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Date:
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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 2020

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 2020. 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 2020

Raw Materials and Products used	Raw Material Type	Units	Maximum Permitted Consumption / Rate (Quantity)	Consumption / Rate in Month of November 2020
	Coal	Tons/month	1 227 600	452 045
	Fuel Oil	Tons/month	5 000	4 192.52
Production Rates	Product/ By-Product Name	Unit	Maximum Production Capacity Permitted (Quantity)	Production Rate in Month of November 2020
	Ash	Tons/month	not specified	281.37
	RE PM	kg/MWh	not specified	0.23

1/...

Abatement Technology

Table 2: Abatement Equipment Control Technology for November 2020.

Associated Unit/Stack	Technology Type	Actual Efficiency (%)
		November 2020
Unit 1	ESP	99.66%
Unit 2	ESP	99.68%
Unit 3	ESP	Outage
Unit 4	ESP	99.81%
Unit 5	ESP	99.77%
Unit 6	ESP	99.63%

Energy Source Characteristics




Table 3: Energy Source Material Characteristics for the month of November 2020

Characteristic	Stipulated Range (Unit)	Monthly Average Content
Sulphur Content	0.6-1.2 (%)	0.87
Ash Content	21-36 (%)	25.39

Monthly Monitor Reliability

Associated Unit/Stack	PM (%)	SO _x (%)	NO _x (%)
North	90.4%	95.1%	95.1%
South	95.7%	37% (Monitor unavailable 1-11 November 2020)	37% (Monitor unavailable 1-11 November 2020)

Emissions Reporting

GRAPH LEGEND	
	Final daily emissions average in mg/Nm ³ released within a particular day
	Final monthly emissions average in mg/Nm ³ released within the whole month
	Emissions limit as per the AEL

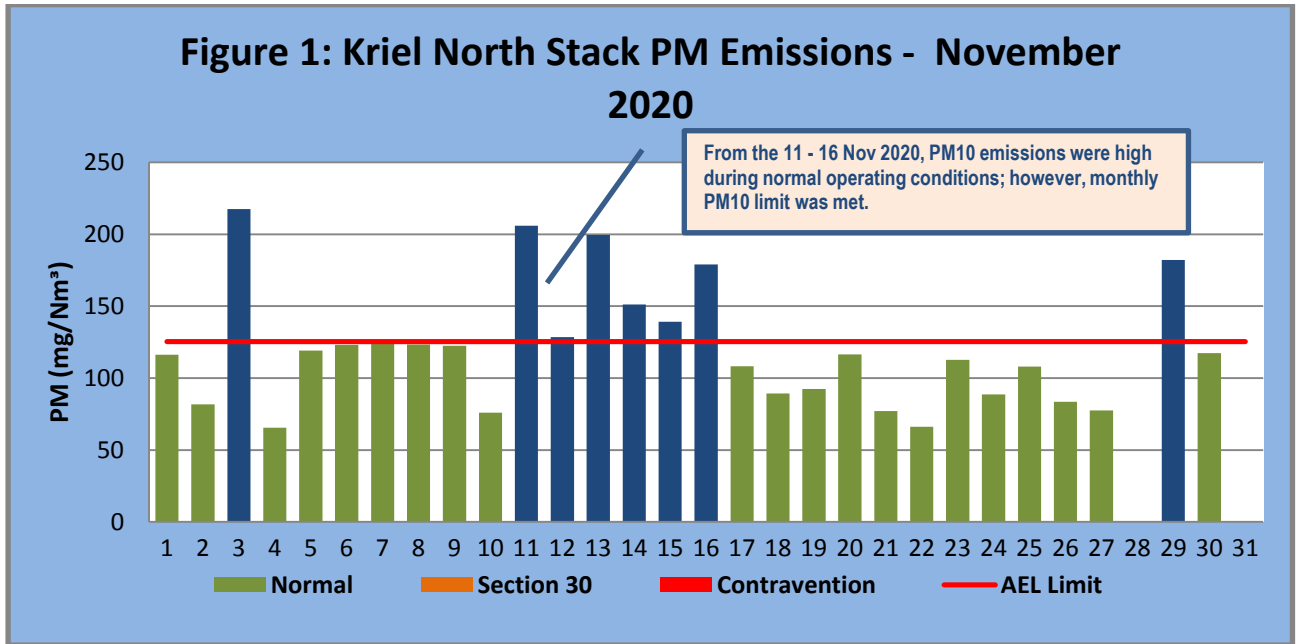


Figure 1: PM emissions (daily averages) for the month of November 2020 against emission limit for the North Stack

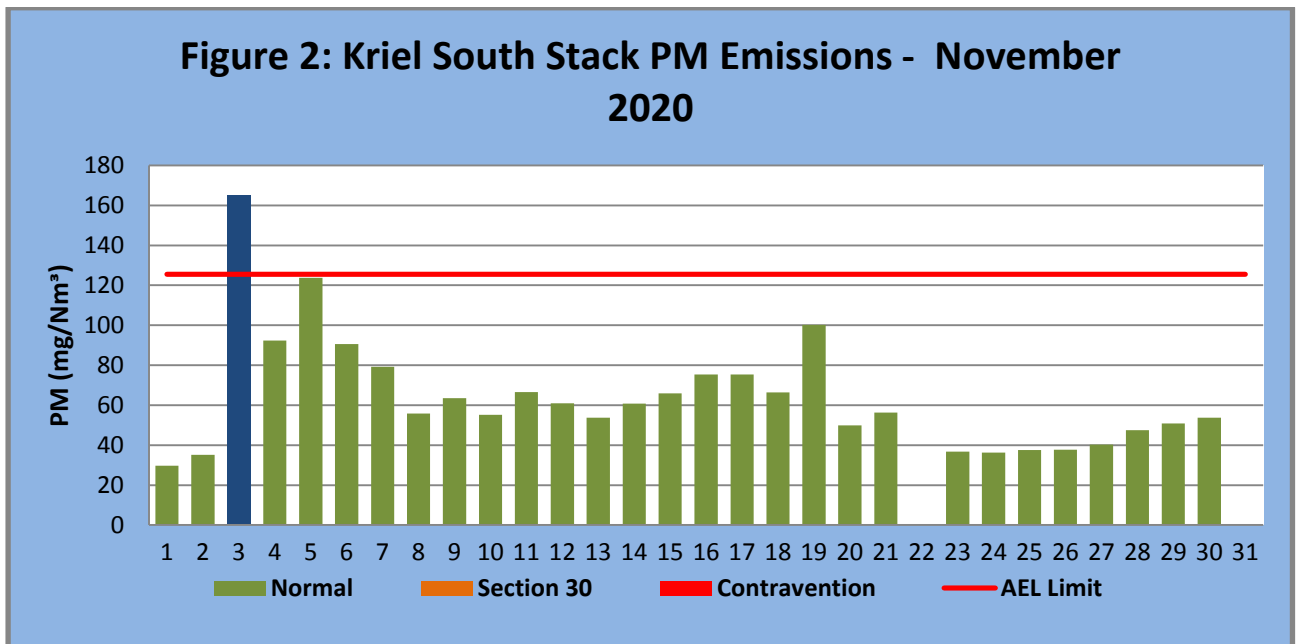


Figure 2: PM emissions (daily averages) for the month of November 2020 against emission limit for the South Stack

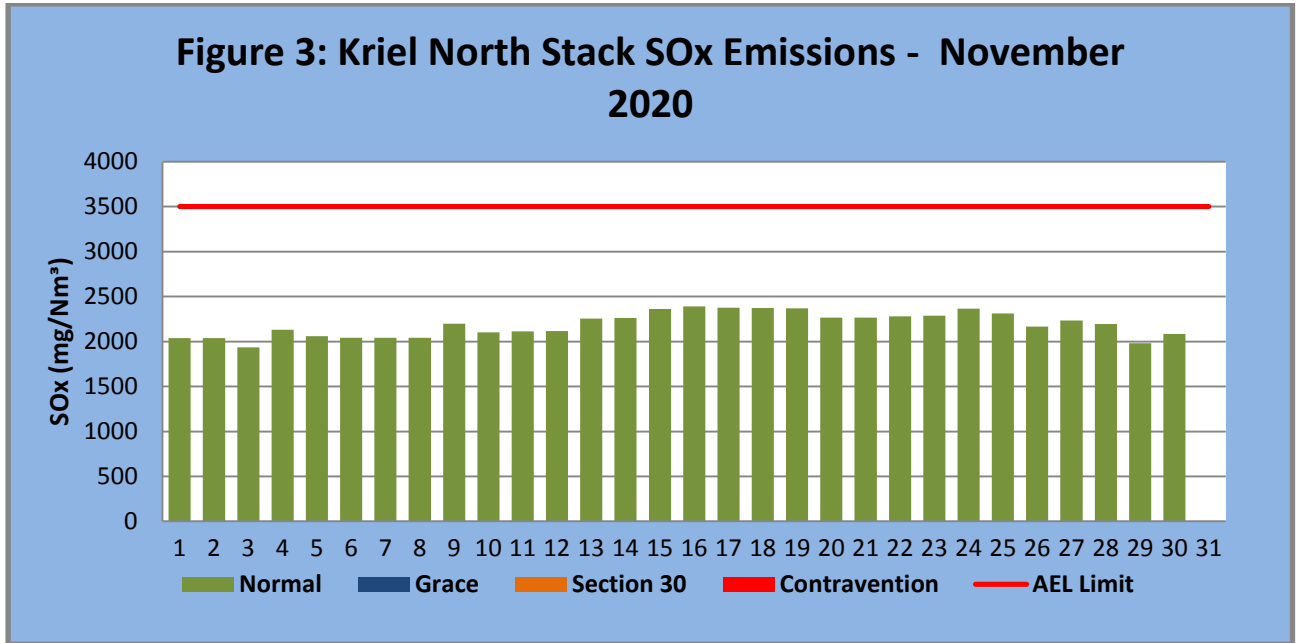


Figure 3. SO₂ emissions (daily averages) for the month of November 2020 against emission limit for the North Stack. The SO_x Limit is 3500mg/Nm³.

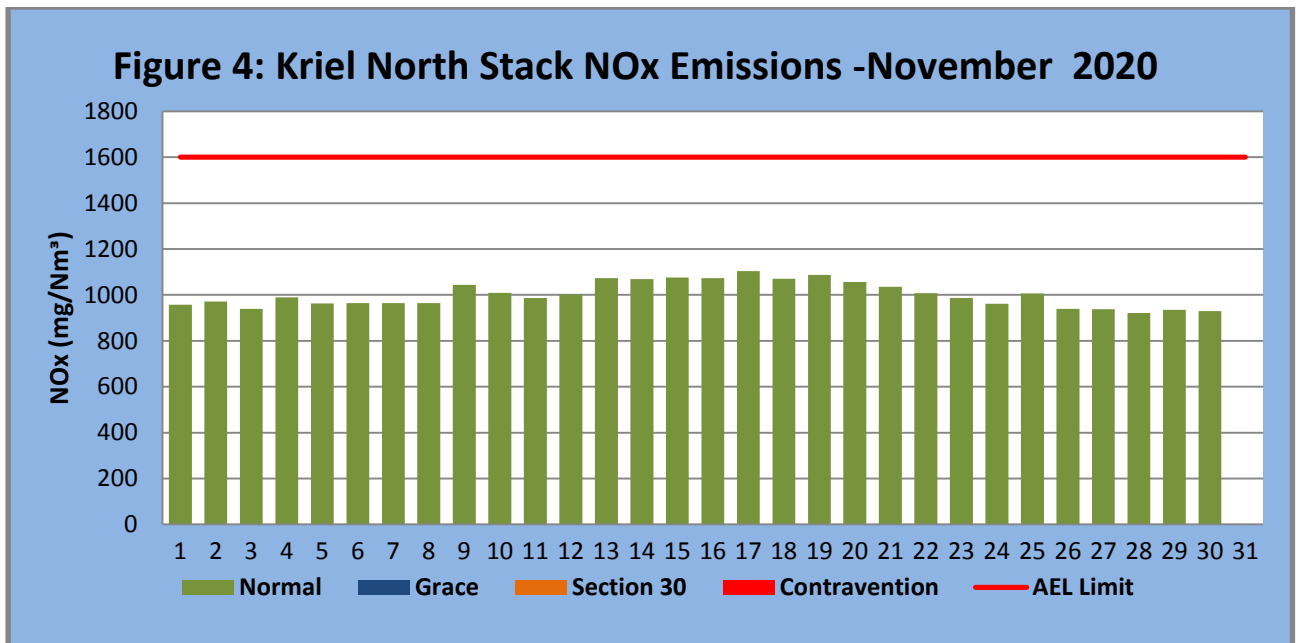


Figure 4. NO₂ emissions (daily averages) for the month of November 2020 against emission limit for the North Stack. The NO_x Limit is 1600mg/Nm³.

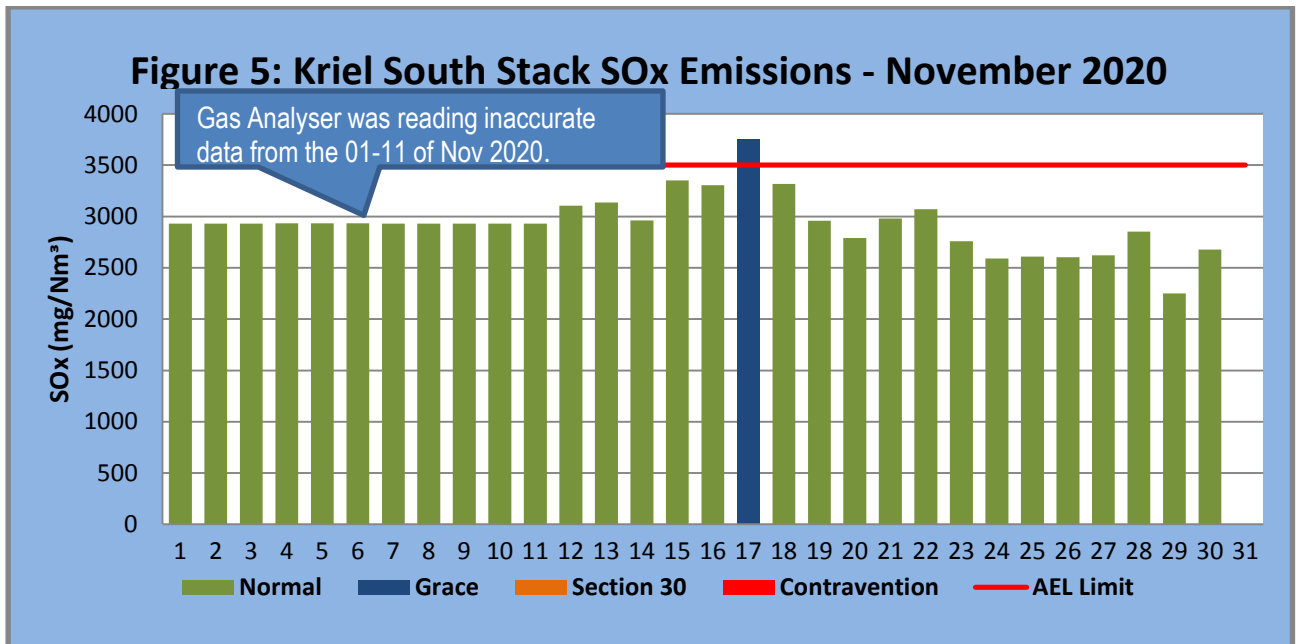


Figure 5. SO₂ emissions (daily averages) for the month of November 2020 against emission limit for the South Stack. The SO_x Limit is 3500mg/Nm³.

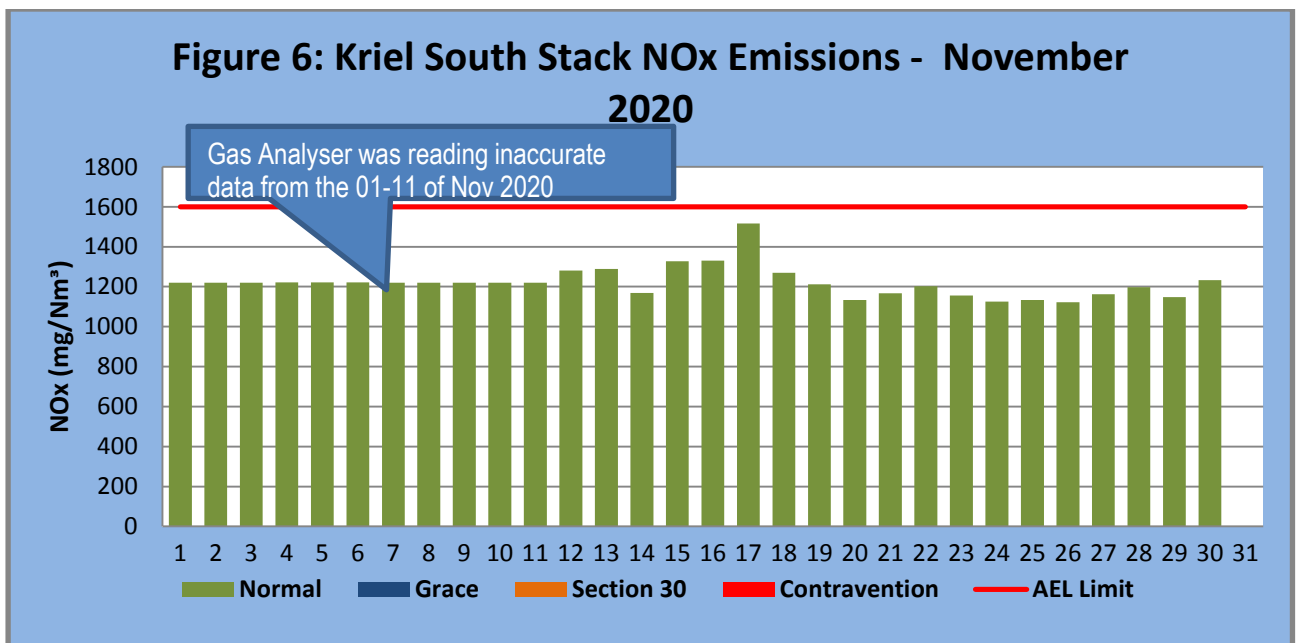


Figure 6. NO₂ emissions (daily averages) for the month of November 2020 against emission limit for the South Stack. The NO_x Limit is 1600mg/Nm³.

Table 4: Monthly tonnages for the month November 2020

Unit	PM (tons)	SO ₂ (tons)	NO ₂ (tons)
SUM	281.4	9 308.5	4 024.2

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 2020

Associated Unit/Stack	Normal	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm ³)
North	29	0	0	8	120.4
South	29	0	0	1	64.2

Table 5.2: Operating days in compliance to SOx AEL Limit - November 2020

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SOx (mg/Nm ³)
North	30	0	0	0	0	2 189.7
South	30	1	0	0	1	2 932.0

Table 5.3: Operating days in compliance to NOx AEL Limit - November 2020

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm ³)
North	30	0	0	0	0	1 000.9
South	30	0	0	0	0	1 220.0

Light up information

Table 6: PM Start-up information for the month of fabricate November 2020

North Stack	Event 1		Event 2		Event 3	
Unit No.	Unit 1		Unit 1		Unit 1	
Breaker Open (BO)	7:55 PM	2020/11/03	7:55 PM	2020/11/03	6:10 PM	2020/11/07
Draught Group (DG) Shut Down (SD)	8:10 PM	2020/11/03	n/a	n/a	DG did not trip or SD	DG did not trip or SD
BO to DG SD (duration)	00:00:15	DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM
Fires in time	4:45 PM	2020/11/01	6:35 AM	2020/11/05	6:10 PM	2020/11/07
Synch. to Grid (or BC)	4:40 AM	2020/11/02	6:00 PM	2020/11/06	7:00 AM	2020/11/08
Fires in to BC (duration)	00:11:55	DD:HH:MM	01:11:25	DD:HH:MM	00:12:50	DD:HH:MM
Emissions below limit from BC (end date)	12:00 AM	2020/10/26	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

North Stack	Event 4		Event 5		Event 6	
Unit No.	Unit 2		Unit 2		Unit 1	
Breaker Open (BO)	10:10 PM	2020/11/10	9:25 PM	2020/11/13	11:30 PM	2020/11/27
Draught Group (DG) Shut Down (SD)	1:10 AM	2020/11/11	9:50 PM	2020/11/13	12:45 AM	2020/11/28
BO to DG SD (duration)	00:03:00	DD:HH:MM	00:00:25	DD:HH:MM	00:01:15	DD:HH:MM
Fires in time	12:40 PM	2020/11/11	2:55 AM	2020/11/14	3:15 PM	2020/11/29
Synch. to Grid (or BC)	7:35 PM	2020/11/11	8:20 AM	2020/11/14	4:50 AM	2020/11/30
Fires in to BC (duration)	00:06:55	DD:HH:MM	00:05:25	DD:HH:MM	00:13:35	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	n/a	DD:HH:MM

South Stack	Event 1		Event 2		Event 3	
Unit No.	Unit 4		Unit 4		Unit 4	
Breaker Open (BO)	BO previously	BO previously	10:30 PM	2020/11/16	1:25 AM	2020/11/21
Draught Group (DG) Shut Down (SD)	n/a	n/a	DG did not trip or SD	DG did not trip or SD	3:10 AM	2020/11/21
BO to DG SD (duration)	n/a	DD:HH:MM	n/a	DD:HH:MM	00:01:45	DD:HH:MM
Fires in time	2:20 AM	2020/11/04	10:30 PM	2020/11/16	7:25 AM	2020/11/22
Synch. to Grid (or BC)	12:15 PM	2020/11/04	4:00 AM	2020/11/17	11:40 AM	2020/11/22
Fires in to BC (duration)	00:09:55	DD:HH:MM	00:05:30	DD:HH:MM	00:04:15	DD:HH:MM
Emissions below limit from BC (end date)	not > limit	not > limit	not > limit	not > limit	12:00 AM	2020/10/26
Emissions below limit from BC (duration)	n/a	DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM

South Stack	Event 4		Event 5	
Unit No.	Unit 4		Unit 5	
Breaker Open (BO)	6:05 AM	2020/11/24	9:40 PM	2020/11/23
Draught Group (DG) Shut Down (SD)	11:35 AM	2020/11/24	11:30 AM	2020/11/24
BO to DG SD (duration)	00:05:30	DD:HH:MM	00:13:50	DD:HH:MM
Fires in time	12:15 PM	2020/11/24	3:05 PM	2020/11/26
Synch. to Grid (or BC)	3:10 PM	2020/11/24	7:25 PM	2020/11/26
Fires in to BC (duration)	00:02:55	DD:HH:MM	00:04:20	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

Complaints Register

Table 9: Complaints for the month of November 2020.

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 2020.					

General

The particulate matter (PM10) emissions on the north and south common stacks were within the **monthly limit** during the month of November 2020; North stack recorded the monthly PM10 average emissions figure of **120.4 mg/Nm³** while south stack recorded PM10 monthly average figure of **64.2 mg/Nm³**. The gaseous (NO_x & SO_x) emissions on the north common stack were also within the **daily limit** during the month of November 2020; refer to graphs above.

South Stack – Gaseous Emissions

On the 6th of November 2020, during the weekly emission data verification activity, it was observed that the gaseous emission monitor on the South Stack was reading static but inaccurate figure. As part of the investigations, maintenance team went up the south stack to investigate the issue only to find that the monitor was still showing normal stream of reading. On the 9th of November 2020, Engineering department also concluded their investigation on the matter with the findings that the gas analyzer was reading irretrievable inaccurate data; and therefore the analyzer was in actual fact faulty. In addition, investigation also revealed that the monitor started reading erratic data from the 29th of November 2020.

The OEM came to Kriel Power Station on the 12th of November 2020 to diagnose and fix the aforementioned fault on the gas monitor. The Monitors have been reading accurate data since the 12th of November 2020 - with an exception of the 17th of November 2020 wherein the south stack SO_x monitor recorded an unusual high reading which is misaligned with the results of maximum release rate investigation.

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 2020/2021 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 - 2020	No section 30 incident reported.			No event to report.
May - 2020	No section 30 incident reported.			No event to report.
June - 2020	No section 30 incident reported.			No event to report.
July - 2020	No section 30 incident reported.			No event to report.
Aug - 2020	Upset condition in unit 4, 5&6 exceeded 48 hours grace period. Section 30 compiled in terms of Section 7.3.2 Kriel's Atmospheric Emissions License	High hopper levels and ash transportation backlog at Unit 5 due to MCB	Open	1 Event reported
Sep - 2020	No section 30 incident reported.			No event to report.
Oct - 2020	No section 30 incident reported.			No event to report.
Nov - 2020	No section 30 incident reported.			No event to report.
Dec - 2020				
Jan - 2021				
Feb - 2021				
Mar - 2021				