



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: 2021/03/05

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: 13

Total number of annexes:1

DUVHA POWER STATION

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



GENERAL MANAGER

2021/03/12

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-2021
	Coal	Tons	1 400 000	373 603.20
	Fuel Oil	Tons	5 000	2397.88
Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Production Rate Jan-2021
	Energy	GWh	3600	581.06
	Ash	Tons	not specified	100947.58
	RE Ash	kg/MWh	not specified	0.29

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.6 TO >1.2	0.65
Ash Content	%	27 TO 30	27.02

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	Minimum Control Efficiency	Efficiency Jan-2021	Minimum Utilization	Utilisation Jan-2021
Unit 1	Fabric Filter Plant (FFP)	99%	99.85%	100%	100%
Unit 2	Fabric Filter Plant (FFP)	99%	99.82%	100%	100%
Unit 3	Fabric Filter Plant (FFP)	99%	Unit Off-line	100%	Unit Off-line
Unit 4	Electro Static Precipiator (ESP)	99.6%	Unit Off-line	100%	Unit Off-line
Unit 5	Electro Static Precipiator (ESP)	99.6%	Unit Off-line	100%	Unit Off-line
Unit 6	Electro Static Precipiator (ESP)	99.6%	99.46%	100%	95.00%
Unit 4	Chemithon (SO3)	99.6%	Unit Off-line	96%	Unit Off-line
Unit 5	Chemithon (SO3)	99.6%	Unit Off-line	96%	Unit Off-line
Unit 6	Chemithon (SO3)	99.6%	98.00%	96%	96.00%

ESP and FFP plants have no bypass mode of operation, hence plants 100% utilised

5 MONITOR DATA RELIABILITY (%)

Associated Unit/Stack	PM	SO ₂	NO
Unit 1	99.9	98.7	98.8
Unit 2	100.0	96.5	96.6
Unit 6	92.6	98.8	98.8

6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of January 2021

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	49.0	3 467	1 424
Unit 2	87.2	2 917	1 748
Unit 6	44.3	599	320
SUM	180.5	6 983	3 492

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	27	0	0	0	0	32.8
Unit 2	31	0	0	0	0	42.4
Unit 6	3	3	0	0	3	143.1
SUM	61	3	0	0	3	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO _x (mg/Nm ³)
Unit 1	29	0	0	0	0	1 960.8
Unit 2	31	0	0	0	0	1 422.2
Unit 6	7	0	0	0	0	1 500.2
SUM	67	0	0	0	0	

Table 6.4: Operating days in compliance to NOx AEL Limit - January 2021

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm ³)
Unit 1	29	0	0	0	0	800.2
Unit 2	31	0	0	0	0	852.8
Unit 6	7	0	0	0	0	797.2
SUM	67	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

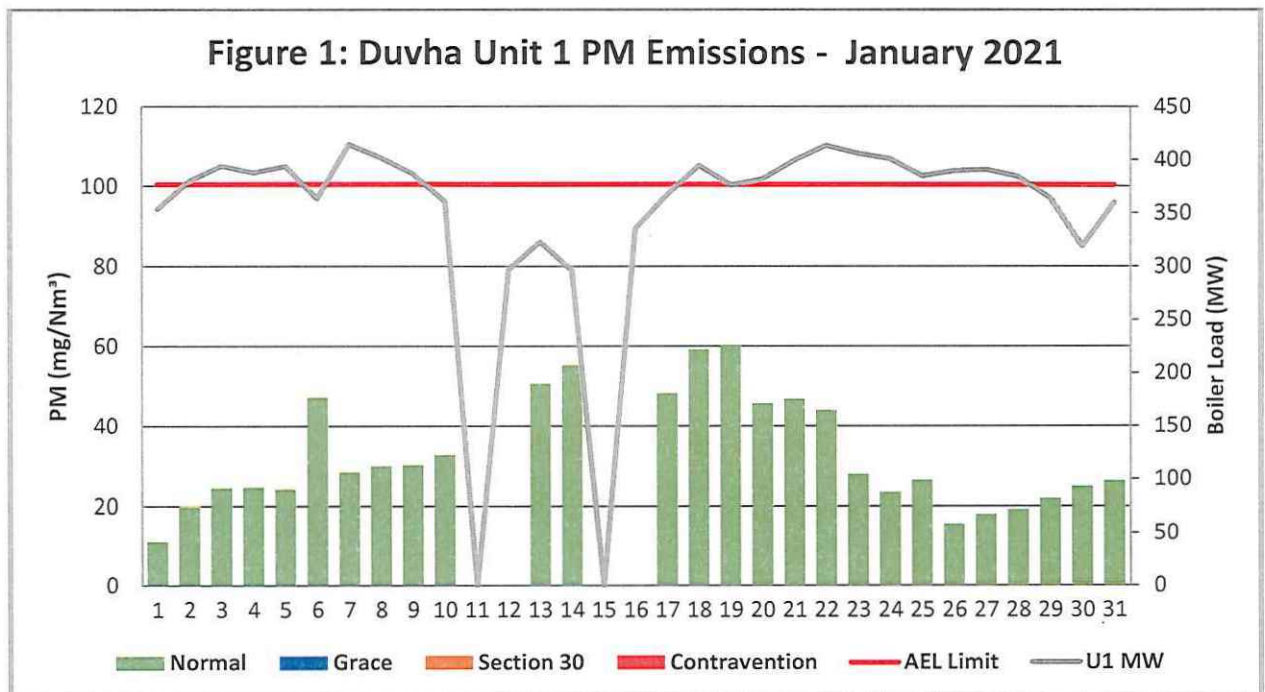


Figure 2: Duvha Unit 2 PM Emissions - January 2021

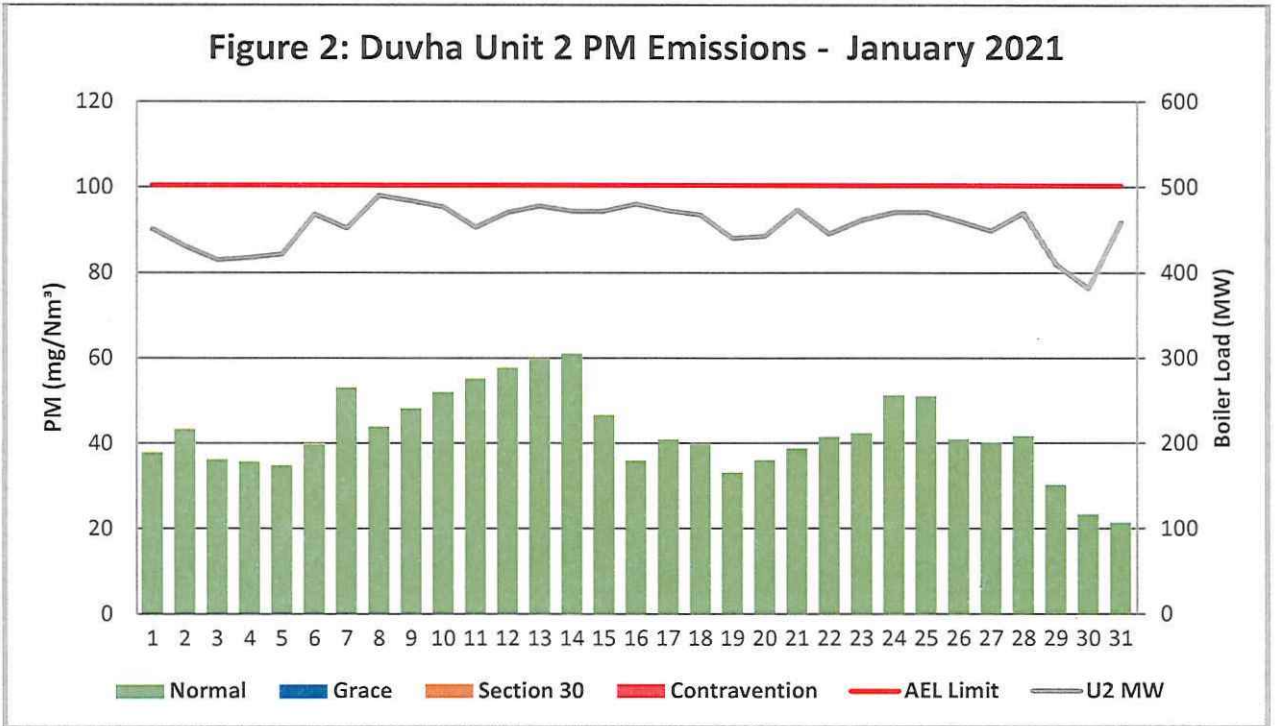


Figure 6: Duvha Unit 6 PM Emissions - January 2021

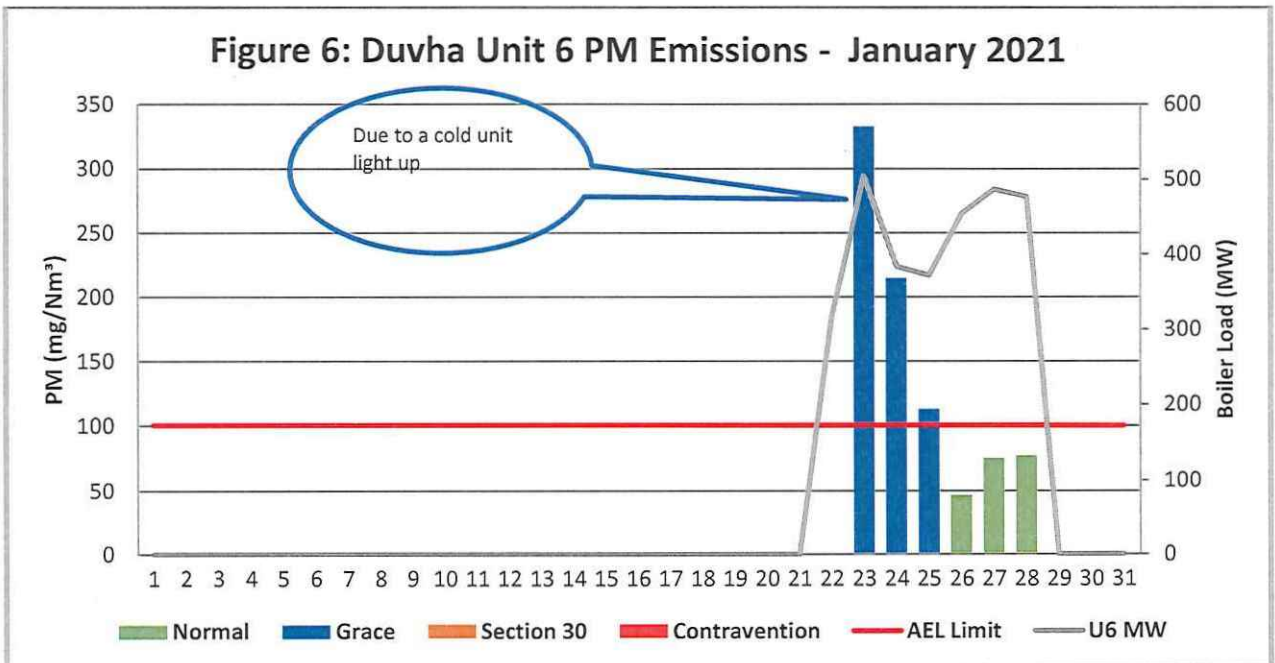


Figure 7: Duvha Unit 1 SOx Emissions - January 2021

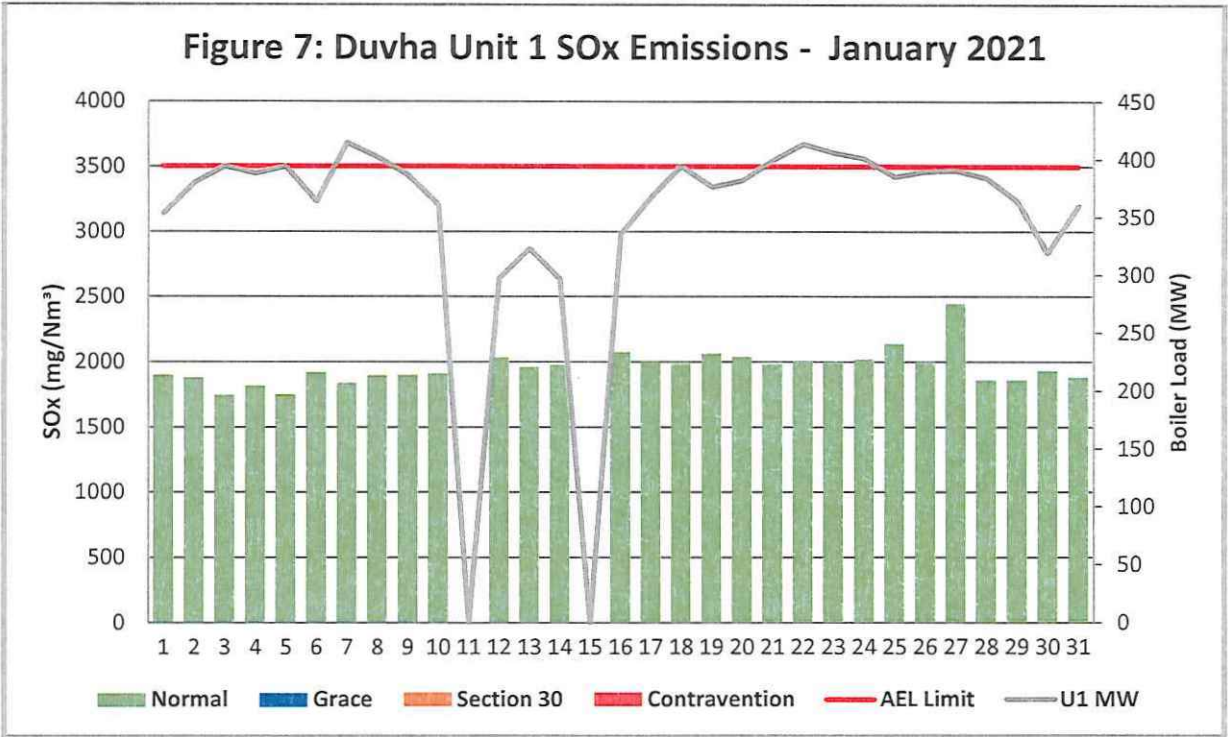


Figure 8: Duvha Unit 2 SOx Emissions - January 2021

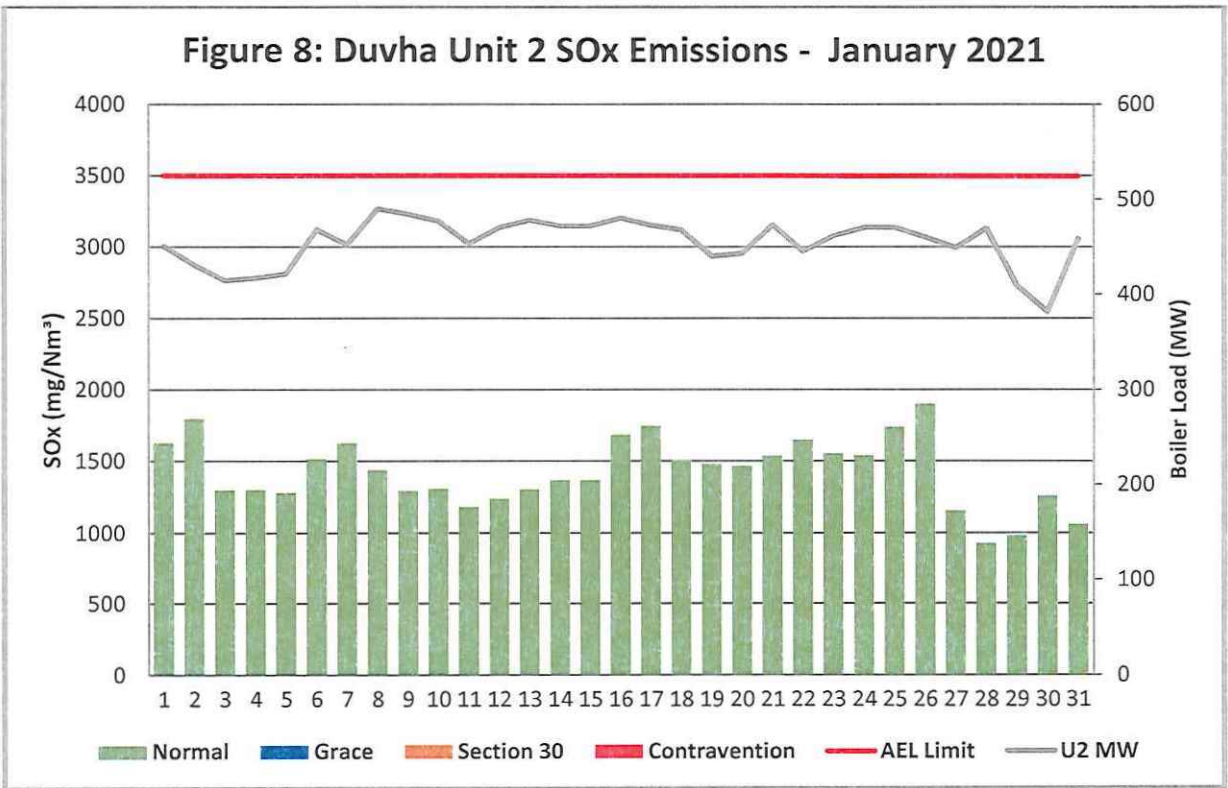


Figure 12: Duvha Unit 6 SOx Emissions - January 2021

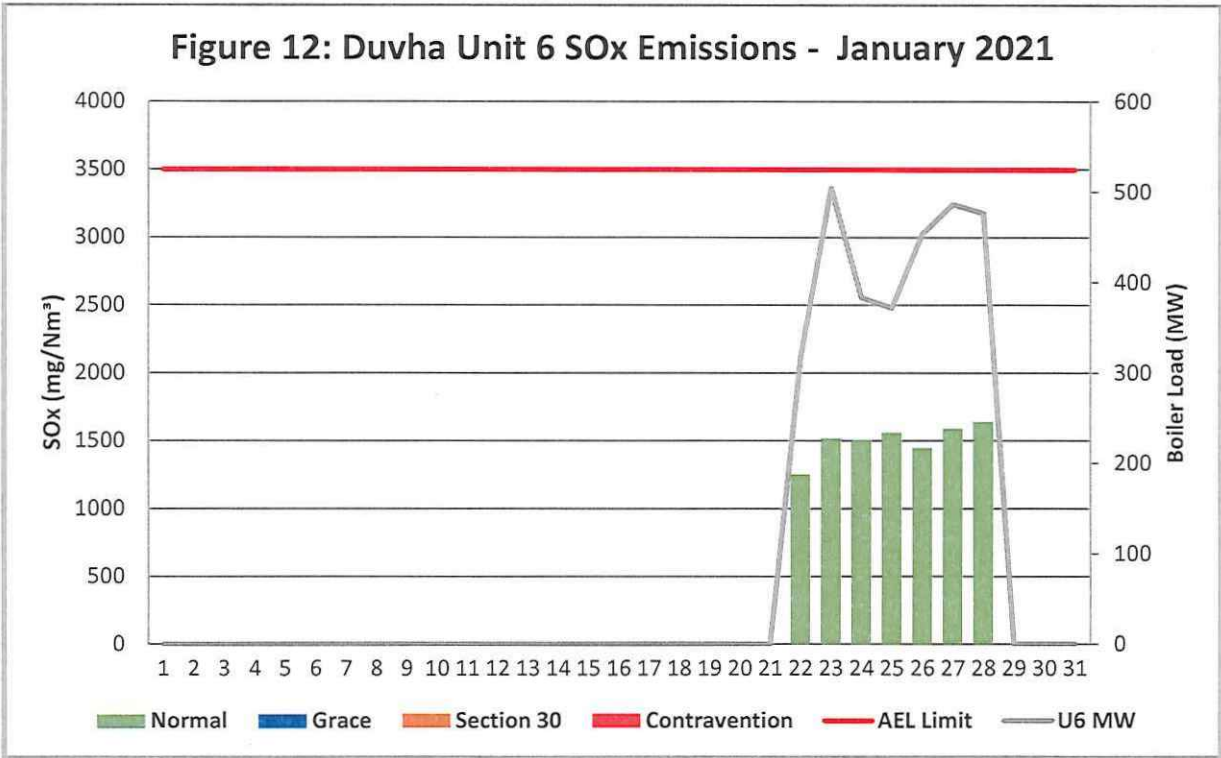


Figure 13: Duvha Unit 1 NOx Emissions - January 2021

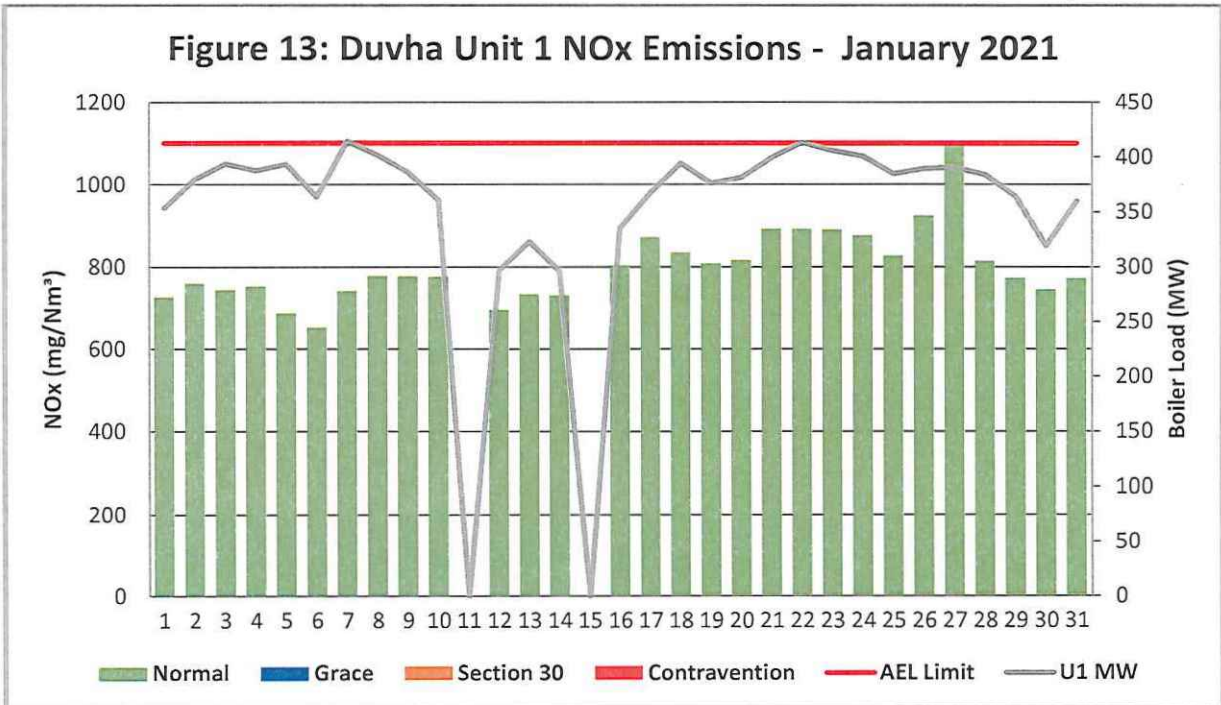


Figure 14: Duvha Unit 2 NOx Emissions - January 2021

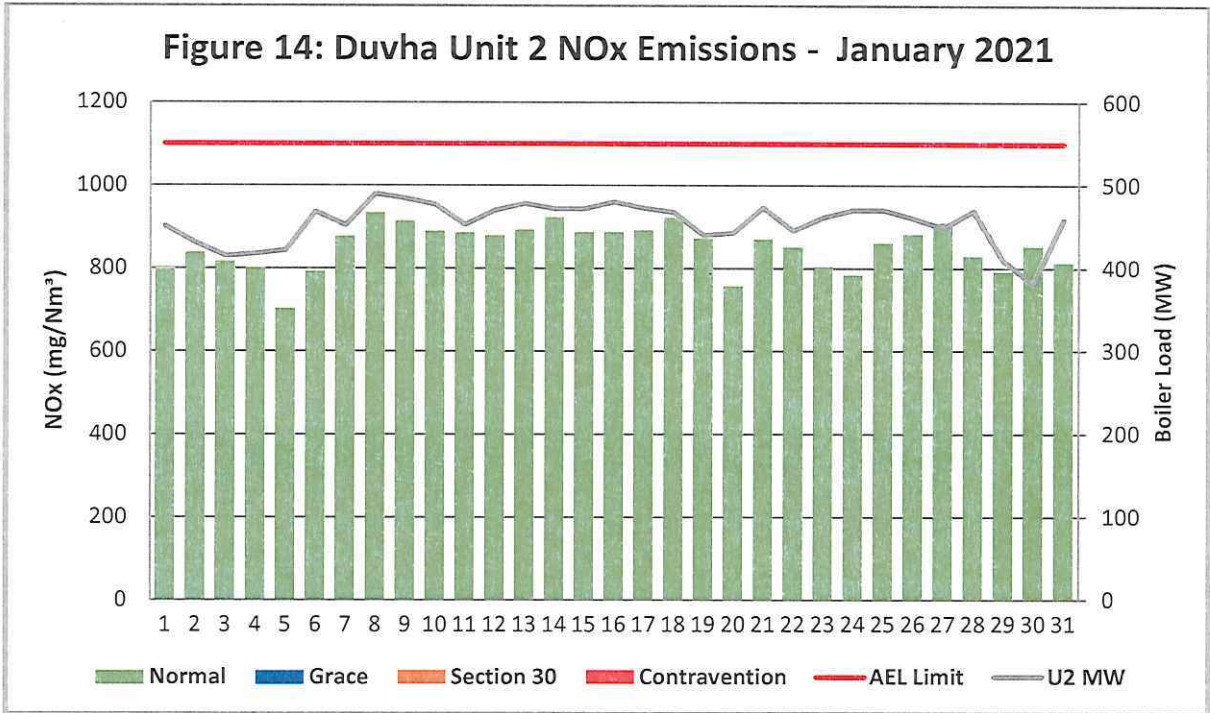
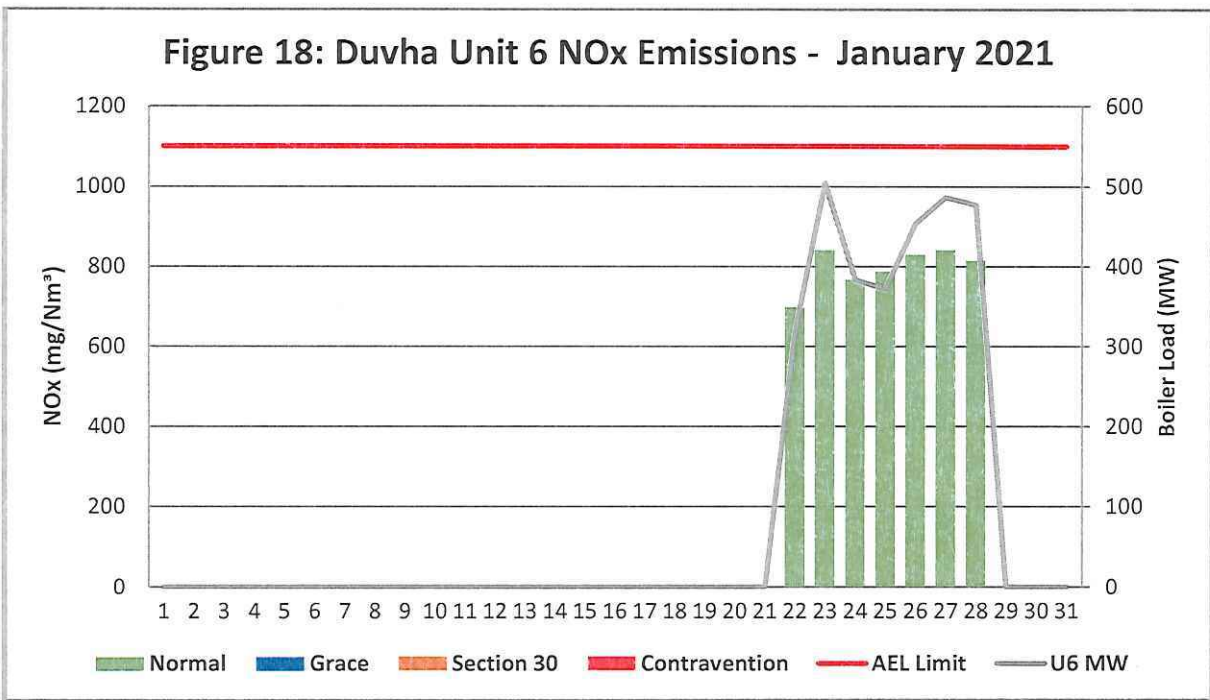


Figure 18: Duvha Unit 6 NOx Emissions - January 2021



7 SHUT DOWN AND LIGHT UP INFORMATION

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

Unit No.1	Event 1		Event 2		Event 3		Event 4	
Breaker Open (BO)	1:30 PM	2021/01/06	6:50 AM	2021/01/10	6:10 AM	2021/01/14	3:30 AM	2021/01/25
Draught Group (DG) Shut Down (SD)	<i>DG did not trip or SD</i>	<i>DG did not trip or SD</i>	1:10 PM	2021/01/10	7:35 PM	2021/01/14	3:35 AM	2021/01/25
BO to DG SD (duration)	<i>n/a</i>	DD:HH:MM	00:06:20	DD:HH:MM	00:13:25	DD:HH:MM	00:00:05	DD:HH:MM
Fires in time			9:30 PM	2021/01/11	11:45 PM	2021/01/15	5:30 AM	2021/01/25
Synch. to Grid (or BC)			3:25 AM	2021/01/12	3:30 AM	2021/01/16	9:00 AM	2021/01/25
Fires in to BC (duration)		DD:HH:MM	00:05:55	DD:HH:MM	00:03:45	DD:HH:MM	00:03:30	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

Unit No.6	Event 1		Event 2	
Breaker Open (BO)	<i>BO previously</i>	<i>BO previously</i>	2:35 PM	2021/01/28
Draught Group (DG) Shut Down (SD)	<i>n/a</i>	<i>n/a</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
Fires in time	5:45 AM	2021/01/22		
Synch. to Grid (or BC)	8:55 AM	2021/01/22		
Fires in to BC (duration)	00:03:10	DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	12:00 AM	2021/01/26		
Emissions below limit from BC (duration)	03:15:05	DD:HH:MM		DD:HH:MM

8 General

Units 3, 4 and 5 were offload during the month of January 2021.

The NOx and SOx monitors on unit 1 and 2 had a faulty communication network from the 1st to the 26th of January 2021. 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 retrieved from the ACU (Industrial PC), and was used on the Emissions reporting tool.

Unit 6 oxygen monitor was faulty and giving faulty readings from the 22nd to the 28th January 2021. The average Oxygen Standard Reference Method value from unit 6 QAL 2 report was used to generate averages for this period.

Unit 6 ESP efficiency and utilization was below the threshold due to the numerous ESP fields tripping on undervoltage and two fields on average not performing and failed UV.

Unit 6 Chemithon efficiency and utilization was below the threshold due to SO3 heaters were faulty.

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


Ndweleleni
Boiler Plant Engineering
Manager

2021/03/09

Date


Environmental
Manager

2021/03/09

Date



Engineering Manager

2021/03/10

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

