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 PO BOX 437  
 MIDDLEBURG  
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Date:  
 2 December 2019

Enquiries:

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

Dear Ms Nembilwi

**KRIEL POWER STATION'S MONTHLY STACK EMISSIONS REPORT FOR THE MONTH OF OCTOBER**

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 October 2019. 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 October 2019

Raw Materials and Products used	Raw Material Type	Units	Maximum Permitted Consumption/ Rate (Quantity)	Consumption/ Rate in Month of October 2019
	Coal	Tons/month	1 227 600	793 509
	Fuel Oil	Tons/month	5 000	3 439.83
Production Rates	Product/ By-Product Name	Unit	Maximum Production Capacity Permitted (Quantity)	Production Rate in Month of October 2019
	Ash	Tons/month	not specified	771.06
	RE PM	kg/MWh	not specified	0.63

1/...

**Abatement Technology**

**Table 2:** Abatement Equipment Control Technology for October 2019

Associated Unit/Stack	Technology Type	Actual Efficiency (%)
		October 2019
Unit 1	ESP	90%
Unit 2	ESP	100%
Unit 3	ESP	100%
Unit 4	ESP	86.9
Unit 5	ESP	93.1%
Unit 6	ESP	99.4%

**Energy Source Characteristics**

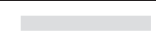

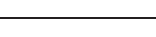
**Table 3:** Energy Source Material Characteristics for the month of October 2019

Characteristic	Stipulated Range (Unit)	Monthly Average Content
CV Content	18-24 (MJ/kg)	
Sulphur Content	0.6-1.2 (%)	0.79
Ash Content	27-32 (%)	25.74

**Monthly Monitor Reliability**

Associated Unit/Stack	PM (%)	SOx (%)	NOx (%)
North	98.1%	79.1%	79.1%
South	99.2%	21.8% (Monitor Defected)	21.8%(Monitor Defected)

**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

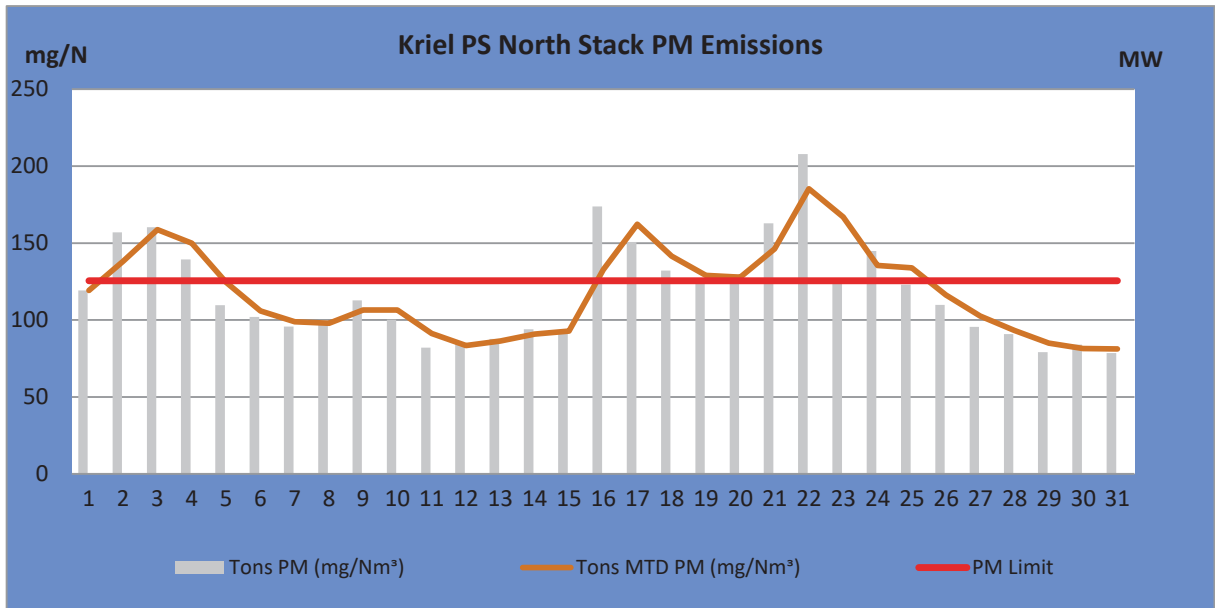


Figure 1: PM emissions (daily averages) for the month of October 2019 against emission limit for the North Stack

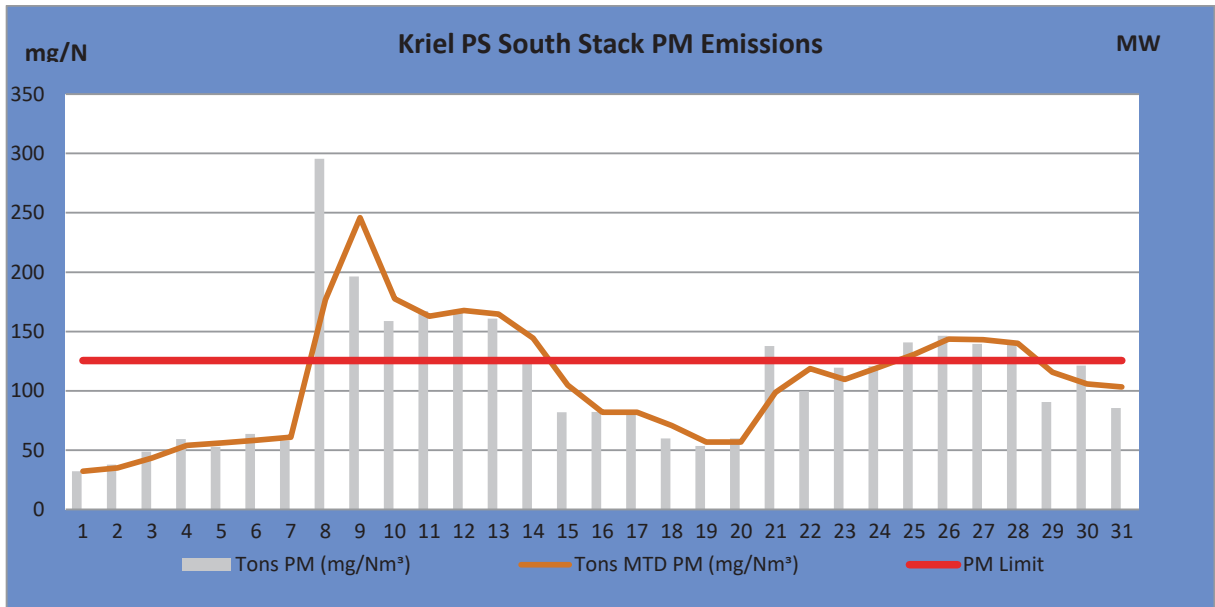


Figure 2: PM emissions (daily averages) for the month of October 2019 against emission limit for the South Stack

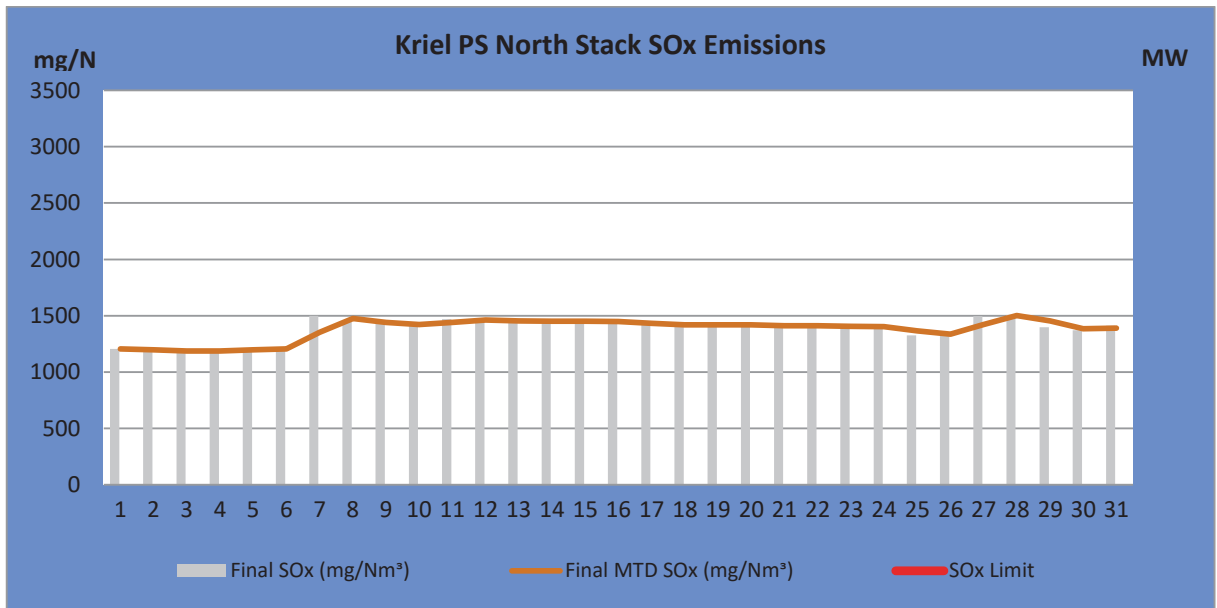
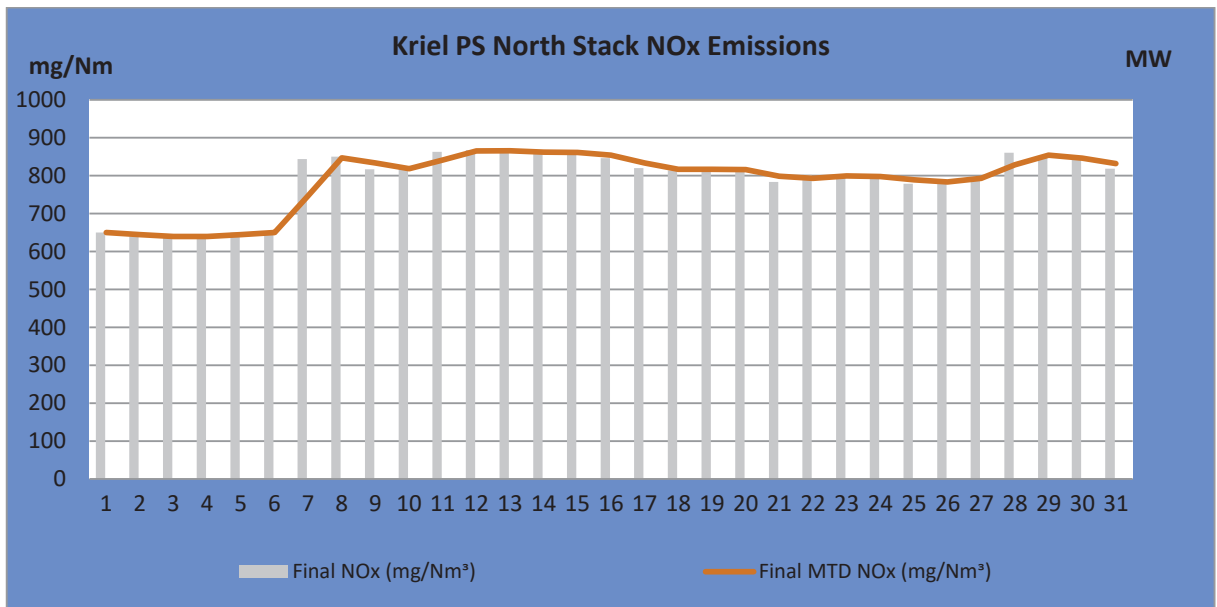


Figure 3. SO<sub>2</sub> emissions (daily averages) for the month of October 2019 against emission limit for the North Stack. SO<sub>x</sub> permitted maximum release rate is 3 500mg/Nm<sup>3</sup>



4. NO<sub>2</sub> emissions (daily averages) for the month of October 2019 against emission limit for the North Stack. NO<sub>x</sub> permitted maximum release rate is 1 600mg/Nm<sup>3</sup>

### South Stack Gas monitors

Note : An OEM was onsite to conduct calibration on the South Stack gas monitor ,it was noted that the monitor was faulty. During the investigation it was found that the measurement zone of the probe was damaged

**Table 4:** Monthly tonnages for the month October 2019

Unit	PM (tons)	SO <sub>2</sub> (tons)	NO <sub>2</sub> (tons)	CO <sub>2</sub> (tons)
1	131.1	1 538.2	881.2	
2	96.8	1 232.0	704.3	
3	78.9	948.5	537.6	
4	146.5	3 807.3	3 288.0	
5	169.8	5 066.1	4 094.6	
6	147.9	4 811.5	3 824.5	
<b>SUM</b>	771.1	17 403.6	13 330.3	

Unit	Operating Days (DD:HH:MM)			
	Normal operation	In grace period	Under S 30	Unit off load
1	31:00:00	00:00:00	00:00:00	00:00:00
2	27:23:45	00:00:00	00:00:00	03:00:15
3	20:02:35	00:00:00	00:00:00	10:21:25
4	21:23:10	00:00:00	00:00:00	09:00:50
5	31:00:00	00:00:00	00:00:00	00:00:00
6	28:04:00	00:00:00	00:00:00	02:20:00

### Light up information

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

North Stack	Event 2		Event 3		Event 4	
Unit No.	Unit 2		Unit 2		Unit 3	
Fires in	2:00 AM	2019/10/03	12:00 AM	2019/10/15	2019/10/13	2019/10/13
Synchronisation with Grid	7:25 AM	2019/10/03	10:20 AM	2019/10/15	9:20 PM	2019/10/13
Emissions below limit from Sync (Date and Time)						
Fires in to synchronization	00:05:25		00:10:20		00:10:55	
Synchronization to < limit (Duration)	did not go above limit		did not go above limit		did not go above limit	

North Stack	Event 5		Event 6	
Unit No.	Unit 3		Unit 3	
Fires in	7:05 AM	2019/10/19	12:45 PM	2019/10/23
Synchronisation with Grid	7:30 PM	2019/10/19		
Emissions below limit from Sync (Date and Time)				
Fires in to synchronization	00:12:25			
Synchronization to < limit (Duration)	did not go above limit		did not go above limit	



South Stack	Event 5		Event 6		Event 7		Event 8	
Unit No.	Unit 4		Unit 4		Unit 6		Unit 6	
Fires in	3:55 PM	2019/10/06	9:50 AM	2019/10/19	1:50 AM	2019/10/16	3:10 AM	2019/10/27
Synchronisation with Grid	12:30 AM	2019/10/07	2:15 AM	2019/10/20	11:45 AM	2019/10/16	8:20 AM	2019/10/27
Emissions below limit from Sync								
Fires in to synchronization	00:08:35		00:16:25		00:09:55		00:05:10	
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 October 2019 in mg/Nm<sup>3</sup>

North Stack Emission Average from Fires-in to Synchronisation (Date and Time)							
Unit	Fires-In		Synchronisation		PM	SO <sub>2</sub>	NO <sub>x</sub>
Unit 2	2019/10/03	2:00 AM	2019/10/03	7:25 AM	384.4	239.8	14.0
Unit 2	2019/10/15	12:00 AM	2019/10/15	10:20 AM	425.4	1126.8	607.3
Unit 3	2019/10/13	10:25 AM	2019/10/13	9:20 PM	299.3	1004.3	507.2
Unit 3	2019/10/19	7:05 AM	2019/10/19	7:30 PM	124.1	1150.9	671.5
Unit 3	2019/10/23	12:45 PM	2019/10/24	2:40 AM	117.6	1132.4	662.0

South Stack Emission Average from Fires-in to Synchronisation (Date and Time)							
Unit	Fires-In		Synchronisation		PM	SO <sub>2</sub>	NO <sub>x</sub>
Unit 4	2019/10/06	3:55 PM	2019/10/07	12:30 AM	110.0	3039.1	1623.6
Unit 4	2019/10/19	9:50 AM	2019/10/20	2:15 AM	209.1	2498.9	1460.2
Unit 6	2019/10/16	1:50 AM	2019/10/16	11:45 AM	120.5	2168.1	1393.2
Unit 6	2019/10/27	3:10 AM	2019/10/27	8:20 AM	284.2	3102.1	2032.8

Table 8. Point Source emissions released during Shut-down (SD) for the month of October 2019 in mg/Nm<sup>3</sup>

North Stack Emission Average Breaker Open (BO) to Draft Group Shut Down (SD) (Date & Time)							
Unit	Breaker Open		DG SD		PM	SO <sub>2</sub>	NO <sub>x</sub>
Unit 2	2019/10/02	8:35 PM	2019/10/02	8:55 PM	217.0	286.5	19.7
Unit 2	2019/10/12	9:05 PM	2019/10/13	10:05 AM	89.8	770.2	430.8
Unit 3	2019/10/09	11:25 PM	2019/10/10	11:50 AM	93.8	1079.9	635.7
Unit 3	2019/10/26	3:05 AM	2019/10/26	2:00 PM	113.5	1037.3	612.6

South Stack Emission Average Breaker Open (BO) to Draft Group Shut Down (SD) (Date & Time)							
Unit	Breaker Open		DG SD		PM	SO <sub>2</sub>	NO <sub>x</sub>
Unit 4	2019/10/03	1:35 PM	2019/10/03	2:45 PM	62.1	3139.9	1725.7
Unit 4	2019/10/04	7:50 AM	2019/10/04	1:45 PM	132.2	2888.0	1635.0
Unit 4	2019/10/04	5:05 PM	2019/10/06	10:40 AM	151.6	2854.7	1518.8
Unit 4	2019/10/16	10:10 AM	2019/10/18	4:40 AM	119.5	2288.8	1388.8
Unit 6	2019/10/24	10:30 PM	2019/10/25	10:45 AM	166.6	1769.8	1072.0

**Complaints Register**

**Table 9:** Complaints for the month of October 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 October 2019					

**General**

The particulate matter emissions for both North and South Common Stacks were within the limit for the month of October 2019. Online Gaseous Emissions Monitor (for NO<sub>x</sub> and SO<sub>x</sub>) were unavailable on the South Stack. The monthly gaseous emissions (NO<sub>x</sub> & SO<sub>x</sub>) were also within the limit for 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.