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 Nkangala District Municipality
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 MIDDLEBURG
 1050

Date:
 19 August 2019

Enquiries:

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

Dear Ms Nembilwi

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

Raw Materials and Products used	Raw Material Type	Units	Maximum Permitted Consumption/ Rate (Quantity)	Consumption/ Rate in Month of June 2019
	Coal	Tons/month	1 227 600	858 323.00
	Fuel Oil	Tons/month	5 000	5 269
Production Rates	Product/ By-Product Name	Unit	Maximum Production Capacity Permitted (Quantity)	Production Rate in Month of June 2019
	Ash	Tons/month	not specified	919.9
	RE PM	kg/MWh	not specified	0.75

1/...

Abatement Technology

Table 2: Abatement Equipment Control Technology for June 2019

Associated Unit/Stack	Technology Type	Actual Efficiency (%)
		June 2019
Unit 1	ESP	100%
Unit 2	ESP	96.7%
Unit 3	ESP	100%
Unit 4	ESP	99.4%
Unit 5	ESP	96.9%
Unit 6	ESP	91.3%

Energy Source Characteristics



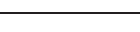
Table 3: Energy Source Material Characteristics for the month of June 2019

Characteristic	Stipulated Range (Unit)	Monthly Average Content
CV Content	18-24 (MJ/kg)	
Sulphur Content	0.6-1.2 (%)	0.84
Ash Content	27-32 (%)	26.62

Monthly Monitor Reliability

Associated Unit/Stack	PM (%)	SOx (%)	NOx (%)
North	89.38%	56.7% (Monitor Defected)	16.7 %(Monitor Defected)
South	99.72%	100.00%	100.00%

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

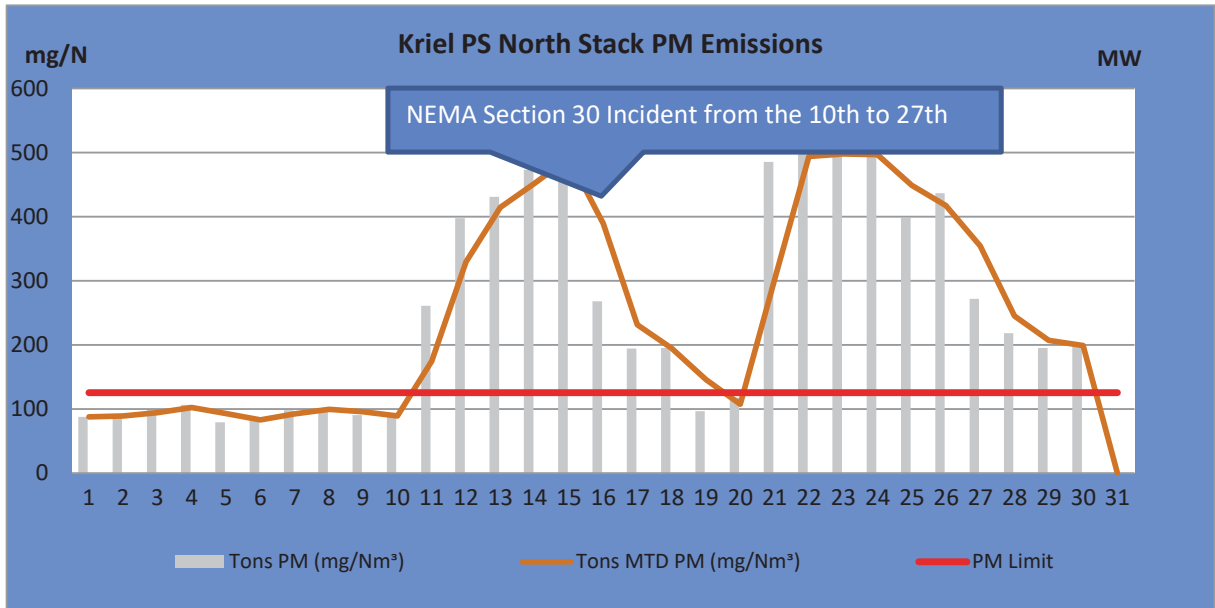


Figure 1: PM emissions (daily averages) for the month of June 2019 against emission limit for the North Stack

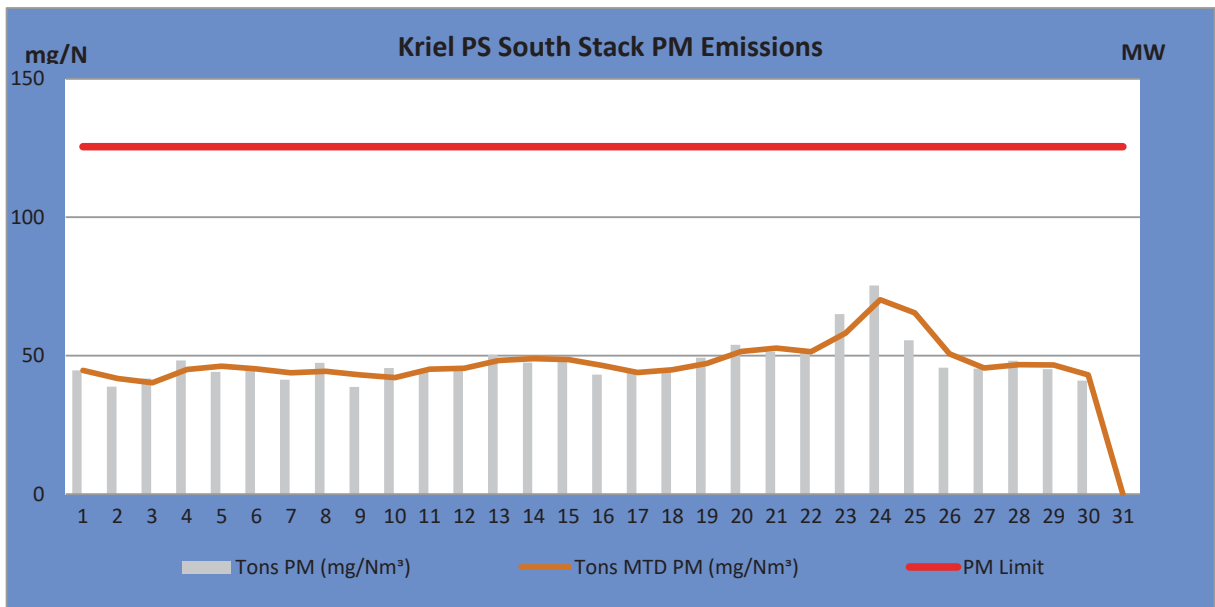


Figure 2: PM emissions (daily averages) for the month of June 2019 against emission limit for the South Stack

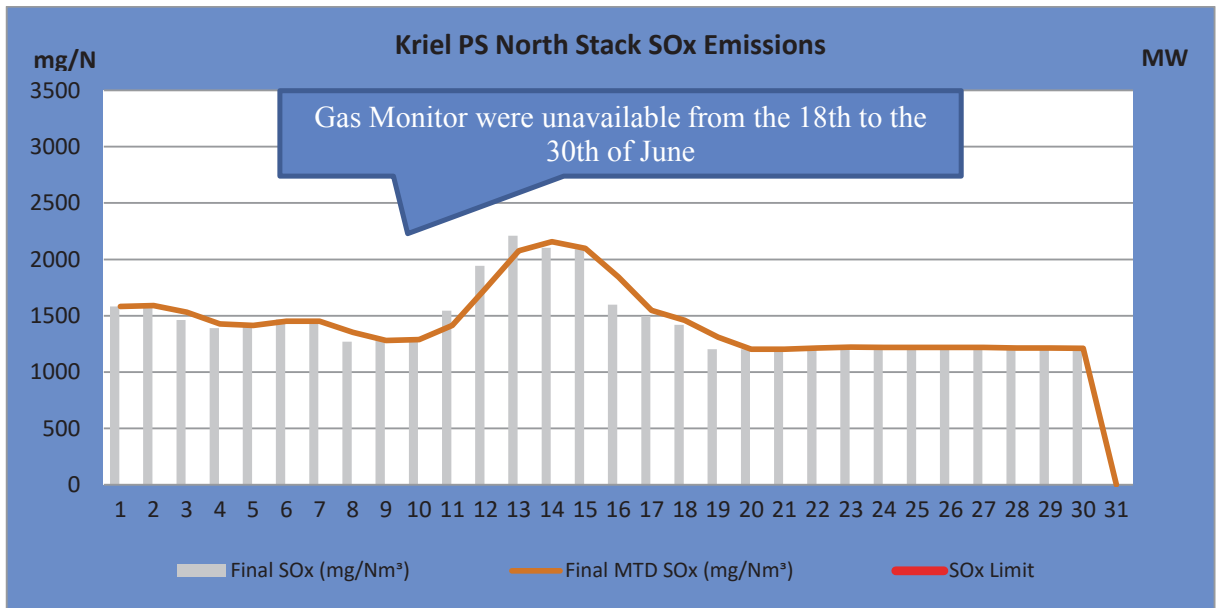
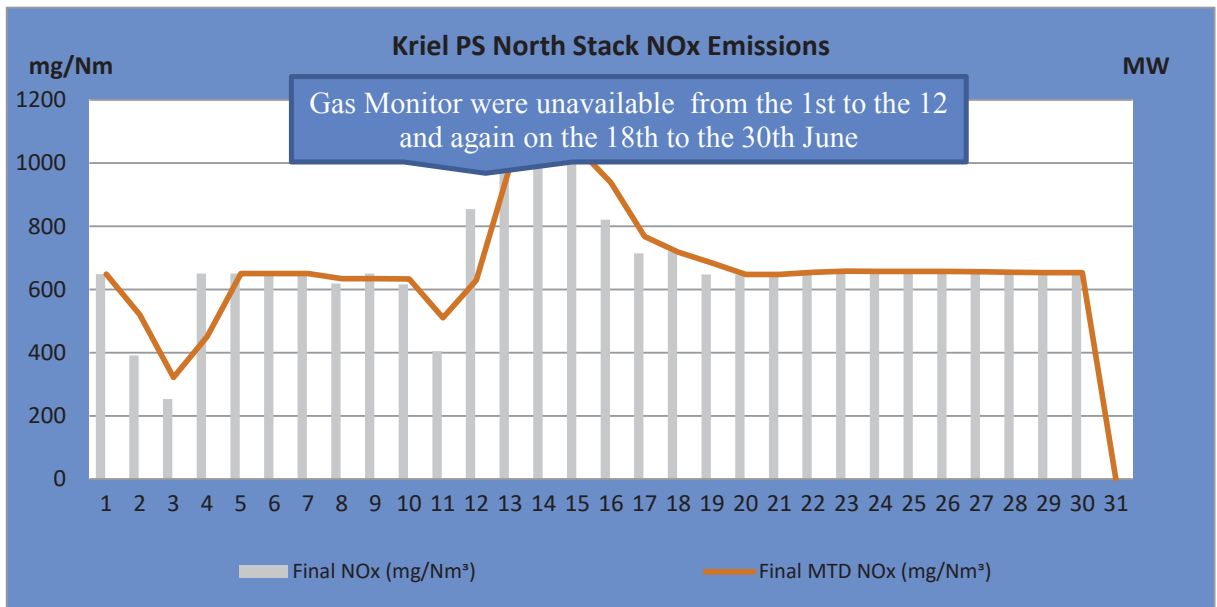


Figure 3. SO₂ emissions (daily averages) for the month of June 2019 against emission limit for the North Stack. SO_x permitted maximum release rate is 3 500mg/Nm³



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

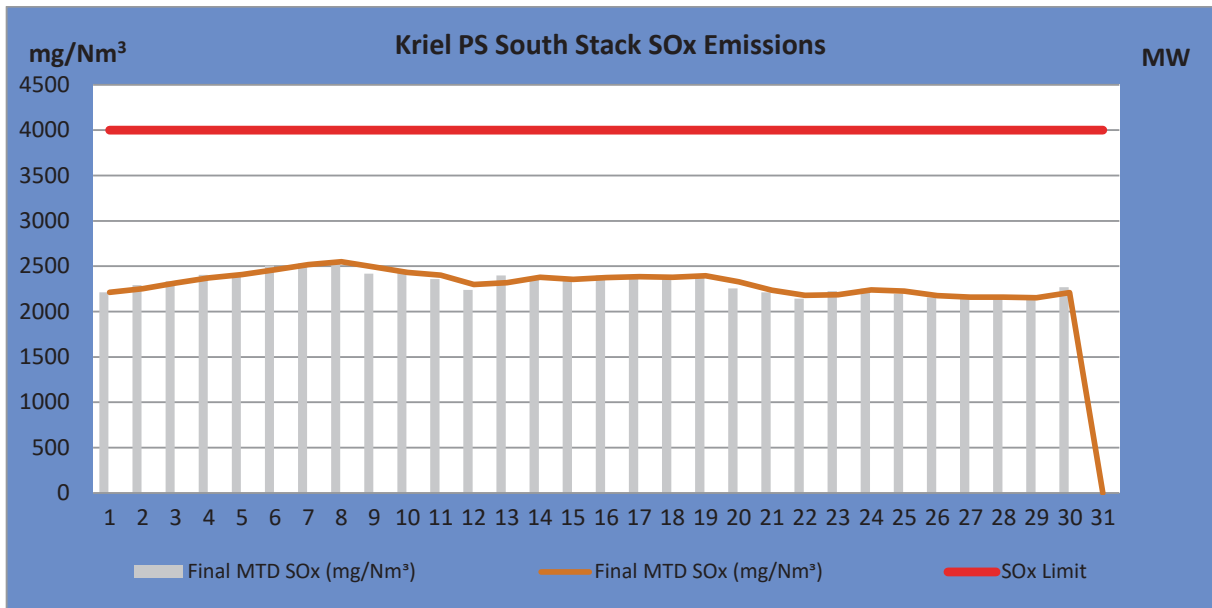


Figure 5. SO₂ emissions (daily averages) for the month of June 2019 against emission limit for the South Stack. SO_x permitted maximum release rate is 3 500mg/Nm³

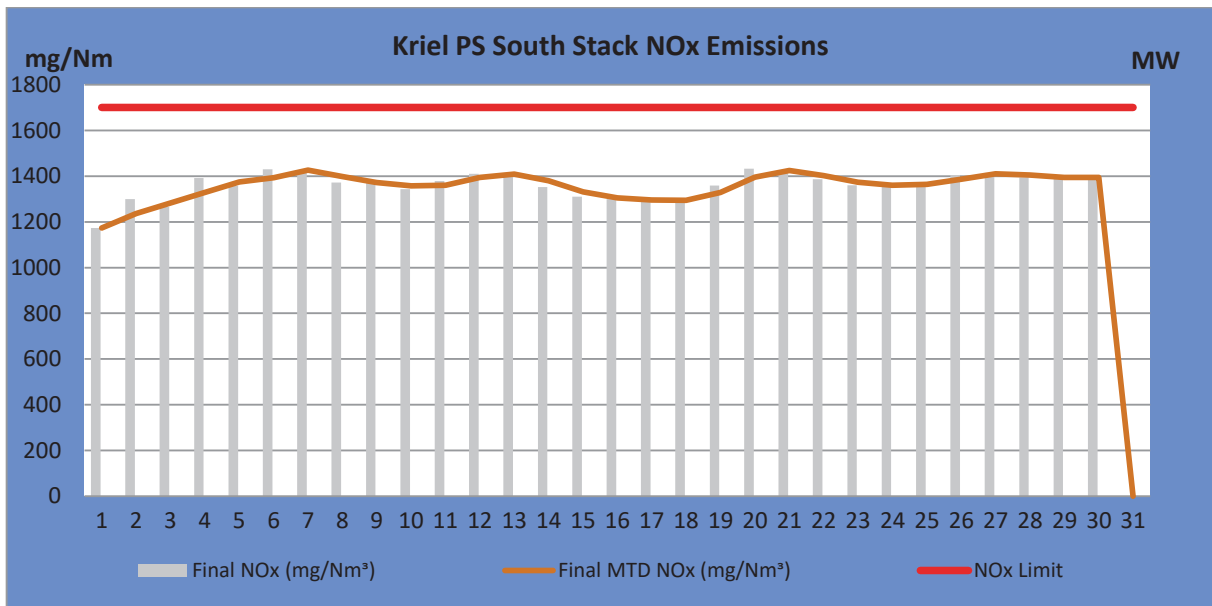


Figure 6. NO₂ emissions (daily averages) for the month of June 2019 against emission limit for the South Stack. NO_x permitted maximum release rate is 1 600mg/Nm³

Table 4: Monthly tonnages for the month June 2019

Unit	PM (tons)	SO ₂ (tons)	NO ₂ (tons)	CO ₂ (tons)
1	239.3	1 398.9	649.4	
2	191.4	1 520.9	704.1	
3	77.4	3 723.6	2 185.9	
4	60.2	3 137.3	1 854.8	
5	78.9	3 813.6	2 242.2	
6	917.9	15 097.9	8 343.2	
SUM	239.3	1 398.9	649.4

Unit	Operating Days (DD:HH:MM)			
	Normal operation	In grace period	Under S 30	Unit off load
1	27:19:00	00:00:00	00:00:00	02:05:00
2	26:22:00	00:00:00	00:00:00	03:02:00
3	25:19:10	00:00:00	00:00:00	04:04:50
4	29:01:45	00:00:00	00:00:00	00:22:15
5	26:10:30	00:00:00	00:00:00	03:13:30
6	30:00:00	00:00:00	00:00:00	00:00:00

Light up information

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

North Stack	Event 1		Event 2		Event 3		Event 4		Event 5	
Unit No.	Unit 1		Unit 3		Unit 3		Unit 2		Unit 3	
Fires in	12:20 AM	2019/06/10	8:20 PM	2019/06/19	8:20 PM	2019/06/23	10:05 PM	2019/06/28	1:25 PM	2019/06/27
Synchronisation with Grid	6:15 AM	2019/06/10	12:25 AM	2019/06/20	12:45 PM	2019/06/24	11:05 PM	2019/06/29	3:55 PM	2019/06/27
Emissions below limit from Sync (Date and Time)										
Fires in to synchronization	00:05:55		00:04:05		00:16:25		01:01:00		00:02:30	
Synchronization to < limit (Duration)	did not go above limit		did not go above limit		did not go above limit		did not go above limit		did not go above limit	

South Stack	Event 2		Event 3	
Unit No.	Unit 5		Unit 5	
Fires in	3:40 AM	2019/06/17	5:05 AM	2019/06/27
Synchronisation with Grid	11:15 PM	2019/06/17	7:20 PM	2019/06/27
Emissions below limit from Sync				
Fires in to synchronization	00:19:35		00:14:15	
Synchronization to < 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 June 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	2019/06/10	12:20 AM	2019/06/10	6:15 AM	314.5	792.7	39.5
Unit 3	2019/06/19	8:20 PM	2019/06/20	12:25 AM	254.5	230.4	36.8
Unit 3	2019/06/23	8:20 PM	2019/06/24	12:45 PM	282.7	271.2	61.8
Unit 2	2019/06/28	10:05 PM	2019/06/29	11:05 PM	270.5	269.3	69.3
Unit 3	2019/06/27	1:25 PM	2019/06/27	3:55 PM	237.6	224.4	41.0

South Stack Emission Average from Fires-in to Synchronisation (Date and Time)							
Unit	Fires-In		Synchronisation		PM	SO ₂	NO _x
Unit 5	2019/06/17	3:40 AM	2019/06/17	11:15 PM	241.1	1990.3	1017.4
Unit 5	2019/06/27	5:05 AM	2019/06/27	7:20 PM	115.1	1921.4	1178.7

Table 8. Point Source emissions released during Shut-down (SD) for the month of June 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	2019/06/08	1:20 AM	2019/06/08	1:20 PM	115.8	546.1	15.7
Unit 3	2019/06/19	7:20 AM	2019/06/19	8:15 AM	136.5	204.6	31.8
Unit 3	2019/06/22	12:15 AM	2019/06/22	12:00 PM	334.4	218.4	54.2
Unit 2	2019/06/26	9:10 PM	2019/06/27	9:10 AM	119.5	182.3	31.7
Unit 3	2019/06/25	7:35 PM	2019/06/27	5:00 AM	200.1	263.0	72.5

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 5	2019/06/14	11:10 PM	2019/06/15	11:55 AM	179.4	1548.1	748.3
Unit 4	2019/06/30	1:45 AM	2019/06/30	3:45 PM	192.2	1570.3	849.4

Complaints Register

Table 9: Complaints for the month of June 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 June 2019					

General

The particulate matter emissions on the South Common Stack were within the limit, however the North Common Stack exceeded the limit during the Month of June 2019. The Exceedance was due to Unit 2 Blow tanks malfunction as well as the Partial blockage inside the Sulphur flow sensor. A NEMA Section 30 Incident was reported to the Licensing Authority.

The monthly gaseous emissions (NOx & SOx) were also within the limit for South Stack and online gaseous emissions monitor where unavailable on the North Stack.

Kriel Power Station exceeded it fuel usage for the month of June. However a request to exceed the fuel oil consumption was approved by the Licensing Authority.

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