



**Ms Mpho Nembilwi**  
Nkangala District Municipality  
PO Box 437  
Middleburg  
1050

Date  
*July 2022*

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 MAY 2022**

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 June 2022.

Hoping the above will meet your satisfaction

Yours sincerely

Bongumusa A Mashazi  
**GENERAL MANAGER**  
**DATE:** 2022/07/28

**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 Jun-2022
	Coal	Tons	1 818 083	618 365
	Fuel Oil	Tons	5 533	2100,03
	Limestone	Tons	72 917	20511

Production Rates	Product / By-Product Name	Units	Max. Production Capacity Permitted	Production Rate Jun-2022
	Energy	GWh	3214,08	917,00
	Ash	Tons	663 583	181 119,2
	Gypsum	Tons	129 250	11 486,2
	RE PM	kg/MWh	not specified	0,055
	RE SOx	kg/MWh	not specified	5,787

**3 Energy source characteristics**

Fuel Characteristic	Units	Stipulated Range	Monthly Average Content
Coal CV	MJ/kg	not specified	21,160
Coal Sulphur	%	1,3	1,060
Ash in Coal	%	38	29,290

#### 4 Emissions Limits (mg/Nm<sup>3</sup>)

Associated Unit/Stack	PM	SO <sub>2</sub>	NOx
North	50	500	750
South	50	500	750

#### 5 Abatement Technology (%)

Associated Unit/Stack	Technology Type	Efficiency Jun-2022	Technology Type	Efficiency Jun-2022
Unit 1	FFP	99,974%	FGD	30,876%
Unit 2	FFP	99,982%	FGD	77,609%
Unit 3	FFP	99,957%	FGD	55,642%

Note Both the FFP and FGD does not have bypass mode operation, hence plant 100% Utilised  
The FGD efficiency was impacted by the challenges experienced and failures on ball mills The return of ball mill 13, 23 and 33 as highlighted in Sec 7 will improve FGD efficiency

#### 6. Monitoring reliability (%)

Associated Unit/Stack	PM	SO <sub>2</sub>	NO	CO <sub>2</sub>	O <sub>2</sub>
Unit 1	30,0	92,9	86,5	88,9	85,8
Unit 2	38,5	99,6	90,3	99,1	95,3
Unit 3	82,6	99,6	90,6	98,2	95,4

Actions to improve PM reliability		
Root Cause	Actions	Target date
Blockages that caused by slurry carry over	RFI for alternative particulate emission analyzer	Completed
	Continuous washing/soaking of the particulate emission probe	Continuous
	Procurement and installation of different PM monitor brand	30 Sep 2022
	Install a longer probe at Unit 2,3 and 4	Completed

## 7. Emissions Performance

Table 7 1 Monthly tonnages for the month of June-2022

Associated Unit/Stack	PM	SO <sub>2</sub>	NO <sub>x</sub>	CO <sub>2</sub>
Unit 1	12,2	2 363	1 141	511 201
Unit 2	9,0	789	405	233 082
Unit 3	29,1	2 155	518	397 316
<b>SUM</b>	<b>50,2</b>	<b>5 306</b>	<b>2 065</b>	<b>1 141 600</b>

Table 7 2 Operating days in compliance to PM AEL Limit - June 2022

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm <sup>3</sup> )
Unit 1	30	0	0	0	0	4,9
Unit 2	20	0	0	0	0	9,5
Unit 3	30	0	0	0	0	14,3
Unit 4	0	0	0	0	0	
Unit 5	0	0	0	0	0	
Unit 6	0	0	0	0	0	
<b>SUM</b>	<b>80</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	

Table 6 3 Operating days in compliance to SO<sub>2</sub> AEL Limit - June 2022

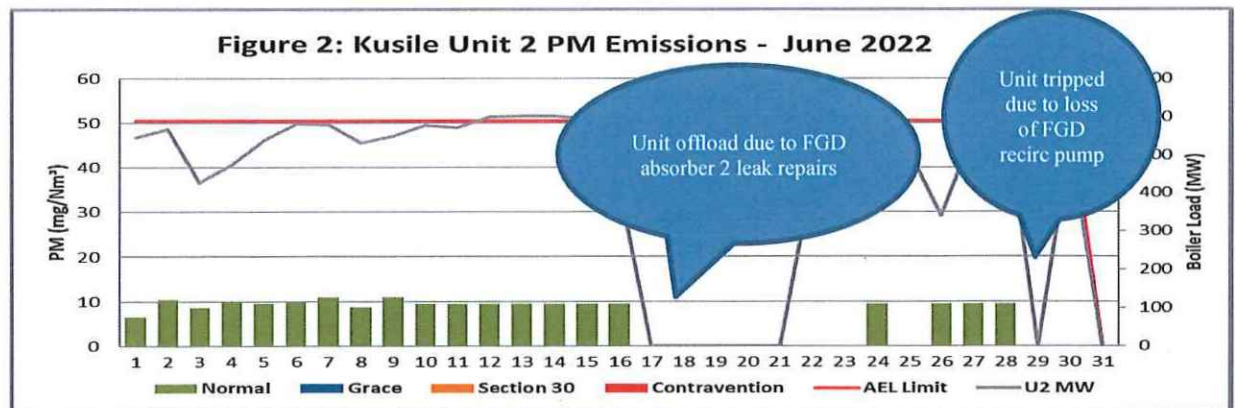
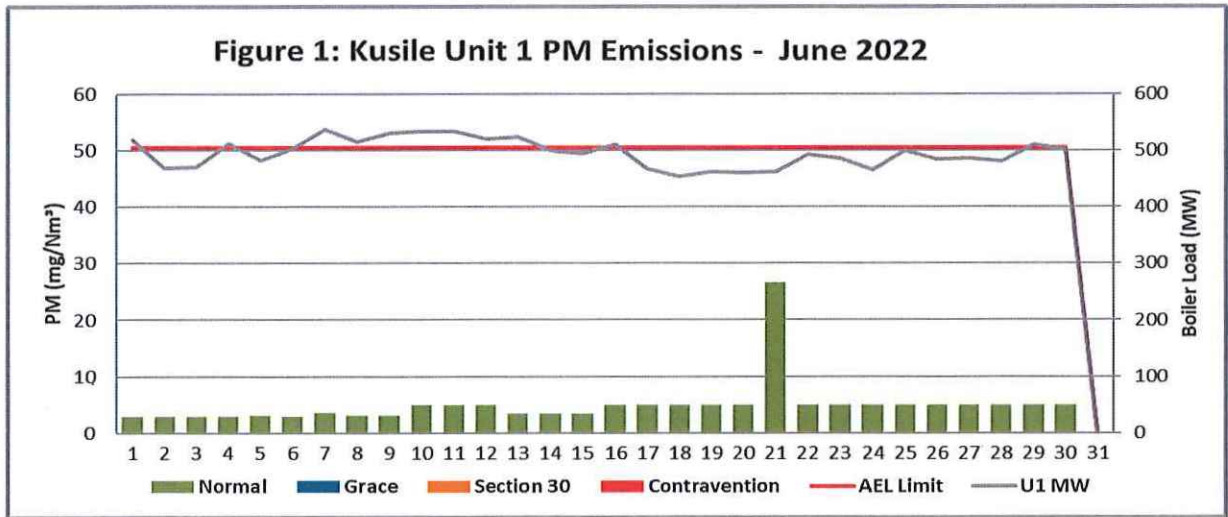
Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO <sub>2</sub> (mg/Nm <sup>3</sup> )
Unit 1	9	6	15	0	21	928,3
Unit 2	11	2	11	0	13	577,1
Unit 3	7	5	18	0	23	963,7
Unit 4	0	0	0	0	0	
Unit 5	0	0	0	0	0	
Unit 6	0	0	0	0	0	
<b>SUM</b>	<b>27</b>	<b>13</b>	<b>44</b>	<b>0</b>	<b>57</b>	

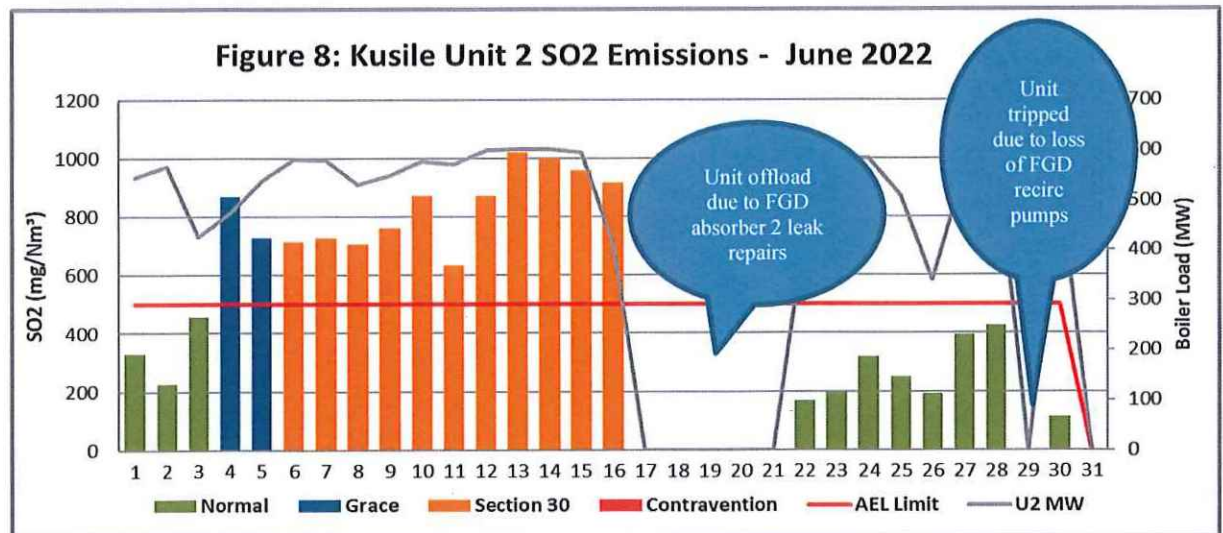
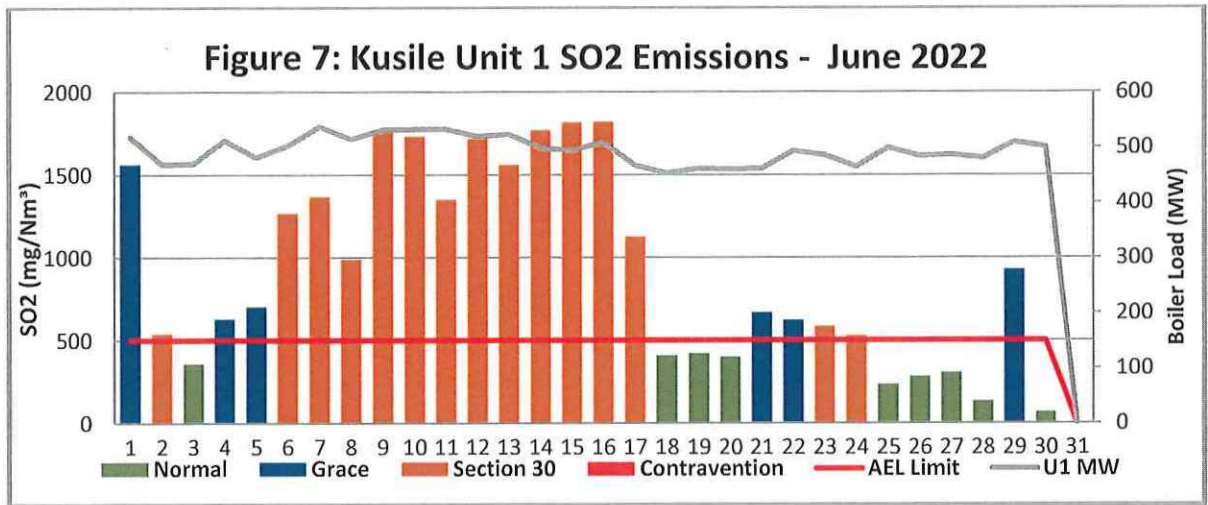
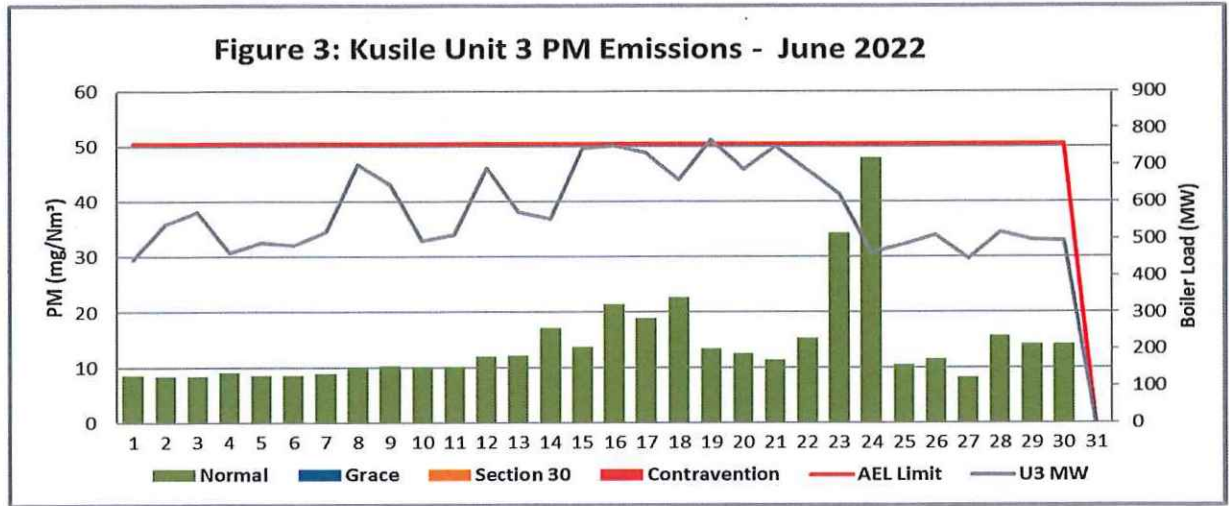
Table 7.4: Operating days in compliance to NOx AEL Limit - June 2022

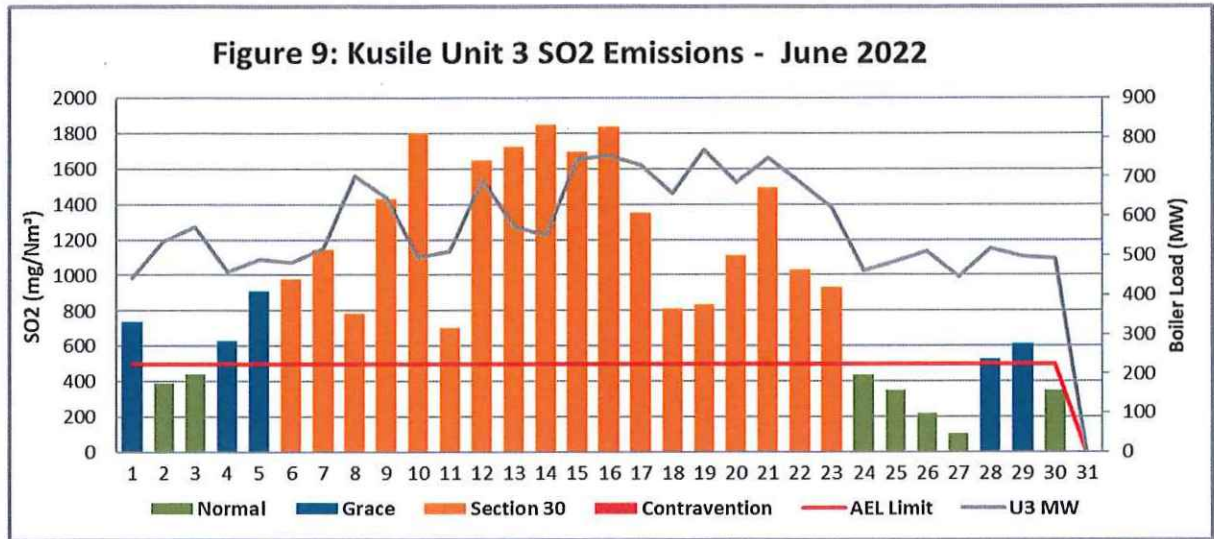
Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm³)
Unit 1	30	0	0	0	0	452,1
Unit 2	24	0	0	0	0	300,6
Unit 3	30	0	0	0	0	246,5
Unit 4	0	0	0	0	0	
Unit 5	0	0	0	0	0	
Unit 6	0	0	0	0	0	
<b>SUM</b>	<b>84</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	

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

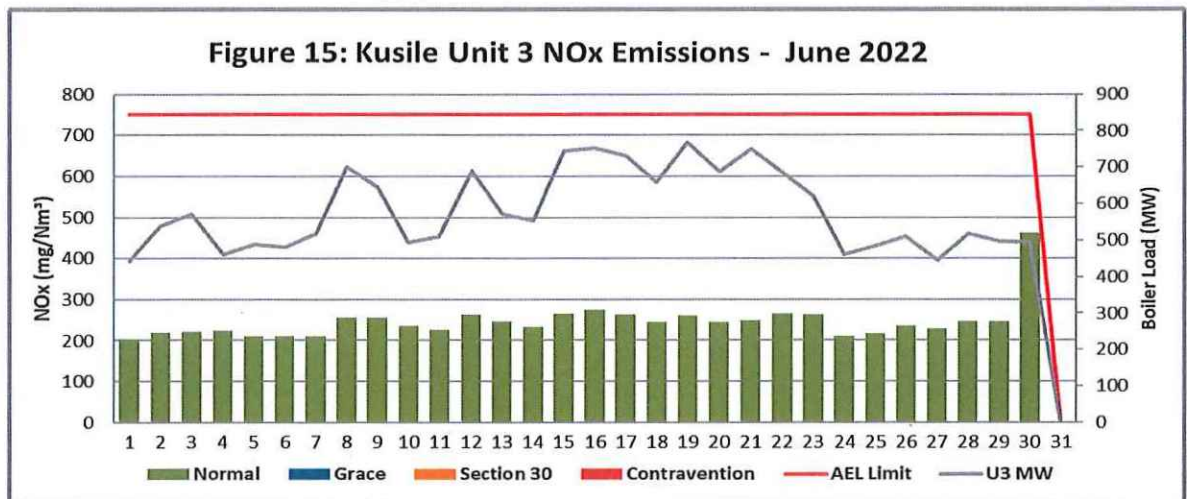
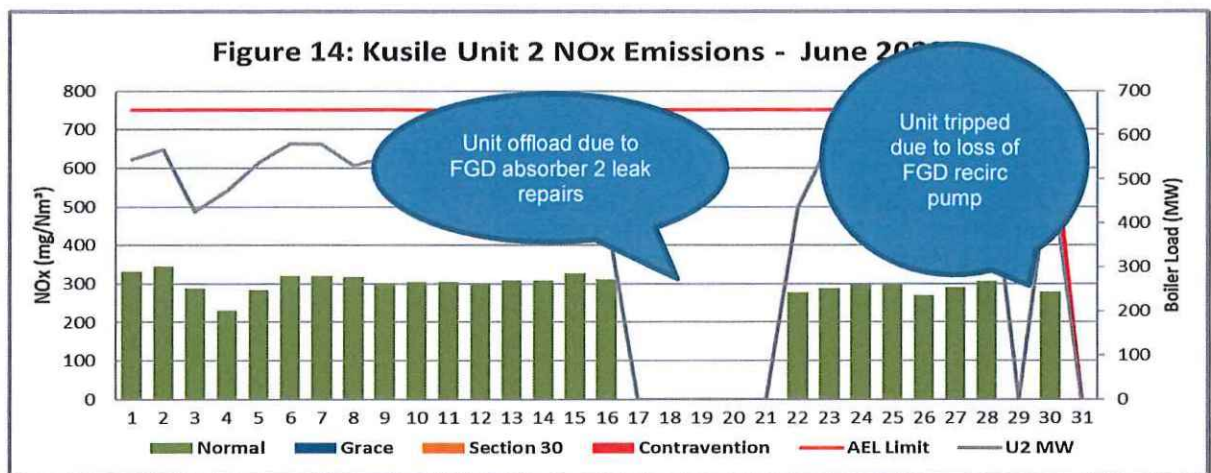
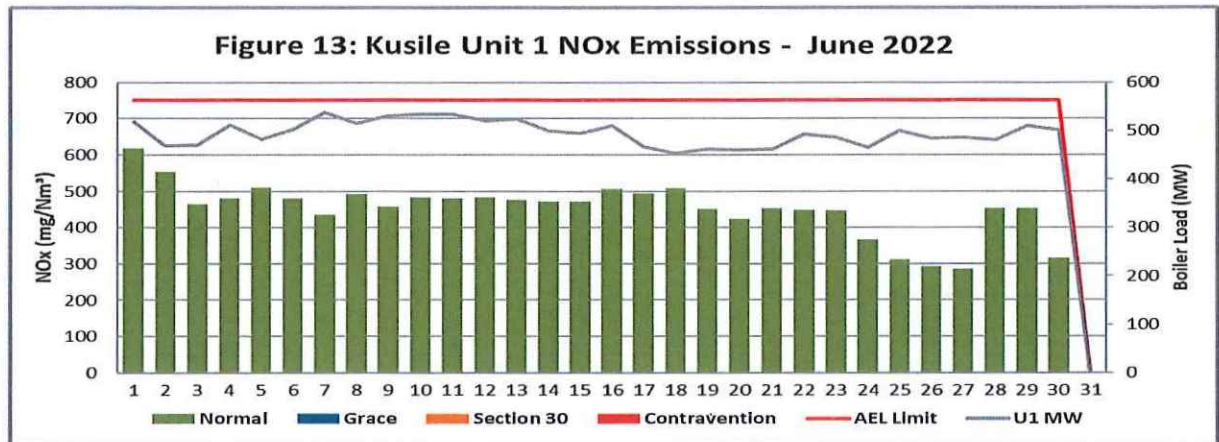






The Authorities were notified of the SO<sub>2</sub> exceedances incident on 03 and 07 June 2022. The investigation report which details the cause of the incidents and corrective and preventative measures was submitted on 30 June 2022. Below are the actions as outlined in the investigation report and the progress thereof:

Actions for SO <sub>2</sub> exceedances		
Root Cause	Actions	Target date
Unreliability of Unit 1 recycle pumps	Ensure 2 recirculation pump trains are always available (minimum) and in-service at Unit 1 absorber.	Completed
	Ensure 4 recirculation pump trains are always available (design) and in-service at Unit 1 absorber.	30 June 2023
Ball mill unreliability – insufficient slurry	Ball mill 33 return to service	Completed
	Bal mill 13 return to service	Completed
	Sole source for ball mills, hydrocycles, liners & clarifier spares	31 July 2022
	Ball mill 23 return to service scope execution	30 June 2023



**8. Shut down and Light up information**

Table 8.1. PM Start-up information for the month of June-2022

Unit No. 1	Event 1	Event 2	Event 3
------------	---------	---------	---------



KUSILE POWER STATION'S MONTHLY EMISSIONS REPORT FOR JUNE 2022 - 17/4/AEL/MP311/12/01

Breaker Open (BO)	2 35 am	2022/06/03	12 55 am	2022/06/16	11 40 am	2022/06/24
Draught Group (DG) Shut Down (SD)	3 50 am	2022/06/03	5 10 am	2022/06/16	12 05 pm	2022/06/24
BO to DG SD (duration)	00 01 15	DD HH MM	00 04 15	DD HH MM	24 12 05	DD HH MM
Fires in time	10 20 am	2022/06/03	8 45 pm	2022/06/16	12 10 pm	2022/06/24
Synch. to Grid (or BC)	10 20 am	2022/06/03	8 45 pm	2022/06/16	12 10 pm	2022/06/24
Fires in to BC (duration)	00 00 00	DD HH MM	00 00 00	DD HH MM	00 00 00	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	
Breaker Open (BO)	11 25 am	2022/06/01	2 35 am	2022/06/03	12 55 am	2022/06/16	4 40 am	2022/06/28
Draught Group (DG) Shut Down (SD)	DG did not trip or SD	DG did not trip or SD	3 50 am	2022/06/03	5 11 am	2022/06/16	4 40 am	2022/06/28
BO to DG SD (duration)	n/a	DD HH MM	00 01 15	DD HH MM	00 04 16	DD HH MM	00 00 00	DD HH MM
Fires in time			10 20 am	2022/06/03	7 25 pm	2022/06/25	12 00 am	2022/06/30
Synch. to Grid (or BC)			6 30 pm	2022/06/03	10 35 pm	2022/06/25	12 00 am	2022/06/30
Fires in to BC (duration)		DD HH MM	00 08 10	DD HH MM	00 03 10	DD HH MM	00 00 00	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)		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 JUNE 2022 - 17/4/AEL/MP311/12/01

Unit No 3	Event 1	
Breaker Open (BO)	8 55 am	2022/06/06
Draught Group (DG) Shut Down (SD)	8 55 am	2022/06/06
BO to DG SD (duration)	00 00 00	DD HH MM
Fires in time	11 15 am	2022/06/06
Synch to Grid (or BC)	3 05 pm	2022/06/06
Fires in to BC (duration)	00 03 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

### 9. Complaints

No complaints received during the month of June 2022 Refer to attached complaints register