

The Municipal Manager
Gert Sibande District Municipality
PO Box 1748
ERMELO
2350

Date: 11 October 2023

Enquiries: X. Jila

Tel +27 17 749 5100

E-mail: records@gsibande.gov.za
Email: dan.hlanyane@gsibande.gov.za

Dear Mr Hlanyane

TUTUKA POWER STATION MONTHLY REPORT FOR SEPTEMBER 2023

This serves as the monthly report required in terms of Section 7.4 of Tutuka Power Station's Atmospheric Emission License (16/4/Lekwa/Eskom H SOC Ltd TPS/0013/2019/f03). The report includes verified emissions of Particulate Matters, Sulphur, and Nitrogen dioxides for the month of September 2023

The report presents monthly trends for each monitored pollutant. Unit 6 was offload for the month of September 2023. There were three exceedances for Particulate Matter recorded in unit 5 which fell within the 48-hour period allowed for start-ups, maintenance and shut down. The rest of the unit were operating within the limits for PMs and gases.

1 RAW MATERIALS AND PRODUCTS

Raw Materials and Products	Raw Material Type	Units	Max. Permitted	Actual Consumption Sep-2023
	Coal	Tons	1 200 000	480 363
	Fuel Oil	Tons	10 000	7211.01
Production Rates	Product / By-Product Name	Units	Max. Production Capacity Permitted	Indicative Production Rate Sep-2023
	Energy	GWh	2 527.200	912.356
	Ash	Tons	350 000	116 200
	RE Ash	kg/MWh	not specified	1.227

Note: Maximum energy rate is as per the maximum capacity stated in the AEL: [30748MW]/12 x 24 hrs x 31days in Month/1000 to convert to GWh

TUTUKA POWER STATION MONTHLY REPORT FOR SEPTEMBER 2023

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristics	Units	Stipulated Range	Monthly Average Content
CV Content	MJ/kg	16-24	21.850
Sulphur Content	%	0.6 - 2.6	0.920
Ash Content	%	21 - 33	24.190

3 EMISSION LIMITS (mg/Nm³)

Associated Unit/Stack	PM	SO ₂	NO _x
Unit 1	300	3400	1200
Unit 2	300	3400	1200
Unit 3	300	3400	1200
Unit 4	300	3400	1200
Unit 5	300	3400	1200
Unit 6	300	3400	1200

4 ABATEMENT TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	Efficiency Sep-2023
Unit 1	Electro Static Precipitators (ESP)	99.3%
Unit 2	Electro Static Precipitators (ESP)	99.4%
Unit 3	Electro Static Precipitators (ESP)	99.2%
Unit 4	Electro Static Precipitators (ESP)	99.4%
Unit 5	Electro Static Precipitators (ESP)	98.0%
Unit 6	Electro Static Precipitators (ESP)	Unit OFF

Note: The ESP does not have bypass mode operating, hence plant considered 100% Utilised.

TUTUKA POWER STATION MONTHLY REPORT FOR SEPTEMBER 2023

5 MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO ₂	NO	O ₂
Unit 1	98.1	100.0	100.0	16.7
Unit 2	100.0	75.0	66.7	87.5
Unit 3	99.1	0.0	0.0	0.0
Unit 4	99.8	13.8	33.7	98.4
Unit 5	99.9	99.6	99.3	100.0
Unit 6	OFF	OFF	OFF	OFF

Note: Gas monitors were not working properly for the month of August 2023 were not working properly and surrogate values from the QAL2 reports were used to estimate the tonnages.

6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of September-2023

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	95.2	1 045	443
Unit 2	23.9	261	79
Unit 3	235.7	3 457	1 265
Unit 4	169.7	2 778	809
Unit 5	559.2	3 673	1 408
Unit 6	OFF	OFF	OFF

Table 6.5: Legend Description

Condition	Colour	Description
Normal		Emissions below Emission Limit Value (ELV)
Grace		Emissions above the ELV during grace period
Section 30		Emissions above ELV during a NEMA S30 incident
Contravention		Emissions above ELV but outside grace or S30 incident conditions

Table 6.2: Operating days in compliance to PM AEL Limit - September 2023

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	11	0	0	0	0	171.0
Unit 2	4	0	0	0	0	152.8
Unit 3	28	0	0	0	0	161.7
Unit 4	25	0	0	0	0	107.8
Unit 5	26	3	0	0	3	270.8
Unit 6	OFF	OFF	OFF	OFF	OFF	OFF
SUM	94	0	0	0	0	

TUTUKA POWER STATION MONTHLY REPORT FOR SEPTEMBER 2023

Table 6.3: Operating days in compliance to SO₂ AEL Limit - September 2023

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO ₂ (mg/Nm ³)
Unit 1	12	0	0	0	0	1 907.1
Unit 2	8	0	0	0	0	1 517.5
Unit 3	30	0	0	0	0	2 370.6
Unit 4	26	0	0	0	0	1 758.1
Unit 5	30	0	0	0	0	1 782.5
Unit 6	OFF	OFF	OFF	OFF	OFF	OFF
SUM	106	0	0	0	0	

Table 6.4: Operating days in compliance to NO_x AEL Limit - September 2023

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NO _x (mg/Nm ³)
Unit 1	12	0	0	0	0	790.6
Unit 2	6	0	0	0	0	811.0
Unit 3	30	0	0	0	0	867.5
Unit 4	26	0	0	0	0	514.2
Unit 5	30	0	0	0	0	682.1
Unit 6	OFF	OFF	OFF	OFF	OFF	OFF
SUM	106	0	0	0	0	

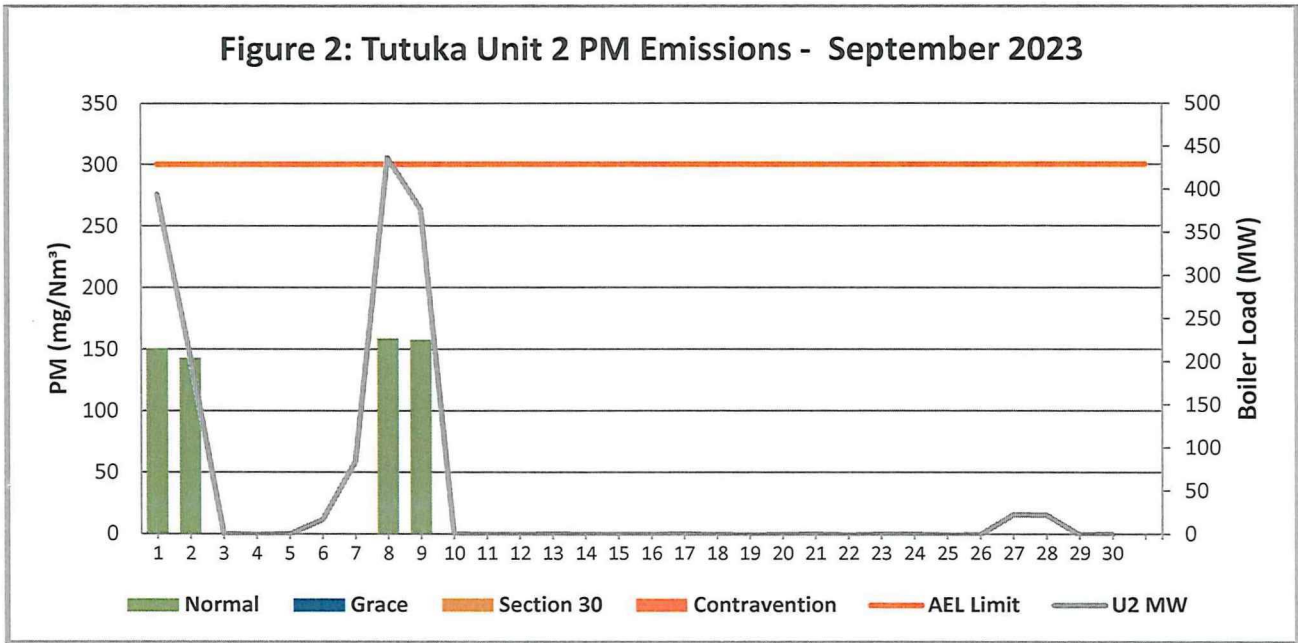
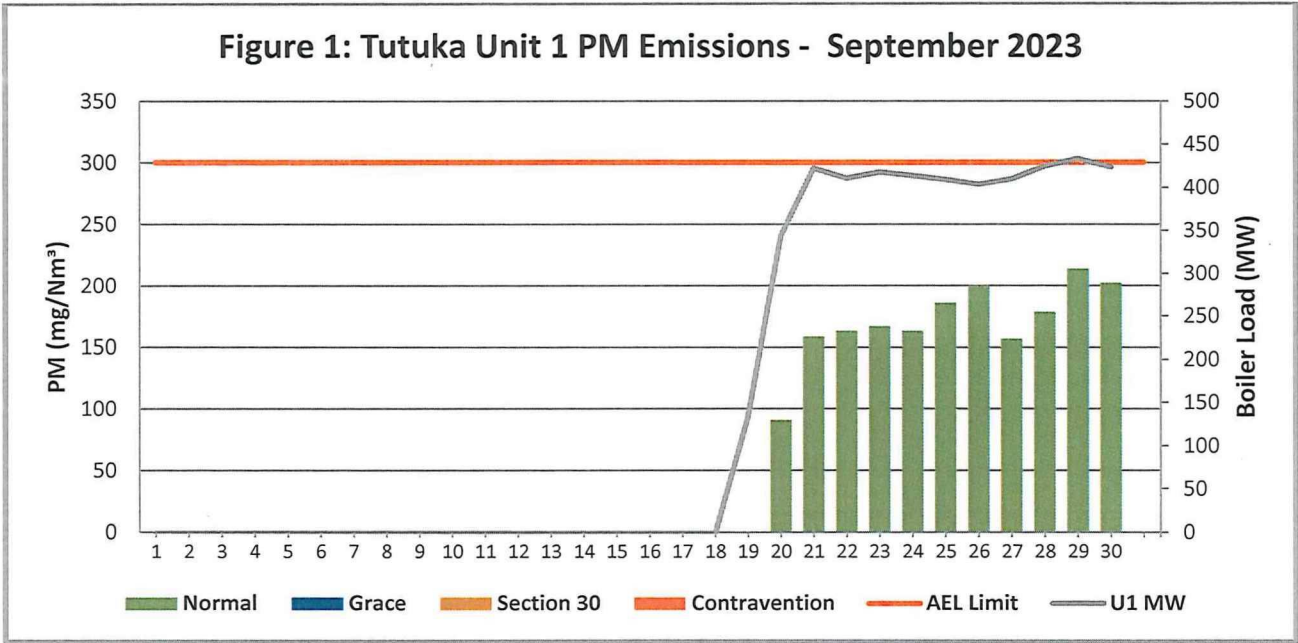
Note: NO_x emissions are measured as NO in PPM. Final NO_x value is expressed as total NO₂

Table 6.5: Legend
Description

Condition	Colour	Description
Normal		Emissions below Emission Limit Value (ELV)
Grace		Emissions above the ELV during grace period
Section 30		Emissions above ELV during a NEMA S30 incident
Contravention		Emissions above ELV but outside grace or S30 incident conditions



TUTUKA POWER STATION MONTHLY REPORT FOR SEPTEMBER 2023



TUTUKA POWER STATION MONTHLY REPORT FOR SEPTEMBER 2023

Figure 3: Tutuka Unit 3 PM Emissions - September 2023

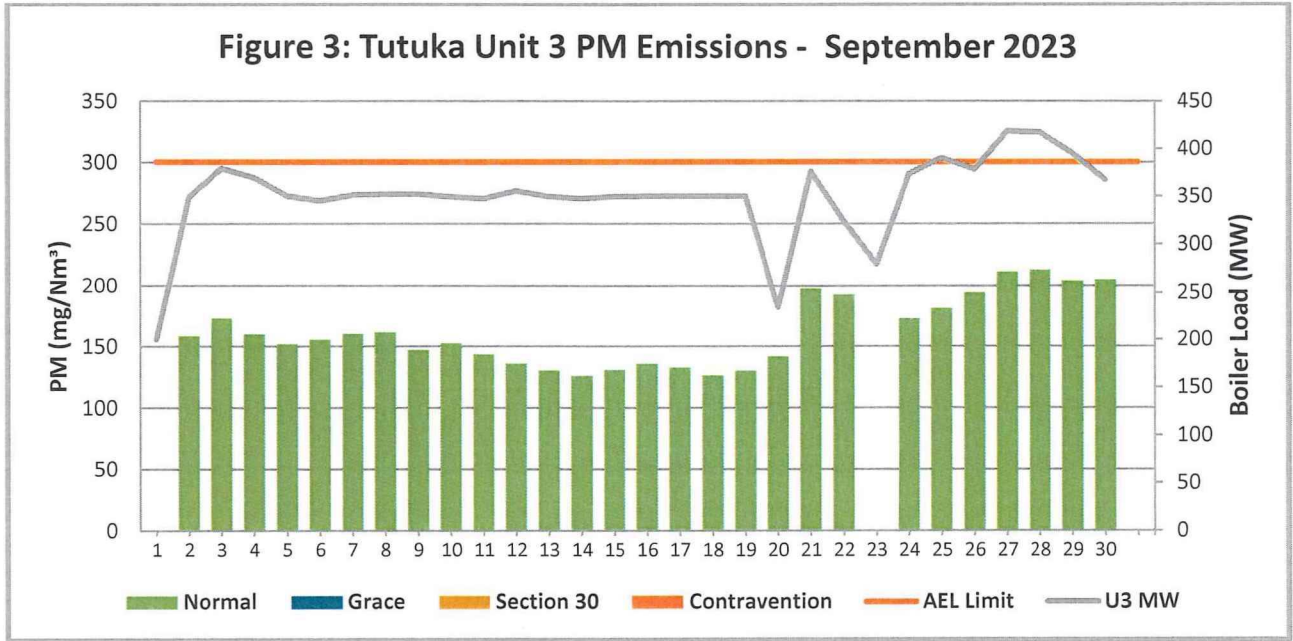
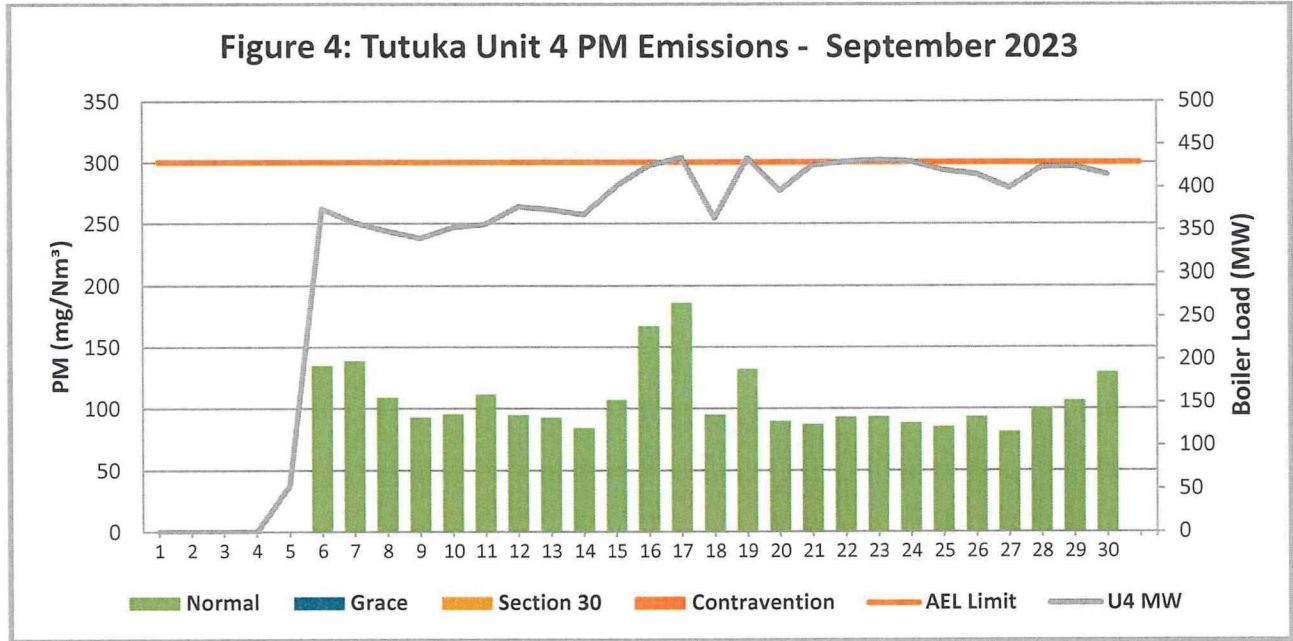
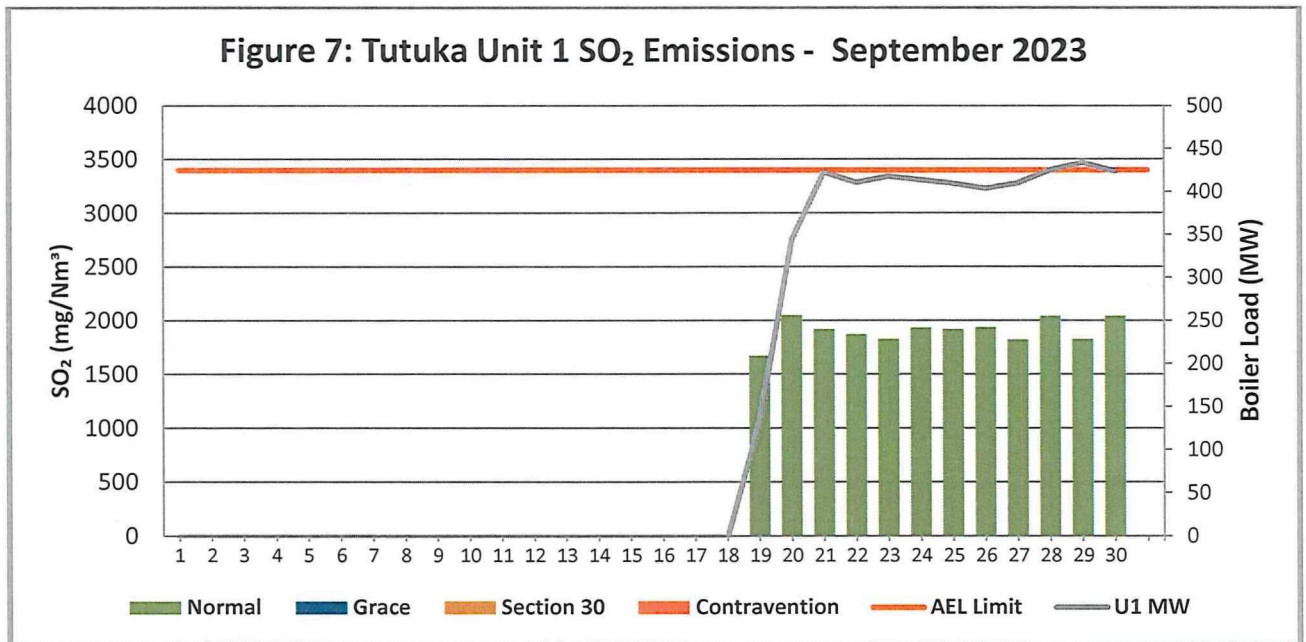
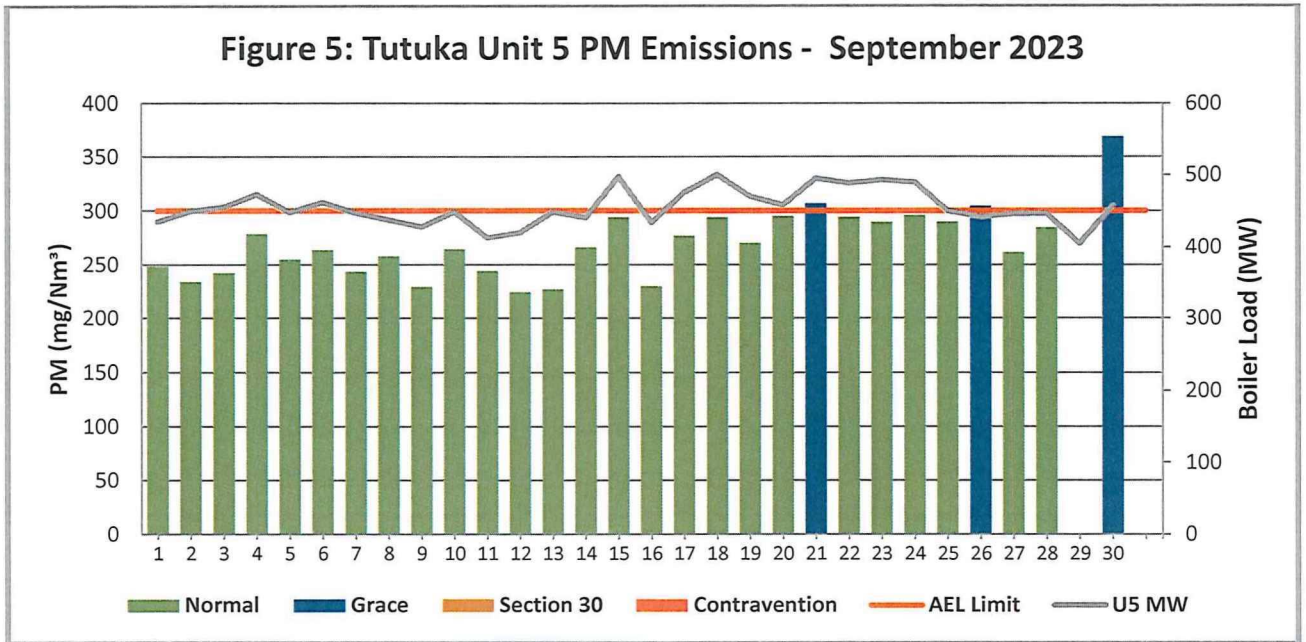


Figure 4: Tutuka Unit 4 PM Emissions - September 2023



TUTUKA POWER STATION MONTHLY REPORT FOR SEPTEMBER 2023



TUTUKA POWER STATION MONTHLY REPORT FOR SEPTEMBER 2023

Figure 8: Tutuka Unit 2 SO₂ Emissions - September 2023

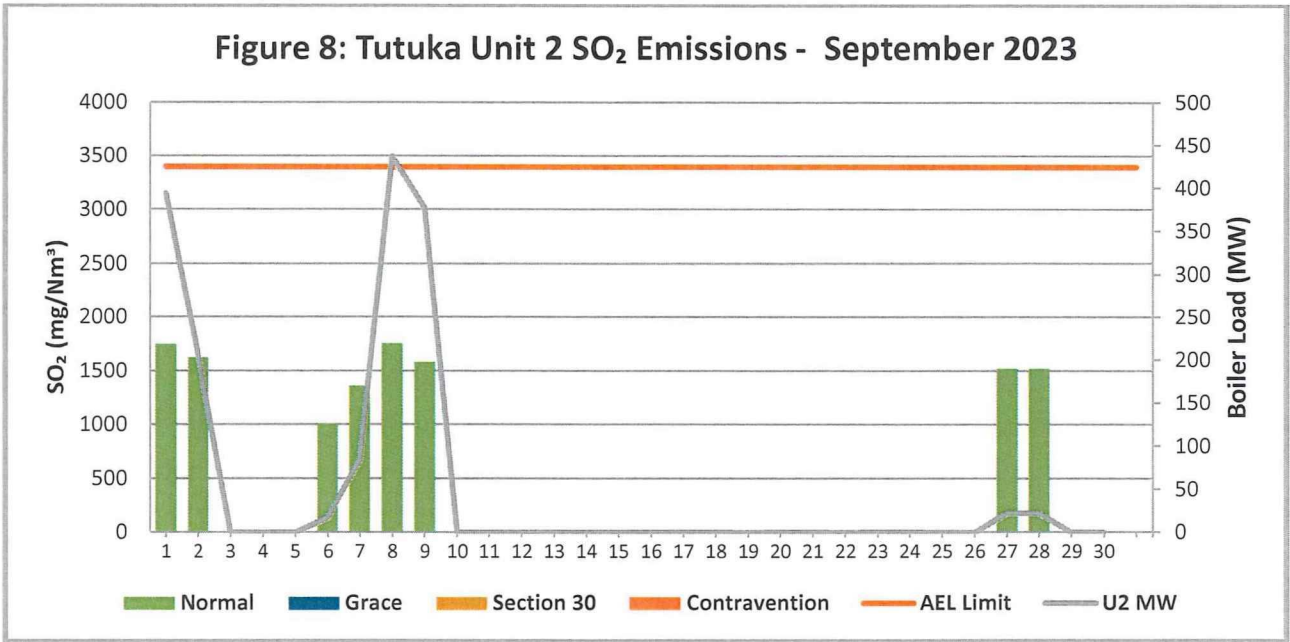
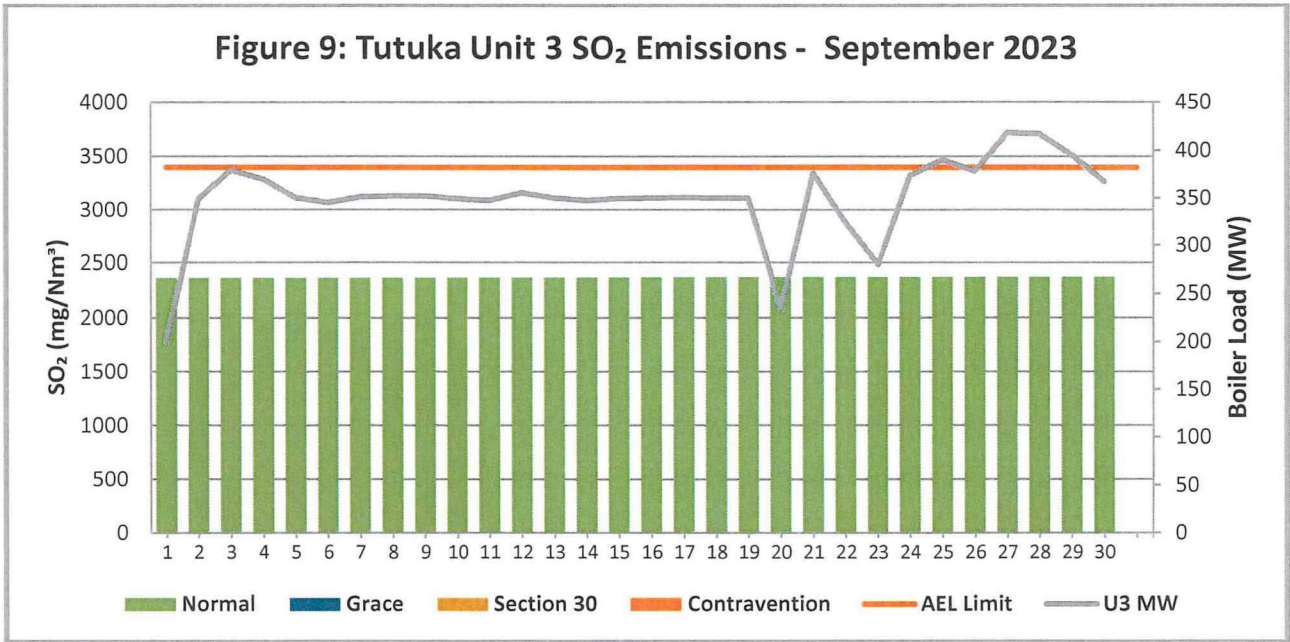
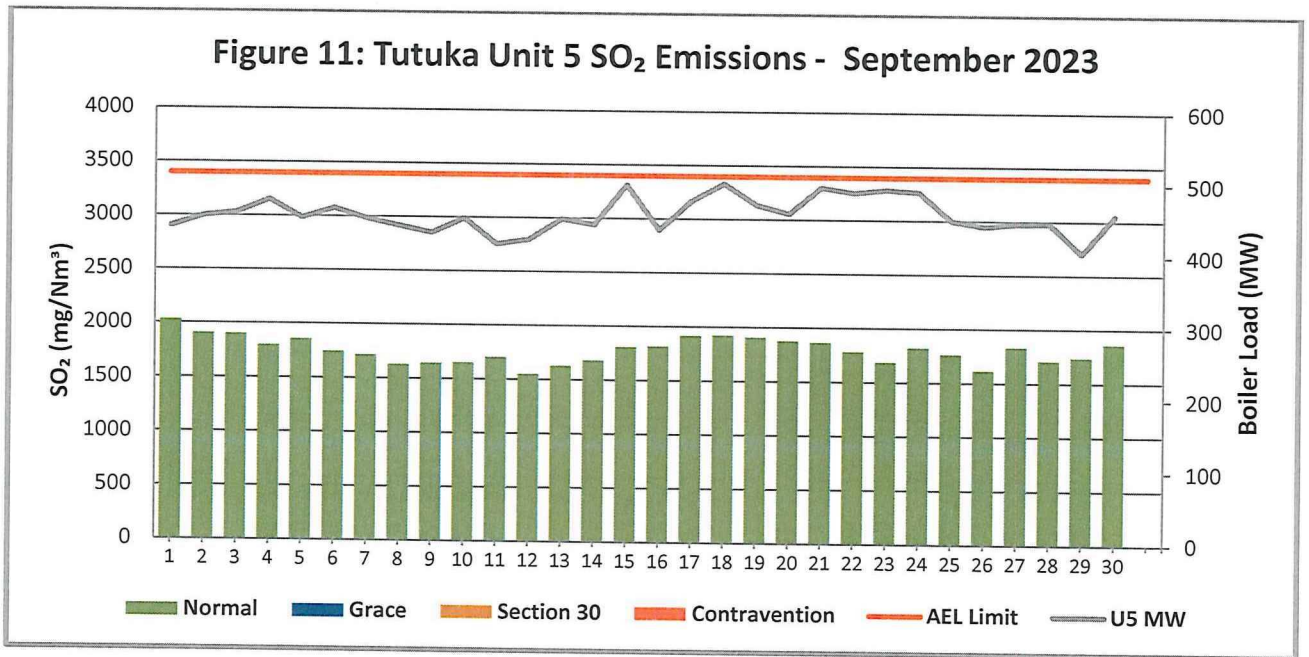
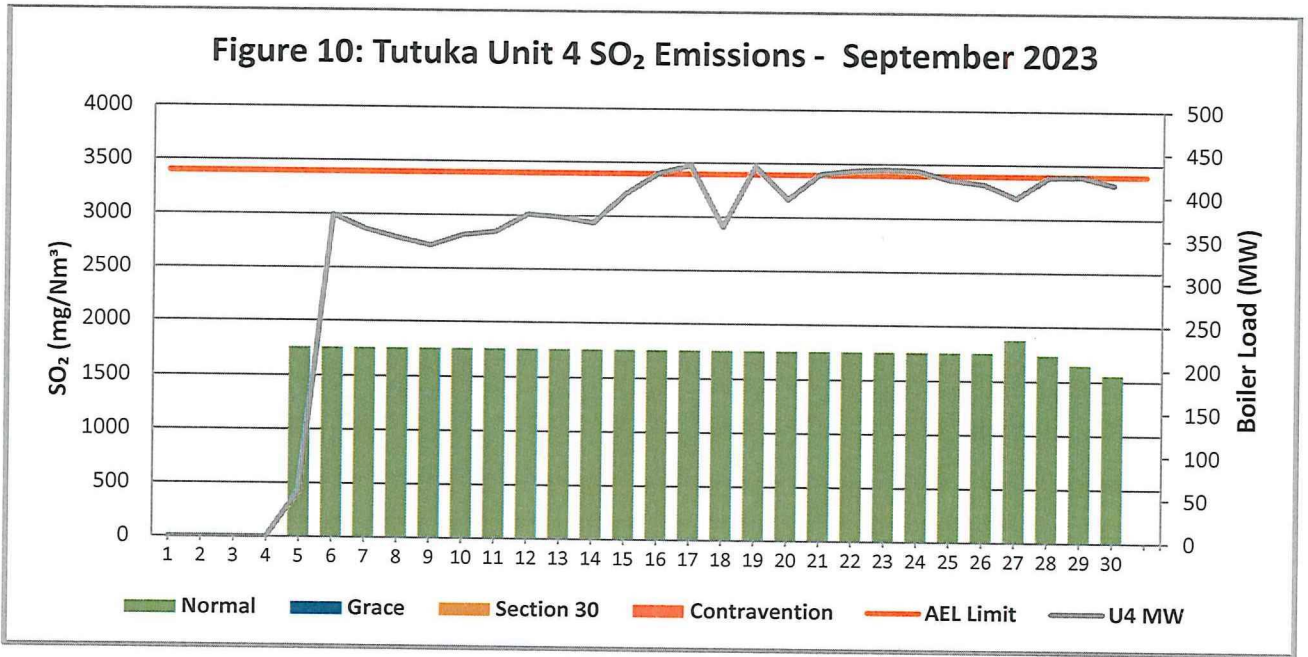


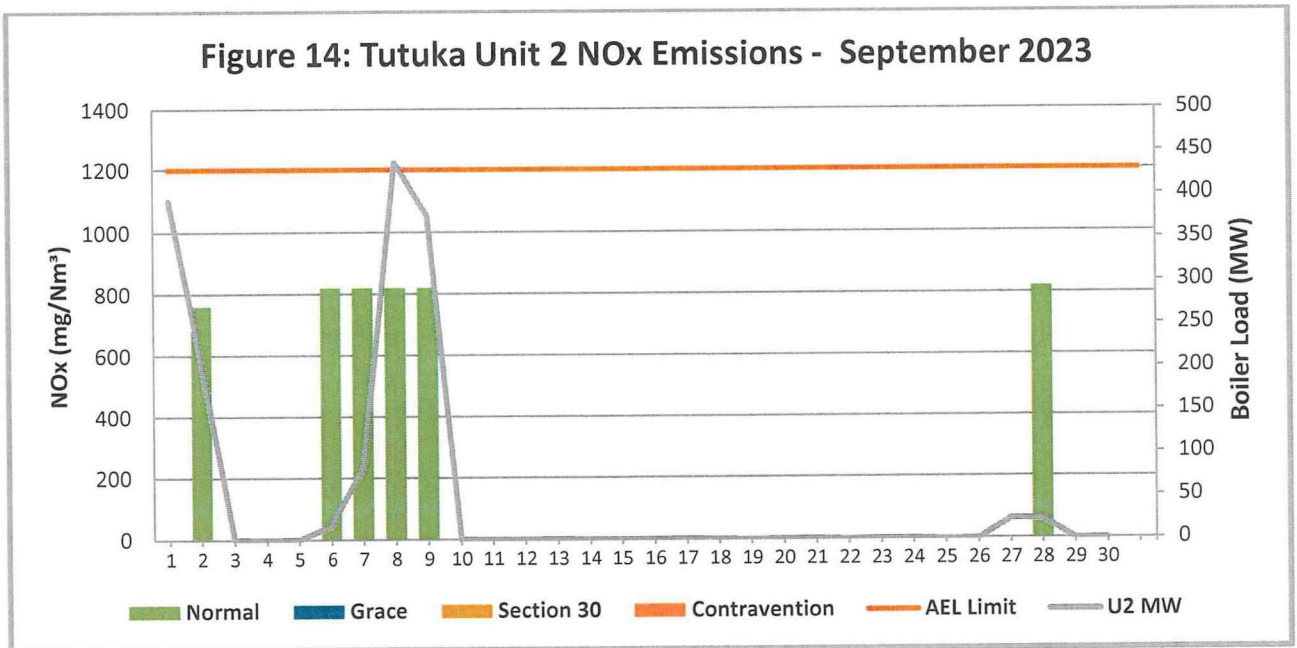
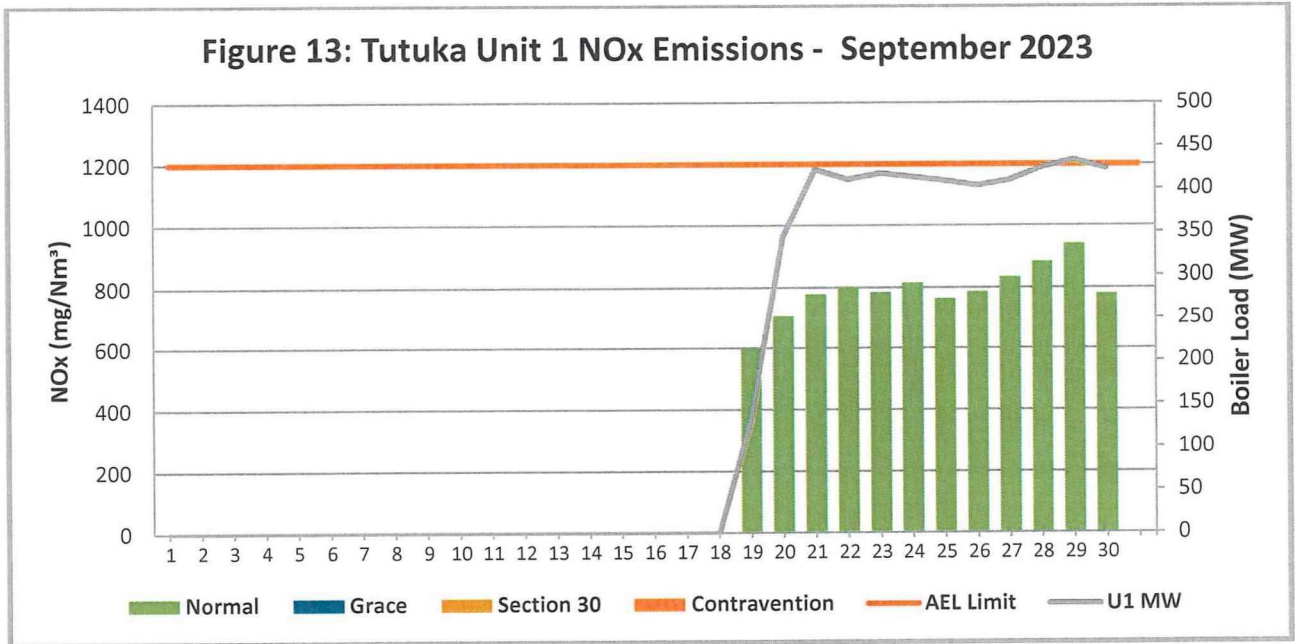
Figure 9: Tutuka Unit 3 SO₂ Emissions - September 2023



TUTUKA POWER STATION MONTHLY REPORT FOR SEPTEMBER 2023



TUTUKA POWER STATION MONTHLY REPORT FOR SEPTEMBER 2023



TUTUKA POWER STATION MONTHLY REPORT FOR SEPTEMBER 2023

Figure 15: Tutuka Unit 3 NOx Emissions - September 2023

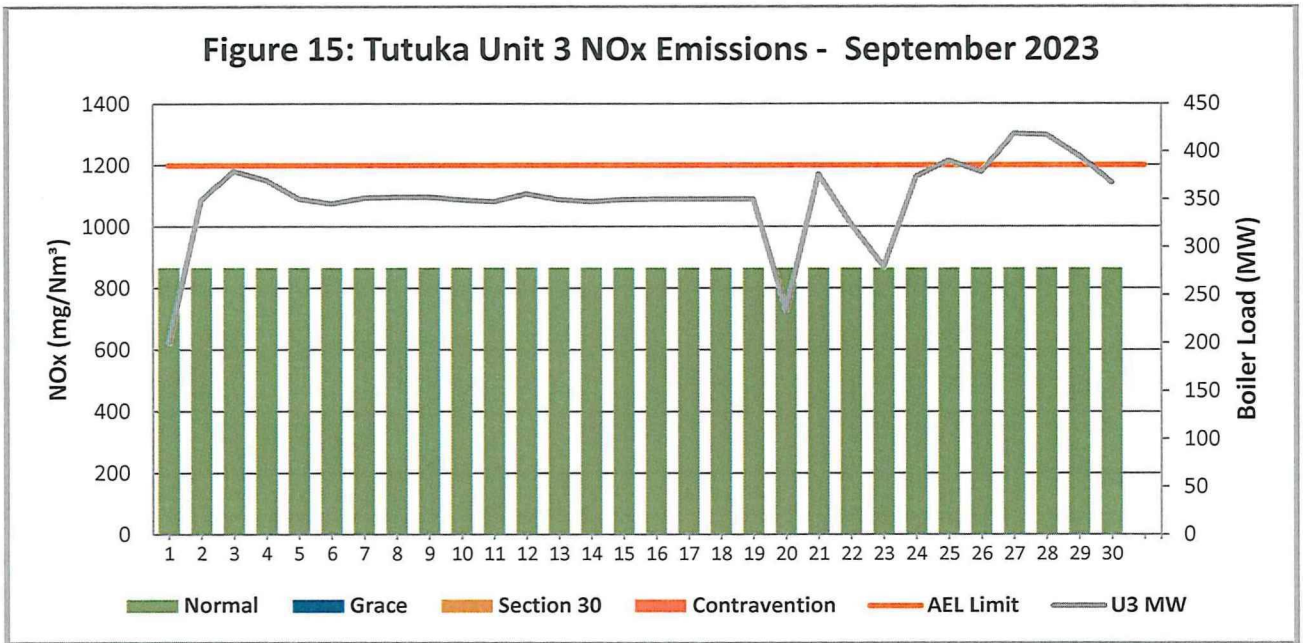
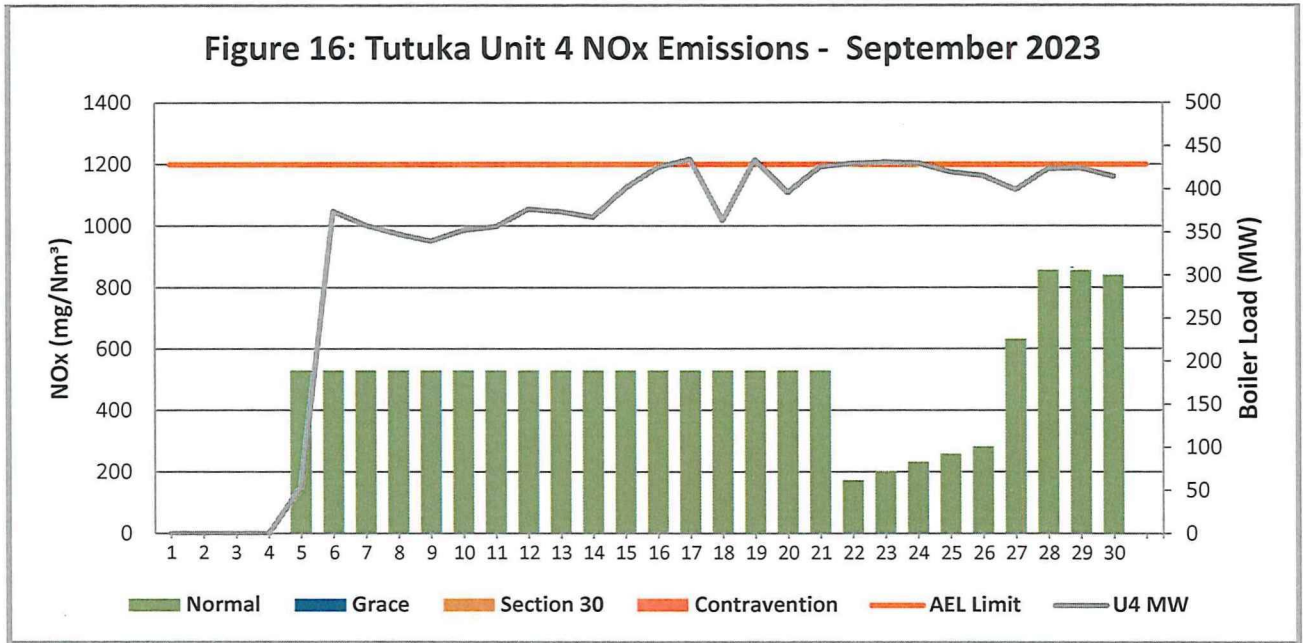
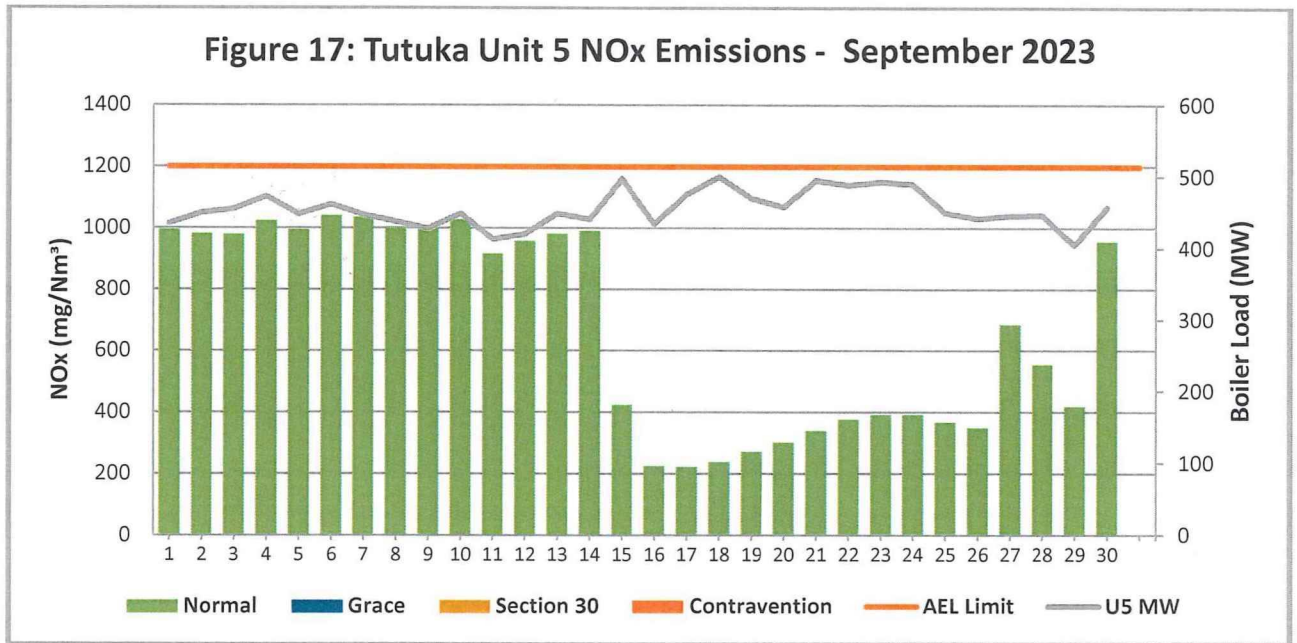


Figure 16: Tutuka Unit 4 NOx Emissions - September 2023



TUTUKA POWER STATION MONTHLY REPORT FOR SEPTEMBER 2023



7. COMPLAINTS REGISTER

Source Code/Name	Root Cause Analysis	Calculation of Impacts/emissions associated with the incident	Dispersion modelling of pollutants where applicable	Measures implemented to prevent recurrence	Date by which measure will be implemented
No complaints were received for the month of September 2023.					

Yours Sincerely

Compiled by:

Xoli Jila

EMISSIONS CONTROL OFFICER

Supported by:

Mike Molepo

Snr CHEMIST: BOILER ENGINEERING

Approved by:

Bruce Moyo

GENERAL MANAGER