Ms Nompumelelo Simelane
Nkangala District Municipality
PO BOX 437
MIDDELBURG
1050

Date:
25 October 2025

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 SEPTEMBER 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 September 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 September 2025

Raw Materials and Products used	Raw Material Type	Units	Maximum Permitted Consumption / Rate (Quantity)	Consumption / Rate in Month of September 2025
	Coal	Tons/month	1 227 600	426 729.04
	Fuel Oil	Tons/month	8 000	4 603.28
Production Rates	**Product/ By-Product Name**	**Unit**	**Maximum Production Capacity Permitted (Quantity)**	**Production Rate in Month of September 2025**
	Energy	GWh	3 000/2 232	695.263
	Ash	Tons/month	320 000	101 539.792
	RE PM	kg/MWh	not specified	2.309

Abatement Technology

Table 2: Abatement Equipment Control Technology for September 2025.

Associated Unit/Stack	Technology Type	Actual Efficiency (%)	Technology Type	SO_3 Utilisation (%)
Unit 1	ESP& SO3	99.11%	SO3 Plant	100.00
Unit 2	ESP& SO3	98.95	SO3 Plant	100.00
Unit 3	ESP& SO3	99.00%	SO3 Plant	100.00
Unit 4	ESP& SO3	Off-line	SO3 Plant	Off-line
Unit 5	ESP& SO3	97.23%	SO3 Plant	100.00
Unit 6	ESP& SO3	93.68%	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 September 2025.

Characteristic	Stipulated Range (Unit)	Monthly Average Content
Sulphur Content	0.6-1.2 (%)	0.68
Ash Content	27-32 (%)	23.79

Monthly Monitor Reliability

Associated Unit/Stack	PM (%)	SOx (%)	NOx (%)
North	51.9	100.0	52.0
South	85.6	100.0	100.0

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

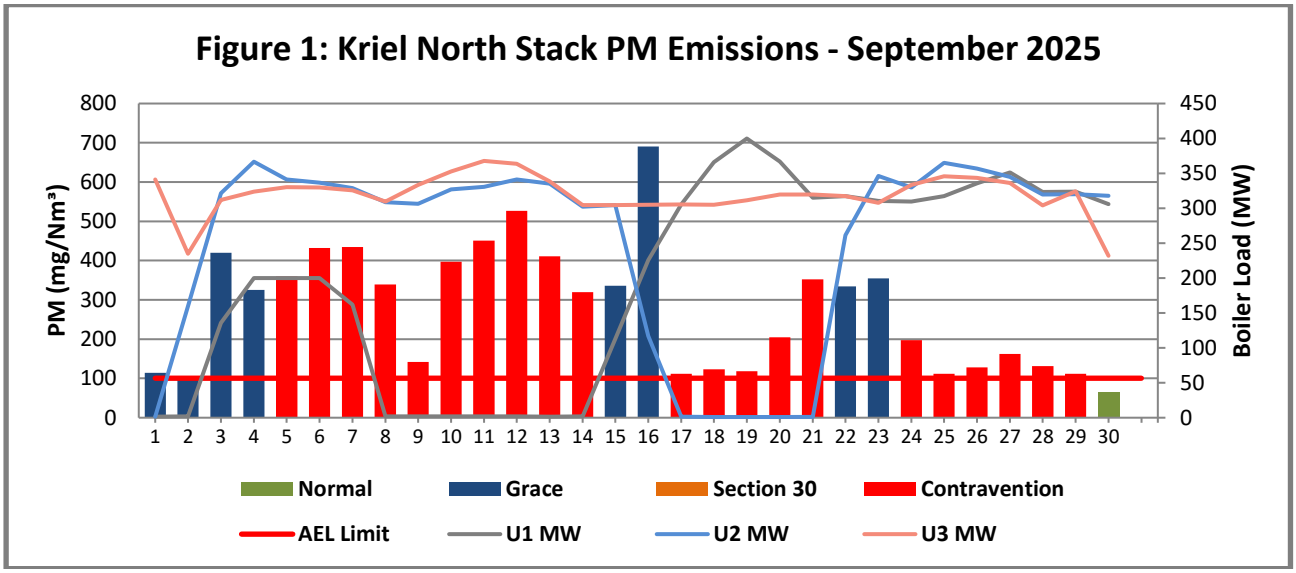

Figure 1: PM emissions for the month of September 2025 against daily emission limit (100 mg/Nm^3) for the North Stack. Reasons for exceedances are indicated on Table 7 below.

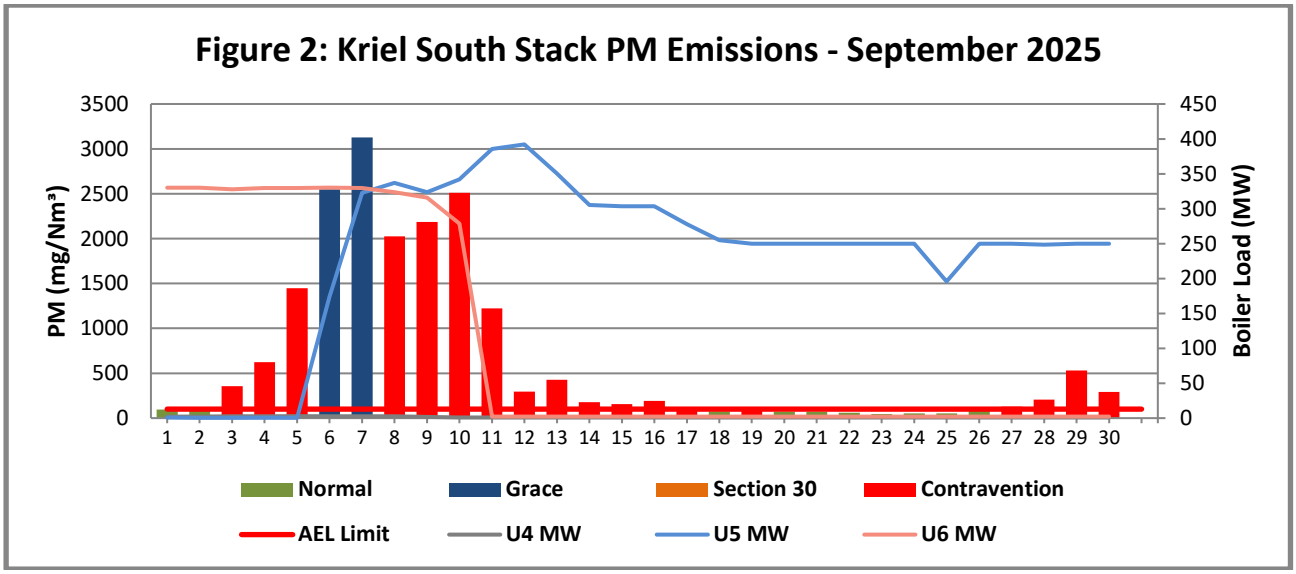

Figure 2: PM emissions for the month of September 2025 against daily emission limit (100 mg/Nm^3) for the South Stack. Reasons for exceedances are indicated on Table 7 below.

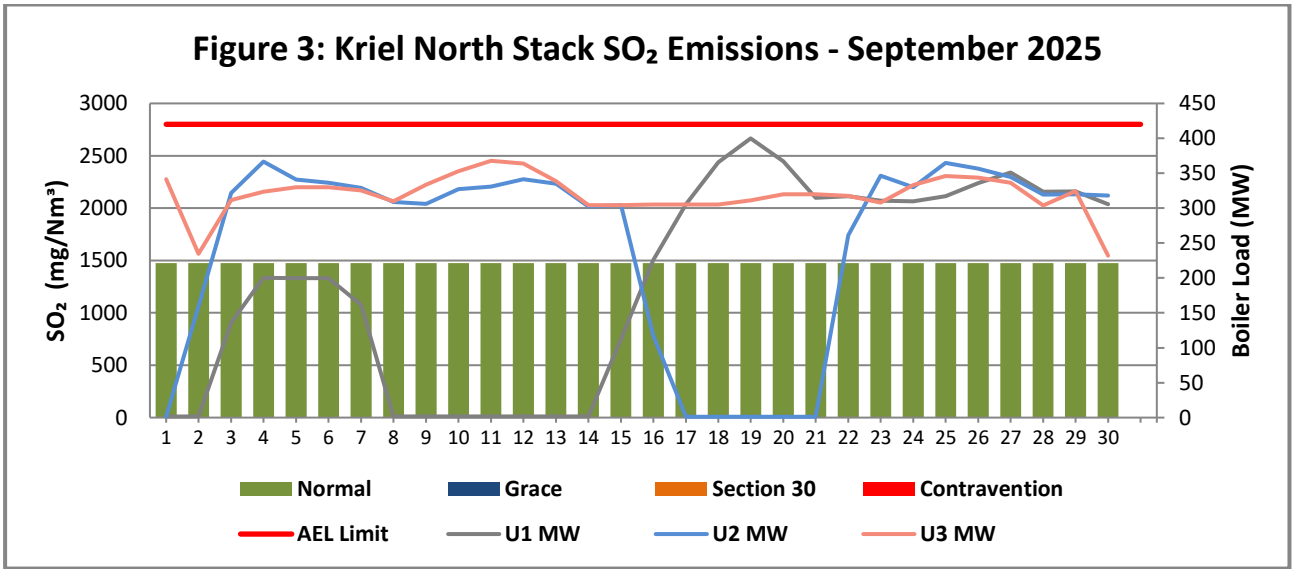

Figure 3. SO_2 emissions for the month of September 2025 against daily emission limit (2800 mg/Nm^3) for the North Stack. Moreover, reason for constant reading is attributed to the fact that all gaseous readings are faulty due to possible monitor malfunctioning.

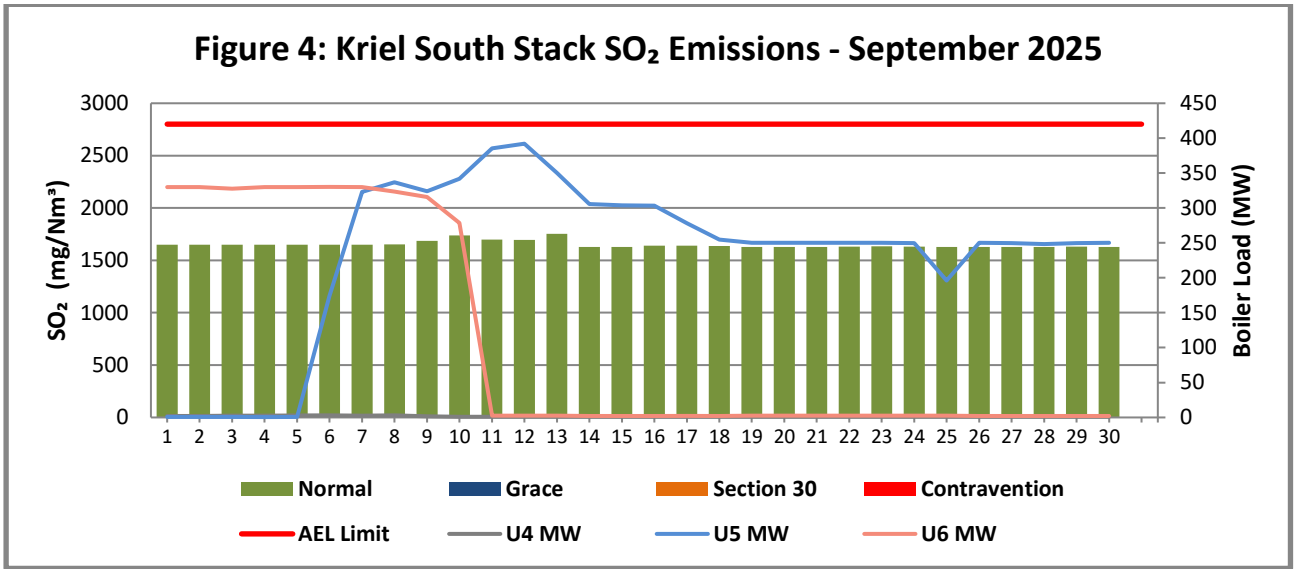

Figure 4. SO_2 emissions for the month of September 2025 against daily emission limit (2800mg/Nm^3) for the South Stack. Moreover, reason for constant reading is attributed to the fact that all gaseous readings are faulty due to possible monitor malfunctioning.

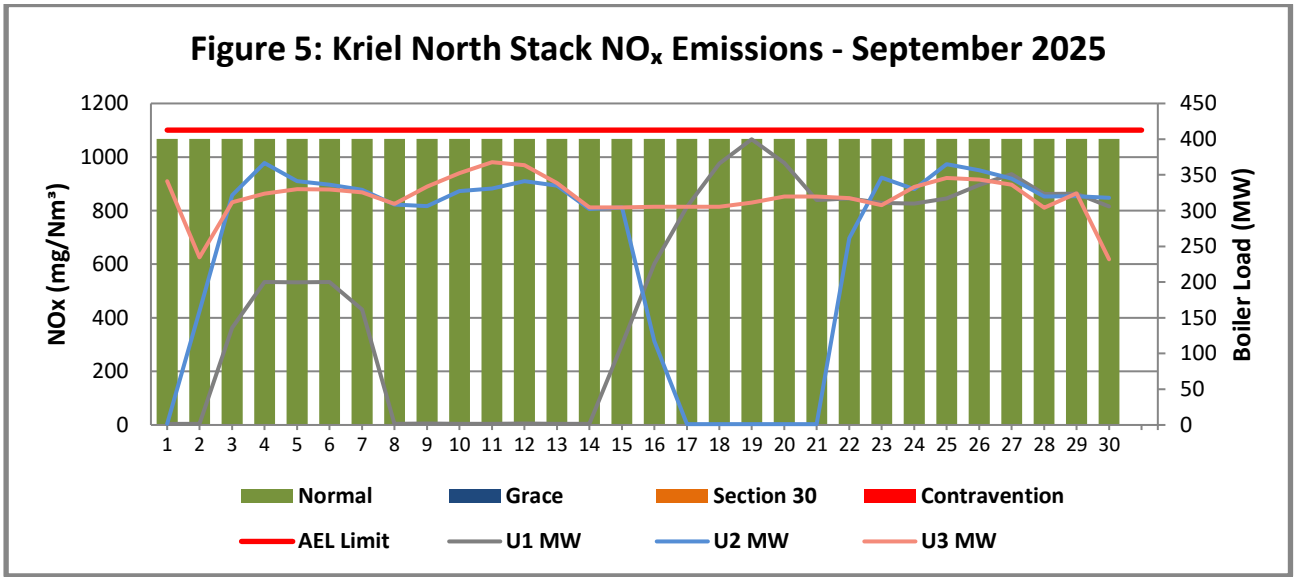

Figure 5. NO_x emissions for the month of September 2025 against daily emission limit (1100mg/Nm^3) for the North Stack. Moreover, reason for constant reading is attributed to the fact that all gaseous readings are faulty due to possible monitor malfunctioning.

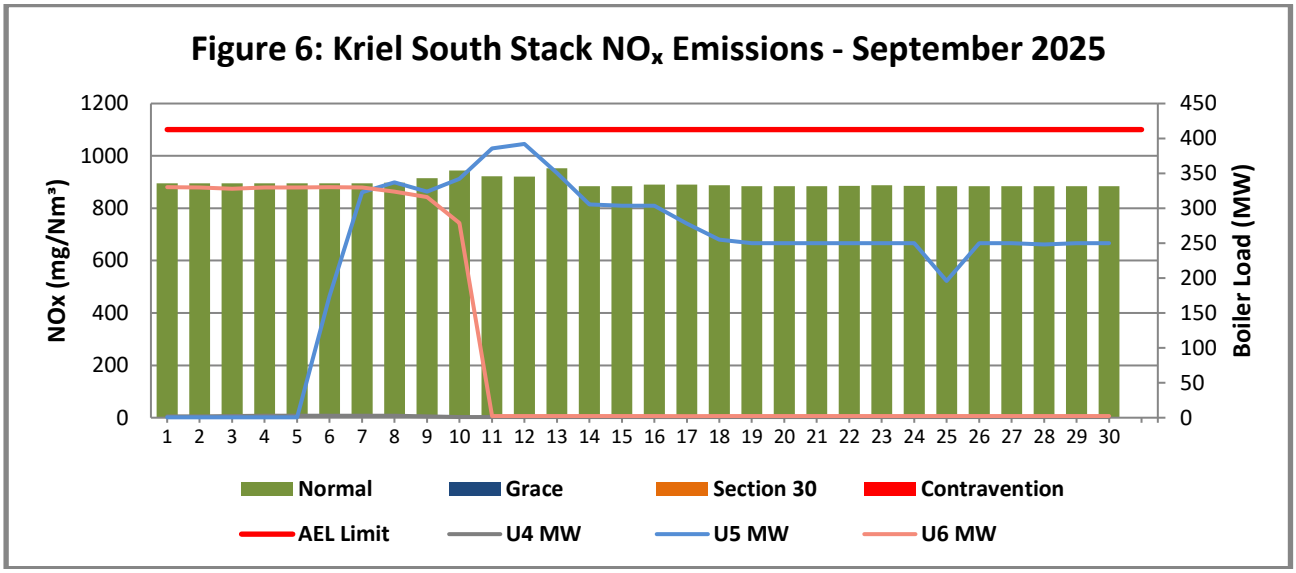

Figure 6. NO_x emissions for the month of September 2025 against daily emission limit (1100mg/Nm³) for the South Stack. Moreover, reason for constant reading is attributed to the fact that all gaseous readings are faulty due to possible monitor malfunctioning.

Table 4: Monthly tonnages for the month September 2025

Unit	PM (tons)	SO_2 (tons)	NO_2 (tons)
SUM	1 718.48	6 064	3 951

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 – September 2025

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Monthly Limit Exceedance	Average PM (mg/Nm³)
North	1	8	0	21	29	280.0
South	10	2	0	18	20	544.0

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SOx (mg/Nm³)
North	30	0	0	0	0	1 475.4
South	30	0	0	0	0	1 650.0

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm³)
North	30	0	0	0	0	1 067.9
South	30	0	0	0	0	895.6

Light up information

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

Event Description		Event 1		Event 2		Event 3	
Unit 1	Breaker Open (BO)	7:10 pm	2025/08/30	7:30 pm	2025/09/07	BO previously	BO previously
	Draught Group (DG) Shut Down (SD)	8:05 pm	2025/08/30	2:25 pm	2025/09/08	n/a	n/a
	BO to DG SD (duration)	00:00:55	DD:HH:MM	00:18:55	DD:HH:MM	n/a	DD:HH:MM
	Fires in time	6:25 pm	2025/08/28	12:20 am	2025/09/03	10:10 pm	2025/09/14
	Synch. to Grid (or BC)	7:50 am	2025/08/29	6:45 am	2025/09/03	12:00 pm	2025/09/15
	Fires in to BC (duration)	00:13:25	DD:HH:MM	00:06:25	DD:HH:MM	00:13:50	DD:HH:MM
	Emissions below limit from BC (end date)	12:00 am	2025/09/01	12:00 am	2025/10/01	12:00 am	2025/10/01
	Emissions below limit from BC (duration)	02:16:10	DD:HH:MM	27:17:15	DD:HH:MM	15:12:00	DD:HH:MM

Event Description		Event 1		Event 2		Event 3	
Unit 2	Breaker Open (BO)	9:30 am	2025/09/16	BO previously	BO previously		
	Draught Group (DG) Shut Down (SD)	10:05 pm	2025/09/16	n/a	n/a		
	BO to DG SD (duration)	00:12:35	DD:HH:MM	n/a	DD:HH:MM		DD:HH:MM
	Fires in time	11:10 pm	2025/09/01	7:35 pm	2025/09/21		
	Synch. to Grid (or BC)	10:25 am	2025/09/02	4:50 am	2025/09/22		
	Fires in to BC (duration)	00:11:15	DD:HH:MM	00:09:15	DD:HH:MM		DD:HH:MM
	Emissions below limit from BC (end date)	12:00 am	2025/10/01	12:00 am	2025/10/01		
	Emissions below limit from BC (duration)	28:13:35	DD:HH:MM	08:19:10	DD:HH:MM		DD:HH:MM

Event Description		Event 1		Event 2		Event 3	
Unit 3	Breaker Open (BO)	3:20 pm	2025/09/02	6:40 pm	2025/09/30		
	Draught Group (DG) Shut Down (SD)	DG did not trip or SD	DG did not trip or SD	7:45 am	2025/10/01		
	BO to DG SD (duration)	n/a	DD:HH:MM	00:13:05	DD:HH:MM		DD:HH:MM
	Fires in time	3:20 pm	2025/09/02				
	Synch. to Grid (or BC)	7:45 pm	2025/09/02				
	Fires in to BC (duration)	00:04:25	DD:HH:MM		DD:HH:MM		DD:HH:MM
	Emissions below limit from BC (end date)	12:00 am	2025/10/01				

	Emissions below limit from BC (duration)	28:04:15	DD:HH:MM		DD:HH:MM		DD:HH:MM
Event Description		Event 1		Event 2		Event 3	
Unit 4	Breaker Open (BO)						
	Draught Group (DG) Shut Down (SD)						
	BO to DG SD (duration)		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
	Emissions below limit from BC (end date)						
	Emissions below limit from BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM
Event Description		Event 1		Event 2		Event 3	
Unit 5	Breaker Open (BO)	8:10 pm	2025/08/29	9:20 am	2025/09/25		
	Draught Group (DG) Shut Down (SD)	10:25 am	2025/08/30	DG did not trip or SD	DG did not trip or SD		
	BO to DG SD (duration)	00:14:15	DD:HH:MM	n/a	DD:HH:MM		DD:HH:MM
	Fires in time	12:35 am	2025/09/06	9:20 am	2025/09/25		
	Synch. to Grid (or BC)	10:40 am	2025/09/06	1:50 pm	2025/09/25		
	Fires in to BC (duration)	00:10:05	DD:HH:MM	00:04:30	DD:HH:MM		DD:HH:MM
	Emissions below limit from BC (end date)	12:00 am	2025/09/19	12:00 am	2025/10/04		
	Emissions below limit from BC (duration)	12:13:20	DD:HH:MM	08:10:10	DD:HH:MM		DD:HH:MM
Event Description		Event 1		Event 2		Event 3	
Unit 6	Breaker Open (BO)	8:35 pm	2025/09/10				
	Draught Group (DG) Shut Down (SD)	9:00 am	2025/09/11				
	BO to DG SD (duration)	00:12:25	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
	Emissions below limit from BC (end date)						
	Emissions below limit from BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM

Reasons for emissions poor performance for both stacks in September 2025

Table 7: Reasons for emissions poor performance for September 2025

Start Date	Plant	Reason	Impact on Emissions	Actions	Feedback	Completion Date
(CEMS/Monitors) Continous Emission Monitoring Systems						
2025/03/01	South stack	Gaseous monitor for O2 and NOx malfunction	No readings available	OEM (SICK/Endress-en-Hauser) to come on site and repair	CIE and CID requested OEM to come on site. Station awaiting SICK/Endress-en-Hauser Automation technician. 10/09/2025 CIE currently in the process to establish a contract for Monitor repairs and servicing. O2 and NOX cards need to be replaced.	TBC
2025/06/29	North stack	All gaseous readings are faulty. Possible monitor malfunction	No readings available	CID and CIE to inspect	11/09/2025 Monitor technician could not access monitors up the stack due to Lift break down, the station's smoke stack lifts are due for service and should not be used until further notice.	TBC
2025/06/29	South stack	All gaseous readings are faulty. Possible monitor malfunction	No readings available	CID and CIE to inspect	CIE and CID requested OEM to come on site. Station awaiting SICK/Endress-en-Hauser Automation technician.	10/09/2025
Plant Failures						
01/09/2025	North stack	Unit 3 Poor ESP performance due to ash backlog from the dust handling plant blow tanks failures.	Accumulation of ash inside the fields resulting in poor performance of ESP and high PM emissions as a results	Maintenance to attend to defective unit 3 blow tanks.	Repairs completed	01/09/2025
05/09/2025-07/09/2025	North stack	Unit 1 half load condition	No SO3 injection due to unit operating at low load due to condenser vacuum restrictions.		Unit 1 offload on the 07/09/2025	07/09/2025
08/09/2025-16/09/2025	North stack	Unit 2 ESP performance poor due to ash backlog that resulted from the unavailability of	Accumulation of ash inside the fields resulting in poor performance of ESP and high	Maintenance attending to defects & operating continously monitoring	Unit offload on the 16/09/2025	16/09/2025

		the 18B overland converyor	PM emissions as a result.	transportation of fly ash		
17/09/2025-18/09/2025	North stack	Unit 3 ESP (3 fields) underperforming due to ash backlog that resulted from the unavailability of 18B overland converyor belt.	Accumulation of ash inside the fields resulting in poor performance of ESP	Maintenance attending to defects & operating continously monitoring transportation of fly ash	The performance of the 3 ESP fields improved significantly by the 19/09/2025	19/09/2025
19/09/2025-21/09/2025	North stack	Unit 1 SO3 dosing pump kept on tripping due to incorrect sulphur flow indication, sulphur flowmeter defective. Unit 1 ESP (4 fields) not performing due to ash accumulation inside the fields	No SO3 injection & high PM Emissions due to underperforming fields	Maintenance to replace Unit 1 Sulphur flowmeter & Maintenance attending to defects & operating continously monitoring transportation of fly ash	Unit 1 sulphur flowmeter replaced	21/09/2025
24/09/2025-29/09/2025	North stack	Unit 1 ESP fields not performing due to ash accumulation inside the field	High PM Emissions due to underperforming fields	Maintenance attending to defects & operating continously monitoring transportation of fly ash	The performance of the ESP fields improved significantly by the 25/09/2025	29/09/2025
03/09/2025-10/09/2025	South stack	Unit 6 Poor ESP performance due to ash backlog from the dust handling plant blow tanks failures & unavailability of 18B overland converyor	Accumulation of ash inside the fields resulting in poor performance of ESP and high PM emissions as a results. All plate rappers tripping on thermal overload due to high hopper levels.	Maintenance attending to defects & operating continously monitoring transportation of fly ash	Unit 6 Shutdown on the 10/09/2025 at 20:40.	10/09/2025
11/09/2025-18/09/2025	South Stack	Unit 5 ESP performance poor due to ash backlog that resulted from the unavailability of 18B overland converyor belt	Accumulation of ash inside the fields resulting in poor performance of ESP	Maintenance attending to defects & operating continously monitoring transportation of fly ash	Unit 5 offload on the the 06/10/20225	06/10/2025
27/09/2025-30/09/2025	South Stack	Unit 5 SO3 Plant trip due to low load & Poor ESP performance due to unvailability of the plate rappers (plate rappers stuck and tripping on thermal overlaod due to high hopper levels)	No SO3 injection & high PM Emissions due to underperforming fields		Unit 5 offload on the the 06/10/20225	06/10/2025

Complaints Register

Table 8: Complaint for the month of September 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 September 2025.					

General

The number of hours for which PM emissions exceeded the limit on the North Stack is 1617.25 and on the South Stack is 773.42.

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