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Corner of Joubert & Oosthuise Streets
Ermelo
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AND

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GROOTVLEI POWER STATION

Atmospheric Emission License GPS/0015/2015/F02



BOILER ENGINEERING MANAGER

2024/06/05
DATE



ENGINEERING MANAGER

2024/06/05
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ENVIRONMENTAL MANAGER

2024/06/05
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 May-2024
	Coal	Tons	650 000	85 437.0
	Fuel Oil	Tons	20 000	2609.7
Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Indicative Production Rate May-2024
	Energy	GWh	833.28	143.59
	Ash	Tons	300 000	23 282
	RE PM	kg/MWh	not specified	0.05

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	19.87
Sulphur Content	%	0.6 to < 1.2	0.77
Ash Content	%	27 to < 32	27.25

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)	99.972%
Unit 2	Fabric Filter Plant (FFP)	99.988%
Unit 3	Fabric Filter Plant (FFP)	99.977%
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	93.7	98.6	87.7
South				

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

6 EMISSION PERFORMANCE

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

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	1.30	316.1	85.0
Unit 2	3.98	655.3	175.4
Unit 3	2.37	310.4	81.5
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	7.64	1 281.8	341.8

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

Associated Unit/Stack	Normal	Grace	Section 30	Total Exceedance	Average PM (mg/Nm ³)
North	23	0	0	0	9.4
South	0	0	0	0	
SUM	23	0	0	0	

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

Associated Unit/Stack	Normal	Grace	Section 30	Total Exceedance	Average SO ₂ (mg/Nm ³)
North	25	0	0	0	1 550.0
South	0	0	0	0	
SUM	25	0	0	0	

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

Associated Unit/Stack	Normal	Grace	Section 30	Total Exceedance	Average NO _x (mg/Nm ³)
North	25	0	0	0	422.0
South	0	0	0	0	
SUM	25	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 - May 2024

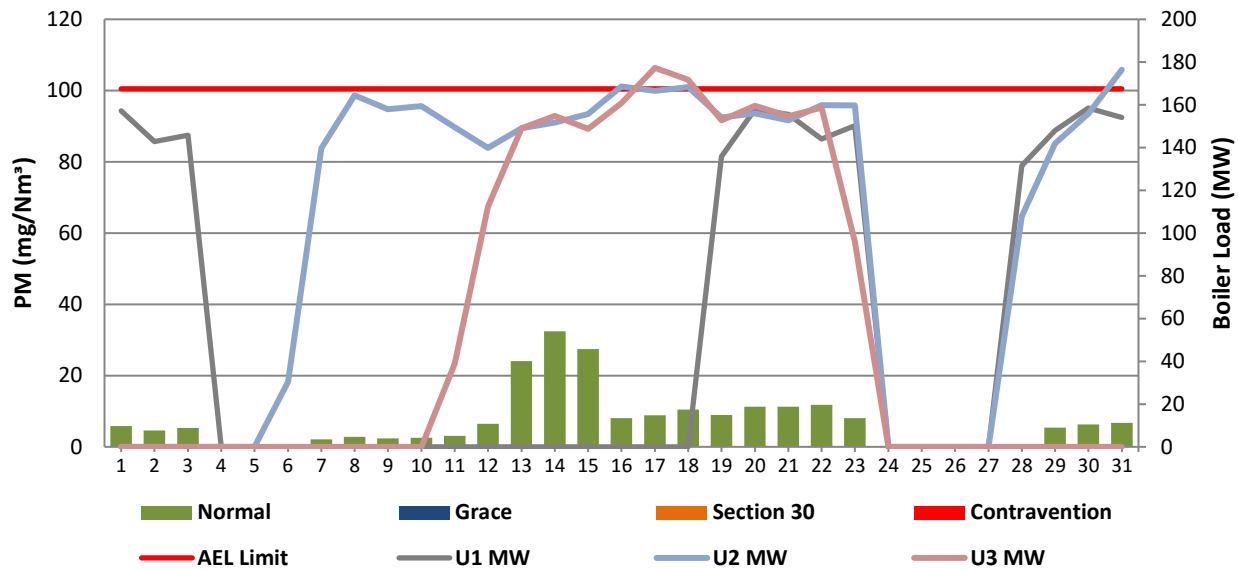


Figure 2: Grootvlei South St. PM Emissions - May 2024

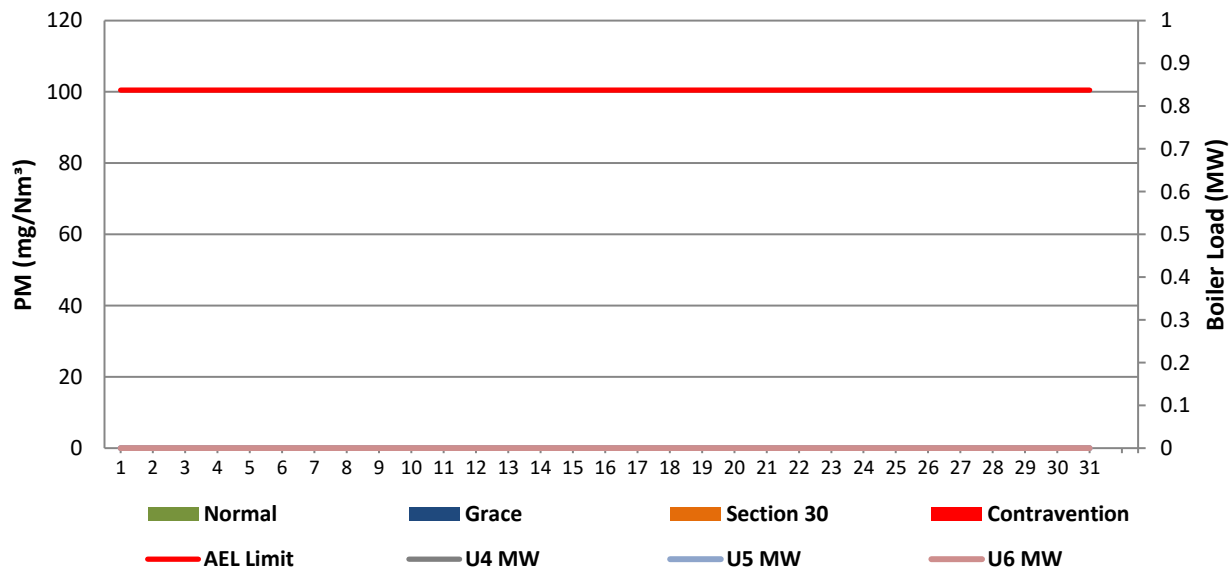


Figure 3: Grootvlei North St. SO₂ Emissions - May 2024

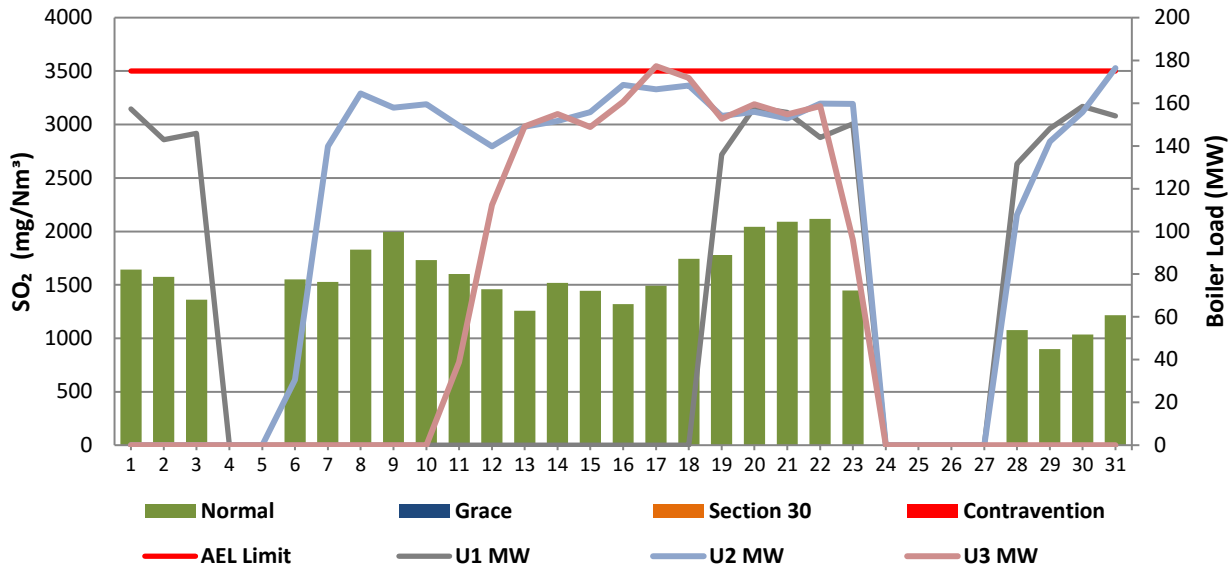


Figure 4: Grootvlei South St. SO₂ Emissions - May 2024

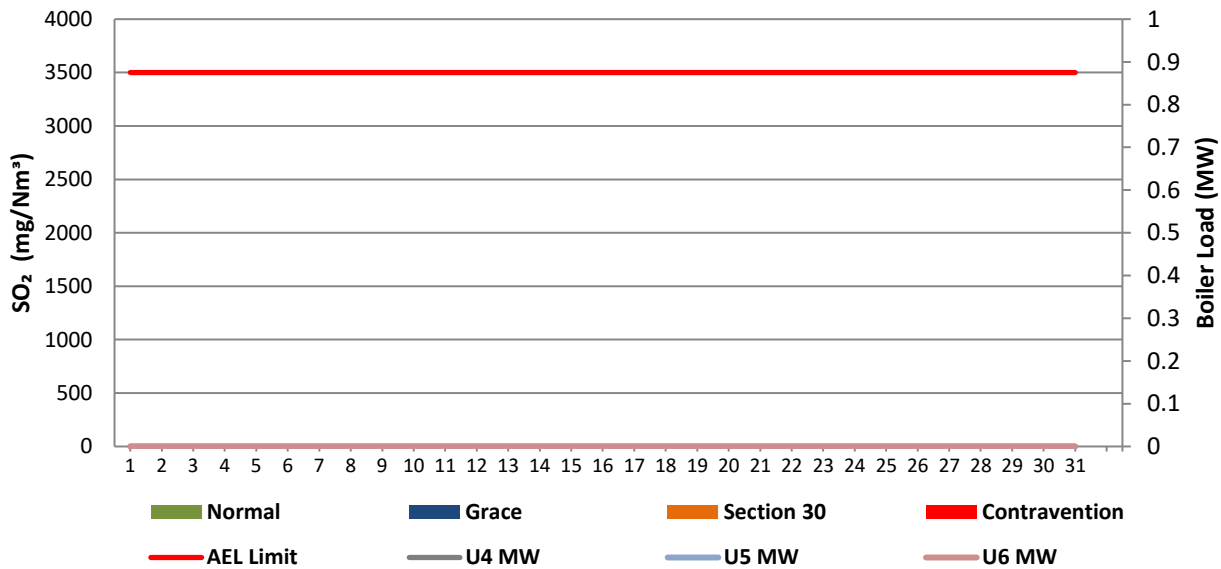


Figure 5: Grootvlei North St. NOx Emissions - May 2024

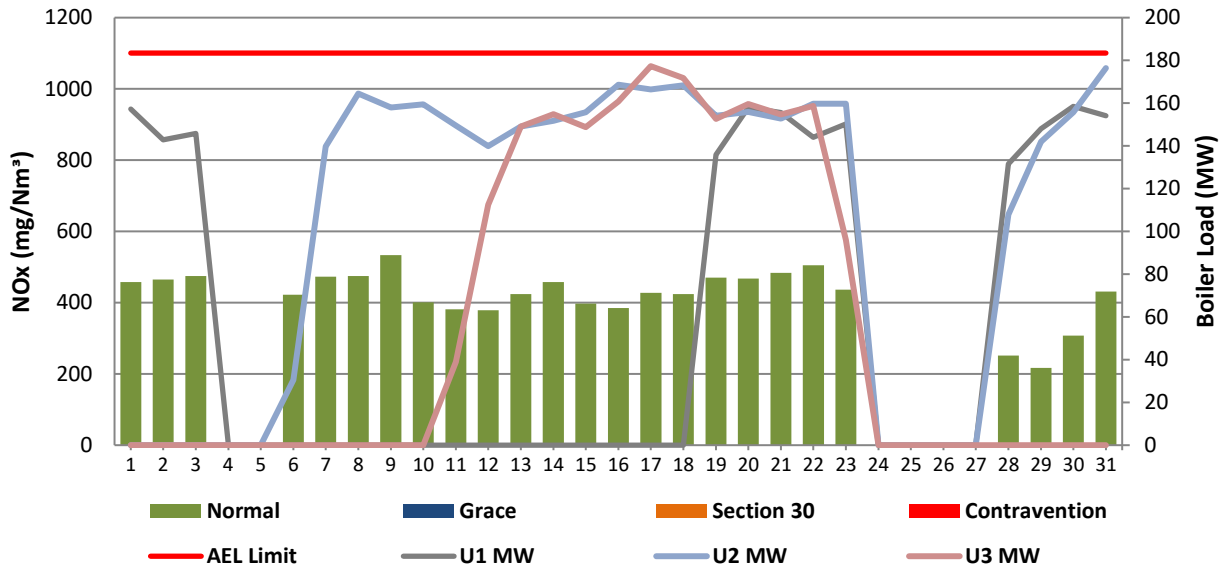
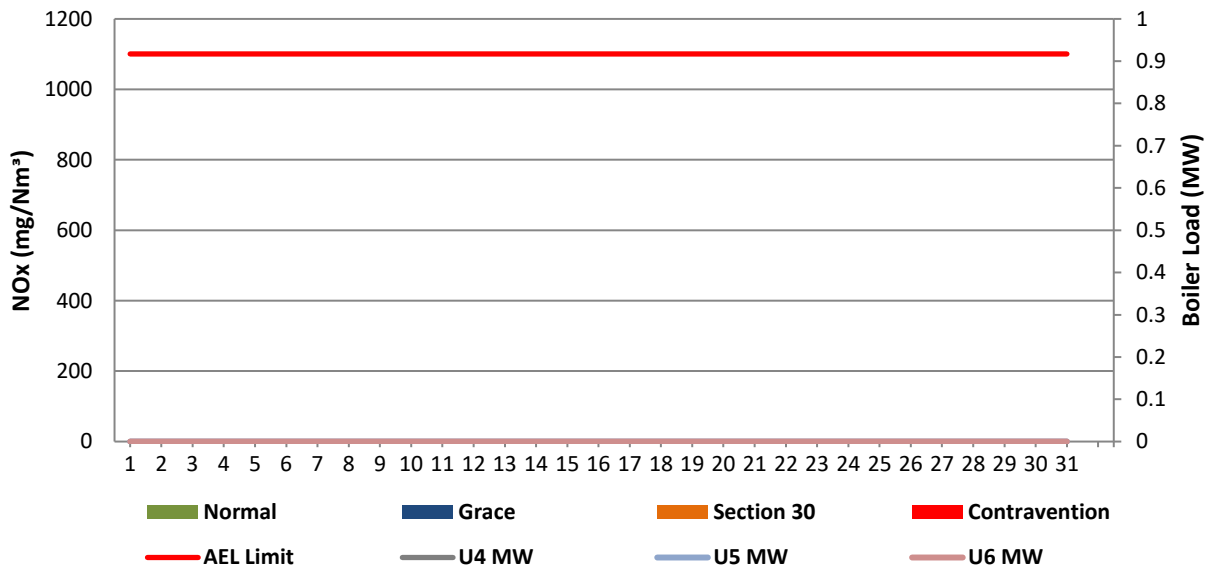


Figure 6: Grootvlei South St. NOx Emissions - May 2024



7 SHUT DOWN AND LIGHT UP INFORMATION

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

North Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 1		Unit 1		Unit 2		Unit 2	
Breaker Open (BO)	4:00 pm	2024/05/03	11:05 am	2024/05/23	BO previously	BO previously	9:25 am	2024/05/23
Draught Group (DG) Shut Down (SD)	4:30 pm	2024/05/03	12:10 am	2024/05/24	n/a	n/a	10:20 am	2024/05/23
BO to DG SD (duration)	00:00:30	DD:HH:MM	00:13:05	DD:HH:MM	n/a	DD:HH:MM	00:00:55	DD:HH:MM
Fires in time	9:35 am	2024/05/18	7:00 pm	2024/05/27	12:55 pm	2024/05/05	8:40 pm	2024/05/27
Synch. to Grid (or BC)	3:30 am	2024/05/19	3:35 am	2024/05/28	10:35 pm	2024/05/06	12:05 pm	2024/05/28
Fires in to BC (duration)	00:17:55	DD:HH:MM	00:08:35	DD:HH:MM	01:09:40	DD:HH:MM	00:15:25	DD:HH:MM
Emissions below limit from BC (end date)	not > limit	not > limit	not > limit	not > limit	not > limit	not > limit	not > limit	not > limit
Emissions below limit from BC (duration)	n/a	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 3		Unit 3		Unit 3		no event	
Breaker Open (BO)	BO previously	BO previously	4:40 pm	2024/05/15	12:55 am	2024/05/23		
Draught Group (DG) Shut Down (SD)	n/a	n/a	9:15 pm	2024/05/15	1:50 pm	2024/05/24		
BO to DG SD (duration)	n/a	DD:HH:MM	00:04:35	DD:HH:MM	01:12:55	DD:HH:MM		DD:HH:MM
Fires in time	2:35 pm	2024/05/03	10:55 pm	2024/05/15				
Synch. to Grid (or BC)	10:45 pm	2024/05/11	8:55 am	2024/05/16				
Fires in to BC (duration)	08:08:10	DD:HH:MM	00:10:00	DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	not > limit	not > limit	not > limit	not > limit				
Emissions below limit from BC (duration)	n/a	DD:HH:MM	n/a	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 May-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 May-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 May-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
<i>(Insert name of affected person/source)</i>	<i>(Insert root cause for incident)</i>	<i>(Insert emissions associated with incident)</i>	<i>(Insert dispersion model information where applicable)</i>	<i>(Insert mitigation measures taken)</i>	<i>(Insert date of implementation of mitigation method)</i>

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

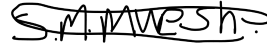
South Stack off. The new curve was implemented for gaseous emissions. For May, the monthly averages are: PM is 9.4 mg/Nm³, SO₂ is 1550 mg/Nm³, and NO_x is 422 mg/Nm³. There were no issues with leaking bags or monitor reliability.



2024/06/05

Environmental Department

Date



2024/06/05

Boiler Engineering

Date



2024/06/10

General Manager

Date

Compiled by: Boiler Engineering Department

FFP System Engineer

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

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Grootvlie Power Station:

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