

**Ms Nompumelelo Simelane**  
Nkangala District Municipality  
PO BOX 437  
MIDDLEBURG  
1050

Date:  
19 June 2023

Enquiries:  
Livhuwani Tshilate  
017 615 2317

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

Dear Ms Simelane

### **KRIEL POWER STATION'S MONTHLY STACK EMISSIONS REPORT FOR THE MONTH OF APRIL 2023**

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 April 2023. 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 April 2023

Raw Materials and Products used	Raw Material Type	Units	Maximum Permitted Consumption / Rate (Quantity)	Consumption / Rate in Month of April 2023
	Coal	Tons/month	1 227 600	570 935.50
	Fuel Oil	Tons/month	5 000	6 964.11
Production Rates	Product/ By-Product Name	Unit	Maximum Production Capacity Permitted (Quantity)	Production Rate in Month of April 2023
	Ash	Tons/month	not specified	900.4
	RE PM	kg/MWh	not specified	1.30

1/...

## Abatement Technology

**Table 2:** Abatement Equipment Control Technology for April 2023.

Associated Unit/Stack	Technology Type	Actual Efficiency (%)	Utilisation
		April 2023	April 2023
Unit 1	ESP	99.48%	56.6%
Unit 2	ESP	99.50%	50.00%
Unit 3	ESP	99.49%	76.5%
Unit 4	ESP	99.93%	67.1%
Unit 5	ESP	98.98%	73.4%
Unit 6	ESP	99.14%	57.1%

## Energy Source Characteristics

**Table 3:** Energy Source Material Characteristics for the month of April 2023

Characteristic	Stipulated Range (Unit)	Monthly Average Content
Sulphur Content	0.6-1.2 (%)	0.75
Ash Content	21-36 (%)	27.36

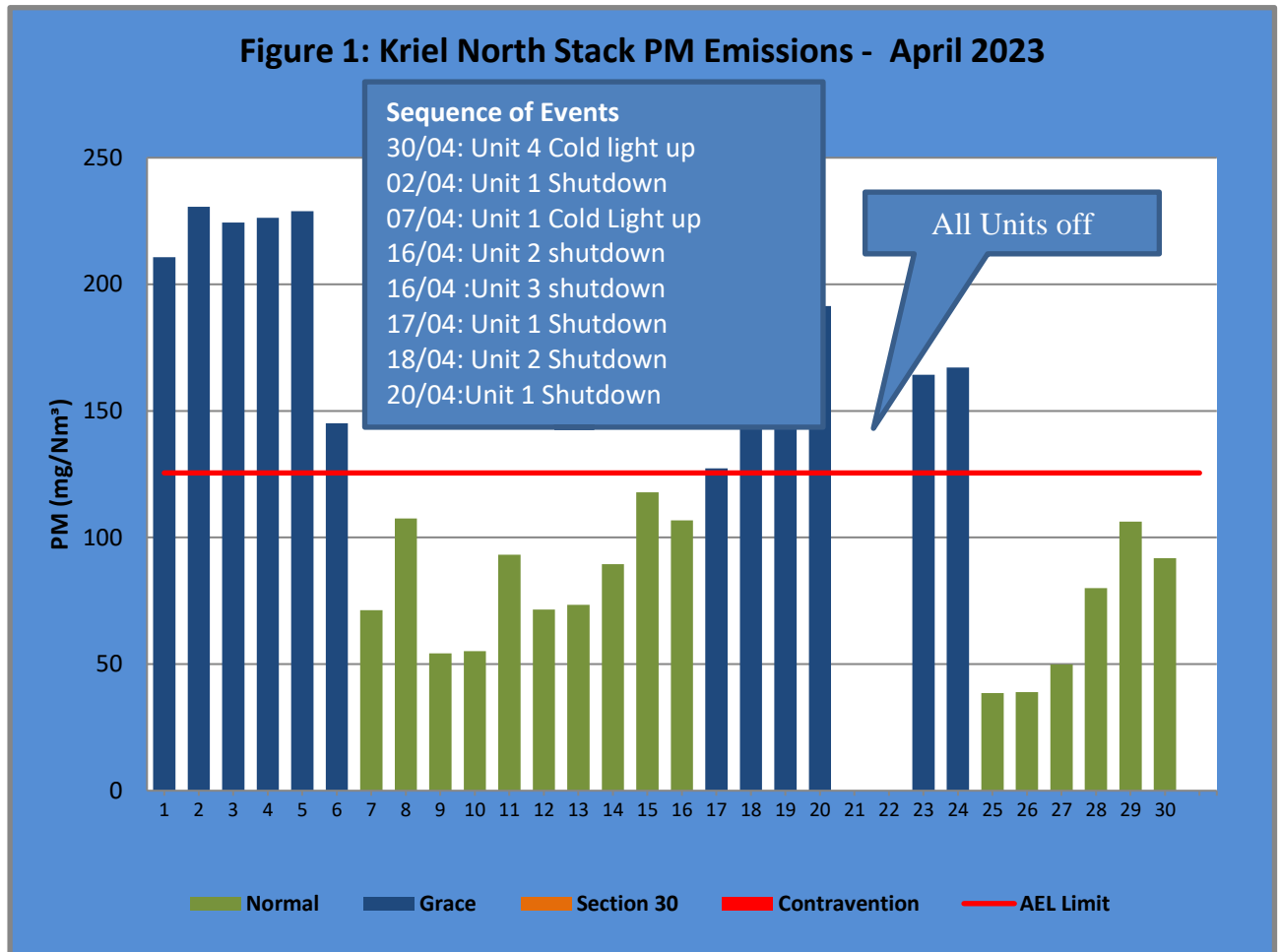
## Monthly Monitor Reliability

Associated Unit/Stack	PM (%)	SOx (%)	NOx (%)
North	72.49	18.94	96.23
South	62.83	26.87	98.37

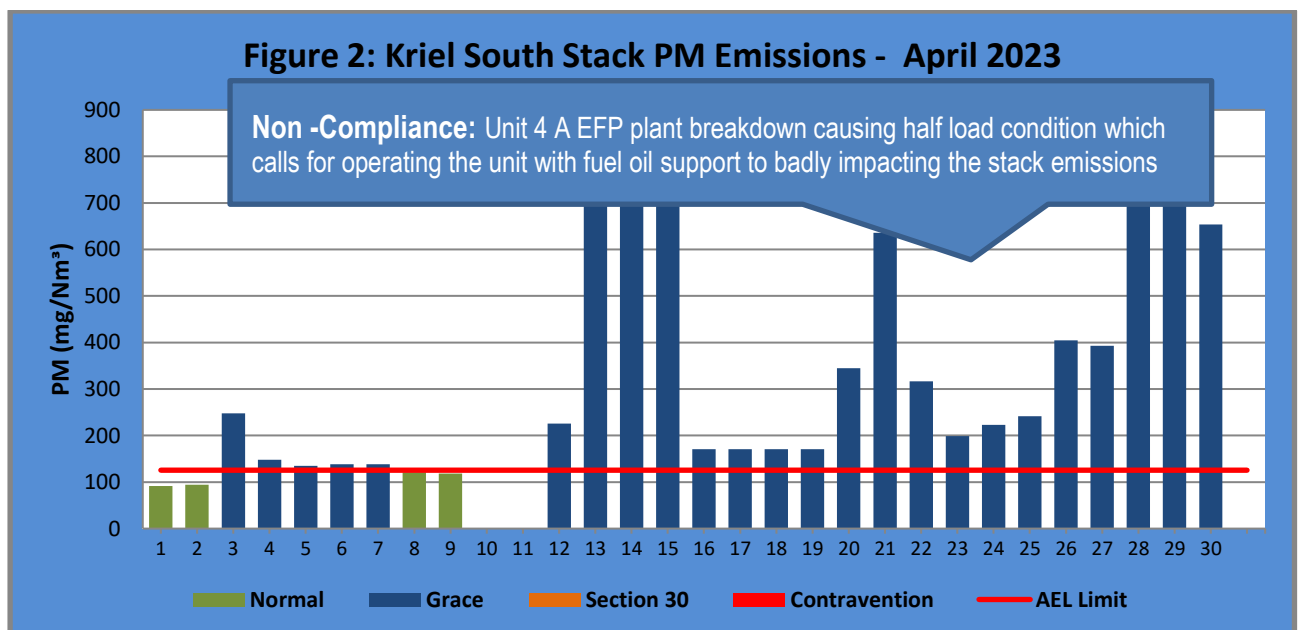
## Emissions Reporting

**Table 6.5: Graph Legend Description**

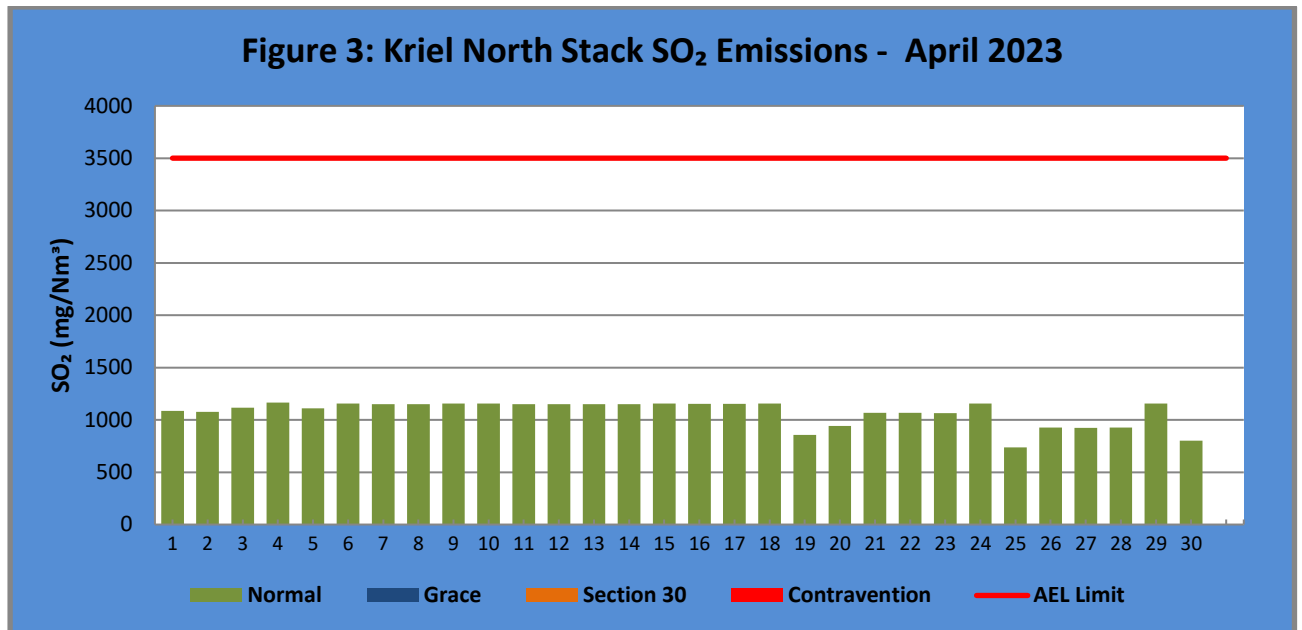
Condition	Colour	Description
Normal	Green	Emissions below Emission Limit Value (ELV)
Grace	Blue	Emissions above the ELV during grace period
Section 30	Orange	Emissions above ELV during a NEMA S30 incident
Contravention	Red	Emissions above ELV but outside grace or S30 incident conditions



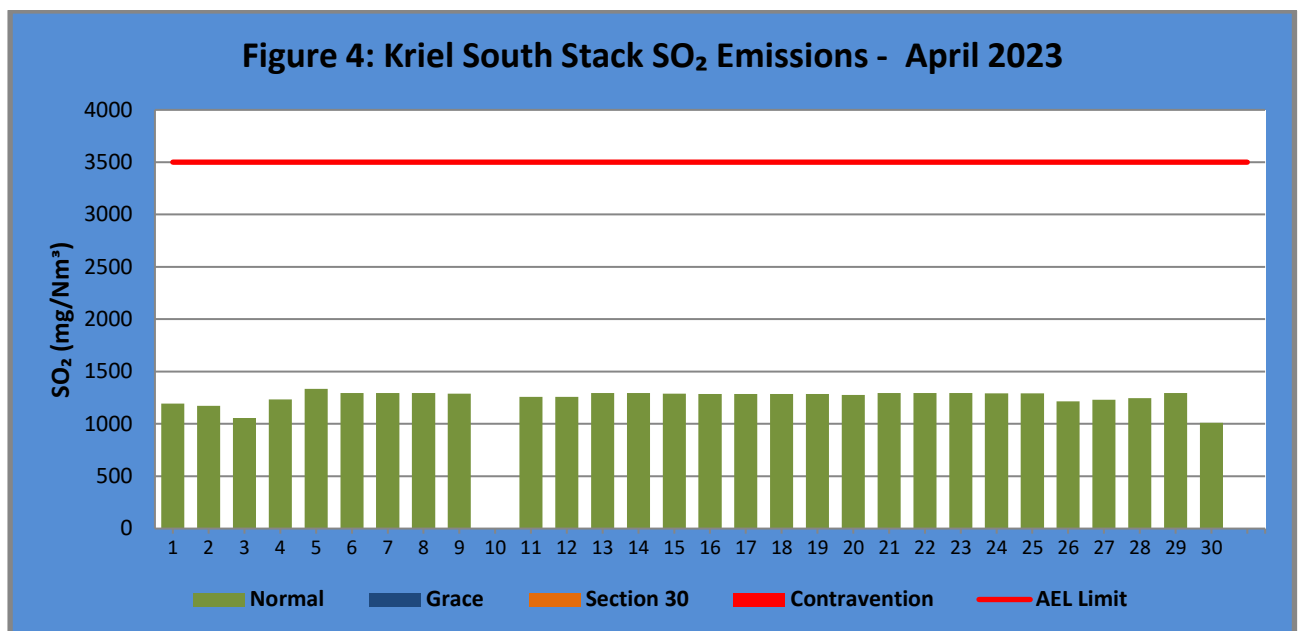
**Figure 1: PM emissions for the month of April 2023 against emission limit for the North Stack. Monthly average was 121.8 mg/Nm³**



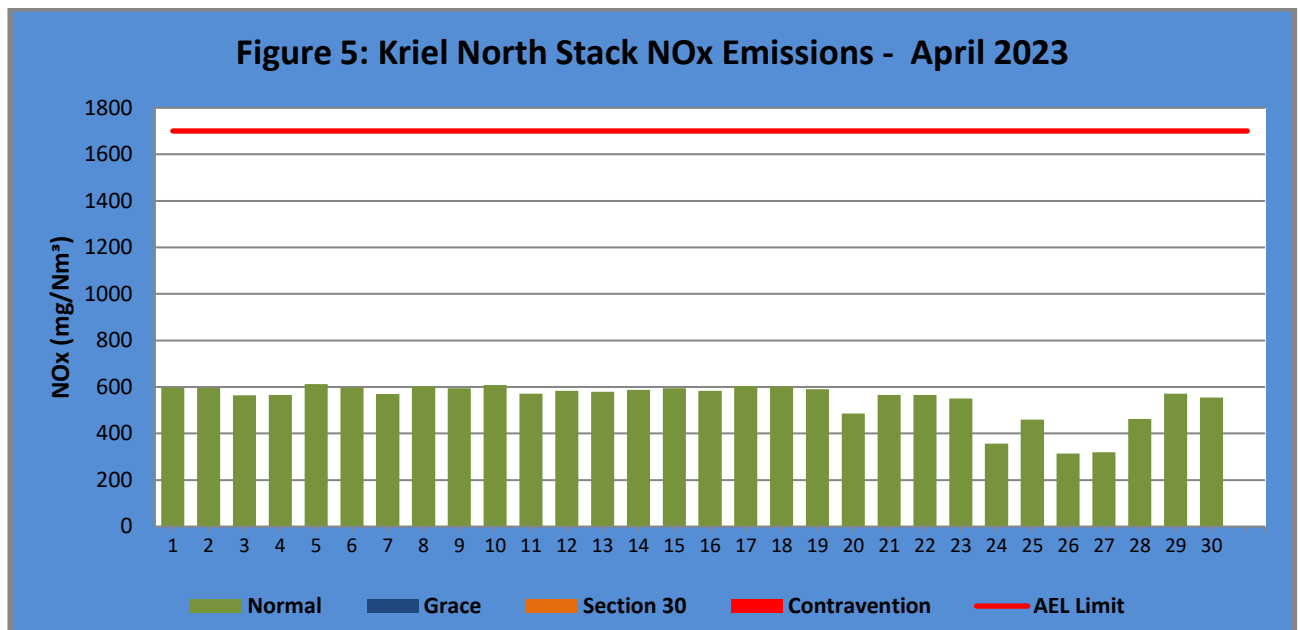
**Figure 2: PM emissions for the month of April 2023 against emission limit for the South Stack. Monthly average was 324.1 mg/Nm³**



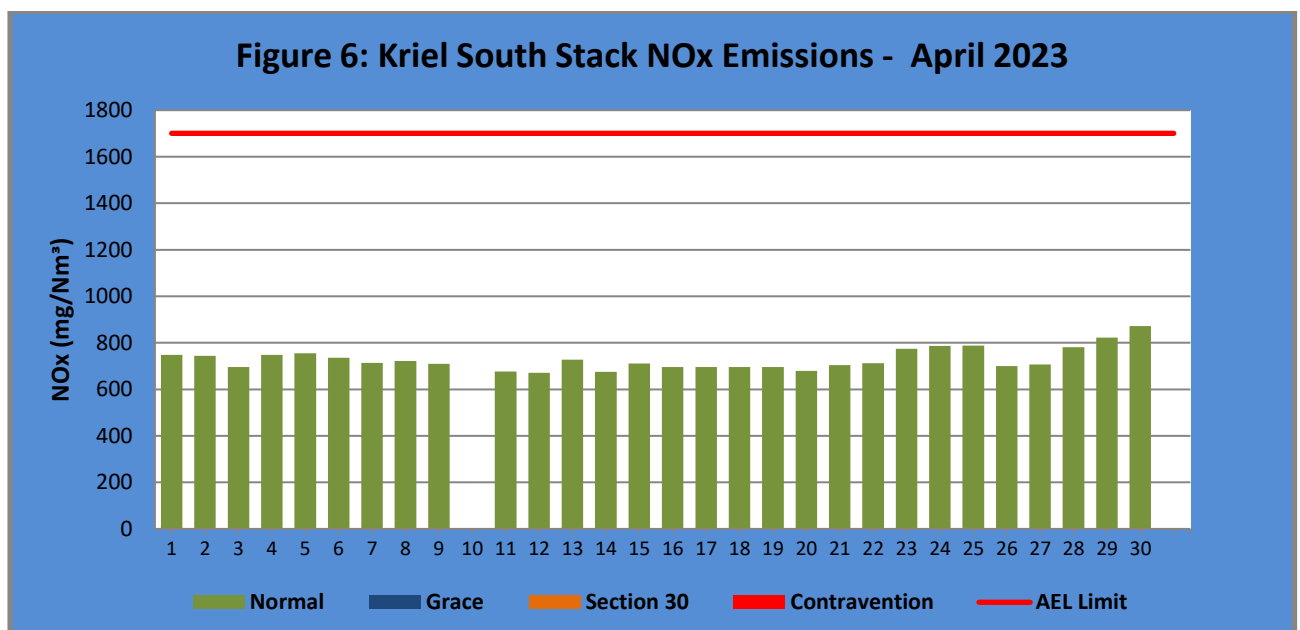
**Figure 3. SO<sub>2</sub> emissions for the month of April 2023 against emission limit for the North Stack. The SO<sub>x</sub> Limit is 3500 mg/Nm<sup>3</sup>.**



**Figure 4. SO<sub>2</sub> emissions for the month of April 2023 against emission limit for the South Stack. The SO<sub>x</sub> Limit is 3500 mg/Nm<sup>3</sup>.**



**Figure 5. NO<sub>2</sub> emissions for the month of April 2023 against emission limit for the North Stack. The NO<sub>x</sub> Limit is 1600 mg/Nm<sup>3</sup>.**



**Figure 6. NO<sub>2</sub> emissions for the month of April 2023 against emission limit for the South Stack. The NO<sub>x</sub> Limit is 1600 mg/Nm<sup>3</sup>.**

**Table 4: Monthly tonnages for the month April 2023**

Unit	PM (tons)	SO <sub>2</sub> (tons)	NO <sub>2</sub> (tons)
sum	900.3	6 251.3	3 083.4

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

Table 5.1: Operating days in compliance to PM AEL Limit – April 2023

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Monthly Limit Exceedance	Average PM (mg/Nm³)
North	16	12	0	0	12	123.8
South	4	5	19	0	24	351.0

Table 5.2: Operating days in compliance to SOx AEL Limit - April 2023

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SOx (mg/Nm³)
North	30	0	0	0	0	1 072.2
South	29	0	0	0	0	1 256.9

Table 5.3: Operating days in compliance to NOx AEL Limit – April 2023

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm³)
North	30	0	0	0	0	547.0
South	29	0	0	0	0	729.0

## Light up information

**Table 6:** PM Start-up information for the month of April 2023

North Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 1		Unit 1		Unit 1		Unit	
Breaker Open (BO)	10:40 am	2023/04/02	2:15 am	2023/04/11	2:40 pm	2023/04/20	9:25 am	2023/04/16
Draught Group (DG) Shut Down (SD)	11:00 pm	2023/04/02	7:00 am	2023/04/11	2:20 am	2023/04/23	8:35 pm	2023/04/17
BO to DG SD (duration)	00:12:20	DD:HH:MM	00:04:45	DD:HH:MM	02:11:40	DD:HH:MM	01:11:10	DD:HH:MM
Fires in time	9:20 am	2023/04/07	6:55 pm	2023/04/11	12:30 am	2023/04/27		
Synch. to Grid (or BC)	3:30 pm	2023/04/07	4:55 am	2023/04/12	9:15 am	2023/04/27		
Fires in to BC (duration)	00:06:10	DD:HH:MM	00:10:00	DD:HH:MM	00:08:45	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

North Stack	Event 5		Event 6		Event 6	
Unit No.	Unit		Unit		Unit 3	
Breaker Open (BO)	3:45 pm	2023/04/18	BO previously	BO previously	10:10 am	2023/04/16
Draught Group (DG) Shut Down (SD)	10:45 pm	2023/04/18	n/a	n/a	3:25 am	2023/04/17
BO to DG SD (duration)	00:07:00	DD:HH:MM	n/a	DD:HH:MM	00:17:15	DD:HH:MM
Fires in time					1:15 am	2023/04/22
Synch. to Grid (or BC)					4:55 pm	2023/04/22
Fires in to BC (duration)		DD:HH:MM		DD:HH:MM	00:15:40	DD:HH:MM
Emissions below limit from BC (end date)					not > limit	not > limit
Emissions below limit from BC (duration)		DD:HH:MM		DD:HH:MM	n/a	DD:HH:MM

South Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit		Unit 4		Unit 5		Unit 5	
Breaker Open (BO)	BO previously	BO previously	6:25 pm	2023/04/09	5:55 am	2023/04/05	5:55 am	2023/04/05
Draught Group (DG) Shut Down (SD)	n/a	n/a	5:15 am	2023/04/10	6:10 pm	2023/04/05	6:10 pm	2023/04/05
BO to DG SD (duration)	n/a	DD:HH:MM	00:10:50	DD:HH:MM	00:12:15	DD:HH:MM	00:12:15	DD:HH:MM
Fires in time	9:25 am	2023/04/01	1:10 pm	2023/04/17	4:40 am	2023/04/11	4:40 am	2023/04/11
Synch. to Grid (or BC)	1:40 am	2023/04/02	9:25 pm	2023/04/17	7:50 pm	2023/04/11	7:50 pm	2023/04/11
Fires in to BC (duration)	00:16:15	DD:HH:MM	00:08:15	DD:HH:MM	00:15:10	DD:HH:MM	00:15:10	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		Unit 5		Unit 5	
Breaker Open (BO)	4:30 pm	2023/04/09	12:25 pm	2023/04/24	4:40 am	2023/04/25	12:25 am	2023/04/27
Draught Group (DG) Shut Down (SD)	5:25 pm	2023/04/09	2:25 pm	2023/04/25	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)	00:00:55	DD:HH:MM	01:02:00	DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM
Fires in time	9:10 pm	2023/04/15			4:40 am	2023/04/25	12:25 am	2023/04/27
Synch. to Grid (or BC)	4:10 pm	2023/04/19			3:05 pm	2023/04/25	5:35 am	2023/04/27
Fires in to BC (duration)	03:19:00	DD:HH:MM		DD:HH:MM	00:10:25	DD:HH:MM	00:05:10	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		DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM

## Complaints Register

**Table 9:** Complaints for the month of April 2023.

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 April 2023.					

### General

The particulate matter (PM10) emissions on the North Common Stack were within the **monthly limit**; North stack recorded the monthly PM10 average emissions figure of **123.8 mg/Nm<sup>3</sup>** while South Common Stack exceeded the **monthly limit** and recorded PM10 monthly average figure of **351.0 mg/Nm<sup>3</sup>**. The gaseous (NO<sub>x</sub> & SO<sub>x</sub>) emissions on the north and south common stack were also within the **daily limit** during the month of April 2023; 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 Incidents for 2022/2023 Financial Year

Month	Description of Section 30 Incidents – including the reference number	Root Cause (s)	Status of S30 Incident with DEFF (open or closed)	Remarks
April-2023	South Stack High Emissions	Unit 4 A EFP plant breakdown causing half load condition which calls for operating the unit with fuel oil support to badly impacting the stack emissions	Open	
May – 2023	None			
June– 2023	None			
July– 2023	None			
Aug – 2023	None			
Sep – 2023	None			
Oct – 2023	None			
Nov – 2023	None			
Dec – 2023	None			
Jan – 2024	None			
Feb – 2024	None			
Mar – 2024	None			