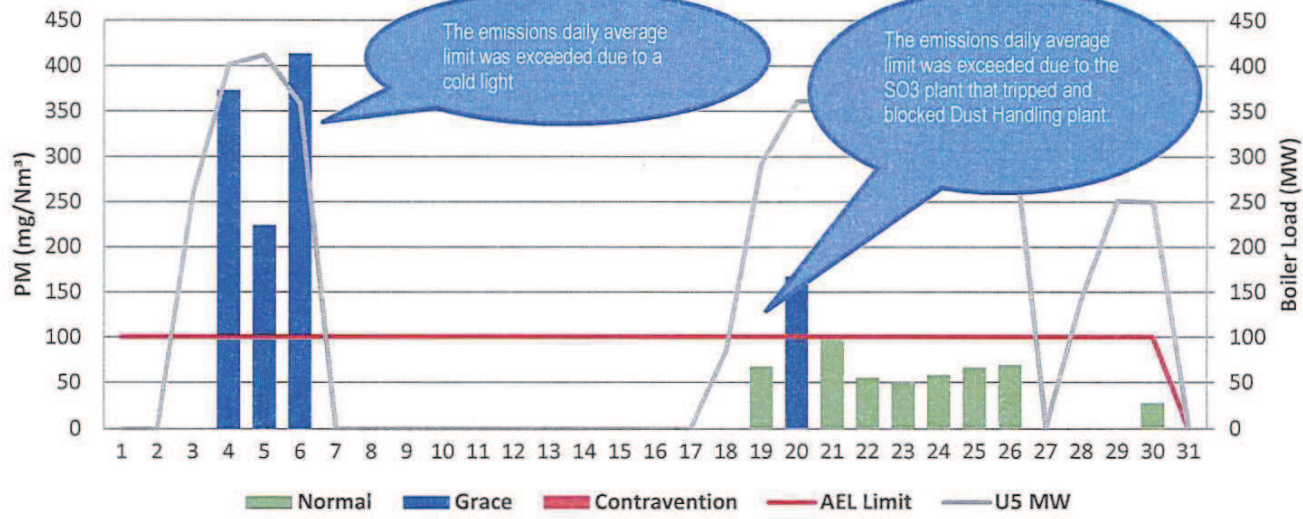


Figure 6: Duvha Unit 6 PM Emissions - January 2020

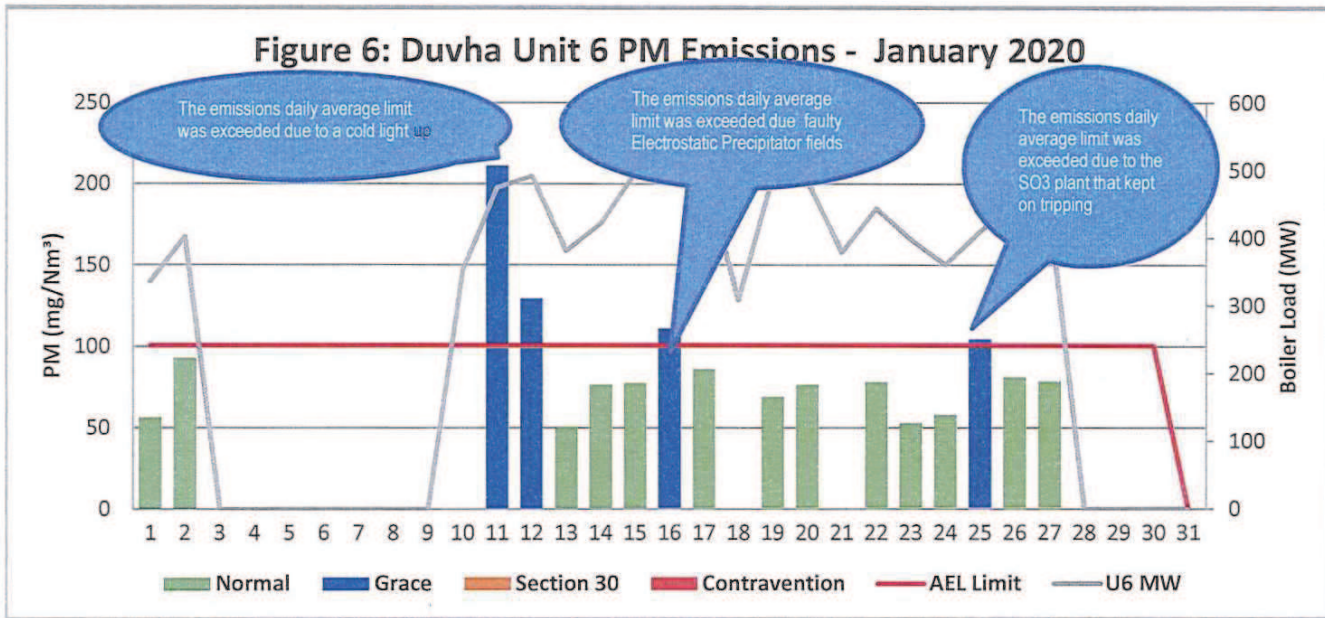


Figure 8: Duvha Unit 2 SOx Emissions - January 2020

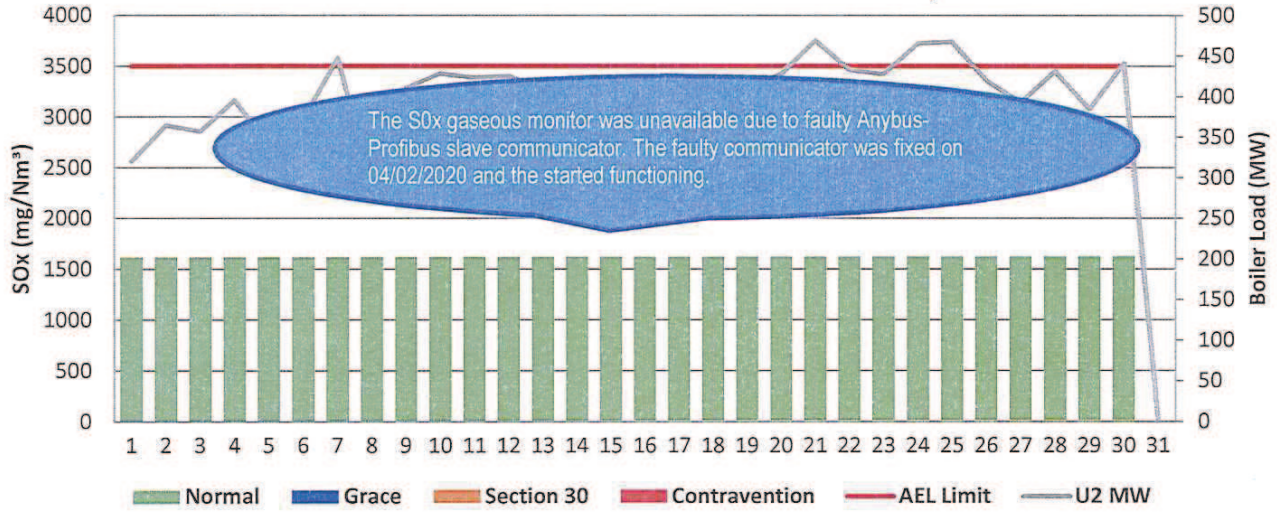


Figure 10: Duvha Unit 4 SOx Emissions - January 2020

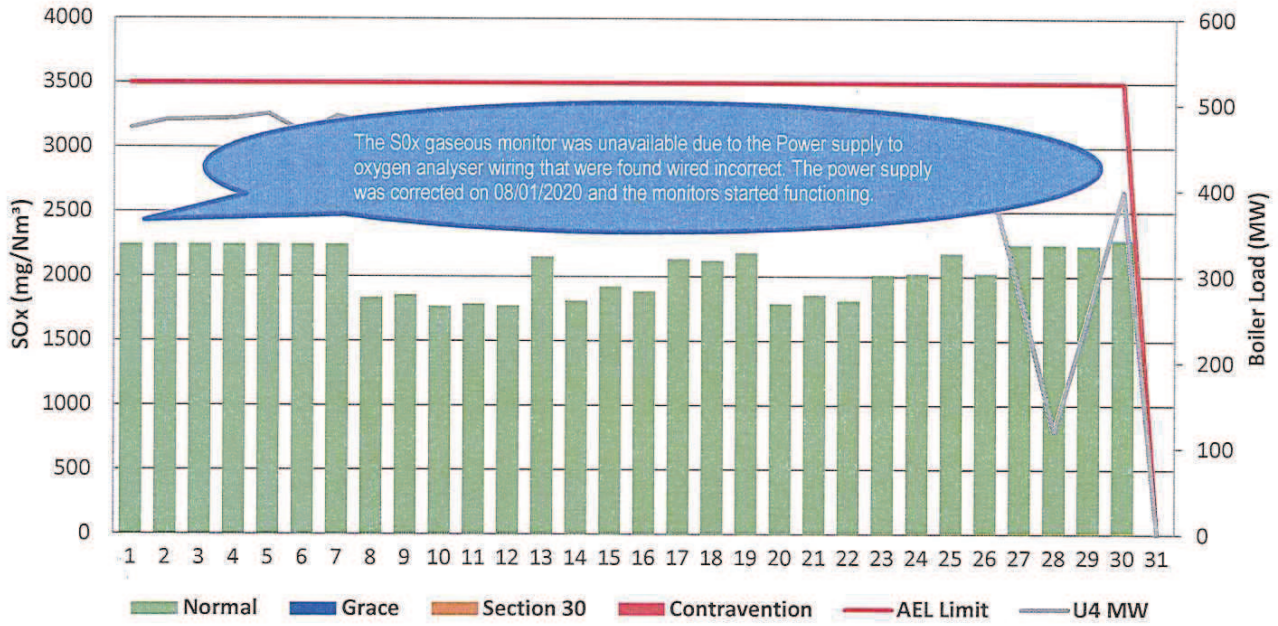


Figure 11: Duvha Unit 5 SOx Emissions - January 2020

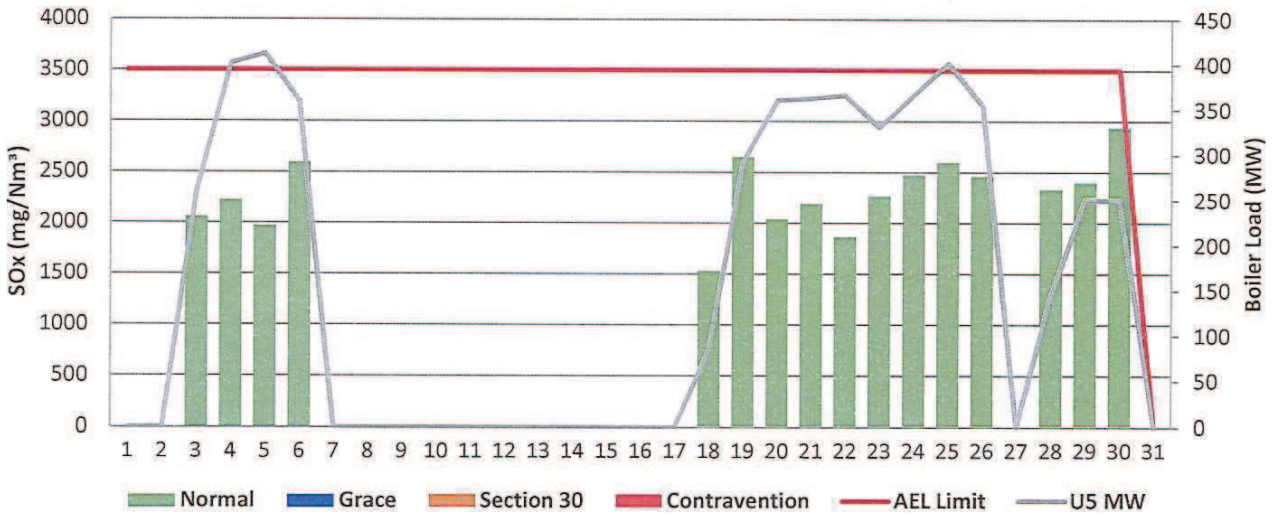


Figure 12: Duvha Unit 6 SOx Emissions - January 2020

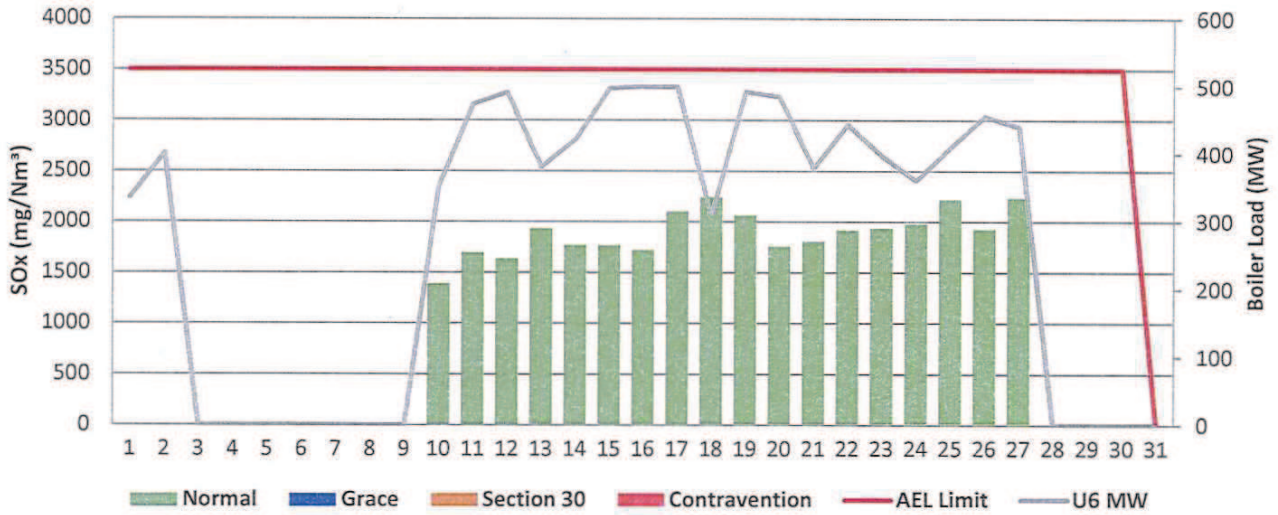


Figure 14: Duvha Unit 2 NOx Emissions - January 2020

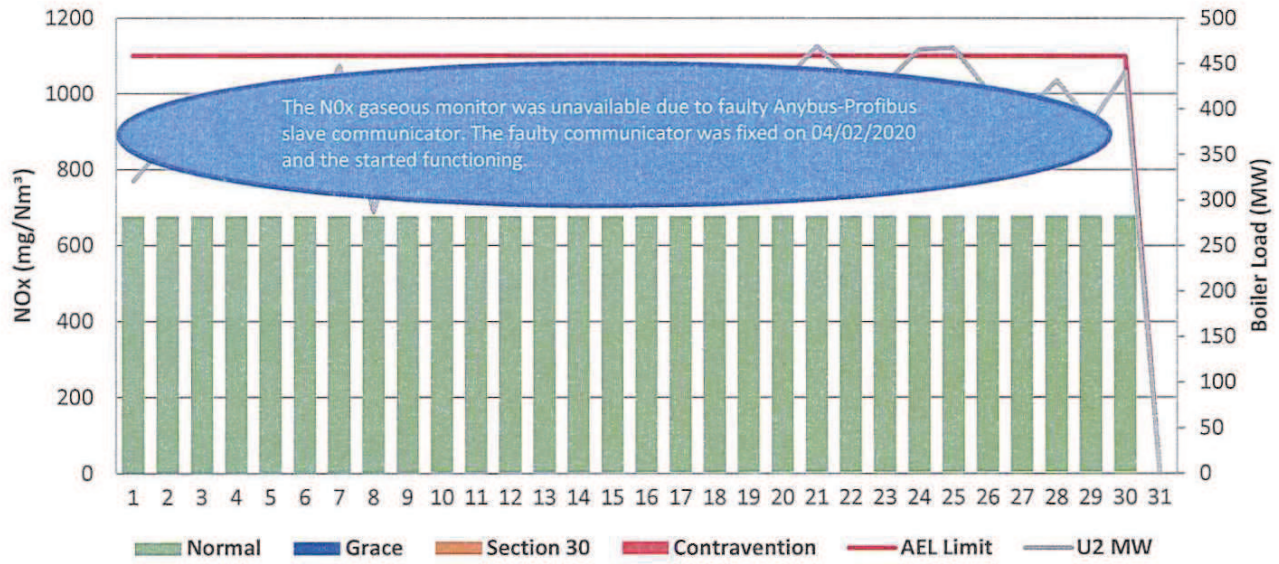


Figure 16: Duvha Unit 4 NOx Emissions - January 2020

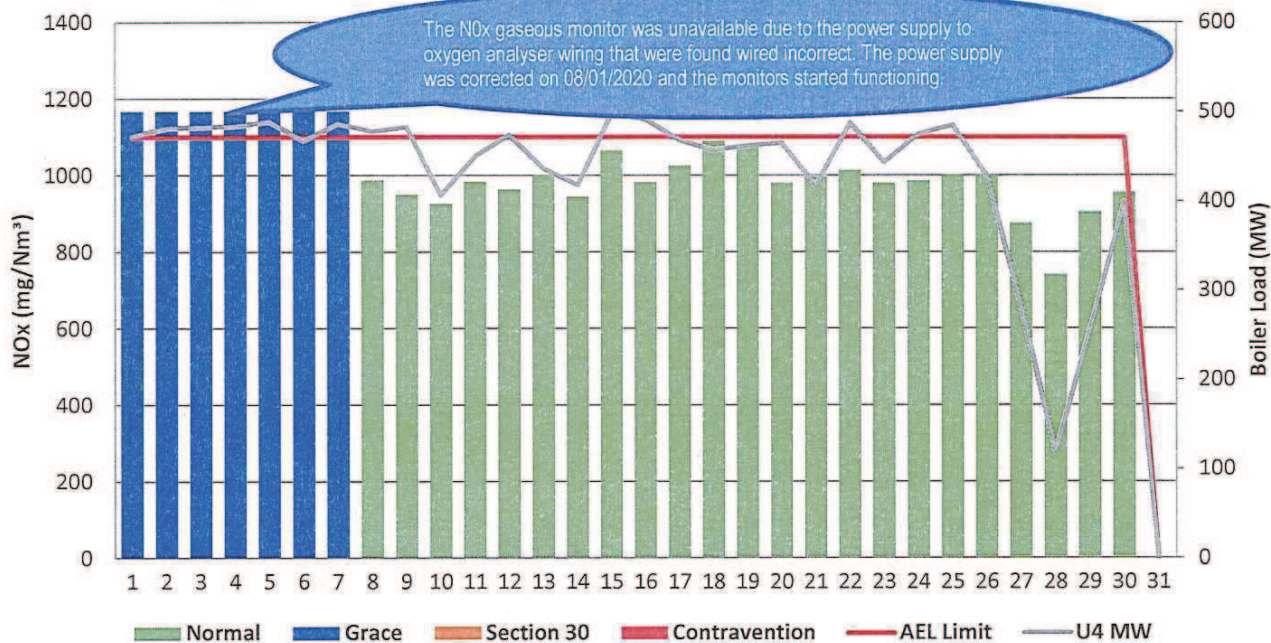


Figure 17: Duvha Unit 5 NOx Emissions - January 2020

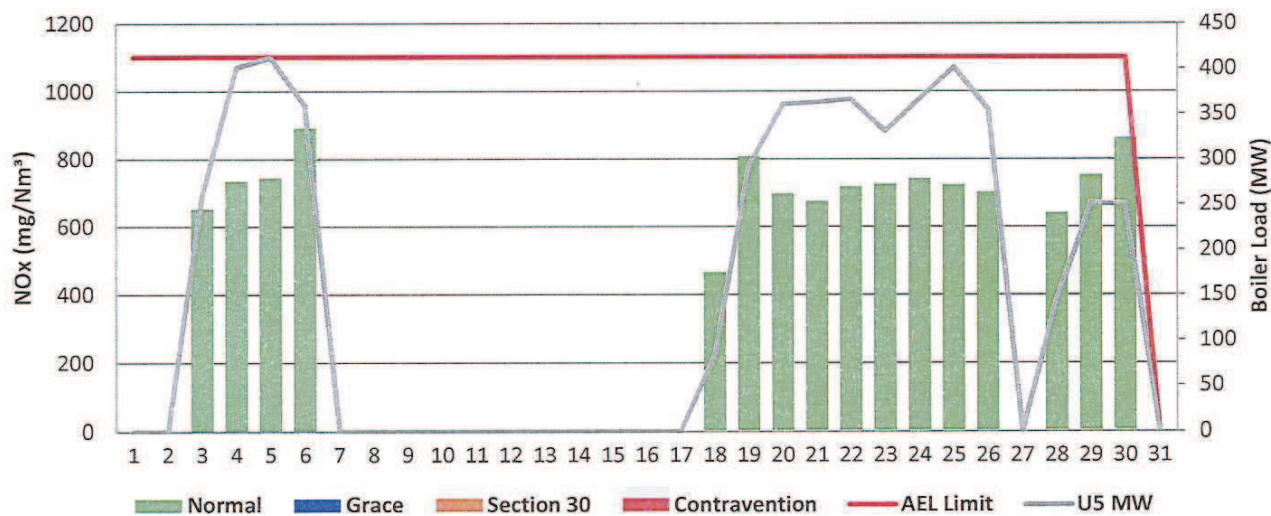
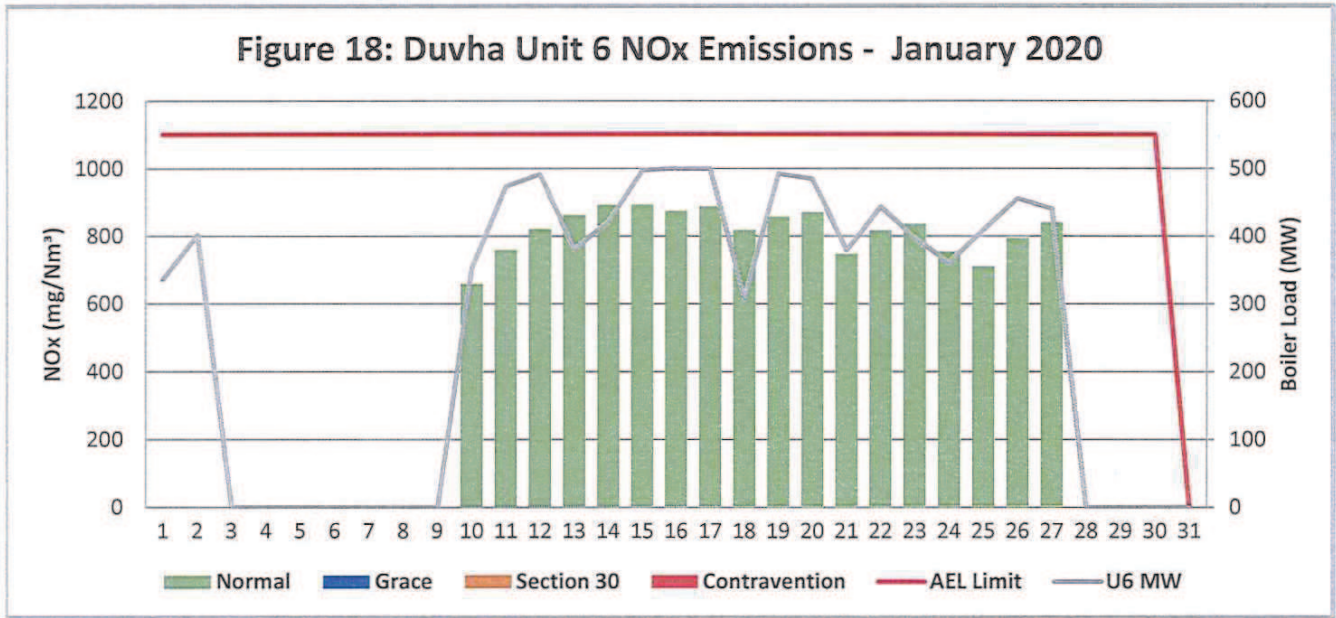


Figure 18: Duvha Unit 6 NOx Emissions - January 2020



7 SHUT DOWN AND LIGHT UP INFORMATION

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

Unit No.1	<i>Event 1</i>		<i>Event 2</i>		<i>Event 3</i>		<i>Event 4</i>	
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.2	<i>Event 1</i>		<i>Event 2</i>		<i>Event 3</i>		<i>Event 4</i>	
Breaker Open (BO)	<i>4:15 AM</i>	<i>2020/01/09</i>	<i>7:40 AM</i>	<i>2020/01/18</i>				
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								
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>Event 1</i>		<i>Event 2</i>		<i>Event 3</i>		<i>Event 4</i>	
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.4	<i>Event 1</i>		<i>Event 2</i>		<i>Event 3</i>		<i>Event 4</i>	
Breaker Open (BO)	<i>4:30 PM</i>	<i>2020/01/14</i>	<i>4:35 AM</i>	<i>2020/01/28</i>				
Draught Group (DG) Shut Down (SD)	<i>4:30 AM</i>	<i>2020/01/15</i>	<i>5:45 AM</i>	<i>2020/01/29</i>				
BO to DG SD (duration)	<i>00:12:00</i>	DD:HH:MM	<i>01:01:10</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	<i>6:20 AM</i>	<i>2020/01/15</i>	<i>1:40 PM</i>	<i>2020/01/30</i>				
Synch. to Grid (or BC)	<i>1:55 PM</i>	<i>2020/01/15</i>	<i>7:50 PM</i>	<i>2020/01/30</i>				
Fires in to BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	<i>not > limit</i>	<i>not > limit</i>	<i>not > limit</i>	<i>not > limit</i>				
Emissions below limit from BC (duration)	<i>n/a</i>	DD:HH:MM	<i>n/a</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM

Unit No.5	<i>Event 1</i>		<i>Event 2</i>		<i>Event 3</i>		<i>Event 4</i>	
Breaker Open (BO)			<i>1:45 AM</i>	<i>2020/01/07</i>	<i>4:25 AM</i>	<i>2020/01/27</i>		
Draught Group (DG) Shut Down (SD)			<i>6:25 PM</i>	<i>2020/01/12</i>	<i>6:05 PM</i>	<i>2020/01/28</i>		
BO to DG SD (duration)		DD:HH:MM	<i>05:16:40</i>	DD:HH:MM	<i>01:13:40</i>	DD:HH:MM		DD:HH:MM
Fires in time			<i>4:05 PM</i>	<i>2020/01/19</i>	<i>9:50 AM</i>	<i>2020/01/29</i>		
Synch. to Grid (or BC)			<i>11:35 PM</i>	<i>2020/01/19</i>	<i>1:35 AM</i>	<i>2020/01/30</i>		
Fires in to BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)			<i>not > limit</i>	<i>not > limit</i>	<i>not > limit</i>	<i>not > 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		DD:HH:MM

Unit No.6	<i>Event 1</i>		<i>Event 2</i>		<i>Event 3</i>		<i>Event 4</i>	
Breaker Open (BO)			<i>10:25 PM</i>	<i>2020/01/03</i>	<i>4:25 PM</i>	<i>2020/01/18</i>	<i>8:40 PM</i>	<i>2020/01/21</i>
Draught Group (DG) Shut Down (SD)			<i>3:10 PM</i>	<i>2020/01/04</i>	<i>5:55 PM</i>	<i>2020/01/18</i>	<i>10:25 PM</i>	<i>2020/01/21</i>
BO to DG SD (duration)		DD:HH:MM	<i>00:16:45</i>	DD:HH:MM	<i>00:01:30</i>	DD:HH:MM	<i>00:01:45</i>	DD:HH:MM
Fires in time			<i>3:05 AM</i>	<i>2020/01/11</i>	<i>12:00 AM</i>	<i>2020/01/19</i>	<i>11:30 PM</i>	<i>2020/01/21</i>
Synch. to Grid (or BC)			<i>8:25 AM</i>	<i>2020/01/11</i>	<i>8:40 AM</i>	<i>2020/01/19</i>	<i>2:30 AM</i>	<i>2020/01/22</i>
Fires in to BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)			<i>not > limit</i>	<i>not > limit</i>	<i>not > limit</i>	<i>not > limit</i>	<i>not > limit</i>	<i>not > 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	<i>n/a</i>	DD:HH:MM

8 General

The maximum permitted consumption rate for fuel oil was exceeded for the month of January 2020. This was due to extended unit light ups and unavailability of feed water pumps (EFP & BFPT) resulting to high fuel oil useage.

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 & 10 Complains and Incidents Register

Refer to addendum A

Boiler Plant Engineering Manager / Date

Environmental Manager

Date

Engineering Manager

Date

Compiled by: Environmental Officer

For: Department of Environmental Affairs and Tourism Chief Air Pollution Control Officer

Copies: Eskom Environmental Management

Group Technology Engineering

Duvha Power Station:

Engineering Manager
Operating Manager
Maintenance Manager
Unit Production Manager
Boiler Engineering Manager
System Engineer
Environmental Officer
Performance and Test
Production Manager

