



Generation

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AND

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DUVHA POWER STATION

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

GENERAL MANAGER

2023/01/09

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-2022
	Coal	Tons	1 400 000	461 422.23
	Fuel Oil	Tons	5 000	3 543.77

Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Production Rate Jun-2022
	Energy	GWh	3600	855.71
	Ash	Tons	not specified	124 307.15

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.6 TO >1.2	0.930
Ash Content	%	27 TO 30	26.940

Figure 1: Duvha Unit 1 PM Emissions - June 2022

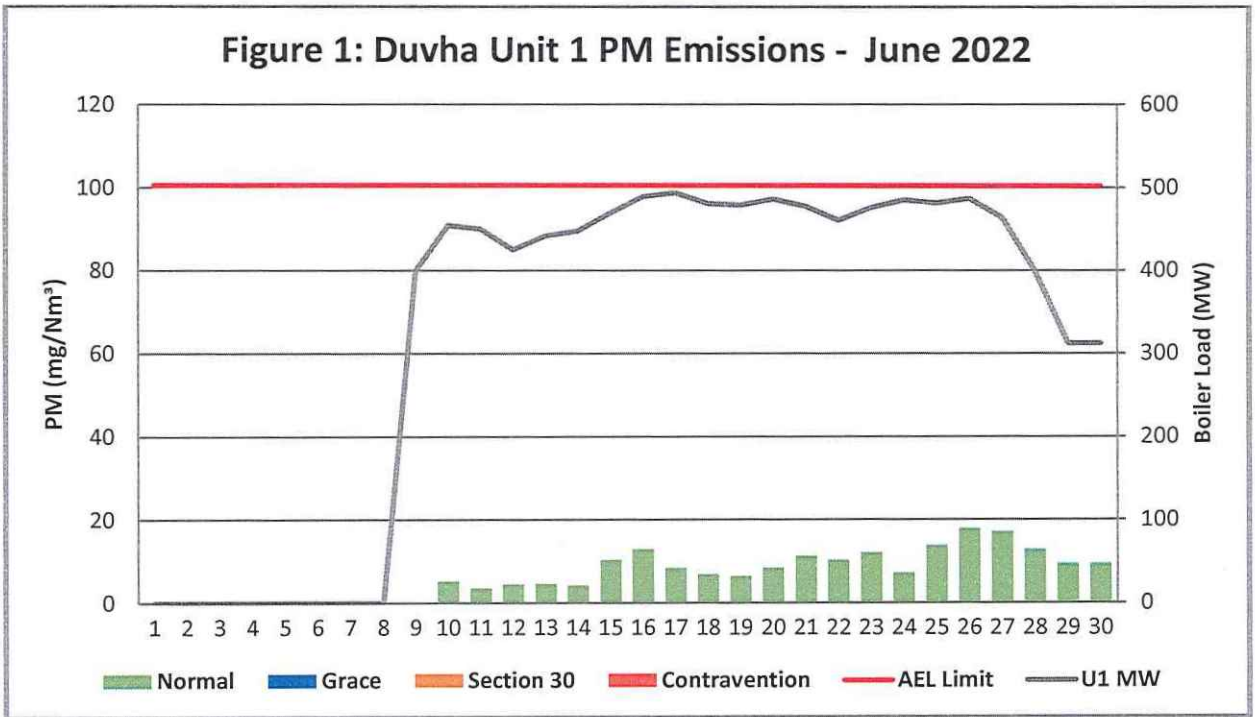


Figure 2: Duvha Unit 2 PM Emissions - June 2022

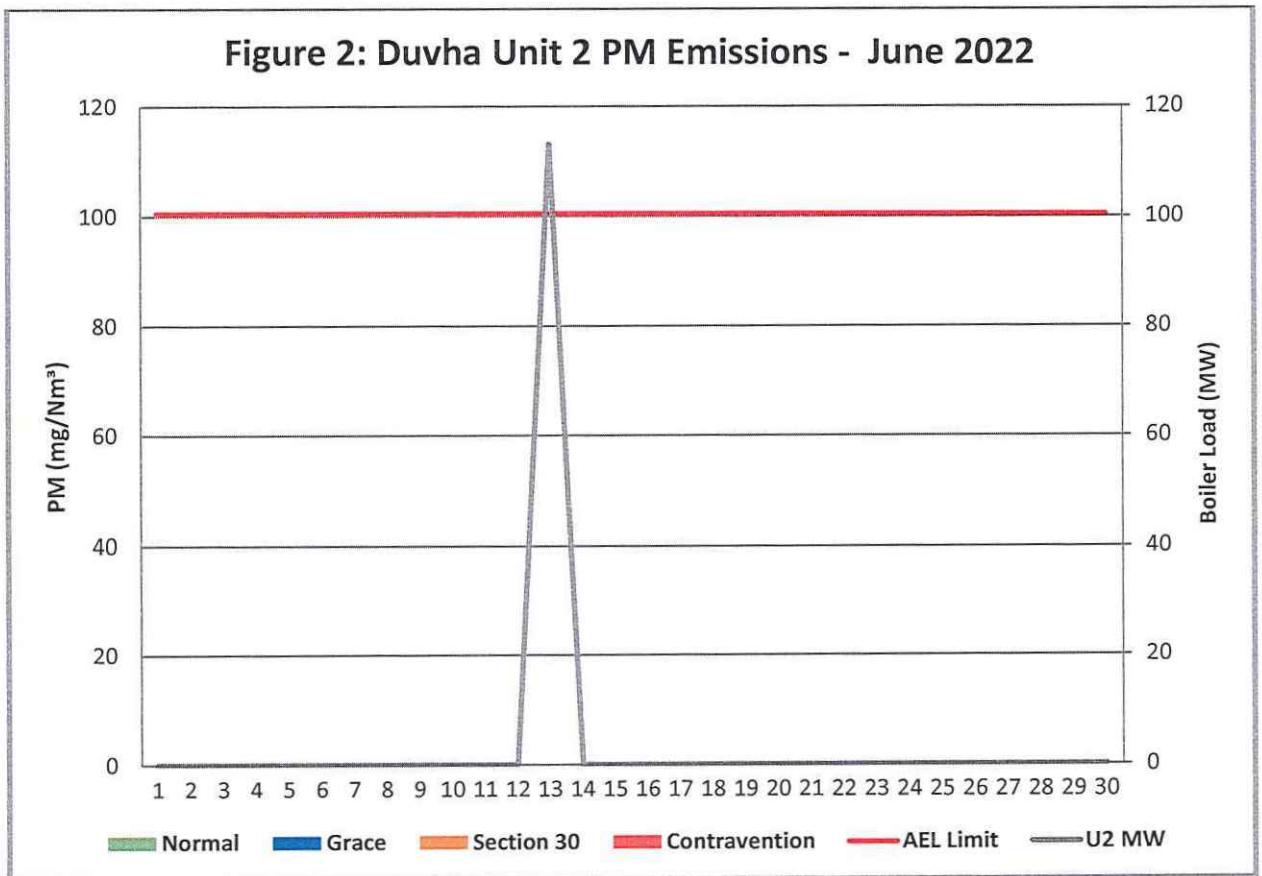


Figure 3: Duvha Unit 4 PM Emissions - June 2022

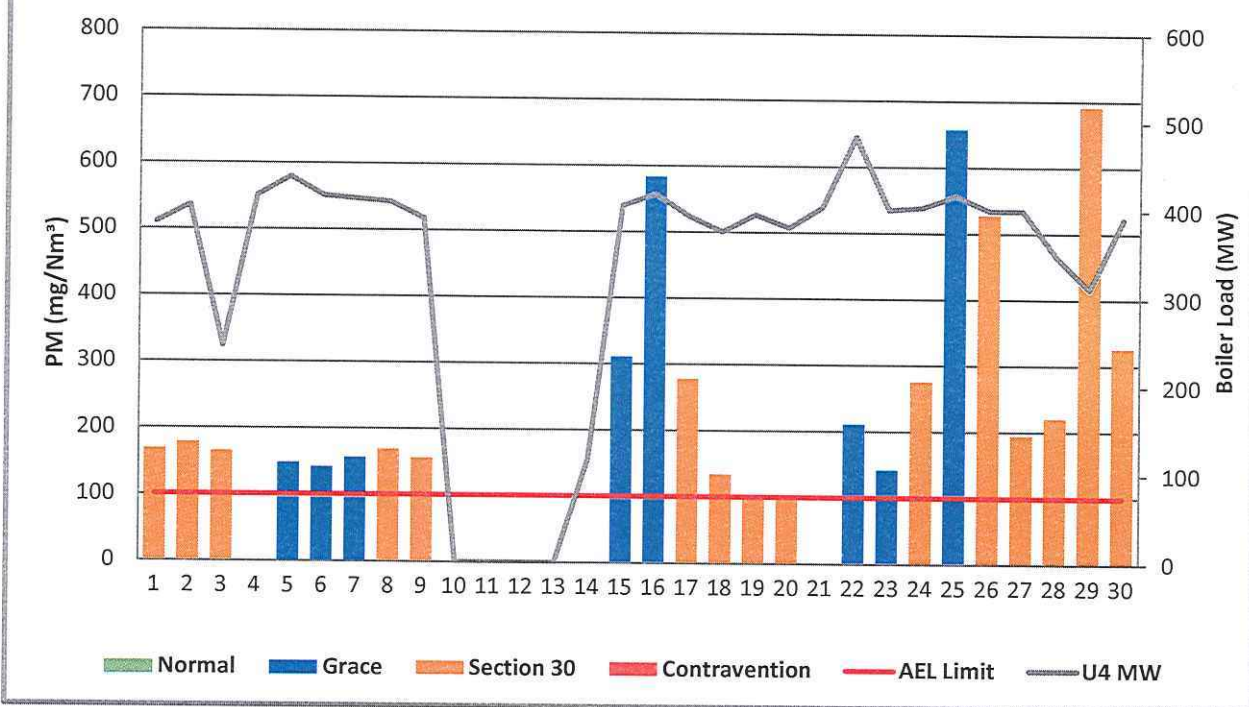


Figure 4: Duvha Unit 5 PM Emissions - June 2022

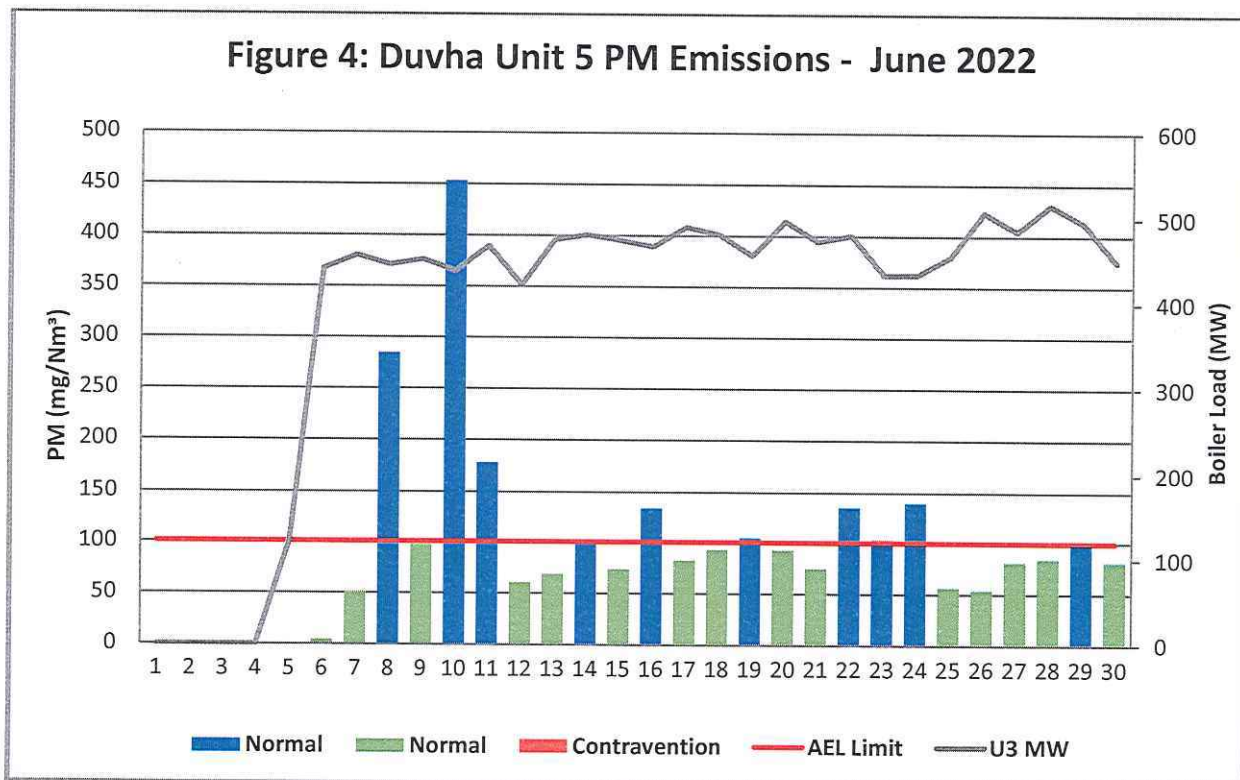


Figure 5: Duvha Unit 6 PM Emissions - June 2022

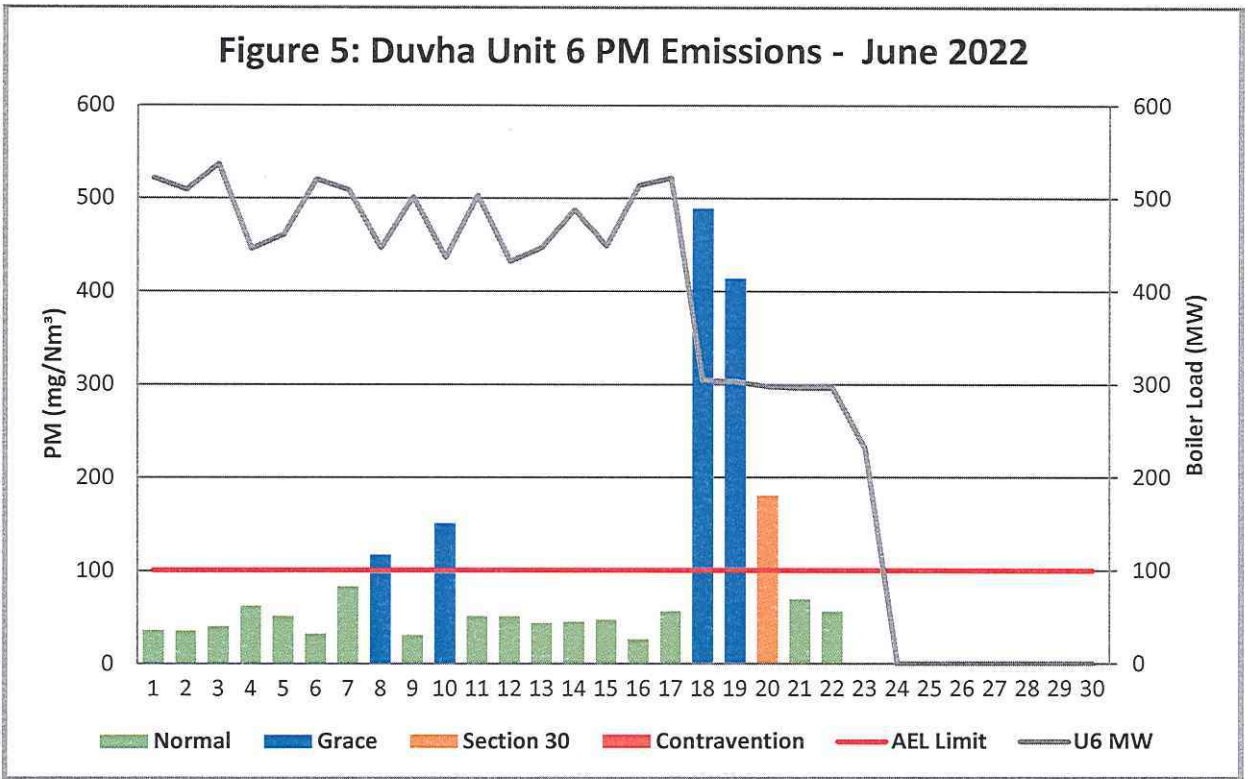


Figure 6: Duvha Unit 1 SOx Emissions - June 2022

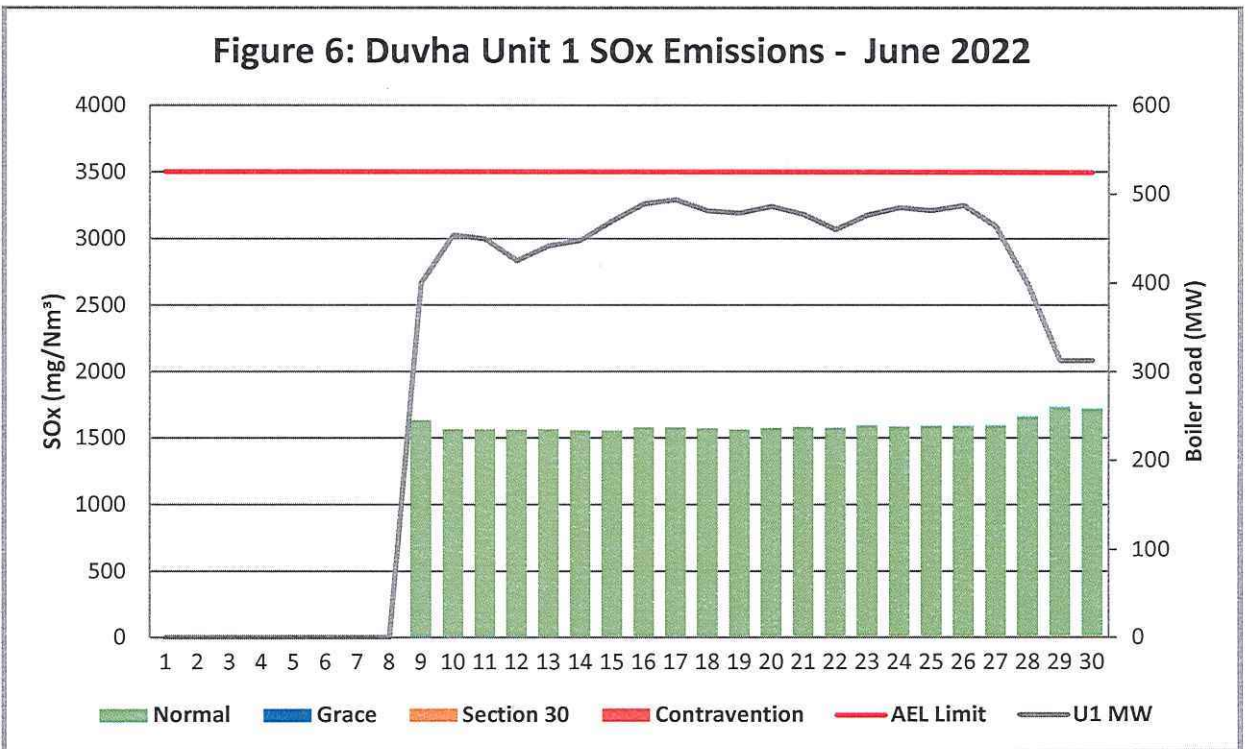


Figure 9: Duvha Unit 5 SOx Emissions - June 2022

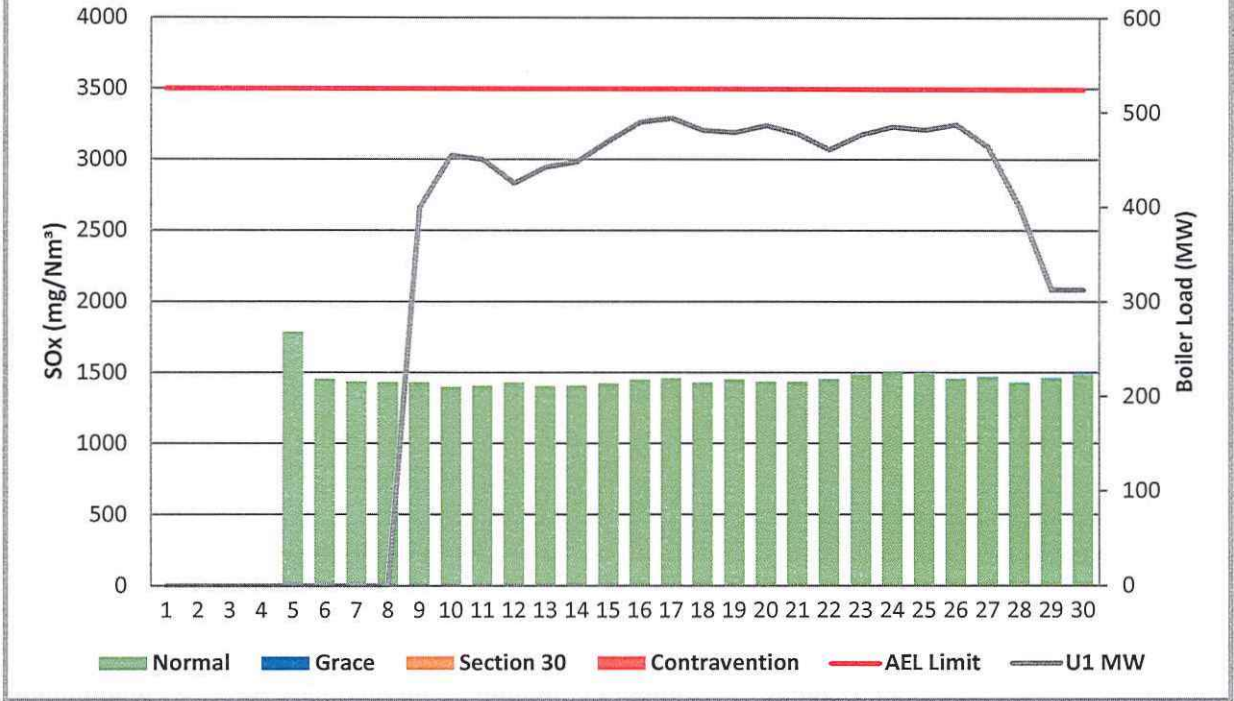


Figure 10: Duvha Unit 6 SOx Emissions - June 2022

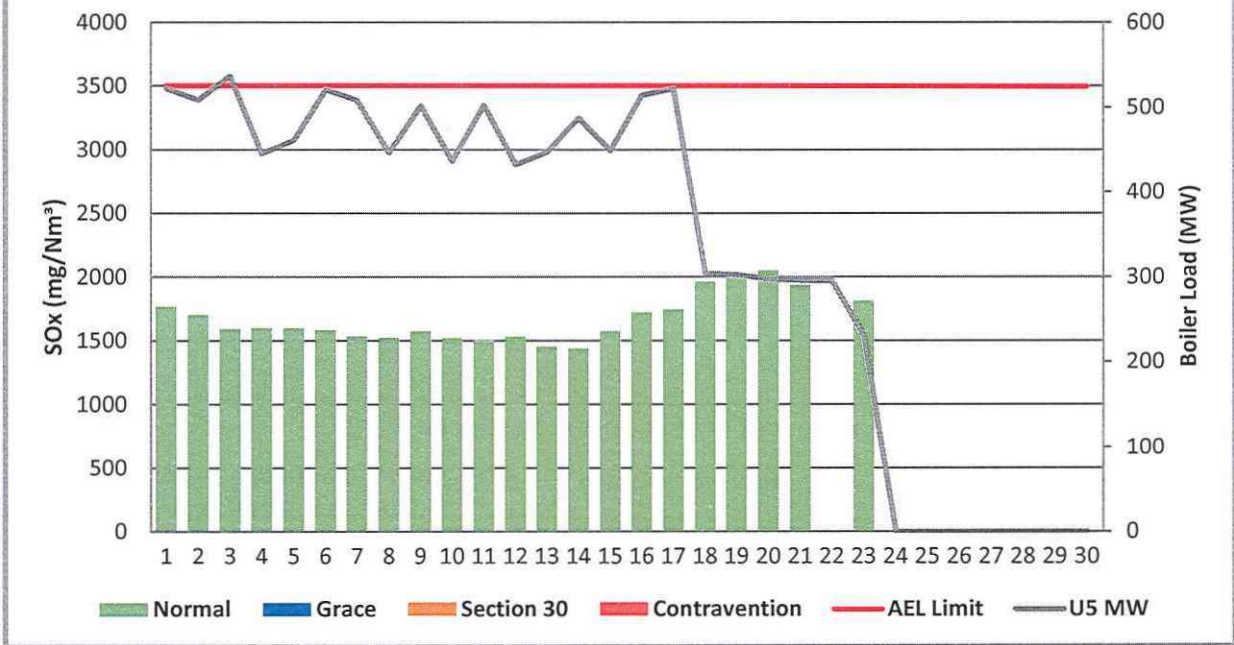


Figure 13: Duvha Unit 4 NOx Emissions - June 2022

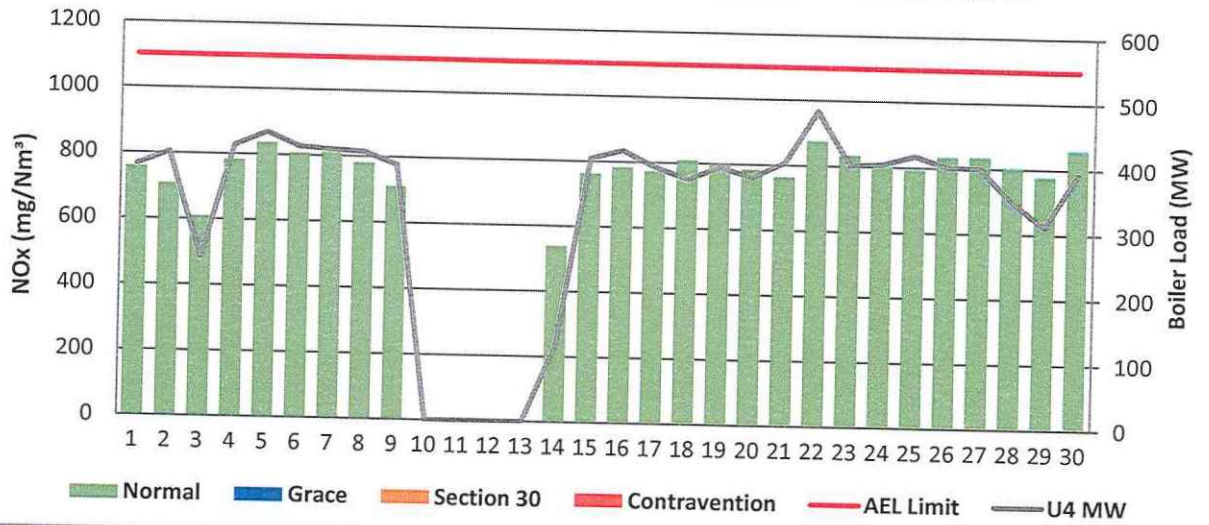
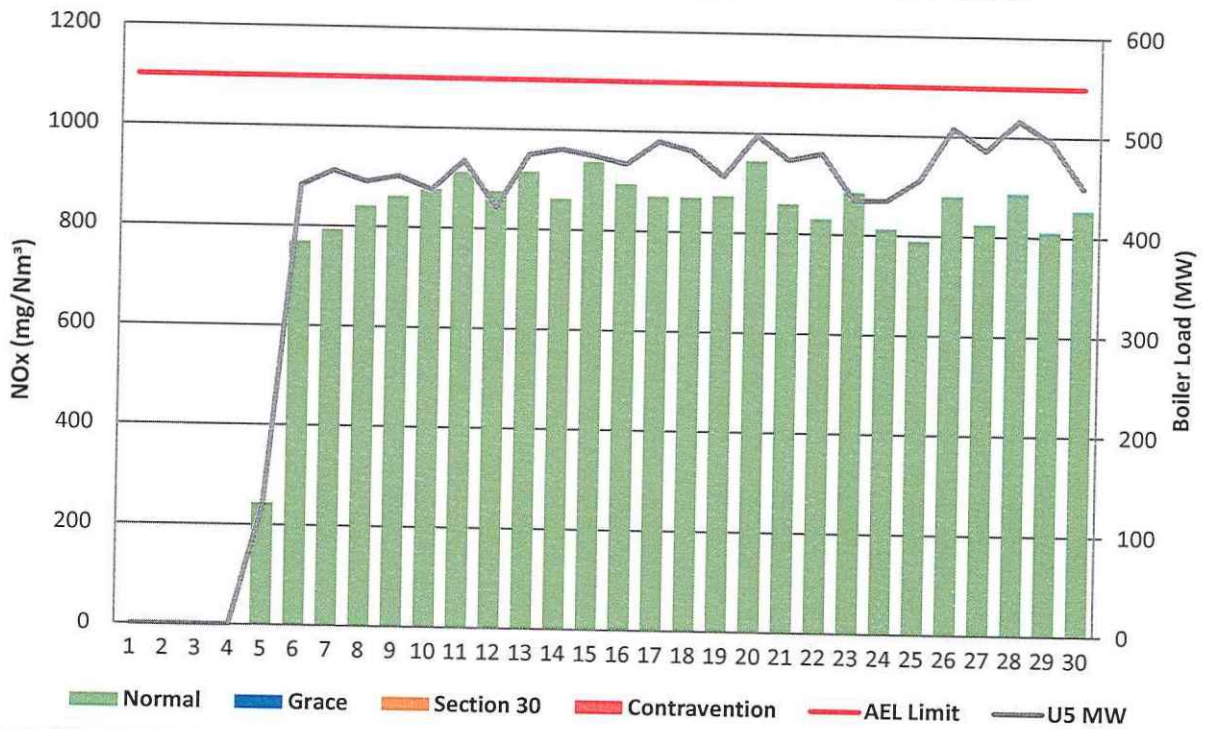
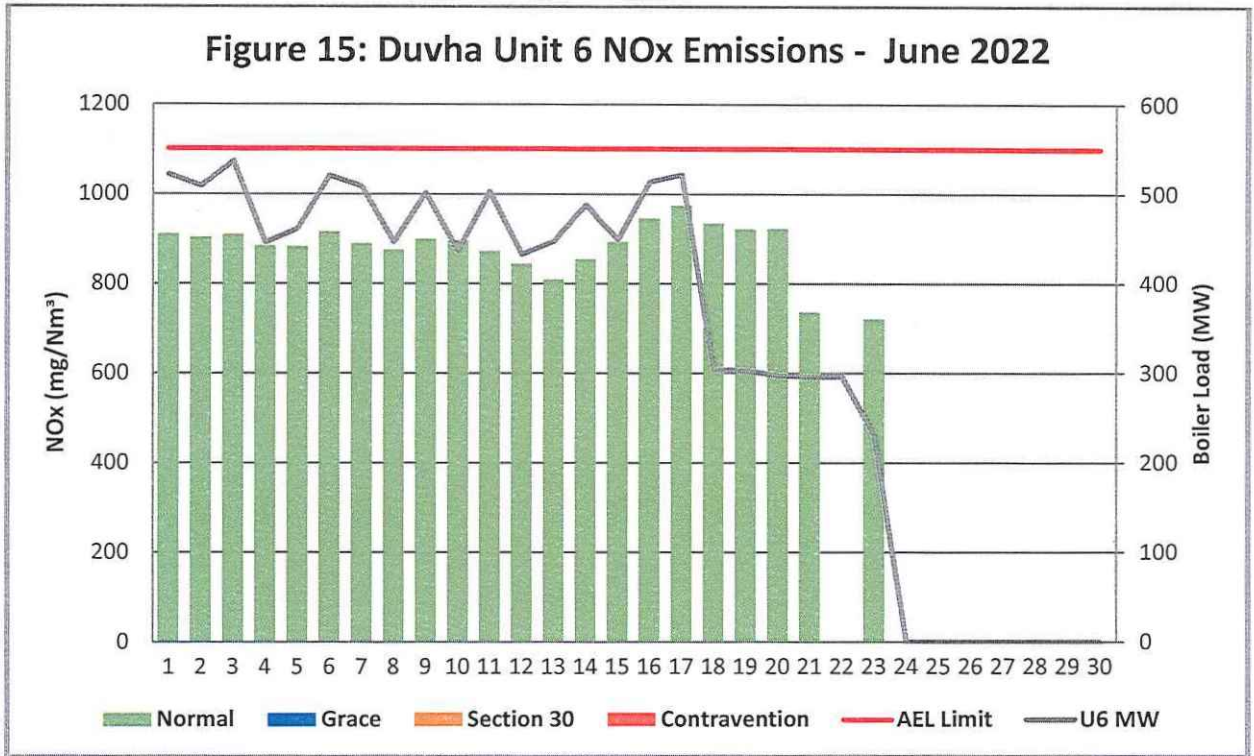


Figure 14: Duvha Unit 5 NOx Emissions - June 2022





7 SHUT DOWN AND LIGHT UP INFORMATION

Tables 7.1: Shut-down and light-up information for the month of June 2022

Unit No.1	Event 1	
Breaker Open (BO)	BO previously	BO previously
Draught Group (DG) Shut Down (SD)	n/a	n/a
BO to DG SD (duration)	n/a	DD:HH:MM
Fires in time	3:20 pm	2022/06/08
Synch. to Grid (or BC)	2:45 am	2022/06/09
Fires in to BC (duration)	00:11:25	DD:HH:MM
Emissions below limit from BC (end date)	not > limit	not > limit
Emissions below limit from BC (duration)	n/a	DD:HH:MM

Unit No.4	Event 1		Event 2		Event 3		Event 4	
Breaker Open (BO)	12:45 am	2022/06/03	4:25 am	2022/06/09	11:35 pm	2022/06/20	5:40 am	2022/06/28
Draught Group (DG) Shut Down (SD)	7:55 am	2022/06/03	8:05 am	2022/06/09	11:35 pm DG did not trip or SD	DG did not trip or SD	10:00 am	2022/06/28

BO to DG SD (duration)	00:07:10	DD:HH:MM	00:03:40	DD:HH:MM	n/a	DD:HH:MM	00:04:20	DD:HH:MM
Fires in time			5:40 pm	2022/06/14			5:05 pm	2022/06/28
Synch. to Grid (or BC)					12:00 am	1900/01/00		
Fires in to BC (duration)		DD:HH:MM	00:05:45	DD:HH:MM		DD:HH:MM	00:06:15	DD:HH:MM
Emissions below limit from BC (end date)			12:00 am	2022/06/22			12:00 am	2022/07/02
Emissions below limit from BC (duration)		DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM

Unit No.5	<i>Event 1</i>	
Breaker Open (BO)	<i>BO previously</i>	<i>BO previously</i>
Draught Group (DG) Shut Down (SD)	<i>n/a</i>	<i>n/a</i>
BO to DG SD (duration)	<i>n/a</i>	DD:HH:MM
Fires in time	<i>5:10 pm</i>	<i>2022/06/05</i>
Synch. to Grid (or BC)	<i>11:25 pm</i>	<i>2022/06/05</i>
Fires in to BC (duration)	<i>00:06:15</i>	DD:HH:MM
Emissions below limit from BC (end date)	<i>3:00 am</i>	<i>2022/06/07</i>
Emissions below limit from BC (duration)	<i>01:03:35</i>	DD:HH:MM

Unit No.6	<i>Event 1</i>	
Breaker Open (BO)	<i>2:30 pm</i>	<i>2022/06/22</i>
Draught Group (DG) Shut Down (SD)	<i>12:45 am</i>	<i>2022/06/25</i>
BO to DG SD (duration)	<i>02:10:15</i>	DD:HH:MM
Fires in time		
Synch. to Grid (or BC)		
Fires in to BC (duration)		DD:HH:MM
Emissions below limit from BC (end date)		
Emissions below limit from BC (duration)		DD:HH:MM

9. GENERAL

Unit 3 was offload during the month of June 2022.

The averages Oxygen(O₂) and Carbon Dioxide (CO₂) data from the QAL 2 tests reports were used for reporting for Units 1, 2, 5 and 6 due to poor performance of the O₂ and CO₂ gaseous monitors. These poor performances of the gaseous monitors were identified to be caused by the incorrect installation of O₂ analyser. An action is being implemented to relocate all the units' O₂ monitors to their own measurement port. This action will be completed no later than 31 December 2022.

The particulate matters emissions monitors reliabilities for unit 5 and 6 were below the 80% threshold in the month of June 2022 due to the monitors frequently drifting below 4 milliamps.

Unit 2 ran for only 2 hours 40 minutes in the month of June 2022, and they are not reportable hours in terms of particulate matter emissions.

Exceedances:

Unit 4:

01-03/06/2022

- The 72 hours allowable for a cold unit light up were exceeded from the 01st of June 2022. A NEMA Section 30 Emergency incident was reported to your office on 02/06/2022. The final investigation report was submitted to your office on 15/09/2022.

05-09/06/2022

- The 72 hours allowable for a cold unit light up were exceeded from the 08th of June 2022. A NEMA Section 30 Emergency incident was reported to your office on 10/06/2022. The final investigation report was submitted to your office on 15/09/2022.

15-20/06/2022

- The 72 hours allowable for a cold unit light up were exceeded from the 18th of June 2022. A NEMA Section 30 Emergency incident was reported to your office on 21/06/2022. The final investigation report was submitted to your office on 15/09/2022.

22-30/06/2022

- The 72 hours allowable for a cold unit light up were exceeded from the 24th of June 2022. A NEMA Section 30 Emergency incident was reported to your office on 28/06/2022. The final investigation report was submitted to your office on 15/09/2022.

Unit 5:

08/06/2022

- Unit cold light up

10-11/06/2022

- High back-end temperatures after sootblowing conducted.

14/06/2022

- High back-end temperatures after sootblowing conducted.

16/06/2022

- High back-end temperatures after sootblowing conducted.

19/06/2022

- Emissions spiked after sootblowing,
- SO3 plant tripped

23-24/06/2022

- SO3 Plant tripped

29/06/2022

- Electrostatic Precipitator fields 1.2, 1.5 and 4.2 were not in service,
- Incorrect rapping sequence on plate rapper Right hand no 1

Unit 6:
08/06/2022

- High back-end temperatures after sootblowing conducted.

10/06/2022

- High back-end temperatures after sootblowing conducted.

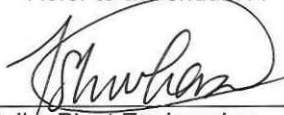
18-20/06/2022

- The 48 hours allowable for upset conditions were exceeded on the 20th of June 2022. A NEMA Section 30 Emergency incident was reported to your office on 22/06/2022. The final investigation report was submitted to your office on 13/10/2022.

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.

10 Complaints and S30 Incidents Register

Refer to addendum A


Boiler Plant Engineering
Manager

21/12/2022
Date


Environmental
Manager

2022/12/21
Date


Engineering Manager

21/12/2022
Date

Compiled by:

Environmental Officer

For:

Nkangala District
Municipality

Air Quality Officer

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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 2022

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 2022.					

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 4	01/06/2022	03/06/2022	Failure to do a risk assessment for the delayed project.	Corrective action: <ul style="list-style-type: none"> • Expedite the project of installing high frequency transformers at unit 4 and 6. • Produce a consolidated general precips internal repairs program. • Do a risk assessment for the delayed HFT project. • Conduct training in production 28 day planning process. • North stack monitors 	02/06/2022	15/09/2022	Only reference number received	None	14/7/6/2/4/2/2168
Unit 4	08/06/2022	09/06/2022			10/06/2022	15/09/2022	Only reference number received	none	14/7/6/2/4/2/2143
Unit 4	18/06/2022	20/06/2022			21/06/2022	15/09/2022	Only reference number received	none	14/7/6/2/4/2/2151

				<ul style="list-style-type: none"> reticulation to be made available. Source MCSIII controllers. <p>Preventative actions:</p> <ul style="list-style-type: none"> Consequence Management. Produce QCP for precipitator repairs. Create a process that requires risk assessments for delayed projects. 					
Unit 6	20/06/2022	20/06/2022	Poor performance of the process air heater elements.	<p>Corrective action:</p> <ul style="list-style-type: none"> The ESP fields were put back in service. The SO3 plant was eventually put back in service. EFP B pull out was replaced. <p>Preventative actions:</p> <ul style="list-style-type: none"> The process air heater elements to be repaired on the next opportunity. The ESP fields to be automated when they are to be switched on. An appropriate action to be taken 	22/06/2022	13/10/2022	Only reference number received	none	14/7/6/2/4/2/2153

				against the unit controller to address the negligence.					
Unit 4	24/06/2022	28/06/2022	Failure to do a risk assessment for the delayed project.	<p>Corrective action:</p> <ul style="list-style-type: none"> • Expedite the project of installing high frequency transformers at unit 4 and 6. • Produce a consolidated general precips internal repairs program. • Do a risk assessment for the delayed HFT project. • Conduct training in production 28 day planning process. • North stack monitors reticulation to be made available. • Source MCSIII controllers. <p>Preventative actions:</p> <ul style="list-style-type: none"> • Consequence Management. • Produce QCP for precipitator repairs. • Create a process that requires risk assessments for delayed projects. 	28/06/2022	15/09/2022	Only reference number received	none	14/7/6/2/4/2/2167