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Attention:

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AND

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DUVHA POWER STATION

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



GENERAL MANAGER

2025/03/05.
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-2025
	Coal	Tons	1 400 000	336579.61
	Fuel Oil	Tons	5 000	2377.48
Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Indicative Production Rate Jan-2025
	Energy	GWh	2 678.400	582.98
	Ash	Tons	not specified	79702.05

Note: Maximum energy rate is as per the maximum capacity stated in the AEL: [3 600 MW] x 24 hrs x days in Month/1000 to convert to GWh

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
CV Content	MJ/kg	18-24	22.42
Sulphur Content	%	0.6 TO >1.2	0.61
Ash Content	%	27 TO 30	23.68

3 EMISSION LIMITS (mg/Nm³)

Associated Unit/Stack	PM	SO ₂	NO _x
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 ABATEMENT TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	Efficiency Jan-2025	Technology Type	SO ₃ Utilization Jan-2025
Unit 1	FFP	99.9%	SO ₃	n/a
Unit 2	FFP	99.9%	SO ₃	n/a
Unit 4	ESP + SO ₃	99.8%	SO ₃	99.1%
Unit 5	ESP + SO ₃	Off	SO ₃	Off
Unit 6	ESP + SO ₃	Off	SO ₃	Off
Note: ESP plant does not have bypass mode operation, hence plant 100% Utilised.				

5 MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO ₂	NO	O ₂
Unit 1	100.0	97.0	97.0	99.4
Unit 2	100.0	96.0	96.8	99.1
Unit 4	100.0	38.5	38.5	38.5
Unit 5	Off	Off	Off	Off
Unit 6	Off	Off	Off	Off

Note: NO_x emissions is measured as NO in PPM. Final NO_x value is expressed as total NO₂

6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of January 2025

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	37.5	5 177	1 879
Unit 2	18.4	2 613	1 337
Unit 4	57.8	959	468
Unit 5	Off	Off	Off
Unit 6	Off	Off	Off
SUM	113.73	8 750	3 684

Table 6.2: Operating days in compliance to PM AEL
Limit - January 2025

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	27	0	0	0	0	24.5
Unit 2	27	0	0	0	0	13.0
Unit 4	16	1	0	0	1	71.9
Unit 5	0	Off	Off	Off	Off	Off
Unit 6	Off	Off	Off	Off	Off	Off
SUM	70	1	0	0	1	

Table 6.3: Operating days in compliance to SO₂ AEL
Limit - January 2025

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO ₂ (mg/Nm ³)
Unit 1	21	0	0	0	0	3 256.0
Unit 2	29	0	0	0	0	1 734.5
Unit 4	17	0	0	0	0	1 218.4
Unit 5	Off	Off	Off	Off	Off	Off
Unit 6	Off	Off	Off	Off	Off	Off
SUM	67	0	0	7	7	

Table 6.4: Operating days in compliance to NO_x AEL
Limit - January 2025

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NO _x (mg/Nm ³)
Unit 1	7	0	0	0	0	1 173.2
Unit 2	29	0	0	0	0	888.6
Unit 4	17	0	0	0	0	582.6
Unit 5	Off	Off	Off	Off	Off	Off
Unit 6	Off	Off	Off	Off	Off	Off
SUM	53	0	0	21	21	

Note: NO_x emissions is measured as NO in PPM. Final NO_x value is expressed as total NO₂

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
Contravention		Emissions above ELV but outside grace or S30 incident conditions

Figure 1: Duvha Unit 1 PM Emissions - January 2025

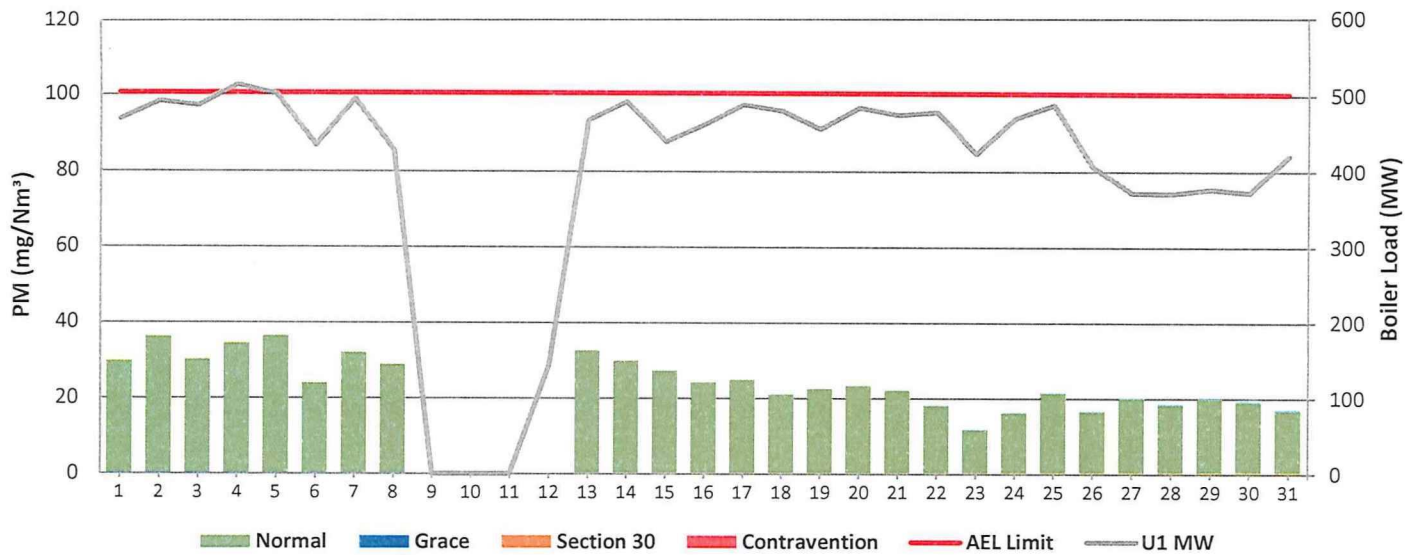


Figure 2: Duvha Unit 2 PM Emissions - January 2025

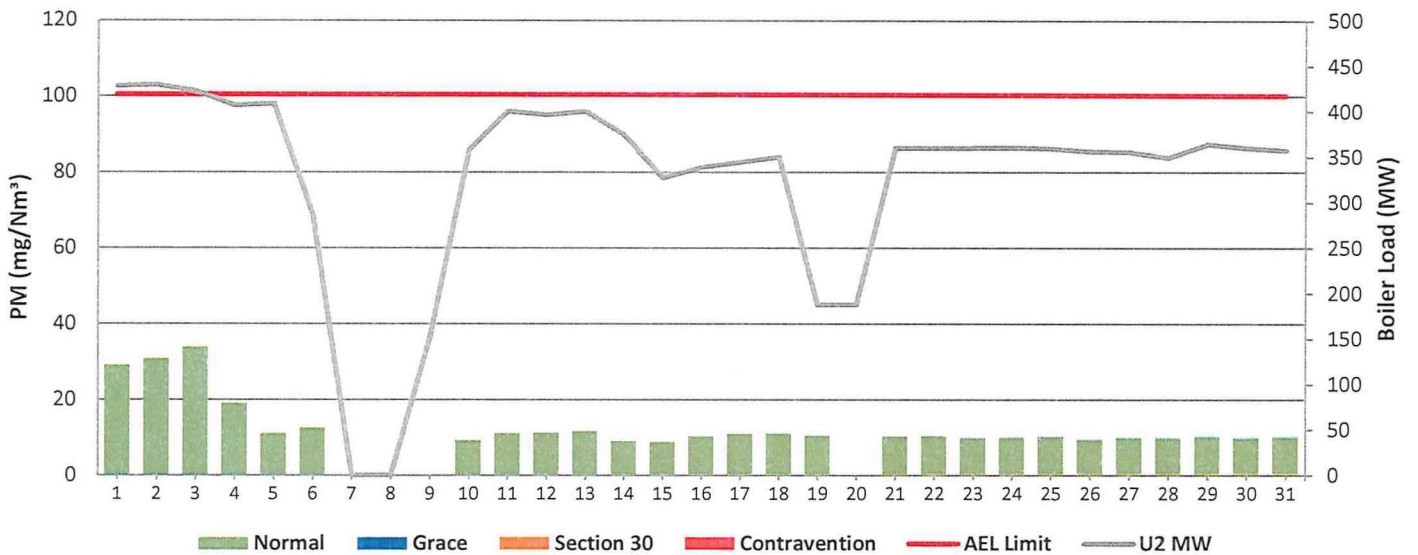


Figure 3: Duvha Unit 4 PM Emissions - January 2025

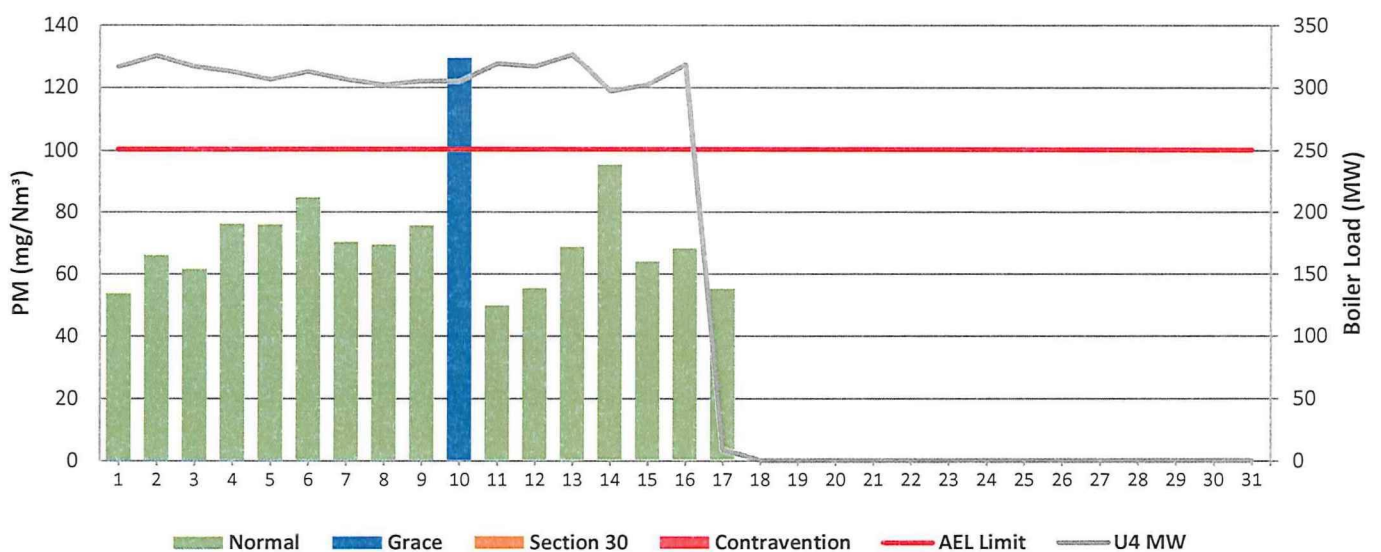


Figure 7: Duvha Unit 1 SO₂ Emissions - January 2025

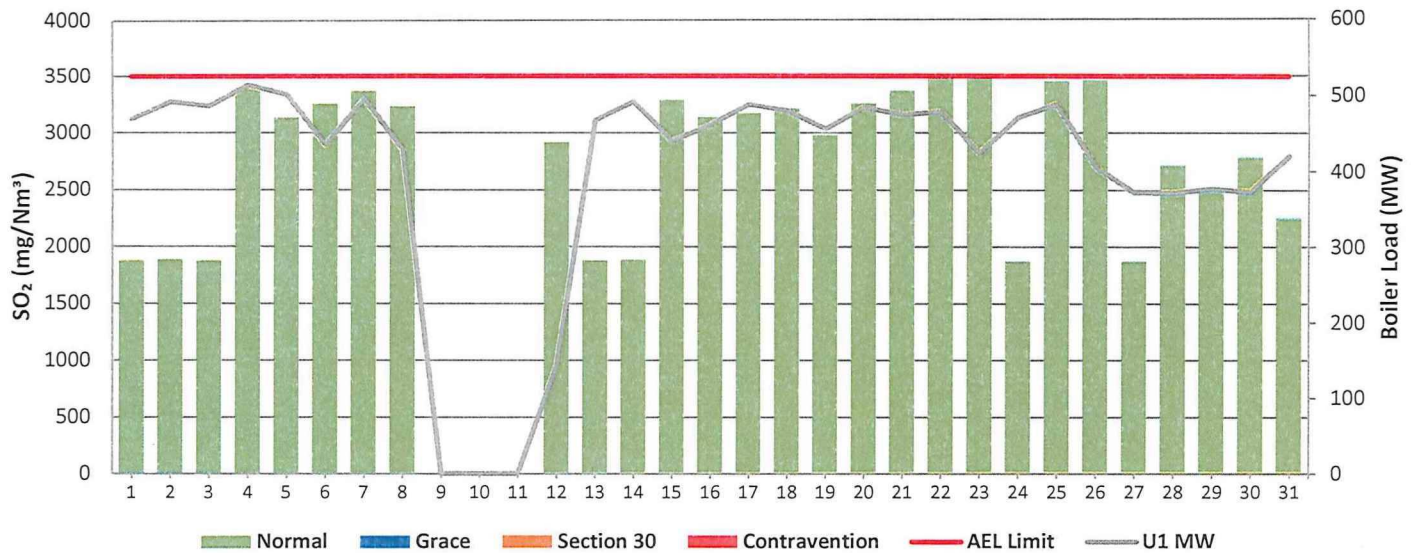


Figure 5: Duvha Unit 2 SO₂ Emissions - January 2025

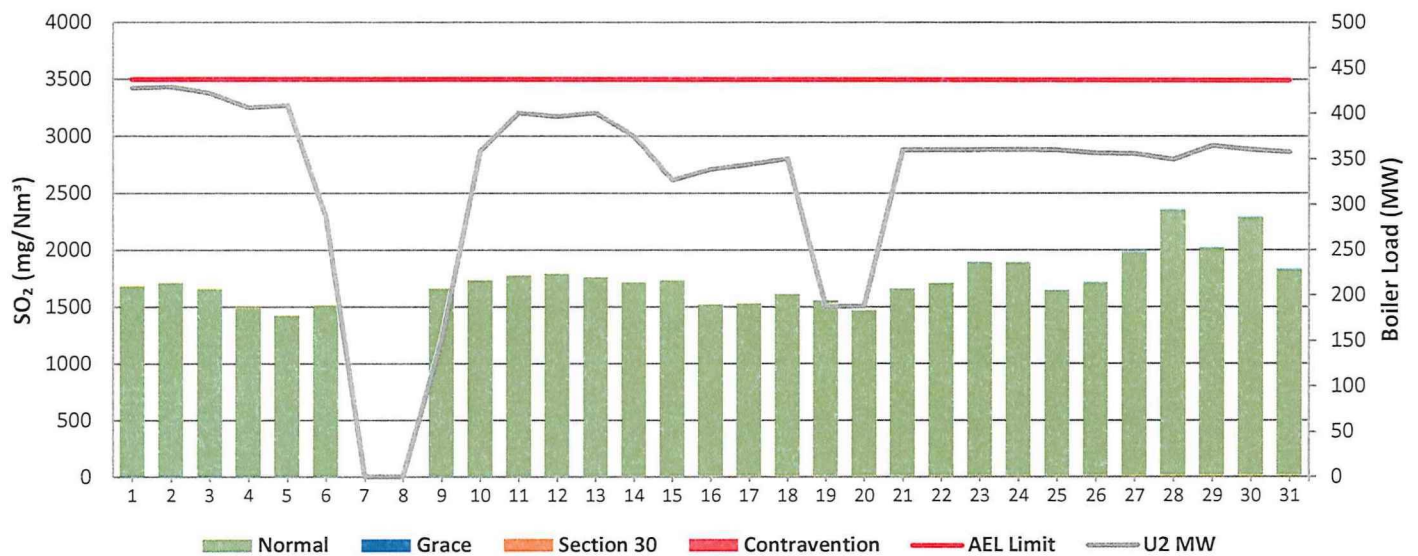


Figure 6: Duvha Unit 4 SO₂ Emissions - January 2025

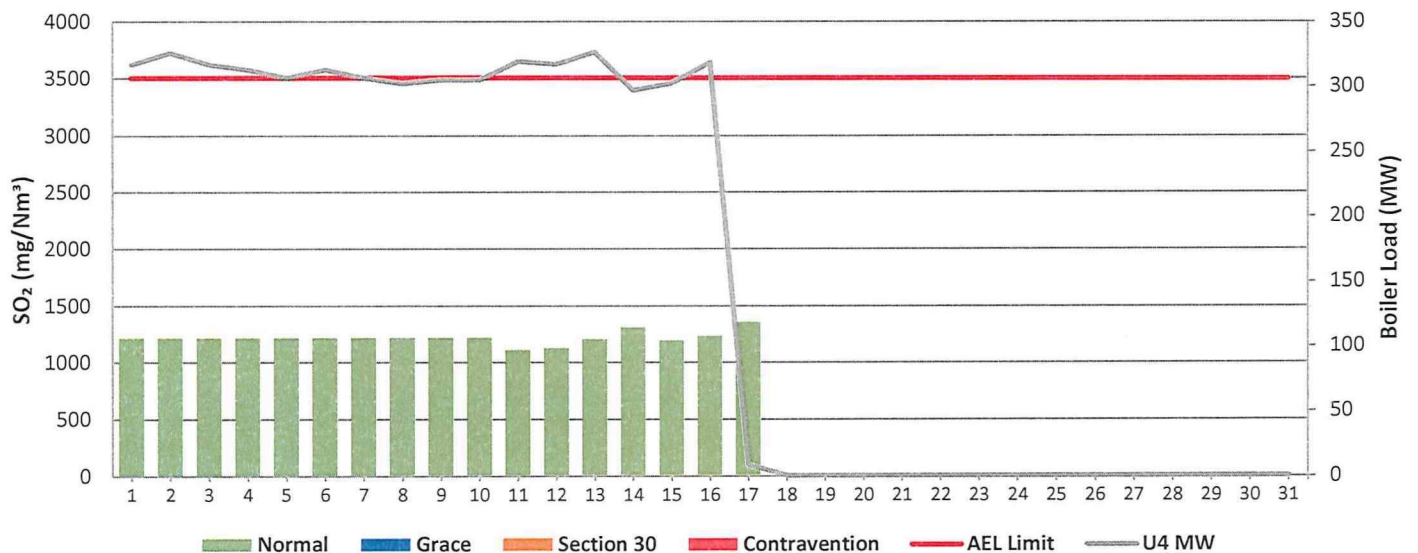


Figure 13: Duvha Unit 1 NOx Emissions - January 2025

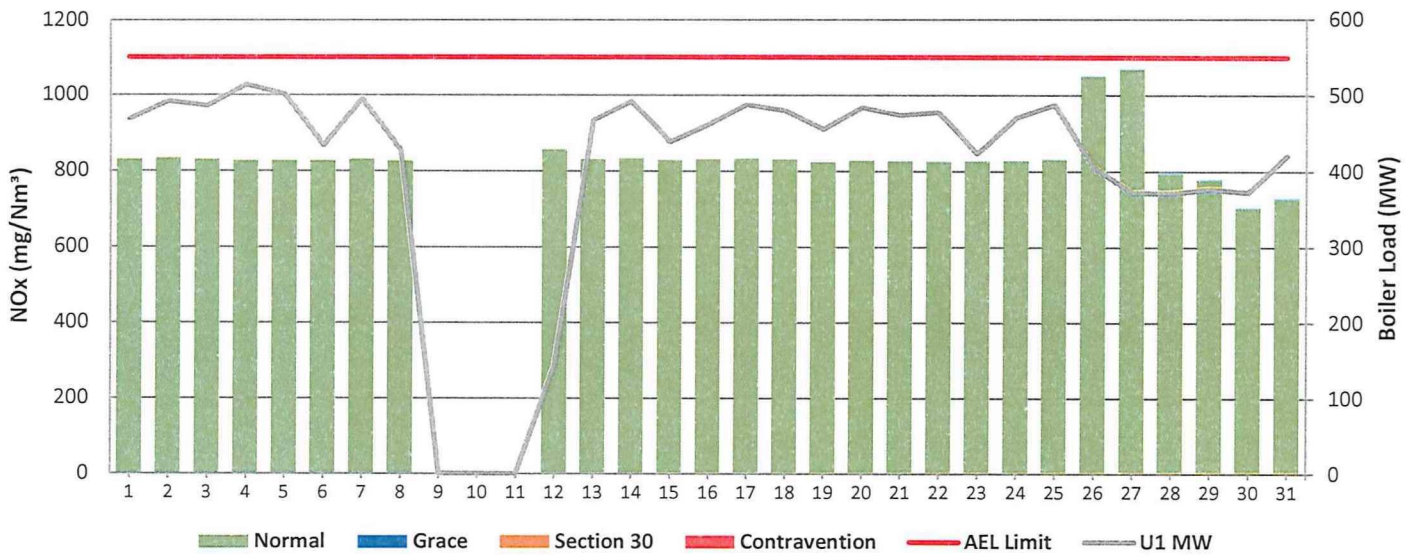


Figure 8: Duvha Unit 2 NOx Emissions - January 2025

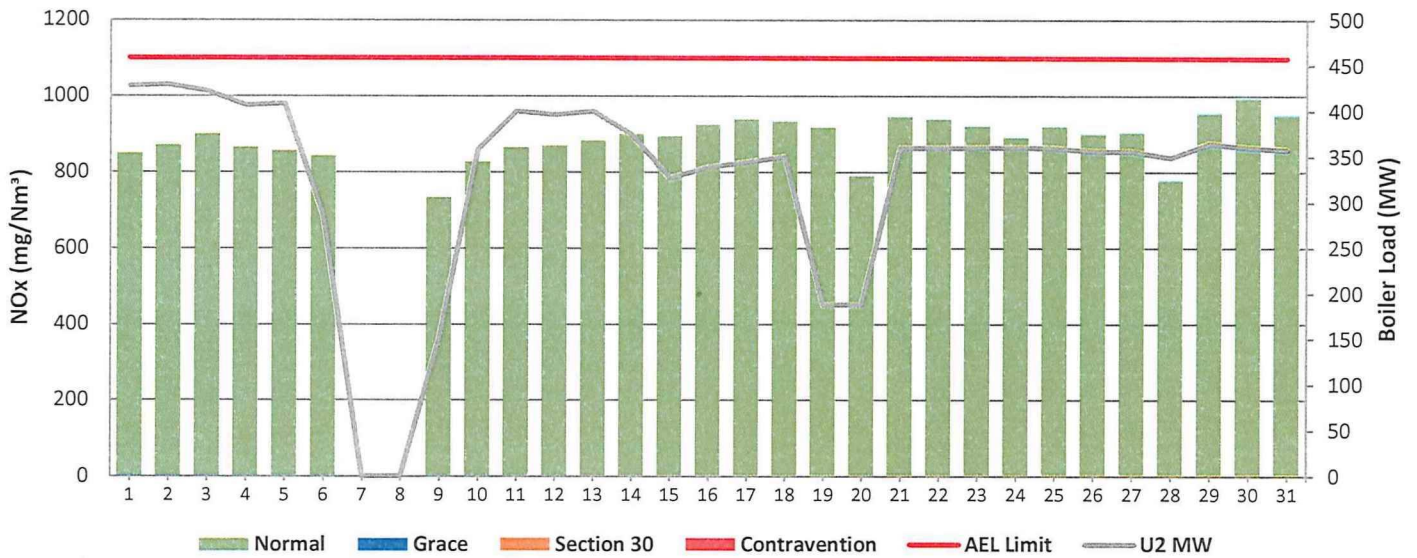
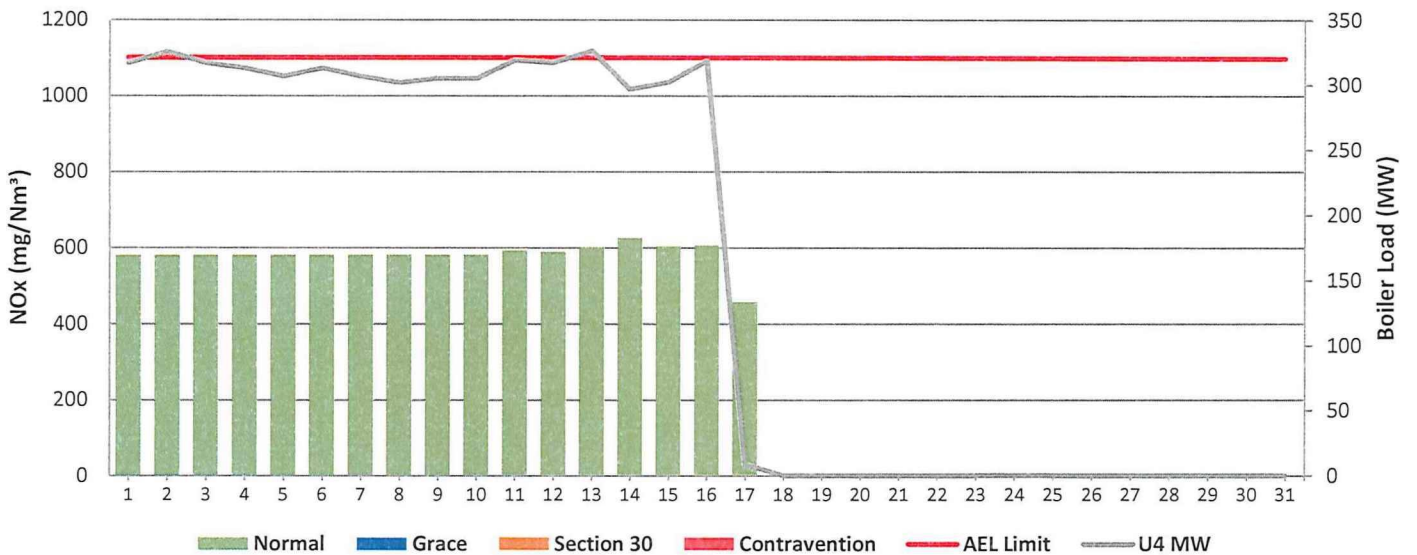


Figure 9: Duvha Unit 4 NOx Emissions - January 2025



7 SHUT DOWN AND LIGHT UP INFORMATION

Tables 7.1: Shut-down and light-up information for the month of January 2025

Unit No.1	<i>Event 1</i>	
Breaker Open (BO)	<i>10:00 pm</i>	<i>2025/01/08</i>
Draught Group (DG) Shut Down (SD)	<i>8:10 pm</i>	<i>2025/01/09</i>
BO to DG SD (duration)	<i>00:22:10</i>	DD:HH:MM
Fires in time	<i>7:35 am</i>	<i>2025/01/12</i>
Synch. to Grid (or BC)	<i>1:35 pm</i>	<i>2025/01/12</i>
Fires in to BC (duration)	<i>00:06:00</i>	DD:HH:MM
Emissions below limit from BC (end date)	<i>not > limit</i>	<i>not > limit</i>
Emissions below limit from BC (duration)	<i>n/a</i>	DD:HH:MM

Unit No.2	<i>Event 1</i>		<i>Event 2</i>	
Breaker Open (BO)	<i>5:05 pm</i>	<i>2025/01/06</i>	<i>1:15 pm</i>	<i>2025/01/19</i>
Draught Group (DG) Shut Down (SD)	<i>10:45 pm</i>	<i>2025/01/06</i>	<i>DG did not trip or SD</i>	<i>DG did not trip or SD</i>
BO to DG SD (duration)	<i>00:05:40</i>	DD:HH:MM	<i>n/a</i>	DD:HH:MM
Fires in time	<i>8:20 pm</i>	<i>2025/01/08</i>		
Synch. to Grid (or BC)	<i>12:15 pm</i>	<i>2025/01/09</i>		
Fires in to BC (duration)	<i>00:15:55</i>	DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	<i>not > limit</i>	<i>not > limit</i>		
Emissions below limit from BC (duration)	<i>n/a</i>	DD:HH:MM		DD:HH:MM

Unit No.4	<i>Event 1</i>	
Breaker Open (BO)	<i>1:05 am</i>	<i>2025/01/17</i>
Draught Group (DG) Shut Down (SD)	<i>10:35 pm</i>	<i>2025/01/17</i>
BO to DG SD (duration)	<i>00:21:30</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

8 COMPLAINTS

There were no complaints for this month

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

9 GENERAL

Exceedance Particulate Matter

Unit 4

10/01/2025

The Precip fields had very high sparking and arching rates especially on the right-hand side of the Precip fields

The averages for Oxygen (O2) and Carbon Dioxide (CO2) data from the QAL2 tests reports were used for reporting gaseous emissions for units 1, 2 and 4 due to poor performance of the O2 and CO2 gaseous monitors. The poor performance of the monitors, on multiple units was because of the station's inability to conduct bi-weekly calibrations and preventative maintenance of the O2 analysers for an extended period.

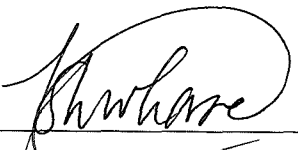
The lack of preventative maintenance on the O2 analysers is because the station historically did not have a long-term maintenance contract for this purpose. When a contract was eventually placed in October 2024, a fault-finding exercise was conducted by the service provider (SI analytics) gave their findings which are being addressed.

The station has given the service provider time to resolve these issues identified with the monitors and the monitors are expected to perform at 80% reliability by 31 April 2025.

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. S30 Incidents Register

There was no section 30 for this month


Boiler Plant Engineering Manager

04/03/2025
Date


Environmental Manager

2025/03/04
Date



Engineering Manager

2025-03-04

Date

Compiled by

Environmental Officer

For

Nkangala District Municipality

Air Quality Officer

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Engineering Manager

Operating Manager

Maintenance Manager

Production Manager

Boiler Engineering Manager

System Engineer

Environmental Manager