Eskom

Generation

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10

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GROOTVLEI POWER STATION

Atmospheric Emission License GPS/0015/2015/F02

BOILER ENGINEERING MANAGER	11/02/2022 **DATE**
ENGINEERING MANAGER	11/02/2022 **DATE**
ENVIRONMENTAL MANAGER	14/02/2022 **DATE**

JANUARY 2022

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	Maximum Permitted Consumption Rate	Consumption Rate Jan-2022
	Coal	*650 000*	*78 826.0*
	Fuel Oil	*18 000*	*3657.49*
Production Rates	**Product / By-Product Name**	**Maximum Production Capacity Permitted**	**Production Rate Jan-2022**
	Energy	*833.28*	*114.82*
	Ash	*300 000*	*23 214*
	RE PM	*not specified*	*0.05*

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	*0.6 to < 1.2*	*0.99*
Ash Content	%	*27 to < 32*	*29.45*

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	
Unit 1	*Fabric Filter Plant (FFP)*	
Unit 2	*Fabric Filter Plant (FFP)*	
Unit 3	*Fabric Filter Plant (FFP)*	
Unit 4	*Fabric Filter Plant (FFP)*	
Unit 5	*Fabric Filter Plant (FFP)*	
Unit 6	*Fabric Filter Plant (FFP)*	

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	*84.8*	*0.0*	*0.0*	*0.0*
South				

6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of January-2022

Associated Unit/Stack	PM (tons)	SO_2 (tons)	NO_2 (tons)
Unit 1	2.82	358.1	98.4
Unit 2	0.00	0.0	0.0
Unit 3	3.30	518.7	142.5
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	6.12	876.8	240.8

Table 6.2: Operating days in compliance to PM AEL Limit - January 2022

Associated Unit/Stack	Normal	Grace	Section 30	Total Exceedance	Average PM (mg/Nm³)
North	25	0	0	0	13.9
South	0	0	0	0	
SUM	**25**	**0**	**0**	**0**	

Table 6.3: Operating days in compliance to SOx AEL Limit - January 2022

Associated Unit/Stack	Normal	Grace	Section 30	Total Exceedance	Average SOx (mg/Nm³)
North	25	0	0	0	1 719.3
South	0	0	0	0	
SUM	**25**	**0**	**0**	**0**	

Table 6.4: Operating days in compliance to NOx AEL Limit - January 2022

Associated Unit/Stack	Normal	Grace	Section 30	Total Exceedance	Average NOx (mg/Nm³)
North	25	0	0	0	472.3
South	0	0	0	0	
SUM	**25**	**0**	**0**	**0**	

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 Stack PM Emissions - January 2022

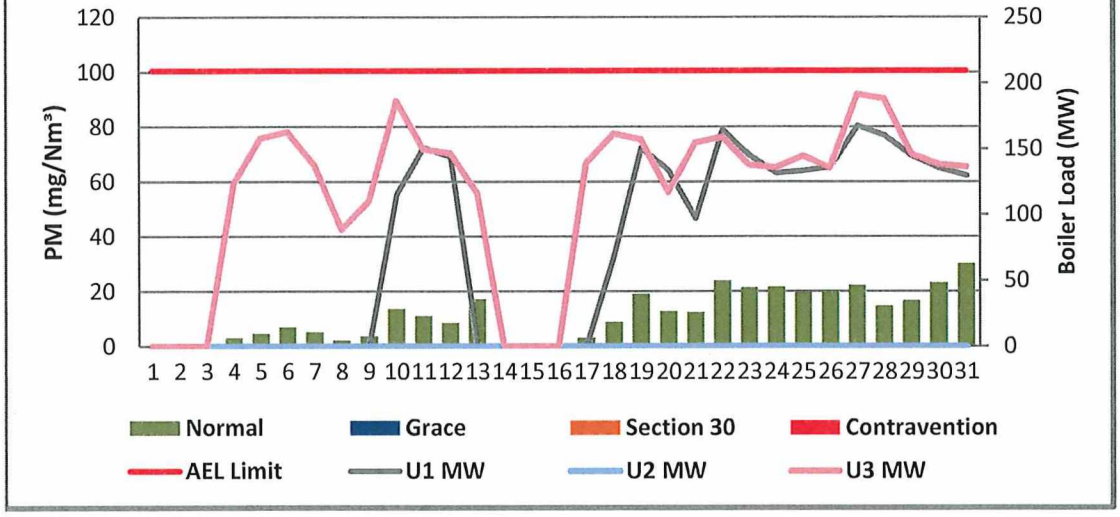
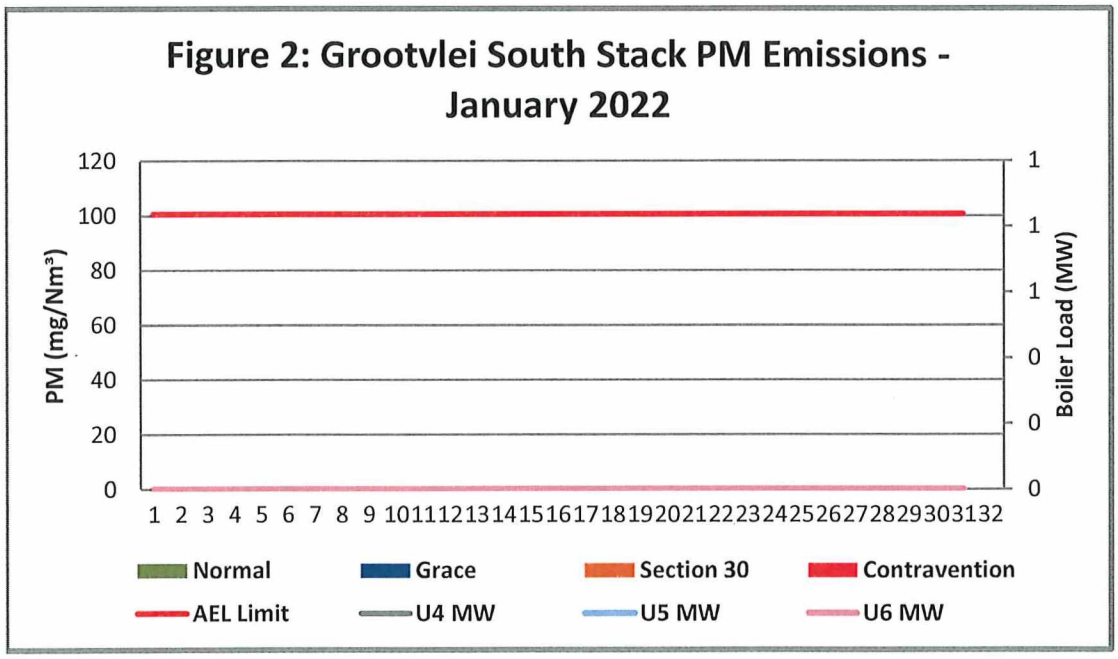


Figure 2: Grootvlei South Stack PM Emissions - January 2022



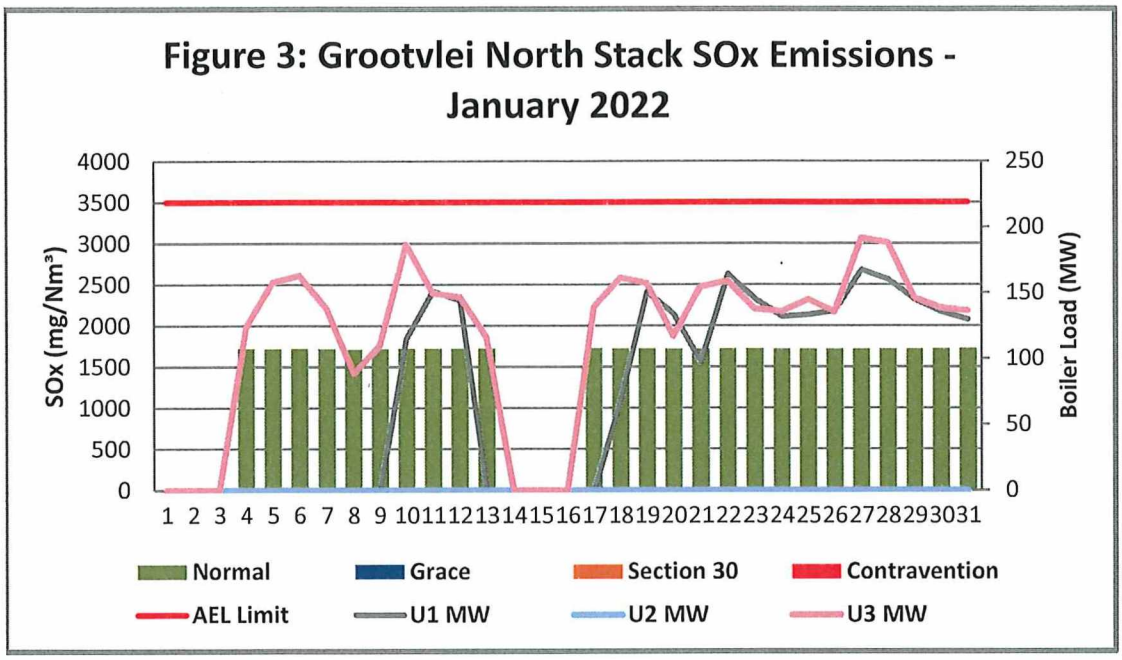


Figure 3: Grootvlei North Stack SOx Emissions - January 2022
SOx (mg/Nm³)
Boiler Load (MW)
4000
3500
3000
2500
2000
1500
1000
500
0
250
200
150
100
50
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW
U2 MW
U3 MW

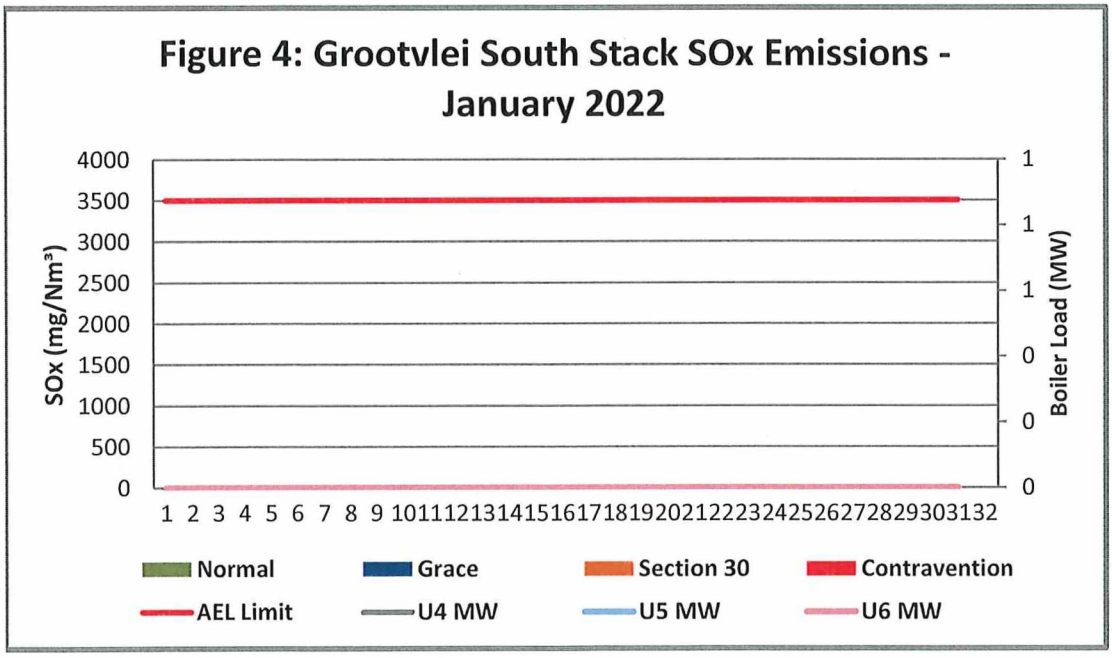


Figure 4: Grootvlei South Stack SOx Emissions - January 2022
SOx (mg/Nm³)
Boiler Load (MW)
4000
3500
3000
2500
2000
1500
1000
500
0
1
1
1
0
0
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
Normal
Grace
Section 30
Contravention
AEL Limit
U4 MW
U5 MW
U6 MW

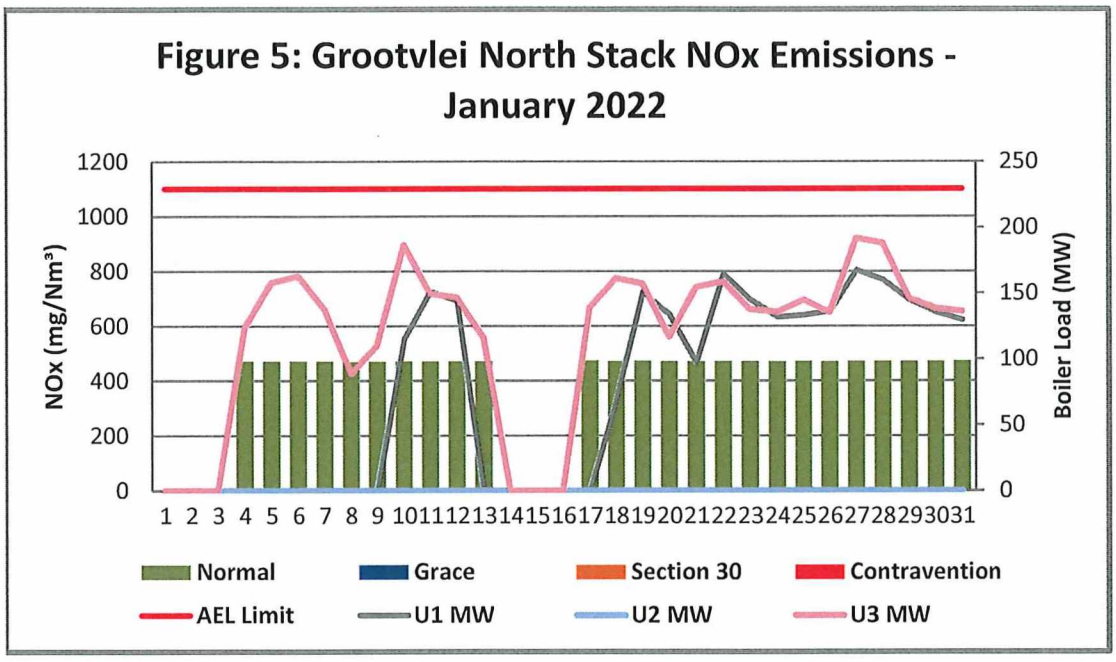


Figure 5: Grootvlei North Stack NOx Emissions - January 2022
NOx (mg/Nm³)
Boiler Load (MW)
1200
1000
800
600
400
200
0
250
200
150
100
50
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW
U2 MW
U3 MW

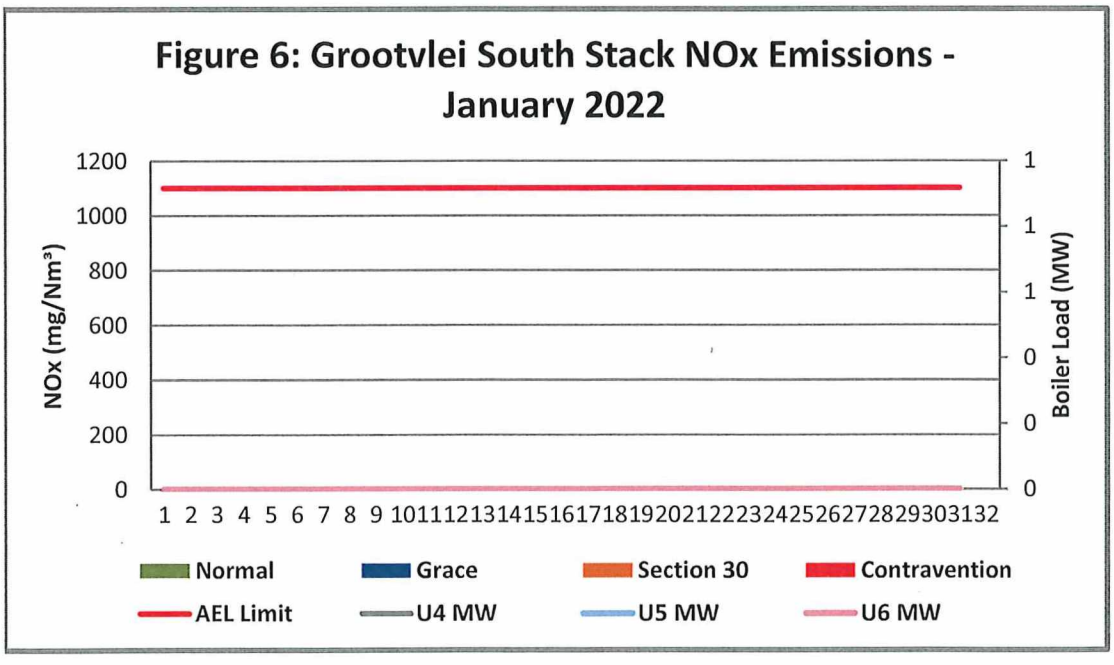


Figure 6: Grootvlei South Stack NOx Emissions - January 2022
NOx (mg/Nm³)
Boiler Load (MW)
1200
1000
800
600
400
200
0
1
1
1
0
0
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
Normal
Grace
Section 30
Contravention
AEL Limit
U4 MW
U5 MW
U6 MW

7 SHUT DOWN AND LIGHT UP INFORMATION

Table 7.1. PM Start-up information for the month of January-2022

North Stack	Event 1			Event 3		Event 4	
Unit No.	Unit 1			Unit 1		no event	
Breaker Open (BO)	BO previously	BO previously	12/01/2022	2:55 PM	20/01/2022	2:40 AM	28/01/2022
Draught Group (DG) Shut Down (SD)	n/a	n/a	12/01/2022	6:15 PM	20/01/2022	DG did not trip or SD	DG did not trip or SD
BO to DG SD (duration)	n/a	DD:HH:MM	DD:HH:MM	00:03:20	DD:HH:MM	n/a	DD:HH:MM
Fires in time	3:55 PM	08/01/2022	17/01/2022	11:00 PM	20/01/2022		
Synch. to Grid (or BC)	5:55 AM	10/01/2022	19/01/2022	8:15 PM	21/01/2022		
Fires in to BC (duration)	01:14:00	DD:HH:MM	DD:HH:MM	00:21:15	DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	not > limit	not > limit	not > limit	not > limit	not > limit		
Emissions below limit from BC (duration)	n/a	DD:HH:MM	DD:HH:MM	n/a	DD:HH:MM		DD:HH:MM

North Stack ...Cont.	Event 1			Event 3		Event 4	
Unit No.	Unit			Unit 3		Unit 3	
Breaker Open (BO)	BO previously	BO previously	06/01/2022	8:45 PM	12/01/2022	8:50 AM	22/01/2022
Draught Group (DG) Shut Down (SD)	n/a	n/a	DG did not trip or SD	9:10 PM	13/01/2022	9:50 AM	22/01/2022
BO to DG SD (duration)	n/a	DD:HH:MM	DD:HH:MM	01:00:25	DD:HH:MM	00:01:00	DD:HH:MM
Fires in time	6:00 AM	03/01/2022		3:35 PM	16/01/2022	11:10 AM	22/01/2022
Synch. to Grid (or BC)	8:35 AM	04/01/2022		2:35 PM	17/01/2022	3:00 PM	22/01/2022
Fires in to BC (duration)	01:02:35	DD:HH:MM	DD:HH:MM	00:23:00	DD:HH:MM	00:03:50	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)	n/a	DD:HH:MM	DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM

South Stack	Event 1			Event 3		Event 4	
Unit No.	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 1			Event 3		Event 4	
Unit No.	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 January-2022 in mg/Nm^3

[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 January-2022

	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 January-2022

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. Due to the North stack gas monitor reliability being 0%, QAL2 report averages for NOx, SOx and O2 were used.

Environmental Department	Date	**Boiler Engineering**	Date
	14/02/22		10/02/2022
General Manager	Date		
	2022/02/15		

Compiled by: Boiler Engineering Department — FFP System Engineer

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

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