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Date:  
24 July 2024

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Ref: 17/4/AEL/MP312/11/09

Dear Ms. Simelane

### **KRIEL POWER STATION'S MONTHLY STACK EMISSIONS REPORT FOR THE MONTH OF JUNE 2024**

This serves as the monthly report required in terms of Section 7.4 in Kriel Power Station's Atmospheric Emission License 17/4/AEL/MP312/11/09. The emissions are for the month of June 2024. Verified emissions of particulates matter, SO<sub>2</sub> and NO<sub>x</sub> (as NO<sub>2</sub>) are also included.

#### **Raw Materials and Products**

**Table 1:** Quantity of Raw Materials and Products used/produced for the month of June 2024

Raw Materials and Products used	Raw Material Type	Units	Maximum Permitted Consumption / Rate (Quantity)	Consumption / Rate in Month of June 2024
	Coal	Tons/month	1 227 600	608 708
	Fuel Oil	Tons/month	5 000	5 972.79
Production Rates	Product/ By-Product Name	Unit	Maximum Production Capacity Permitted (Quantity)	Production Rate in Month of June 2024
	Ash	Tons/month	not specified	4 509.3
	RE PM	kg/MWh	not specified	3.709

1/...

## Abatement Technology

**Table 2:** Abatement Equipment Control Technology for June 2024.

Associated Unit/Stack	Technology Type	Actual Efficiency (%)	Technology Type	Utilisation
		June 2024		June 2024
Unit 1	ESP&SO3	99.37	SO <sub>3</sub> Plant	83.65
Unit 2	ESP&SO3	99.48	SO <sub>3</sub> Plant	99.77
Unit 3	ESP&SO3	99.56	SO <sub>3</sub> Plant	100.00
Unit 4	ESP&SO3	95.70	SO <sub>3</sub> Plant	100.00
Unit 5	ESP&SO3	93.22	SO <sub>3</sub> Plant	100.00
Unit 6	ESP&SO3	36.65	SO <sub>3</sub> Plant	100.00

Note: ESP plant does not contain bypass mode operation; hence plant 100% Utilised.

## Energy Source Characteristics

**Table 3:** Energy Source Material Characteristics for the month of June 2024




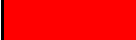
Characteristic	Stipulated Range (Unit)	Monthly Average Content
Sulphur Content	0.6-1.2 (%)	0.79
Ash Content	27-32 (%)	20.86

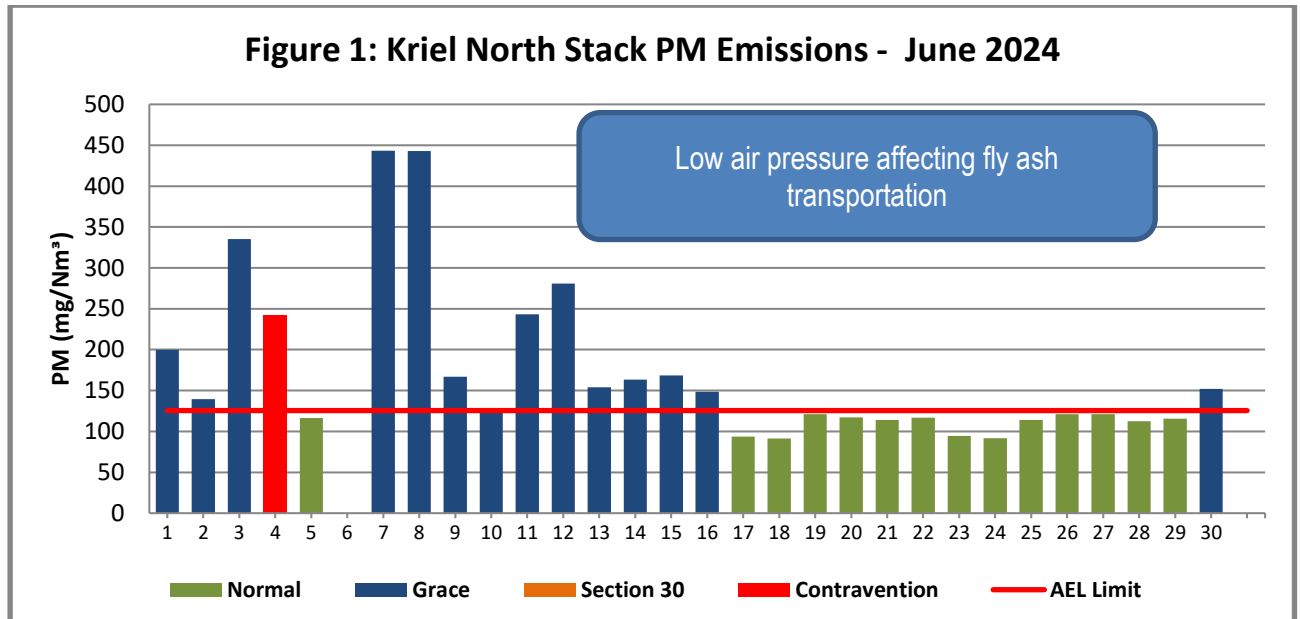
## Monthly Monitor Reliability

Associated Unit/Stack	PM (%)	SOx (%)	NOx (%)
North	92.21	92.01	96.28
South	19.45	91.31	92.15

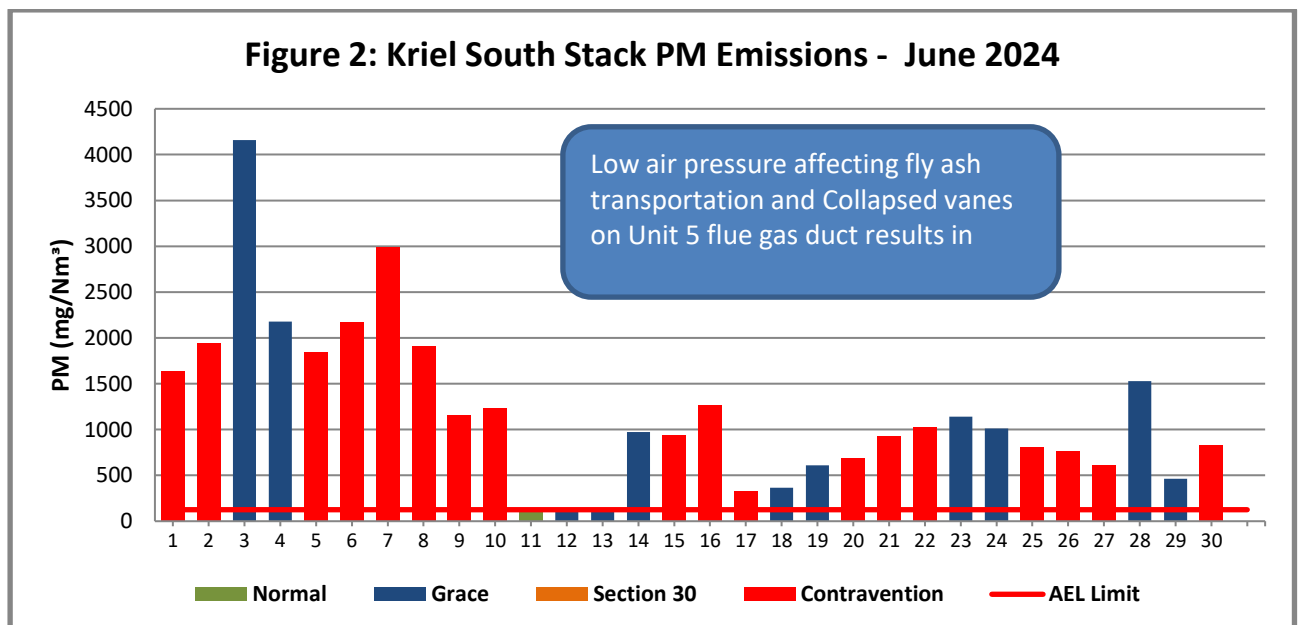
## Emissions Reporting

**Table 6.5: Graph Legend Description**

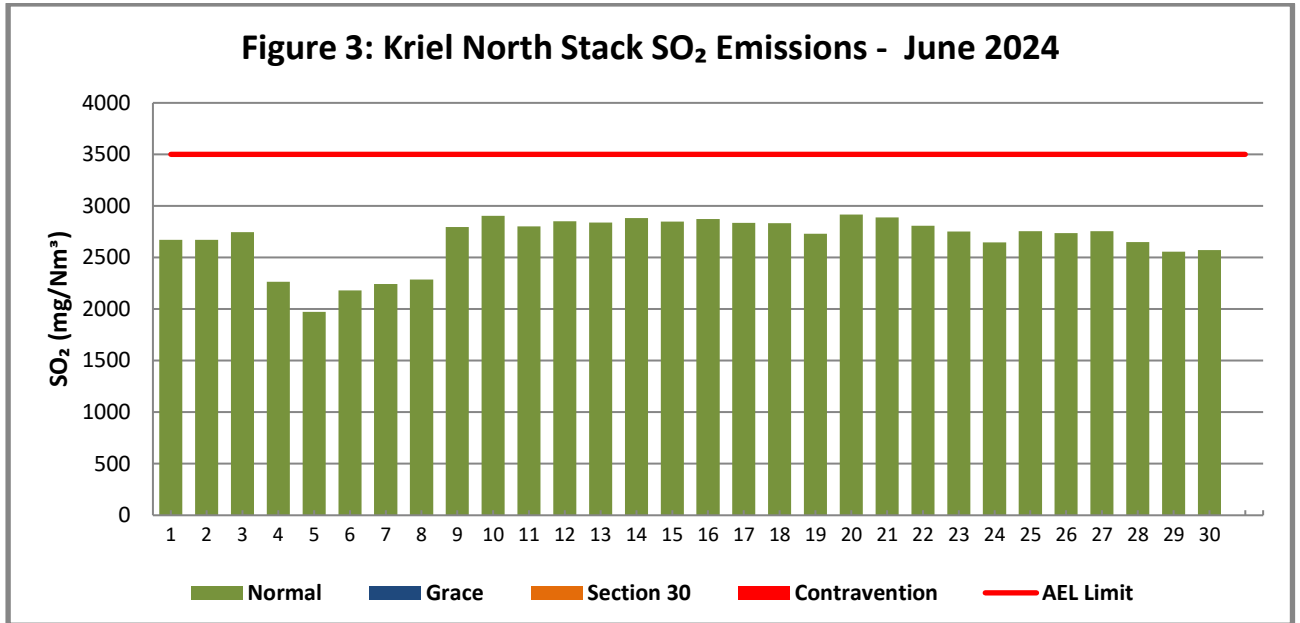
Condition	Colour	Description
Normal		Emissions below Emission Limit Value (ELV)
Grace		Emissions above the ELV during grace period
Section 30		Emissions above ELV during a NEMA S30 incident
Contravention		Emissions above ELV but outside grace or S30 incident conditions



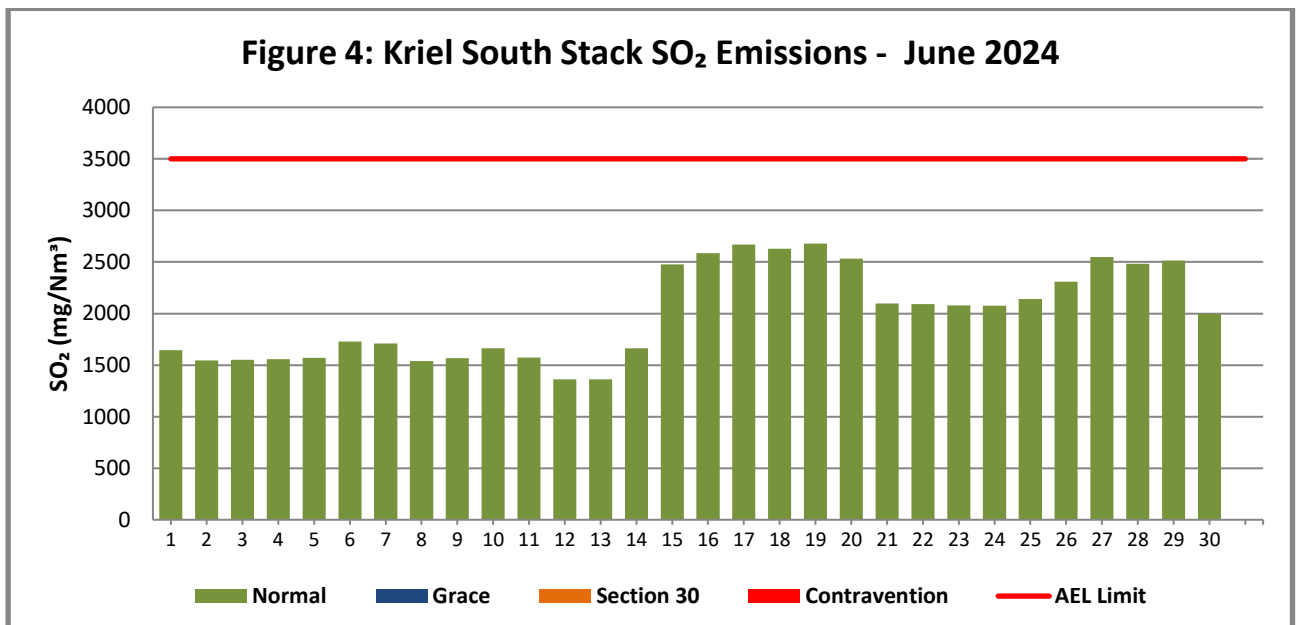
**Figure 1: PM emissions for the month of June 2024 against emission limit for the North Stack. The PMs Limit is 125 mg/Nm<sup>3</sup>. Monthly average was 170.6 mg/Nm<sup>3</sup>.**



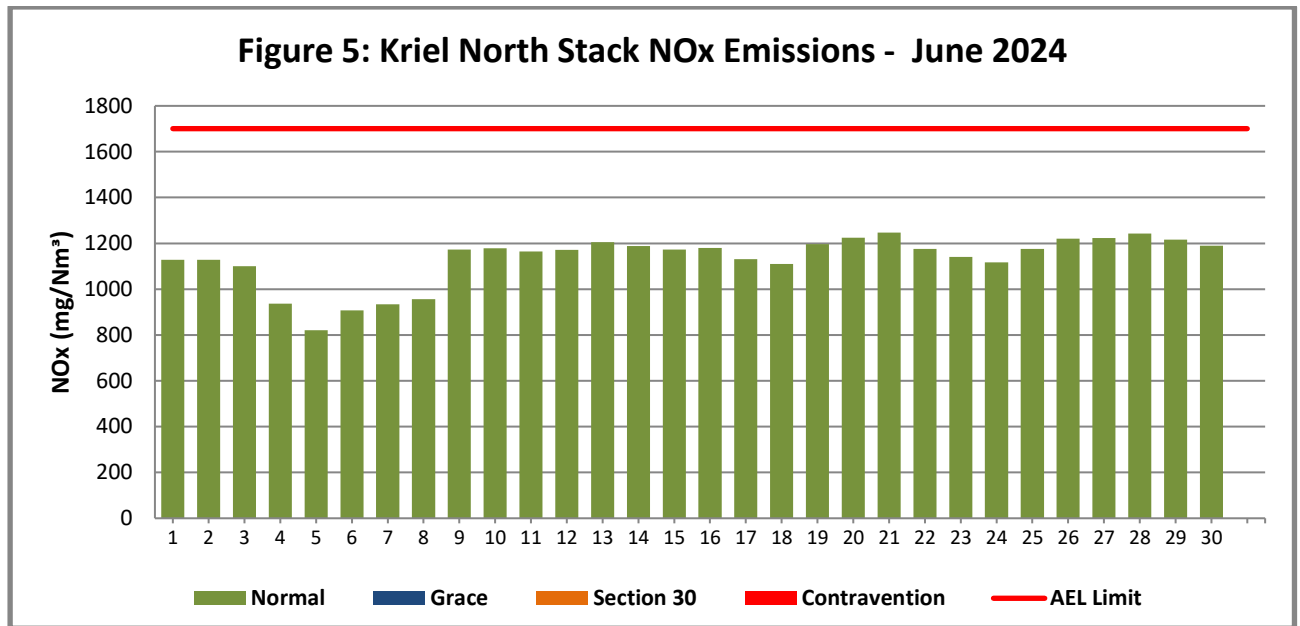
**Figure 2: PM emissions for the month of June 2024 against emission limit for the South Stack. The PMs Limit is 125 mg/Nm<sup>3</sup>. Monthly average was 1 195.3 mg/Nm<sup>3</sup>.**



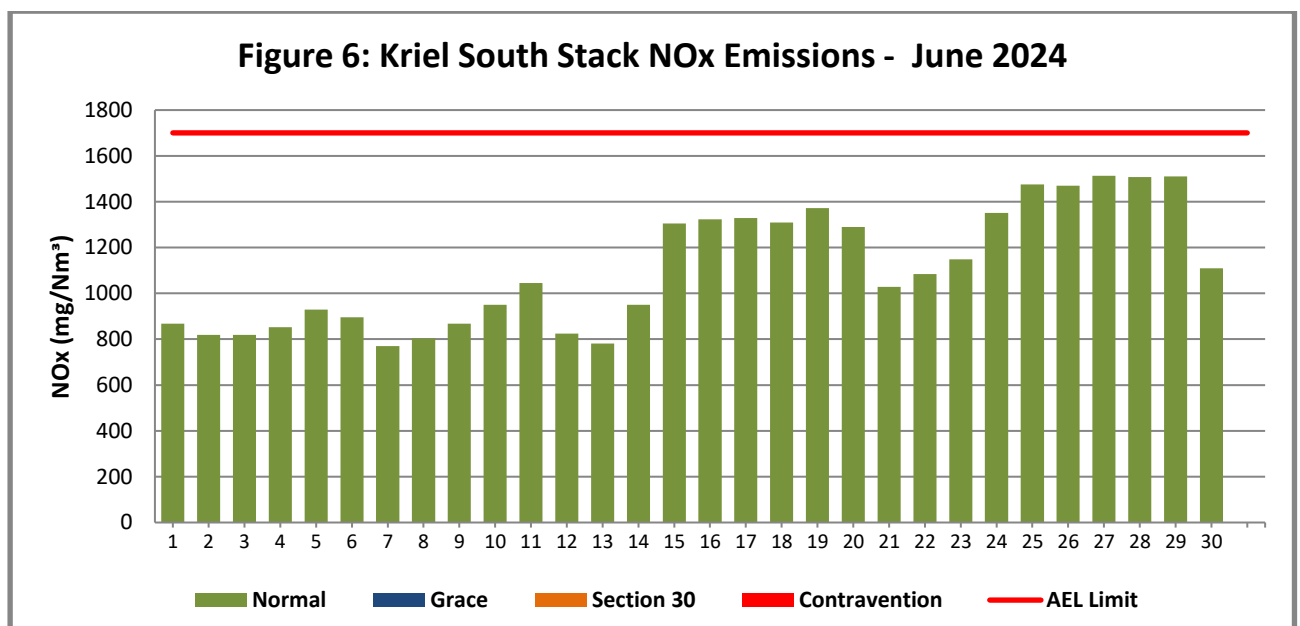
**Figure 3. SO<sub>2</sub> emissions for the month of June 2024 against emission limit for the North Stack. The SO<sub>x</sub> Limit is 3500mg/Nm<sup>3</sup>. Monthly average was 2 675.9 mg/Nm<sup>3</sup>.**



**Figure 4. SO<sub>2</sub> emissions for the month of June 2024 against emission limit for the South Stack. The SO<sub>x</sub> Limit is 3500mg/Nm<sup>3</sup>. Monthly average was 1 998.2 mg/Nm<sup>3</sup>.**



**Figure 5. NO<sub>2</sub> emissions for the month of June 2024 against emission limit for the North Stack. The NO<sub>x</sub> Limit is 1600mg/Nm<sup>3</sup>. Monthly average was 1 131.8 mg/Nm<sup>3</sup>.**



**Figure 6. NO<sub>2</sub> emissions for the month of June 2024 against emission limit for the South Stack. The NO<sub>x</sub> Limit is 1600mg/Nm<sup>3</sup>. Monthly average was 1 110.1 mg/Nm<sup>3</sup>.**

**Table 4: Monthly tonnages for the month June 2024**

Unit	PM (tons)	SO <sub>2</sub> (tons)	NO <sub>2</sub> (tons)
SUM	4 509.3	15 785.1	7 661.1

**Table 5:** Each unit and respective days operating under normal operation and section 30 days respectively.

Table 5.1: Operating days in non-compliance to PM AEL Limit – June 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Monthly Limit Exceedance	Average PM (mg/Nm <sup>3</sup> )
North	14	14	0	1	15	170.6
South	1	11	0	18	29	1,195.3

Table 5.2: Operating days in compliance to SOx AEL Limit – June 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SOx (mg/Nm <sup>3</sup> )
North	30	0	0	0	0	2,675.9
South	30	0	0	0	0	1,998.2

Table 5.3: Operating days in compliance to NOx AEL Limit – June 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm <sup>3</sup> )
North	30	0	0	0	0	1,131.8
South	30	0	0	0	0	1,110.1

### Light up information

**Table 6:** PM Start-up information for the month of June 2024

North Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 1		Unit 1		Unit 2		Unit 3	
Breaker Open (BO)	6:10 PM	6/3/2024	12:35 PM	6/30/2024	9:30 AM	6/3/2024	1:50 AM	6/5/2024
Draught Group (DG) Shut Down (SD)	11:45 AM	6/4/2024	2:00 AM	7/1/2024	11:00 PM	6/3/2024	2:25 AM	6/5/2024
BO to DG SD (duration)	00:17:35	DD:HH:MM	00:13:25	DD:HH:MM	00:13:30	DD:HH:MM	00:00:35	DD:HH:MM
Fires in time			12:00 PM	6/6/2024	3:55 AM	6/11/2024		
Synch. to Grid (or BC)			5:15 PM	6/6/2024	4:00 PM	6/11/2024		
Fires in to BC (duration)		DD:HH:MM	00:05:15	DD:HH:MM	00:12:05	DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)				#N/A		#N/A		

North Stack	Event 5		Event 6		Event 7		Event 8	
Unit No.	Unit 3		Unit 3		Unit 3		Unit 3	
Breaker Open (BO)	2:50 AM	5/10/2024	3:40 PM	6/5/2024	8:35 PM	6/11/2024	8:20 PM	6/14/2024
Draught Group (DG) Shut Down (SD)	5:50 AM	5/10/2024	1:55 AM	6/7/2024	9:45 PM	6/11/2024	8:35 PM	6/14/2024
BO to DG SD (duration)	00:03:00	DD:HH:MM	01:10:15	DD:HH:MM	00:01:10	DD:HH:MM	00:00:15	DD:HH:MM
Fires in time	9:05 AM	5/27/2024	8:40 AM	6/12/2024	8:30 AM	6/15/2024	1:55 AM	6/18/2024
Synch. to Grid (or BC)	4:55 PM	5/27/2024	4:50 PM	6/12/2024	12:45 PM	6/15/2024	5:50 AM	6/18/2024
Fires into BC (duration)	00:07:50	DD:HH:MM	00:08:10	DD:HH:MM	00:04:15	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
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

South Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 4		Unit 4		Unit		Unit 5	
Breaker Open (BO)	7:25 AM	6/2/2024	4:20 PM	6/5/2024	7:50 AM	6/18/2024	11:20 PM	6/11/2024
Draught Group (DG) Shut Down (SD)	9:30 PM	6/2/2024	5:30 AM	6/6/2024	DG did not trip or SD	DG did not trip or SD	12:15 PM	6/12/2024
BO to DG SD (duration)	00:14:05	DD:HH:MM	00:13:10	DD:HH:MM	n/a	DD:HH:MM	00:12:55	DD:HH:MM
Fires in time	2:25 AM	6/3/2024	5:15 AM	6/13/2024			1:25 AM	6/18/2024
Synch. to Grid (or BC)	10:55 AM	6/3/2024	4:15 PM	6/13/2024			6:00 PM	6/18/2024
Fires into BC (duration)	00:08:30	DD:HH:MM	00:11:00	DD:HH:MM		DD:HH:MM	00:16:35	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		DD:HH:MM	n/a	DD:HH:MM

South Stack	Event 5		Event 6		Event 7	
Unit No.	Unit 5		Unit 6		Unit 6	
Breaker Open (BO)	11:40 PM	6/24/2024	7:45 PM	6/27/2024	2:55 AM	6/20/2024
Draught Group (DG) Shut Down (SD)	12:20 PM	6/25/2024	12:15 AM	6/28/2024	5:35 PM	6/20/2024
BO to DG SD (duration)	00:12:40	DD:HH:MM	00:04:30	DD:HH:MM	00:14:40	DD:HH:MM
Fires in time	5:35 AM	6/28/2024	3:35 AM	6/23/2024		
Synch. to Grid (or BC)	10:45 AM	6/28/2024	1:55 PM	6/23/2024		
Fires into BC (duration)	00:05:10	DD:HH:MM	00:10:20	DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	not > limit	not > limit	not > limit	not > limit		
Emissions below limit from BC (duration)	n/a	DD:HH:MM	n/a	DD:HH:MM		DD:HH:MM

## Complaints Register

**Table 9:** Complaints for the month of June 2024.

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	Date by which measure will be implemented
There was no complaint related to air quality received during the month of June2024.					

## General

The particulate matter (PM10) emissions on the North Common Stack exceeded the **monthly limit**; on average emissions figure of **170.6 mg/Nm³** while South Common Stack also exceeded the **monthly limit** on the recorded PM10 monthly average figure of **1 195.3 mg/Nm³**. The gaseous (NOx & SOx) emissions on the North and South common Stacks were within the **daily limit** during the month of June 2024; refer to graphs above.

NB: The rest of the information demonstrating compliance with the emissions license conditions is supplied in the annual emission reports sent to your office.



Kriel Power Station's List of NEMA Section 30/Noncompliance Incidents for 2024/2025 Financial Year

Month	Description of Section 30/Non-Compliance Incidents - including the reference number	Root Cause (s)	Status of S30/Non-Compliance Incident with DEFF (open or closed)	Remarks
<b>April-2024</b>	North & South Stack High Emissions	Failure to transport due to defected 18A & 18B conveyor belt. Ash accumulation resulted to Blow tank failing to restart	Open	
<b>May 2024</b>	North & South Stack High Emissions	SO3 plant numerous defects (Steam supply line bend, dosing pump trips, control valve leaks) as well as the Demag Compressor System air pressure Conveying air low	Open	
<b>June 2024</b>	North & South Stack High Emissions	Low air pressure affecting fly ash transportation and Collapsed vanes on Unit 5 flue gas duct results in skewed flue gas flow		