



Generation

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

Attention:

Mr D Hlanyane

AND

Directorate: Air Quality Management Services
The Director:
Mr Vumile Senene
Department of Environmental Affairs
Private Bag X447
PRETORIA
0001
Tel: (012) 310 3263
Fax: (012) 320 0488

Date: 2024/05/06

Enquiries: Nomasonto Nsibande

☎ +27 17 779 8995

☎ +27 86 507 5108

Enquiries: Thabo Montja

☎ +27 17 779 8834

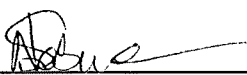
Total number of pages:

10

Total number of annexes:

GROOTVLEI POWER STATION

Atmospheric Emission License GPS/0015/2015/F02



BOILER ENGINEERING MANAGER

2024/05/06

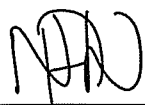
DATE



ENGINEERING MANAGER

06/05/2024

DATE



ENVIRONMENTAL MANAGER

2024/05/06

DATE

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 Apr-2024
	Coal	Tons	650 000	100 896.0
	Fuel Oil	Tons	20 000	2636.06
Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Indicative Production Rate Apr-2024
	Energy	GWh	806.4	168.56
	Ash	Tons	300 000	26 243
	RE PM	kg/MWh	not specified	0.20

Note: Maximum energy production is calculated as: $(190\text{MW} \times 4 \text{ Units} + 180\text{MW} \times 2 \text{ Units}) \times 24\text{hrs} \times \text{Days in month} / 1000 = \text{GWh}$.

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
CV Content	MJ/kg	18-24	20.24
Sulphur Content	%	0.6 to < 1.2	0.73
Ash Content	%	27 to < 32	26.01

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	Efficiency
Unit 1	Fabric Filter Plant (FFP)	99.820%
Unit 2	Fabric Filter Plant (FFP)	99.796%
Unit 3	Fabric Filter Plant (FFP)	99.834%
Unit 4	Fabric Filter Plant (FFP)	Unit Off-line
Unit 5	Fabric Filter Plant (FFP)	Unit Off-line
Unit 6	Fabric Filter Plant (FFP)	Unit Off-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	99.0	98.6	75.9
South				

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

6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of April-2024

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	14.34	656.3	140.3
Unit 2	8.73	507.8	126.1
Unit 3	9.81	531.4	125.2
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	32.89	1 695.5	391.6

Table 6.2: Operating days in compliance to PM AEL Limit - April 2024

Associated Unit/Stack	Normal	Grace	Section 30	Total Exceedance	Average PM (mg/Nm ³)
North	26	3	0	3	50.2
South	0	0	0	0	
SUM	26	3	0	3	

Table 6.3: Operating days in compliance to SO₂ AEL Limit - April 2024

Associated Unit/Stack	Normal	Grace	Section 30	Total Exceedance	Average SO ₂ (mg/Nm ³)
North	29	0	0	0	1 825.5
South	0	0	0	0	
SUM	29	0	0	0	

Table 6.4: Operating days in compliance to NO_x AEL Limit - April 2024

Associated Unit/Stack	Normal	Grace	Section 30	Total Exceedance	Average NO _x (mg/Nm ³)
North	29	0	0	0	418.9
South	0	0	0	0	
SUM	29	0	0	0	

Note: NO_x emissions is 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		

Figure 1: Grootvlei North St. PM Emissions - April 2024

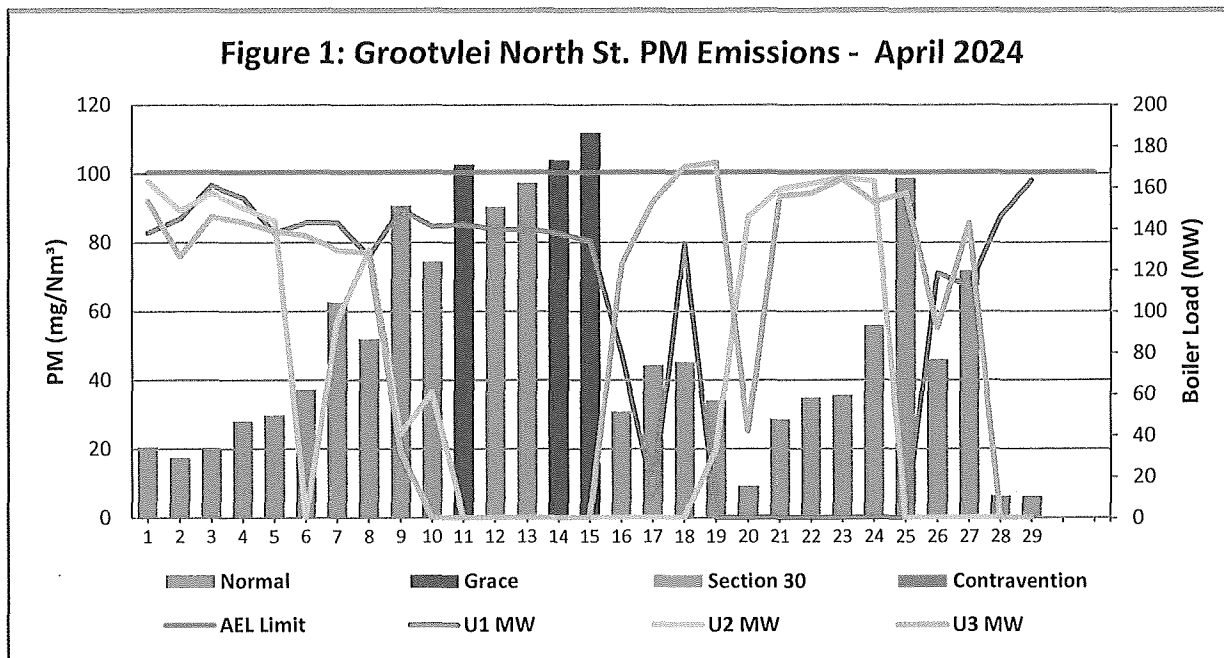


Figure 2: Grootvlei South St. PM Emissions - April 2024

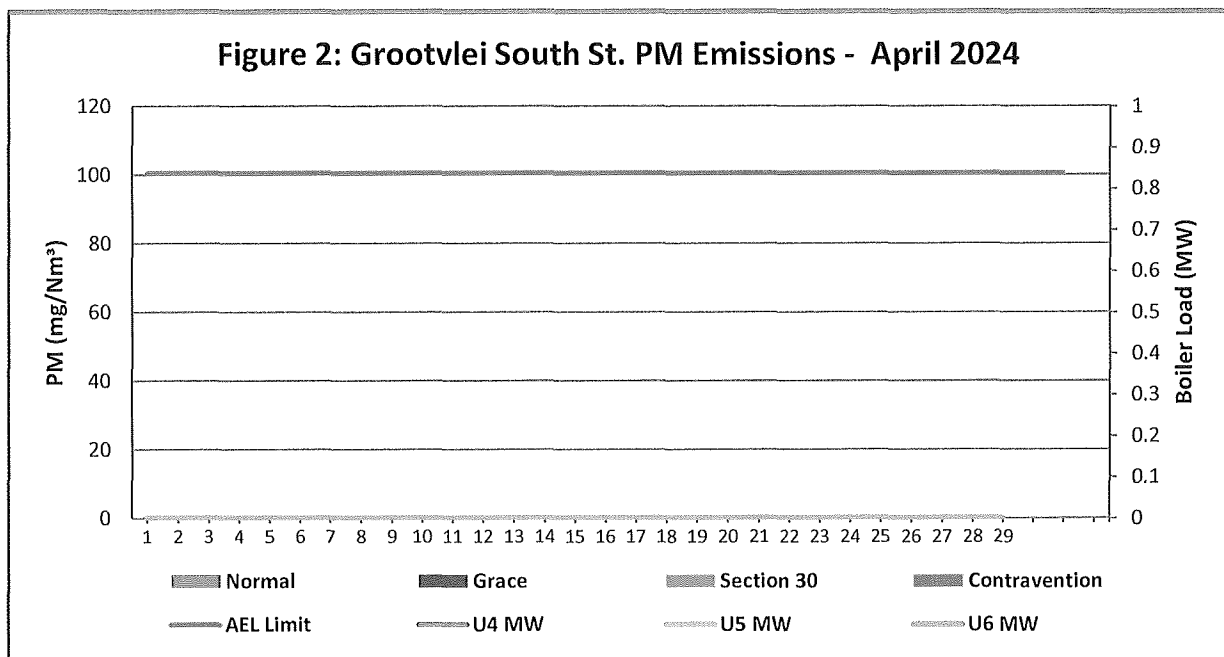


Figure 3: Grootvlei North St. SO₂ Emissions - April 2024

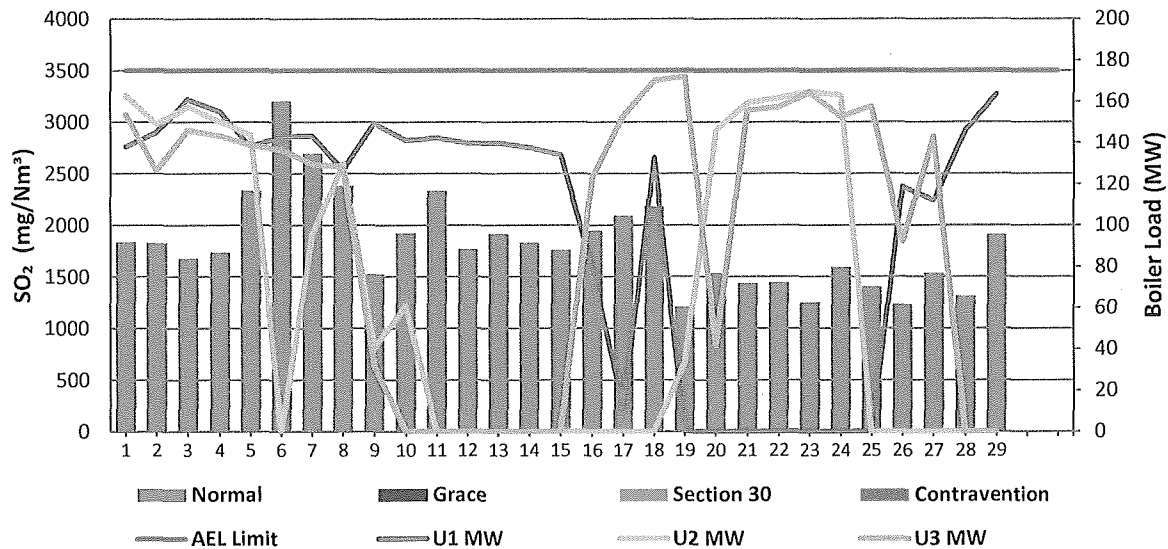


Figure 4: Grootvlei South St. SO₂ Emissions - April 2024

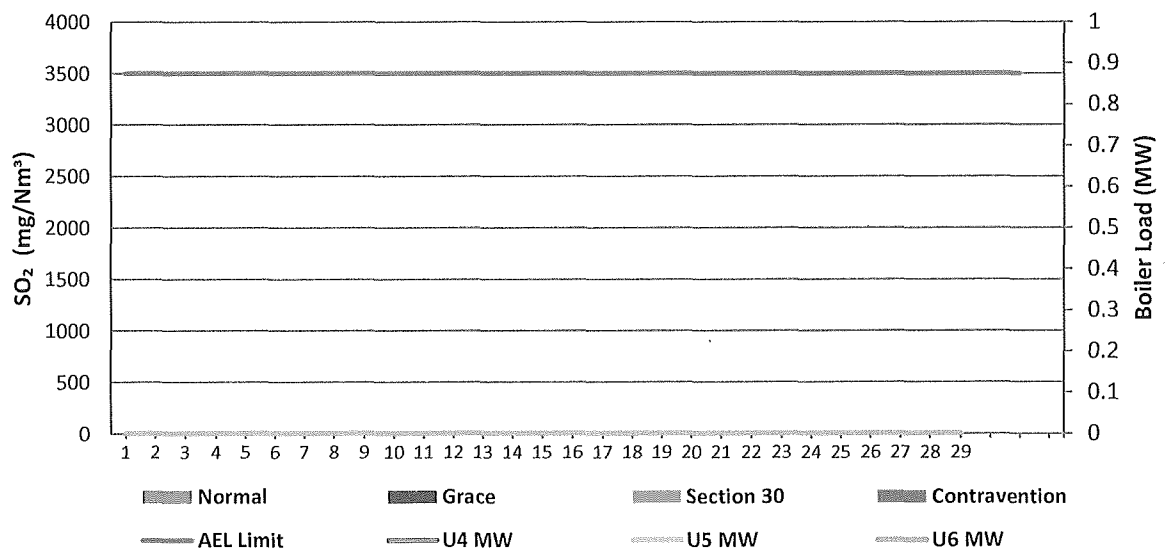


Figure 5: Grootvlei North St. NOx Emissions - April 2024

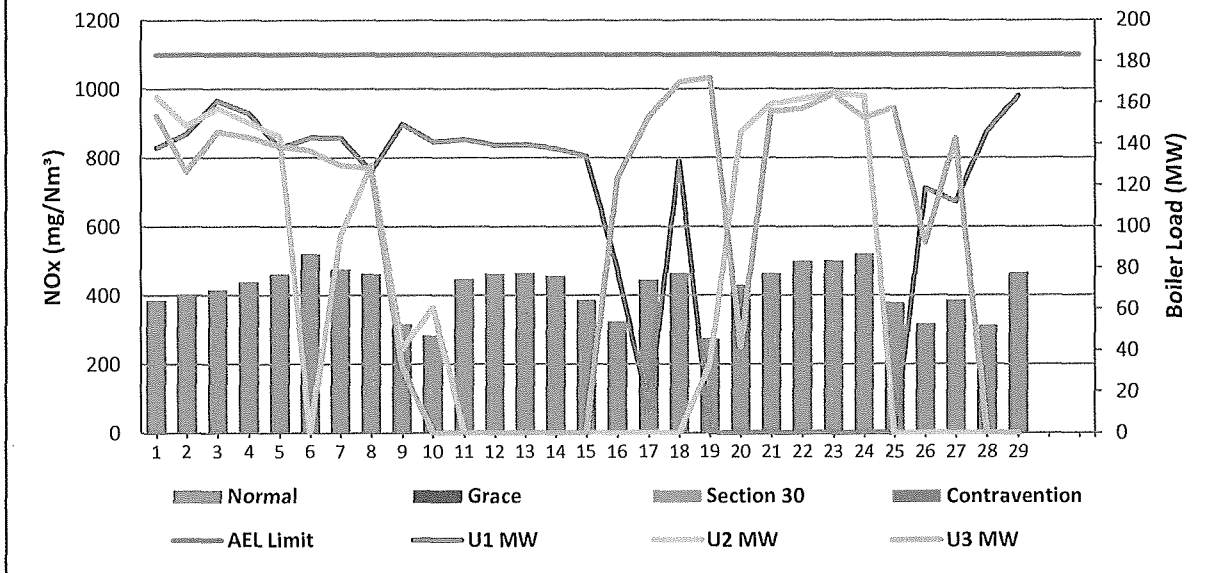
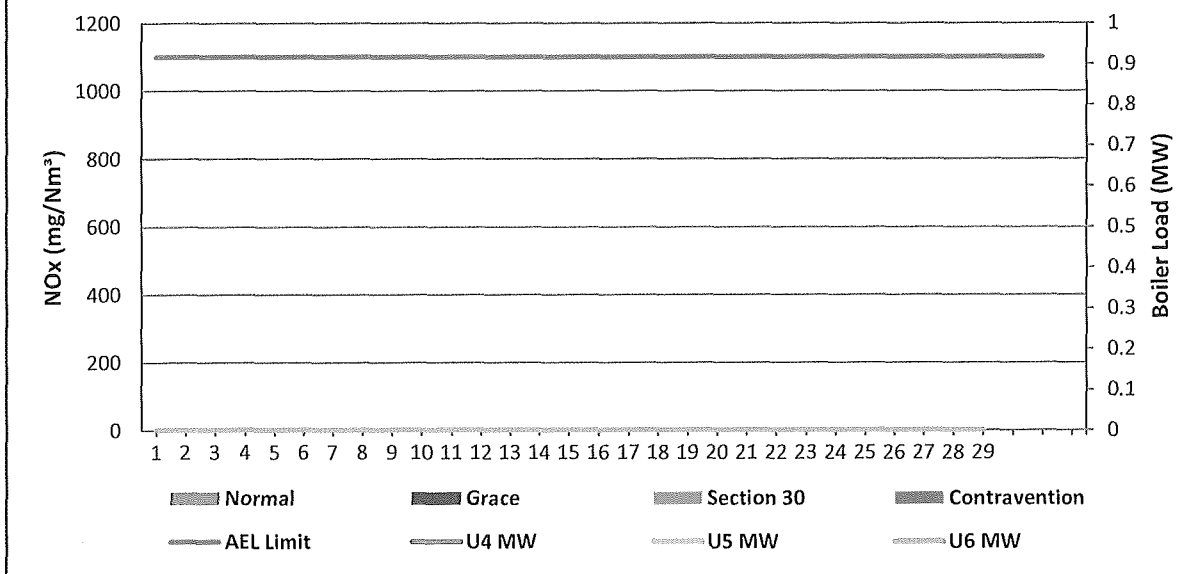


Figure 6: Grootvlei South St. NOx Emissions - April 2024



7 SHUT DOWN AND LIGHT UP INFORMATION

Table 7.1. PM Start-up information for the month of April-2024

North Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 1		Unit 1		Unit 2		Unit 2	
Breaker Open (BO)	4:40 am	2024/04/11	1:30 pm	2024/04/17	9:40 pm	2024/04/06	9:50 am	2024/04/11
Draught Group (DG) Shut Down (SD)	DG did not trip or SD	DG did not trip or SD	4:20 pm	2024/04/20	10:30 pm	2024/04/06	8:30 pm	2024/04/11
BO to DG SD (duration)	n/a	DD:HH:MM	03:02:50	DD:HH:MM	00:00:50	DD:HH:MM	00:10:40	DD:HH:MM
Fires in time			4:55 am	2024/04/26	4:55 pm	2024/04/07	1:20 am	2024/04/20
Synch. to Grid (or BC)			3:05 pm	2024/04/27	1:20 am	2024/04/08	10:35 pm	2024/04/20
Fires in to BC (duration)		DD:HH:MM	01:10:10	DD:HH:MM	00:08:25	DD:HH:MM	00:21:15	DD:HH:MM
Emissions below limit from BC (end date)			not > limit	not > limit	not > limit	not > limit	not > limit	not > limit
Emissions below limit from BC (duration)		DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM

North Stack ...Cont.	Event 5		Event 6		Event 7		Event 8	
Unit No.	Unit 2		Unit 3		Unit 3		Unit 3	
Breaker Open (BO)	11:50 pm	2024/04/25	BO previously	BO previously	4:05 pm	2024/04/06	1:10 am	2024/04/10
Draught Group (DG) Shut Down (SD)	2:55 pm	2024/04/26	n/a	n/a	DG did not trip or SD	DG did not trip or SD	5:50 pm	2024/04/16
BO to DG SD (duration)	00:15:05	DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM	06:16:40	DD:HH:MM
Fires in time							6:55 pm	2024/04/16
Synch. to Grid (or BC)							12:15 pm	2024/04/17
Fires in to BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM	00:17:20	DD:HH:MM
Emissions below limit from BC (end date)							not > limit	not > limit
Emissions below limit from BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM	n/a	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 April-2024 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 April-2024

	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 April-2024

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

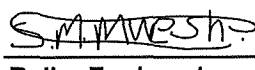
To be completed in the case of a S30 incident or a legal contravention:

Unit no	Incident Start Date	Incident End Date	Incident Cause	Remedial action	Date S30 initial notification sent	Date S30 investigation report sent	Date DEA Acknowledgment	Date DEA Acceptable	Comments / Reference No.

11 General

South Stack off. In April, three units operated. The PM limit was exceeded three times on the 11th, 14th, and 15th due to leaking bags. These bags were replaced, resulting in reduced emissions.

 2024/05/06
Environmental Department Date

 2024/05/06
Boiler Engineering Date

 2024/05/06
General Manager (Acting) Date

Compiled by: Boiler Engineering Department

FFP System Engineer

For: Department of Environmental Affairs and Tourism Chief Air Pollution Control Officer

Copies: Eskom Environmental Management

D Herbst
K Langerman

Group Technology Engineering

R Rampiar
E. Patel

Grootvlei Power Station:

Engineering Manager
Operating Manager
Maintenance Manager
Unit Production Manager
Boiler Engineering Manager
System Engineer
Environmental Officer
Performance and Test
Production Manager