

**Ms Mpho Nembilwi**  
 Nkangala District Municipality  
 PO BOX 437  
 MIDDLEBURG  
 1050

Date:  
 02 March 2021

Enquiries:  
 Livhuwani Tshilate  
 017 615 2317

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

Dear Ms Nembilwi

### **KRIEL POWER STATION'S MONTHLY STACK EMISSIONS REPORT FOR THE MONTH OF APRIL 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 April 2020. 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 2020

Raw Materials and Products used	Raw Material Type	Units	Maximum Permitted Consumption / Rate (Quantity)	Consumption / Rate in Month of April 2020
	Coal	Tons/month	1 227 600	542 060.90
	Fuel Oil	Tons/month	5 000	7109.77
Production Rates	Product/ By-Product Name	Unit	Maximum Production Capacity Permitted (Quantity)	Production Rate in Month of April 2020
	Ash	Tons/month	not specified	411.6
	RE PM	kg/MWh	not specified	0.46

1/...

## Abatement Technology

**Table 2:** Abatement Equipment Control Technology for April 2020.

Associated Unit/Stack	Technology Type	Minimum Control Efficiency	Actual Efficiency (%)
			April 2020
Unit 1	ESP	98%	99.63%
Unit 2	ESP	98%	99.77%
Unit 3	ESP	98%	99.61%
Unit 4	ESP	98%	99.60%
Unit 5	ESP	98%	Outage
Unit 6	ESP	98%	99.75%

## Energy Source Characteristics

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




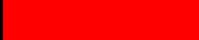
Characteristic	Stipulated Range (Unit)	Monthly Average Content
Sulphur Content	0.6-1.2 (%)	0.75
Ash Content	21-36 (%)	25.08

## Monthly Monitor Reliability

Associated Unit/Stack	PM (%)	SOx (%)	NOx (%)
North	99.86%	100%	100%
South	98.61%	97.64%	99.72%

## Emissions Reporting

### 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

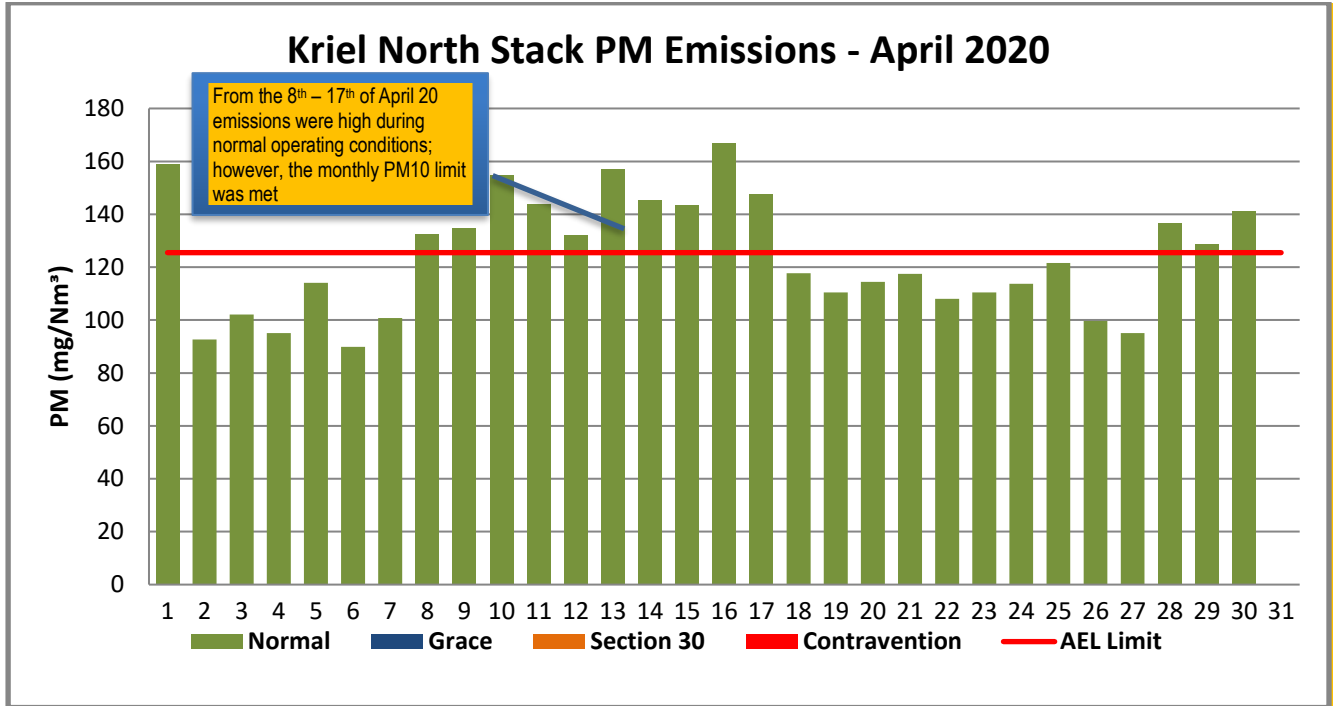


Figure 1: PM emissions for the month of April 2020 against emission limit for the North Stack; monthly average was 124.3mg/Nm<sup>3</sup>

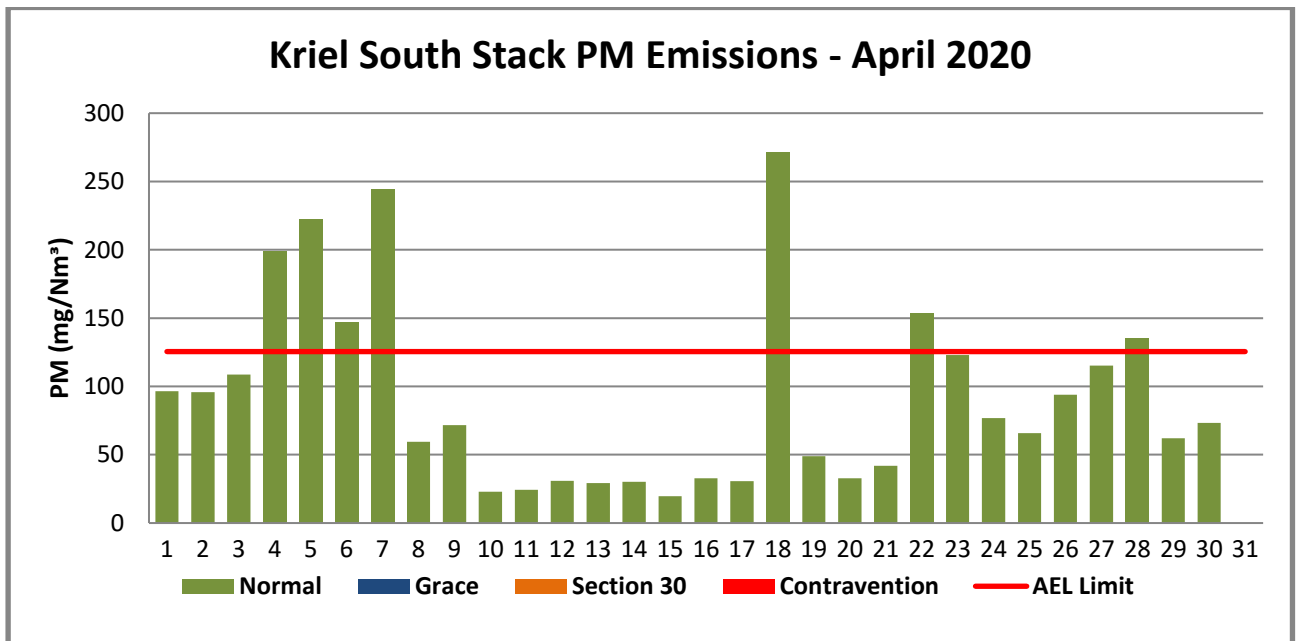


Figure 2: PM emissions (daily averages) for the month of April 2020 against emission limit for the South Stack; the monthly average was 91.93mg/Nm<sup>3</sup>

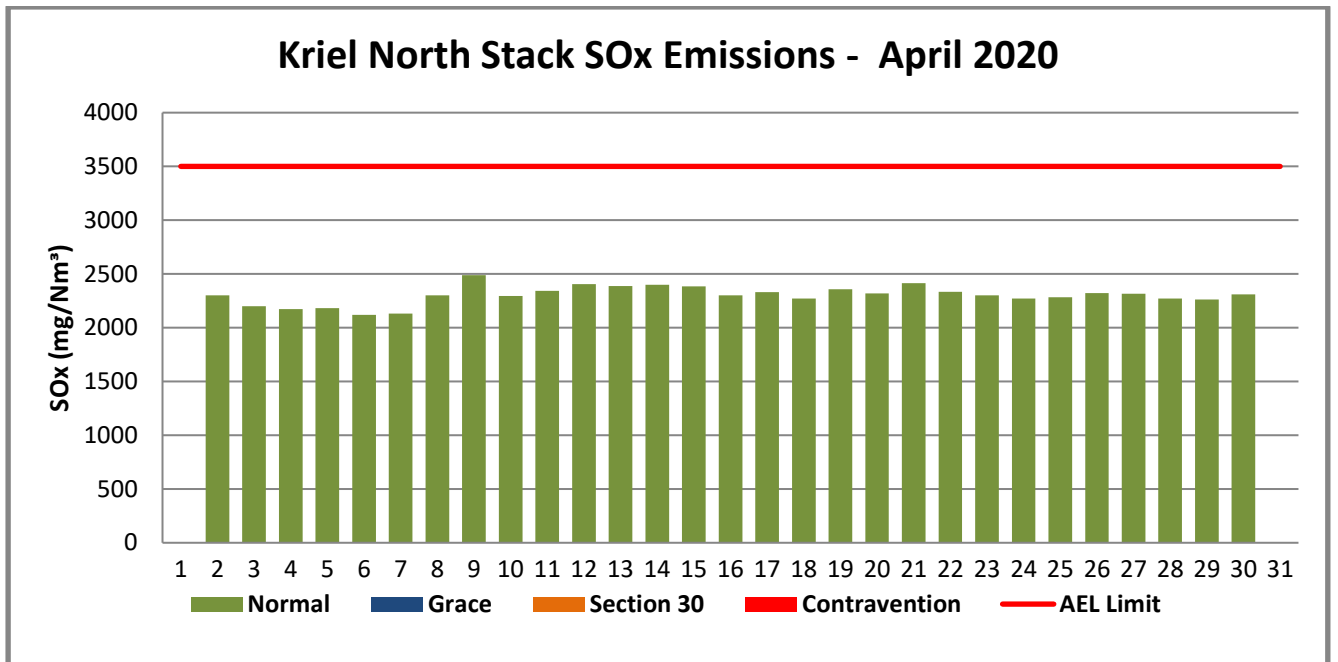


Figure 3. SO<sub>2</sub> emissions (daily averages) for the month of April 2020 against emission limit for the North Stack. The SO<sub>x</sub> Limit is 3500mg/Nm<sup>3</sup>.

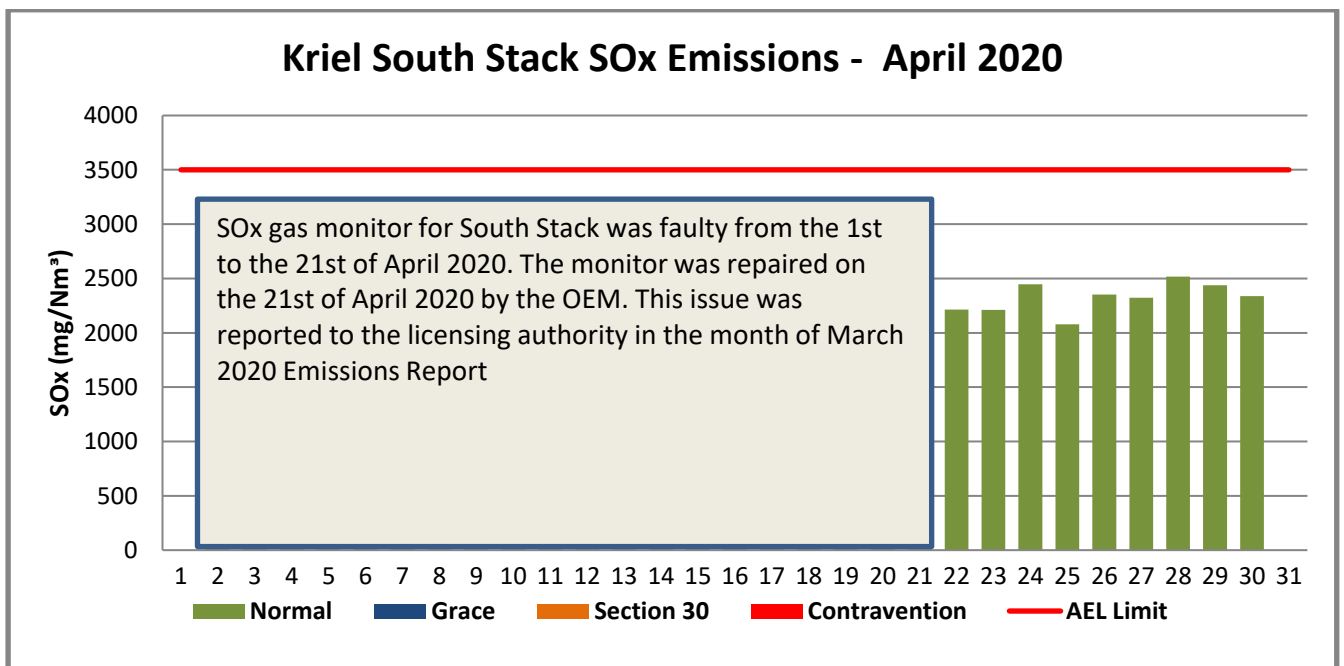


Figure 4. SO<sub>2</sub> emissions (daily averages) for the month of April 2020 against emission limit for the South Stack. The SO<sub>x</sub> Limit is 3500mg/Nm<sup>3</sup>.

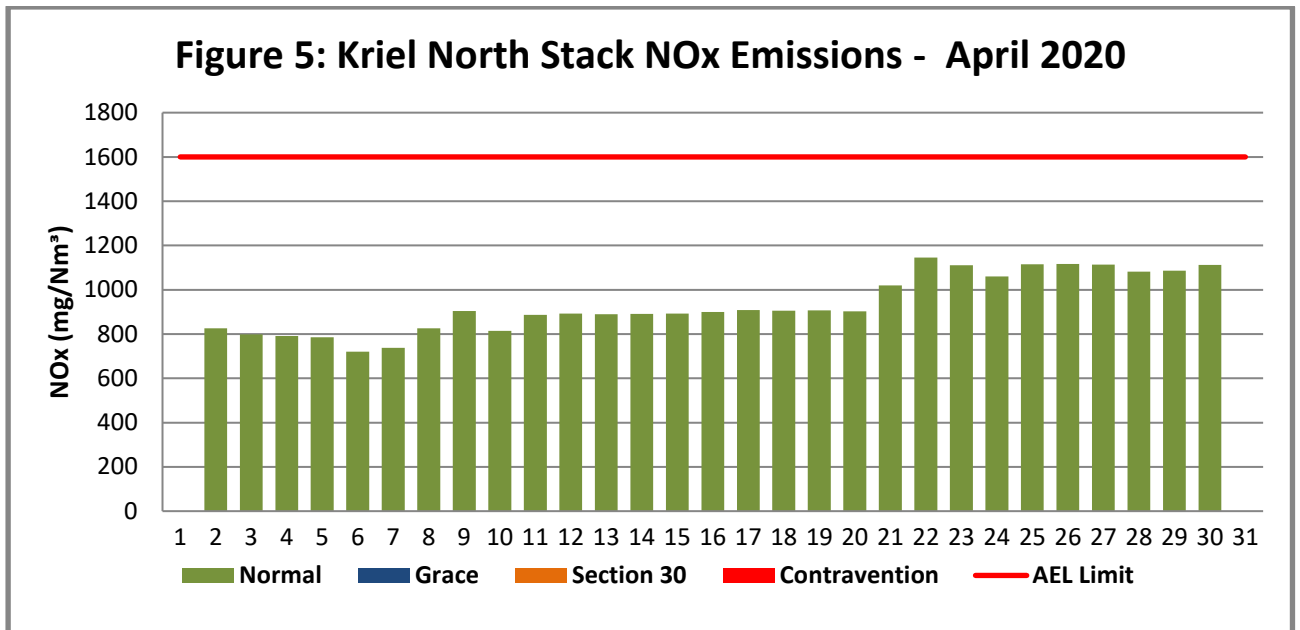


Figure 5. NO<sub>x</sub> emissions (daily averages) for the month of April 2020 against emission limit for the North Stack. The NO<sub>x</sub> Limit is 1600mg/Nm<sup>3</sup>.

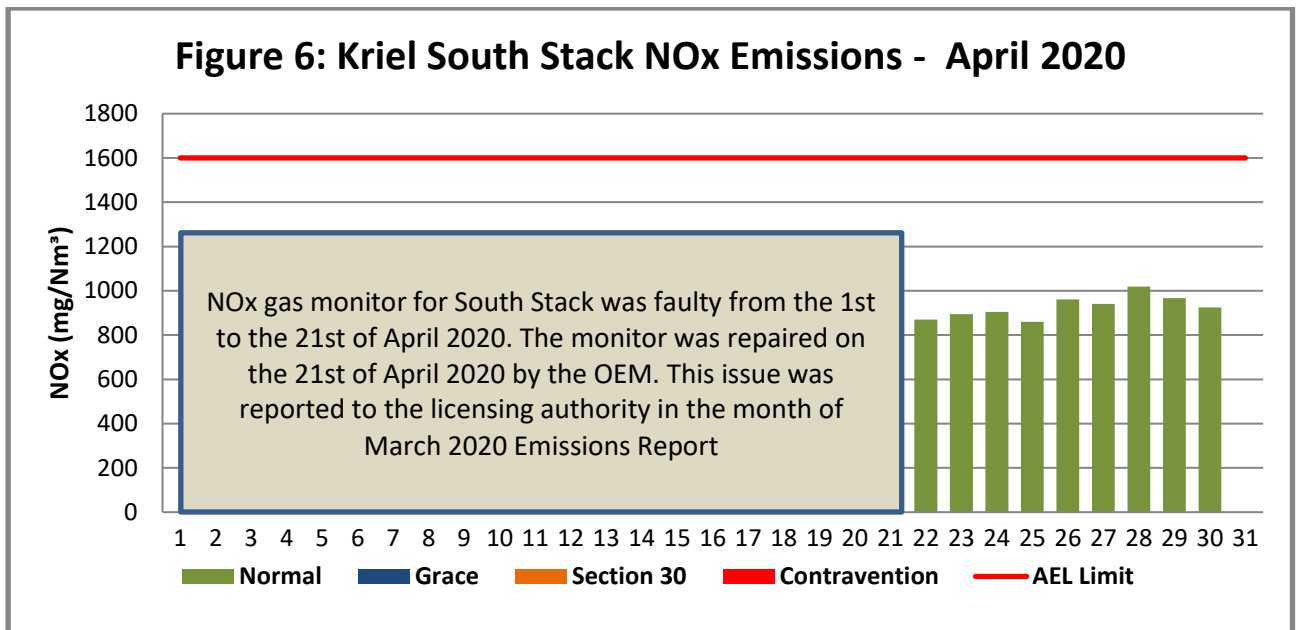


Figure 6. NO<sub>x</sub> emissions (daily averages) for the month of April 2020 against emission limit for the South Stack. The NO<sub>x</sub> Limit is 1600mg/Nm<sup>3</sup>.

Table 4: Monthly tonnages for the month April 2020

Unit	PM (tons)	SO <sub>2</sub> (tons)	NO <sub>2</sub> (tons)
SUM	411.6	8 682.4	3 948.9

**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 - April 2020

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm <sup>3</sup> )
North	30	0	0	0	15	124.3
South	30	0	0	0	7	91.9

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SOx (mg/Nm <sup>3</sup> )
North	30	0	0	0	0	2 303.2
South	30	0	0	0	0	2 010.2

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm <sup>3</sup> )
North	30	0	0	0	0	934.9
South	30	0	0	0	0	1 055.4

### Light up information

Table 6. PM Start-up information for the month of April 2020

North Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	no event		Unit 3		Unit 1		Unit 2	
Breaker Open (BO)			6:25 AM	2020/04/01	BO previously	BO previously	1:15 PM	2020/04/10
Draught Group (DG) Shut Down (SD)			11:45 PM	2020/04/01	n/a	n/a	1:40 PM	2020/04/10
BO to DG SD (duration)		DD:HH:MM M	00:17:20	DD:HH:MM	n/a	DD:HH:MM M	00:00:25	DD:HH:MM M
Fires in time			4:35 AM	2020/04/04	10:50 PM	2020/04/06	12:05 AM	2020/04/14
Synch. to Grid (or BC)			12:10 PM	2020/04/04	9:15 AM	2020/04/07	9:30 PM	2020/04/14
Fires in to BC (duration)		DD:HH:MM M	00:07:35	DD:HH:MM	00:10:25	DD:HH:MM M	00:21:25	DD:HH:MM M
Emissions below limit from BC (end date)			12:00 AM	2020/04/01	12:00 AM	2020/04/01	not > limit	not > limit
Emissions below limit from BC (duration)		DD:HH:MM M	##### #	DD:HH:MM	##### #	DD:HH:MM M	n/a	DD:HH:MM M

North Stack ...Cont.	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 3		Unit 2		Unit 2		Unit 3	
Breaker Open (BO)	10:10 PM	2020/04/06	8:05 PM	2020/04/16	12:10 AM	2020/04/27	7:55 PM	2020/04/26
Draught Group (DG) Shut Down (SD)	DG did not trip or SD	DG did not trip or SD	9:40 AM	2020/04/17	9:10 PM	2020/04/27	8:30 PM	2020/04/26
BO to DG SD (duration)	n/a	DD:HH:MM	00:13:35	DD:HH:MM	00:21:00	DD:HH:MM	00:00:35	DD:HH:MM
Fires in time	10:10 PM	2020/04/06	11:35 PM	2020/04/19	1:05 AM	2020/04/29	4:55 AM	2020/04/27
Synch. to Grid (or BC)	1:10 PM	2020/04/07	8:50 AM	2020/04/20	11:40 AM	2020/04/29	9:35 AM	2020/04/27
Fires in to BC (duration)	00:15:00	DD:HH:MM	00:09:15	DD:HH:MM	00:10:35	DD:HH:MM	00:04:40	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

### Complaints Register

Table 7: Complaints for the month of April 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 April 2020.					

### General

The particulate matter (PM10) emissions on the north and south common stacks were within the **monthly limit** during the month of April 2020; North stack recorded the monthly PM10 average emissions figure of **124.3mg/Nm3** while south stack recorded PM10 monthly average figure of **91.9 mg/Nm3**. The gaseous (NOx & SOx) emissions on the north and south common stack were also within the **daily limit** during the month of April 2020; refer to graphs above.

As reported in the March 2020 monthly emissions report, gaseous Emissions Monitors for south stack were unavailable from the 1st of April to 21st of April 2020 due to a defect. Refer to a summary below for the feedback with regard to south stack gas monitors.

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

#### Progress Feedback: NOx Online Gaseous Emissions Monitor Failure for south stack

Kriel Power Station is pleased to inform the licensing authority that the gaseous monitor defect on the south stack has been repaired on the 21st of April 2020 by the OEM. The aforementioned defect was found to have been caused by a probe which was fully blocked with dust. The probe was cleaned and calibrated.

Kriel Power Station's List of NEMA Section 30 Incidents for 2020/2021 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 - 2020	No section 30 incident reported.			No event to report.
May - 2020				
June - 2020				
July - 2020				
Aug - 2020				
Sep - 2020				
Oct - 2020				
Nov - 2020				
Dec - 2020				
Jan - 2021				
Feb - 2021				
Mar - 2021				