

Ms Nompumelelo Simelane
Nkangala District Municipality
PO BOX 437
Middelburg
1050

Date:
01 April 2025

Enquiries:
Livhuwani Tshilate
017 615 2317

Ref: 17/AEL/MP312/11/09

Dear Ms. Simelane

KRIEL POWER STATION'S MONTHLY STACK EMISSIONS REPORT FOR THE MONTH OF OCTOBER 2024

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 October 2024. Verified emissions of particulates matter, SO₂ and NO_x (as NO₂) are also included.

Raw Materials and Products

Table 1: Quantity of Raw Materials and Products used/produced for the month of October 2024

Raw Materials and Products used	Raw Material Type	Units	Maximum Permitted Consumption / Rate (Quantity)	Consumption / Rate in Month of October 2024
	Coal	Tons/month	1 227 600	407 866.00
	Fuel Oil	Tons/month	8 000	2 612.18
Production Rates	Product/ By-Product Name	Unit	Maximum Production Capacity Permitted (Quantity)	Production Rate in Month of October 2024
	Energy	GWh	3 000/2 232	633.535
	Ash	Tons/month	320 000	243.2
	RE PM	kg/MWh	not specified	0.351

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Abatement Technology

Table 2: Abatement Equipment Control Technology for October 2024.

Associated Unit/Stack	Technology Type	Actual Efficiency (%)	Technology Type	SO ₃ Utilisation (%)
Unit 1	ESP& SO3	99.73%	SO3 Plant	100.00
Unit 2	ESP& SO3	99.63%	SO3 Plant	100.00
Unit 3	ESP& SO3	Off	SO3 Plant	Off
Unit 4	ESP& SO3	99.90%	SO3 Plant	89.06
Unit 5	ESP& SO3	Off	SO3 Plant	Off
Unit 6	ESP& SO3	99.86%	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 October 2024

Characteristic	Stipulated Range (Unit)	Monthly Average Content
Sulphur Content	0.6-1.2 (%)	0.78
Ash Content	27-32 (%)	25.22

Monthly Monitor Reliability

Associated Unit/Stack	PM (%)	SO _x (%)	NO _x (%)
North	98.25	7.72	7.72
South	99.02	0.39	0.39

Emissions Reporting

Graph Legend Description

Condition	Colour	Description
Normal	Green	Emissions below Emission Limit Value (ELV)
Grace	Blue	Emissions above the ELV during grace period
Section 30	Orange	Emissions above ELV during a NEMA S30 incident
Contravention	Red	Emissions above ELV but outside grace or S30 incident conditions

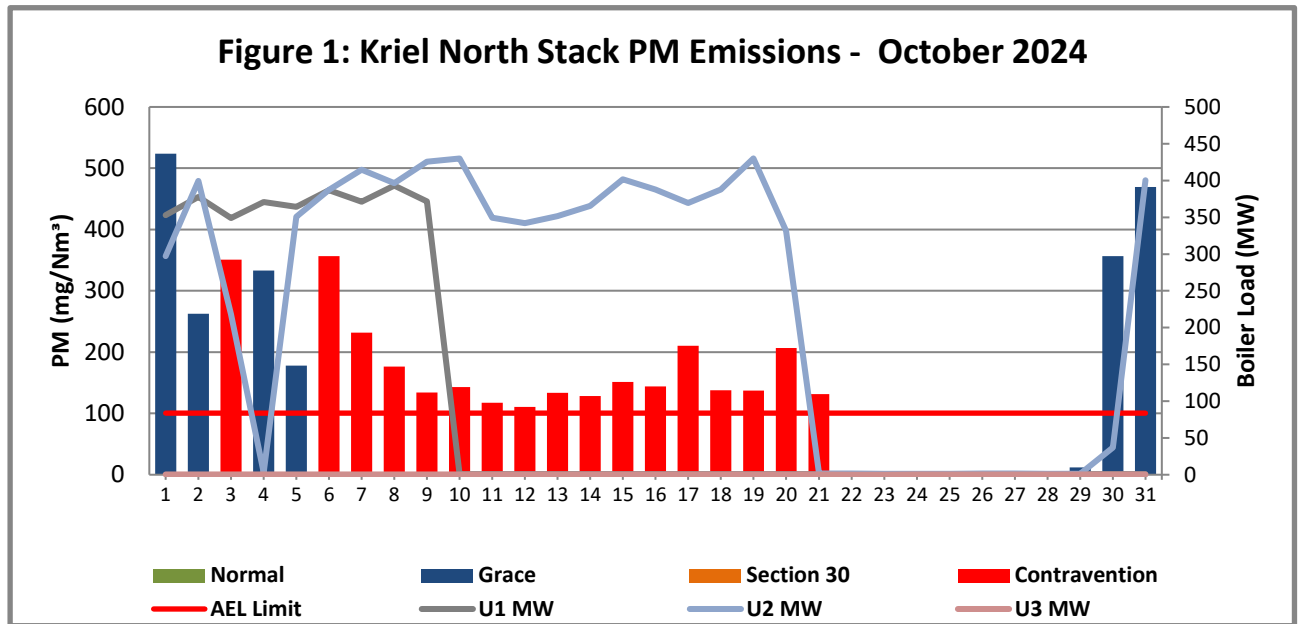


Figure 1: PM emissions for the month of October 2024 against daily emission limit (100 mg/Nm³) for the North Stack.

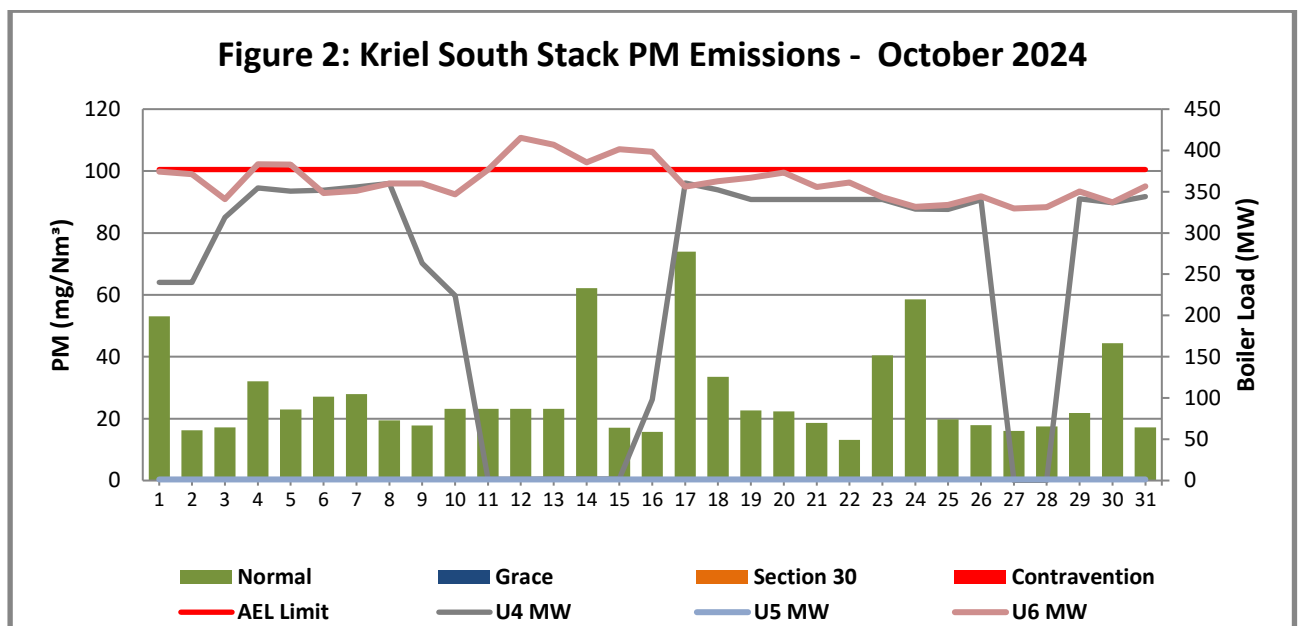


Figure 2: PM emissions for the month of October 2024 against daily emission limit (100 mg/Nm³) for the South Stack.

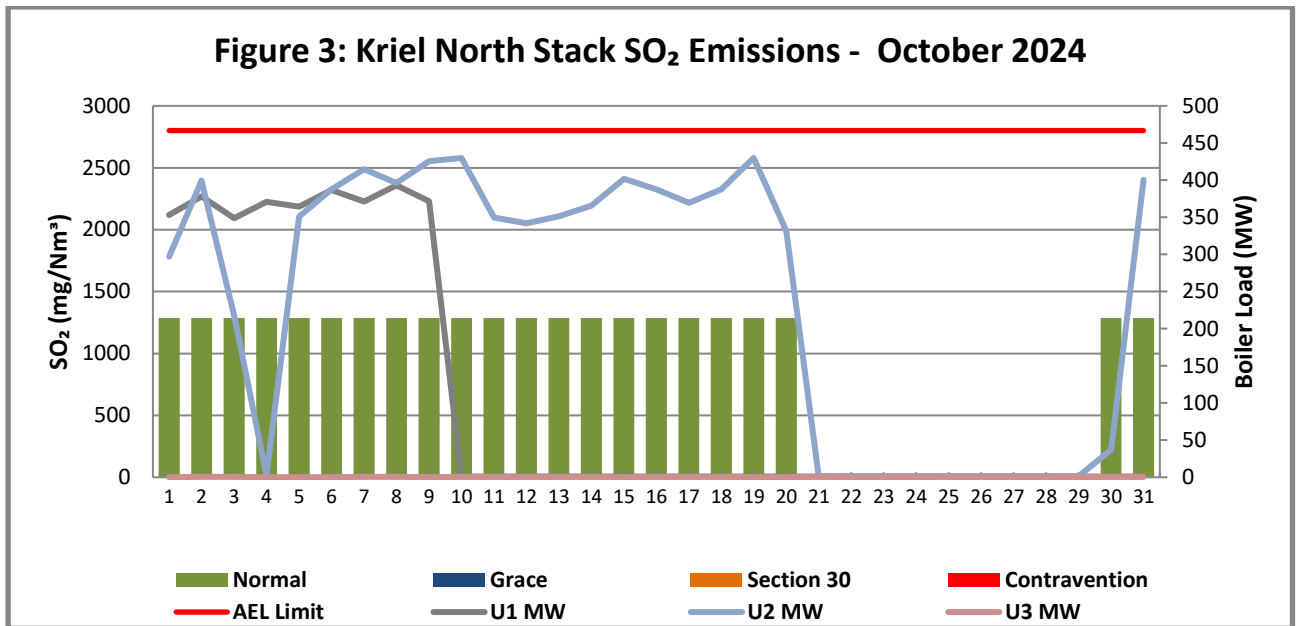


Figure 3. SO₂ emissions for the month of October 2024 against daily emission limit (2800 mg/Nm³) for the North Stack. North stack Gaseous monitors commissioning (Installation of SICK Automation) and as a result, reliability compromised - No gaseous readings for the North stack emissions.

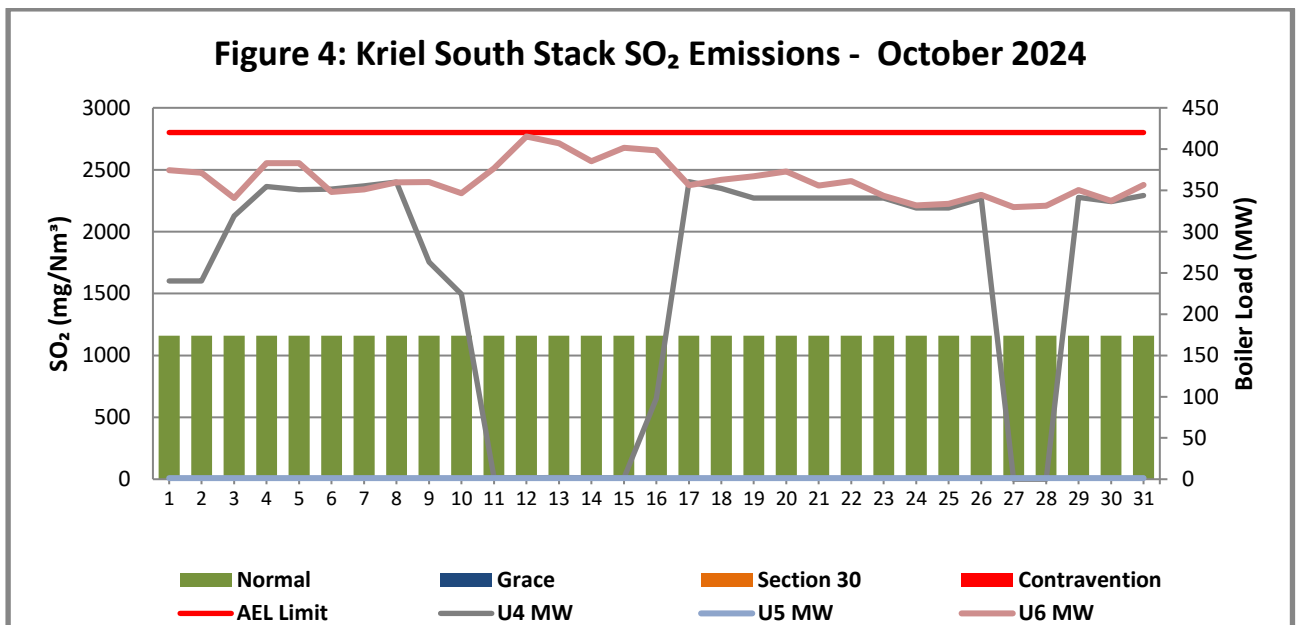


Figure 4. SO₂ emissions for the month of October 2024 against daily emission limit (2800mg/Nm³) for the South Stack. PI (Process Information) system not available due to the HMI Upgrade project with Siemens and C&I Engineering department, as a result, PM and Gaseous readings may be unavailable and/or unreliable from 23/08/2024.

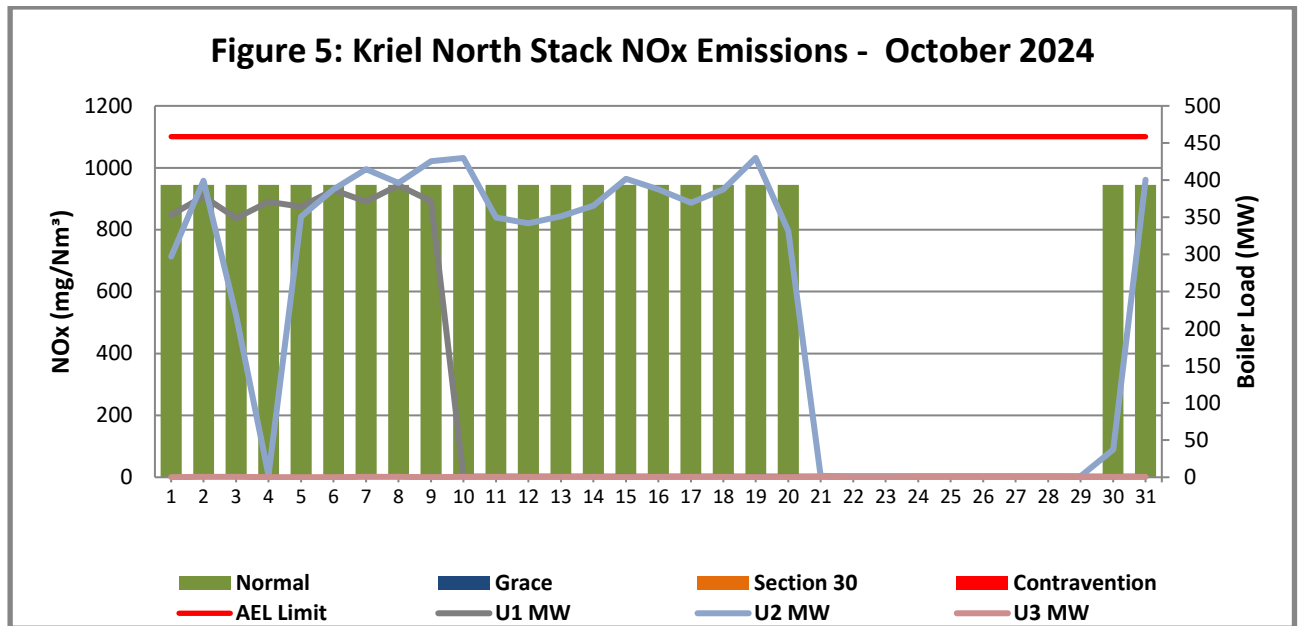


Figure 5. NO₂ emissions for the month of October 2024 against daily emission limit (1100) for the North Stack. North stack Gaseous monitors commissioning (Installation of SICK Automation) and as a result, reliability compromised - No gaseous readings for the North stack emissions.

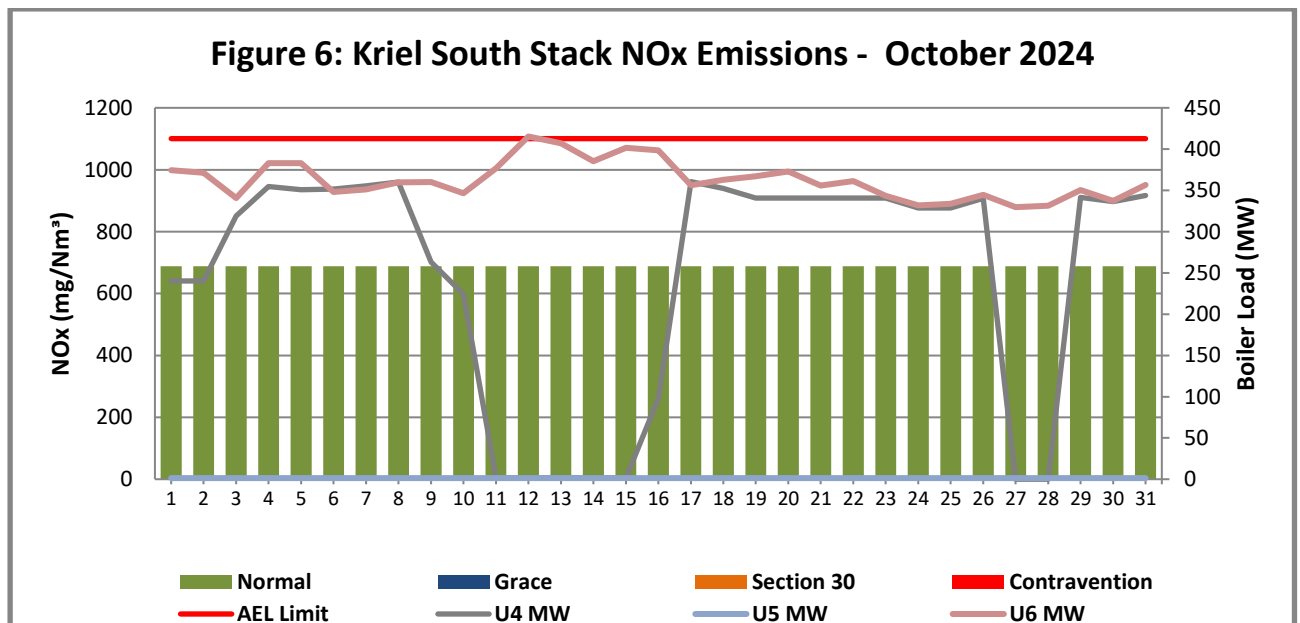


Figure 6. NO₂ emissions for the month of October 2024 against daily emission limit (1100mg/Nm³) for the South Stack. PI (Process Information) system not available due to the HMI Upgrade project with Siemens and C&I Engineering department, as a result, PM and Gaseous readings may be unavailable and/or unreliable from 23/08/2024.

Table 4: Monthly tonnages for the month October 2024

Unit	PM (tons)	SO ₂ (tons)	NO ₂ (tons)
SUM	243.2	4 370.2	2 786.0

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 – October 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Monthly Limit Exceedance	Average PM (mg/Nm ³)
North	0	7	0	17	24	178.8
South	31	0	0	0	0	27.7

Table 5.2: Operating days in compliance to SOx AEL Limit – October 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SOx (mg/Nm ³)
North	22	0	0	0	0	1285.5
South	31	0	0	0	0	1158.6

Table 5.3: Operating days in compliance to NOx AEL Limit – October 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm ³)
North	22	0	0	0	0	944.4
South	31	0	0	0	0	687.8

Light up information

Table 6: PM Start-up information for the month of October 2024

North Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 1		Unit 2		Unit 2		Unit 2	
Breaker Open (BO)	8:45 pm	2024/10/09	BO previously	BO previously	3:15 pm	2024/10/03	8:25 pm	2024/10/20
Draught Group (DG) Shut Down (SD)	2:25 pm	2024/10/11	n/a	n/a	1:55 pm	2024/10/04	10:05 am	2024/10/21
BO to DG SD (duration)	01:17:40	DD:HH:MM	n/a	DD:HH:MM	00:22:40	DD:HH:MM	00:13:40	DD:HH:MM
Fires in time					7:45 pm	2024/10/04		
Synch. to Grid (or BC)					11:00 pm	2024/10/04		

Fires in to BC (duration)		DD:HH:MM		DD:HH:MM	00:03:15	DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)					8:25 pm	2024/10/20		
Emissions below limit from BC (duration)		DD:HH:MM		DD:HH:MM	15:21:25	DD:HH:MM		DD:HH:MM

South Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 4		no event		no event		no event	
Breaker Open (BO)	7:05 pm	2024/10/09						
Draught Group (DG) Shut Down (SD)	11:55 pm	2024/10/13						
BO to DG SD (duration)	04:04:50	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	5:30 am	2024/10/16						
Synch. to Grid (or BC)	4:10 pm	2024/10/16						
Fires in to BC (duration)	00:10:40	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	not > limit	not > limit						
Emissions below limit from BC (duration)	n/a	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM

Reasons for emissions poor performance for both stack in September 2024

Table 7: Reasons for emissions poor performance for September 2024

Start Date	Plant	Reason	Affect on Emissions	Action	Feedback	End Date
CEMS Issues						
25/07/2024	South Smoke stack	South stack Gaseous monitors commissioning (Installation of SICK Automation)	Reliability Compromised - No gaseous readings for the South stack emissions	SICK Monitors installed. C&I awaiting commissioning of North stack lift to verify loop checks between North and South Gaseous monitors. North stack lift currently not	SICK Automation will be onsite from 01/10/2024 to complete the gas analyser replacement project. (Responsible: C&I Maintenance)	Estimated completion date TBC.

				in-service due to no contract in place. Currently in procurement phase.		
23/08/2024	PI (Process Information) system not available	PI (Process Information) system not available due to the HMI Upgrade project with Siemens.	PM and Gaseous readings for Unit 5 may be unavailable and/or unreliable from 23/08/2026.	The HMI Upgrade Project in progress.	Project plan and end date TBC (Responsible: C&I Engineering)	Baseline Completion date no longer 04/11/2024. New date to be reviewed, due to Siemens Engineers Visa/Logistic delays. Commissioning to start 05/11/2024
01/10/2024	North Smoke stack	North stack Gaseous monitors commissioning (Installation of SICK Automation)	Reliability Compromised - No gaseous readings for the North stack emissions	SICK Monitors installed. C&I and SICK Automation Technician to commence with commissioning	SICK Automation will be onsite from 01/10/2024 to complete the gas analyser replacement project. (Responsible: C&I Maintenance)	Estimated completion date TBC
01/10/2024	North Smoke stack	PM Monitor not calibrated	Unreliable PM values	Sick Automation to come onsite and calibrate PM Monitor	Sick Automation Technician will be on site from 09/10/2024 (Responsible: C&I Maintenance)	COMPLETED 09/10/2024
Plant related issues						
2024/10/01	North Smoke stack	Unit 2 SO3 pump tripped.	No SO3 injection	SO3 Pump to be returned to service	TE Filters attended defect	COMPLETED 01/10/2024
2024/10/02	North and South Stack	Overland conveyor 18A and 18B on PTW for Tail-end and Take-up pulley structure and guard replacement.	No transporting of ash, DHP hopper levels increased.	MMD to attend to structure	MMD attended to defect	COMPLETED 02/10/2024
2024/10/05	North and South Stack	Overland conveyor 18A unavailable and 18B on PTW for Tail-end pulley failure.	No transporting of ash, DHP hopper levels increased.	MMD to attend to failure	MMD attended to defect	COMPLETED 05/10/2024

2024/10/06	North Smoke stack	Unit 2 RH Draught Group failure.	Unit on half-load. No SO3 injection	Boiler maintenance to attend to defect	Boiler maintenance attended to defect	COMPLETED 07/10/2024
2024/10/14	South Smoke stack	ESP 6B Precip Tranformer fuse replacement	All Precip fields on ESP RHS not in service.	Replacement of 6B Precip transformer fuse	EMD to attended and replaced defective fuses	COMPLETED 14/10/2024
2024/10/16	North Smoke stack	Unit 2 SO3 power failure	No SO3 injection	Electrical Maintenance to replace defective SO3 Ring Main fuses	EMD to attended and replaced defective fuses	COMPLETED 16/10/2024
2024/10/17	South Smoke stack	Unit 4 SO3 heater has faulty firing	No SO3 injection	Electrical Maintenance to adjust Heater temperatures	EMD to attended faulty heater	COMPLETED 17/10/2024
2024/10/17	North and South Stack	18A Overland conveyor trip on line fault	No ash transportation, resulting in increased Ash Hopper Alarms with Unit 2 = 16; Unit 6 = 22 Alarms. Increased emissions due to high ash hoppers.	C&I Maintenance to attend to line fault	C&I Maintenance attended to defect	COMPLETED 17/10/2024
2024/10/18	North and South Stack	Unit 2 with defective ash lines [(F2P1 seal failure, F6P1 Dome shaft leaking, F5 with a line leak), (Unit 6 with F4P1 Instrument pipe disconnected)]	Increased Emissions due to; Unit 2 with sustained high Ash Hopper alarms (17), Unit 6 with sustained high Ash Hopper alarms (22)	MMD Dry Dust and C&I Maintenance to attend to defects	MMD and C&I attended to defects	COMPLETED 18/10/2024
2024/10/23	North and South Stack	18A and 18B Overland conveyor not transporting	Increase of Hopper Alarms on running units	MMD Dry Dust and C&I Maintenance to attend to defects	MMD and C&I attended to defects	COMPLETED 23/10/2024
2024/10/30	South Smoke stack	Unit 4 RHS Wire and Plate Rappers not in-service	Increase of Emission due to Rapping system being unavailable	EMD and Vanedi to attend to defect	Defects attended	COMPLETED 30/10/2024

Complaints Register

Table 8: Complaint for the month of October 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 by which measure will be implemented
There was no complaint related to air quality received during the month of October 2024.					

General

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