

Mr Vusi Mahlangu
Air Quality Officer
Nkangala District Municipality
P O Box 437
Middelburg
1050

Date:
23 November 2018

Enquiries:

Dear Mr Mahlangu

RE: KRIEL POWER STATION'S BI-ANNUAL EMISSIONS REPORT APRIL - SEPTEMBER 2018

Herewith, kindly find Kriel Power Station's Bi-annual Emissions report from April to September 2018.

For any query related to the attached Bi-annual Emissions Report; please do not hesitate to contact us on 017 615 2317/2634.

Hoping the above will meet your satisfaction.

Yours sincerely

GENERAL MANAGER: KRIEL POWER STATION

Mandlenkosi Mahlalela
 Department of Economic Development, Environment & Tourism
 Private Bag X11219
 Nelspruit
 1200

Date:
 23 November 2018

Enquiries:

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

Dear Mandlenkosi Mahlalela

KRIEL POWER STATION'S BI-ANNUAL EMISSIONS REPORT

This serves as the bi-annual report required in terms of Section 7.6 in Kriel Power Station's Atmospheric Emission License. The emissions are from 1 April 2018 to 30 September 2018. Verified emissions of particulates, and calculated figures for SO₂, NO_x (as NO₂) and the greenhouse gases CO₂ and N₂O are also included.

1. Pollutant emission trends and greenhouse gas emissions

Particulate emissions are measured at all power stations with opacity monitors, which are correlated to obtain emission concentrations. Gaseous emissions (CO₂, N₂O, SO₂ and NO_x) are calculated from mass balance for SO₂, NO_x and CO₂.

The emissions in the table below are for the 2018/2019 bi-annual period.

Table 1. Total bi-annual emissions at Kriel Power Station from April - September 2018

Power Station	Coal-fired emissions (tons/annum)	Fuel-oil emissions (tons/annum)	Total (tons/annum)
Kriel Power Station	PM: 2757.1	PM :not calculated	PM: 2757.1
	SO ₂ : 65 553	SO ₂ : 5.67	SO ₂ : 65 558.67
	NO _x : 29 489	NO _x :not calculated	NO _x : 29 489

Table 2. Pollutant Emission Trends from April –September 2018 in tons

Month	PM (tons)	SO ₂ (tons)	NO _x (tons)	CO ₂ (tons)
Apr 2018	481.51	9745	4617	
May 2018	337.60	7594	3763	
Jun 2018	562.30	8759	4369	
Jul 2018	358.25	11732	5515	
Aug 2018	495.14	17119	5736	
Sep 2018	522.3	10604	5489	

Table 3. North and South Common Stack PM Emissions monthly average from Kriel Power Station

Month	Limit	North stack (mg/Nm ³)	South stack (mg/Nm ³)	Remarks
Apr 2018	125 mg/Nm ³	102.52	85.04	Both stacks within the licence limit; no incident reported.
May 2018	125 mg/Nm ³	68.44	74.34	Both stacks within the licence limit; no incident reported.
Jun 2018	125 mg/Nm ³	88.70	113.14	Both stacks within the licence limit; no incident reported.
Jul 2018	125 mg/Nm ³	63.53	77.61	Both stacks within the licence limit; no incident reported.
Aug 2018	125 mg/Nm ³	70.12	93	Both stacks within the licence limit; no incident reported.
Sep 2018	125 mg/Nm ³	65.08	138.96	North stack within the licence limit; South stack exceeded. Incident reported to Department of Environmental Affairs (DEA) on the 2 nd of October 2018.

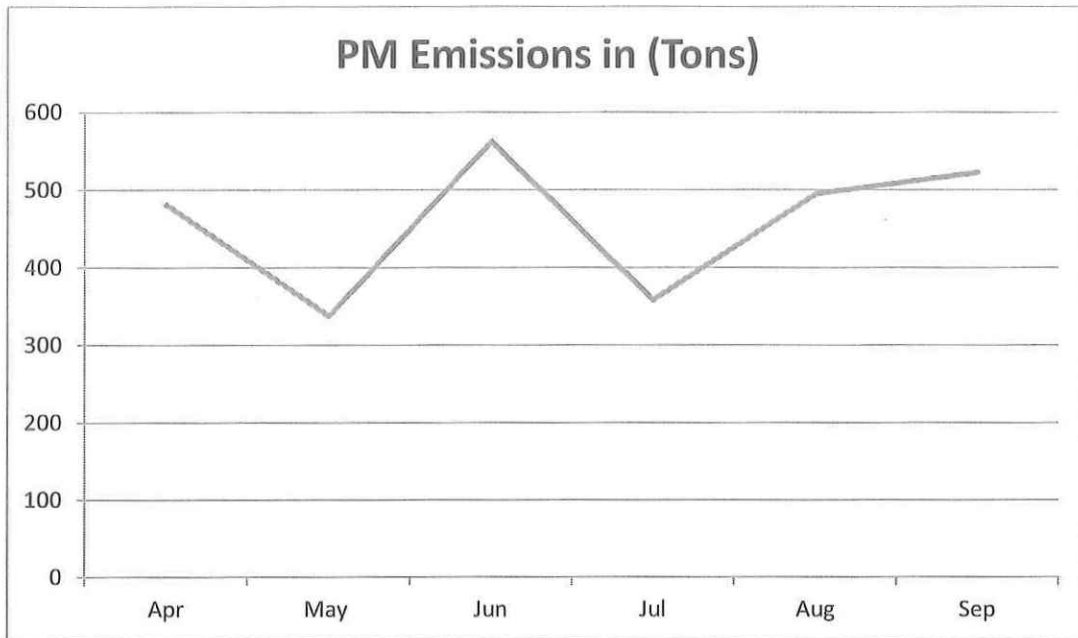


Figure 1 Monthly Particulate Emissions in tons from April –September 2018

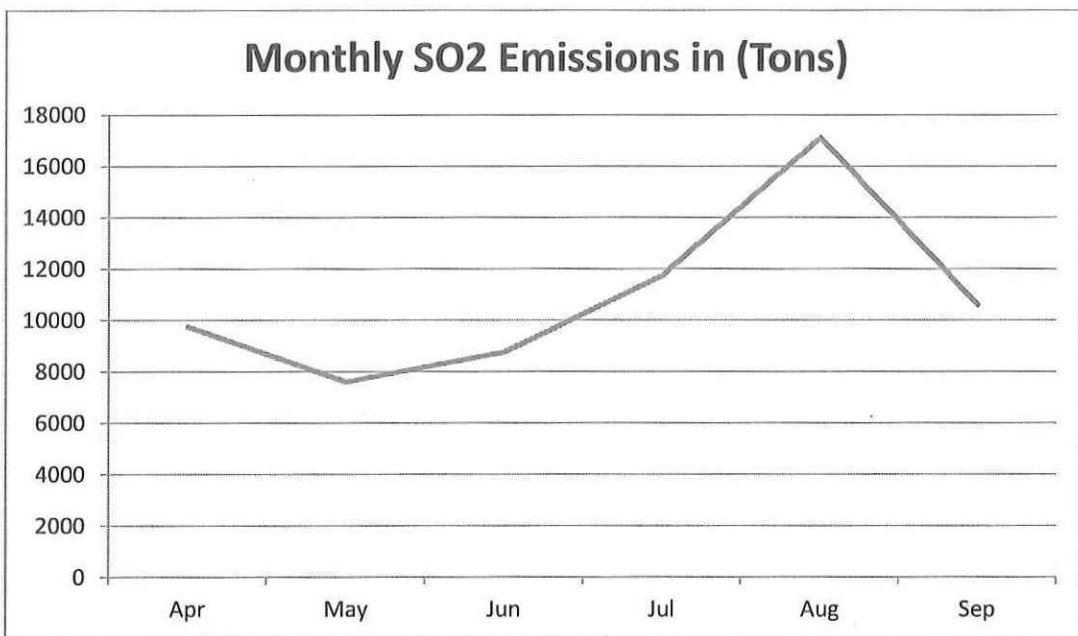


Figure 2 Monthly SO₂ Emissions in tons from April to September 2018 Kriel Power Station

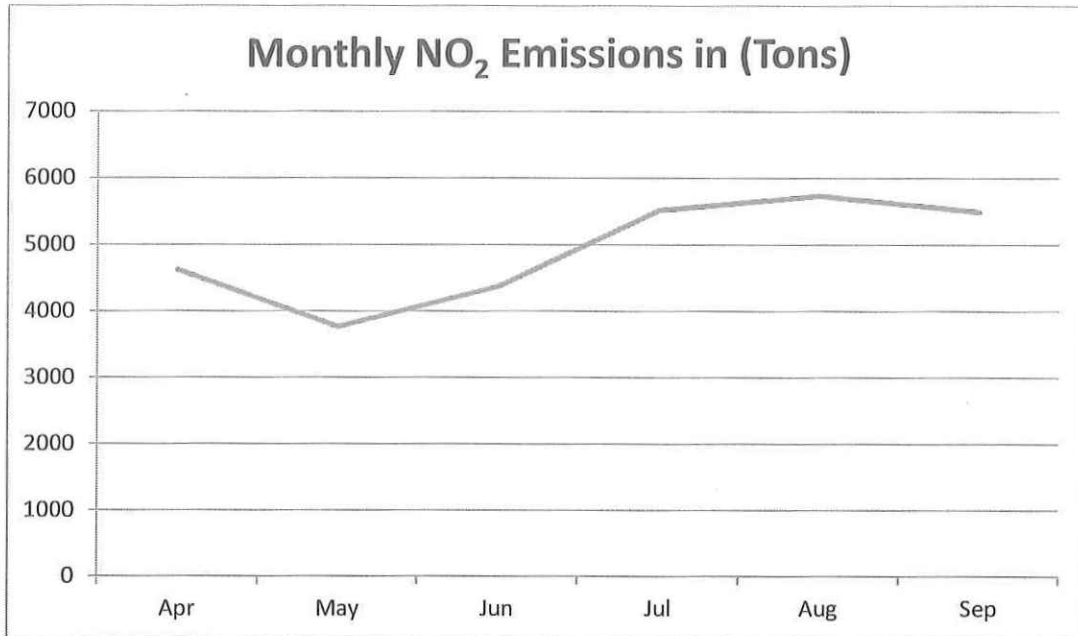


Figure 3 Monthly NO₂ Emissions in tons from April to September 2018 Kriel Power Station

2. Compliance Audit Report(s):

There was no compliance Audit Conducted between April to September 2018.

3. Major upgrades projects:

Inspection, repair and replacement of components within the Electrostatic Precipitators.

4. Greenhouse gas emissions:

The CO₂ and N₂O emissions have been outlined in the tables and graphs above

5. NEMA Section 30 incidents as reported by in 2018/2019 FY

Kriel Power Station exceeded the Particulate Matter in September 2018.

6. Emissions monitor availability in terms of the minimum emissions standard annual reporting requirements

In terms of Section 17 and 18 of the Minimum Emissions Standards, it is a requirement that Kriel Power Station report on the availability of its continuous emissions monitors (PM, SO₂ and NO_x). South Stack gaseous monitor for Sox availability was below on May 2018; the reasons for this were related to non-functionality of the Oxygen (O₂) meter and the issue was resolved timeously still in May.

Table 4. Availability of Kriel Power Station continuous emission monitors April –September 2018

	Monthly average monitor availability					
	North Stack			South Stack		
	PM	SOX	NOX	PM	SOX	NOX
Apr 18	99.58%	100%	100%	96.58%	88.52%	88.51%
May 18	100%	100%	100%	94.42%	73.98%	96.66%
Jun 18	99.17%	99.31%	99.44%	94.81%	100%	100%
Jul18	99.19%	99.46%	99.46%	98.79%	99.27%	98.84%
Aug18	96.40%	95.41%	95.41%	100%	100%	100%
Sept18	100%	99.86%	100%	99.31%	100%	100%

Average continuous emission monitors availability was above 80% for all parameters measured except SOx on the South Stack in May 2018. The reasons for unavailability have been described above.

7. Correlation Reports

Kriel Power Station has contracted with Intuu Measurements CC to perform South Stack parallel and PM monitor correlation measurements. Particulate matter and parallel gaseous emissions measurements were carried out from the 21st to the 26th of August 2018. Parallel measurements were performed to determine AMS's calibration functions on the South Stack and particulate matter measurements to determine a linear regression allowing the reporting of emissions from the AMS. Constants for the linear regression are derived from the gravimetric measurements by a Standard Reference Method (SRM) and the corresponding AMS signal. The correlation function was determined from twelve tests. Two out of the fourteen tests were omitted from the calculations. These are Test 4 and Test 14 which were outliers.

The latest correction report dated 15 th October 2018 is submitted as part of bi-annual emissions reporting requirements to comply with Section 17 &18 of the minimum emission standard (Appendix A).

8. NAEIS reporting

Kiel Power Station will submit its annual report for 2018/2019 onto the NAEIS system end of financial year.

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

Hoping the above will meet your satisfaction.

Yours sincerely

KRIEL POWER STATION GENERAL MANAGER

