



Ms Mpho Nembilwi
Nkangala District Municipality
PO Box 437
Middleburg
1050

Date:

Nov 2021

Enquiries: Lesiba Kgobe
Tel: +27 13 699 7817

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

Dear Ms. Nembilwi

KUSILE POWER STATION'S MONTHLY EMISSIONS REPORT FOR OCTOBER 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 October 2021.

Hoping the above will meet your satisfaction.

Yours sincerely

Bongumusa A. Mashazi
GENERAL MANAGER
DATE: 25/11/2021

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

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 Oct-2021
	Coal	Tons	1 818 083	567 431
	Fuel Oil	Tons	5 533	4872,8
	Limestone	Tons	72 917	17678

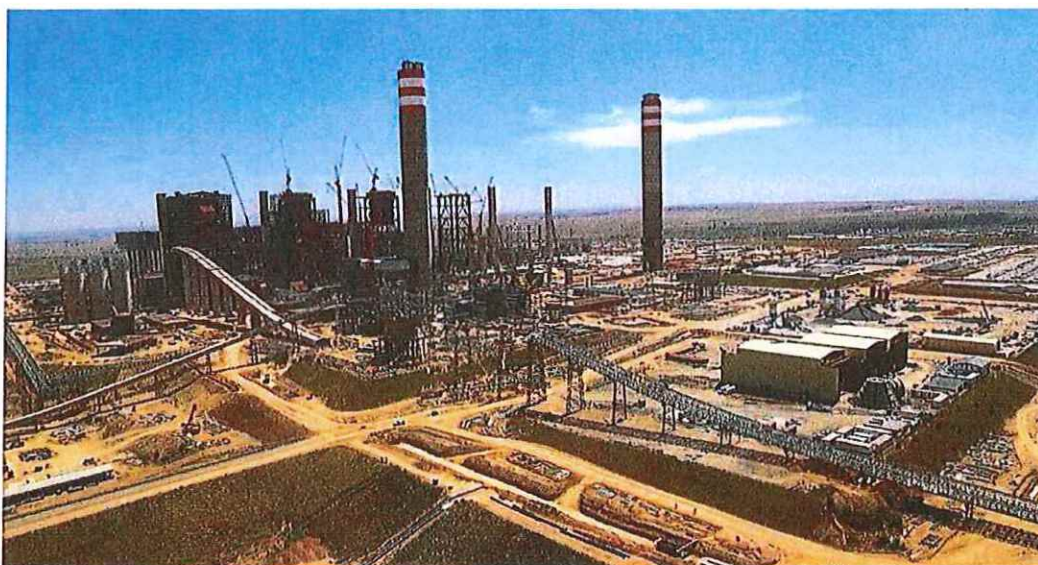
Production Rates	Product / By-Product Name	Units	Max. Production Capacity Permitted	Production Rate Oct-2021
	Energy	GWh	3321,216	829,71
	Ash	Tons	663 583	152 105,6
	Gypsum	Tons	129 250	9 899,7
	RE PM	kg/MWh	not specified	0,065
	RE SOx	kg/MWh	not specified	2,172

3 Energy source characteristics

Fuel Characteristic	Units	Stipulated Range	Monthly Average Content
Coal CV	MJ/kg	not specified	21,840
Coal Sulphur	%	1,3	0,830
Ash in Coal	%	38	26,806

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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 Oct-2021	Technology Type	Efficiency Oct-2021
Unit 1	FFP	99,981%	FGD	69,083%
Unit 2	FFP	99,972%	FGD	83,043%
Unit 3	FFP	99,945%	FGD	82,300%
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	52,6	100,0	99,8	95,0	98,3
Unit 2	100,0	99,3	99,3	99,1	99,1
Unit 3	50,8	97,9	99,9	97,6	99,9
Unit 4					
Unit 5					
Unit 6					

7. Emissions Performance

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

Associated Unit/Stack	PM	SO ₂	NO _x	CO ₂
Unit 1	7,5	738	766	394 931
Unit 2	8,4	315	555	236 801
Unit 3	37,7	749	795	403 072
Unit 4	0,0	0	0	0
Unit 5	0,0	0	0	0
Unit 6	0,0	0	0	0
SUM	53,6	1 802	2 116	1 034 804

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

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	19	0	0	0	0	4,5
Unit 2	24	0	0	0	0	7,8
Unit 3	30	0	0	0	0	18,1
Unit 4	0	0	0	0	0	
Unit 5	0	0	0	0	0	
Unit 6	0	0	0	0	0	
SUM	73	0	0	0	0	



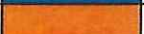

Table 7.3: Operating days in compliance to SO₂ AEL Limit - October 2021

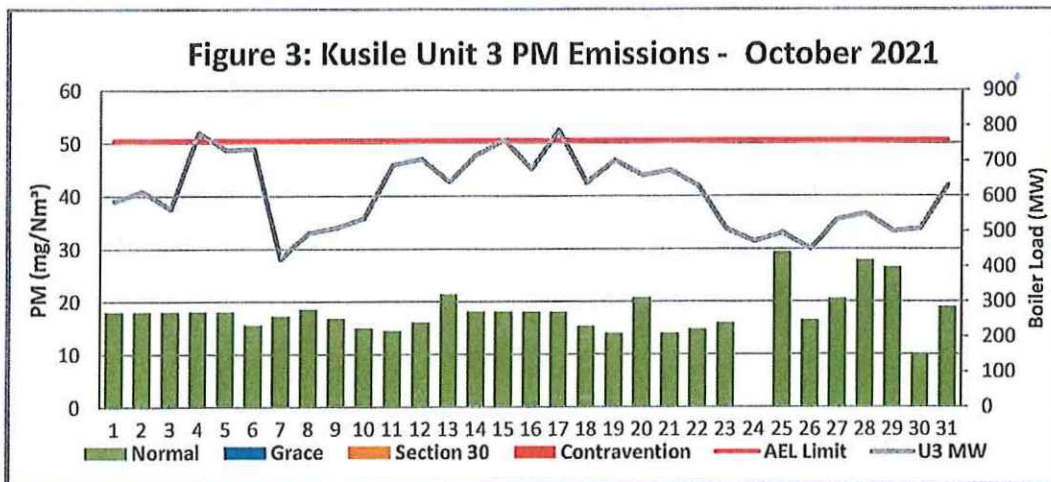
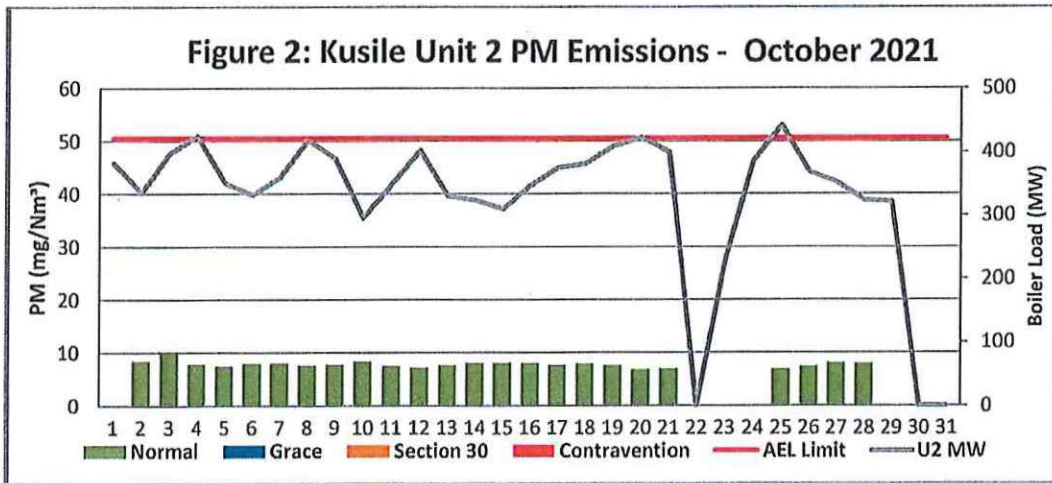
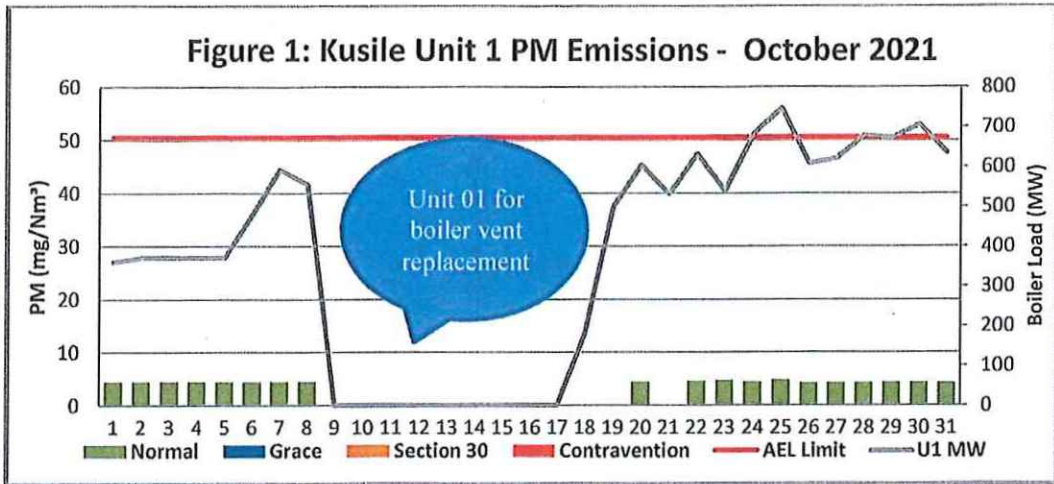
Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO ₂ (mg/Nm ³)
Unit 1	20	2	0	0	2	342,2
Unit 2	28	0	0	0	0	234,2
Unit 3	25	6	0	0	6	327,6
Unit 4	0	0	0	0	0	
Unit 5	0	0	0	0	0	
Unit 6	0	0	0	0	0	
SUM	73	8	0	0	8	

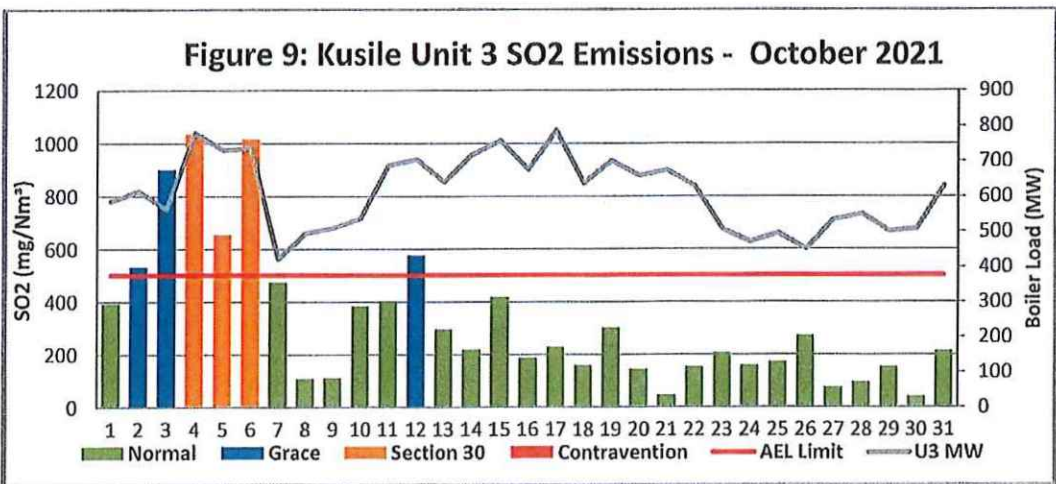
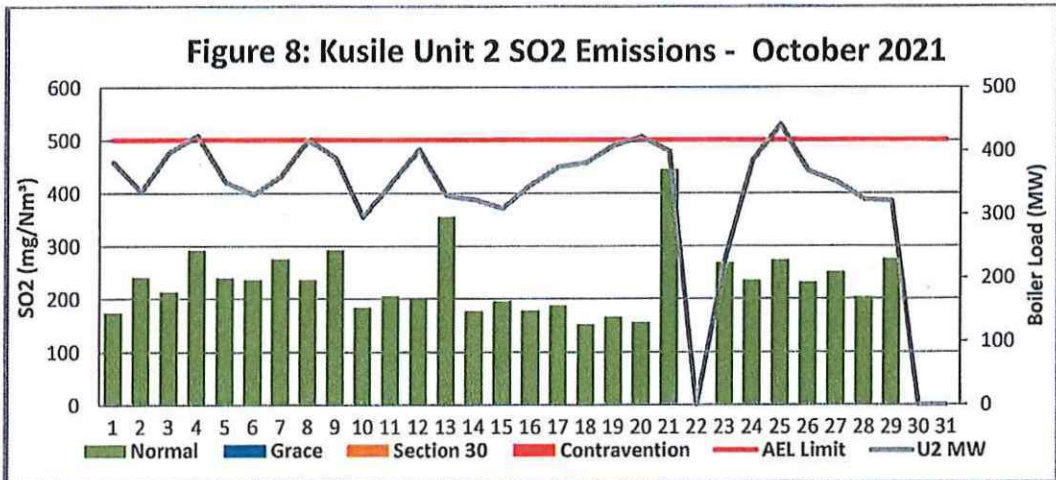
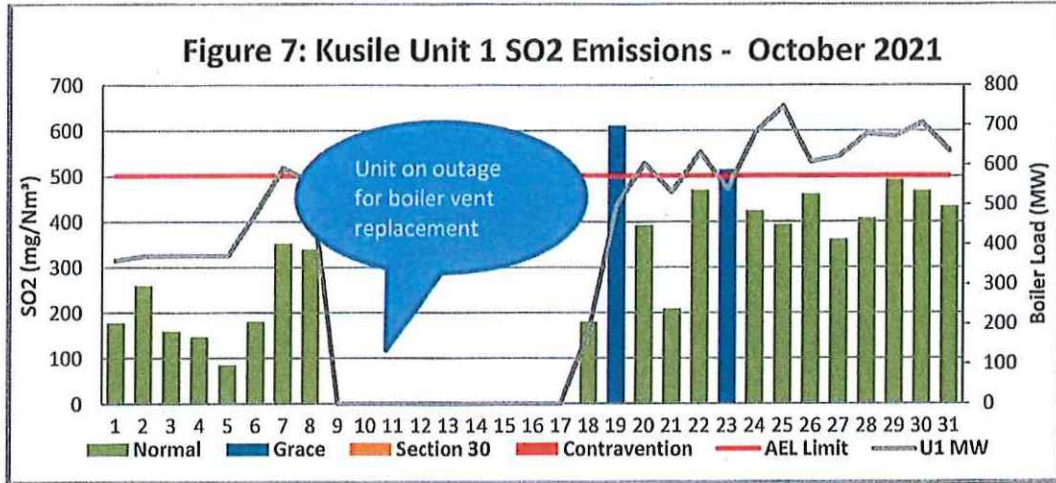
Table 7.4: Operating days in compliance to NO_x AEL Limit - October 2021

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NO _x (mg/Nm ³)
Unit 1	22	0	0	0	0	376,3
Unit 2	28	0	0	0	0	410,8
Unit 3	31	0	0	0	0	365,7
Unit 4	0	0	0	0	0	
Unit 5	0	0	0	0	0	
Unit 6	0	0	0	0	0	
SUM	81	0	0	0	0	

Table 7.5: 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

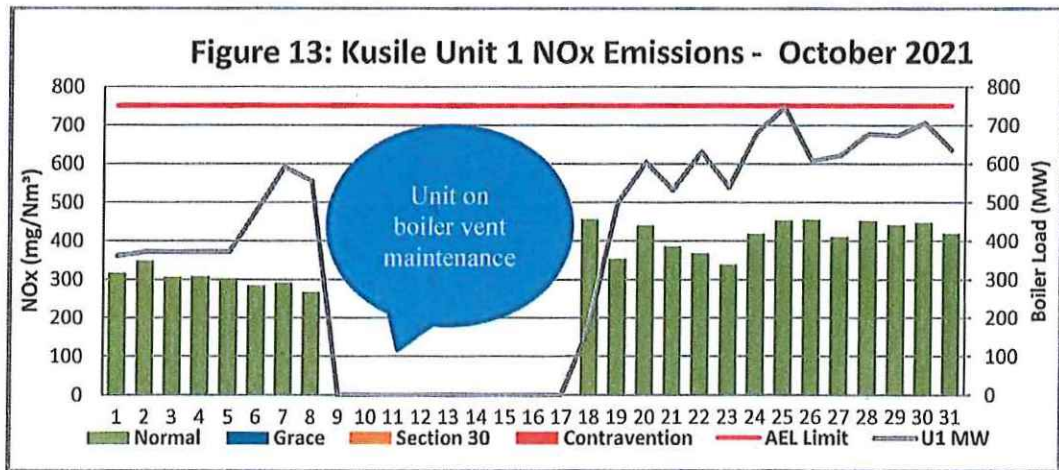


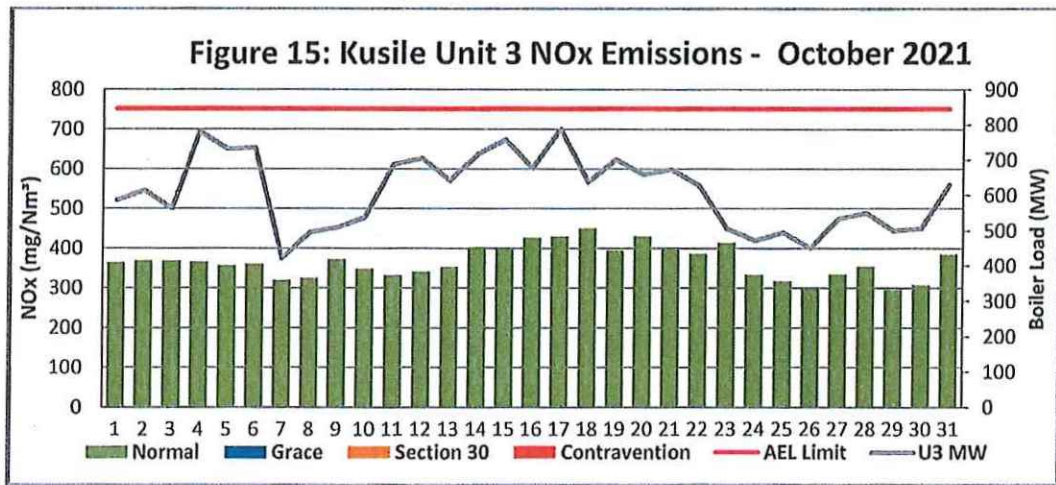
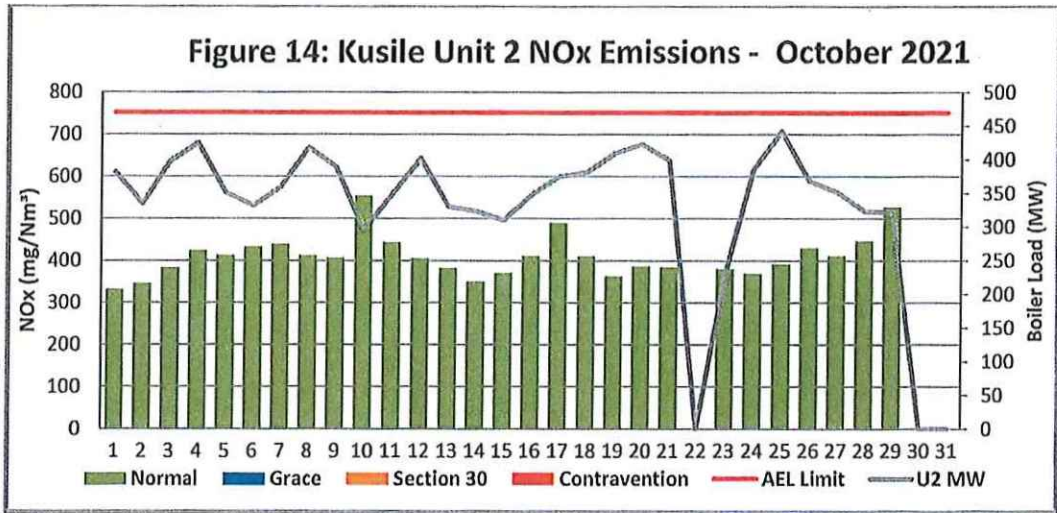


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Reasons for Unit 3 SO2 exceedance

Root Cause	Immediate/Preventative action	Responsible Person	Due Date
Misapplication of the Emissions response procedure.	Update Emission response procedure	FGD System Engineer	Complete
Only 2 pumps were available. Pump 21 train damaged; Pump 23 frequently tripping on high temperatures; Pump 24 not installed.	Replace the gearbox train and put in place for pump 21.	Maintenance Manger	Complete
	Use an external fan to cool pump 23 motor bearings.	Maintenance Manager	Complete
	Install pump 24.	Maintenance Manager	30 Nov 2022
Compromised process control due to blocked pH & density line.	Unblock the line.	Maintenance Manager	Complete





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8. Shut down and Light up information

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

Unit No. 1	Event 1		Event 2		Event 3	
Breaker Open (BO)	2:15 pm	2021/10/08	11:45 pm	2021/10/20	4:35 pm	2021/10/25
Draught Group (DG) Shut Down (SD)	8:35 am	2021/10/09	DG did not trip or SD	DG did not trip or SD	DG did not trip or SD	DG did not trip or SD
BO to DG SD (duration)	00:18:20	DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM
Fires in time	11:55 pm	2021/10/18	12:25 am	2021/10/21	6:15 pm	2021/10/25
Synch. to Grid (or BC)	1:50 am	2021/10/19	6:25 am	2021/10/21	11:40 pm	2021/10/25
Fires in to BC (duration)	00:01:55	DD:HH:MM	00:06:00	DD:HH:MM	00:05:25	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

Unit No. 2	Event 1		Event 2		Event 3		Event 4		Event 5	
Breaker Open (BO)	BO previously	BO previously	1:35 am	2021/10/03	10:35 am	2021/10/10	11:20 am	2021/10/21	4:30 pm	2021/10/26
Draught Group (DG) Shut Down (SD)	n/a	n/a	DG did not trip or SD	DG did not trip or SD	1:25 pm	2021/10/10	DG did not trip or SD	DG did not trip or SD	4:35 pm	2021/10/26
BO to DG SD (duration)	n/a	DD:HH:MM	n/a	DD:HH:MM	00:02:50	DD:HH:MM	n/a	DD:HH:MM	00:00:05	DD:HH:MM
Fires in time	2:55 am	2021/10/01	2:40 am	2021/10/03	2:20 pm	2021/10/10	1:40 am	2021/10/24	6:30 pm	2021/10/26
Synch. to Grid (or BC)	5:05 am	2021/10/01	5:35 am	2021/10/03	6:35 pm	2021/10/10	6:10 am	2021/10/24	10:25 pm	2021/10/26
Fires in to BC (duration)	00:02:10	DD:HH:MM	00:02:55	DD:HH:MM	00:04:15	DD:HH:MM	00:04:30	DD:HH:MM	00:03:55	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	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	n/a	DD:HH:MM

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Unit No. 3	Event 1	
Breaker Open (BO)	1:10 pm	2021/10/23
Draught Group (DG) Shut Down (SD)	3:15 pm	2021/10/23
BO to DG SD (duration)	00:02:05	DD:HH:MM
Fires in time	10:35 pm	2021/10/23
Synch. to Grid (or BC)	1:05 am	2021/10/24
Fires in to BC (duration)	00:02:30	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

9. Complaints

No complaints received during the month of Oct - 2021