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Date:
 30 December 2021

Enquiries:
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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 NOVEMBER 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 November 2021. 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 November 2021

Raw Materials and Products used	Raw Material Type	Units	Maximum Permitted Consumption / Rate (Quantity)	Consumption / Rate in Month of November 2021
	Coal	Tons/month	1 227 600	667 995
	Fuel Oil	Tons/month	5 000	6 453 <i>(exceedance reported to authority)</i>
Production Rates	Product/ By-Product Name	Unit	Maximum Production Capacity Permitted (Quantity)	Production Rate in Month of November 2021
	Ash	Tons/month	not specified	485.1
	RE PM	kg/MWh	not specified	0.49 <i>(still to be verified)</i>

1/...

Abatement Technology

Table 2: Abatement Equipment Control Technology for November 2021.

Associated Unit/Stack	Technology Type	Actual Efficiency (%)
		November 2021
Unit 1	ESP	99.78%
Unit 2	ESP	99.74%
Unit 3	ESP	99.64%
Unit 4	ESP	99.70%
Unit 5	ESP	99.70%
Unit 6	ESP	99.65%

Energy Source Characteristics

Table 3: Energy Source Material Characteristics for the month of November 2021




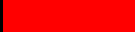
Characteristic	Stipulated Range (Unit)	Monthly Average Content
Sulphur Content	0.6-1.2 (%)	0.67
Ash Content	21-36 (%)	25.38

Monthly Monitor Reliability

Associated Unit/Stack	PM (%)	SOx (%)	NOx (%)
North	90.14	98.95	100.00
South	99.86	100.00	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

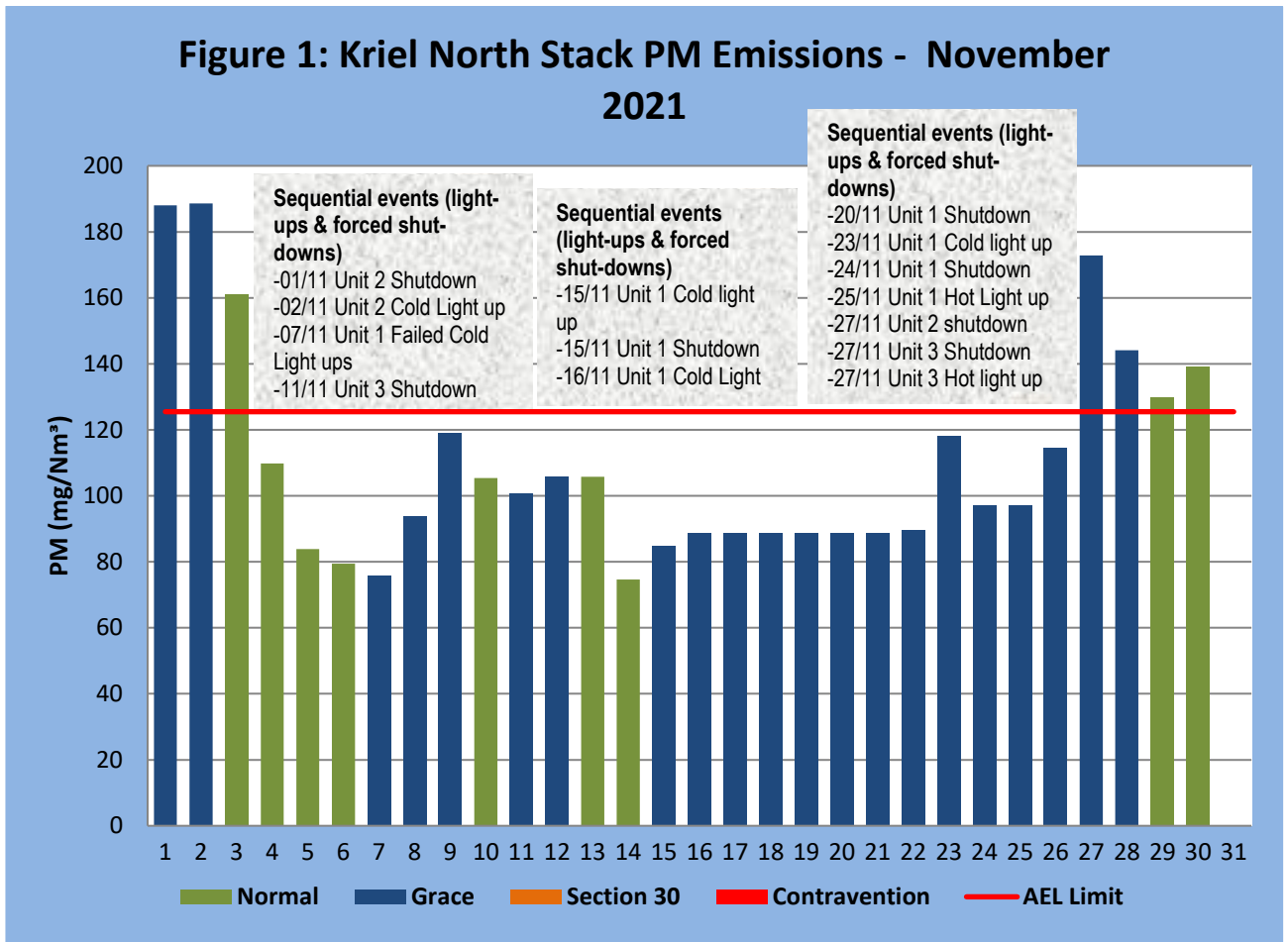


Figure 1: PM emissions for the month of November 2021 against emission limit for the North Stack. Monthly average was 110.4 mg/Nm³

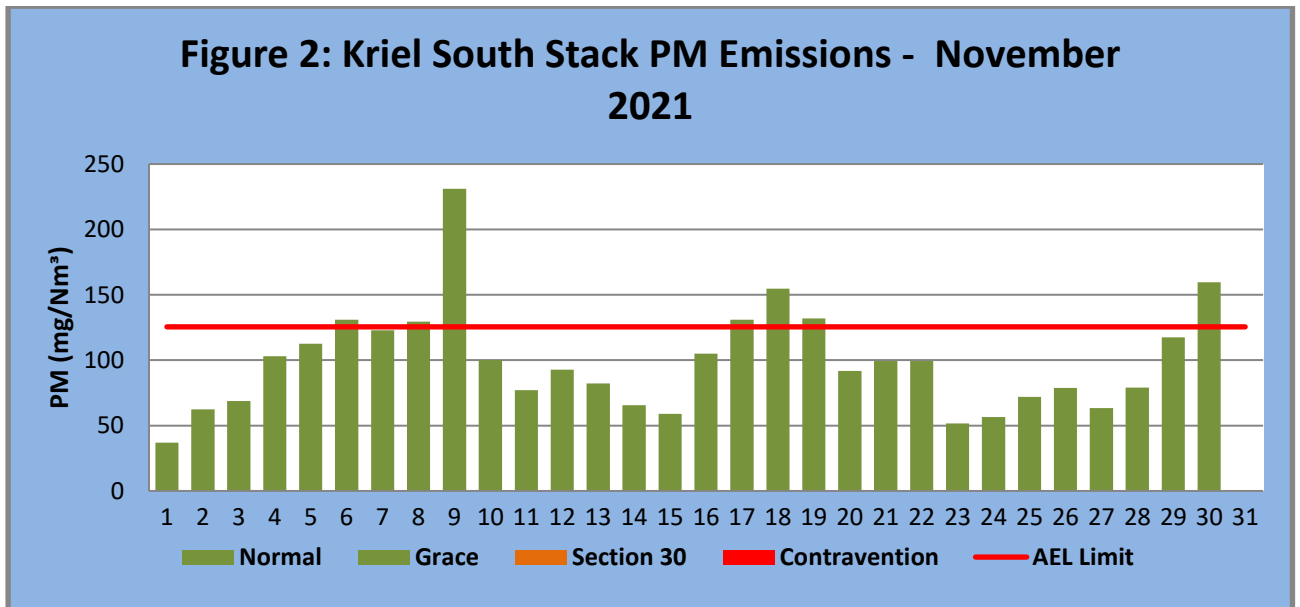


Figure 2: PM emissions for the month of November 2021 against emission limit for the South Stack. Monthly average was 98.9 mg/Nm³

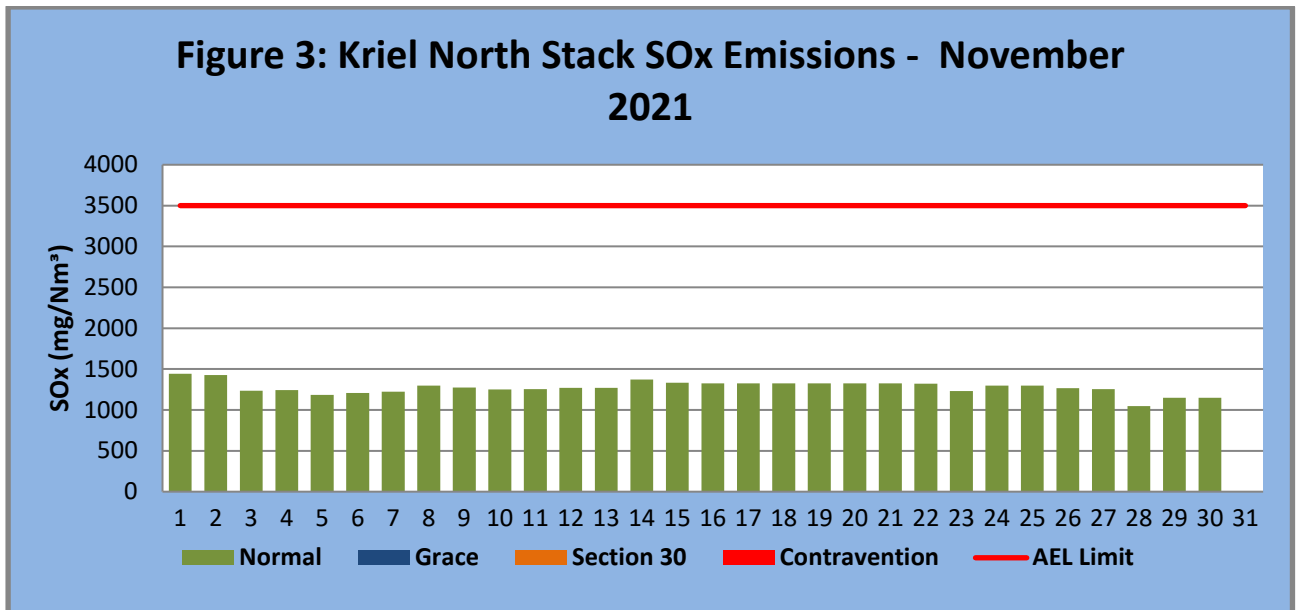


Figure 3. SO₂ emissions for the month of November 2021 against emission limit for the North Stack. The SO_x Limit is 3500mg/Nm³.

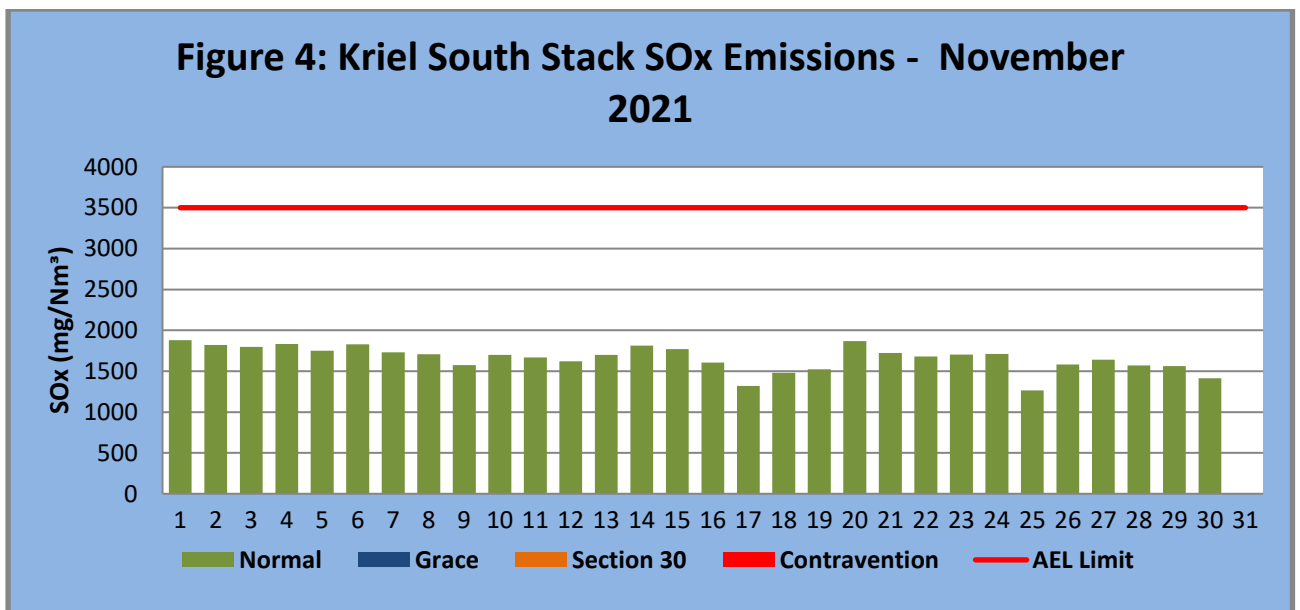


Figure 4. SO₂ emissions for the month of November 2021 against emission limit for the South Stack. The SO_x Limit is 3500mg/Nm³.

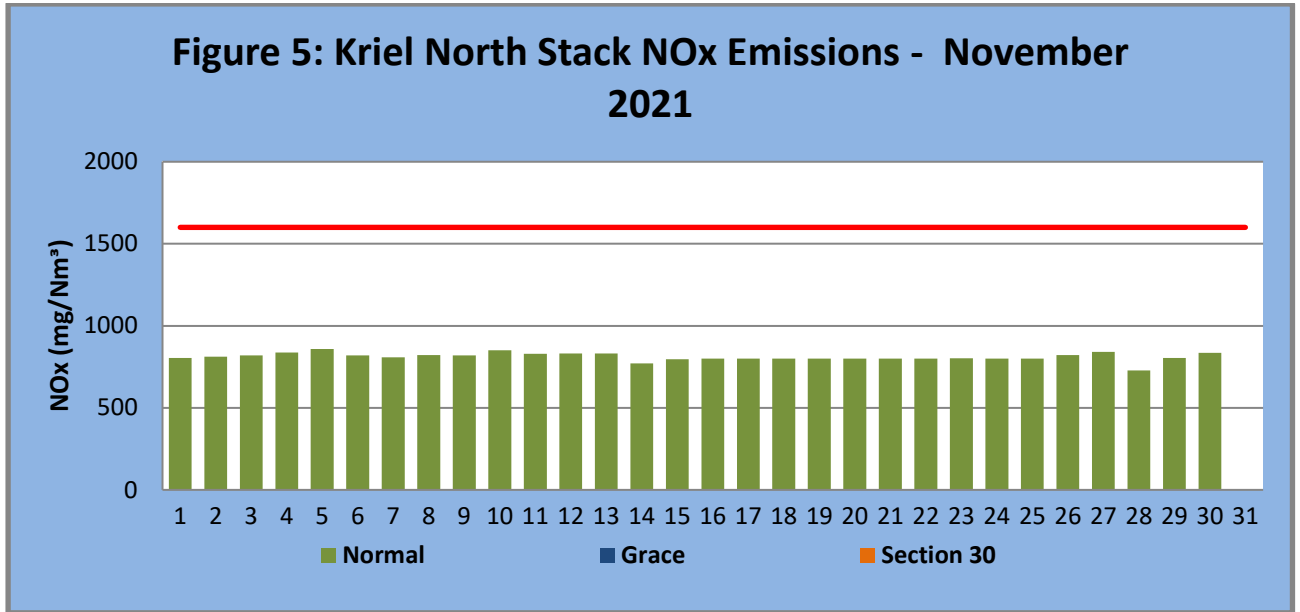


Figure 5. NO₂ emissions for the month of November 2021 against emission limit for the North Stack. The NO_x Limit is 1600mg/Nm³.

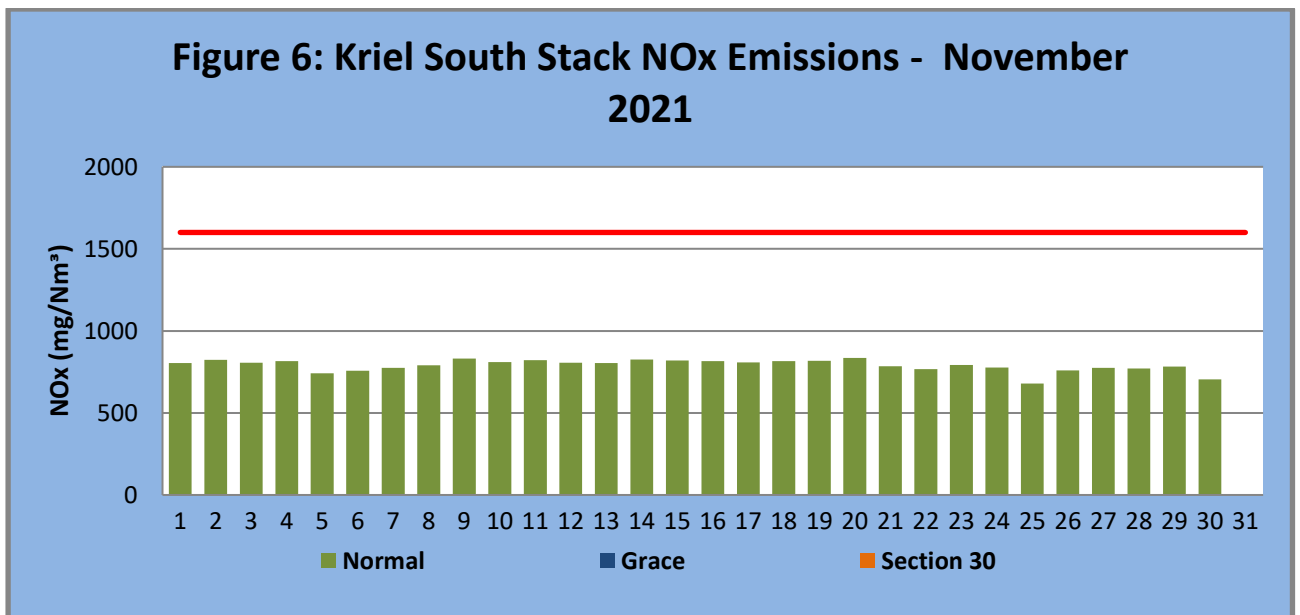


Figure 6. NO₂ emissions for the month of November 2021 against emission limit for the South Stack. The NO_x Limit is 1600mg/Nm³.

Table 4: Monthly tonnages for the month November 2021

Unit	PM (tons)	SO ₂ (tons)	NO ₂ (tons)
SUM	485.1	7 243.6	3 792.1

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 - November 2021

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Monthly Limit Exceedance	Average PM (mg/Nm ³)
North	9	21	0	0	0	110.4
South	30	0	0	0	0	98.9

Table 5.2: Operating days in compliance to SOx AEL Limit - November 2021

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SOx (mg/Nm ³)
North	30	0	0	0	0	1 275.1
South	30	0	0	0	0	1 661.3

Table 5.3: Operating days in compliance to NOx AEL Limit - November 2021

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm ³)
North	30	0	0	0	0	811.5
South	30	0	0	0	0	790.5

Light up information

Table 6: PM Start-up information for the month of fabricate November 2021

North Stack	Event 1		Event 2		Event 3	
Unit No.	Unit 2		Unit		Unit 2	
Breaker Open (BO)	4:15 AM	2021/11/01	7:35 AM	2021/11/06	2:00 PM	2021/11/01
Draught Group (DG) Shut Down (SD)	12:25 PM	2021/11/02	11:45 AM	2021/11/06	DG did not trip or SD	DG did not trip or SD
BO to DG SD (duration)	01:08:10	DD:HH:MM	00:04:10	DD:HH:MM	n/a	DD:HH:MM
Fires in time					2:00 PM	2021/11/01
Synch. to Grid (or BC)					12:55 AM	2021/11/02
Fires in to BC (duration)		DD:HH:MM		DD:HH:MM	00:10:55	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

North Stack	Event 4		Event 5		Event 6	
Unit No.	Unit 1		Unit		Unit 1	
Breaker Open (BO)	7:45 AM	2021/11/11	2:45 PM	2021/11/08	BO previously	BO previously
Draught Group (DG) Shut Down (SD)	7:25 AM	2021/11/14	12:10 PM	2021/11/09	n/a	n/a
BO to DG SD (duration)	02:23:40	DD:HH:MM	00:21:25	DD:HH:MM	n/a	DD:HH:MM
Fires in time					2:15 AM	2021/11/15
Synch. to Grid (or BC)					5:50 AM	2021/11/16
Fires in to BC (duration)		DD:HH:MM		DD:HH:MM	01:03:35	DD:HH:MM
Emissions below limit from BC (end date)					not > limit	not > limit

South Stack	<i>No Event</i>
Unit No.	
Breaker Open (BO)	
Draught Group (DG) Shut Down (SD)	
BO to DG SD (duration)	
Fires in time	
Synch. to Grid (or BC)	
Fires in to BC (duration)	
Emissions below limit from BC (end date)	
Emissions below limit from BC (duration)	

Complaints Register

Table 9: Complaints for the month of November 2021.

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 November 2021.					

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 **110.4 mg/Nm³** while south stack recorded monthly PM10 average figure of **98.9 mg/Nm³**. The gaseous (NO_x & SO_x) emissions on the north and south common stacks were also within the daily limit during the month of November 2021; refer to graphs above.

Fuel oil consumption exceeded the monthly threshold during the month of November 2021; and the matter was reported to the licencing authority before the actual exceedance could occur for approval.

NB: The rest of the information demonstrating compliance with the emission 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 Unit 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			
November 2021	None			
Aug 2021	None			
Sep 2021	South Stack: Upset condition in Unit 4,5 &5 exceeded 48 hours grace period	Spark from loose electrical connection on the motor terminal at the South SO3 pump house resulting into flashover	Open	1 Event reported
Oct 2021	None			
Nov 2021	None			
Dec 2021				
Jan 2022				
Feb 2022				
Mar 2022				