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 Nkangala District Municipality  
 PO BOX 437  
 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 MAY 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 May 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 May 2019

Raw Materials and Products used	Raw Material Type	Units	Maximum Permitted Consumption/ Rate (Quantity)	Consumption/ Rate in Month of May 2019
	Coal	Tons/month	1 227 600	793 707
	Fuel Oil	Tons/month	5 000	5 861.57
Production Rates	Product/ By-Product Name	Unit	Maximum Production Capacity Permitted (Quantity)	Production Rate in Month of May 2019
	Ash	Tons/month	not specified	550.57
	RE PM	kg/MWh	not specified	0.45

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### Abatement Technology

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

Associated Unit/Stack	Technology Type	Actual Efficiency (%)
		May 2019
Unit 1	ESP	100%
Unit 2	ESP	100%
Unit 3	ESP	98.3%
Unit 4	ESP	98.8%
Unit 5	ESP	96.3%
Unit 6	ESP	92.5%

### Energy Source Characteristics

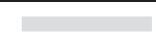


**Table 3:** Energy Source Material Characteristics for the month of May 2019

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 (%)	25.91

### Monthly Monitor Reliability

Associated Unit/Stack	PM (%)	SOx (%)	NOx (%)
North	96.91%	32.3% (Monitor Defective)	32.3% (Monitor Defective)
South	100%	32.3% (Monitor Defective)	32.3%(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

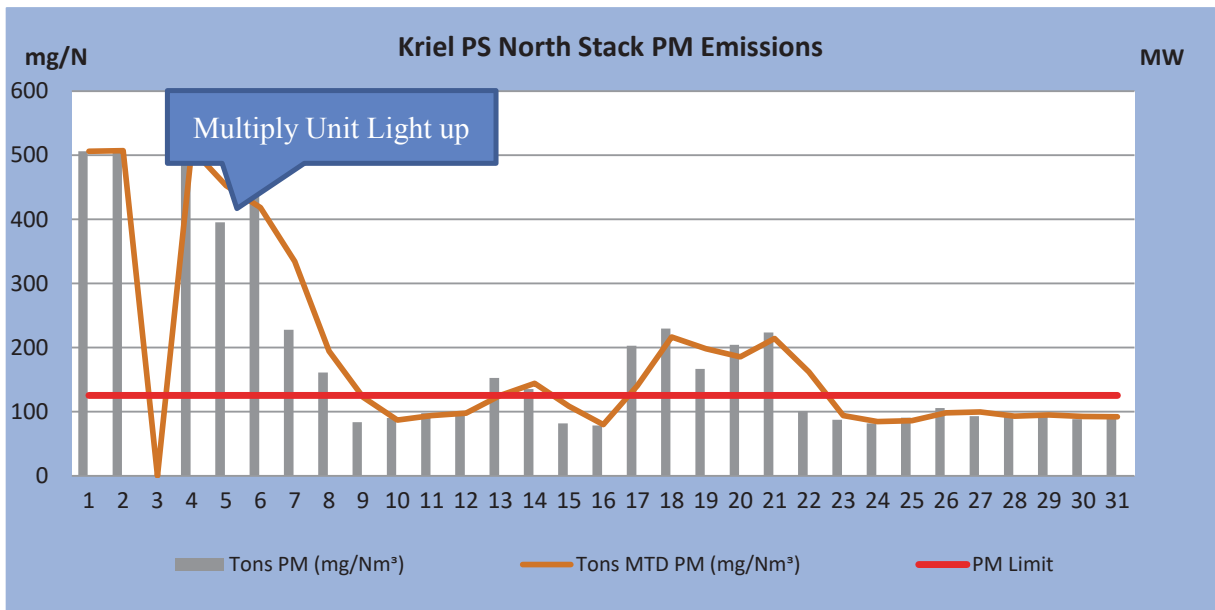


Figure 1: PM emissions (daily averages) for the month of May 2019 against emission limit for the North Stack

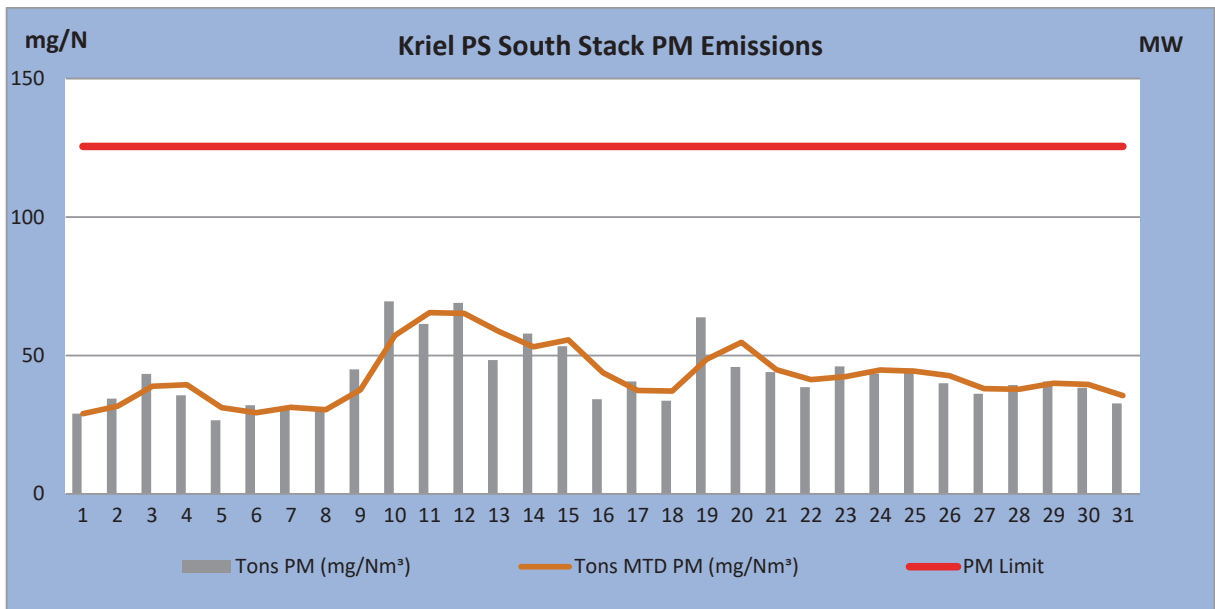


Figure 2: PM emissions (daily averages) for the month of May 2019 against emission limit for the South Stack

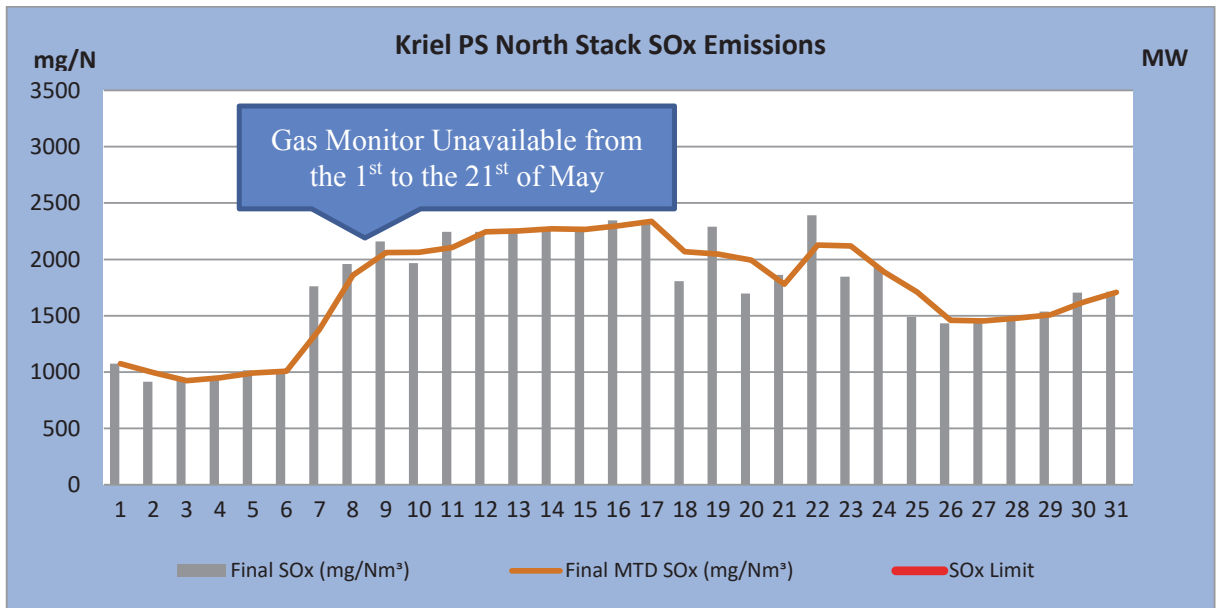
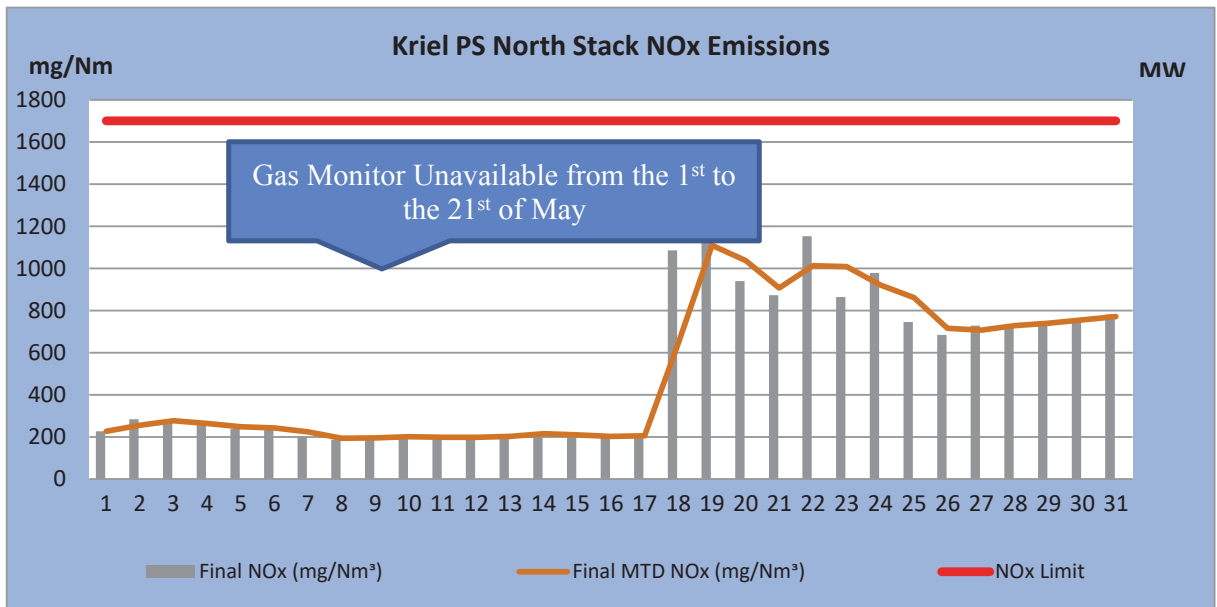


Figure 3. SO<sub>2</sub> emissions (daily averages) for the month of May 2019 against emission limit for the North Stack. SO<sub>x</sub> permitted maximum release rate is 3 500mg/Nm<sup>3</sup>



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

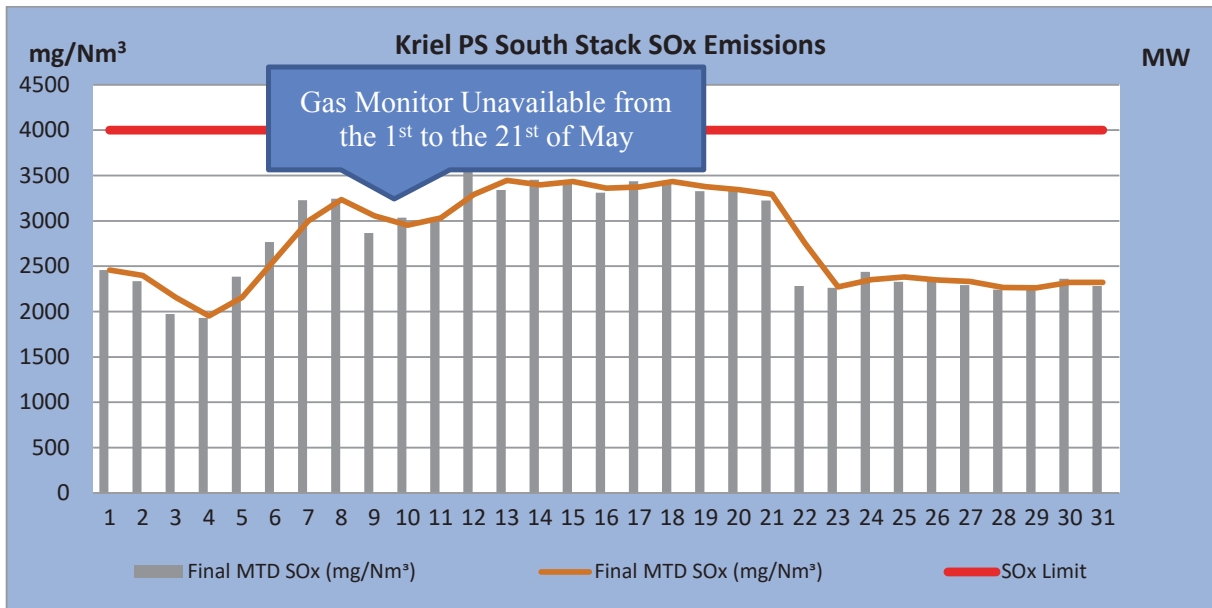


Figure 5. SO<sub>2</sub> emissions (daily averages) for the month of May 2019 against emission limit for the South Stack. SO<sub>x</sub> permitted maximum release rate is 3 500mg/Nm<sup>3</sup>

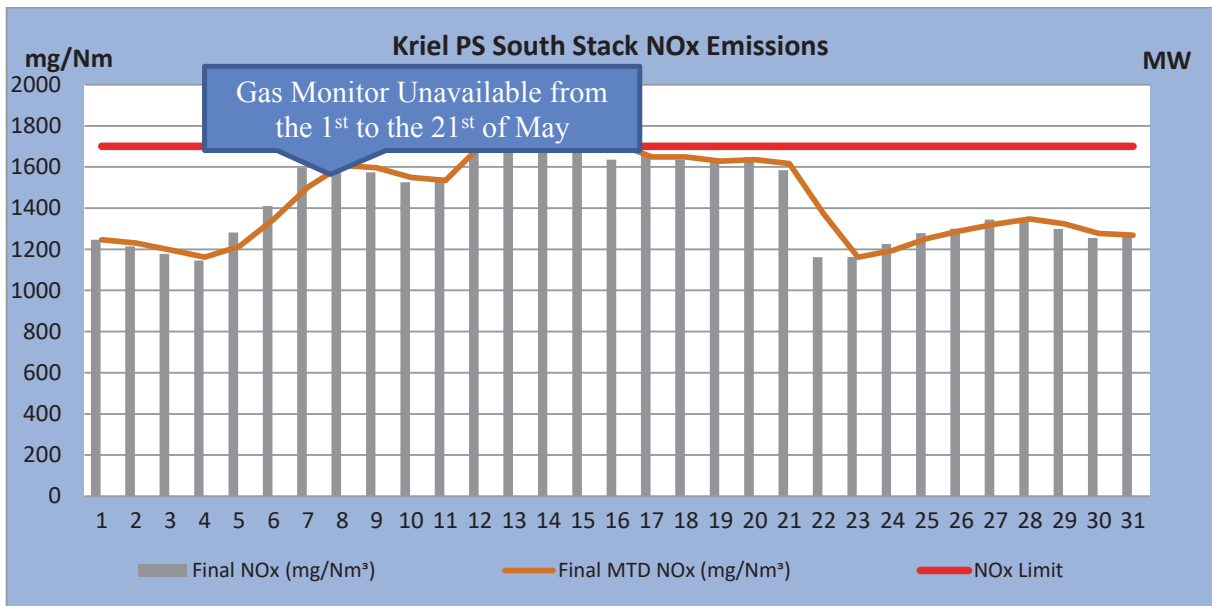


Figure 6. NO<sub>2</sub> emissions (daily averages) for the month of May 2019 against emission limit for the South Stack. NO<sub>x</sub> permitted maximum release rate is 1 600mg/Nm<sup>3</sup>

Table 4: Monthly tonnages for the month May 2019

Unit	PM (tons)	SO <sub>2</sub> (tons)	NO <sub>2</sub> (tons)	CO <sub>2</sub> (tons)
1	126.4	1 871.9	546.3	
2	136.0	1 539.9	524.6	
3	107.1	1 688.0	455.9	
4	56.8	3 714.9	1 959.5	
5	68.7	4 447.6	2 314.9	
6	55.6	3 964.4	2 068.6	
SUM	550.6	17 226.7	7 869.8	

Unit	Operating Days (DD:HH:MM)			
	Normal operation	In grace period	Under S 30	Unit off load
1	25:19:25	00:00:00	00:00:00	05:04:35
2	25:00:50	00:00:00	00:00:00	05:23:10
3	22:12:40	00:00:00	00:00:00	08:11:20
4	24:18:35	00:00:00	00:00:00	06:05:25
5	30:08:50	00:00:00	00:00:00	00:15:10
6	27:01:40	00:00:00	00:00:00	03:22:20

**Light up information**

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

North Stack	Event 1		Event 3		Event 4		Event 5	
Unit No.	Unit 1		Unit 2		Unit 2		Unit 3	
Fires in	5:25 AM	2019/05/05	9:35 PM	2019/05/03	12:40 PM	2019/05/10	12:10 AM	2019/05/03
Synchronisation with Grid	1:15 PM	2019/05/05	12:40 AM	2019/05/04	12:50 PM	2019/05/11	3:30 AM	2019/05/03
Emissions below limit from Sync (Date and Time)								
Fires in to synchronisation	00:07:50		00:03:05		01:00:10		00:03:20	
Synchronisation to < limit (Duration)	did not go above limit		did not go above limit		did not go above limit		did not go above limit	

North Stack	Event 6		Event 7		Event 8		Event 9	
Unit No.	Unit 3		Unit 3		Unit 2		Unit 3	
Fires in	10:15 PM	2019/05/05	10:10 AM	2019/05/12	6:00 AM	2019/05/16	12:15 AM	2019/05/27
Synchronisation with Grid	2:55 AM	2019/05/06			12:20 PM	2019/05/16	4:05 PM	2019/05/28
Emissions below limit from Sync								
Fires in to synchronisation	00:04:40				00:06:20		01:15:50	
Synchronisation to < limit	did not go above limit		did not go above limit		did not go above limit		did not go above limit	

<b>South Stack</b>	<b>Event 6</b>		<b>Event 7</b>		<b>Event 8</b>	
<b>Unit No.</b>	<b>Unit 4</b>		<b>Unit 6</b>		<b>Unit 6</b>	
<b>Fires in</b>	8:15 PM	2019/05/19	7:55 PM	2019/05/13	3:00 AM	2019/05/20
<b>Synchronisation with Grid</b>	3:50 AM	2019/05/20	5:35 PM	2019/05/14	8:30 PM	2019/05/20
<b>Emissions below limit from Sync</b>						
<b>Fires in to synchronization</b>	00:07:35		00:21:40		00:17:30	
<b>Synchronization to &lt; limit</b>	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 May 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 1	2019/05/05	5:25 AM	2019/05/05	1:15 PM	258.8	774.7	281.9
Unit 2	2019/05/03	9:35 PM	2019/05/04	12:40 AM	508.1	673.6	267.0
Unit 2	2019/05/10	12:40 PM	2019/05/11	12:50 PM	142.7	2047.9	108.8
Unit 3	2019/05/03	12:10 AM	2019/05/03	3:30 AM	419.9	165.3	-4.5
Unit 3	2019/05/05	10:15 PM	2019/05/06	2:55 AM	499.6	1080.3	217.1
Unit 3	2019/05/12	10:10 AM	2019/05/12	1:50 PM	331.6	1779.4	229.6
Unit 2	2019/05/16	6:00 AM	2019/05/16	12:20 PM	293.9	1934.9	238.0
Unit 3	2019/05/27	12:15 AM	2019/05/28	4:05 PM	194.4	1380.1	666.7

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	2019/05/19	8:15 PM	2019/05/20	3:50 AM	325.1	2442.8	1169.2
Unit 6	2019/05/13	7:55 PM	2019/05/14	5:35 PM	112.8	2489.9	1070.5
Unit 6	2019/05/20	3:00 AM	2019/05/20	8:30 PM	179.2	2392.6	1062.1

Table 8. Point Source emissions released during Shut-down (SD) for the month of May 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	2019/05/02	10:30 PM	2019/05/03	1:35 PM	425.6	501.3	144.0
Unit 2	2019/05/07	8:35 PM	2019/05/08	11:15 AM	90.7	1354.1	301.9
Unit 3	2019/05/04	4:35 PM	2019/05/04	11:25 PM	118.5	1058.9	285.4
Unit 3	2019/05/12	4:05 AM	2019/05/12	4:10 AM	167.7	2051.9	141.0
Unit 2	2019/05/15	8:10 PM	2019/05/15	8:25 PM	173.9	1841.3	130.5
Unit 3	2019/05/24	7:50 PM	2019/05/25	10:25 AM	75.9	1097.0	497.3

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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	2019/05/14	1:40 PM	2019/05/15	2:35 AM	94.5	1934.9	860.7
Unit 6	2019/05/12	4:05 AM	2019/05/12	4:10 AM	108.7	3408.4	1780.3



### Complaints Register

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

#### General

The particulate matter emissions for both North and South Common Stacks were within the limit for the month of May 2019. The monthly gaseous emissions monitors (NOx & SOx) were unavailable both Stacks see above. A notification Letter was sent to the licensing Authority to notify them of unavailability of online gaseous emissions monitor on the north and south emissions stacks.

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