Eskom

Generation

Gert Sibande District Municipality
Corner of Joubert & Oosthuise Streets
Ermelo
2350

Attention:
Mr D Hlanyane

AND

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10

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GROOTVLEI POWER STATION

Atmospheric Emission License GPS/0015/2015/F02

BOILER ENGINEERING MANAGER	2023/12/06 **DATE**
ENGINEERING MANAGER	06/12/2023 **DATE**
ENVIRONMENTAL MANAGER	07/12/2023 **DATE**

NOVEMBER 2023

GROOTVLEI POWER STATION MONTHLY EMISSIONS REPORT

Atmospheric Emission License GPS/0015/2015/F02

1 RAW MATERIALS AND PRODUCTS

Raw Materials and Products	Raw Material Type	Units	Maximum Permitted Consumption Rate	Consumption Rate Nov-2023
	Coal	Tons	*650 000*	*92 880.0*
	Fuel Oil	Tons	*20 000*	*1024.38*
Production Rates	**Product / By-Product Name**	**Units**	**Maximum Production Capacity Permitted**	**Indicative Production Rate Nov-2023**
	Energy	GWh	*806.4*	*143.24*
	Ash	Tons	*300 000*	*25 449*
	RE PM	kg/MWh	*not specified*	*0.21*

Note: Maximum energy production is calculated as:(190MW x 4 Units + 180MW x 2 Units) x 24hrs x Days in month/1000 = GWh.

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
CV Content	MJ/kg	18-24	19.66
Sulphur Content	%	0.6 to < 1.2	0.71
Ash Content	%	27 to < 32	27.40

3 EMISSION LIMITS (mg/Nm³)

Associated Unit/Stack	PM	SO_2	NO
North	100	3500	1100
South	50	3500	1100

4 ABATEMENT TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	Effieciency
Unit 1	Fabric Filter Plant (FFP)	Unit On-line Type text here
Unit 2	Fabric Filter Plant (FFP)	100.000%
Unit 3	Fabric Filter Plant (FFP)	100.000%
Unit 4	Fabric Filter Plant (FFP)	Unit On-line
Unit 5	Fabric Filter Plant (FFP)	Unit On-line
Unit 6	Fabric Filter Plant (FFP)	Unit On-line

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

5 MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO_2	NO	O_2
North	100.0	0.0	0.0	0.0
South				

Note: NOx emissions is measured as NO in PPM. Final NOx value is expressed as total NO_2

6 EMISSION PERFORMANCE

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

Associated Unit/Stack	PM (tons)	SO_2 (tons)	NO_x (tons)
Unit 1	0.00	0.0	0.0
Unit 2	13.89	467.2	199.6
Unit 3	16.39	679.6	290.4
Unit 4	0.00	0.0	0.0
Unit 5	0.00	0.0	0.0
Unit 6	0.00	0.0	0.0
SUM	30.29	1 146.8	490.1

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

Associated Unit/Stack	Normal	Grace	Section 30	Total Exceedance	Average PM (mg/Nm³)
North	29	0	0	0	43.2
South	0	0	0	0	
SUM	29	0	0	0	

Table 6.3: Operating days in compliance to SO_2 AEL Limit - November 2023

Associated Unit/Stack	Normal	Grace	Section 30	Total Exceedance	Average SO_2 (mg/Nm³)
North	30	0	0	0	1 578.9
South	0	0	0	0	
SUM	30	0	0	0	

Table 6.4: Operating days in compliance to NOx AEL Limit - November 2023

Associated Unit/Stack	Normal	Grace	Section 30	Total Exceedance	Average NOx (mg/Nm³)
North	30	0	0	0	674.7
South	0	0	0	0	
SUM	30	0	0	0	

Note: NOx emissions is measured as NO in PPM. Final NOx value is expressed as total NO_2

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		

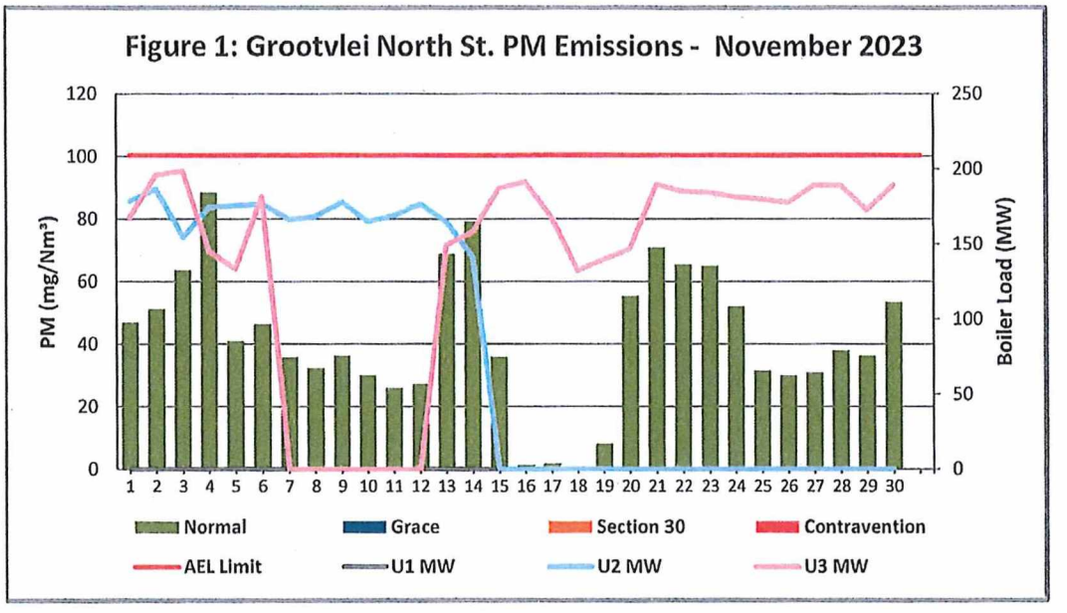
Figure 1: Grootvlei North St. PM Emissions - November 2023
PM (mg/Nm³)
Boiler Load (MW)
120
100
80
60
40
20
0
250
200
150
100
50
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW
U2 MW
U3 MW

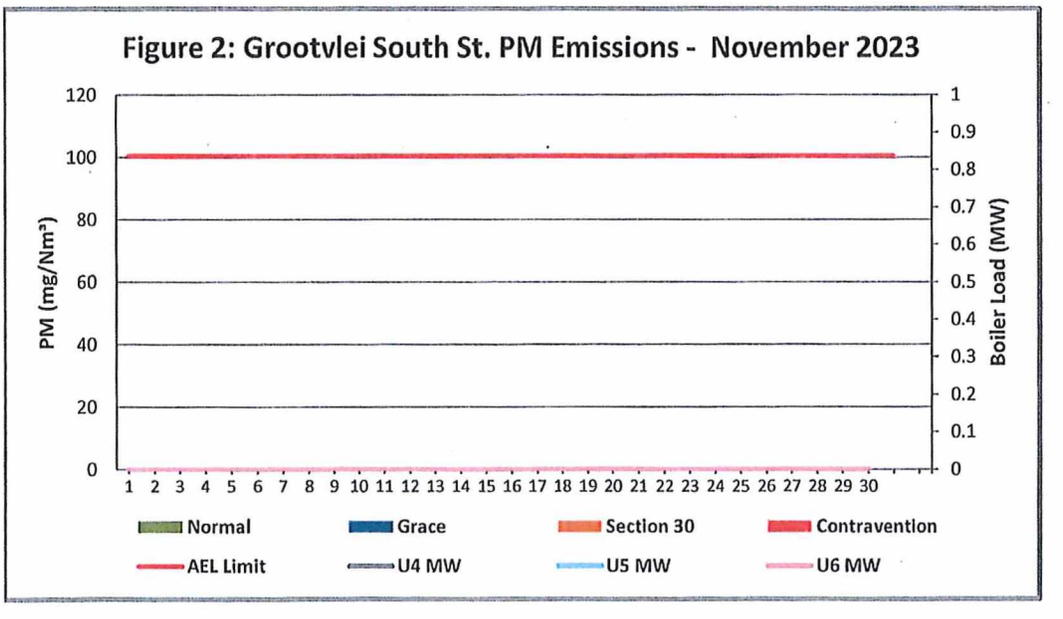
Figure 2: Grootvlei South St. PM Emissions - November 2023
PM (mg/Nm³)
Boiler Load (MW)
120
100
80
60
40
20
0
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Normal
Grace
Section 30
Contravention
AEL Limit
U4 MW
U5 MW
U6 MW

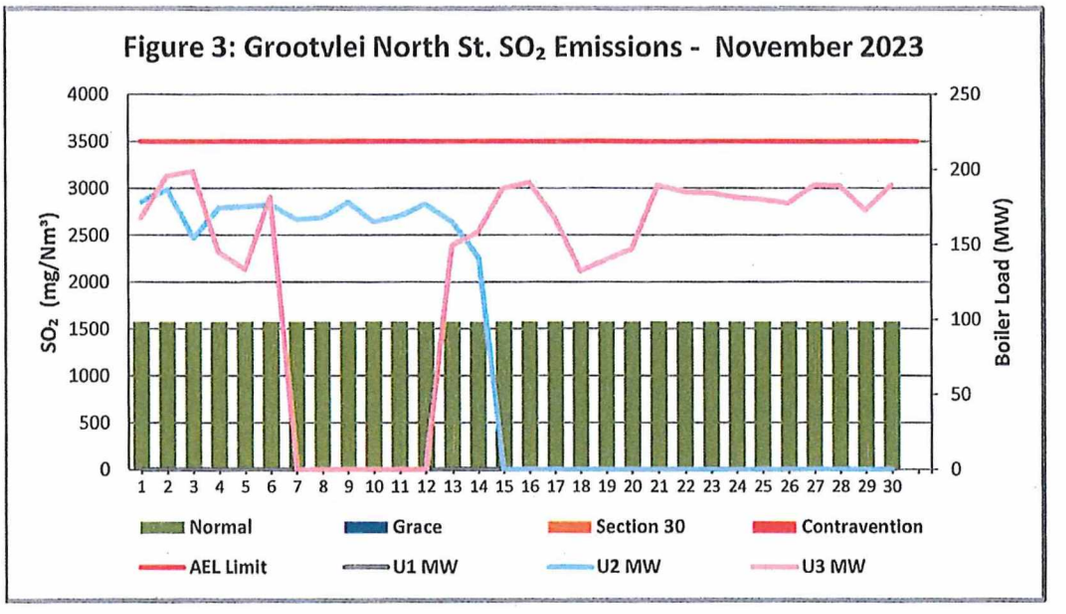
Figure 3: Grootvlei North St. SO_2 Emissions - November 2023
SO_2 (mg/Nm³)
Boiler Load (MW)
4000
3500
3000
2500
2000
1500
1000
500
0
250
200
150
100
50
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW
U2 MW
U3 MW

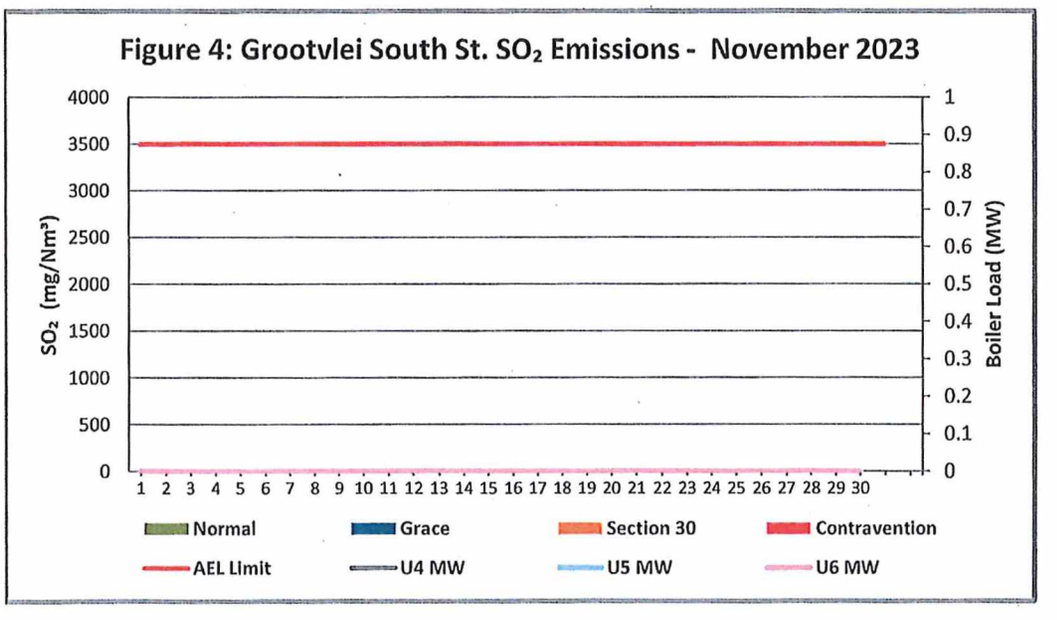
Figure 4: Grootvlei South St. SO_2 Emissions - November 2023
SO_2 (mg/Nm³)
Boiler Load (MW)
4000
3500
3000
2500
2000
1500
1000
500
0
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Normal
Grace
Section 30
Contravention
AEL Limit
U4 MW
U5 MW
U6 MW

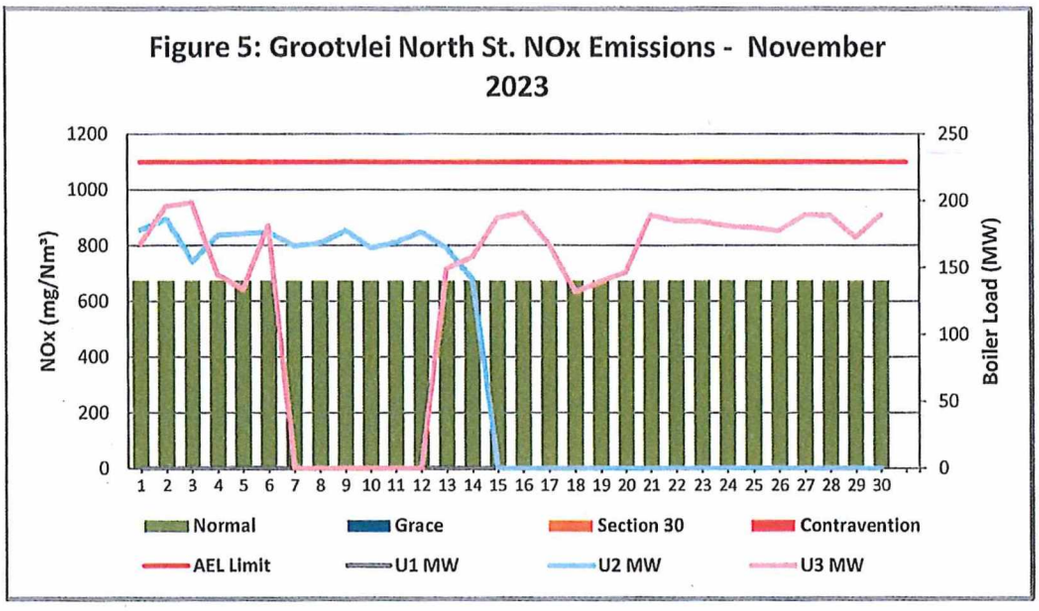
Figure 5: Grootvlei North St. NOx Emissions - November 2023
NOx (mg/Nm³)
Boiler Load (MW)
1200
1000
800
600
400
200
0
250
200
150
100
50
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW
U2 MW
U3 MW

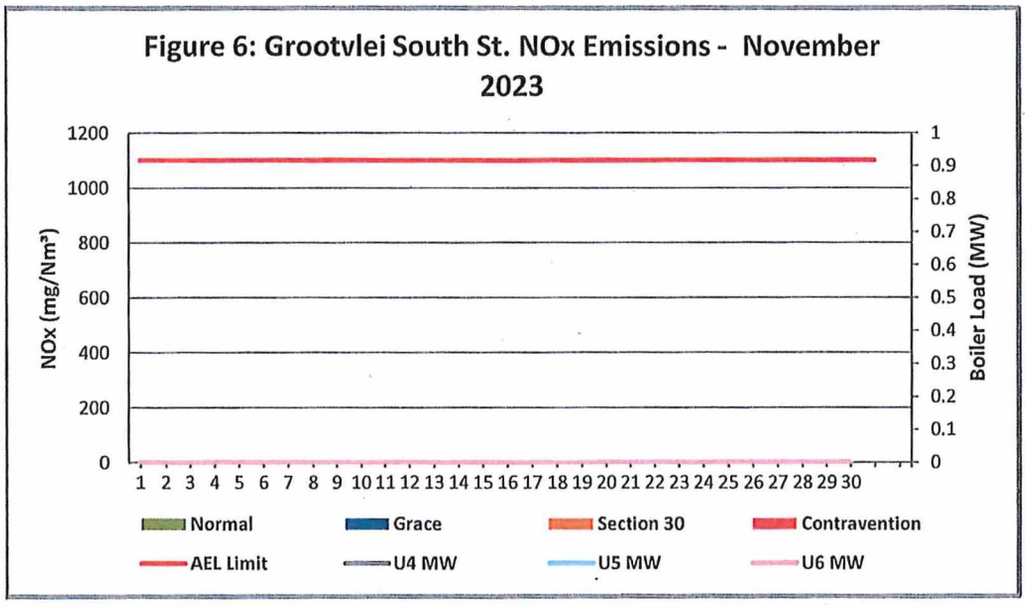
Figure 6: Grootvlei South St. NOx Emissions - November 2023
NOx (mg/Nm³)
Boiler Load (MW)
1200
1000
800
600
400
200
0
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Normal
Grace
Section 30
Contravention
AEL Limit
U4 MW
U5 MW
U6 MW

7 SHUT DOWN AND LIGHT UP INFORMATION

Table 7.1. PM Start-up information for the month of November-2023

North Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 2		Unit 3		Unit 3		Unit 3	
Breaker Open (BO)	3:50 pm	2023/11/14	11:40 pm	2023/11/06	8:40 pm	2023/11/17	5:55 pm	2023/11/24
Draught Group (DG) Shut Down (SD)	11:25 am	2023/11/15	11:05 am	2023/11/07	DG did not trip or SD	DG did not trip or SD	DG did not trip or SD	DG did not trip or SD
BO to DG SD (duration)	00:19:35	DD:HH:MM	00:11:25	DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM
Fires in time			9:00 pm	2023/11/12				
Synch. to Grid (or BC)			5:15 am	2023/11/13				
Fires in to BC (duration)		DD:HH:MM	00:08:15	DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)			not > limit	not > limit				
Emissions below limit from BC (duration)		DD:HH:MM	n/a	DD:HH:MM		DD:HH:MM		DD:HH:MM

North Stack ...Cont.	Event 5		Event 6		Event 7		Event 8	
Unit No.	Unit 3		no event		no event		no event	
Breaker Open (BO)	6:10 am	2023/11/29						
Draught Group (DG) Shut Down (SD)	8:05 am	2023/11/29						
BO to DG SD (duration)	00:01:55	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	12:00 pm	2023/11/29						
Synch. to Grid (or BC)	5:20 pm	2023/11/29						
Fires in to BC (duration)	00:05:20	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	not > limit	not > limit						
Emissions below limit from BC (duration)	n/a	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM

South Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	no event		no event		no event		no event	
Breaker Open (BO)								
Draught Group (DG) Shut Down (SD)								
BO to DG SD (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time								
Synch. to Grid (or BC)								
Fires in to BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)								
Emissions below limit from BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM

South Stack ...Cont.	Event 5		Event 6		Event 7		Event 8	
Unit No.	no event		no event		no event		no event	
Breaker Open (BO)								
Draught Group (DG) Shut Down (SD)								
BO to DG SD (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time								
Synch. to Grid (or BC)								
Fires in to BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)								
Emissions below limit from BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM

7.2: Point Source emissions released during start-up (fires-in) and Shut-down (SD) for the month of November-2023 in mg/Nm³

[Include reference to once off test showing typical emissions rates during fires in and SD]

ADDENDUM TO MONTHLY EMISSIONS REPORT

8 EMERGENCY GENERATION

Emergency Generation *[This is only required for stations that are requested to report on this information]*

Table 8. Emergency Generation per unit for the month of November-2023

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Emergency Generation hours declared by national Control						
Emergency Hours declared including hours after stand down						
Hours over the Limit during Emergency Generation						

9 COMPLAINTS REGISTER

Table 9. Complaints for the month of November-2023

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 measure will be implemented
(Insert name of affected person/source)	*(Insert root cause for incident)*	*(Insert emissions associated with incident)*	*(Insert dispersion model information where applicable)*	*(Insert mitigation measures taken)*	*(Insert date of implementation of mitigation method)*

10 S30 INCIDENT OR LEGAL CONTRAVENTION REGISTER

To be completed in the case of a S30 Incident or a legal contravention:

Unit no	Incident Start Date	Incident End Date	Incident Cause	Remedial action	Date S30 initial notification sent	Date S30 investigation report sent	Date DEA Acknowledg-ment	Date DEA Acceptabe	Comments / Reference No.

11 General

South Stack off. The gas analyzer is currently operational, but we are waiting for the availability of 2 units to conduct parallel tests. In the meantime, surrogate values were employed for reporting gaseous results.

2023/12/07		S.M.Mwesh.	2023/12/06
Environmental Department	Date	**Boiler Engineering**	Date

2023/12/11	
General Manager	Date

Compiled by:	Boiler Engineering Department	FFP System Engineer
For:	Department of Environmental Affairs and Tou	Chief Air Pollution Control Officer
Copies:	Eskom Environmental Management	D Herbst K Langerman
	Group Technology Engineering	R Rampiar E. Patel
	Grootvlie Power Station:	Engineering Manager Operating Manager Maintenance Manager Unit Production Manager Boiler Engineering Manager System Engineer Environmental Officer Performance and Test Production Manager