



Generation

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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 Apr-2021
	Coal	Tons	1 400 000	457 279.48
	Fuel Oil	Tons	5 000	3674.98
Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Production Rate Apr-2021
	Energy	GWh	3600	763.80
	Ash	Tons	not specified	124425.75
	RE Ash	kg/MWh	not specified	0.32

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.6 TO >1.2	0.89
Ash Content	%	27 TO 30	27.21

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 April-2021	Minimum Utilization	Utilization April-2021
Unit 1	<i>Fabric Filter Plant (FFP)</i>	99%	99.77%	100%	100%
Unit 2	<i>Fabric Filter Plant (FFP)</i>	99%	99.88%	100%	100%
Unit 4	<i>Electro Static Precipitator (ESP)</i>	99.6%	99.76%	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%	99.56%	100%	100%
Unit 4	<i>Chemithon (SO₃)</i>	99.6%	100%	96%	98.0%
Unit 5	<i>Chemithon (SO₃)</i>	99.6%	Off load	96%	Off load
Unit 6	<i>Chemithon (SO₃)</i>	99.6%	100%	96%	60.0%

5 MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO ₂	NO
Unit 1	97.2	99.7	99.7
Unit 2	100.0	99.6	99.6
Unit 4	100.0	99.9	99.9
Unit 6	83.4	100.0	100.0

6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of April 2021

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	84.2	4 094	1 552
Unit 2	28.3	1 330	1 088
Unit 4	87.2	3 092	1 700
Unit 6	62.2	1 387	596
SUM	261.9	9 903	4 937

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	28	2	0	0	2	43.0
Unit 2	15	0	0	0	0	28.6
Unit 4	23	2	0	0	2	59.4
Unit 6	8	3	0	0	3	142.5
SUM	74	7	0	0	7	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO _x (mg/Nm ³)
Unit 1	30	0	0	0	0	2 004.5
Unit 2	19	0	0	0	0	1 118.6
Unit 4	28	0	0	0	0	1 753.5
Unit 6	14	0	0	0	0	1 927.1
SUM	91	0	0	0	0	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NO _x (mg/Nm ³)
Unit 1	30	0	0	0	0	756.7
Unit 2	19	0	0	0	0	916.8
Unit 4	28	0	0	0	0	954.0
Unit 6	14	0	0	0	0	825.7
SUM	91	0	0	0	0	

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
Contravention	Red	Emissions above ELV but outside grace or S30 incident conditions

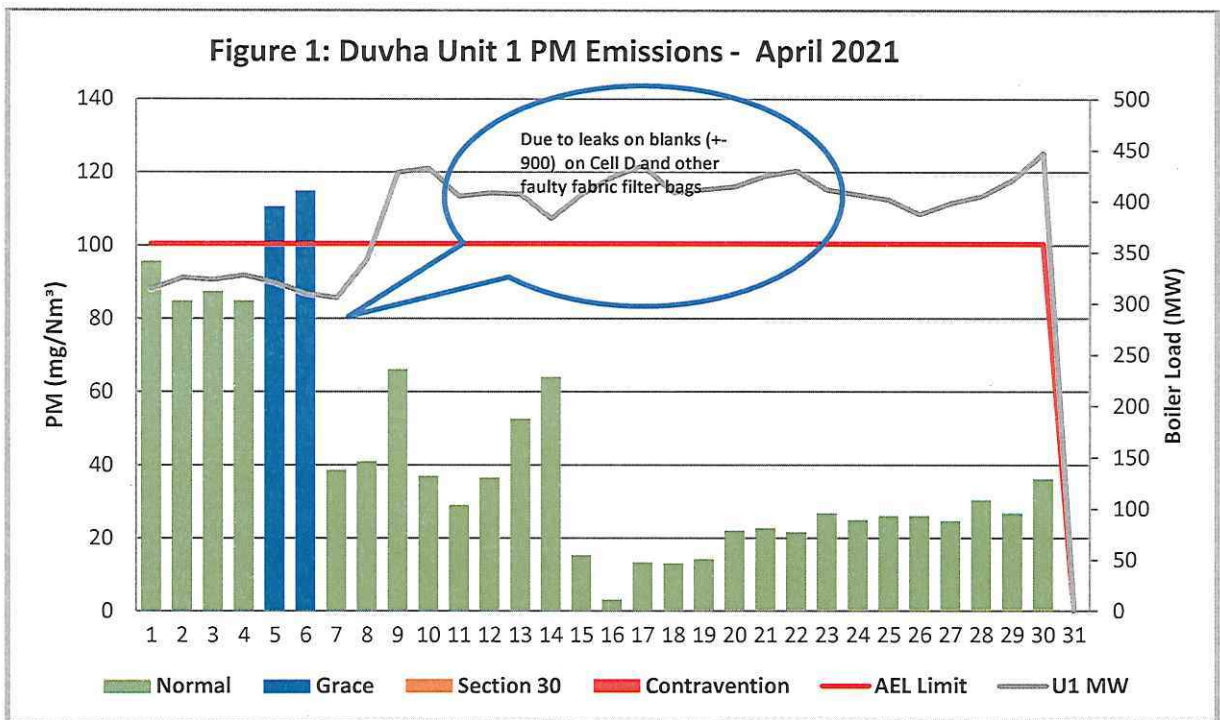


Figure 2: Duvha Unit 2 PM Emissions - April 2021

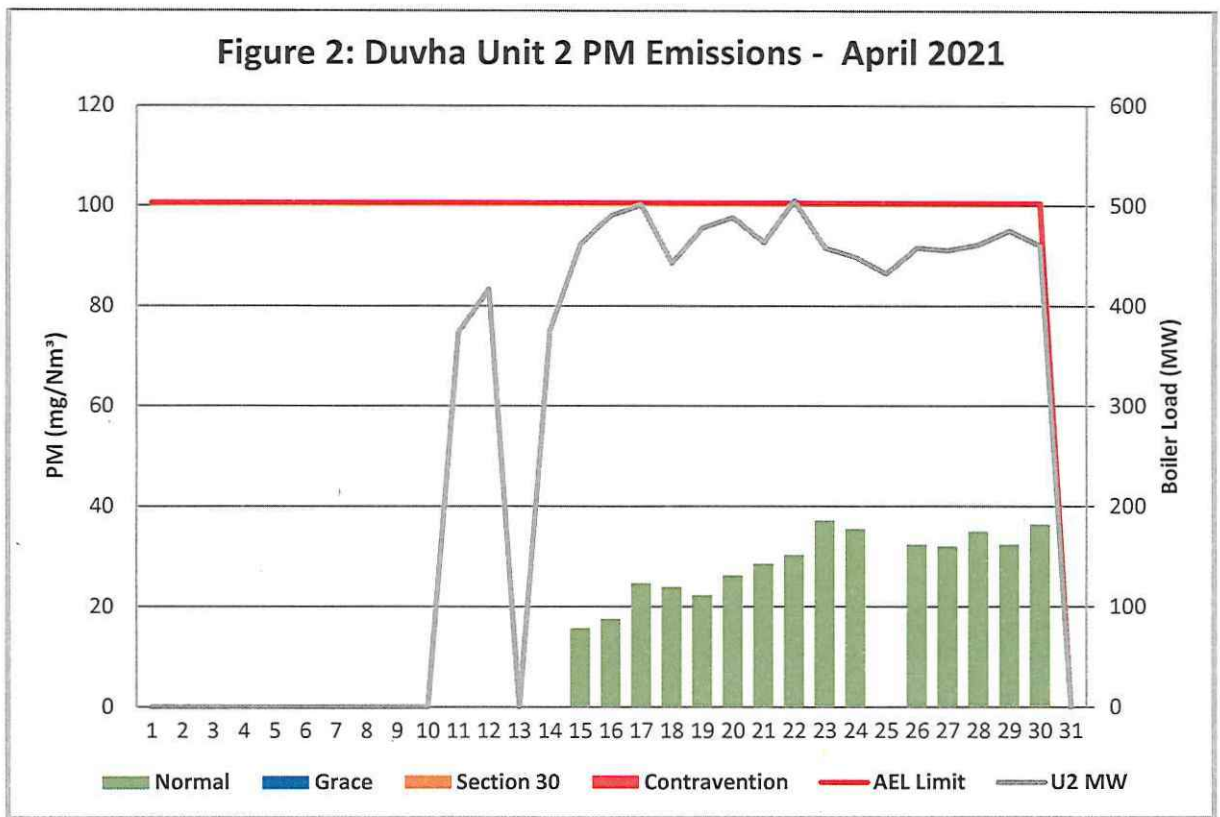


Figure 4: Duvha Unit 4 PM Emissions - April 2021

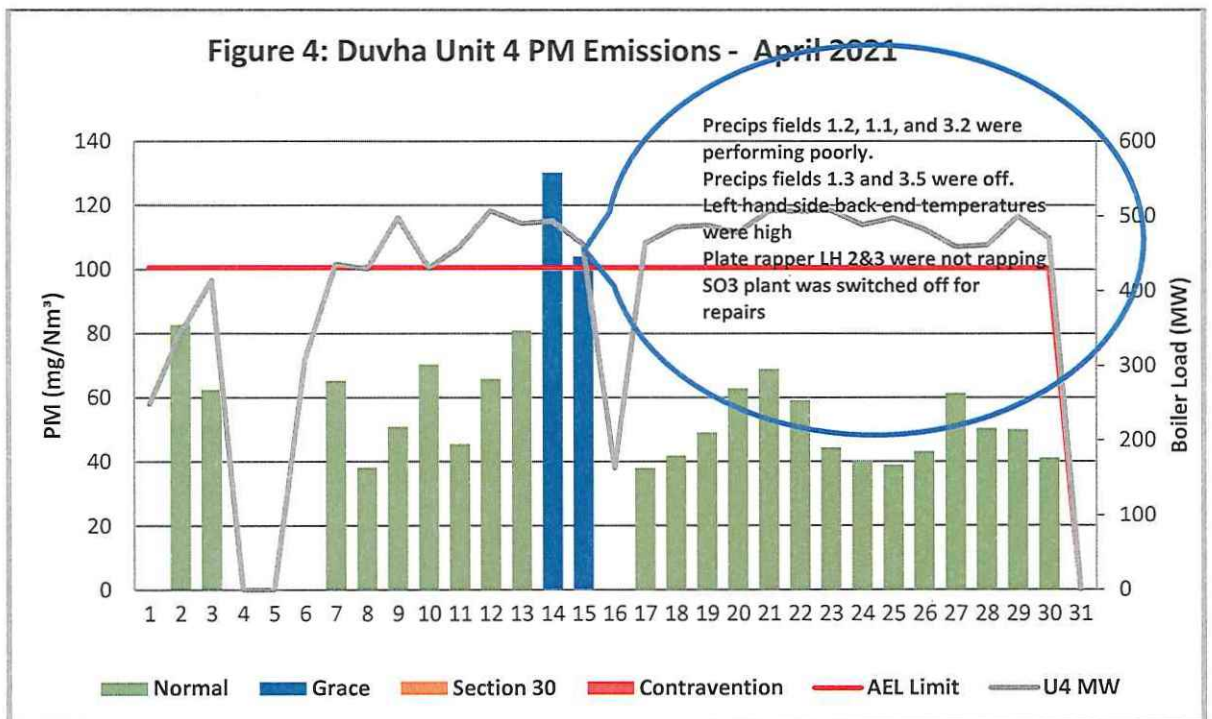


Figure 6: Duvha Unit 6 PM Emissions - April 2021

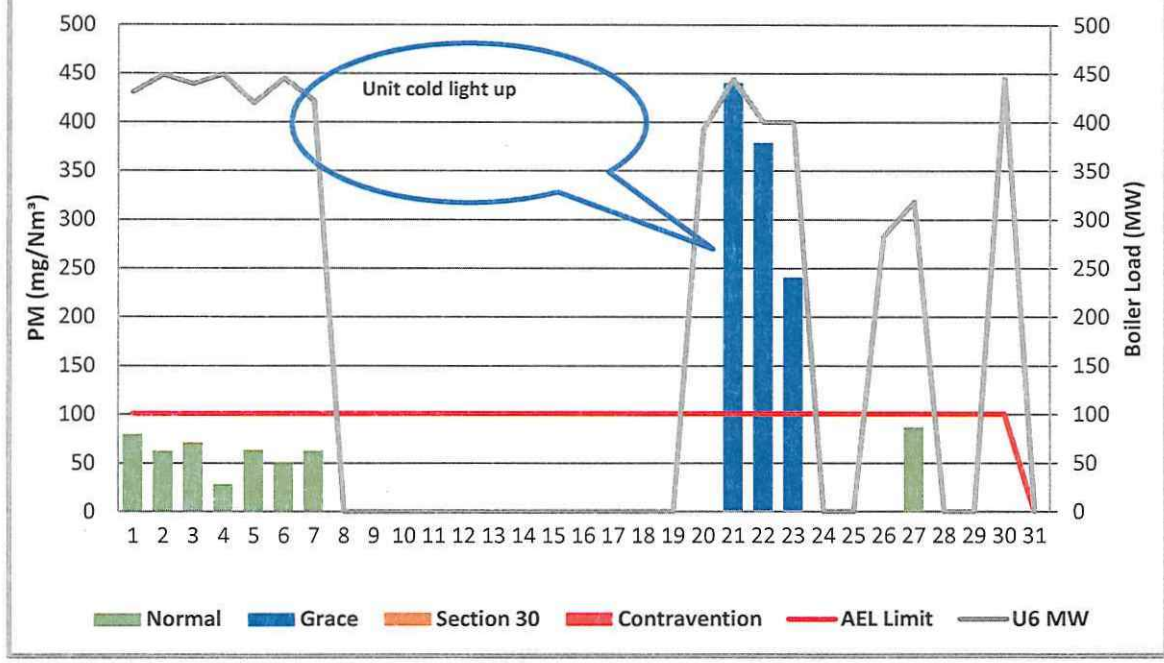


Figure 7: Duvha Unit 1 SOx Emissions - April 2021

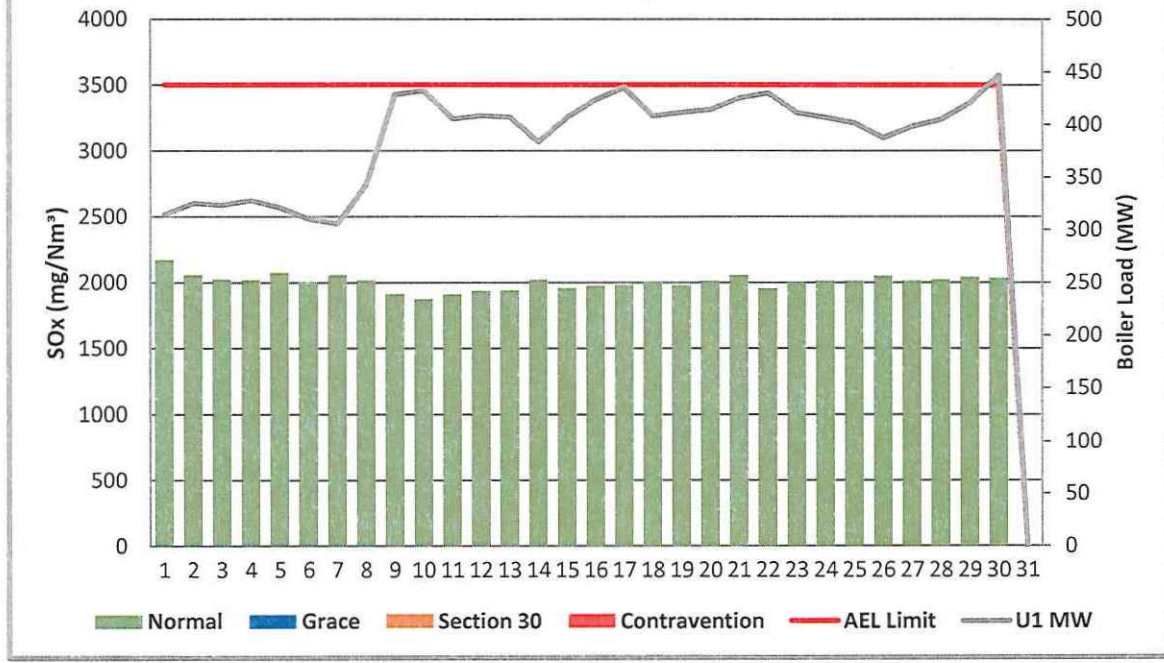


Figure 8: Duvha Unit 2 SOx Emissions - April 2021

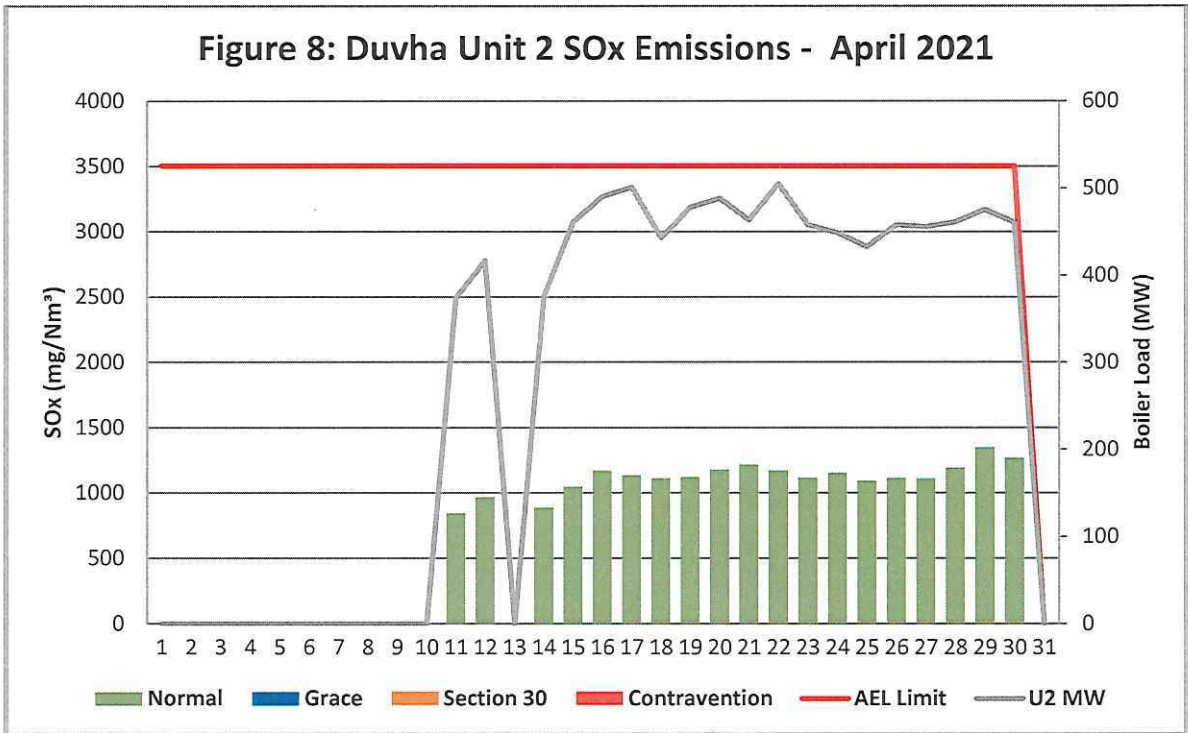


Figure 10: Duvha Unit 4 SOx Emissions - April 2021

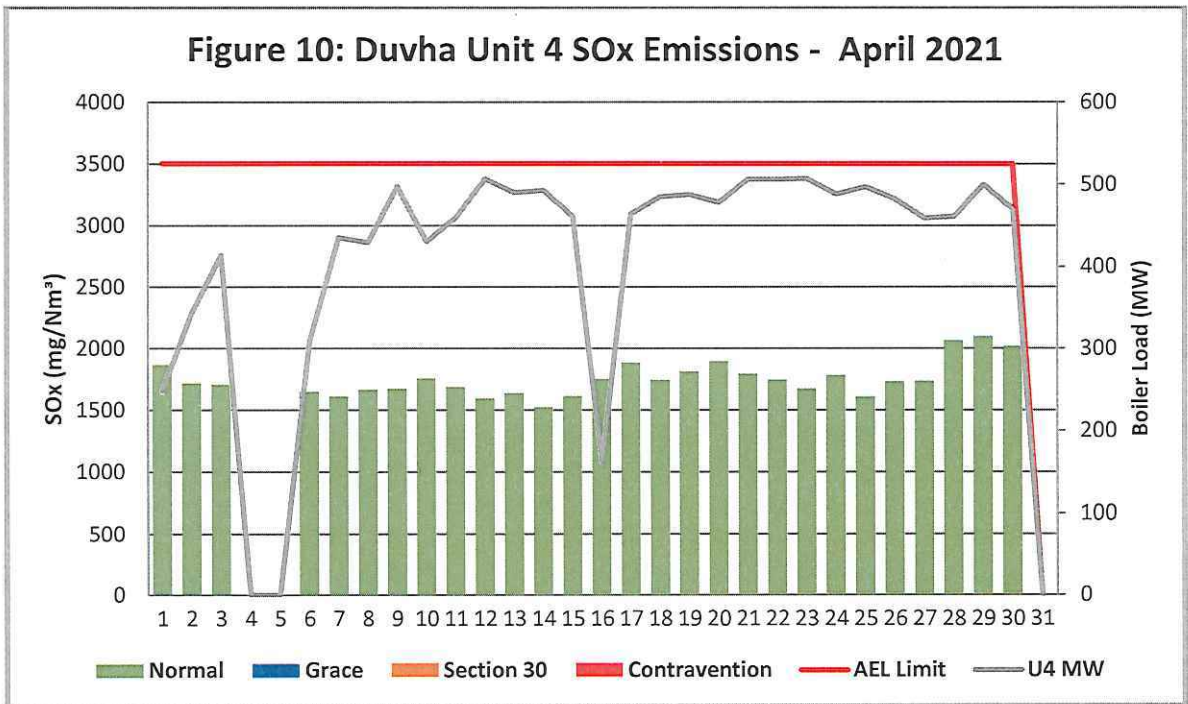


Figure 12: Duvha Unit 6 SOx Emissions - April 2021

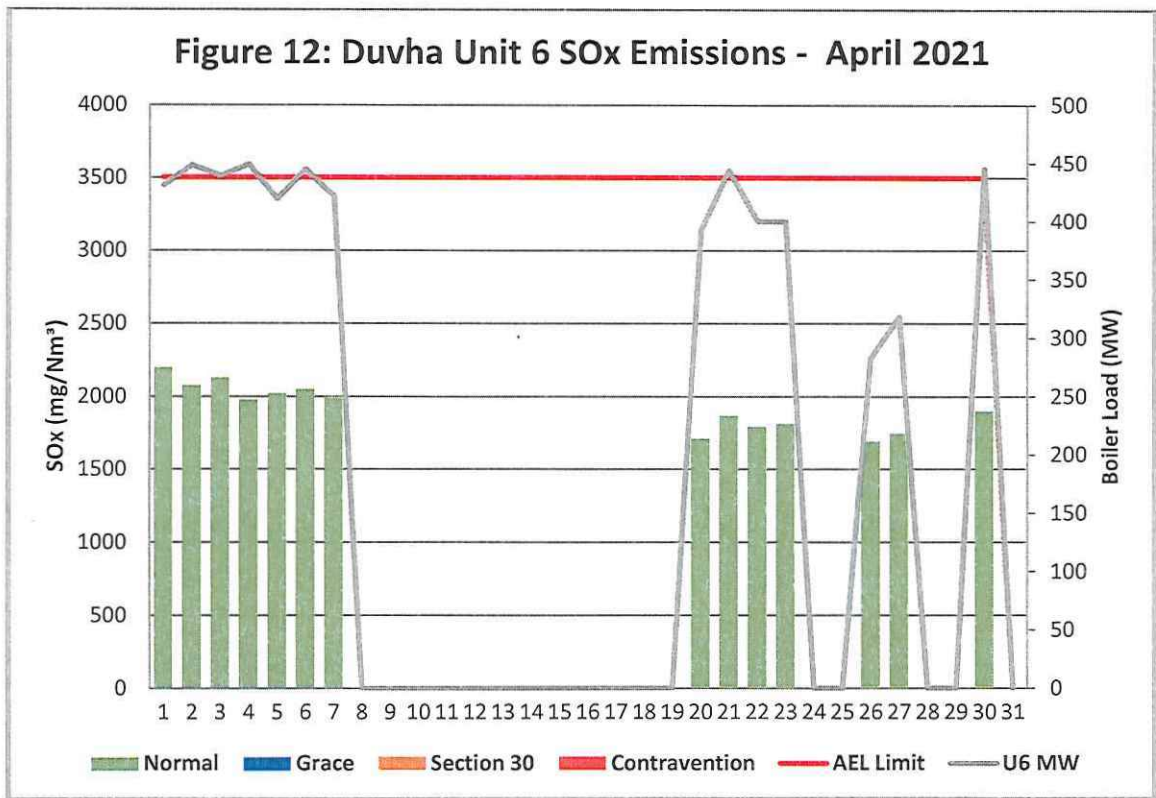


Figure 13: Duvha Unit 1 NOx Emissions - April 2021

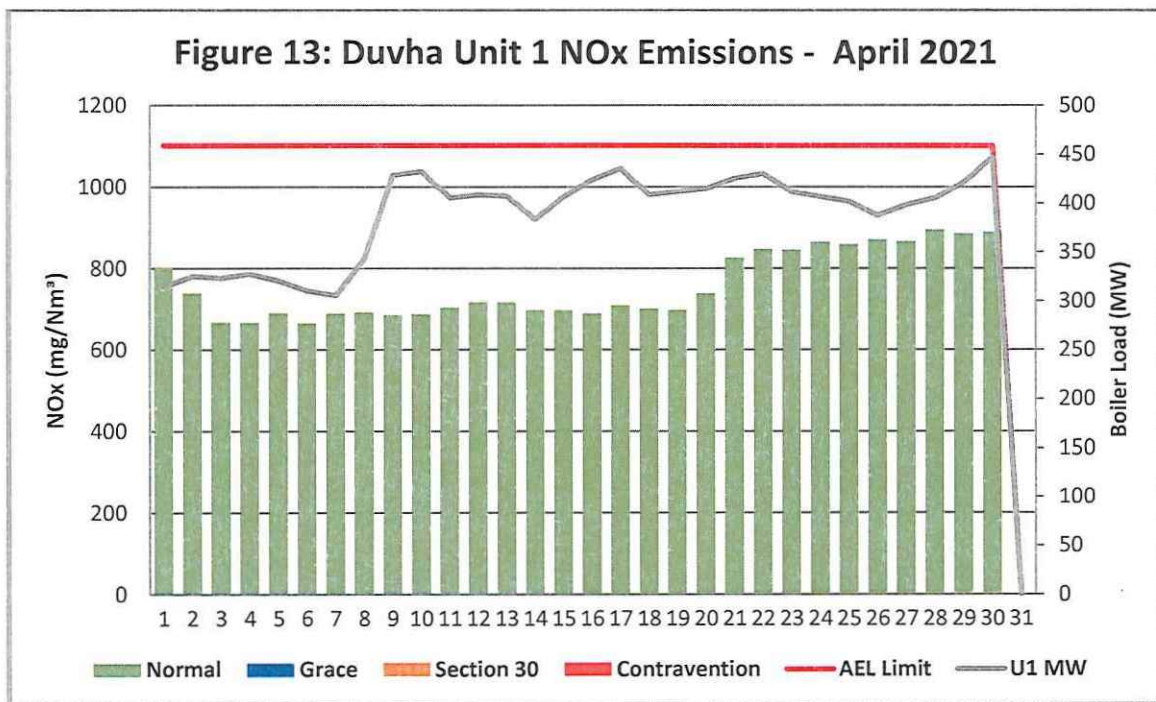


Figure 14: Duvha Unit 2 NOx Emissions - April 2021

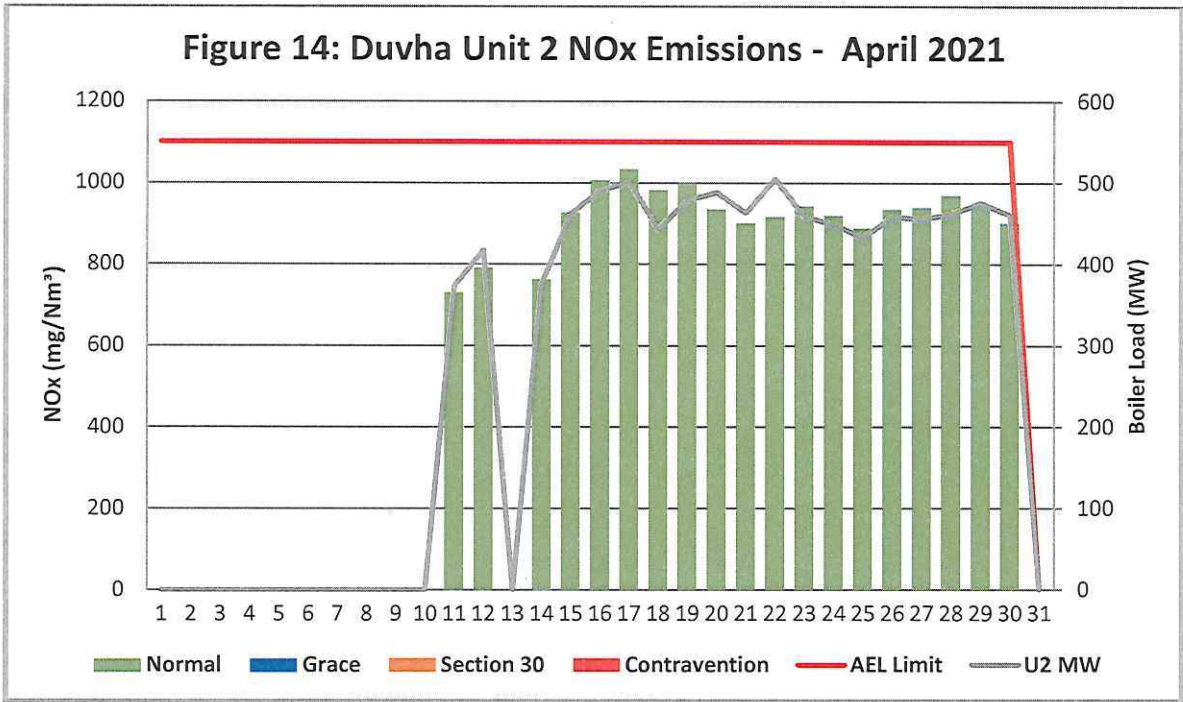
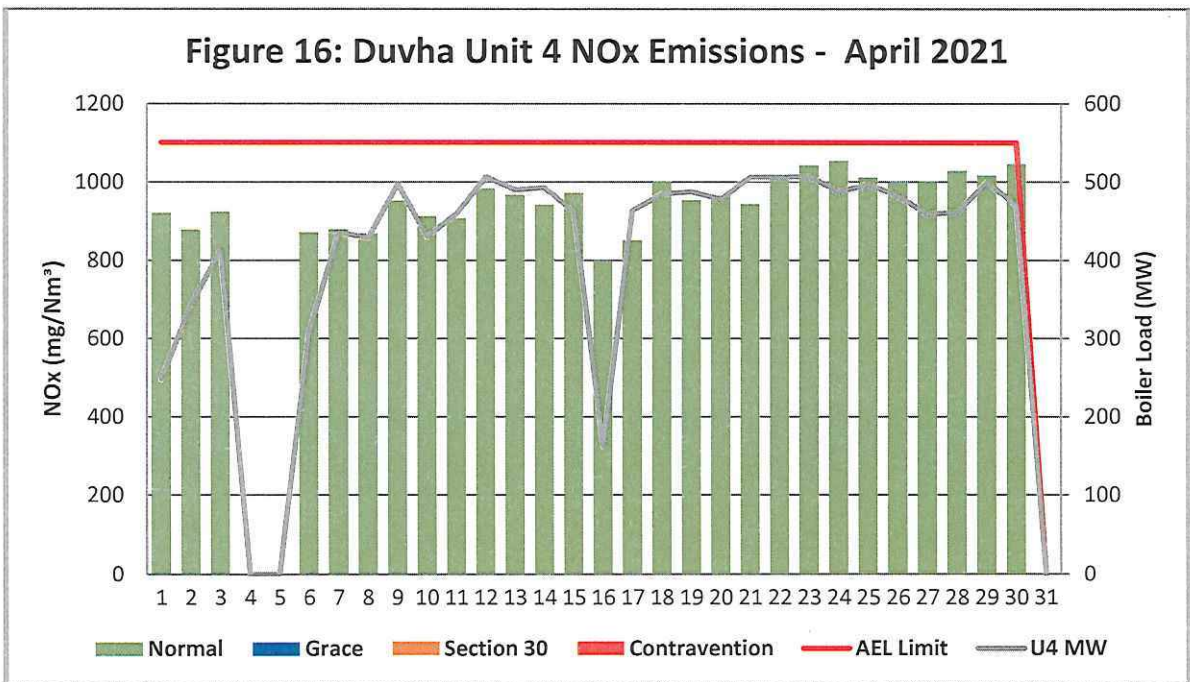
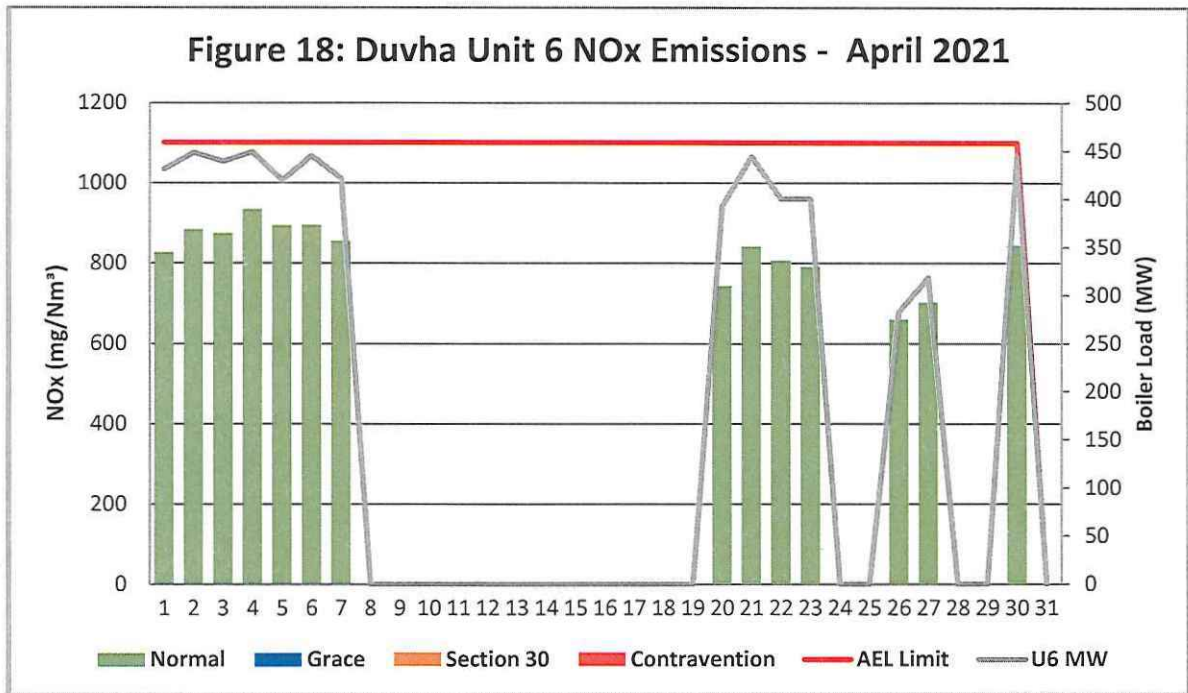


Figure 16: Duvha Unit 4 NOx Emissions - April 2021





7 SHUT DOWN AND LIGHT UP INFORMATION

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

Unit No.2	Event 1		Event 2	
Breaker Open (BO)	<i>BO previously</i>	<i>BO previously</i>	<i>7:45 pm</i>	<i>2021/04/24</i>
Draught Group (DG) Shut Down (SD)	<i>n/a</i>	<i>n/a</i>	<i>8:55 pm</i>	<i>2021/04/24</i>
BO to DG SD (duration)	<i>n/a</i>	DD:HH:MM	<i>00:01:10</i>	DD:HH:MM
Fires in time	<i>10:15 pm</i>	<i>2021/04/13</i>	<i>9:25 pm</i>	<i>2021/04/24</i>
Synch. to Grid (or BC)	<i>5:30 am</i>	<i>2021/04/14</i>	<i>2:45 am</i>	<i>2021/04/25</i>
Fires in to BC (duration)	<i>00:07:15</i>	DD:HH:MM	<i>00:05:20</i>	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

Unit No.4	Event 1		Event 2		Event 3		Event 4	
Breaker Open (BO)	<i>BO previously</i>	<i>BO previously</i>	<i>1:55 pm</i>	<i>2021/04/03</i>	<i>9:05 am</i>	<i>2021/04/10</i>	<i>2:40 pm</i>	<i>2021/04/15</i>
Draught Group (DG) Shut Down (SD)	<i>n/a</i>	<i>n/a</i>	<i>12:50 pm</i>	<i>2021/04/04</i>	<i>10:20 am</i>	<i>2021/04/10</i>	<i>3:55 pm</i>	<i>2021/04/15</i>

BO to DG SD (duration)	<i>n/a</i>	DD:HH:MM	<i>00:22:55</i>	DD:HH:MM	<i>00:01:15</i>	DD:HH:MM	<i>00:01:15</i>	DD:HH:MM
Fires in time	<i>2:25 pm</i>	<i>2021/04/01</i>	<i>3:35 am</i>	<i>2021/04/06</i>	<i>5:35 pm</i>	<i>2021/04/10</i>	<i>2:35 pm</i>	<i>2021/04/16</i>
Synch. to Grid (or BC)	<i>7:15 pm</i>	<i>2021/04/01</i>	<i>7:40 am</i>	<i>2021/04/06</i>	<i>9:35 pm</i>	<i>2021/04/10</i>	<i>10:00 pm</i>	<i>2021/04/16</i>
Fires in to BC (duration)	<i>00:04:50</i>	DD:HH:MM	<i>00:04:05</i>	DD:HH:MM	<i>00:04:00</i>	DD:HH:MM	<i>00:07:25</i>	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>	<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	<i>n/a</i>	DD:HH:MM	<i>n/a</i>	DD:HH:MM

Unit No.6	<i>Event 1</i>		<i>Event 2</i>		<i>Event 3</i>	
Breaker Open (BO)	<i>8:50 pm</i>	<i>2021/04/07</i>	<i>3:35 am</i>	<i>2021/04/23</i>	<i>3:15 pm</i>	<i>2021/04/27</i>
Draught Group (DG) Shut Down (SD)	<i>5:20 am</i>	<i>2021/04/20</i>	<i>4:20 am</i>	<i>2021/04/23</i>	<i>4:40 pm</i>	<i>2021/04/27</i>
BO to DG SD (duration)	<i>12:08:30</i>	DD:HH:MM	<i>00:00:45</i>	DD:HH:MM	<i>00:01:25</i>	DD:HH:MM
Fires in time	<i>11:10 am</i>	<i>2021/04/20</i>	<i>12:15 am</i>	<i>2021/04/26</i>	<i>10:25 pm</i>	<i>2021/04/29</i>
Synch. to Grid (or BC)	<i>2:45 pm</i>	<i>2021/04/20</i>	<i>8:20 am</i>	<i>2021/04/26</i>	<i>3:45 am</i>	<i>2021/04/30</i>
Fires in to BC (duration)	<i>00:03:35</i>	DD:HH:MM	<i>00:08:05</i>	DD:HH:MM	<i>00:05:20</i>	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)	<i>n/a</i>	DD:HH:MM	<i>n/a</i>	DD:HH:MM	<i>n/a</i>	DD:HH:MM

8

General

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

Units 2 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.

The SO₃ plant utilization for Unit 6 was below the required threshold for the month of April 2021 due to a leak on the burner and converter caused by water influx into burner. The SO₃ plant Heater was also not performing as required. These issues were fixed.

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

R Rampiar
E Patel

Duvha Power Station:

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

