Eskom

Generation

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DUVHA POWER STATION

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

GENERAL MANAGER

2024/08/21
DATE

MAY
2024

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 May-2024
	Coal	Tons	*1 400 000*	*447 847.85*
	Fuel Oil	Tons	*5 000*	*2 847.63*
Production Rates	**Product / By-Product Name**	**Units**	**Maximum Production Capacity Permitted**	**Indicative Production Rate May-2024**
	Energy	GWh	*2 678.400*	*771.92*
	Ash	Tons	*not specified*	*116485.23*

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
Sulphur Content	%	*0.6 TO >1.2*	*0.76*
Ash Content	%	*27 TO 30*	*26.01*

3 EMISSION LIMITS (mg/Nm³)

Associated Unit/Stack	PM	SO_2	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 ABATEMENT TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	Efficiency May-2024	Technology Type	SO_3 Utlization May-2024
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*	*99.8%*
Unit 5	*ESP + SO_3*	*Off*	*SO_3*	*Off*
Unit 6	*ESP + SO_3*	*99.9%*	*SO_3*	*100.0%*

***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	*94.9*	*100.0*	*100.0*	*100.0*
Unit 2	*95.1*	*100.0*	*100.0*	*100.0*
Unit 4	*100.0*	*100.0*	*100.0*	*100.0*
Unit 5	*Off*	*Off*	*Off*	*Off*
Unit 6	*100.0*	*36.4*	*74.2*	*99.4*

Note: NOx emissions is measured as NO in PPM. Final NOx value is expressed as total NO_2

6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of May 2024

Associated Unit/Stack	PM (tons)	SO_2 (tons)	NO_x (tons)
Unit 1	32.4	3 218	1 111
Unit 2	18.3	2 895	1 195
Unit 4	38.8	2 083	837
Unit 5	Off	Off	Off
Unit 6	24.2	1 154	397
SUM	113.76	9 349	3 540

Table 6.2: Operating days in compliance to PM AEL Limit - May 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm³)
Unit 1	17	0	0	0	0	30.5
Unit 2	30	0	0	0	0	11.6
Unit 4	23	0	0	0	0	32.4
Unit 5	0	Off	Off	Off	Off	Off
Unit 6	12	0	0	0	0	37.3
SUM	**82**	**0**	**0**	**0**	**0**	

Table 6.3: Operating days in compliance to SO_2 AEL Limit - May 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO_2 (mg/Nm³)
Unit 1	16	0	0	3	3	2 956.7
Unit 2	31	0	0	0	0	1 806.0
Unit 4	25	0	0	0	0	1 603.7
Unit 5	Off	Off	Off	Off	Off	Off
Unit 6	16	0	0	0	0	1 401.3
SUM	**88**	**0**	**0**	**3**	**3**	

Table 6.4: Operating days in compliance to NOx AEL Limit - May 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm³)
Unit 1	13	0	0	6	6	1 008.3
Unit 2	31	0	0	0	0	740.2
Unit 4	25	0	0	0	0	644.8
Unit 5	Off	Off	Off	Off	Off	Off
Unit 6	16	0	0	0	0	485.9
SUM	**85**	**0**	**0**	**6**	**6**	

Note: NO_x emissions is measured as NO in PPM. Final NO_x value is expressed as total NO_2

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 - May 2024

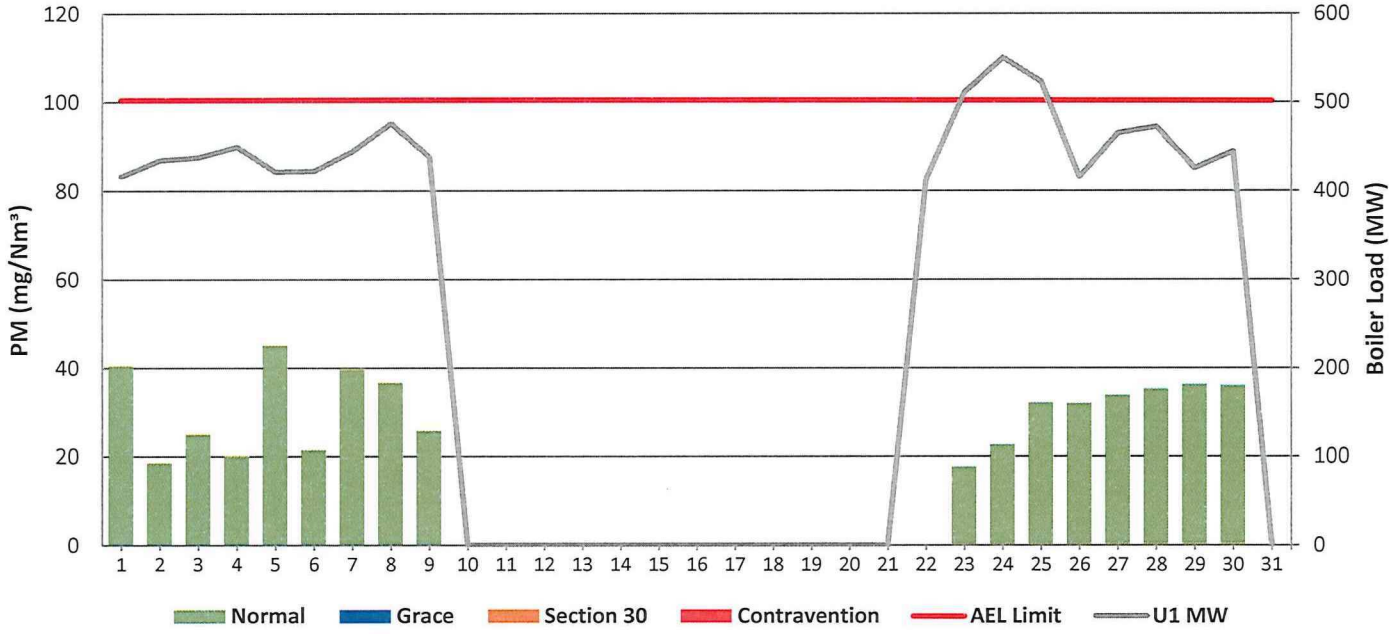


Figure 2: Duvha Unit 2 PM Emissions - May 2024

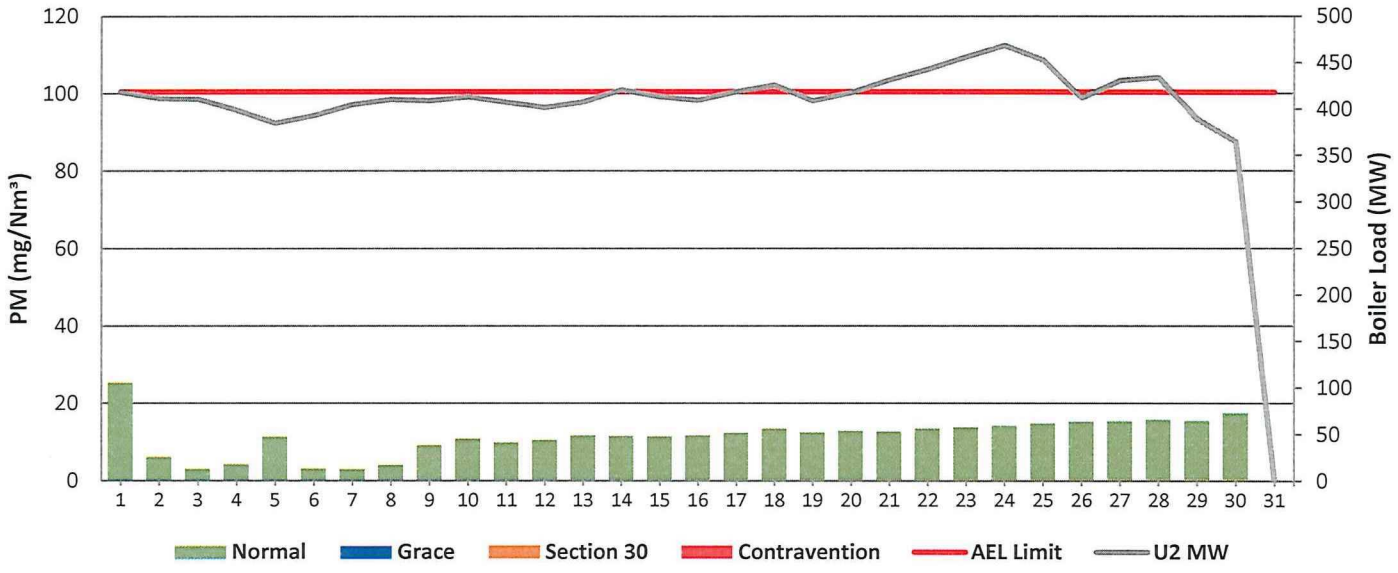


Figure 3: Duvha Unit 4 PM Emissions - May 2024

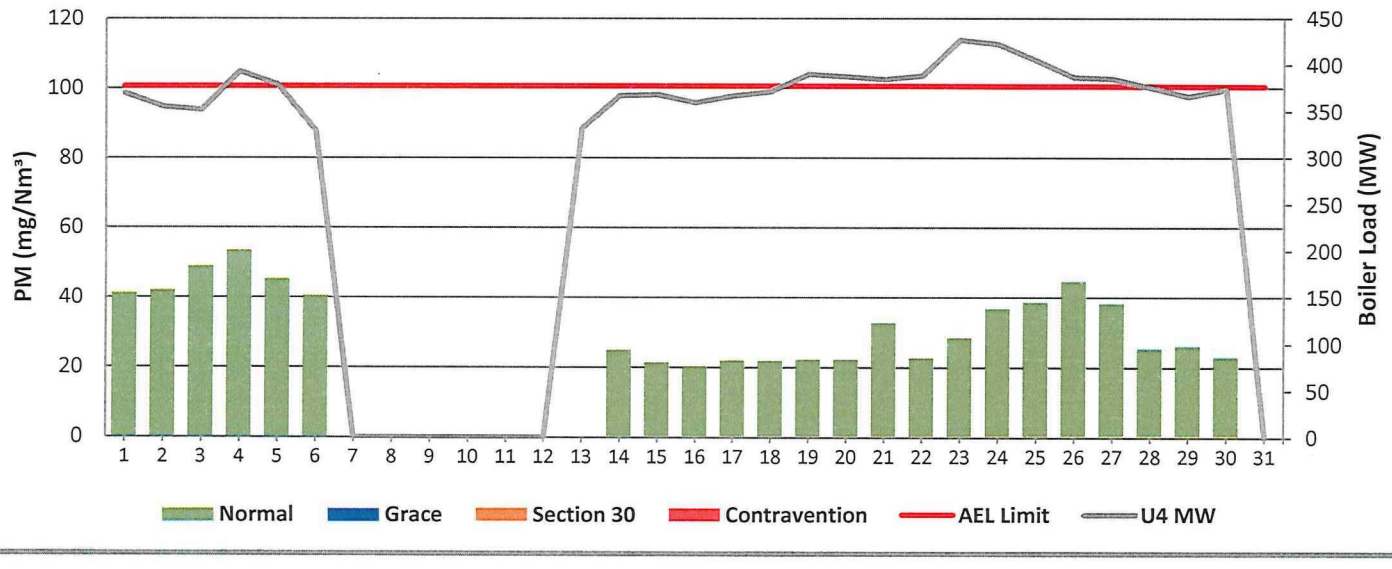


Figure 4: Duvha Unit 6 PM Emissions - May 2024

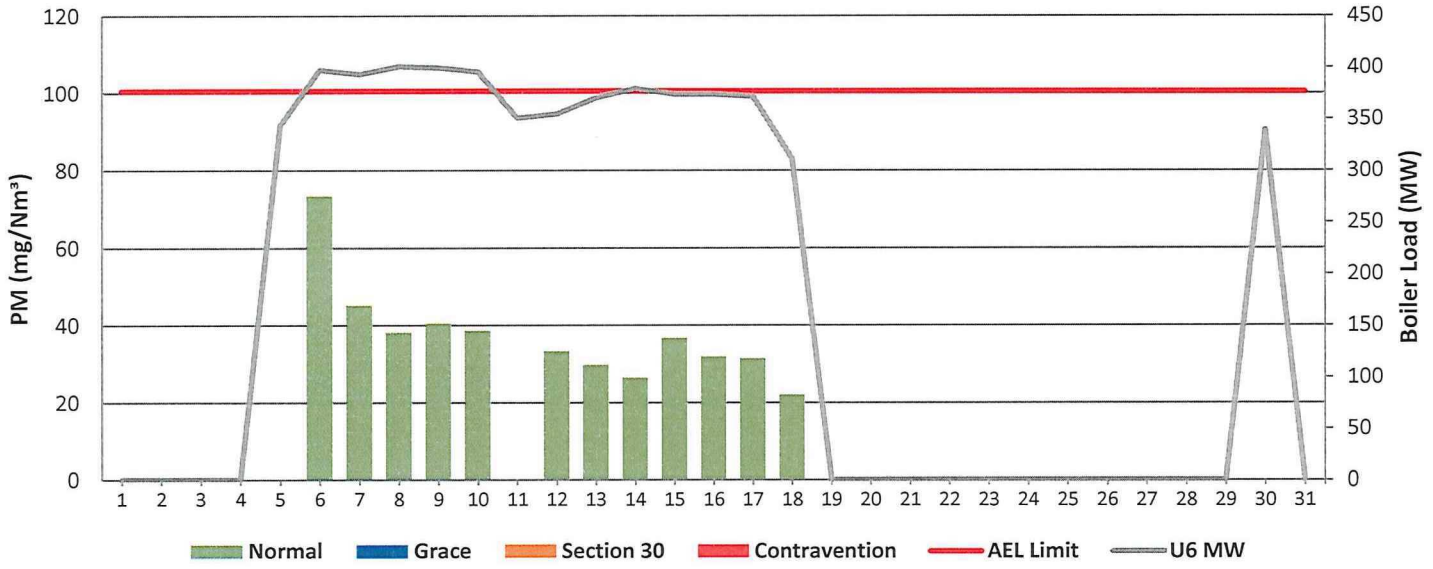


Figure 5: Duvha Unit 1 SO_2 Emissions - May 2024

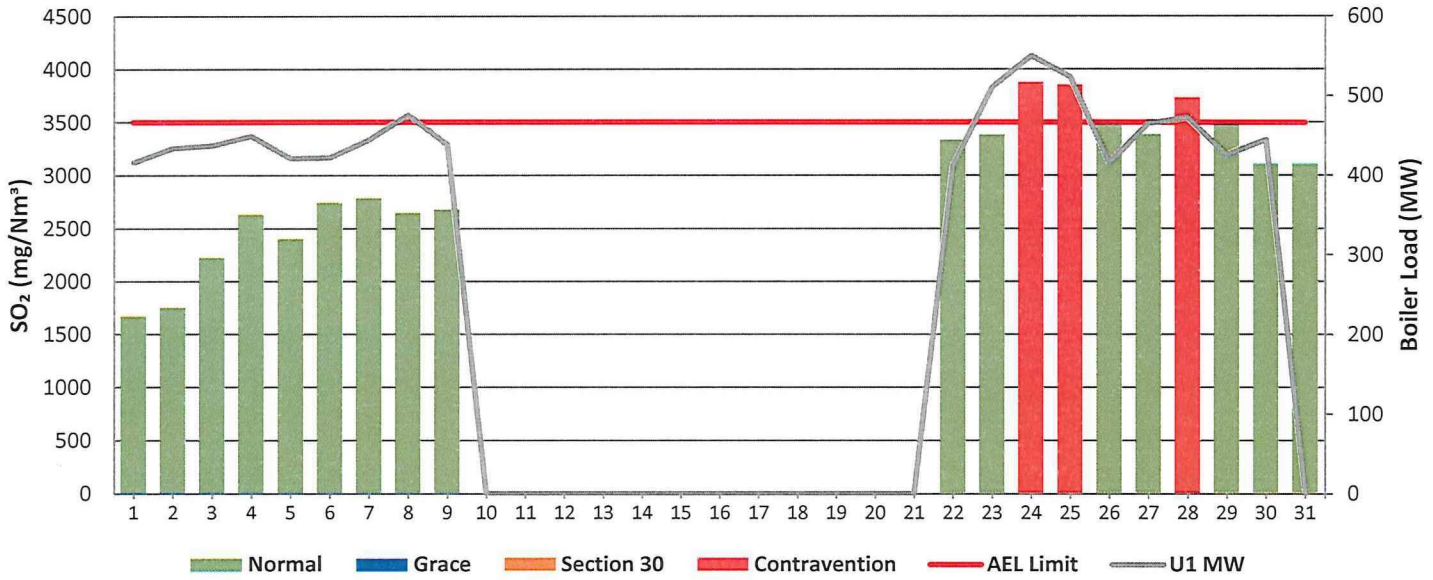


Figure 6: Duvha Unit 2 SO_2 Emissions - May 2024

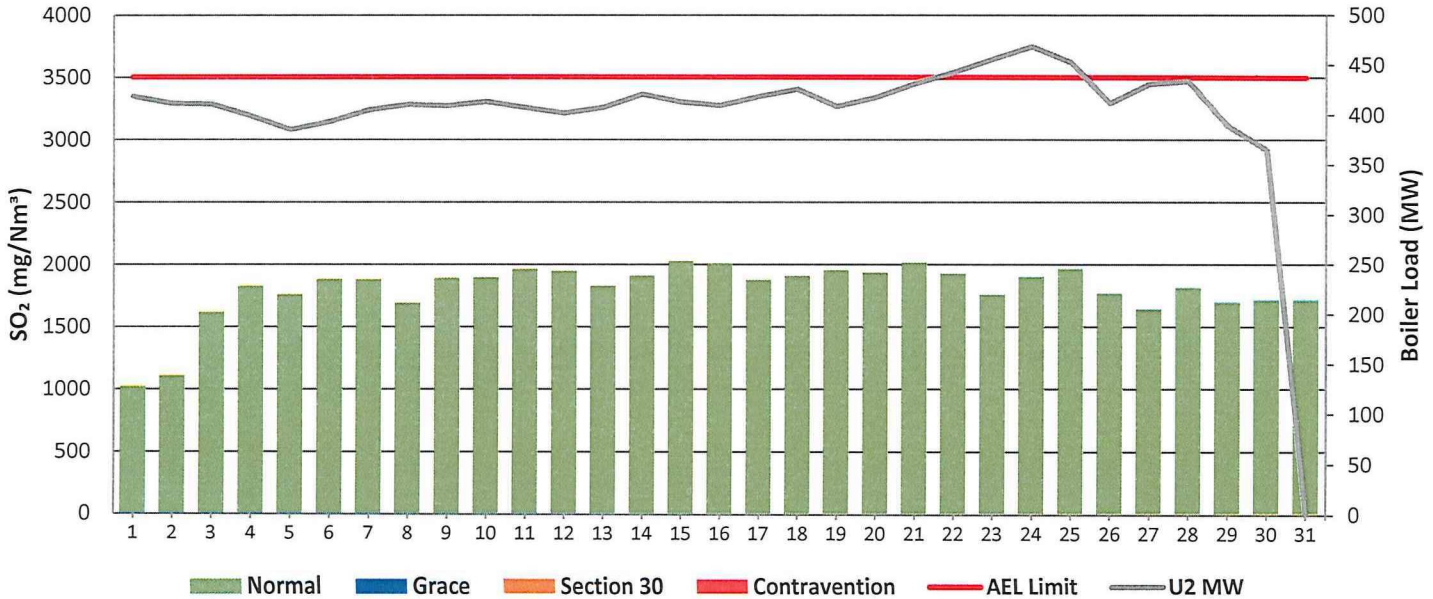


Figure 7: Duvha Unit 4 SO_2 Emissions - May 2024

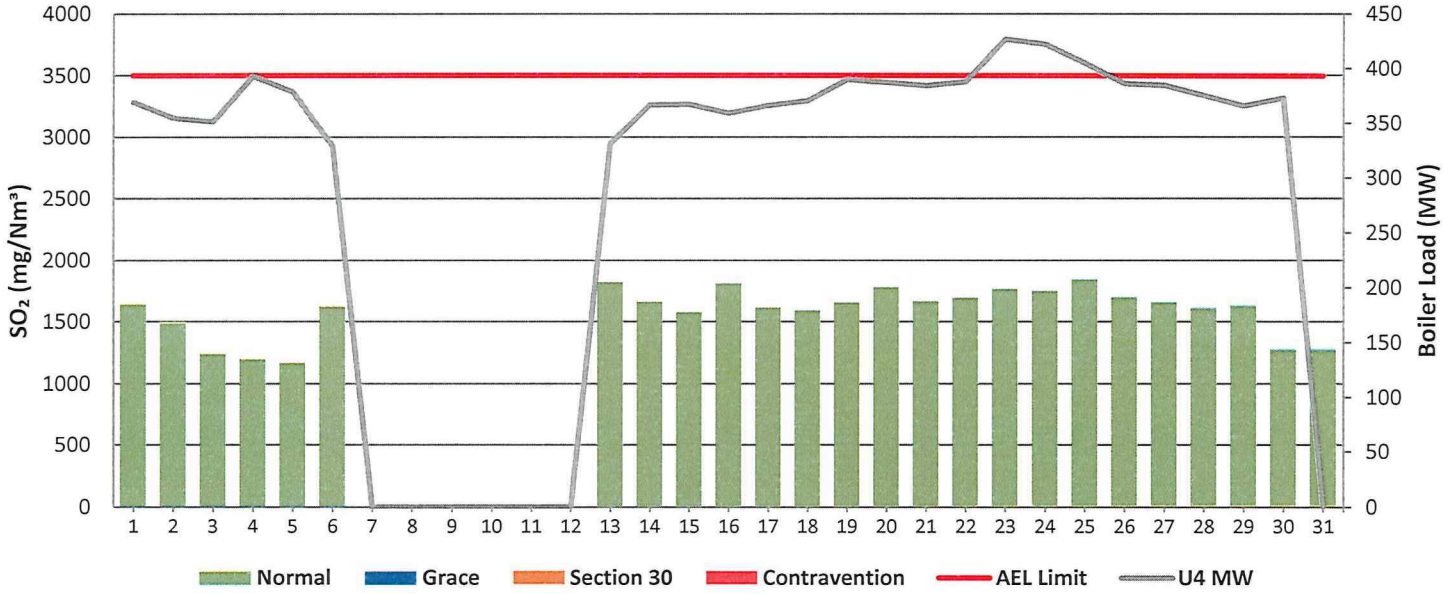


Figure 8: Duvha Unit 6 SO_2 Emissions - May 2024

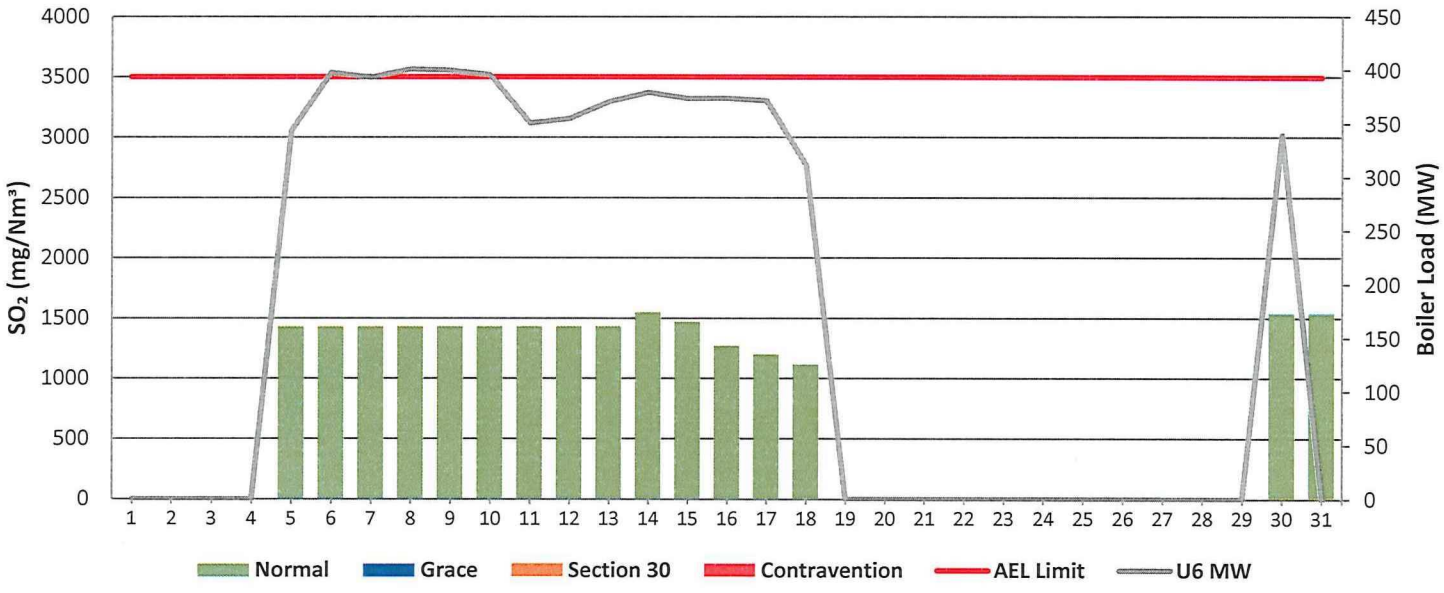


Figure 9: Duvha Unit 1 NOx Emissions - May 2024

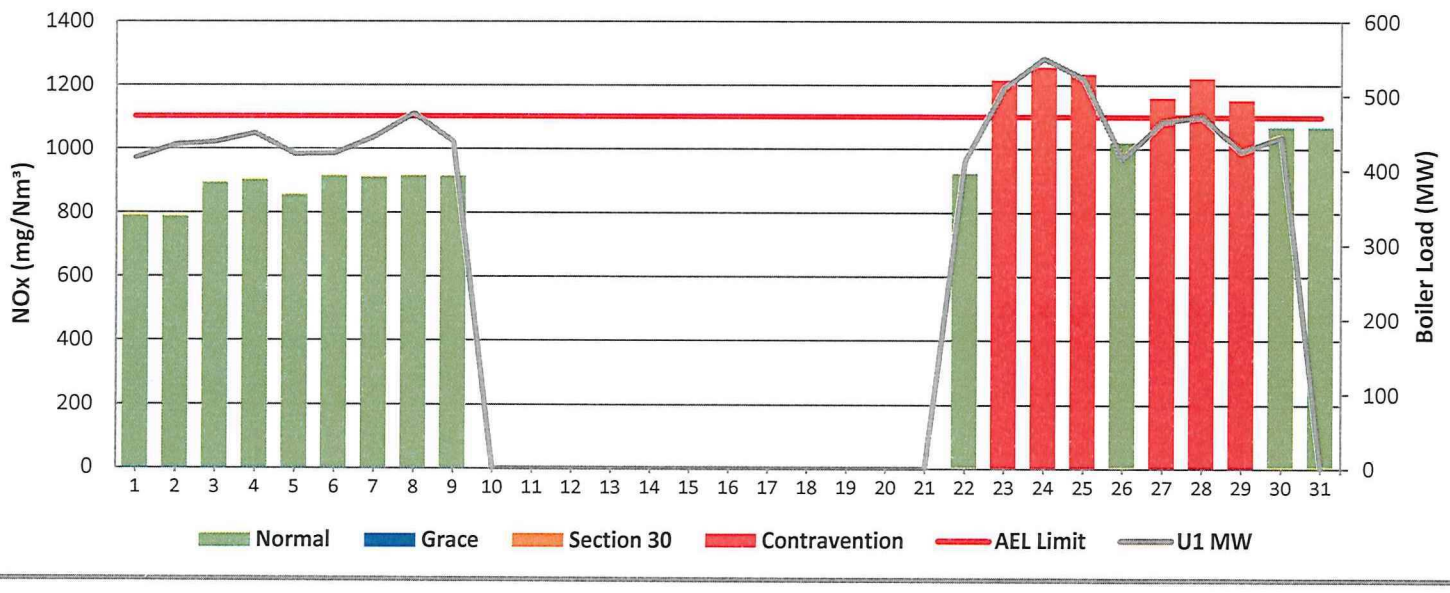


Figure 10: Duvha Unit 2 NOx Emissions - May 2024

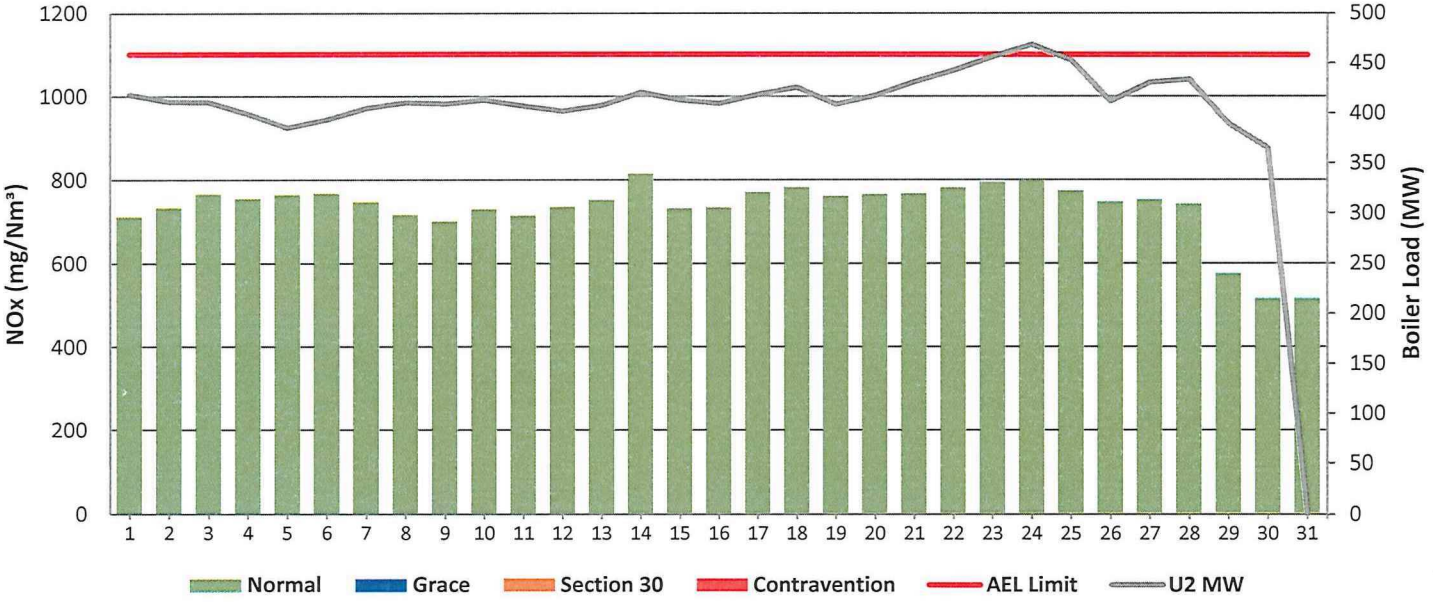


Figure 11: Duvha Unit 4 NOx Emissions - May 2024

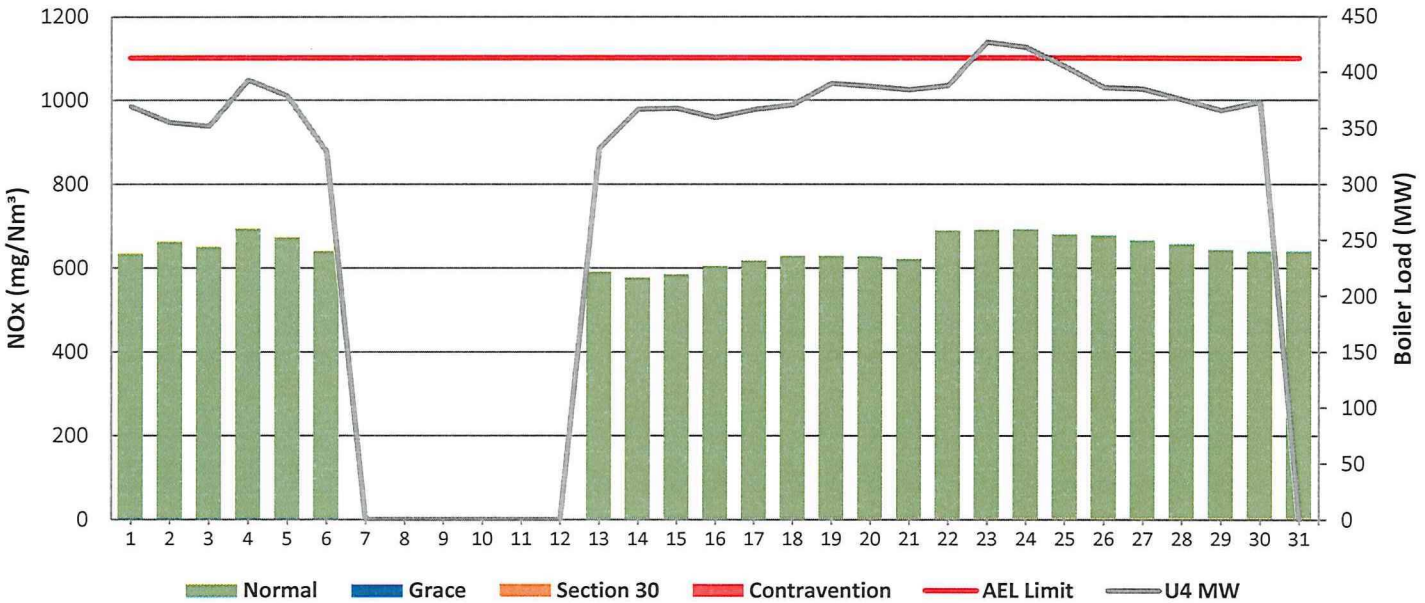
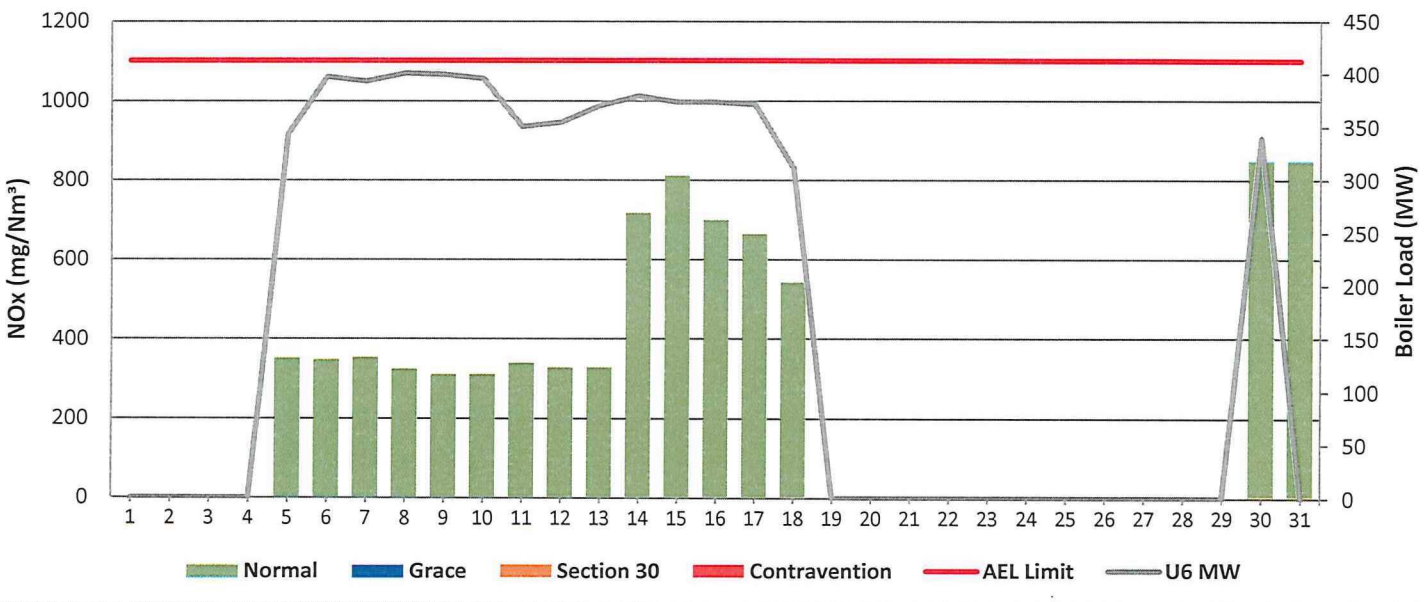


Figure 12: Duvha Unit 6 NOx Emissions - May 2024



7 SHUT DOWN AND LIGHT UP INFORMATION

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

Unit No.1	Event 1	
Breaker Open (BO)	5:50 pm	2024/05/09
Draught Group (DG) Shut Down (SD)	11:45 pm	2024/05/09
BO to DG SD (duration)	00:05:55	DD:HH:MM
Fires in time	6:30 am	2024/05/22
Synch. to Grid (or BC)	1:20 pm	2024/05/22
Fires in to BC (duration)	00:06:50	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.2	Event 1	
Breaker Open (BO)	3:50 am	2024/05/30
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.4	Event 1		Event 2	
Breaker Open (BO)			2:30 pm	2024/05/06
Draught Group (DG) Shut Down (SD)			12:35 am	2024/05/07
BO to DG SD (duration)		DD:HH:MM	00:10:05	DD:HH:MM
Fires in time			2:15 pm	2024/05/12
Synch. to Grid (or BC)				
Fires in to BC (duration)		DD:HH:MM	00:12:35	DD:HH:MM
Emissions below limit from BC (end date)			not > limit	not > limit
Emissions below limit from BC (duration)		DD:HH:MM		DD:HH:MM

Unit No.6	Event 1		Event 2		Event 3	
Breaker Open (BO)			1:45 pm	2024/05/10	3:45 pm	2024/05/18
Draught Group (DG) Shut Down (SD)			DG did not trip or SD	DG did not trip or SD	1:45 pm	2024/05/21
BO to DG SD (duration)		DD:HH:MM	n/a	DD:HH:MM	02:22:00	DD:HH:MM
Fires in time					9:00 pm	2024/05/29
Synch. to Grid (or BC)					4:00 am	2024/05/30
Fires in to BC (duration)		DD:HH:MM		DD:HH:MM	00:07:00	DD:HH:MM
Emissions below limit from BC (end date)					not > limit	not > limit
Emissions below limit from BC (duration)		DD:HH:MM		DD:HH:MM	n/a	DD:HH:MM

8 COMPLAINTS

There were no complaints for the month of May.

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

Exceedances:

Unit 1

23/05/2024 to 29/05/2024

Unit 1 was offload from the 9th of May and the gas monitor bi-weekly calibration was conducted on the 15th of May whilst the unit was off load. As a best practice in such an instance it would be recommended that the gas monitors be calibrated again when the unit is put back on load. However, this could not be done as required due to the unavailability of the unit Stack Lifts. The inability to conduct bi-weekly calibration inadvertently resulted in the Sox and NOx data integrity being compromised.

Lastly 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, 4, 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 calibration 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 May.

Boiler Plant Engineering Manager	21/08/2024 Date	Environmental Manager	2024/08/21 Date
Engineering Manager	2024-08-21 Date		

Compiled by	Environmental Officer	
For	Nkangala District Municipality	Air Quality Officer
Copies	Generation Environmental Management	D Herbst B Mccourt
	Generation Complaince Management	R Rampiar
	Generation Asset Management	E Patel
	Duvha Power Station	Engineering Manager Operating Manager Maintenance Manager Production Manager Boiler Engineering Manager System Engineer Environmental Manager