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Date
25 September 2020

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Dear Mrs Mpho Nembilwi

Ref Kendal Power Station AEL (17/4/AEL/MP312/11/15)

KENDAL POWER STATION'S EMISSIONS REPORT FOR THE MONTH OF AUGUST 2020

This is a monthly report required in terms of Section 7 4 in the Kendal Power Station's Atmospheric Emission License The emissions are for Eskom Kendal Power Station

Compiled by:

Tshildzi Vilane
ENVIRONMENTAL OFFICER- KENDAL

Date: 25/09/2020

Verified by:

Hlonhlo Malatsi
SENIOR TECHNICIAN BOILER ENGINEERING- KENDAL

Date: 25/09/2020

KENDAL POWER STATION'S EMISSIONS REPORT FOR THE MONTH OF AUGUST 2020

Validated by:


Tendani Rasivhetshele
ACTING BOILER ENGINEERING MANAGER-KENDAL

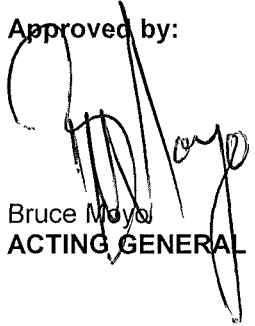
Date 29/09/2020

Supported by:


Malibongwe Mabizela
ACTING ENGINEERING MANAGER-KENDAL

Date 01/10/2020

Approved by:

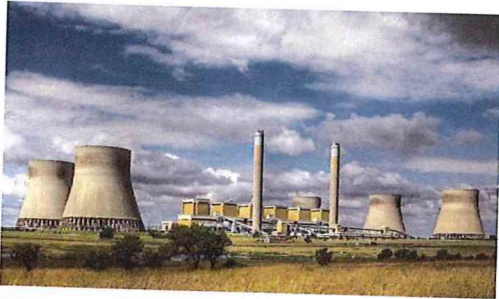

Bruce Moyo
ACTING GENERAL MANAGER-KENDAL

02/10/2020
Date



AUGUST 2020

KENDAL POWER STATION MONTHLY EMISSIONS REPORT
 Atmospheric Emission License 17/4/AEL/MP312/11/15



1 RAW MATERIALS AND PRODUCTS

Raw Materials and Products	Raw Material Type	Units	Consumption Rate Aug-2020
	Coal	Tons	909 009
	Fuel Oil	Tons	1663.71

Production Rates	Product / By-Product Name	Units	Production Rate Aug-2020
	Energy	GWh	1 510.31
	Ash	Tons	278 520.4
	RE Ash	kg/MWh	1.329

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.7 TO >1 (%)	0.770
Ash Content	%	30 TO >40 (%)	30.640

3 EMISSION LIMITS (mg/Nm³)

Associated Unit/Stack	PM	SO _x	NO _x
Unit 1	100	3500	1100
Unit 2	100	3500	1100
Unit 3	100	3500	1100
Unit 4	100	3500	1100
Unit 5	100	3500	1100
Unit 6	100	3500	1100

4 ABATEMET TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	Efficiency Aug-2020	Technology Type	Utilization Aug-2020
Unit 1	ESP + SO _x	99.6%	SO _x	75.4%
Unit 2	ESP + SO _x	99.5%	SO _x	99.7%
Unit 3	ESP + SO _x	99.3%	SO _x	69.4%
Unit 4	ESP + SO _x	98.5%	SO _x	99.9%
Unit 5	ESP + SO _x	Unit off	SO _x	Unit off
Unit 6	ESP + SO _x	98.3%	SO _x	PI server was frozen

Note: ESP plant does not have bypass mode operation, hence plant 100% Utilised.

5 MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO ₂	NO	O ₂
Unit 1	98.3	0.0	0.0	24.0
Unit 2	99.2	29.7	29.7	0.0
Unit 3	34.8	45.7	45.7	0.0
Unit 4	33.8	0.0	0.0	0.0
Unit 5	Unit off	Unit off	Unit off	Unit off
Unit 6	24.4	0.0	0.0	0.0

Note: Low Gaseous monitor reliability is due to defective analyzers, Maintenance is working on this issue.

6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of August 2020

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	199.9	4 101	1 457
Unit 2	189.1	2 154	925
Unit 3	381.6	1 069	428
Unit 4	634.2	1 886	648
Unit 5	Unit off	Unit off	Unit off
Unit 6	603.1	6 605	2 736
SUM	2 007.81	15 814	6 194

Gaseous emissions were manually entered using independent third party parallel test reports since CEMS monitors are defective, however unit 2 started working on the 21st of August 2020 and unit 3 only SOx and NOx also started working after repairs

Table 6.2: Operating days in compliance to PM AEL Limit - August 2020

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	9	11	7	1	19	32.6
Unit 2	5	4	0	17	21	65.9
Unit 3	0	2	0	22	24	215.6
Unit 4	0	3	0	23	26	290.5
Unit 5	Unit off	Unit off	Unit off	Unit off	Unit off	Unit off
Unit 6	0	4	0	25	29	228.6
SUM	14	24	7	88	119	

Table 6.3: Operating days in compliance to SOx AEL Limit - August 2020

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average SOx (mg/Nm ³)
Unit 1	29	0	0	0	0	1 925.3
Unit 2	28	0	0	0	0	2 558.4
Unit 3	25	0	0	0	0	1 887.7
Unit 4	27	0	0	0	0	2 661.2
Unit 5	Unit off	Unit off	Unit off	Unit off	Unit off	Unit off
Unit 6	31	0	0	0	0	2 441.1
SUM	140	0	0	0	0	

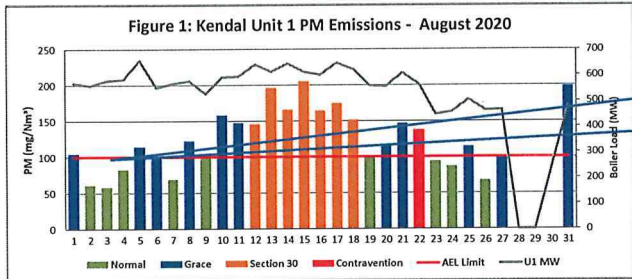
Table 6.4: Operating days in compliance to NOx AEL Limit - August 2020

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average NOx (mg/Nm ³)
Unit 1	29	0	0	0	0	684.0
Unit 2	18	5	0	5	10	1 112.3
Unit 3	25	0	0	0	0	755.0
Unit 4	27	0	0	0	0	914.4
Unit 5	Unit off	Unit off	Unit off	Unit off	Unit off	Unit off
Unit 6	30	0	0	0	0	1 011.4
SUM	129	5	0	5	10	

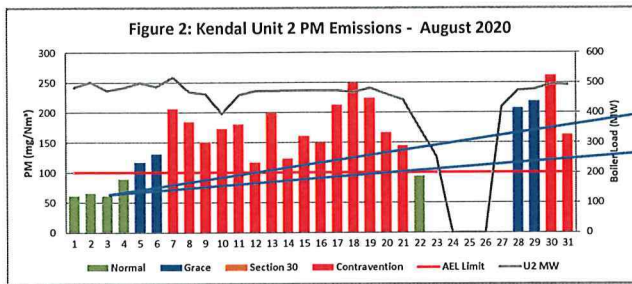
Table 6.5: Legend Description

Condition	Colour	Description
Normal	Green	Emissions below Emission Limit Value (ELV)
Grace	Blue	Emissions above the ELV during grace period
Section 30	Orange	Emissions above ELV during a NEMA S30 incident
Contra-vention	Red	Emissions above ELV but outside grace or S30 incident conditions

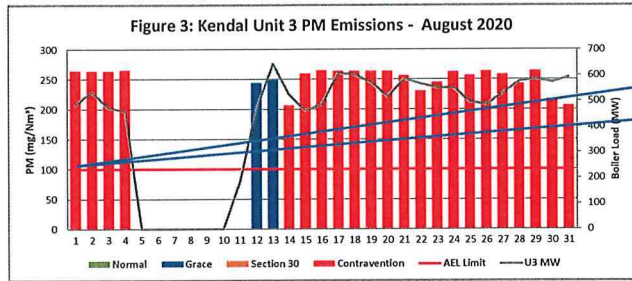
Figure 1: Kendal Unit 1 PM Emissions - August 2020



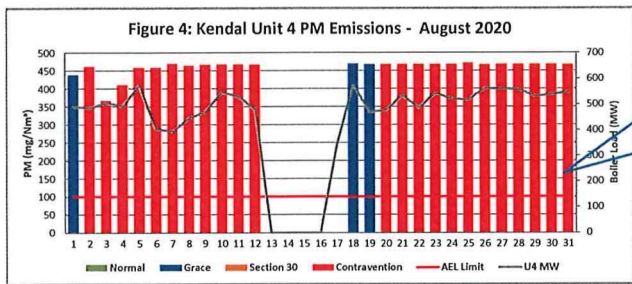
Unit 1 high PM emissions can be attributed:
 1. SO3 plant that frequently tripped due to defective dilution air control valve from the 1st to 18th of August.
 2. Dust Handling plant tripping due to high compartment level from the 20th August.



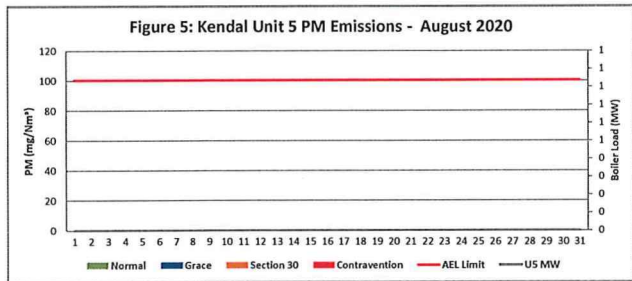
Unit 2 high PM emissions can be attributed to SO3 plant tripping due to back end temperatures low and Dust Handling plant tripping due to high compartment level

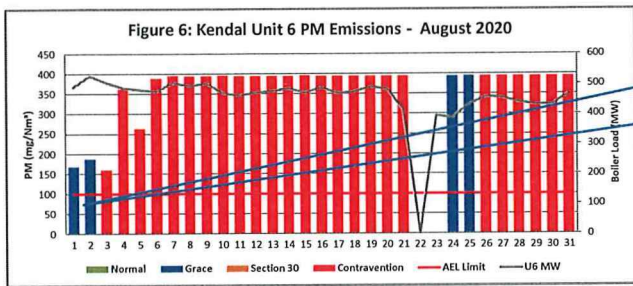


Unit 3 high PM emissions can be attributed to compartment levels high and knife gates closed, streams not available and top bunker conveyor kept tripping

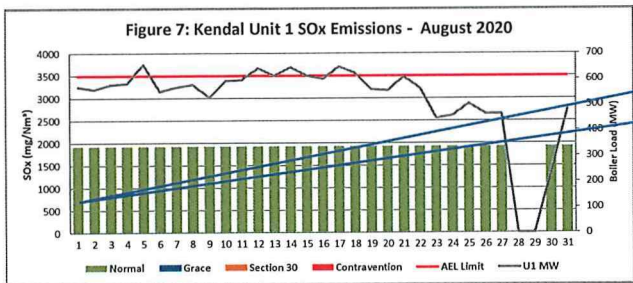


Unit 4 high PM emissions can be attributed to SO3 point off for steam pipe and converter steam leak repairs and dust handling plant was off due to compartment levels full. Precipitator conveyor 22 was not running, compartment 30 knife gates were tight and 30 spindle was broken

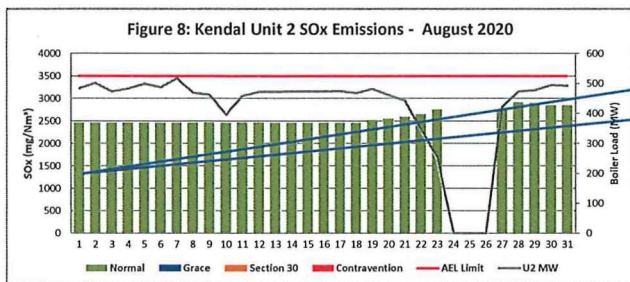




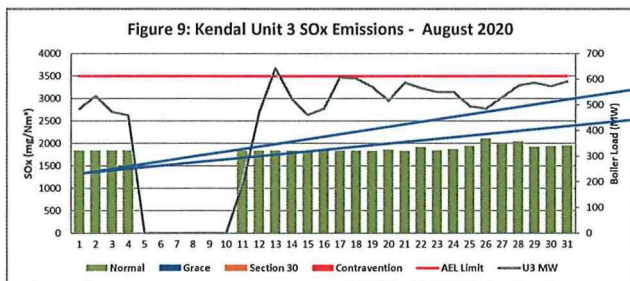
Unit 6 high PM emissions can be attributed Precipitator conveyor 23 that kept tripping, SO3 plant was on hold mode due to sulphur flow low, SO3 plant was off due to sulphur plant steam isolated to remove blocked valve and steam temperature low and Dust Handling Plant tripping due to full compartments



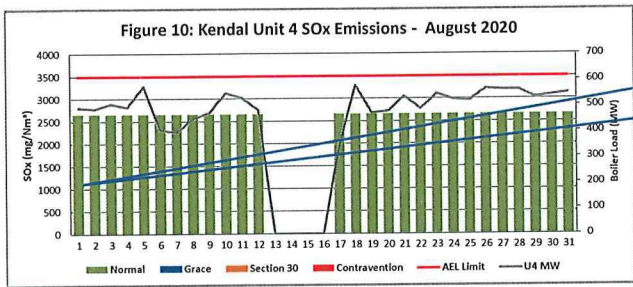
Note that gaseous emissions for unis 1 were manually entered using Independent third party QAL2 parallel test reports due to defective CEMS monitors.



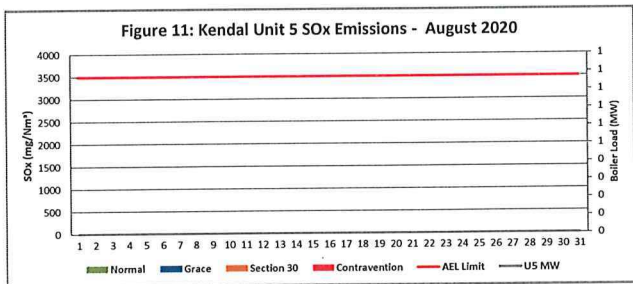
Note that gaseous emissions for unit 2 were manually entered using independent third party QAL2 parallel test reports due to defective CEMS monitors, but unit 2 CEMS monitors started working from the 21st of August 2020 after repairs

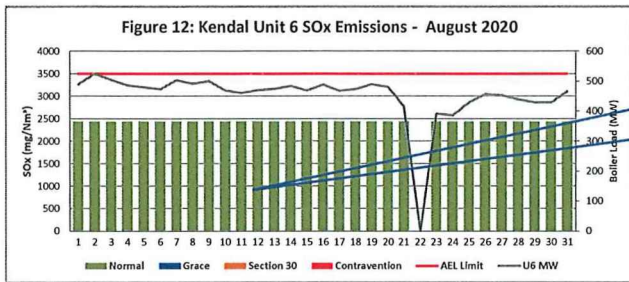


Note that gaseous emissions for unit 3 were manually entered using independent third party QAL2 parallel test reports due to defective CEMS monitors, but SOx and NOx monitors started working from the 21st of August 2020 after repairs

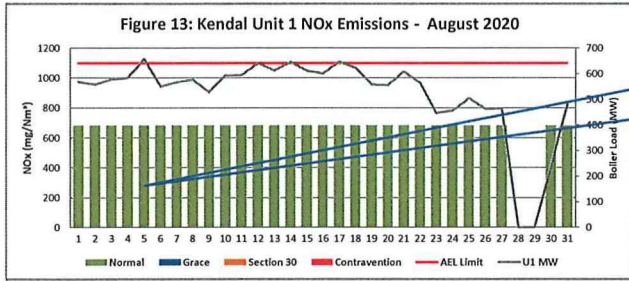


Note that gaseous emissions for unit 4 were manually entered using independent third party QAL2 parallel test reports due to defective CEMS monitors.

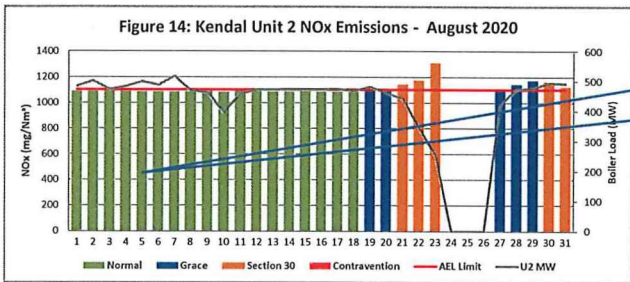




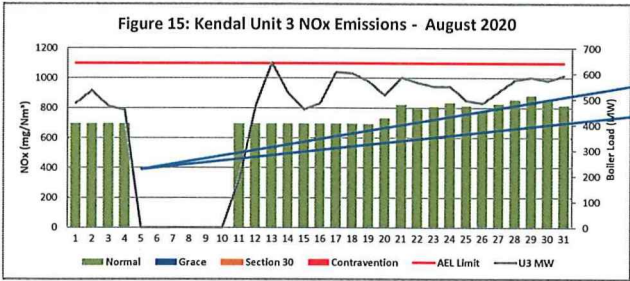
Note that gaseous emissions for unit 6 were manually entered using Independent third party QAL2 parallel test reports due to defective CEMS monitors.



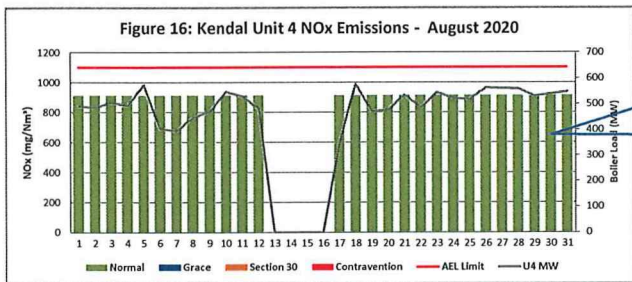
Note that gaseous emissions for unit 1 were manually entered using Independent third party QAL2 parallel test reports due to defective CEMS monitors.



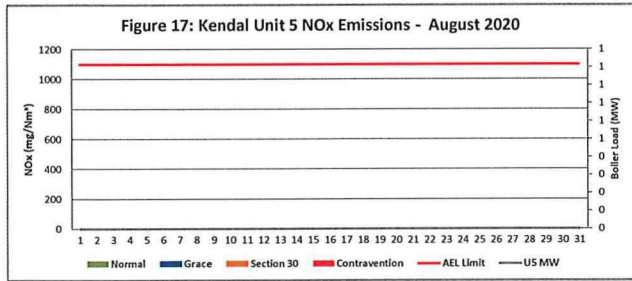
Note that gaseous emissions for unit 2 were manually entered using Independent third party QAL2 parallel test reports due to defective CEMS monitors.

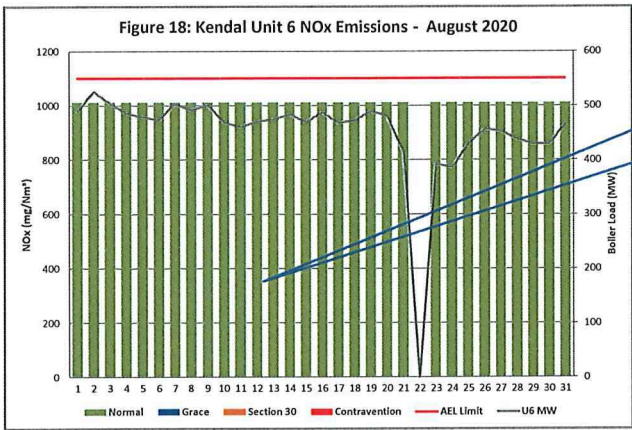


Note that gaseous emissions for unit 3 were manually entered using Independent third party QAL2 parallel test reports due to defective CEMS monitors.



Note that gaseous emissions for unit 4 were manually entered using independent third party QAL3 parallel test reports due to defective CEMS monitors.





Note that gaseous emissions for unit 6 were manually entered using Independent third party QAL2 parallel test reports due to defective CEMS monitors.

7 COMMENTS

Unit 1
SO3 plant had frequent trips during the month of August which affected the SO3 efficiency.

Note that all gaseous emissions for units 1,2,3,4 & 6 were manually entered using Independent third party QAL2 parallel test reports due to defective CEMS monitors, but unit 2 CEMS monitors started working from the 21st of August 2020 and unit 3 only SOx and Nox also started working from the 21st of August 2020 after repairs.

Units 1,2,3,4 & 6 high PM emissions can be attributed to poor availability of Dust Handling Plant resulting to ash backlogs causing poor performance of the electrostatic precipitators fields and SO3 Plant tripping

Average SRM velocity values from the latest correlation report were used on the gaseous emissions on Unit 1, 2, 3 & 4 due to defective CEMS monitors and velocity correction factors were set M=1 and C=0
Average AMS velocity values from December 2019 correlation report were used for the gaseous emissions on unit 6 with the velocity correction factors

Unit 5 was still offload during the whole months of August 2020

8 COMPLAINTS

There were no complaints for the months of August 2020