



Generation

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DUVHA POWER STATION

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

GENERAL MANAGER

2021/07/29

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 Jun-2021
	Coal	Tons	1 400 000	528 302.80
	Fuel Oil	Tons	5 000	3912.36
Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Production Rate Jun-2021
	Energy	GWh	3600	876.50
	Ash	Tons	not specified	140211.56

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.6 TO >1.2	0.93
Ash Content	%	27 TO 30	26.54

3 EMISSION LIMITS (mg/Nm³)

Associated Unit/Stack	PM	SOx	NOx
Unit 1	100	3500	1100
Unit 2	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 JUNE-2021	Minimum Utilization	Utilization JUNE-2021
Unit 1	<i>Fabric Filter Plant (FFP)</i>	99%	99.82%	100%	100%
Unit 2	<i>Fabric Filter Plant (FFP)</i>	99%	99.81%	100%	100%
Unit 4	<i>Electro Static Precipitator (ESP)</i>	99.6%	99.95%	100%	100%
Unit 5	<i>Electro Static Precipitator (ESP)</i>	99.6%	99.74%	100%	100%
Unit 6	<i>Electro Static Precipitator (ESP)</i>	99.6%	99.85%	100%	100%
Unit 4	<i>Chemithon (SO3)</i>	99.6%	100%	96%	97.00%
Unit 5	<i>Chemithon (SO3)</i>	99.6%	100%	96%	96.00%
Unit 6	<i>Chemithon (SO3)</i>	99.6%	100%	96%	99.00%

5 MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO ₂	NO
Unit 1	100.0	99.8	99.8
Unit 2	100.0	95.5	94.3
Unit 4	100.0	79.8	79.8
Unit 5	86.7	99.7	100.0
Unit 6	99.6	92.4	92.4

6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of June 2021

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	39.9	2 348	1 011
Unit 2	73.5	2 073	1 737
Unit 4	0.8	207	95
Unit 5	38.4	1 110	552
Unit 6	74.8	4 250	1 758
SUM	227.4	9 987	5 153

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	18	0	0	0	0	34.4
Unit 2	28	0	0	0	0	40.8
Unit 4	0	1	0	0	1	126.0
Unit 5	7	3	1	0	4	80.9
Unit 6	29	0	0	0	0	41.4
SUM	82	4	1	0	5	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO _x (mg/Nm ³)
Unit 1	21	0	0	0	0	1 795.8
Unit 2	29	0	0	0	0	1 051.7
Unit 4	6	0	0	0	0	1 564.3
Unit 5	17	0	0	0	0	1 464.3
Unit 6	29	0	0	0	0	2 190.6
SUM	102	0	0	0	0	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NO _x (mg/Nm ³)
Unit 1	21	0	0	0	0	754.5
Unit 2	29	0	0	0	0	882.7
Unit 4	6	0	0	0	0	710.3
Unit 5	17	0	0	0	0	714.0
Unit 6	29	0	0	0	0	908.2
SUM	102	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

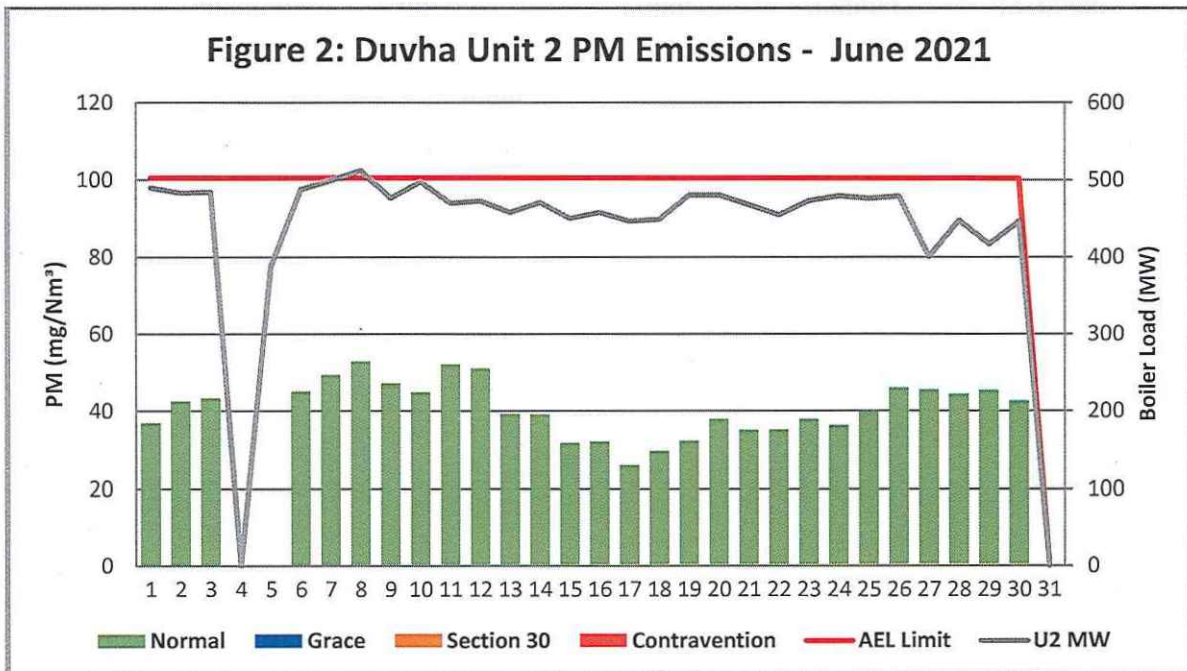
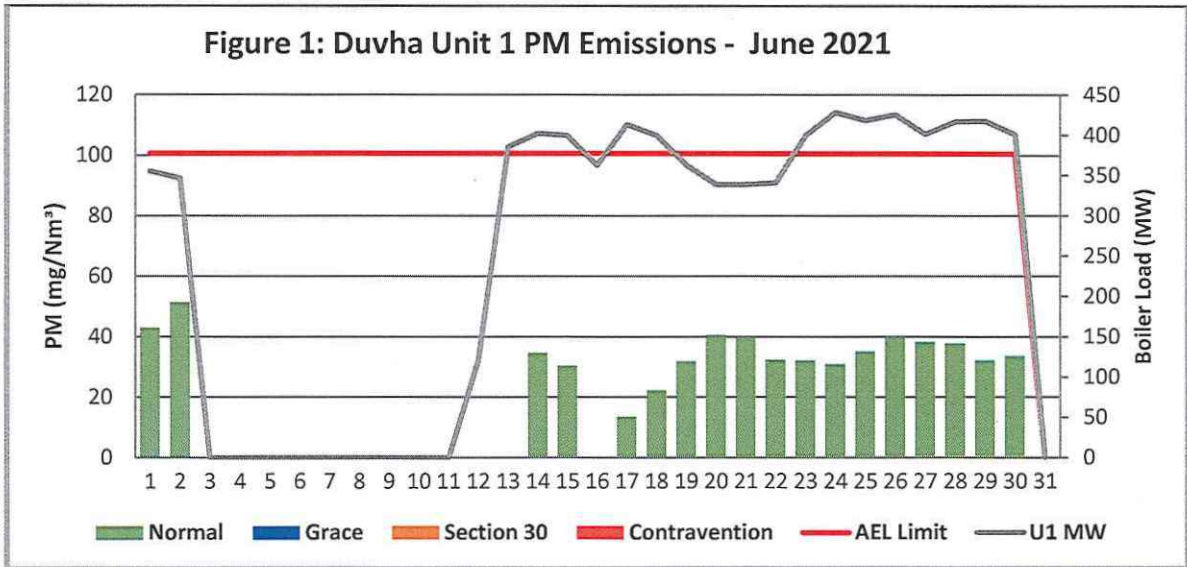


Figure 3: Duvha Unit 4 PM Emissions - June 2021

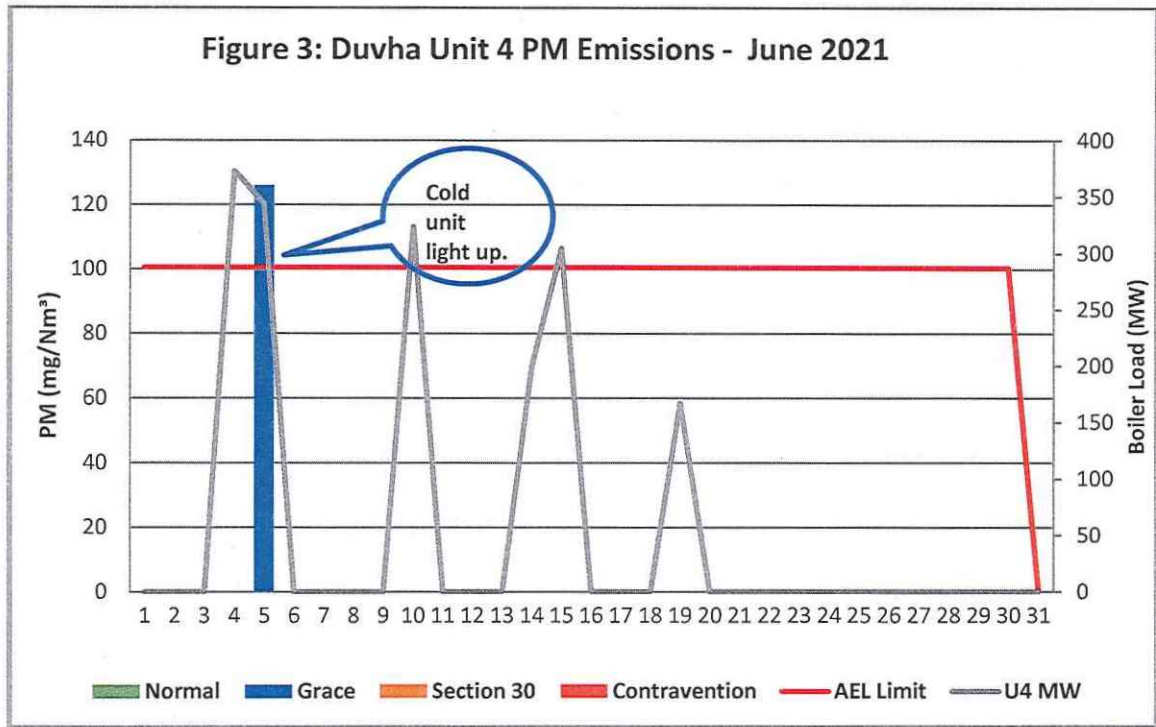


Figure 4: Duvha Unit 5 PM Emissions - June 2021

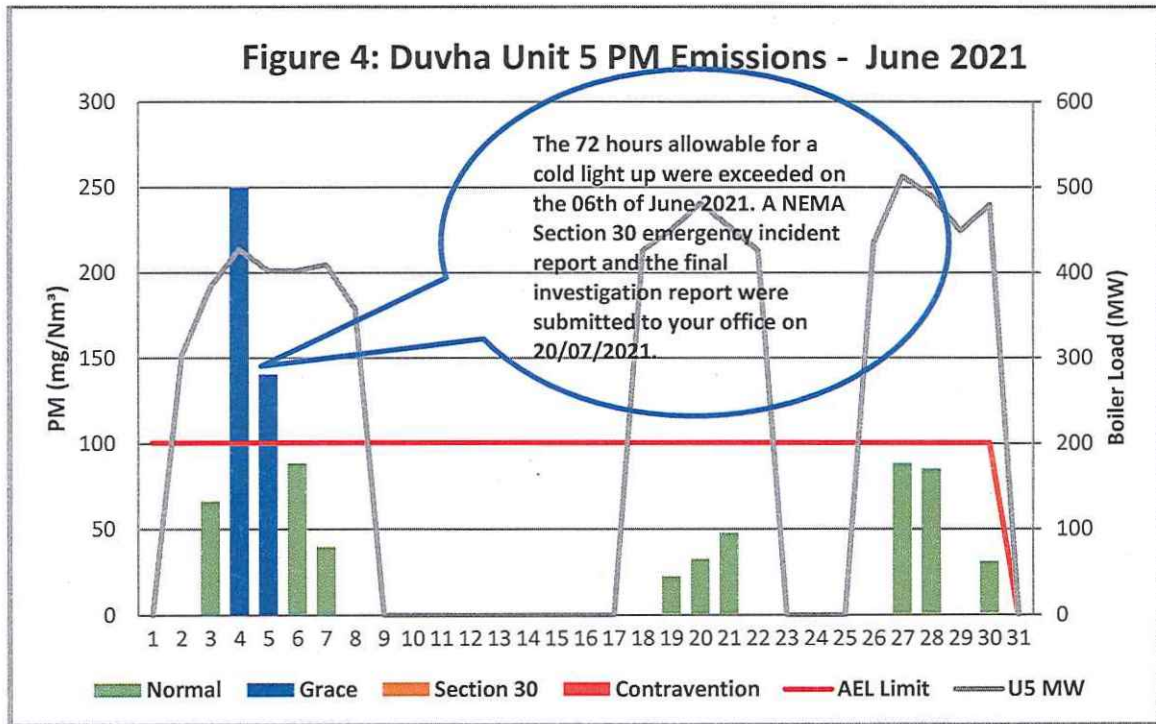


Figure 5: Duvha Unit 6 PM Emissions - June 2021

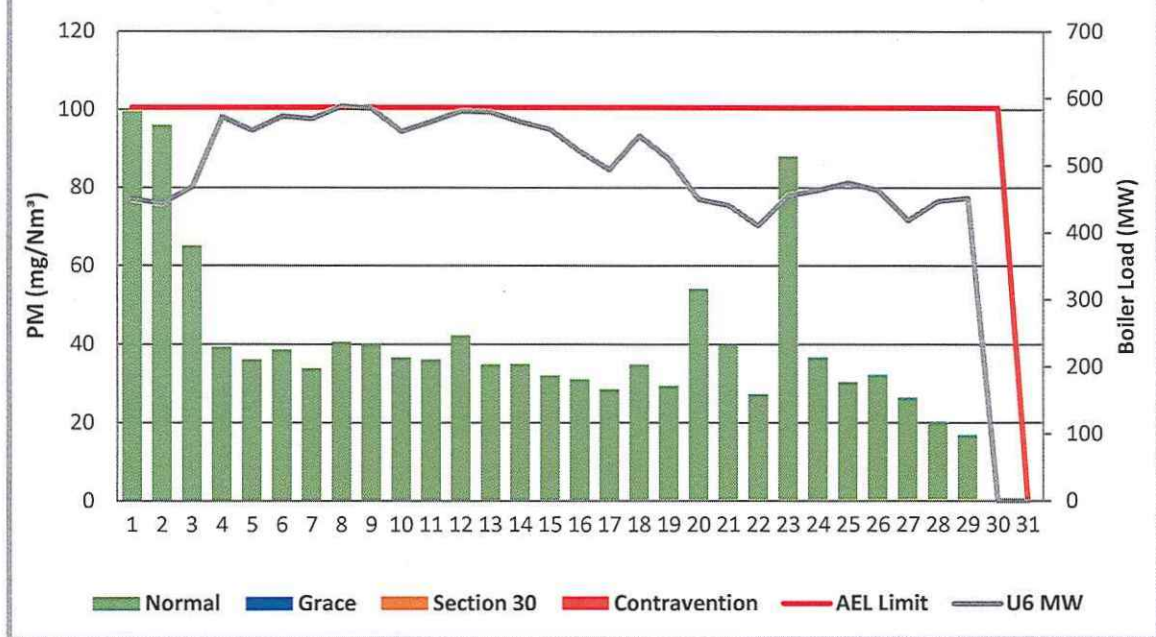


Figure 6: Duvha Unit 1 SOx Emissions - June 2021

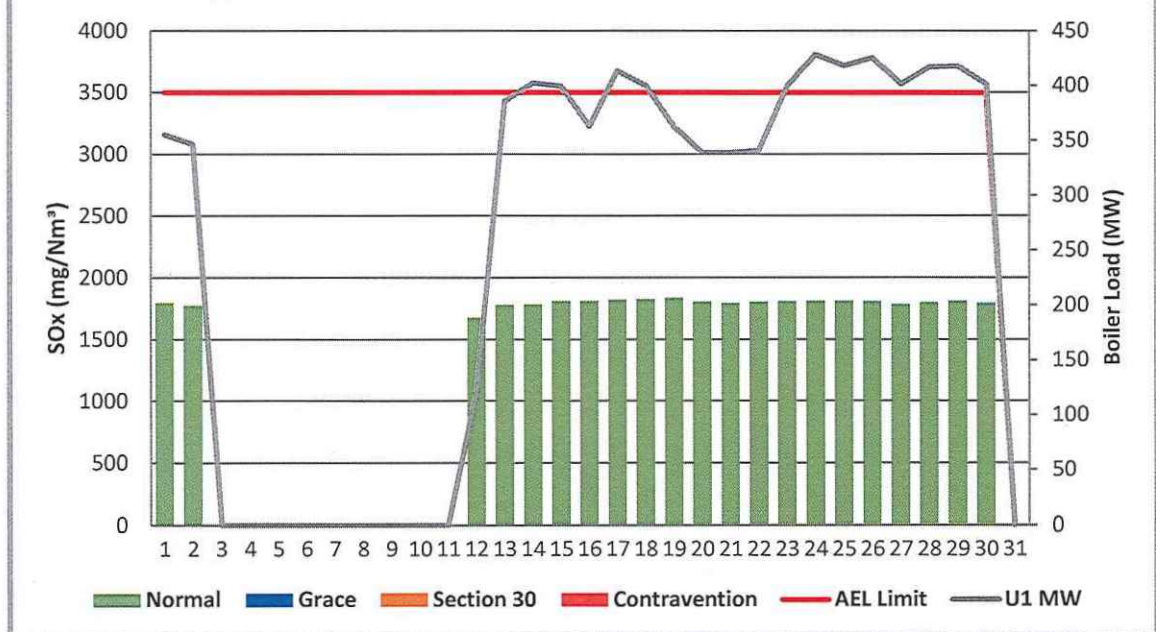


Figure 7: Duvha Unit 2 SOx Emissions - June 2021

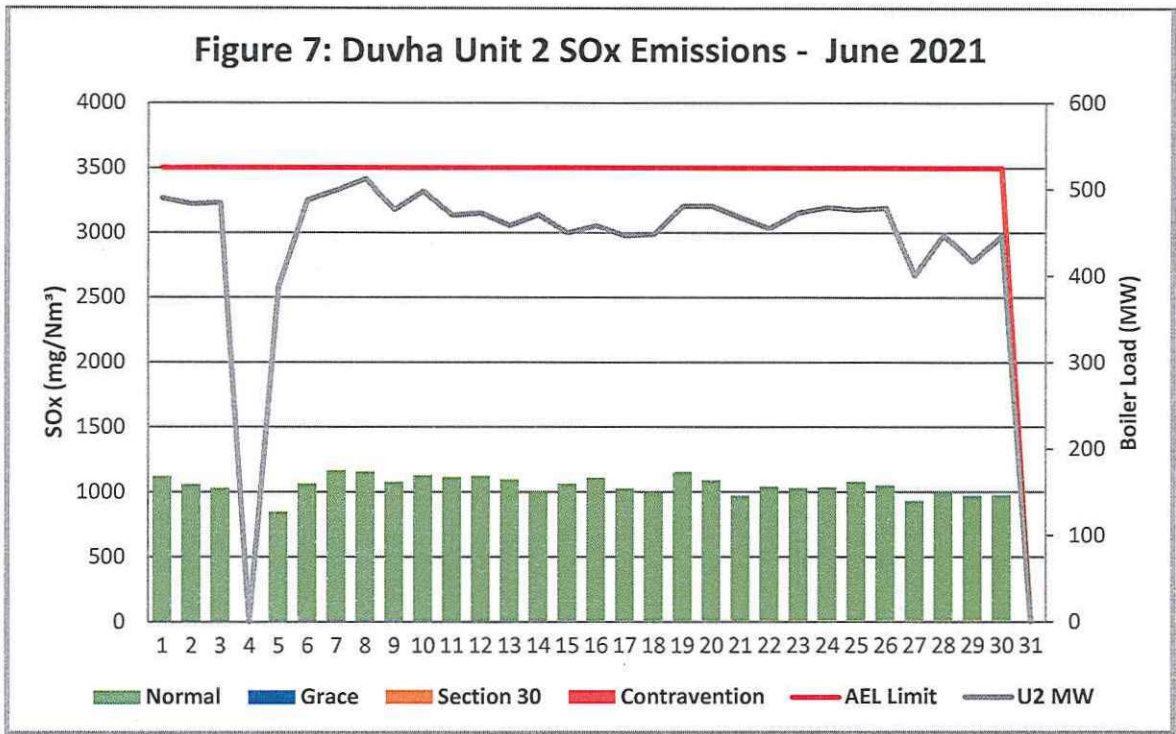


Figure 8: Duvha Unit 4 SOx Emissions - June 2021

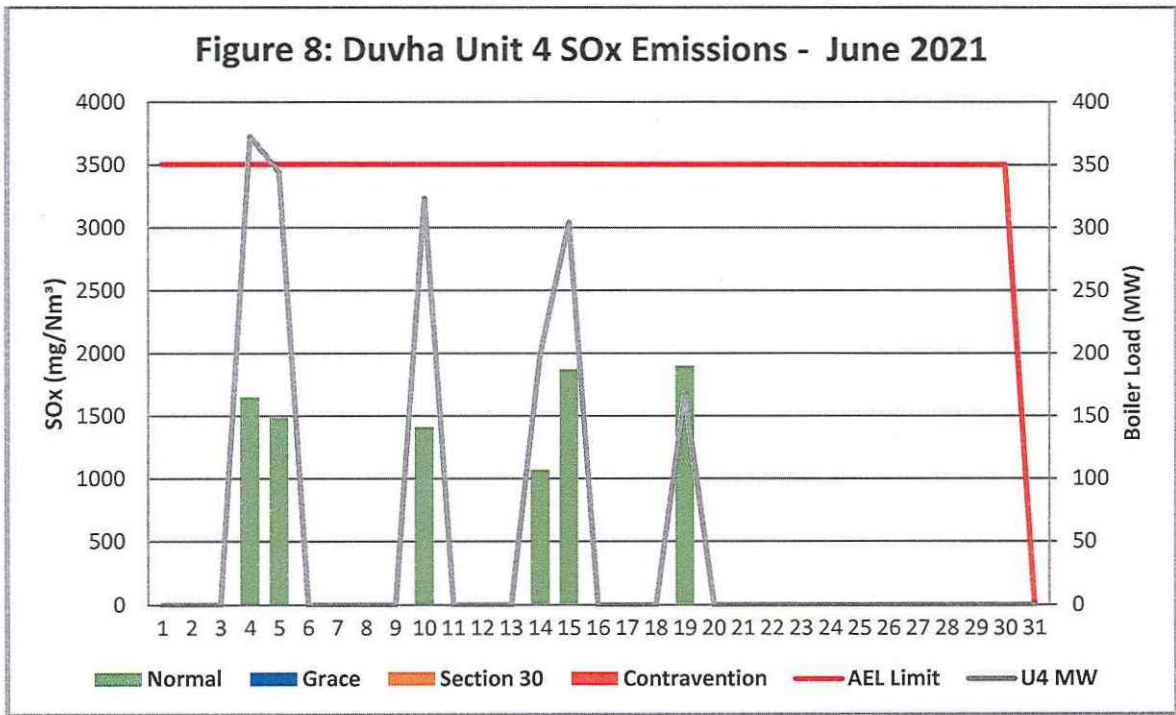


Figure 9: Duvha Unit 5 SOx Emissions - June 2021

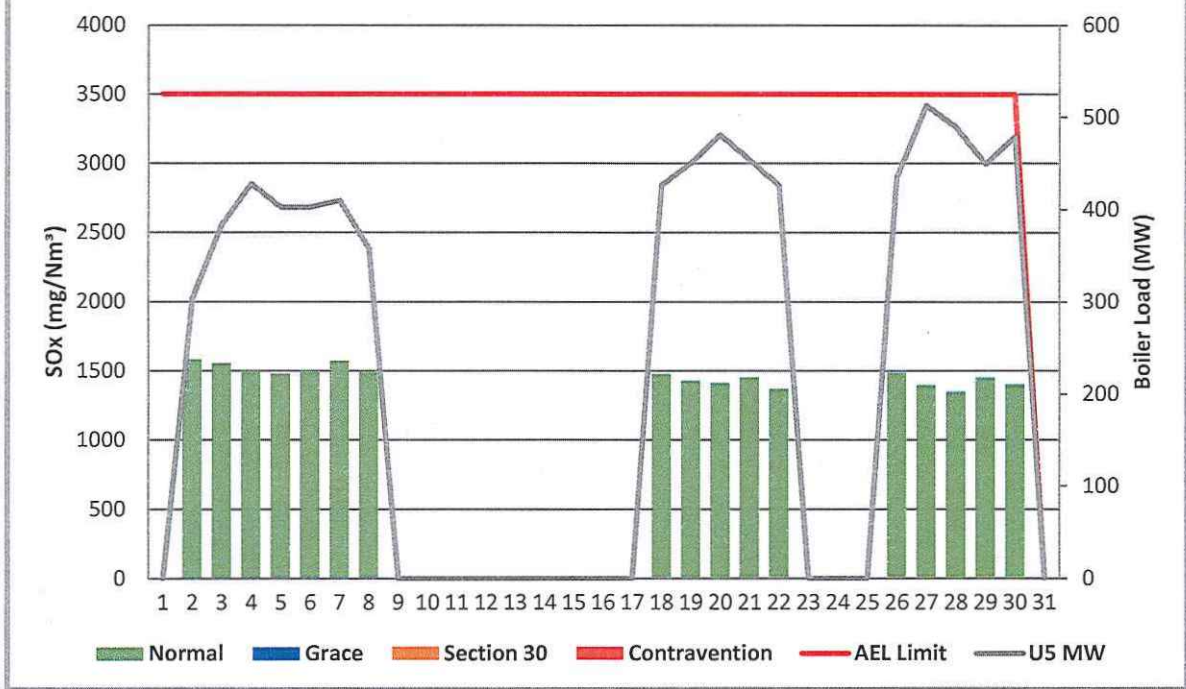


Figure 10: Duvha Unit 6 SOx Emissions - June 2021

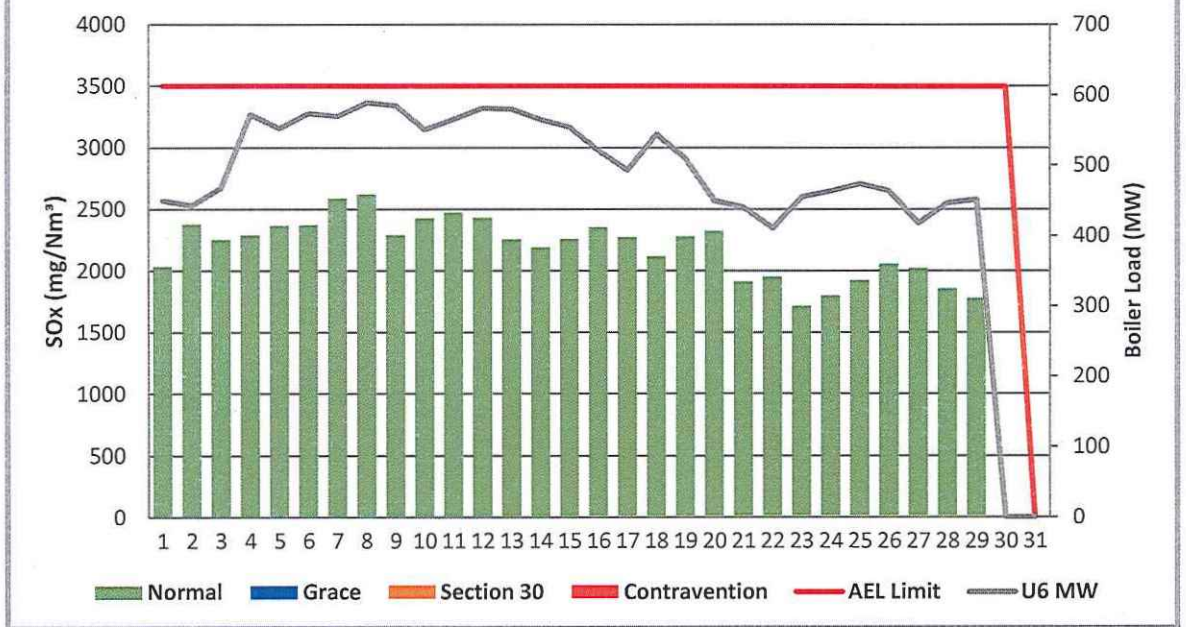


Figure 11: Duvha Unit 1 NOx Emissions - June 2021

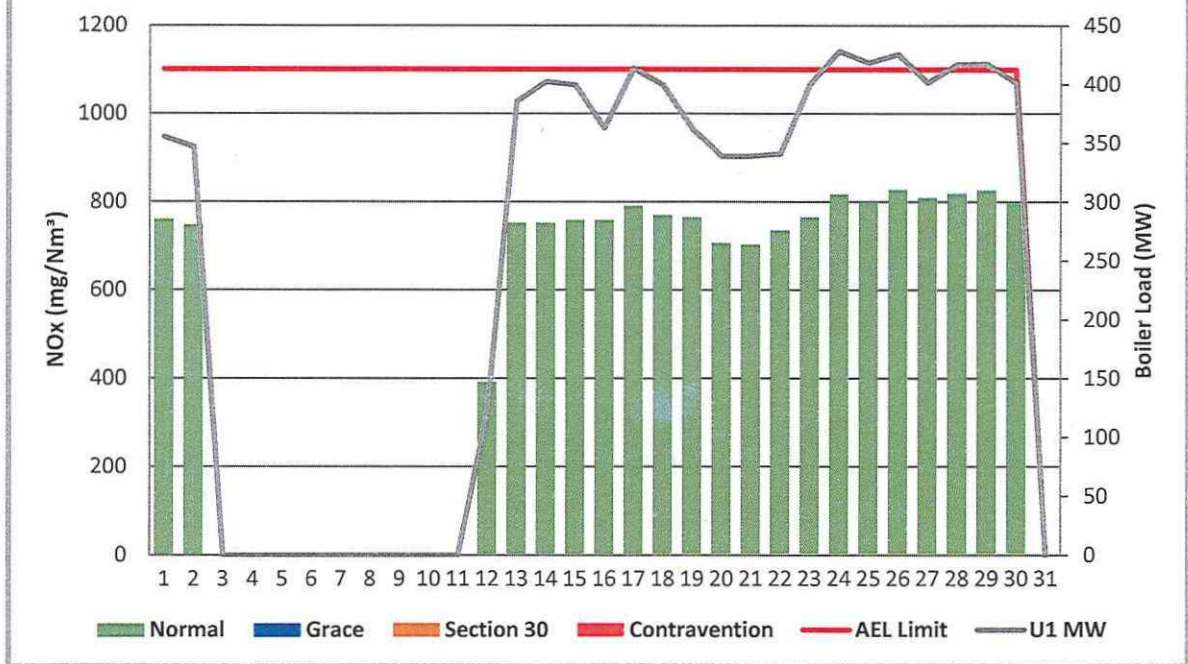


Figure 12: Duvha Unit 2 NOx Emissions - June 2021

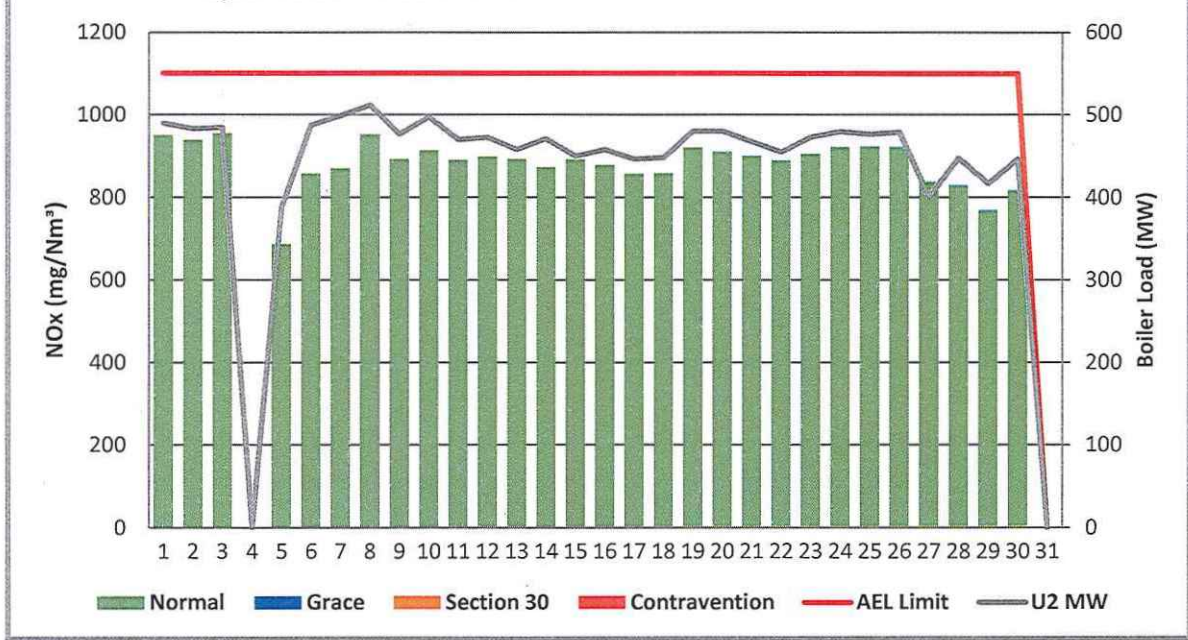


Figure 13: Duvha Unit 4 NOx Emissions - June 2021

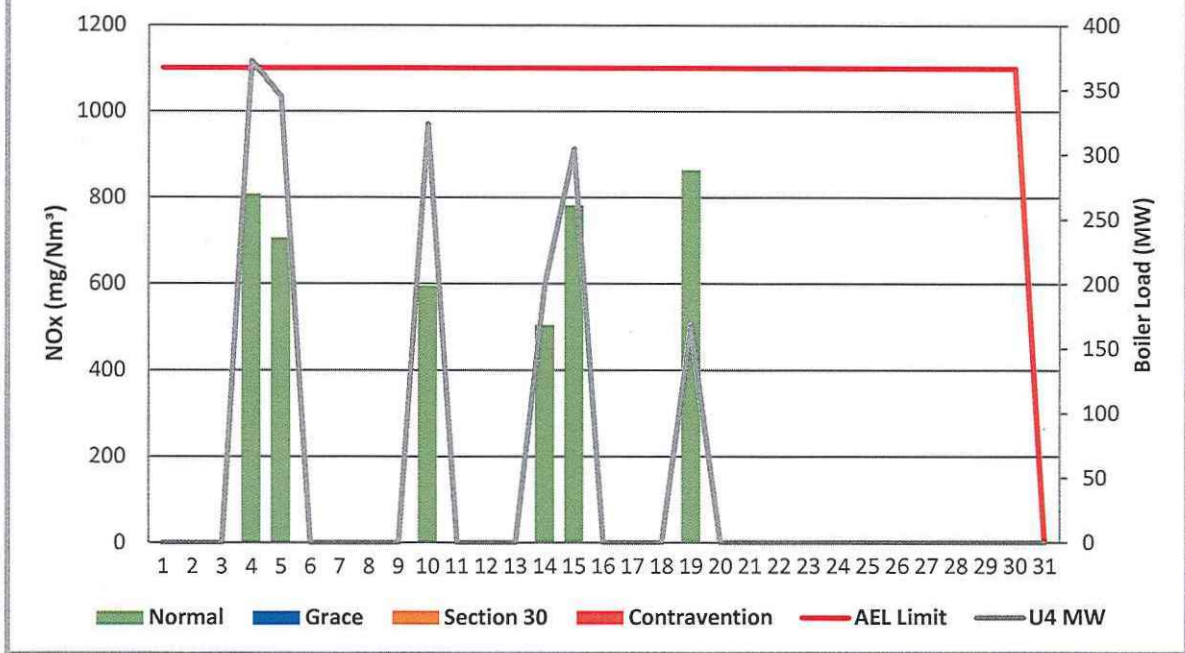
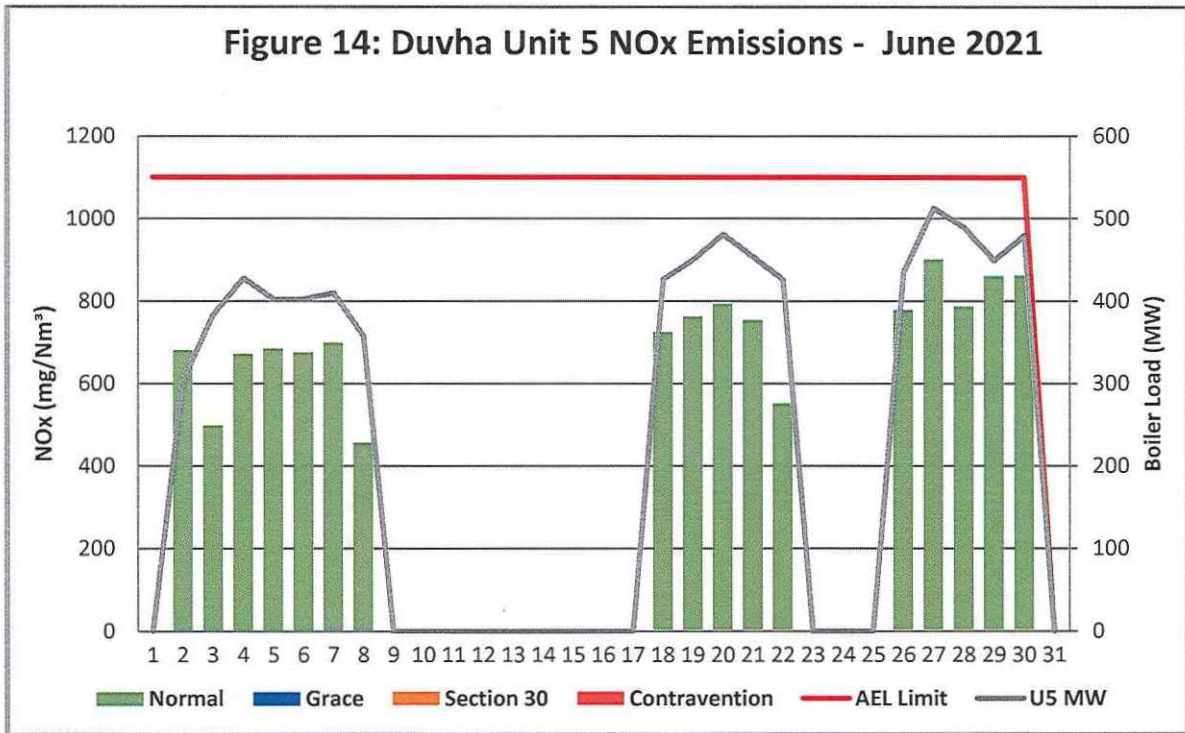
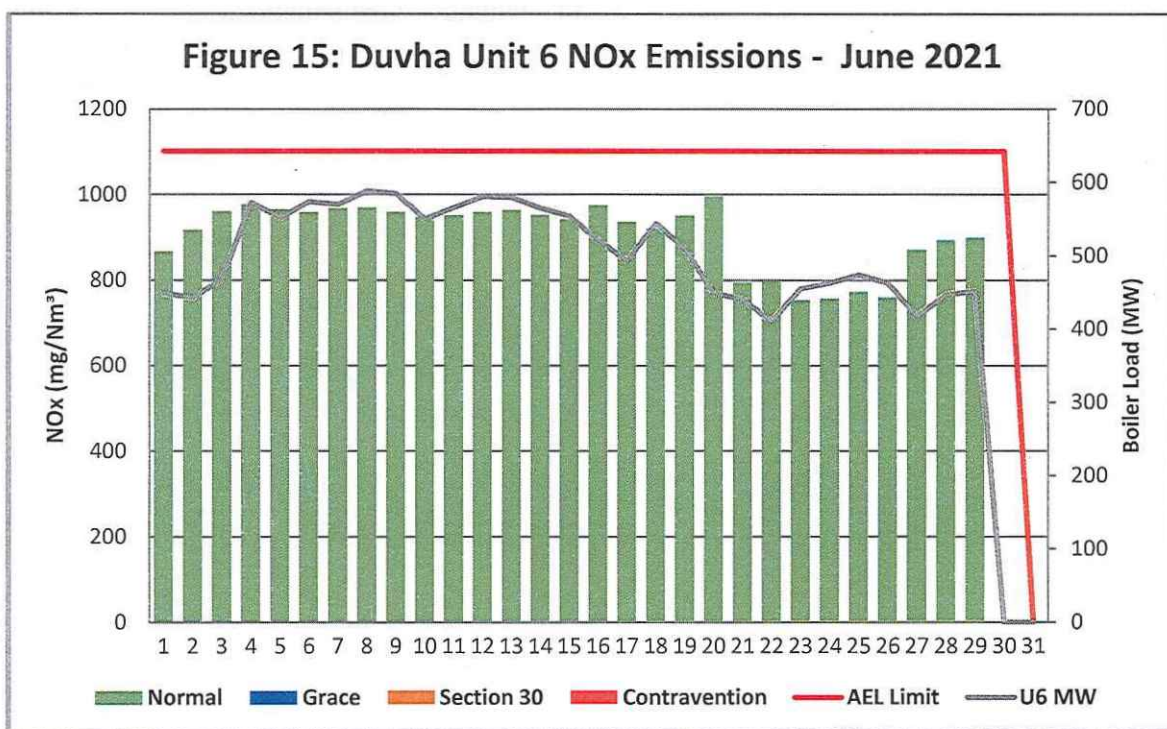


Figure 14: Duvha Unit 5 NOx Emissions - June 2021





7 SHUT DOWN AND LIGHT UP INFORMATION

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

Unit No.1	Event 1		Event 2	
Breaker Open (BO)	10:35 am	2021/06/02	5:55 pm	2021/06/15
Draught Group (DG) Shut Down (SD)	5:05 am	2021/06/03	7:05 pm	2021/06/15
BO to DG SD (duration)	00:18:30	DD:HH:MM	00:01:10	DD:HH:MM
Fires in time	9:40 pm	2021/06/12	9:30 am	2021/06/16
Synch. to Grid (or BC)	12:55 pm	2021/06/16	12:55 pm	2021/06/16
Fires in to BC (duration)	00:03:35	DD:HH:MM	00:03:25	DD:HH:MM
Emissions below limit from BC (end date)	not > limit	not > limit	not > limit	not > limit
Emissions below limit from BC (duration)	n/a	DD:HH:MM	n/a	DD:HH:MM

Unit No.2	Event 1		Event 2	
Breaker Open (BO)	6:35 am	2021/06/03	6:45 am	2021/06/09
Draught Group (DG) Shut Down (SD)	7:20 am	2021/06/03	7:20 am	2021/06/09
BO to DG SD (duration)	00:00:45	DD:HH:MM	00:00:35	DD:HH:MM
Fires in time	12:35 am	2021/06/05	7:25 am	2021/06/09

Synch. to Grid (or BC)	12:15 pm	2021/06/05	1:00 pm	2021/06/09
Fires in to BC (duration)	00:11:40	DD:HH:MM	00:05:35	DD:HH:MM
Emissions below limit from BC (end date)	not > limit	not > limit	not > limit	not > limit
Emissions below limit from BC (duration)	n/a	DD:HH:MM	n/a	DD:HH:MM

Unit No.4	Event 1	
Breaker Open (BO)	3:55 am	2021/06/05
Draught Group (DG) Shut Down (SD)	5:35 am	2021/06/05
BO to DG SD (duration)	00:01:40	DD:HH:MM
Fires in time	8:05 pm	2021/06/03
Synch. to Grid (or BC)	1:30 am	2021/06/04
Fires in to BC (duration)	00:05:25	DD:HH:MM
Emissions below limit from BC (end date)	12:00 am	2021/06/05
Emissions below limit from BC (duration)	00:22:30	DD:HH:MM

Unit No.5	Event 1		Event 2		Event 3		Event 4	
Breaker Open (BO)	BO previously	BO previously	11:30 pm	2021/06/07	10:30 am	2021/06/21	1:20 am	2021/06/28
Draught Group (DG) Shut Down (SD)	n/a	n/a	8:45 am	2021/06/09	3:35 pm	2021/06/21	11:40 am	2021/06/28
BO to DG SD (duration)	n/a	DD:HH:MM	01:09:15	DD:HH:MM	00:05:05	DD:HH:MM	00:10:20	DD:HH:MM
Fires in time	4:10 pm	2021/06/01	8:50 pm	2021/06/17	12:10 am	2021/06/26	8:40 pm	2021/06/28
Synch. to Grid (or BC)	12:45 pm	2021/06/02	1:05 am	2021/06/18	11:30 am	2021/06/26	1:15 pm	2021/06/29
Fires in to BC (duration)	00:20:35	DD:HH:MM	00:04:15	DD:HH:MM	00:11:20	DD:HH:MM	00:16:35	DD:HH:MM
Emissions below limit from BC (end date)	12:00 am	2021/06/06	12:00 am	2021/06/19	12:00 am	2021/06/27	9:00 am	2021/06/30
Emissions below limit from BC (duration)	03:11:15	DD:HH:MM	00:22:55	DD:HH:MM	00:12:30	DD:HH:MM	00:19:45	DD:HH:MM

Unit No.6	Event 1		Event 2	
Breaker Open (BO)	1:30 pm	2021/06/22	10:05 pm	2021/06/29
Draught Group (DG) Shut Down (SD)	DG did not trip or SD	DG did not trip or SD	3:05 am	2021/06/30
BO to DG SD (duration)	n/a	DD:HH:MM	00:05:00	DD:HH:MM
Fires in time				
Synch. to Grid (or BC)				

Fires in to BC (duration)		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

8 General

Unit 3 was offload during the month of June 2021.

Units 1 and 2 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 NOx and SOx monitors' data reliability for unit 4 was less than the 80% threshold for the month of June 2021 due to a faulty analyser control unit (ACU MK5 Assy and keyboard). Additionally, there was a communication fault 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. These faults were rectified.

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

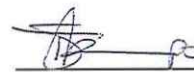
Refer to addendum A



Boiler Plant Engineering Manager

29 July 2021


Date



Environmental Manager

2021/07/29

Date



Engineering Manager

29 July 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

ADDENDUM TO MONTHLY EMISSIONS REPORT

9 COMPLAINTS REGISTER

Table 9. Complaints for the month of June 2021

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 June 2021.					

