

Ms Mpho Nembilwi
 Nkangala District Municipality
 PO BOX 437
 MIDDLEBURG
 1050

Date:
 4 June 2019

Enquiries:

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

Dear Ms Nembilwi

KRIEL POWER STATION'S MONTHLY STACK EMISSIONS REPORT FOR THE MONTH OF APRIL 2019

This serves as the monthly report required in terms of Section 7.2.1 in Kriel Power Station's Atmospheric Emission License 17/4/AEL/MP312/11/09. The emissions are for the month of April 2019. 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 April 2019

Raw Materials and Products used	Raw Material Type	Units	Maximum Permitted Consumption/ Rate (Quantity)	Consumption/ Rate in Month of April 2019
	Coal	Tons/month	1 227 600	542 228.00
	Fuel Oil	Tons/month	5 000	3 481.32
Production Rates	Product/ By-Product Name	Unit	Maximum Production Capacity Permitted (Quantity)	Production Rate in Month of April 2019
	Ash	Tons/month	not specified	310.64
	RE PM	kg/MWh	not specified	0.26

1/...

Abatement Technology

Table 2: Abatement Equipment Control Technology for April 2019

Associated Unit/Stack	Technology Type	Actual Efficiency (%)
		April 2019
Unit 1	ESP	100%
Unit 2	ESP	Outage
Unit 3	ESP	93.3%
Unit 4	ESP	94.4%
Unit 5	ESP	92.5%
Unit 6	ESP	94.4%

Energy Source Characteristics



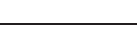
Table 3: Energy Source Material Characteristics for the month of April 2019

Characteristic	Stipulated Range (Unit)	Monthly Average Content
CV Content	18-24 (MJ/kg)	
Sulphur Content	0.6-1.2 (%)	0.85
Ash Content	27-32 (%)	24.69

Monthly Monitor Reliability

Associated Unit/Stack	PM (%)	SOx (%)	NOx (%)
North	88.61%	82.86%	81.25%
South	98.79%	99.06%	0%(Monitor Defective)

Emissions Reporting

GRAPH LEGEND	
	Final daily emissions average in mg/Nm3 released within a particular day
	Final monthly emissions average in mg/Nm3 released within the whole month
	Emissions limit as per the AEL

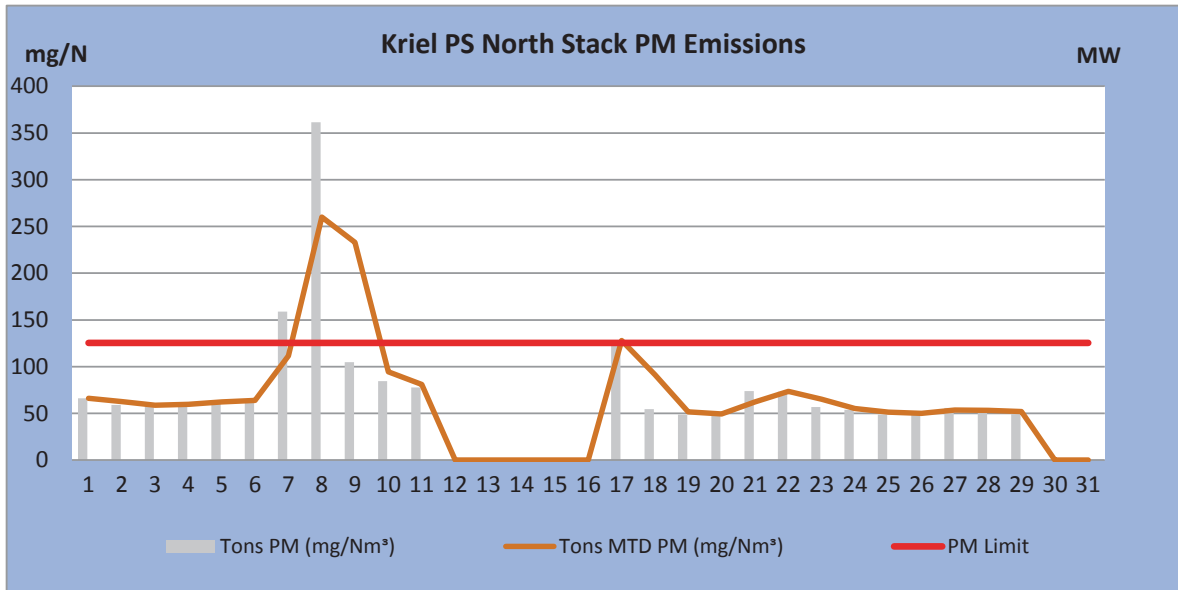


Figure 1: PM emissions (daily averages) for the month of April 2019 against emission limit for the North Stack

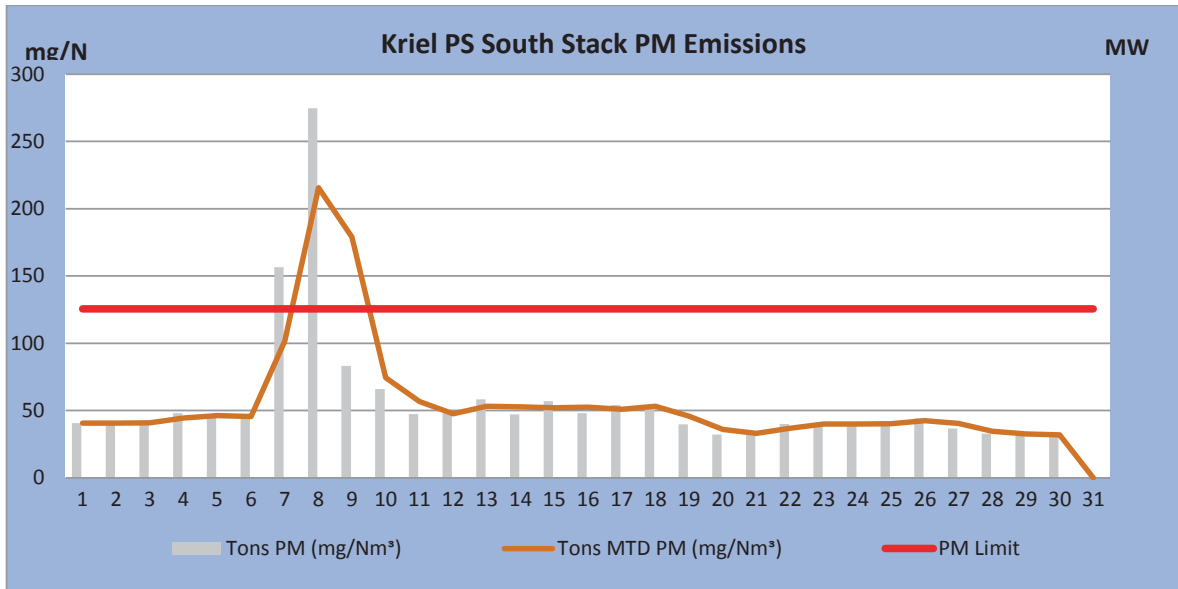


Figure 2: PM emissions (daily averages) for the month of April 2019 against emission limit for the South Stack

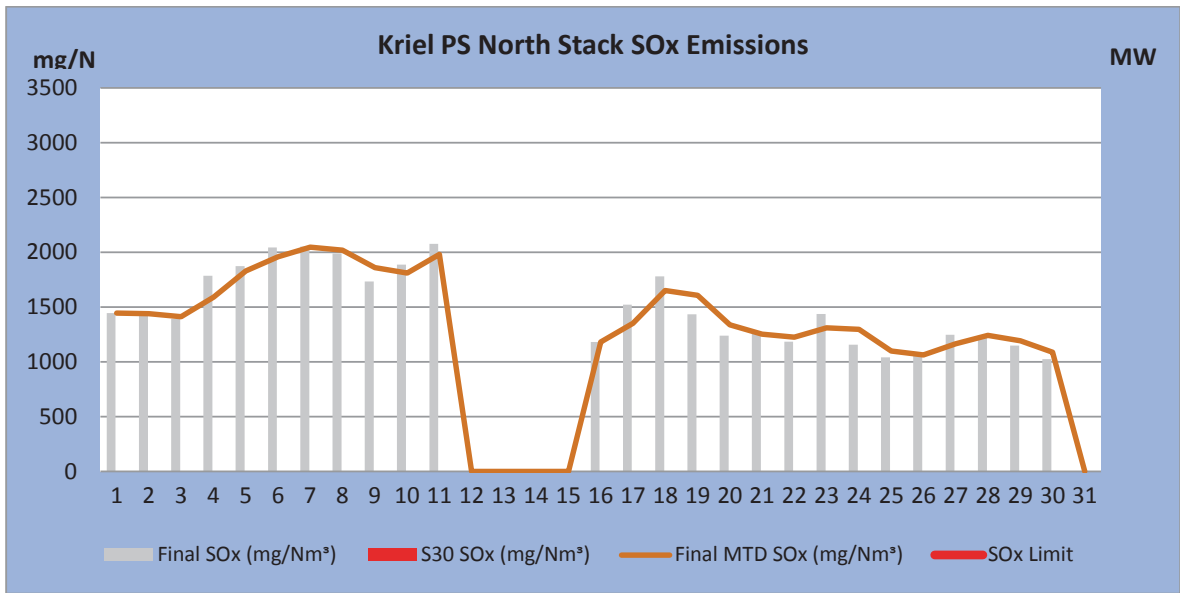
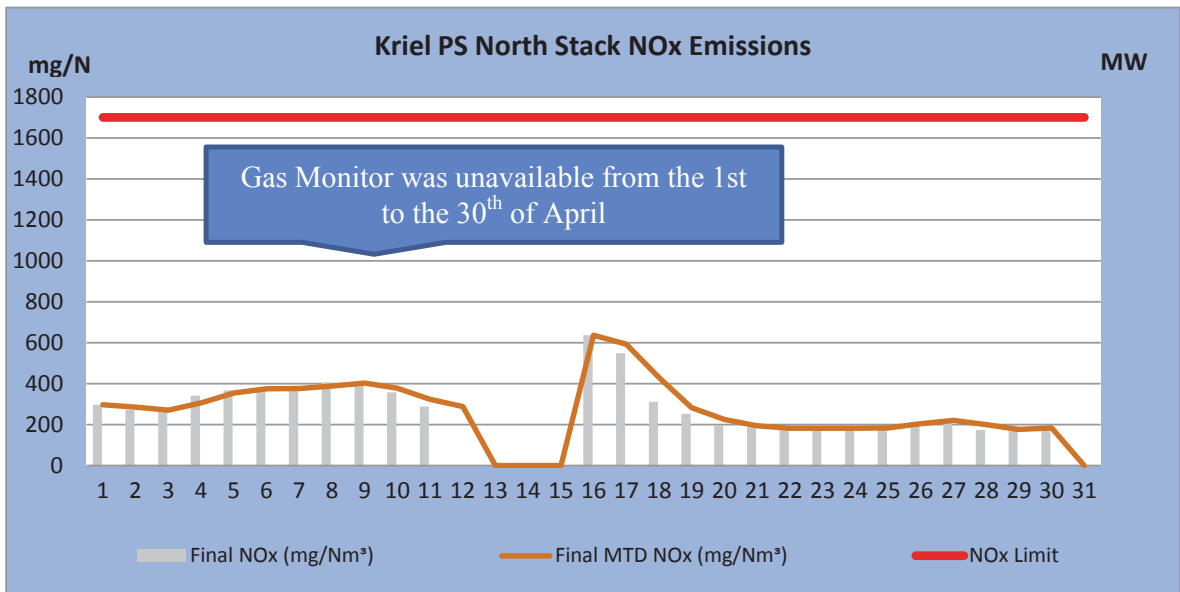


Figure 3. SO₂ emissions (daily averages) for the month of April 2019 against emission limit for the North Stack. SO_x permitted maximum release rate is 3 500mg/Nm³



4. NO₂ emissions (daily averages) for the month of April 2019 against emission limit for the North Stack. NO_x permitted maximum release rate is 1 600mg/Nm³

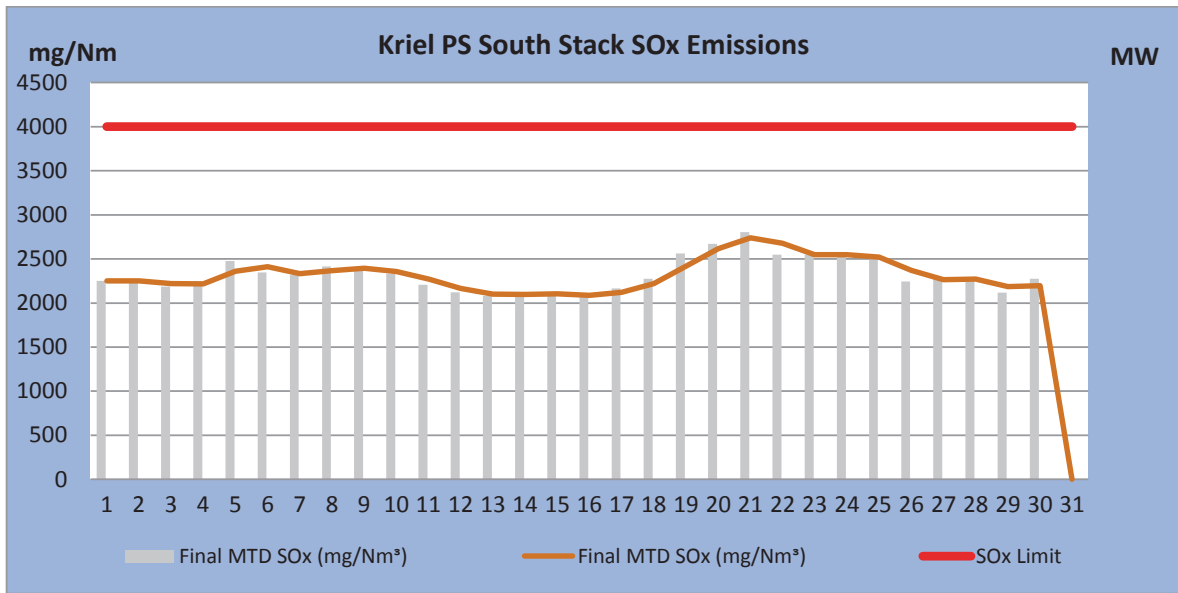


Figure 5. SO₂ emissions (daily averages) for the month of April 2019 against emission limit for the South Stack. SO_x permitted maximum release rate is 3 500mg/Nm³

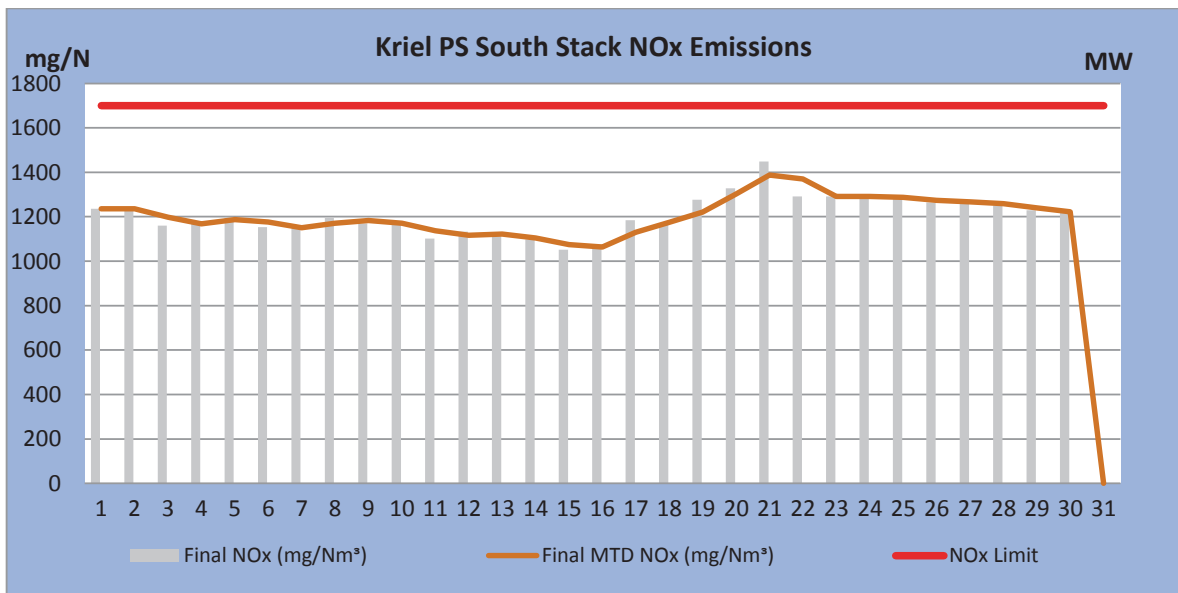


Figure 6. NO₂ emissions (daily averages) for the month of April 2019 against emission limit for the South Stack. NO_x permitted maximum release rate is 1 600mg/Nm³

Table 4: Monthly tonnages for the month April 2019

Unit	PM (tons)	SO ₂ (tons)	NO ₂ (tons)	CO ₂ (tons)
1	69.0	1 342.1	258.0	
2	0.0	19.5	3.6	
3	0.0	0.0	0.0	
4	89.8	3 760.2	1 959.6	
5	58.1	2 702.4	1 413.6	
6	93.7	3 804.3	1 975.3	
SUM	310.6	11 628.5	5 610.1	

Unit	Operating Days (DD:HH:MM)			
	Normal operation	In grace period	Under S 30	Unit off load
1	23:10:10	00:00:00	00:00:00	06:13:50
2	00:16:35	00:00:00	00:00:00	29:07:25
3	00:00:00	00:00:00	00:00:00	30:00:00
4	28:20:30	00:00:00	00:00:00	01:03:30
5	23:02:50	00:00:00	00:00:00	06:21:10
6	30:00:00	00:00:00	00:00:00	00:00:00

Table 6: PM Start-up information for the month of April 2019

North Stack	Event 2	
Unit No.	Unit 1	
Fires in	11:05 AM	2019/04/16
Synchronisation with Grid	2:40 PM	2019/04/16
Emissions below limit from Sync (Date and Time)		
Fires in to synchronization	00:03:35	
Synchronization to < limit (Duration)	did not go above limit	

South Stack	Event 2		Event 3		Event 4		Event 5	
Unit No.	Unit 4		Unit 5		Unit 5		Unit 5	
Fires in	8:50 PM	2019/04/05	8:35 PM	2019/03/31	8:55 AM	2019/04/05	8:25 PM	2019/04/21
Synchronisation with Grid	3:05 AM	2019/04/06	10:40 AM	2019/04/02	3:00 PM	2019/04/06	7:15 PM	2019/04/24
Emissions below limit from Sync								
Fires in to synchronization	00:06:15		01:14:05		01:06:05		02:22:50	
Synchronization to < limit	did not go above limit		did not go above limit		did not go above limit		did not go above limit	



Table 7. Point Source emissions released during start-up (fires-in) for the month of April 2019 in mg/Nm³

North Stack Emission Average from Fires-in to Synchronisation (Date and Time)							
Unit	Fires-In		Synchronisation		PM	SO ₂	NO _x
Unit 1	2019/04/16	11:05 AM	2019/04/16	2:40 PM	248.5	139.9	32.4

South Stack Emission Average from Fires-in to Synchronisation (Date and Time)							
Unit	Fires-In		Synchronisation		PM	SO ₂	NO _x
Unit 4	2019/04/05	8:50 PM	2019/04/06	3:05 AM	211.7	1969.5	880.3
Unit 5	2019/03/31	8:35 PM	2019/04/02	10:40 AM	107.6	2115.3	1053.0
Unit 5	2019/04/05	8:55 AM	2019/04/06	3:00 PM	185.9	1936.5	808.7
Unit 5	2019/04/21	8:25 PM	2019/04/24	7:15 PM	159.1	2413.1	1199.9

Table 8. Point Source emissions released during Shut-down (SD) for the month of April 2019 in mg/Nm³

North Stack Emission Average Breaker Open (BO) to Draft Group Shut Down (SD) (Date & Time)					
Unit	Breaker Open	DG SD	PM	SO ₂	NO _x
Unit 1	2019/04/11	2019/04/12	113.7	134.1	13.5
Unit 2	2019/04/22	2019/04/22	223.7	858.5	248.1
Unit 2	2019/04/26	2019/04/27	270.4	879.2	304.7
Unit 1	2019/04/29	2019/04/30	289.2	105.9	2.5
Unit 2	2019/04/28	2019/04/30	334.2	510.1	144.4

South Stack Emission Average Breaker Open (BO) to Draft Group Shut Down (SD) (Date & Time)							
Unit	Breaker Open		DG SD	PM	SO ₂	NO _x	
Unit 4	2019/04/04	11:40 PM	2019/04/05	12:15 AM	49.1	2301.6	1069.6
Unit 5	2019/04/17	11:15 PM	2019/04/18	12:00 PM	73.8	1516.5	628.2

Complaints Register

Table 9: Complaints for the month of April 2019

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 2019					

General

The particulate matter emissions for both North and South Common Stacks were within the limit for the month of April 2019. The monthly gaseous emissions (NO_x & SO_x) were also within the limit for both stacks however the gas monitor for NO_x was unavailable on the North Stack.

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