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Date:
 28 March 2022

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

Dear Ms Nembilwi

KRIEL POWER STATION'S MONTHLY STACK EMISSIONS REPORT FOR THE MONTH OF FEBRUARY 2021

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 February 2022. Verified emissions of particulates matter, SO₂ and NO_x (as NO₂) are also included.

Raw Materials and Products

Table 1: Quantity of Raw Materials and Products used/produced for the month of February 2022

Raw Materials and Products used	Raw Material Type	Units	Maximum Permitted Consumption / Rate (Quantity)	Consumption / Rate in Month of February 2022
	Coal	Tons/month	1 227 600	639 179.00
	Fuel Oil	Tons/month	5 000	2 530.78
Production Rates	Product/ By-Product Name	Unit	Maximum Production Capacity Permitted (Quantity)	Production Rate in Month of February 2022
	Ash	Tons/month	not specified	177.1
	RE PM	kg/MWh	not specified	0.18

1/...

Abatement Technology

Table 2: Abatement Equipment Control Technology for February 2022.

Associated Unit/Stack	Technology Type	February 2022	
		Actual Efficiency (%)	Utilisation (%)
Unit 1	ESP	99.79%	90.3%
Unit 2	ESP	99.79%	90.3%
Unit 3	ESP	99.76%	74.1%
Unit 4	ESP	100%	78.1%
Unit 5	ESP	100%	90.3%
Unit 6	ESP	99.85%	9.5%

Unit 6 was shutdown on the 4th of February

Energy Source Characteristics

Table 3: Energy Source Material Characteristics for the month of February 2022





Characteristic	Stipulated Range (Unit)	Monthly Average Content
Sulphur Content	0.6-1.2 (%)	0.79
Ash Content	21-36 (%)	23.93

Monthly Monitor Reliability

Associated Unit/Stack	PM (%)	SOx (%)	NOx (%)
North	98.36	24.85	24.85
South	98.44	99.70	100.00

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

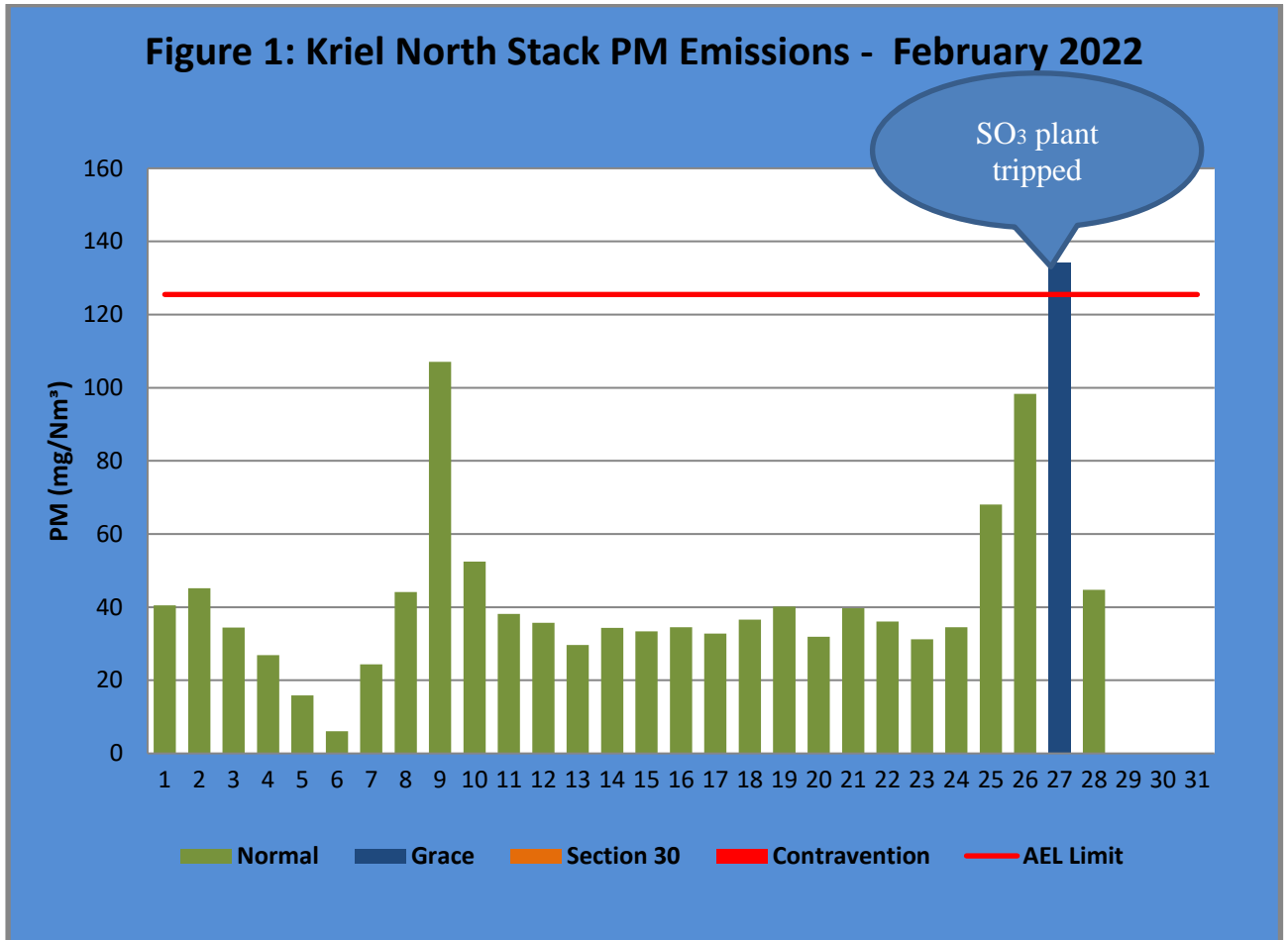


Figure 1: PM emissions for the month of February 2022 against emission limit for the North Stack. Monthly average was 44.0 mg/Nm³

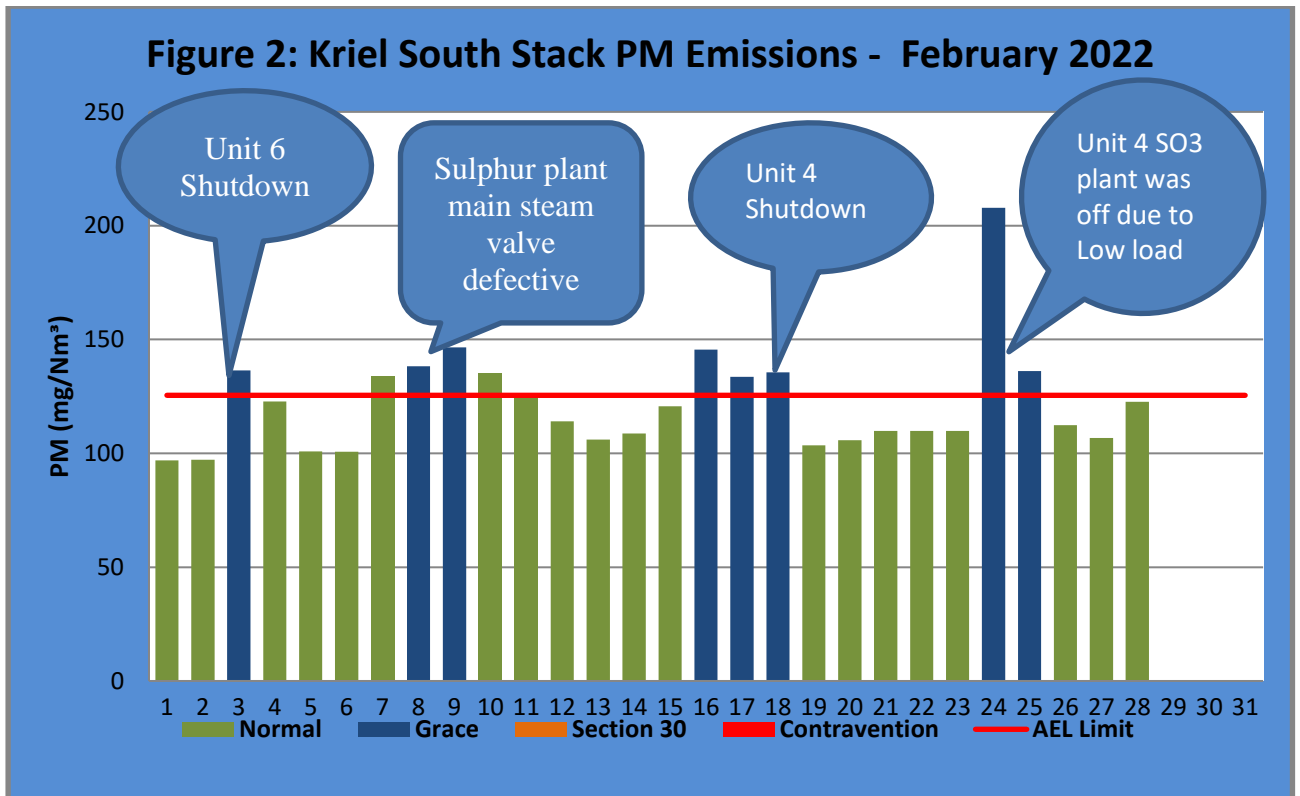


Figure 2: PM emissions for the month of February 2022 against emission limit for the South Stack. Monthly average was 122.3 mg/Nm³

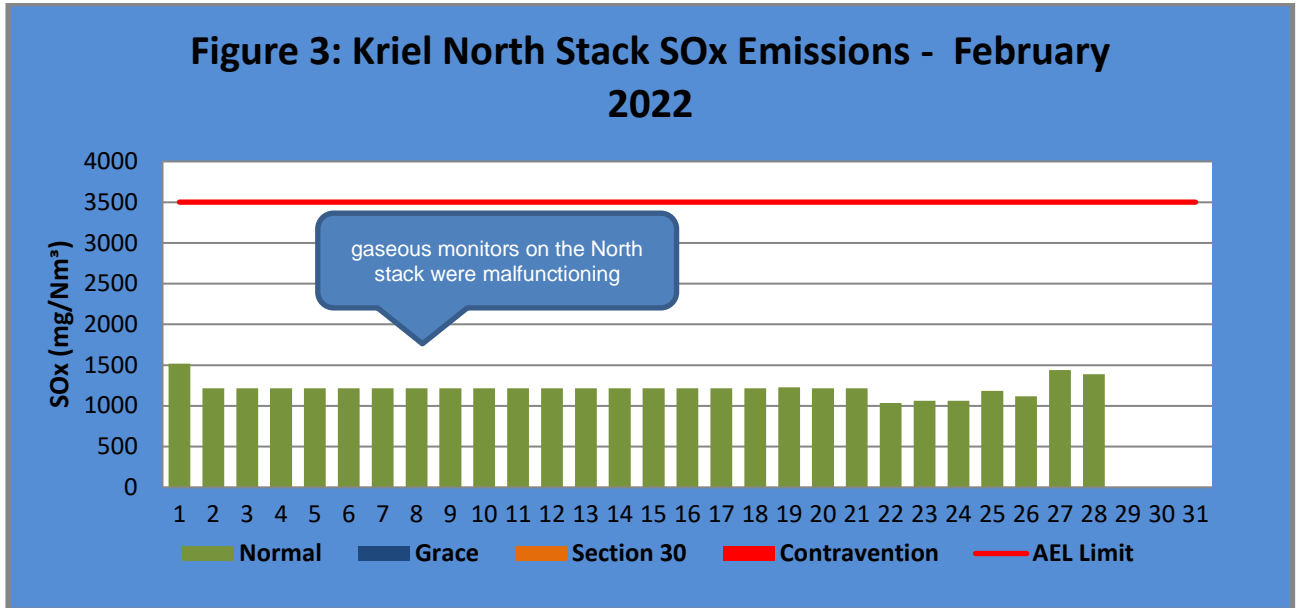


Figure 3. SO₂ emissions for the month of February 2022 against emission limit for the North Stack. The SO_x Limit is 3500mg/Nm³.

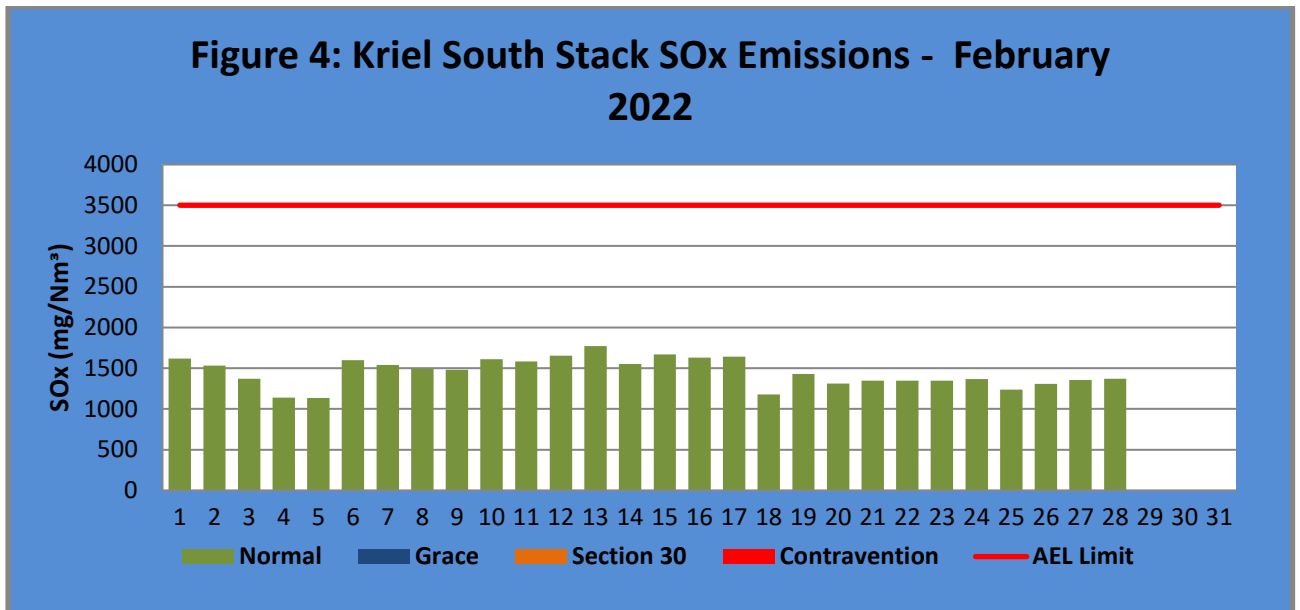


Figure 4. SO₂ emissions for the month of February 2022 against emission limit for the South Stack. The SO_x Limit is 3500mg/Nm³.

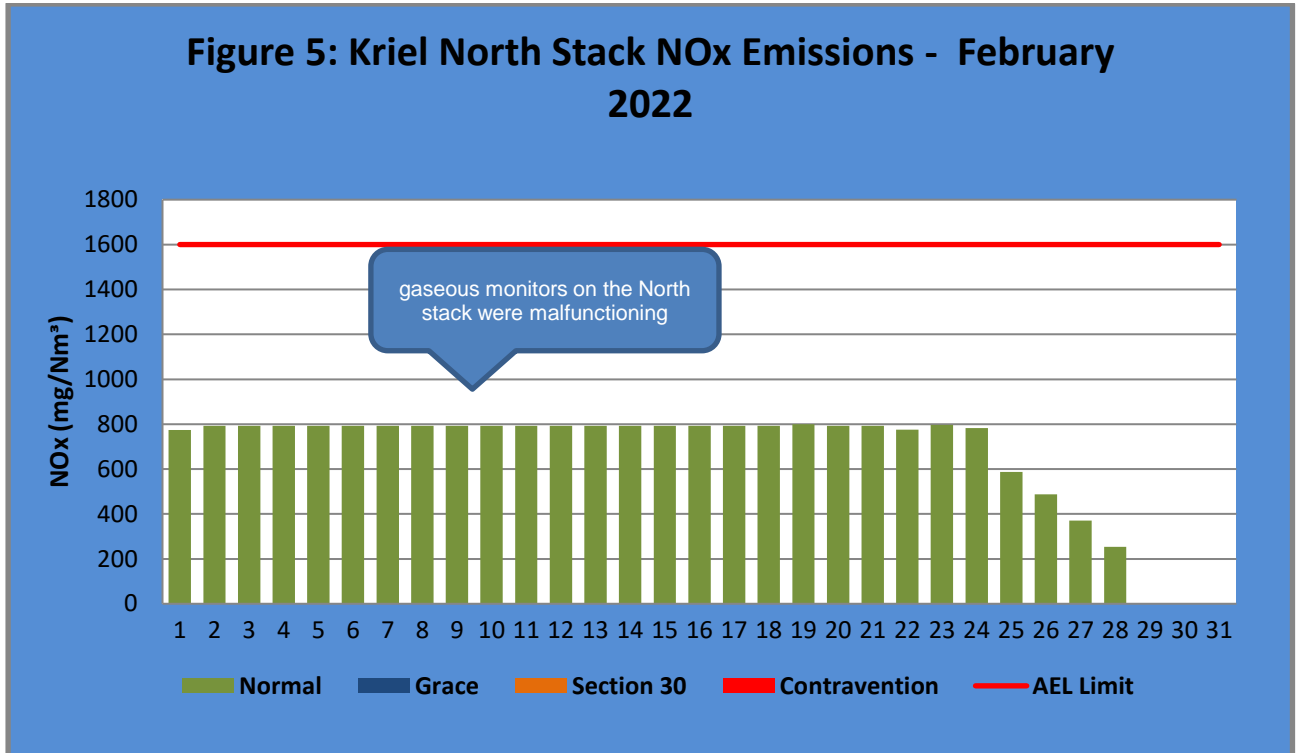


Figure 5. NO_x emissions for the month of February 2022 against emission limit for the North Stack. The NO_x Limit is 1600mg/Nm³.

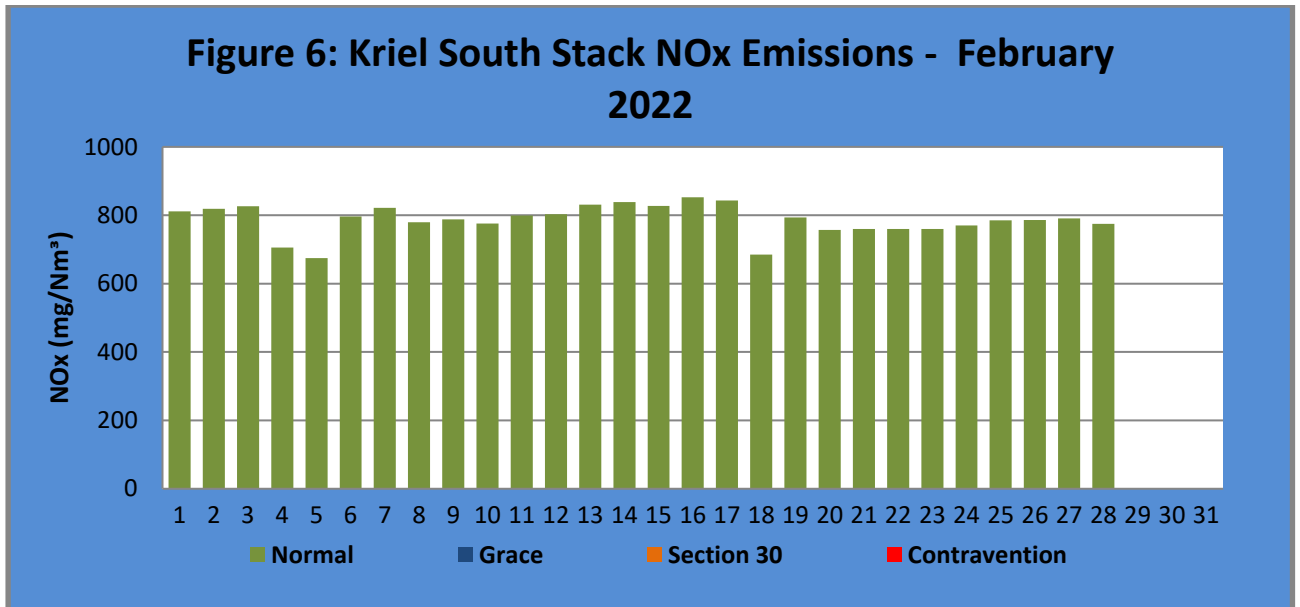


Figure 6. NO_x emissions for the month of February 2022 against emission limit for the South Stack. The NO_x Limit is 1600mg/Nm³.

Table 4: Monthly tonnages for the month February 2022

Unit	PM (tons)	SO ₂ (tons)	NO ₂ (tons)
sum	177.1	4 801.5	2 881.9

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 – February 2022

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Monthly Limit Exceedance	Average PM (mg/Nm ³)
North	27	1	0	0	1	44.0
South	20	8	0	0	8	122.3

Table 5.2: Operating days in compliance to SOx AEL Limit - February 2022

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SOx (mg/Nm ³)
North	28	0	0	0	0	1 219.9
South	28	0	0	0	0	1 450.2

Table 5.3: Operating days in compliance to NOx AEL Limit – February 2022

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm ³)
North	28	0	0	0	0	738.6
South	28	0	0	0	0	786.1

Light up information

Table 6: PM Start-up information for the month of February 2022

North Stack	Event 1	
Unit No.	Unit 3	
Breaker Open (BO)	9:40 AM	2022/02/19
Draught Group (DG) Shut Down (SD)	10:00 PM	2022/02/19
BO to DG SD (duration)	00:12:20	DD:HH:MM
Fires in time	2:45 PM	2022/02/23
Synch. to Grid (or BC)	11:05 PM	2022/02/23
Fires in to BC (duration)	00:08:20	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

South Stack	Event 1		Event 2		Event 3	
Unit No.	Unit		Unit 4		Unit	
Breaker Open (BO)	BO previously	BO previously			1:05 PM	2022/02/27
Draught Group (DG) Shut Down (SD)	n/a	n/a			1:05 PM	2022/02/28
BO to DG SD (duration)	n/a	DD:HH:MM		DD:HH:MM	01:00:00	DD:HH:MM
Fires in time			9:35 PM	2022/02/20		
Synch. to Grid (or BC)			8:50 AM	2022/02/23		
Fires in to BC (duration)		DD:HH:MM	02:11:15	DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)			not > limit	not > limit		
Emissions below limit from BC (duration)		DD:HH:MM	n/a	DD:HH:MM		DD:HH:MM

Complaints Register

Table 9: Complaints for the month of February 2022.

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 February 2022.					

General

The particulate matter (PM10) emissions on the North and South Common Stack were within the **monthly limit**; North stack recorded the monthly PM10 average emissions figure of **44.0 mg/Nm³** while south stack the **monthly limit** and recorded PM10 monthly average figure of **122.3 mg/Nm³**. The gaseous (NOx & SOx) emissions on the north and south common stacks were also within the **daily limit** during the month of February 2022; refer to graphs above.

Notification of unavailability of online gaseous emissions monitor on the north emissions stack at Kriel Power station:

- During the month February 2021, Kriel Power Station discovered that gaseous monitors on the North stack were malfunctioning. This defect followed the monitors were successfully calibrated on the 31st of January 2022 by the service provider contracted by Kriel Power Station to carry out the monthly calibrations for the power station's gaseous monitors. Maintenance personnel were requested to conduct fault-finding and resolve the issue. Upon investigation, the maintenance team discovered that there were error readings on the panel. After numerous attempts by the maintenance personnel to try and resolve the issue proved to be unsuccessful, a call was logged to the abovementioned service provider.
- The Original Equipment Manufacturer (OEM) contracted by Kriel Power Station to carry out the monthly calibrations for the power station's gaseous monitors was notified and requested to investigate and resolve the issue.
- The service provider noted that Monitor "Head" had a faulty Microprocessor PCB, due to this problem the Cooler current inside the head is running at the max tolerated range and due to this all the temperatures are higher than tolerated spec, so EPA and the Supplier Codel made a few adjustments to some internal settings

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 2021/2022 Financial Year

Month	Description of Section30 Incidents - including the reference number	Root Cause (s)	Status of S30 Incident with DEFF (open or closed)	Remarks
April- 2021	North Stack: Upset condition in Units 1,2 and 3 exceeded 48 hours Grace Period	1.Castlet Key System failure 2.Defective Pyrometers	Open	1 event reported
May - 2021	None			
June - 2021	None			
July - 2021	None			
Aug - 2021	None			
Sep - 2021	South Stack: Upset condition in Units 4,5 and 5 exceeded 48 hours grace period	Spark from loose electrical connection on the motor terminal at the South SO3 pump house resulting into flashover	Closed	1 event reported
Oct - 2021	None			
Nov - 2021	None			
Dec - 2021	North Stack: Upset condition in Units 1,2 and 3 exceeded 48 hours Grace Period South Stack: Upset condition in Units 4,5 and 6 exceeded 48 hours grace period	Air compressor failure resulting into inadequate air pressure Unit 6's defective SO ₃ plant blower motor Air compressor failure resulting to inadequate air pressure -Defective circuit breaker resulting into loss of power supply to South Stack's SO3 PLC	Open Open	2 events reported
Jan - 2022	December South Stack Incident overlapped to February and affected February emissions	Air compressor failure resulting to inadequate air pressure	Open	1 event
Feb - 2022	None			
Mar - 2022	None			