



Generation

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AND

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DUVHA POWER STATION

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

GENERAL MANAGER

2021/02/18

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 Nov-2020
	Coal	Tons	1 400 000	602 793.67
	Fuel Oil	Tons	5 000	1756.49
Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Production Rate Nov-2020
	Energy	GWh	3600	1 058.83
	Ash	Tons	not specified	159740.32
	RE Ash	kg/MWh	not specified	0.35

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.6 TO >1.2	0.65
Ash Content	%	27 TO 30	26.50

3 EMISSION LIMITS (mg/Nm³)

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

Associated Unit/Stack	Technology Type	Efficiency Nov-2020	Utilization Nov-2020
Unit 1	Fabric Filter Plant (FFP)	99.81%	100%
Unit 2	Fabric Filter Plant (FFP)	99.86%	100%
Unit 3	Fabric Filter Plant (FFP)	Unit Off-line	Unit Off-line
Unit 4	Electro Static Precipiator (ESP)	99.68%	100%
Unit 5	Electro Static Precipiator (ESP)	Unit Off-line	Unit Off-line
Unit 6	Electro Static Precipiator (ESP)	99.58%	100%
Unit 4	Chemithon (SO ₃)	95.00%	87.00%
Unit 5	Chemithon (SO ₃)	Unit Off-line	Unit Off-line
Unit 6	Chemithon (SO ₃)	90.00%	90.00%

5 MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO ₂	NO
Unit 1	100.0	99.7	99.8
Unit 2	100.0	99.7	99.7
Unit 4	97.3	89.6	89.3
Unit 6	99.0	90.4	90.4

6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of November 2020

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	78.2	3 857	1 842
Unit 2	41.6	2 126	1 130
Unit 4	108.7	2 728	1 655
Unit 6	168.1	3 002	1 670

SUM	396.5	11 713	6 297
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Table 6.2: Operating days in compliance to PM AEL Limit - November 2020

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	30	0	0	0	0	38.1
Unit 2	21	0	0	0	0	31.8
Unit 4	22	4	0	0	4	72.5
Unit 6	20	9	0	0	9	90.3
SUM	93	13	0	0	13	

Table 6.3: Operating days in compliance to SOx AEL Limit - November 2020

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SOx (mg/Nm ³)
Unit 1	30	0	0	0	0	1 798.7
Unit 2	22	0	0	0	0	1 549.1
Unit 4	28	0	0	0	0	1 466.6
Unit 6	30	0	0	0	0	1 555.8
SUM	110	0	0	0	0	

Table 6.4: Operating days in compliance to NOx AEL Limit - November 2020

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm ³)
Unit 1	30	0	0	0	0	855.6
Unit 2	22	0	0	0	0	822.2
Unit 4	28	0	0	0	0	883.3
Unit 6	30	0	0	0	0	867.6
SUM	110	0	0	0	0	

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 - November 2020

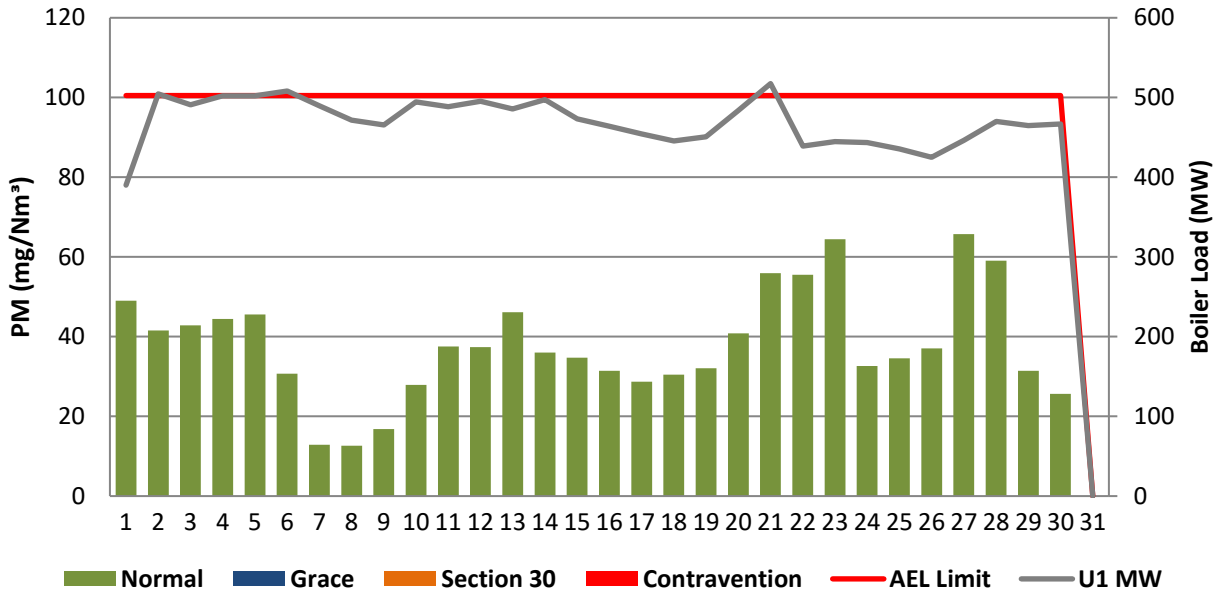


Figure 2: Duvha Unit 2 PM Emissions - November 2020

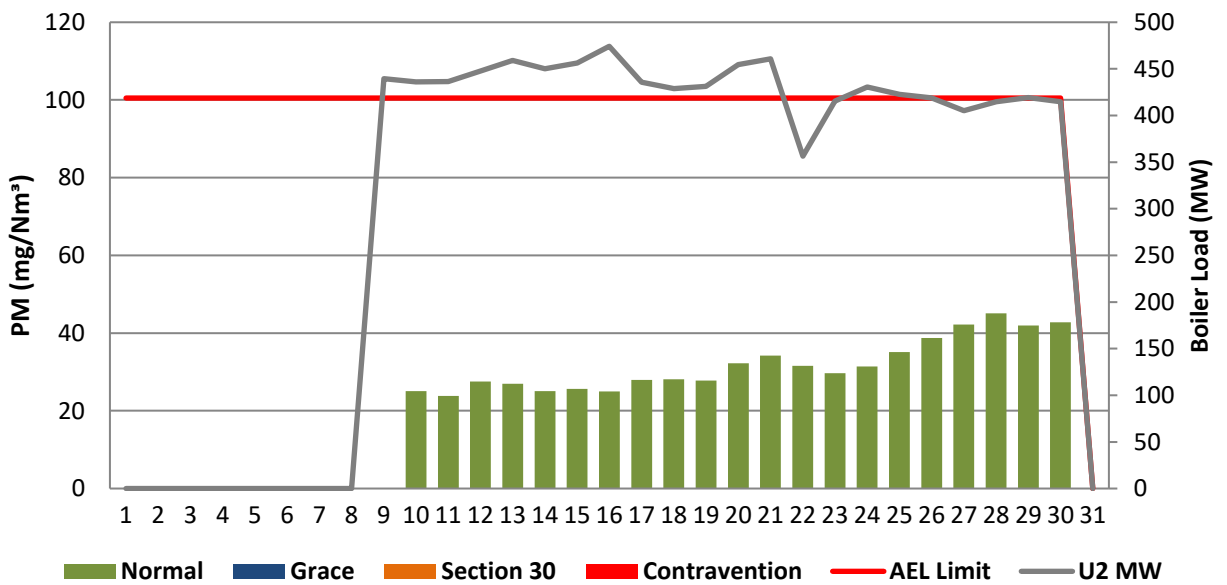


Figure 4: Duvha Unit 4 PM Emissions - November 2020

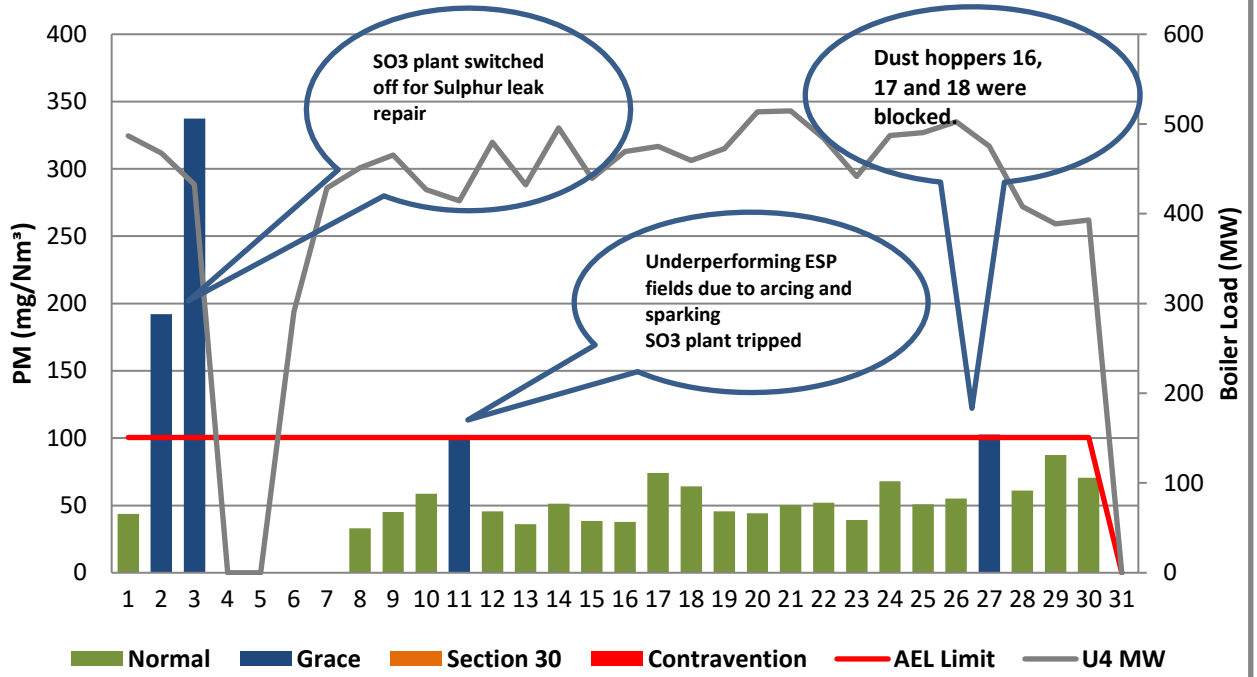


Figure 6: Duvha Unit 6 PM Emissions - November 2020

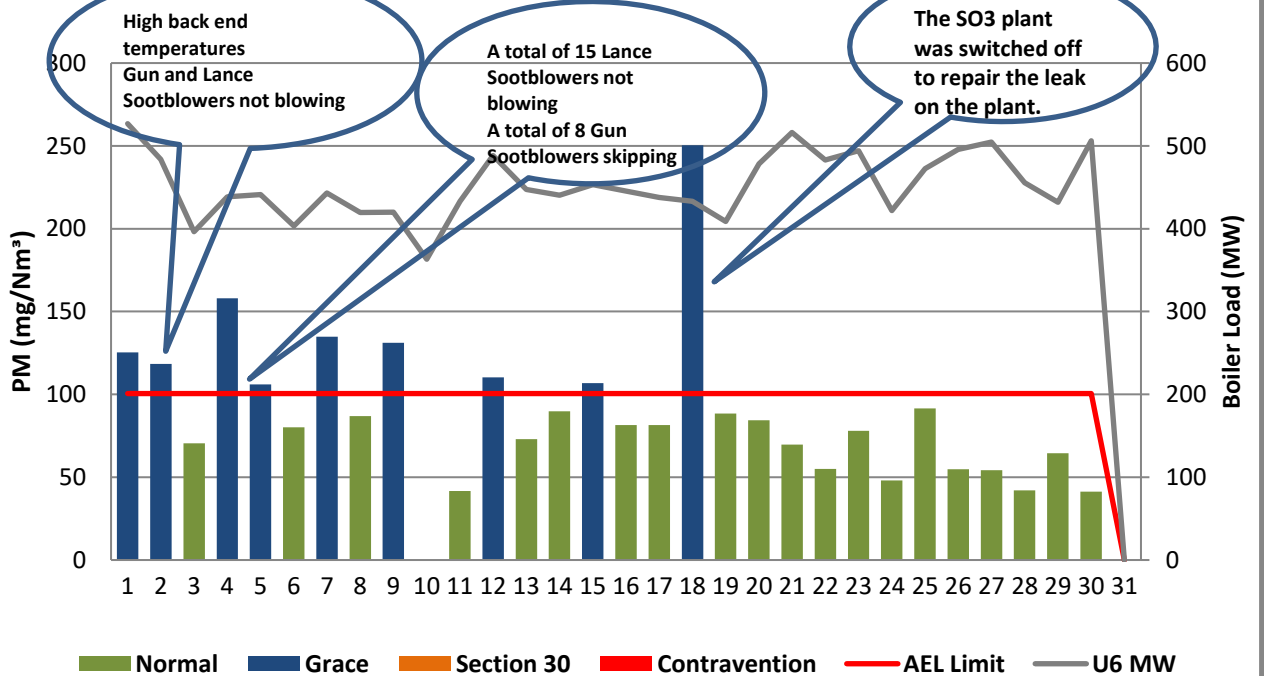


Figure 7: Duvha Unit 1 SOx Emissions - November 2020

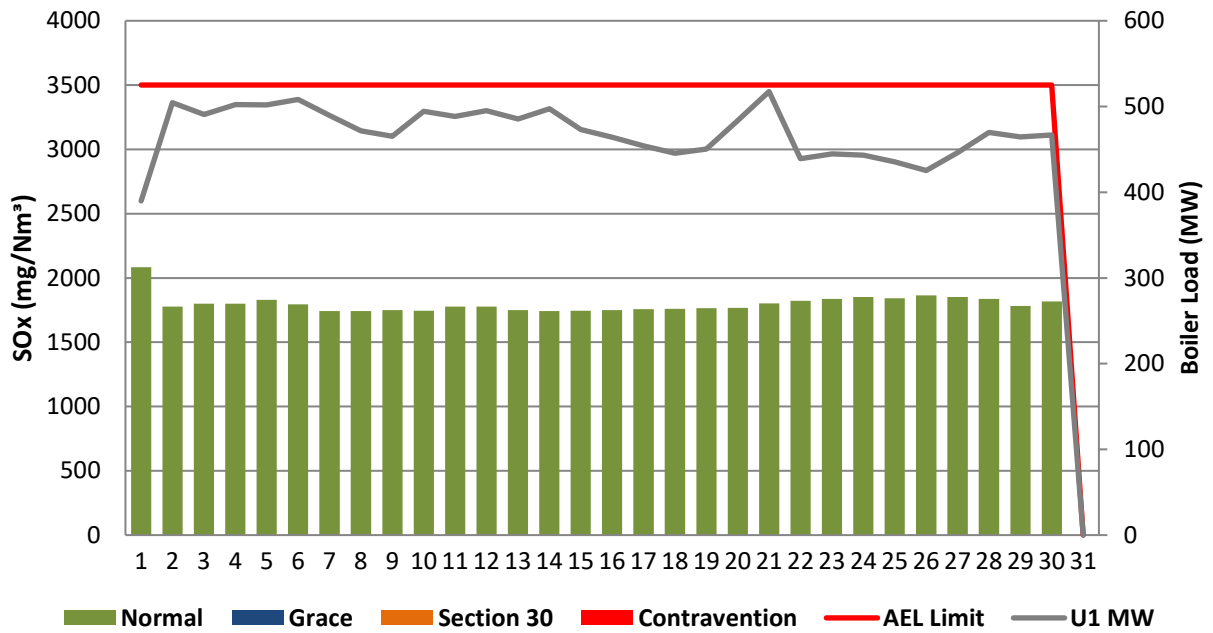


Figure 8: Duvha Unit 2 SOx Emissions - November 2020

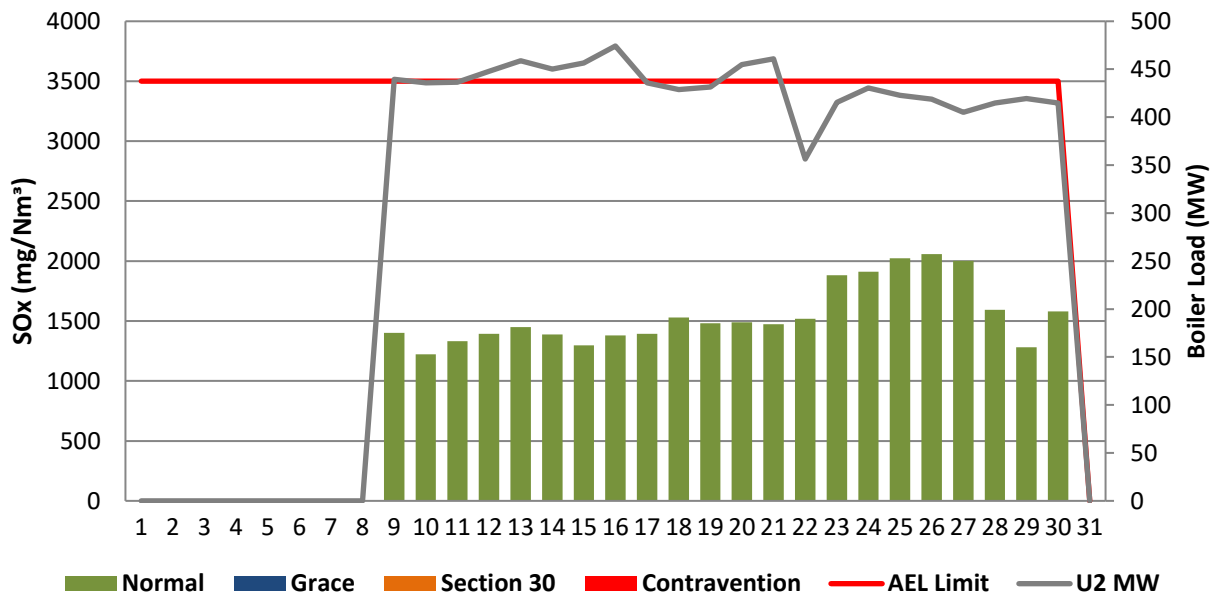


Figure 10: Duvha Unit 4 SOx Emissions - November 2020

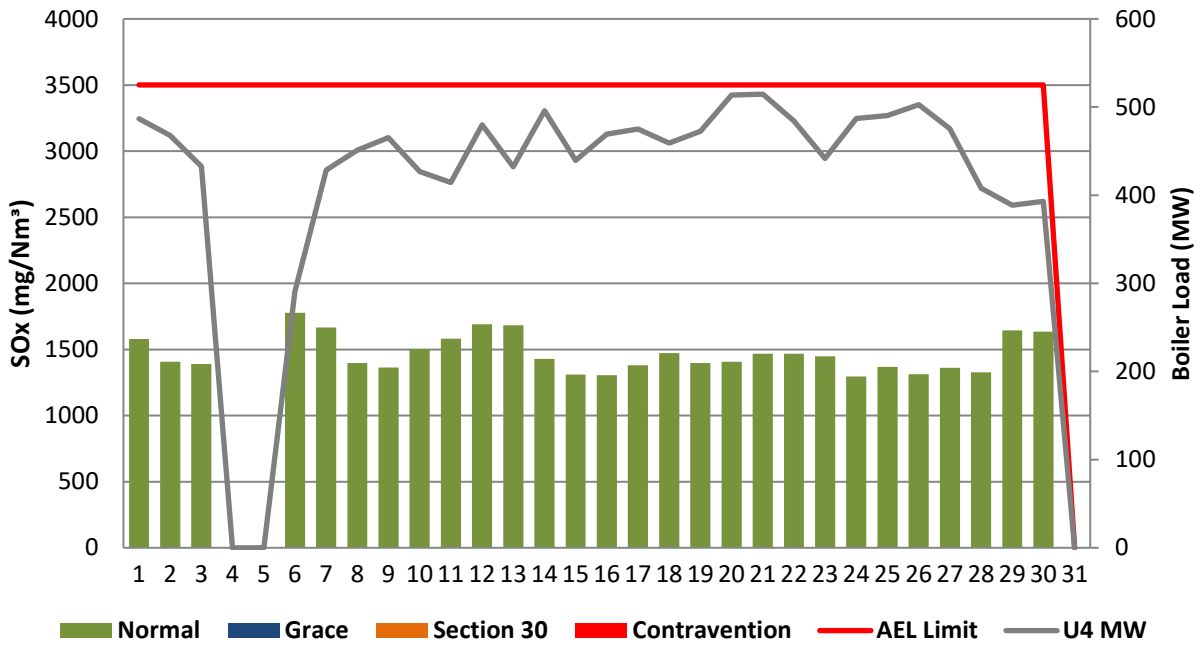


Figure 12: Duvha Unit 6 SOx Emissions - November 2020

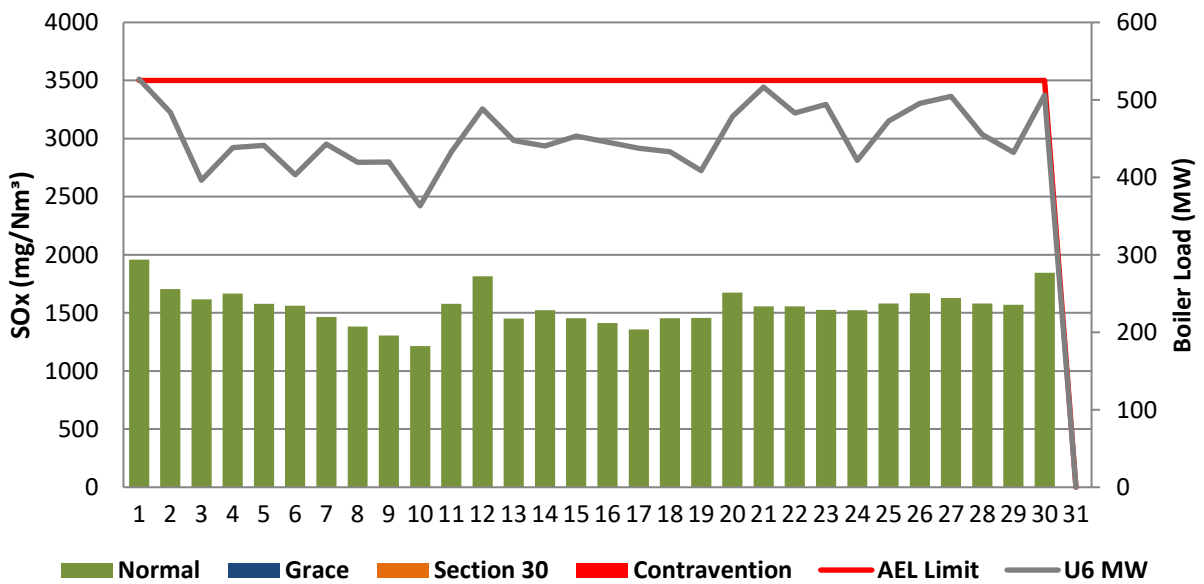


Figure 13: Duvha Unit 1 NOx Emissions - November 2020

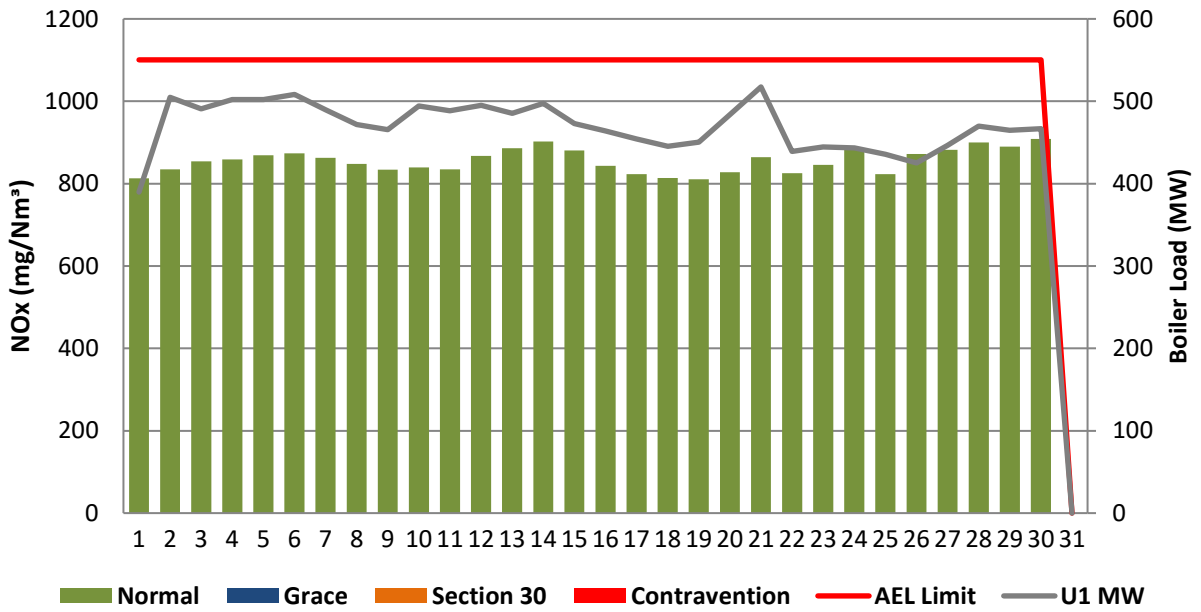


Figure 14: Duvha Unit 2 NOx Emissions - November 2020

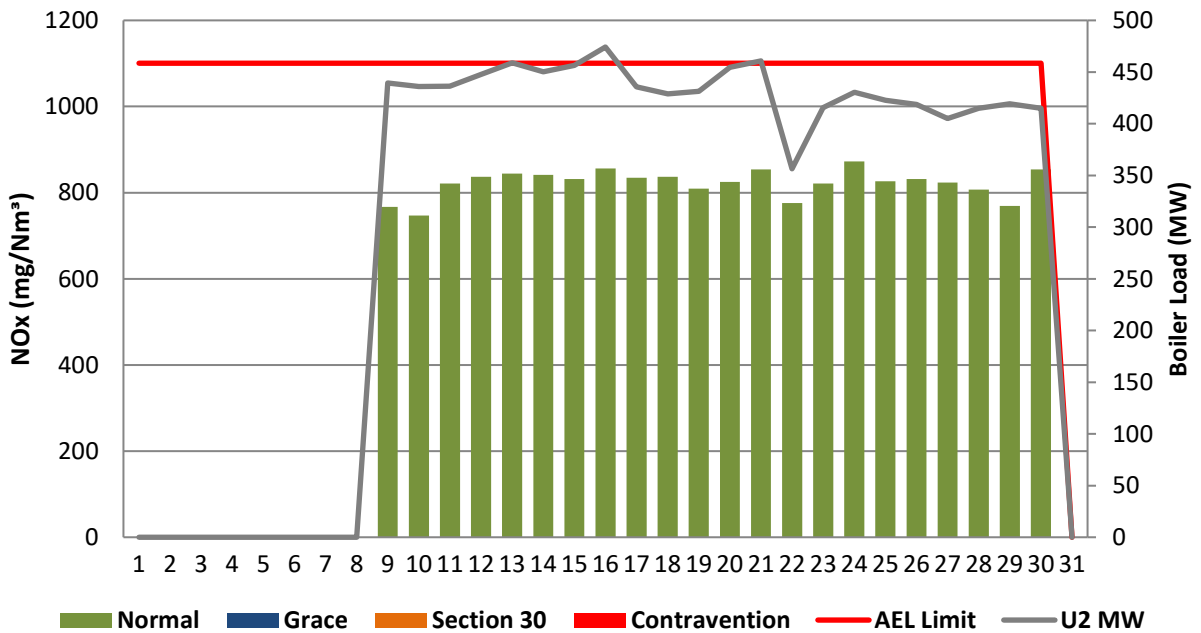


Figure 16: Duvha Unit 4 NOx Emissions - November 2020

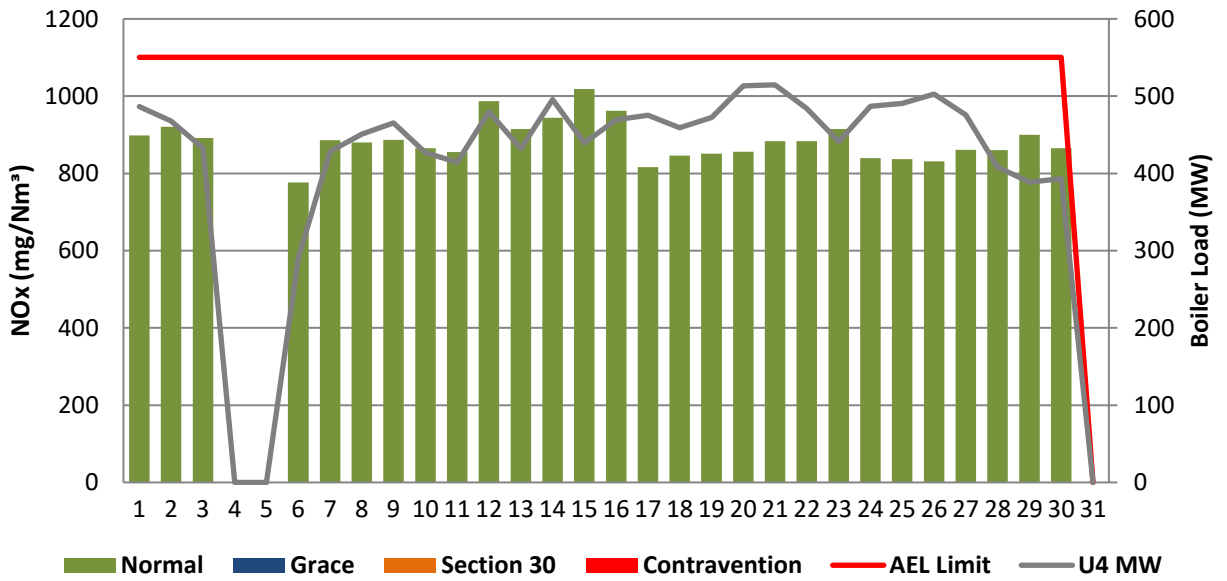
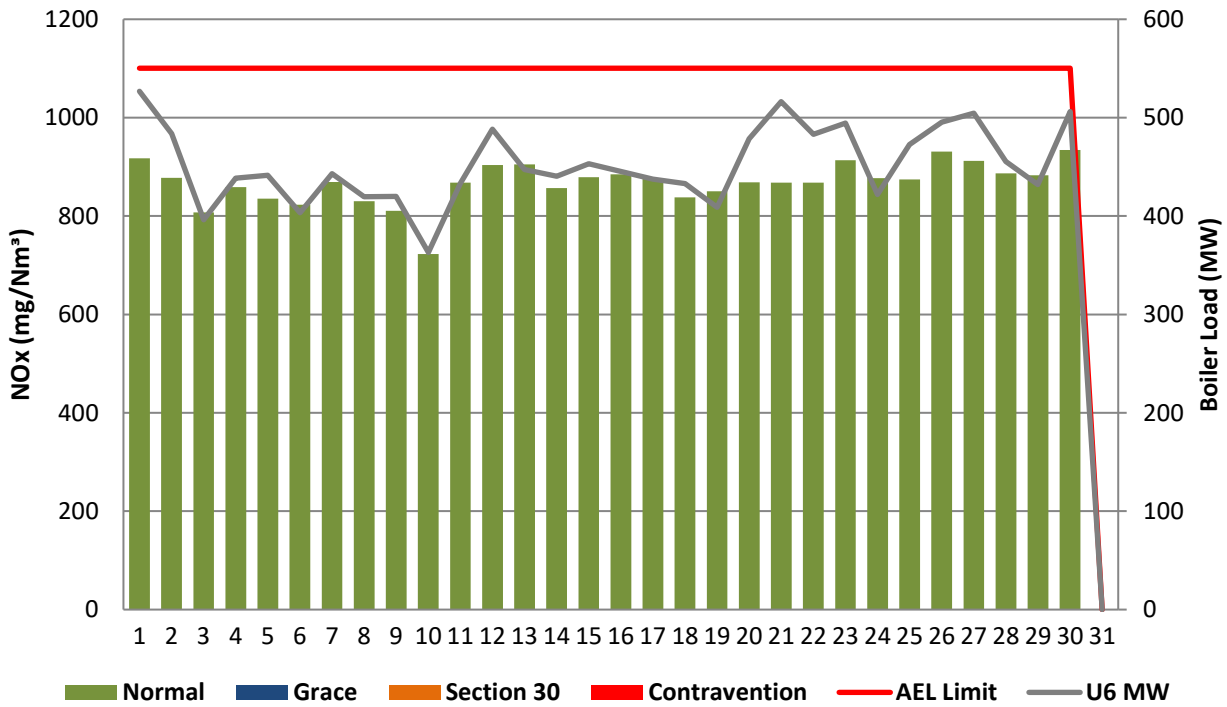


Figure 18: Duvha Unit 6 NOx Emissions - November 2020



7 SHUT DOWN AND LIGHT UP INFORMATION

Tables 7.1: Shut-down and light-up information for the month of November 2020

Unit No.1	<i>Event 1</i>	
Breaker Open (BO)	<i>1:40 AM</i>	<i>2020/11/01</i>
Draught Group (DG) Shut Down (SD)	<i>5:25 AM</i>	<i>2020/11/01</i>
BO to DG SD (duration)	<i>00:03:45</i>	DD:HH:MM
Fires in time	<i>6:25 AM</i>	<i>2020/11/01</i>
Synch. to Grid (or BC)	<i>12:55 PM</i>	<i>2020/11/01</i>
Fires in to BC (duration)	<i>00:06:30</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>	
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>9:25 PM</i>	<i>2020/11/08</i>
Synch. to Grid (or BC)	<i>2:30 AM</i>	<i>2020/11/09</i>
Fires in to BC (duration)	<i>00:05:05</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.4	<i>Event 1</i>		<i>Event 2</i>	
Breaker Open (BO)	<i>1:35 AM</i>	<i>2020/11/03</i>	<i>2:50 AM</i>	<i>2020/11/23</i>
Draught Group (DG) Shut Down (SD)	<i>4:40 PM</i>	<i>2020/11/05</i>	<i>DG did not trip or SD</i>	<i>DG did not trip or SD</i>
BO to DG SD (duration)	<i>02:15:05</i>	DD:HH:MM	<i>n/a</i>	DD:HH:MM
Fires in time	<i>10:45 AM</i>	<i>2020/11/06</i>		
Synch. to Grid (or BC)	<i>4:35 AM</i>	<i>2020/11/07</i>		
Fires in to BC (duration)	<i>00:17:50</i>	DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	<i>12:00 AM</i>	<i>2020/11/08</i>		

Emissions below limit from BC (duration)	00:19:25	DD:HH:MM		DD:HH:MM
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Unit No.6	Event 1	
Breaker Open (BO)	9:45 PM	2020/11/09
Draught Group (DG) Shut Down (SD)	11:50 PM	2020/11/09
BO to DG SD (duration)	00:02:05	DD:HH:MM
Fires in time	4:10 AM	2020/11/10
Synch. to Grid (or BC)	2:25 PM	2020/11/10
Fires in to BC (duration)	00:10:15	DD:HH:MM
Emissions below limit from BC (end date)	9:00 AM	2020/11/11
Emissions below limit from BC (duration)	00:18:35	DD:HH:MM

8 General

Units 3 and 5 were offload during the month of November 2020.

Unit 6 oxygen monitor was faulty and giving faulty readings during the month of November 2020. The average Oxygen Standard Reference Method value from unit 6 QAL 2 report was used to generate monthly averages.

The NOx and SOx monitors on unit 1 and 2 had a faulty communication network from the 6th to the 30th of November 2020. The communication fault was 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. The raw data is available, was downloaded, and was used on the Emissions reporting tool from this period.

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

17/02/2021

Date



Environmental
 Manager

2021/02/11

Date



Engineering Manager

2021/02/18

Date

Compiled by: Environmental Officer

For: Nkangala District Municipality Air Quality Officer

Copies: Eskom Environmental Management D Herbst
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Group Technology Engineering R Rampiar
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Duvha Power Station: Engineering Manager
Operating Manager
Maintenance Manager
Production Manager
Boiler Engineering Manager
System Engineer
Environmental
Manager

