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Date:
Jan 2022

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Ref: *Kusile Power Station AEL (17/4/AEL/MP311/12/01)*

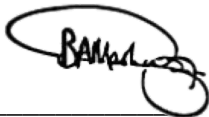
Dear Ms. Nembilwi

KUSILE POWER STATION'S MONTHLY EMISSIONS REPORT FOR DECEMBER 2021

This serves as the monthly report required in terms of Section 7.6 in Kusile Power Station's Atmospheric Emission License: 17/4/AEL/MP311/12/01. The emissions are for the month of December 2021.

Hoping the above will meet your satisfaction.

Yours sincerely



Bongumusa A. Mashazi
GENERAL MANAGER
DATE: 2022/01/28

KUSILE POWER STATION'S MONTHLY EMISSIONS REPORT FOR DEC 2021 - 17/4/AEL/MP311/12/01

Compiled by: 


Cylia Malebana
Senior Environmental Advisor

Date: 26/01/2022

Checked by:

Tsholofelo Lekhuleni
Process Engineer


Date:

Supported by: 

Nontobeko Moyo
PJFFP System Engineer


Date: 27/01/2022

Verified by:


Lesiba Kgobe
Environmental Management Manager

Date: 27/01/2022

Validated by:


pp
Gomotsegang Sehlabi
Acting Boiler Engineering Manger

Date: 28/01/2022

1. KUSILE POWER STATION MONTHLY EMISSIONS REPORT: Atmospheric Emission License 17/4/AEL/MP311/12/01



2 Raw Materials and Products

Raw Materials and Products	Raw Material Type	Units	Maximum Permitted Consumption Rate	Consumption Rate Dec-2021
	Coal	Tons	1 818 083	224 585
	Fuel Oil	Tons	5 533	2394,59
	Limestone	Tons	72 917	10297

Production Rates	Product / By-Product Name	Units	Max. Production Capacity Permitted	Production Rate Dec-2021
	Energy	GWh	3321,216	352,39
	Ash	Tons	663 583	68 610,7
	Gypsum	Tons	129 250	5 766,3
	RE PM	kg/MWh	<i>not specified</i>	0,046
	RE SO ₂	kg/MWh	<i>not specified</i>	2,292

3 Energy source characteristics

Fuel Characteristic	Units	Stipulated Range	Monthly Average Content
Coal CV	MJ/kg	<i>not specified</i>	20,490
Coal Sulphur	%	1,3	0,850
Ash in Coal	%	38	30,550

4 Emissions Limits (mg/Nm³)

Associated Unit/Stack	PM	SO ₂	NO _x
North	50	500	750
South	50	500	750

5 Abatement Technology (%)

Associated Unit/Stack	Technology Type	Efficiency Dec-2021	Technology Type	Efficiency Dec-2021
Unit 1	FFP	99,983%	FGD	69,369%
Unit 2	FFP		FGD	
Unit 3	FFP	99,966%	FGD	82,296%
Unit 4	FFP		FGD	
Unit 5	FFP		FGD	
Unit 6	FFP		FGD	

Note: Both the FFP and FGD does not have bypass mode operation, hence plant 100% Utilised.

6. Monitoring reliability (%)

Associated Unit/Stack	PM	SO ₂	NO	CO ₂	O ₂
Unit 1	90,2	83,5	80,9	0,0	80,2
Unit 2	<i>Unit on outage</i>				
Unit 3	100,0	95,3	96,7	97,3	96,3
Unit 4					
Unit 5					
Unit 6					

7. Emissions Performance

Table 7.1: Monthly tonnages for the month of December-2021

Associated Unit/Stack	PM	SO ₂	NO _x	CO ₂
Unit 1	4,7	472	499	454 450
Unit 2	<i>Unit on outage</i>			
Unit 3	11,4	335	280	200 545
Unit 4				
Unit 5				
Unit 6				
SUM	16,1	808	779	200 545

Please take note that the CO₂ figure is an average figure for last month since the CO₂ monitor was defective during the month of Dec 2021. The CO₂ monitor was restored and currently working.

Table 7.2: Operating days in compliance to PM AEL Limit - December 2021

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	12	0	0	0	0	5,6
Unit 2	Unit on outage					
Unit 3	20	0	0	0	0	12,8
Unit 4	0	0	0	0	0	
Unit 5	0	0	0	0	0	
Unit 6	0	0	0	0	0	
SUM	32	0	0	0	0	

Table 7.3: Operating days in compliance to SO₂ AEL Limit - November 2021

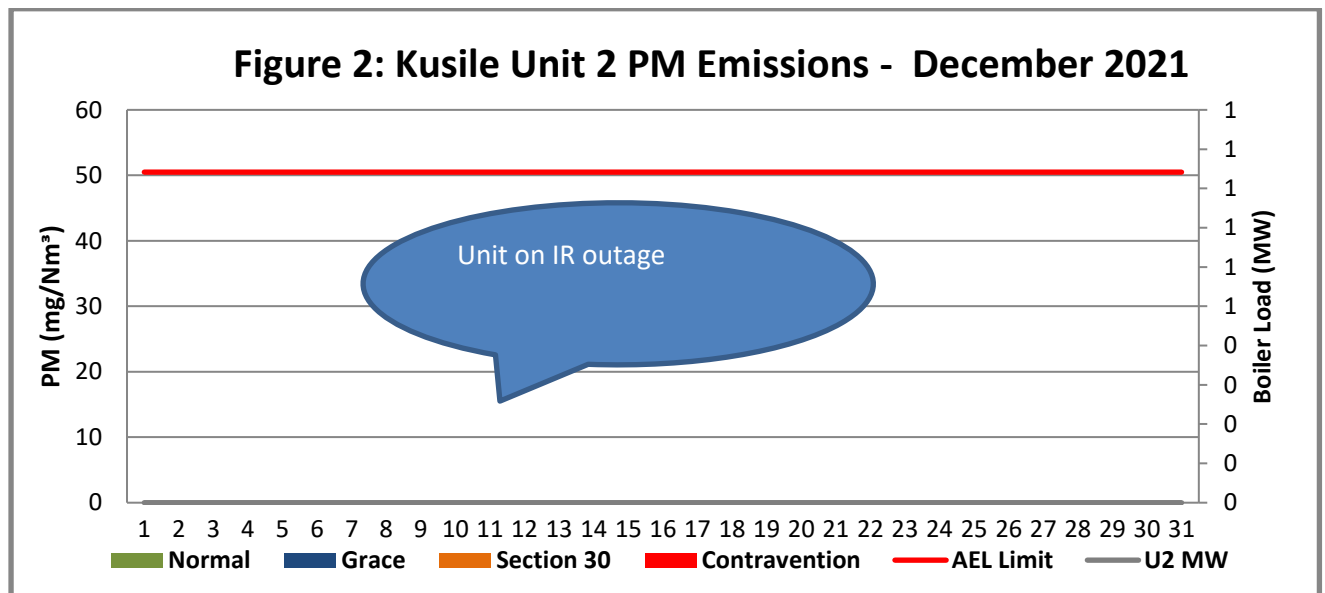
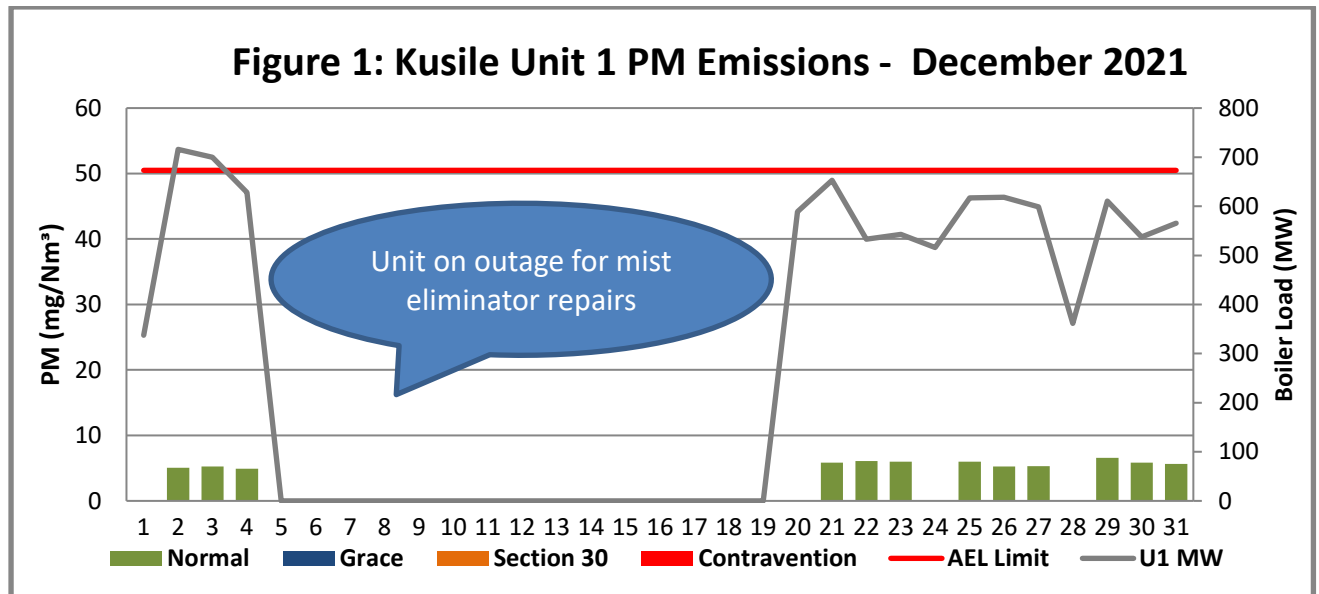
Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO ₂ (mg/Nm ³)
Unit 1	22	2	0	0	2	366,6
Unit 2	Unit on outage					
Unit 3	26	0	0	0	0	159,8
Unit 4	0	0	0	0	0	
Unit 5	0	0	0	0	0	
Unit 6	0	0	0	0	0	
SUM	48	2	0	0	2	

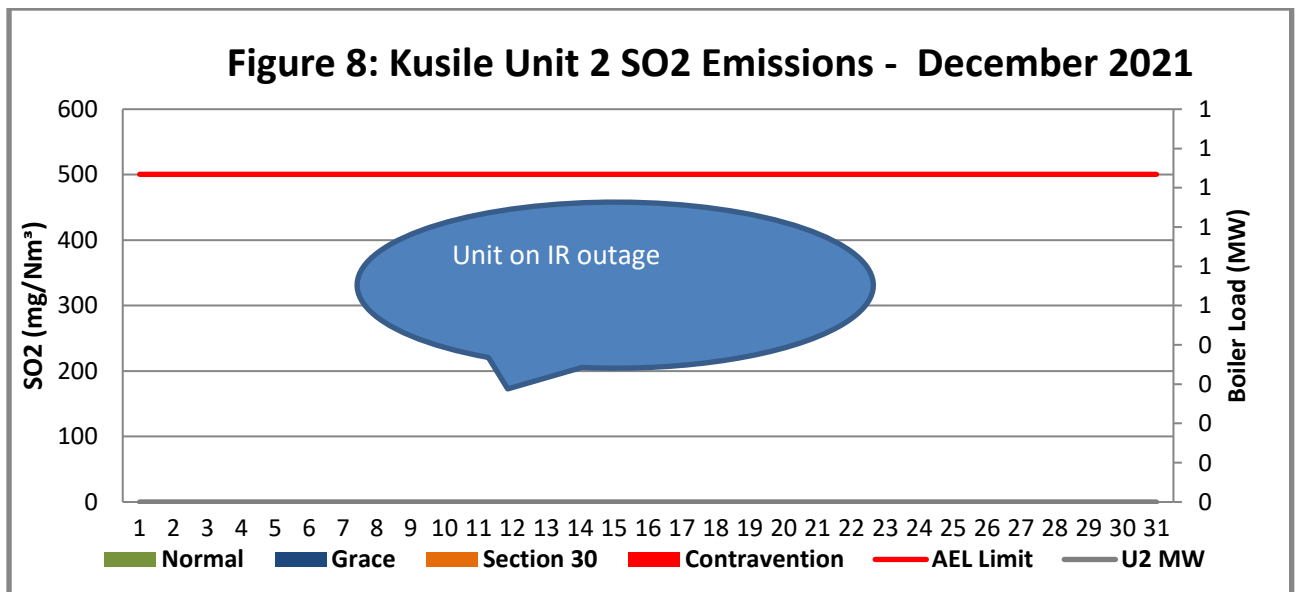
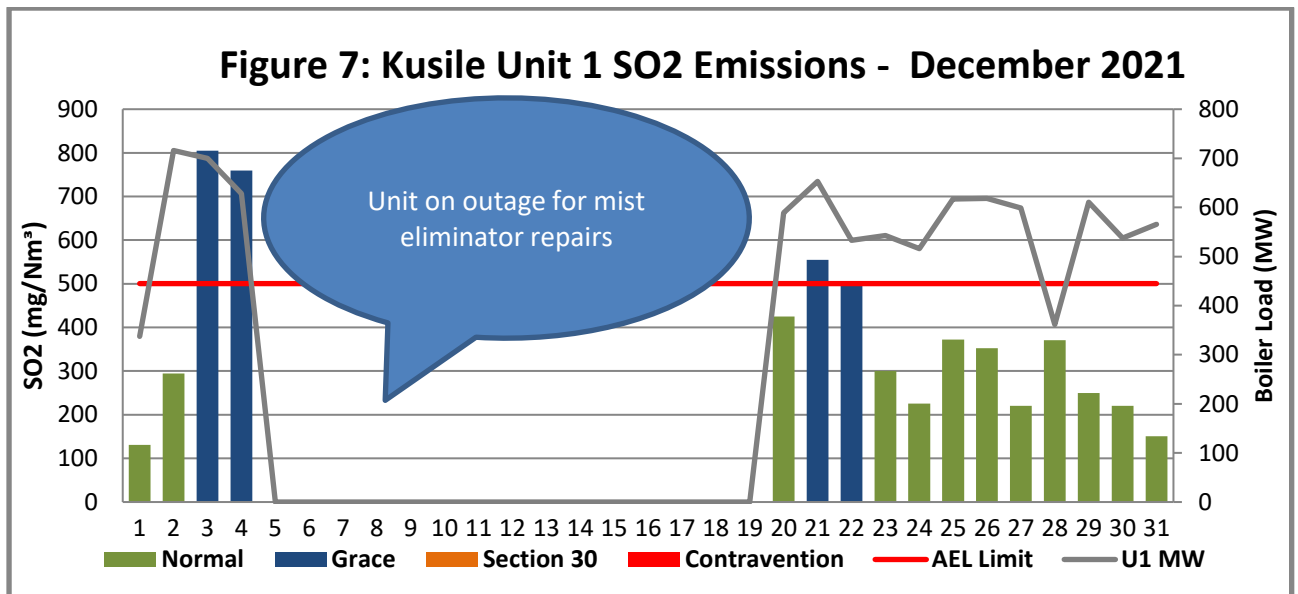
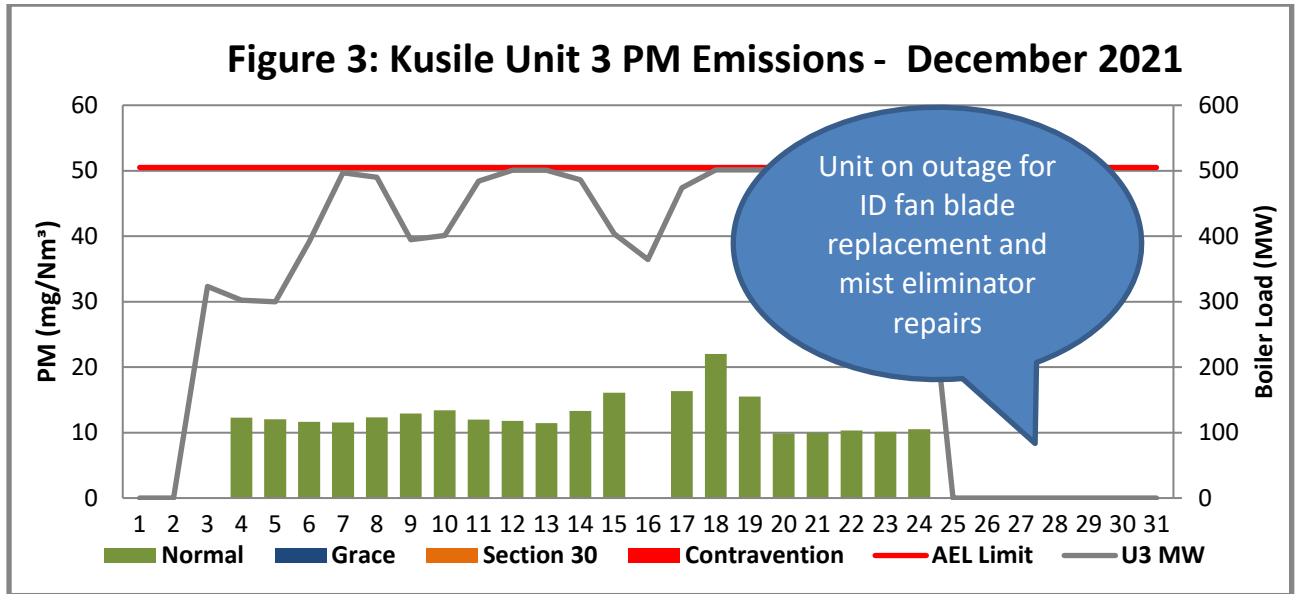
Table 7.4: Operating days in compliance to NO_x AEL Limit - December 2021

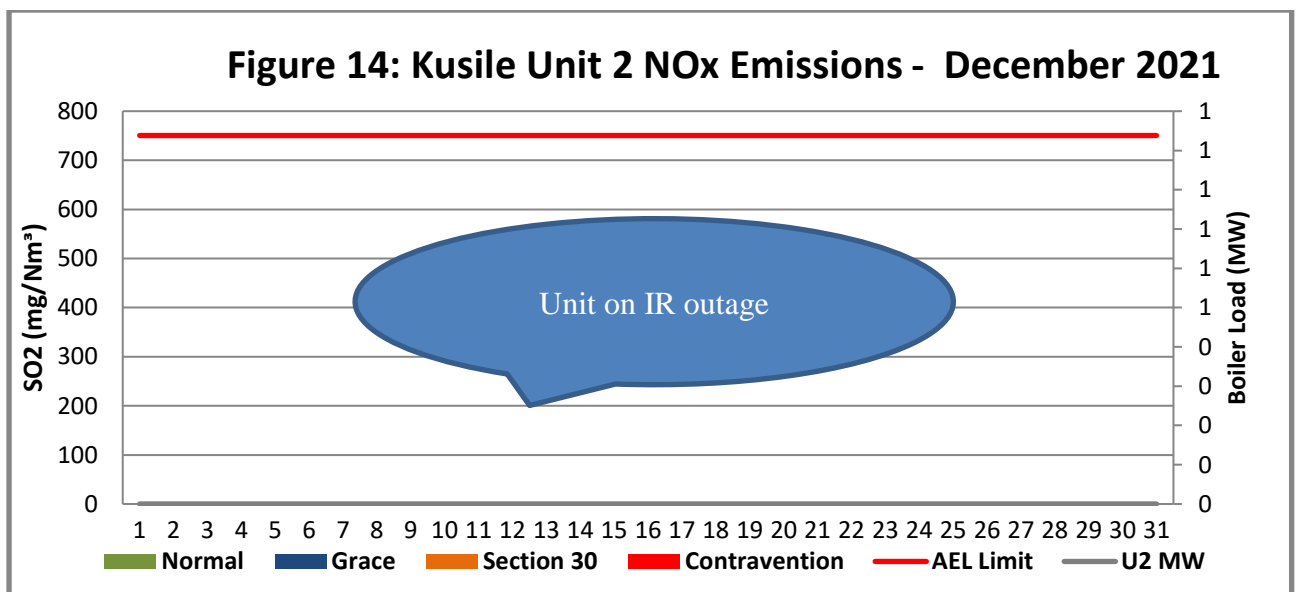
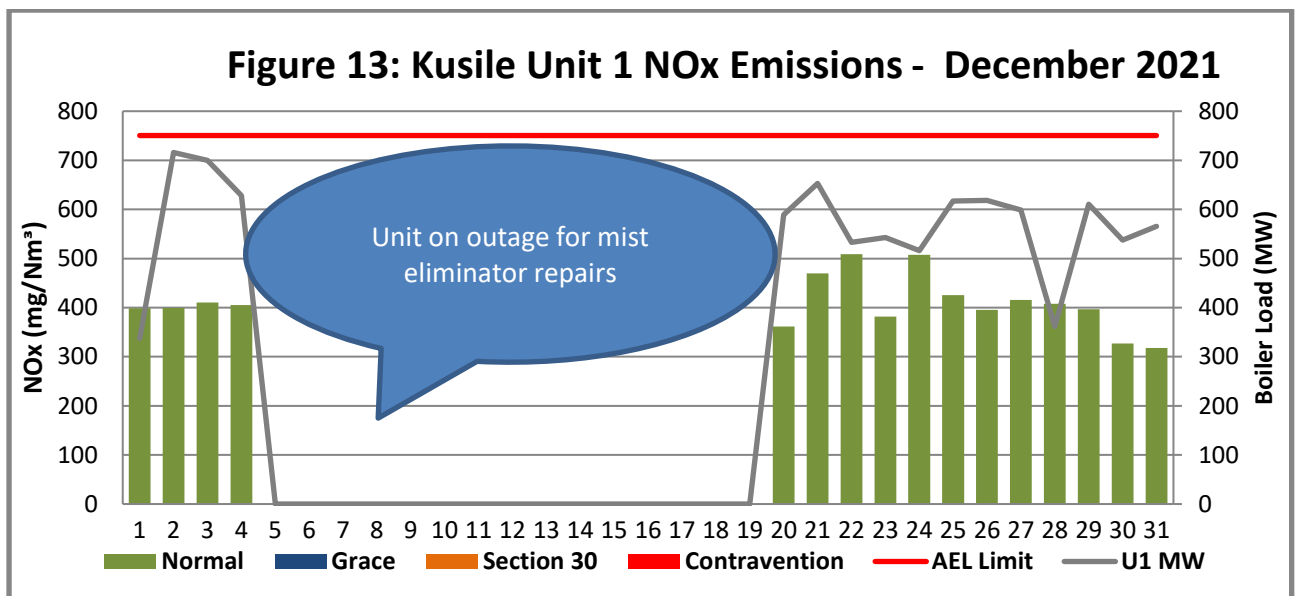
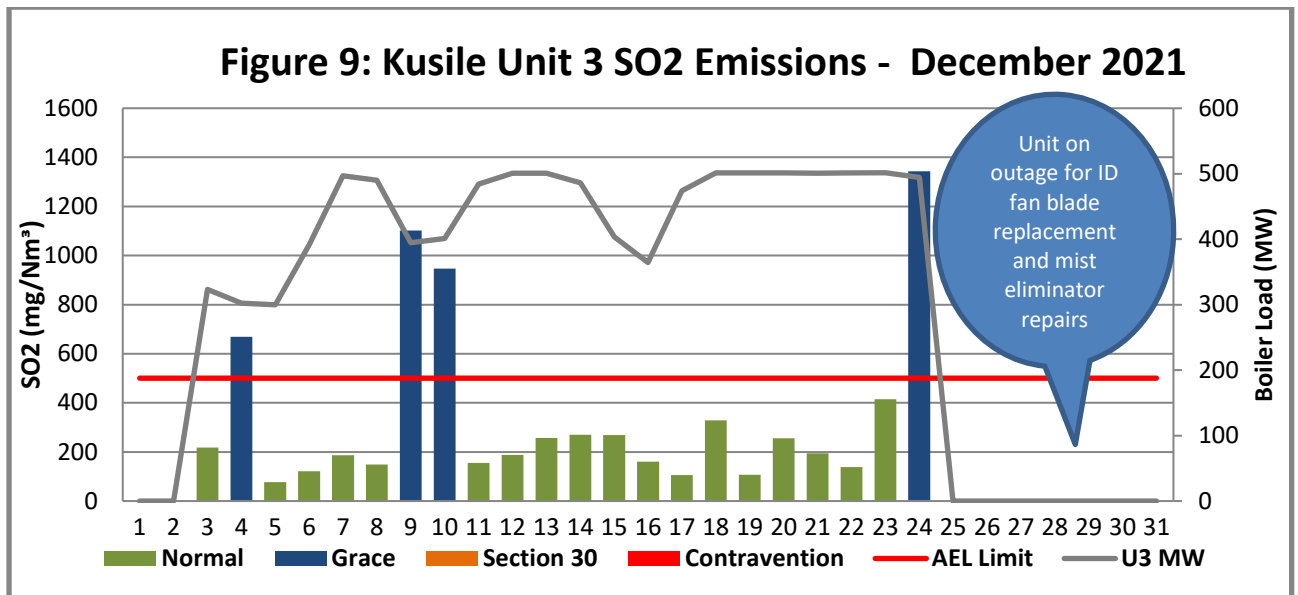
Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NO _x (mg/Nm ³)
Unit 1	16	0	0	0	0	408,1
Unit 2	0	0	0	0	0	
Unit 3	22	0	0	0	0	290,0
Unit 4	0	0	0	0	0	
Unit 5	0	0	0	0	0	
Unit 6	0	0	0	0	0	
SUM	38	0	0	0	0	

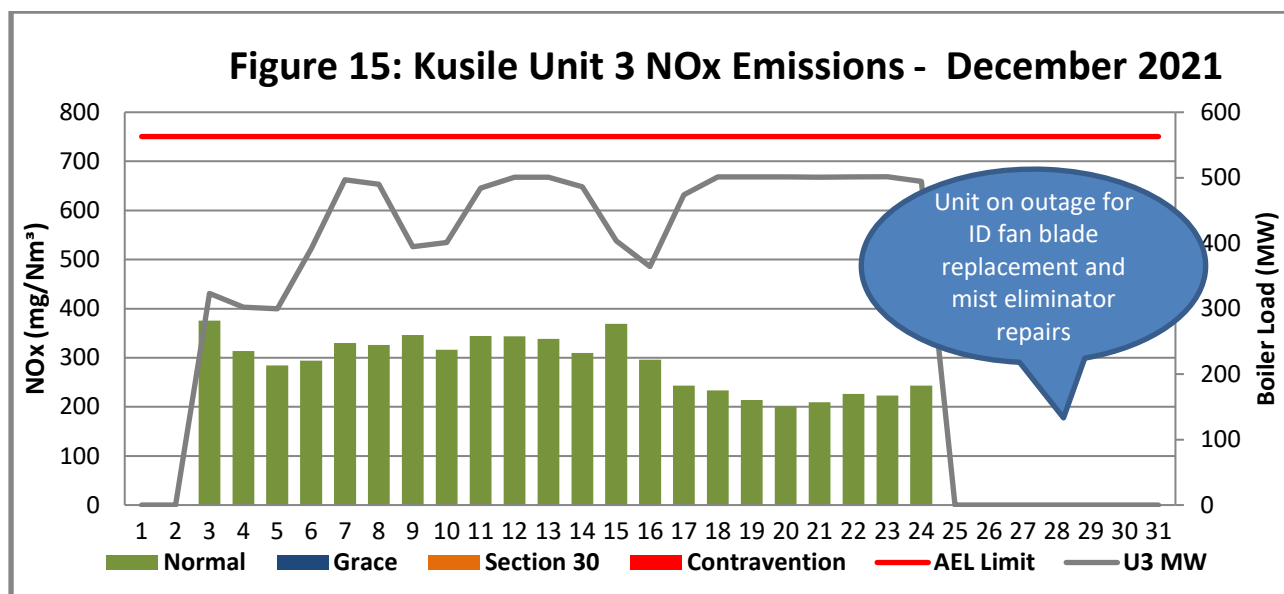
Table 7.5: Legend Description

Condition	Colour	Description
Normal	Green	Emissions below Emission Limit Value (ELV)
Grace	Blue	Emissions above the ELV during grace period
Section 30	Orange	Emissions above ELV during a NEMA S30 incident
Contravention	Red	Emissions above ELV but outside grace or S30 incident conditions









8. Shut down and Light up information

Table 8. PM Start-up information for the month of Dec-2021

Unit No. 1	Event 1		Event 2		Event 3		Event 4	
Breaker Open (BO)			7:15 am	2021/12/04	2:40 pm	2021/12/23	6:05 am	2021/12/27
Draught Group (DG) Shut Down (SD)			10:10 am	2021/12/04	2:45 pm	2021/12/23	6:05 am	2021/12/27
BO to DG SD (duration)		DD:HH:MM	00:02:55	DD:HH:MM	23:14:45	DD:HH:MM	27:06:05	DD:HH:MM
Fires in time	4:15 pm	2021/12/01	5:25 pm	2021/12/19	5:45 pm	2021/12/23	2:35 pm	2021/12/28
Synch. to Grid (or BC)	7:15 pm	2021/12/01	2:00 am	2021/12/20	2:20 am	2021/12/24	5:05 pm	2021/12/28
Fires in to BC (duration)	00:03:00	DD:HH:MM	00:08:35	DD:HH:MM	00:08:35	DD:HH:MM	00:02:30	DD:HH:MM
Emissions below limit from BC (end date)	not > limit	not > limit	not > limit	not > limit	not > limit	not > limit	not > limit	not > limit
Emissions below limit from BC (duration)	n/a	DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM

KUSILE POWER STATION'S MONTHLY EMISSIONS REPORT FOR DEC 2021 - 17/4/AEL/MP311/12/01

Unit No. 3	Event 1		Event 2		Event 3		Event 4	
Breaker Open (BO)	BO previously	BO previously	6:30 pm	2021/12/08	2:15 am	2021/12/15	9:55 pm	2021/12/24
Draught Group (DG) Shut Down (SD)	n/a	n/a	DG did not trip or SD	DG did not trip or SD	DG did not trip or SD	DG did not trip or SD	6:30 am	2021/12/25
BO to DG SD (duration)	n/a	DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM	00:08:35	DD:HH:MM
Fires in time	9:40 pm	2021/12/02	3:50 am	2021/12/09	3:50 am	2021/12/16		
Synch. to Grid (or BC)	4:35 am	2021/12/03	9:05 am	2021/12/09	4:15 pm	2021/12/16		
Fires in to BC (duration)	00:06:55	DD:HH:MM	00:05:15	DD:HH:MM	00:12:25	DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	not > limit	not > limit	not > limit	not > limit	not > limit	not > limit		
Emissions below limit from BC (duration)	n/a	DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM		DD:HH:MM

9. Complaints

No complaints received during the month of Dec - 2021