Eskom

Ms Nompumelelo Simelane
Nkangala District Municipality
PO BOX 437
MIDDELBURG
1050

Date:
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Enquiries: Livhuwani Tshilate
Tel +27 17 615 2317

Ref: 17/AEL/MP312/11/09

Dear Ms. Simelane

KRIEL POWER STATION'S MONTHLY STACK EMISSIONS REPORT FOR THE MONTH OF JUNE 2025

This serves as the monthly report required in terms of Section 7.4 in Kriel Power Station's Atmospheric Emission License 17/AEL/MP312/11/09. The emissions are for the month of June 2025. Verified emissions of particulates matter, SO_2 and NOx (as NO_2) are also included.

Raw Materials and Products

Table 1: Quantity of Raw Materials and Products used/produced for the month of June 2025

Raw Materials and Products used	Raw Material Type	Units	Maximum Permitted Consumption / Rate (Quantity)	Consumption / Rate in Month of June 2025
	Coal	Tons/month	1 227 600	589 445.21
	Fuel Oil	Tons/month	8 000	5 571.76
Production Rates	**Product/ By-Product Name**	**Unit**	**Maximum Production Capacity Permitted (Quantity)**	**Production Rate in Month of June 2025**
	Energy	GWh	3 000/2 232	948.615
	Ash	Tons/month	320 000	145 854.098
	RE PM	kg/MWh	not specified	17.330

Abatement Technology

Table 2: Abatement Equipment Control Technology for June 2025.

Associated Unit/Stack	Technology Type	Actual Efficiency (%)	Technology Type	SO_3 Utilisation (%)
Unit 1	ESP& SO3	98.14%	SO3 Plant	100.00
Unit 2	ESP& SO3	97.93%	SO3 Plant	100.00
Unit 3	ESP& SO3	98.57%	SO3 Plant	100.00
Unit 4	ESP& SO3	75.14%	SO3 Plant	100.00
Unit 5	ESP& SO3	76.49%	SO3 Plant	100.00
Unit 6	ESP& SO3	79.63%	SO3 Plant	100.00

Note: ESP plant does not contain bypass mode operation; hence plant 100% Utilised.

Energy Source Characteristics

Table 3: Energy Source Material Characteristics for the month of June 2025.

Characteristic	Stipulated Range (Unit)	Monthly Average Content
Sulphur Content	0.6-1.2 (%)	0.69
Ash Content	27-32 (%)	24.74

Monthly Monitor Reliability

Associated Unit/Stack	PM (%)	SOx (%)	NOx (%)
North	66.80	34.55	39.56
South	1.76	33.29	0.00

Emissions Reporting
Graph 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

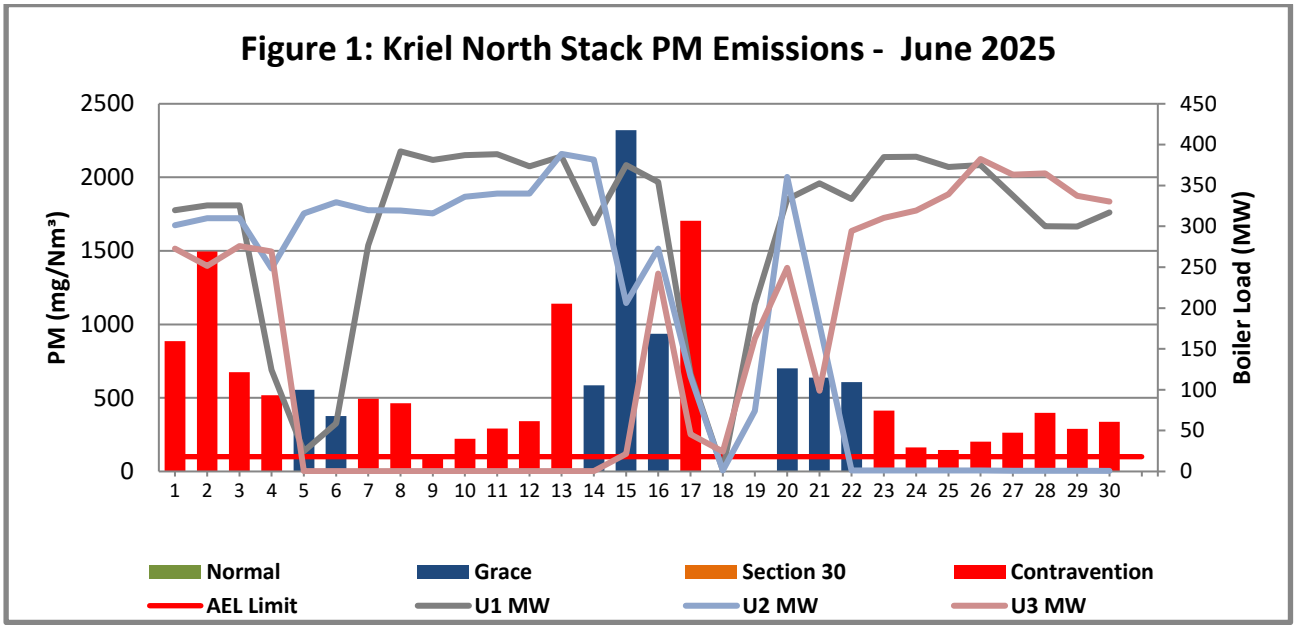

Figure 1: PM emissions for the month of June 2025 against daily emission limit (100 mg/Nm^3) for the North Stack. Reasons for exceedances are indicated on Table 7 below.

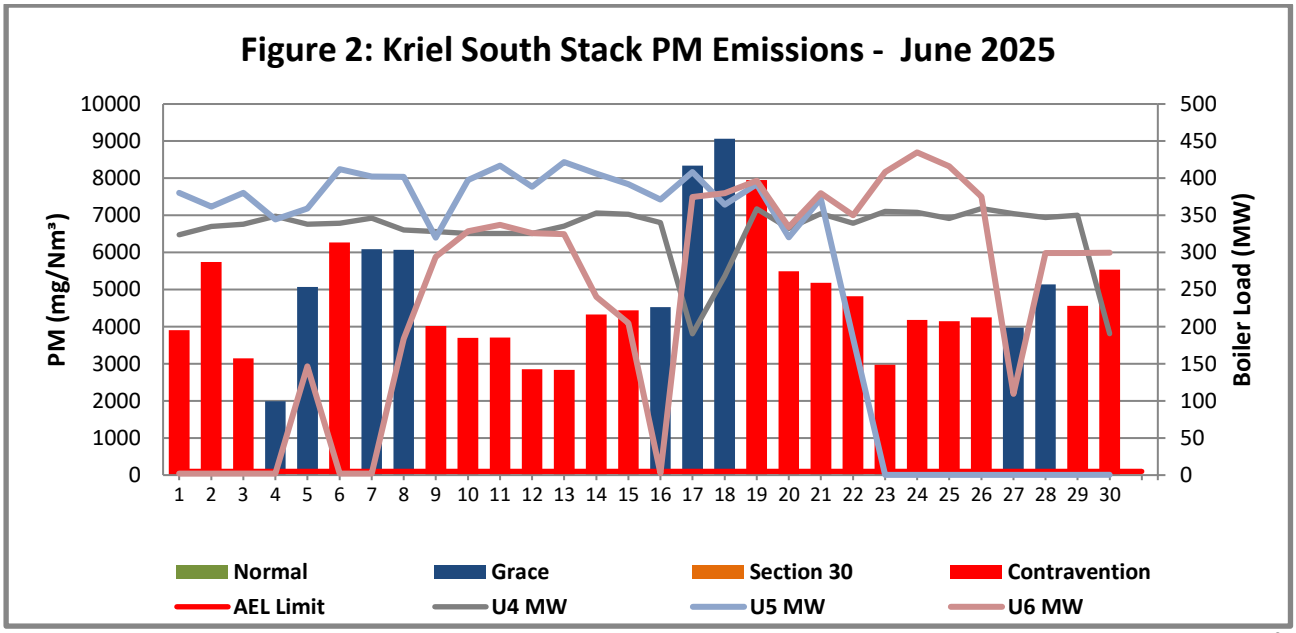

Figure 2: PM emissions for the month of June 2025 against daily emission limit (100 mg/Nm^3) for the South Stack. Reasons for exceedances are indicated on Table 7 below.

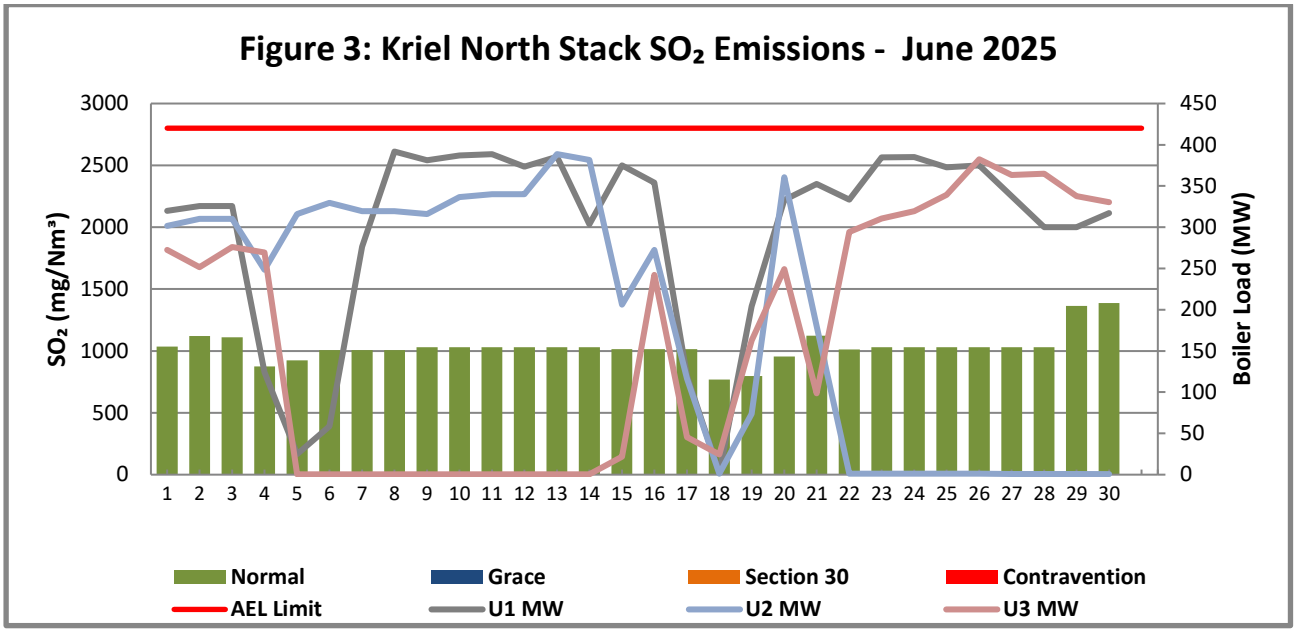

Figure 3. SO_2 emissions for the month of June 2025 against daily emission limit (2800 mg/Nm^3) for the North Stack.

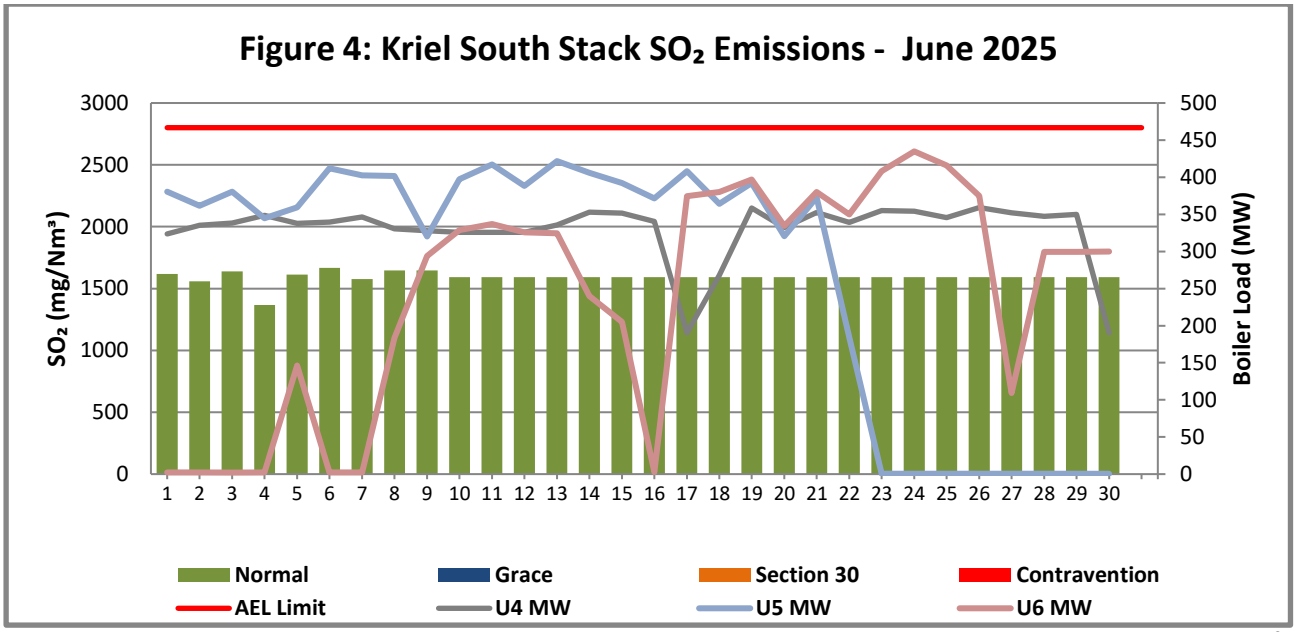

Figure 4. SO_2 emissions for the month of June 2025 against daily emission limit (2800mg/Nm^3) for the South Stack.

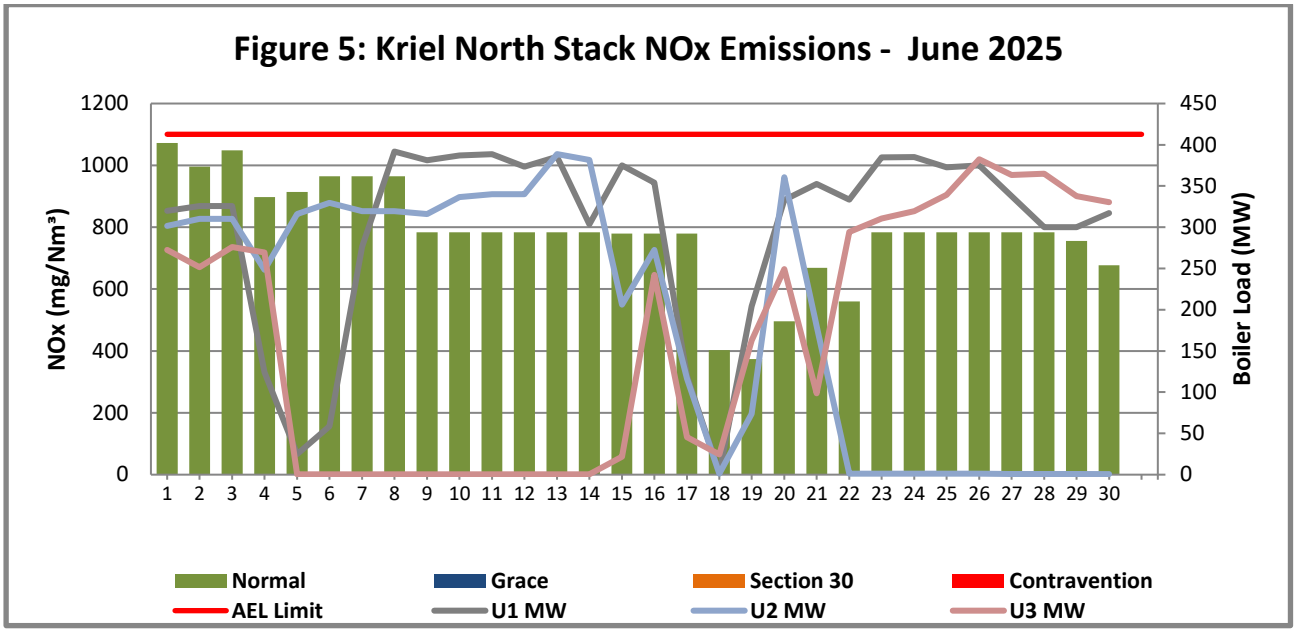

Figure 5. NO_2 emissions for the month of June 2025 against daily emission limit (1100mg/Nm^3) for the North Stack.

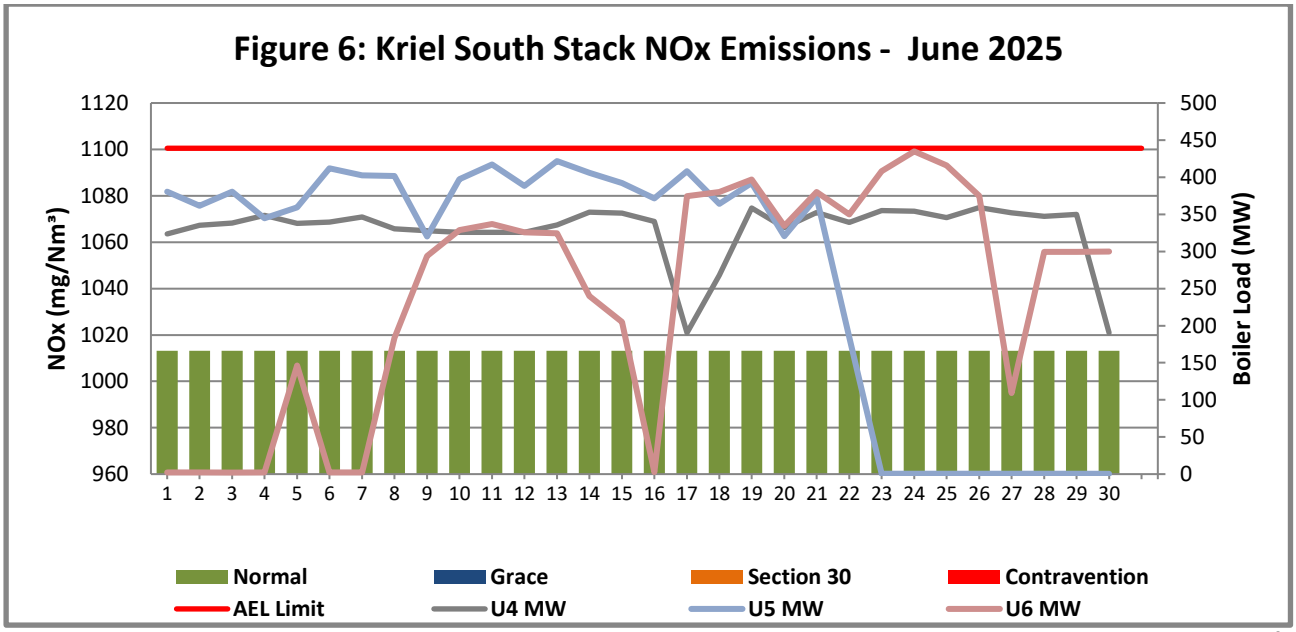

Figure 6. NO_2 emissions for the month of June 2025 against daily emission limit (1100mg/Nm^3) for the South Stack. Moreover, reason for constant reading is attributed to gaseous monitors for O_2 and NOx malfunction resulting in no readings available.

Table 4: Monthly tonnages for the month June 2025

Unit	PM (tons)	SO_2 (tons)	NO_2 (tons)
SUM	18 157.4	8 315.8	5 570.1

Table 5: Each unit and respective days operating under normal operation and section 30 days respectively.

Table 5.1: Operating days in non-compliance to PM AEL Limit – June 2025

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Monthly Limit Exceedance	Average PM (mg/Nm³)
North	0	8	0	20	28	584.7
South	0	9	0	21	30	4 812.4

Table 5.2: Operating days in compliance to SOx AEL Limit - June 2025

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SOx (mg/Nm³)
North	30	0	0	0	0	1 029.8
South	30	0	0	0	0	1 591.7

Table 5.3: Operating days in compliance to NOx AEL Limit – June 2025

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm³)
North	30	0	0	0	0	783.2
South	30	0	0	0	0	1 013.1

Light up information

Table 6: PM Start-up information for the month of June 2025

North Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 1		Unit 3		Unit 1		Unit 2	
Breaker Open (BO)	*9:40 am*	*2025/06/04*	*12:00 am*	*2025/06/05*	*10:30 am*	*2025/06/17*	*12:35 pm*	*2025/06/15*
Draught Group (DG) Shut Down (SD)	*10:10 am*	*2025/06/04*	*1:25 pm*	*2025/06/05*	*12:20 pm*	*2025/06/17*	*4:25 pm*	*2025/06/15*
BO to DG SD (duration)	*00:00:30*	*DD:HH:MM*	*00:13:25*	*DD:HH:MM*	*00:01:50*	*DD:HH:MM*	*00:03:50*	*DD:HH:MM*
Fires in time	*12:20 pm*	*2025/06/05*			*2:25 am*	*2025/06/19*	*2:15 am*	*2025/06/16*
Synch. to Grid (or BC)	*4:30 pm*	*2025/06/07*			*7:30 am*	*2025/06/19*	*5:15 am*	*2025/06/16*
Fires in to BC (duration)	*02:04:10*	*DD:HH:MM*		*DD:HH:MM*	*00:05:05*	*DD:HH:MM*	*00:03:00*	*DD:HH:MM*
Emissions below limit from	*1:20 pm*	*2025/07/01*			*1:20 pm*	*2025/07/01*	*12:00 am*	*2025/07/02*

BC (end date)								
Emissions below limit from BC (duration)	*23:20:50*	*DD:HH:MM*		*DD:HH:MM*	*12:05:50*	*DD:HH:MM*	*15:18:45*	*DD:HH:MM*

North Stack …Cont.	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 2		Unit 3		Unit 3		Unit 2	
Breaker Open (BO)	*10:25 am*	*2025/06/17*	*BO previously*	*BO previously*	*5:40 am*	*2025/06/17*	*2:00 pm*	*2025/06/21*
Draught Group (DG) Shut Down (SD)	*12:50 pm*	*2025/06/17*	*n/a*	*n/a*	*6:15 am*	*2025/06/17*	*2:35 am*	*2025/06/22*
BO to DG SD (duration)	*00:02:25*	*DD:HH:MM*	*n/a*	*DD:HH:MM*	*00:00:35*	*DD:HH:MM*	*00:12:35*	*DD:HH:MM*
Fires in time	*12:25 pm*	*2025/06/19*	*2:40 pm*	*2025/06/15*	*11:00 pm*	*2025/06/19*		
Synch. to Grid (or BC)	*5:05 pm*	*2025/06/19*	*5:25 am*	*2025/06/16*	*3:20 am*	*2025/06/19*		
Fires in to BC (duration)	*00:04:40*	*DD:HH:MM*	*00:14:45*	*DD:HH:MM*		*DD:HH:MM*		*DD:HH:MM*
Emissions below limit from BC (end date)	*12:00 am*	*2025/07/02*	*1:20 pm*	*2025/07/01*	*1:20 pm*	*2025/07/01*		
Emissions below limit from BC (duration)	*12:06:55*	*DD:HH:MM*	*15:07:55*	*DD:HH:MM*	*12:10:00*	*DD:HH:MM*		*DD:HH:MM*

South Stack	Event 1		Event 2		Event 3	Event 4	
Unit No.	Unit 6		Unit 4		Unit 6	Unit 6	
Breaker Open (BO)			*1:40 am*	*2025/06/17*	*12:50 am*	*2025/06/14*	*3:40 pm*
Draught Group (DG) Shut Down (SD)			*DG did not trip or SD*	*DG did not trip or SD*	*DG did not trip or SD*	*DG did not trip or SD*	*4:10 pm*
BO to DG SD (duration)		*DD:HH:MM*	*n/a*	*DD:HH:MM*	*n/a*	*DD:HH:MM*	*00:00:30*
Fires in time	*9:45 pm*	*2025/06/07*	*1:40 am*	*2025/06/17*	*12:50 am*	*2025/06/14*	*6:05 pm*
Synch. to Grid (or BC)	*9:35 am*	*2025/06/08*	*1:40 am*	*2025/06/17*	*5:25 am*	*2025/06/14*	*11:30 pm*

Fires in to BC (duration)	*00:11:50*	*DD:HH:MM*	*00:00:00*	*DD:HH:MM*	*00:04:35*	*DD:HH:MM*	*00:05:25*
Emissions below limit from BC (end date)	*11:00 am*	*2025/07/01*	*1:20 pm*	*2025/07/01*	*11:00 am*	*2025/07/01*	*11:00 am*
Emissions below limit from BC (duration)	*23:01:25*	*DD:HH:MM*	*14:11:40*	*DD:HH:MM*	*17:05:35*	*DD:HH:MM*	*14:11:30*

South Stack …Cont.	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 5		Unit 4		Unit 6		no event	
Breaker Open (BO)	*2:55 pm*	*2025/06/22*	*2:50 am*	*2025/06/30*	*1:50 am*	*2025/06/27*		
Draught Group (DG) Shut Down (SD)	*9:05 am*	*2025/06/23*	*DG did not trip or SD*	*DG did not trip or SD*	*2:40 am*	*2025/06/27*		
BO to DG SD (duration)	*00:18:10*	*DD:HH:MM*	*n/a*	*DD:HH:MM*	*00:00:50*	*DD:HH:MM*		*DD:HH:MM*
Fires in time			*2:50 am*	*2025/06/30*	*8:50 am*	*2025/06/27*		
Synch. to Grid (or BC)			*8:20 am*	*2025/06/30*	*3:30 pm*	*2025/06/27*		
Fires in to BC (duration)		*DD:HH:MM*	*00:05:30*	*DD:HH:MM*	*00:06:40*	*DD:HH:MM*		*DD:HH:MM*
Emissions below limit from BC (end date)			*1:20 pm*	*2025/07/01*	*11:00 am*	*2025/07/01*		
Emissions below limit from BC (duration)		*DD:HH:MM*	*01:05:00*	*DD:HH:MM*	*03:19:30*	*DD:HH:MM*		*DD:HH:MM*

Reasons for emissions poor performance for both stacks in June 2025

Table 7: Reasons for emissions poor performance for June 2025

Start Date	Plant	Reason	Impact on Emissions	Action	Feedback	End Date
2025/03/01	South stack	Gaseous monitor for O_2 and NOx malfunction	No readings available	OEM(SICK) to come on site and repair	CIE and CID requested OEM to come on site. Station awaiting SICK Automation technician.	TBC
01/06/2025	North Stack	All gaseous monitor reading indicate a possible	Unreliable readings	OEM(SICK) to come on site and repai	CIE and CID requested OEM to come on	TBC

		monitor malfunction			site. Station awaiting SICK Automation technician	
Plant Failures						
01/06/2025-30/06/2025	North & South	Failure to effectively transport collected fly ash from the ESP hoppers due to unavailability and/or unreliability of the overland converyors (18A and 18 B), blockage of ash conditioners and transportation lines blockages due to the fluctuation of conveying air pressure from time to time.	Accumulation of ash inside the fields resulting in poor performance of ESP and consequently high emissions.	There is an action plan for the recovery of the DHP and the implemention of the actions in progress.		TBC

Complaints Register

Table 8: Complaint for the month of June 2025

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 by which measure will be implemented
There was no complaint related to air quality received during the month of June 2025.					

General

NB: The rest of the information demonstrating compliance with the emissions license conditions is supplied in the annual emission reports sent to your office.