



Generation

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AND

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DUVHA POWER STATION

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

GENERAL MANAGER

2024/09/03

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 Jul-2024
	Coal	Tons	1 400 000	394 928.990
	Fuel Oil	Tons	5 000	2735.11

Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Indicative Production Rate Jul-2024
	Energy	GWh	2 678.400	686.700
	Ash	Tons	not specified	101 457.3

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	21.60
Sulphur Content	%	0.6 TO >1.2	0.78
Ash Content	%	27 TO 30	25.69

3 EMISSION LIMITS (mg/Nm³)

Associated Unit/Stack	PM	SO ₂	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 ABATEMENT TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	Efficiency Jul-2024	Technolgy Type	SO ₃ Utilization Jul-2024
Unit 1	FFP	Off	SO ₃	n/a
Unit 2	FFP	100.0%	SO ₃	n/a
Unit 4	ESP + SO ₃	99.8%	SO ₃	97.4%
Unit 5	ESP + SO ₃	99.8%	SO ₃	98.8%
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	Off	Off	Off	Off
Unit 2	100.0	29.6	29.6	29.6
Unit 4	100.0	100.0	100.0	100.0
Unit 5	99.8	100.0	100.0	29.8
Unit 6	Off	Off	Off	Off

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

6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of July 2024

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	Off	Off	Off
Unit 2	7.1	2 205	825
Unit 4	51.1	2 730	1 166
Unit 5	54.7	1 941	755
Unit 6	Off	Off	Off
SUM	113.01	6 876	2 746

Table 6.2: Operating days in compliance to PM AEL Limit – July 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	Off	Off	Off	Off	Off	Off
Unit 2	23	0	0	0	0	6.9
Unit 4	31	0	0	0	0	31.7
Unit 5	25	1	0	0	0	44.7
Unit 6	Off	Off	Off	Off	Off	Off
SUM	79	1	0	0	0	

Table 6.3: Operating days in compliance to SO₂ AEL Limit – July 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO ₂ (mg/Nm ³)
Unit 1	Off	Off	Off	Off	Off	Off
Unit 2	27	0	0	0	0	1 758.8
Unit 4	31	0	0	0	0	1 652.7
Unit 5	27	0	0	0	0	1 536.7
Unit 6	Off	Off	Off	Off	Off	Off
SUM	85	0	0	0	0	

Table 6.4: Operating days in compliance to Nox AEL Limit – July 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average Nox (mg/Nm ³)
Unit 1	Off	Off	Off	Off	Off	Off
Unit 2	27	0	0	0	0	651.9
Unit 4	31	0	0	0	0	705.0
Unit 5	27	0	0	0	0	596.5
Unit 6	Off	Off	Off	Off	Off	Off
SUM	85	0	0	0	0	

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 2 PM Emissions - July 2024

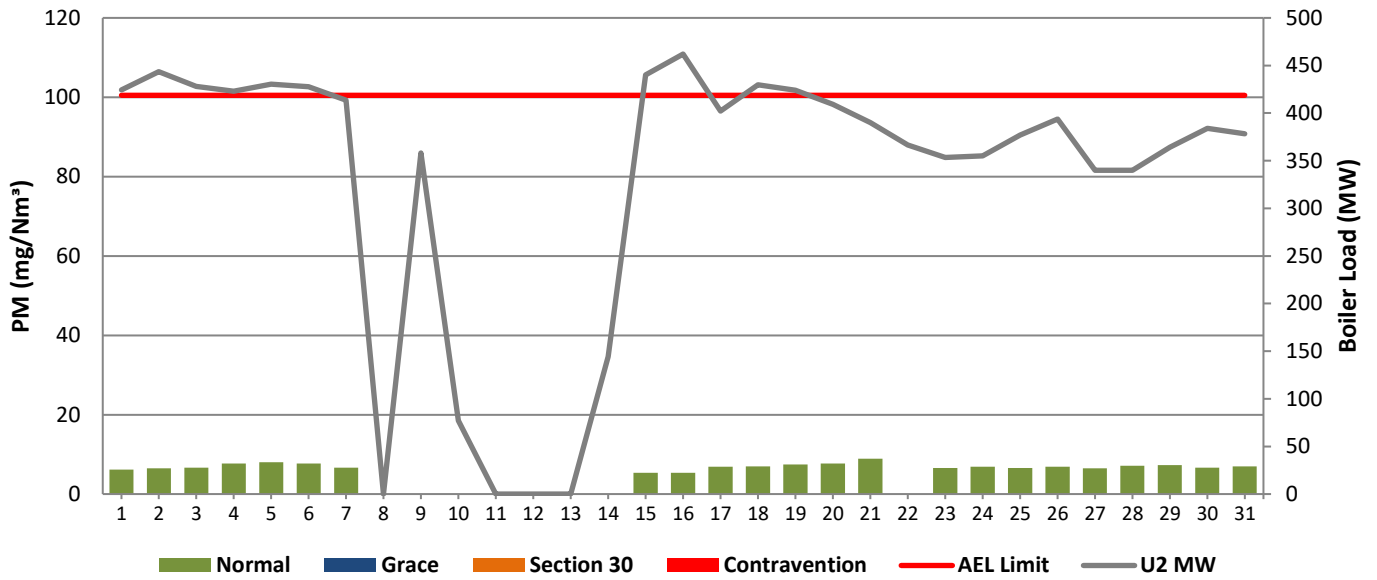


Figure 2: Duvha Unit 4 PM Emissions - July 2024

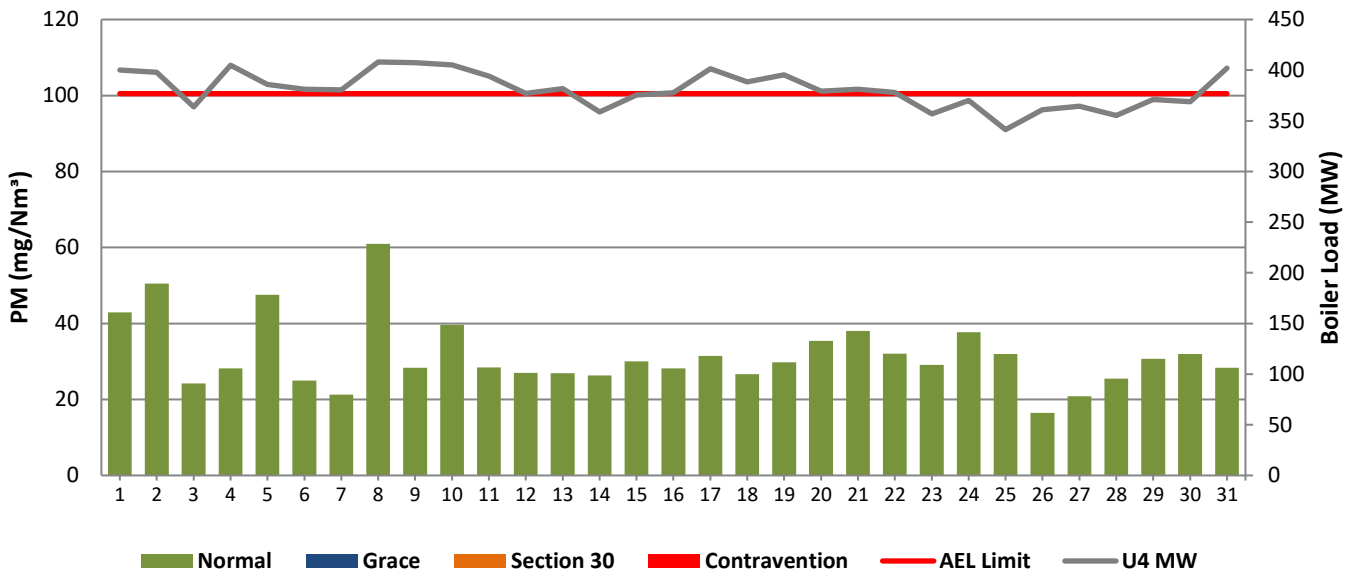


Figure 3: Duvha Unit 5 PM Emissions - July 2024

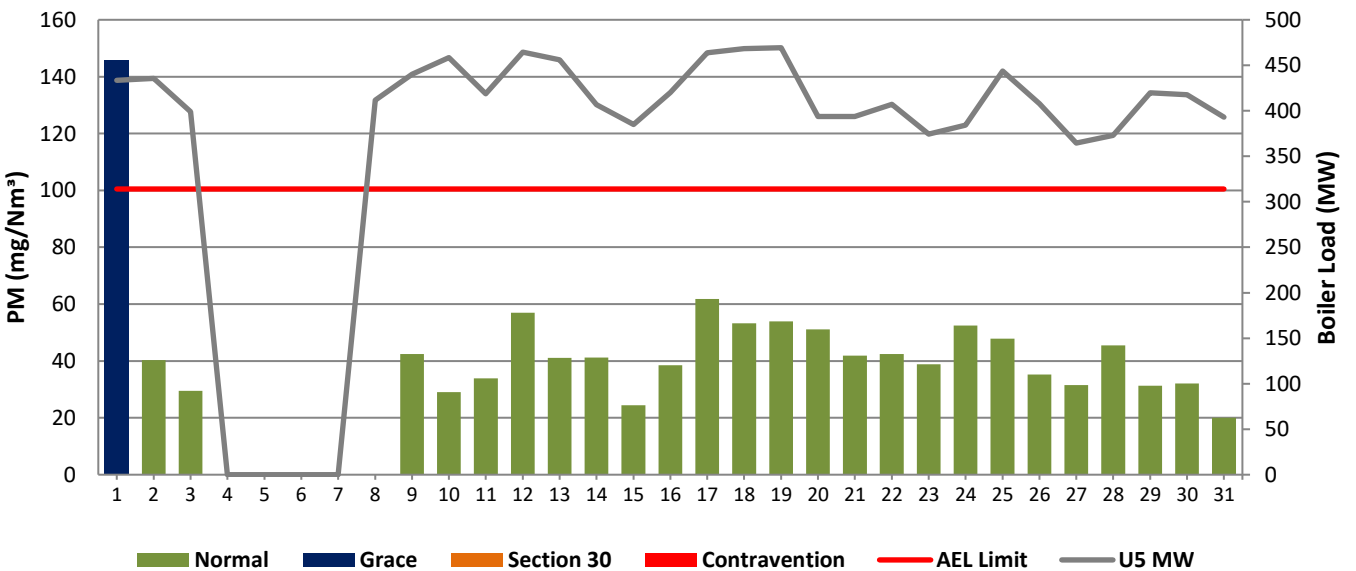


Figure 4: Duvha Unit 2 SO₂ Emissions - July 2024

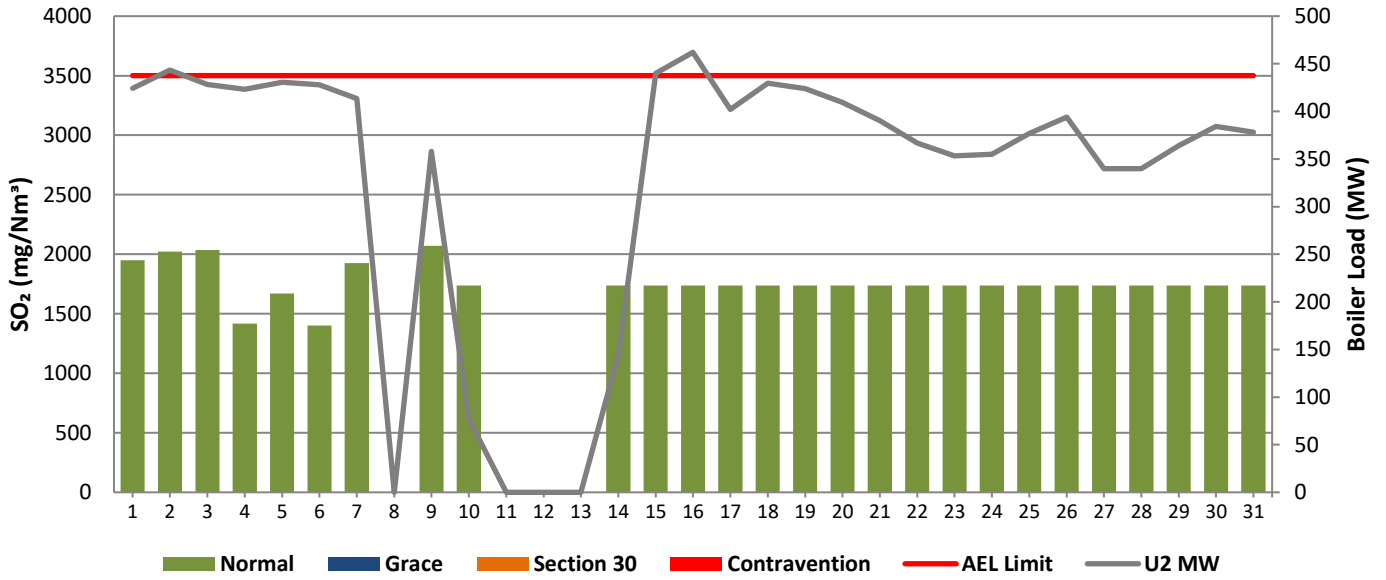


Figure 5: Duvha Unit 4 SO₂ Emissions - July 2024

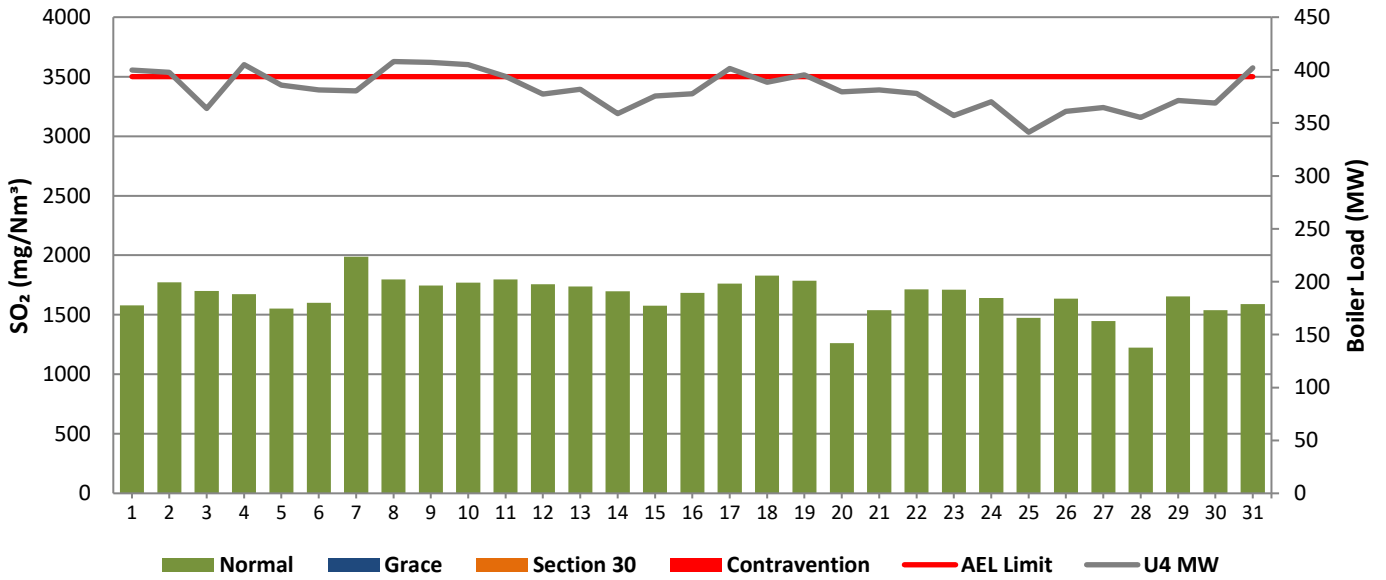


Figure 6: Duvha Unit 5 SO₂ Emissions - July 2024

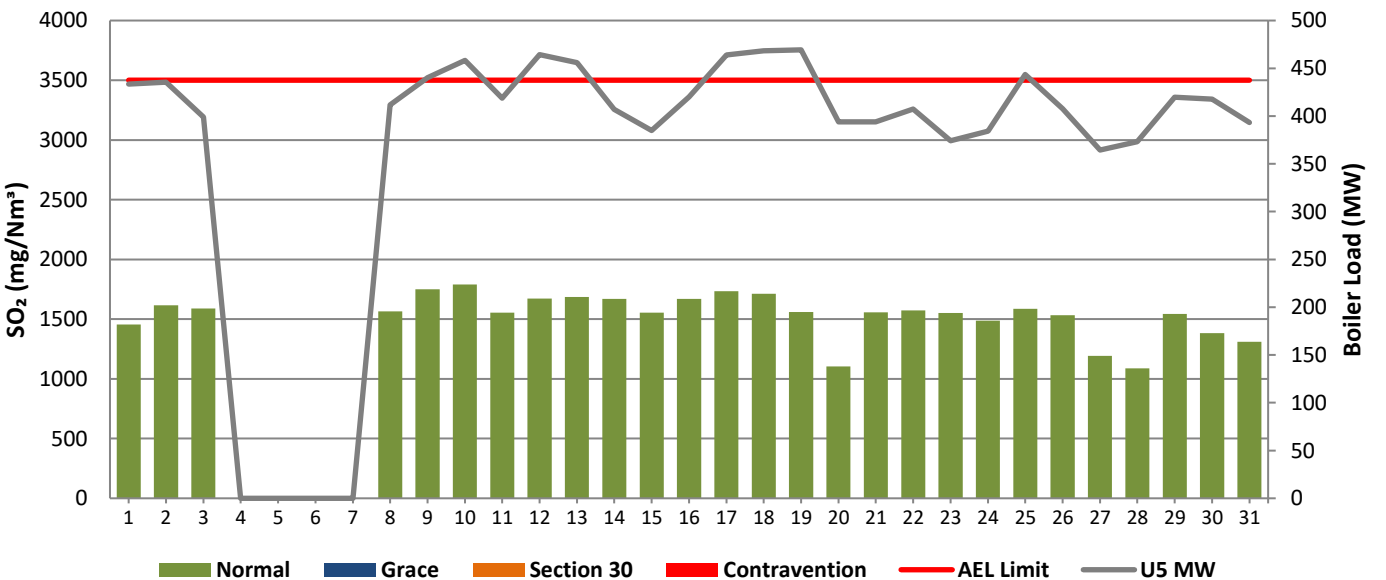


Figure 7: Duvha Unit 2 NOx Emissions - July 2024

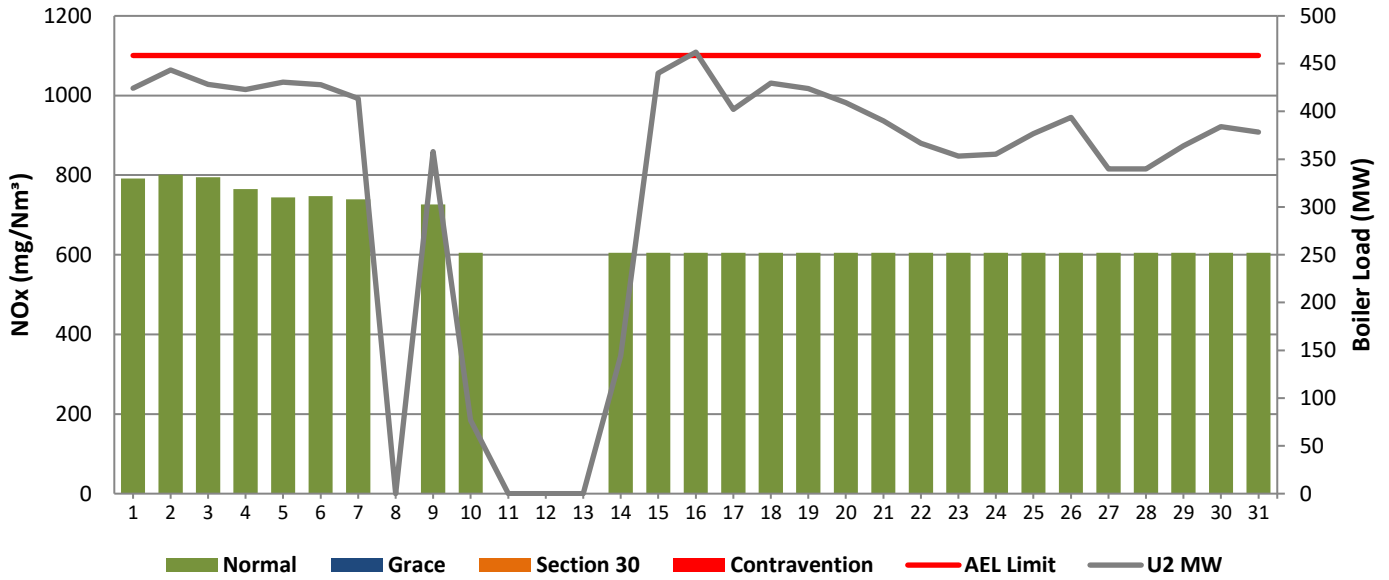


Figure 8: Duvha Unit 4 NOx Emissions - July 2024

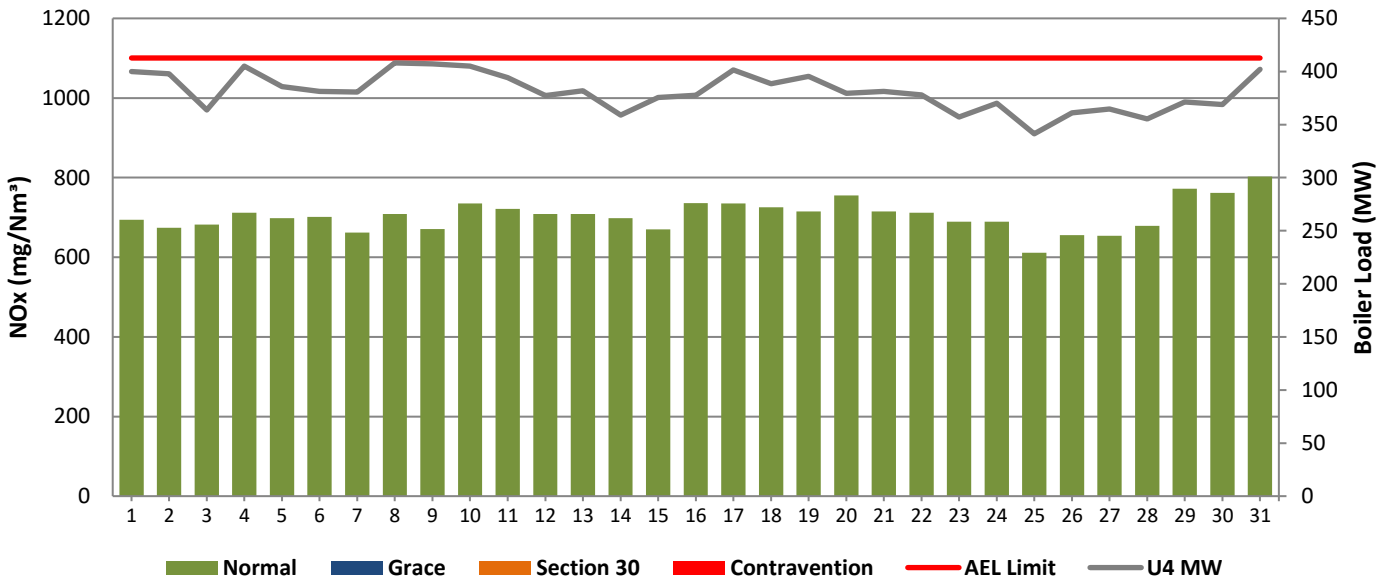
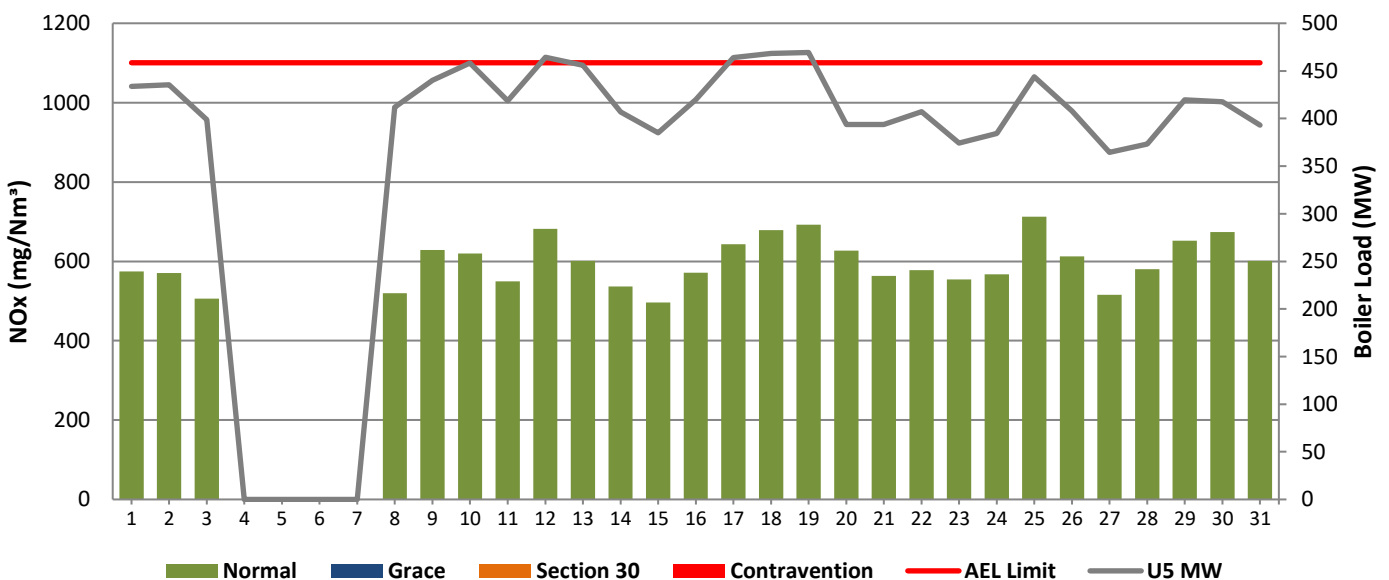


Figure 9: Duvha Unit 5 NOx Emissions - July 2024



Tables 7.1: Shut-down and light-up information for the month of July 2024

Unit No.2	<i>Event 1</i>		<i>Event 2</i>		<i>Event 3</i>		<i>Event 4</i>	
Breaker Open (BO)			8:25 pm	2024/07/07	12:50 pm	2024/07/17	8:05 am	2024/07/21
Draught Group (DG) Shut Down (SD)			9:35 pm	2024/07/07	DG did not trip or SD	DG did not trip or SD	10:55 am	2024/07/21
BO to DG SD (duration)		DD:HH:MM	00:01:10	DD:HH:MM	n/a	DD:HH:MM	00:02:50	DD:HH:MM
Fires in time			2:35 am	2024/07/14			5:20 pm	2024/07/21
Synch. To Grid (or BC)			10:05 pm	2024/07/14			6:00 am	2024/07/22
Fires in to BC (duration)		DD:HH:MM	00:19:30	DD:HH:MM		DD:HH:MM	00:12:40	DD:HH:MM
Emissions below limit from BC (end date)			not > limit	not > limit			not > limit	not > limit
Emissions below limit from BC (duration)		DD:HH:MM	n/a	DD:HH:MM		DD:HH:MM	n/a	DD:HH:MM

Unit No.4	<i>Event 1</i>	
Breaker Open (BO)	6:40 am	2024/07/25
Draught Group (DG) Shut Down (SD)	DG did not trip or SD	DG did not trip or SD
BO to DG SD (duration)	n/a	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

Unit No.5	<i>Event 1</i>	
Breaker Open (BO)	<i>9:35 pm</i>	<i>2024/07/03</i>
Draught Group (DG) Shut Down (SD)	<i>2:05 pm</i>	<i>2024/07/04</i>
BO to DG SD (duration)	<i>00:16:30</i>	DD:HH:MM
Fires in time	<i>7:25 pm</i>	<i>2024/07/07</i>
Synch. to Grid (or BC)	<i>2:00 am</i>	<i>2024/07/08</i>
Fires in to BC (duration)	<i>00:06:35</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

8 COMPLAINTS

There were no complaints for the month of July.

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:

Unit 5

01 July 2024

There was a SO3 plant failure due to sulphur solidification & blockage in the supply pipe to the burner.

Lastly the averages for Oxygen (O2) and Carbon Dioxide (CO2) data from the QAL2 tests reports were used for reporting gaseous emissions for units 2, 4, 5 and 6 due to poor performance of the O2 and CO2 gaseous monitors. These poor performances of the monitors are due to the inability to conduct bi-weekly calibrations of the O2 analysers.

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 were no section 30 incidents for the month of July.

Ndwelani

Boiler Plant Engineering Manager

30 Aug 2024

Date



Environmental Manager

03/09/2024

Date

~~ANB~~

Engineering Manager

2024-09-02

Date

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Environmental Officer

For:

Nkangala District Municipality

Air Quality Officer

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Maintenance Manager
Production Manager
Boiler Engineering Manager
System Engineer
Environmental Manager