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PO BOX 437  
**Middelburg**  
1050

Date:  
01 April 2025

Enquiries:  
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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 December 2024. Verified emissions of particulates matter, SO<sub>2</sub> and NO<sub>x</sub> (as NO<sub>2</sub>) are also included.

### **Raw Materials and Products**

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

Raw Materials and Products used	Raw Material Type	Units	Maximum Permitted Consumption / Rate (Quantity)	Consumption / Rate in Month of December 2024
	Coal	Tons/month	1 227 600	405 286.90
	Fuel Oil	Tons/month	8 000	5 333.26
Production Rates	Product/ By-Product Name	Unit	Maximum Production Capacity Permitted (Quantity)	Production Rate in Month of December 2024
	Energy	GWh	3 000/2 232	664.325
	Ash	Tons/month	320 000	553.5
	RE PM	kg/MWh	not specified	0.753

1/...

## Abatement Technology

**Table 2:** Abatement Equipment Control Technology for December 2024.

Associated Unit/Stack	Technology Type	Actual Efficiency (%)	Technology Type	SO <sub>3</sub> Utilisation (%)
Unit 1	ESP& SO3	99.44%	SO3 Plant	100.00
Unit 2	ESP& SO3	99.33%	SO3 Plant	100.00
Unit 3	ESP& SO3	99.64%	SO3 Plant	100
Unit 4	ESP& SO3	99.76%	SO3 Plant	78.86
Unit 5	ESP& SO3	99.74%	SO3 Plant	99.91
Unit 6	ESP& SO3	Off	SO3 Plant	Off

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 December 2024

Characteristic	Stipulated Range (Unit)	Monthly Average Content
Sulphur Content	0.6-1.2 (%)	0.71
Ash Content	27-32 (%)	22.27

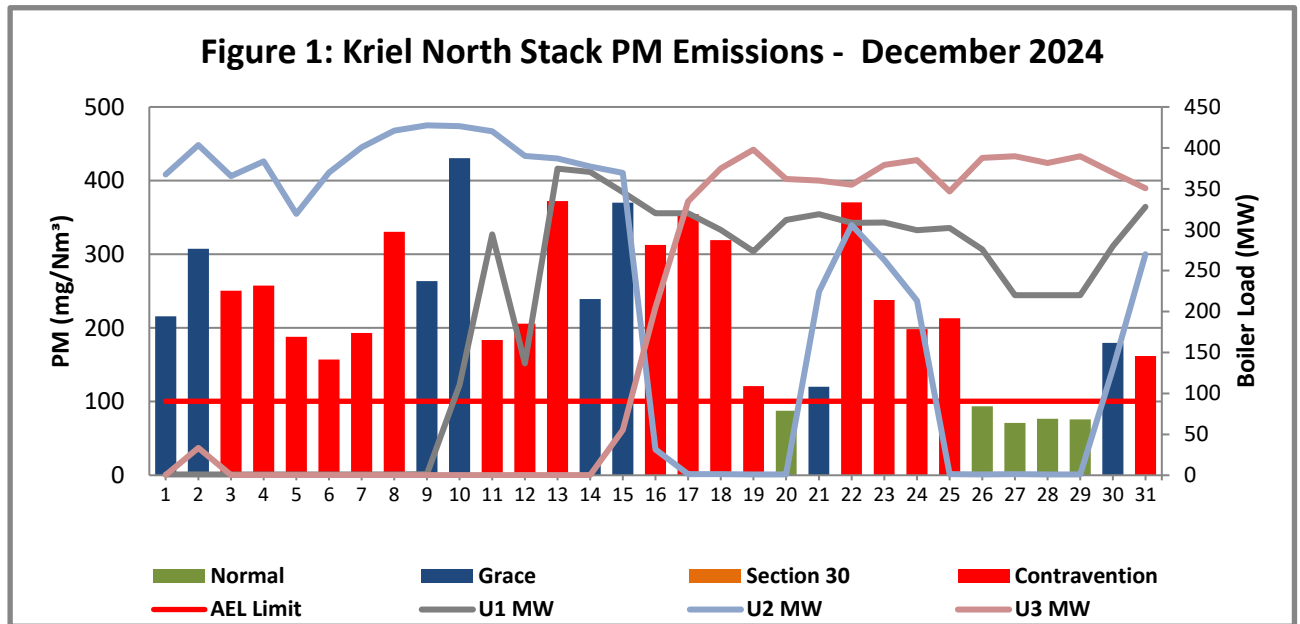
## Monthly Monitor Reliability

Associated Unit/Stack	PM (%)	SO <sub>x</sub> (%)	NO <sub>x</sub> (%)
North	92.55	93.88	99.92
South	84.62	95.40	47.99

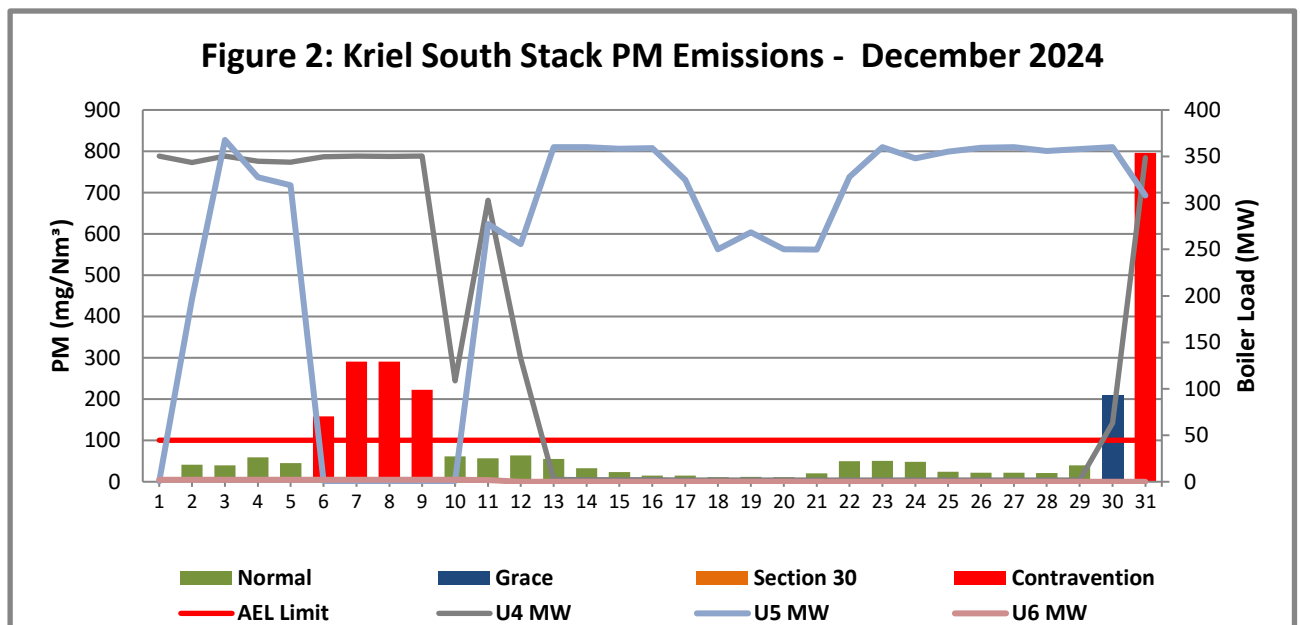
## Emissions Reporting

### Graph Legend Description

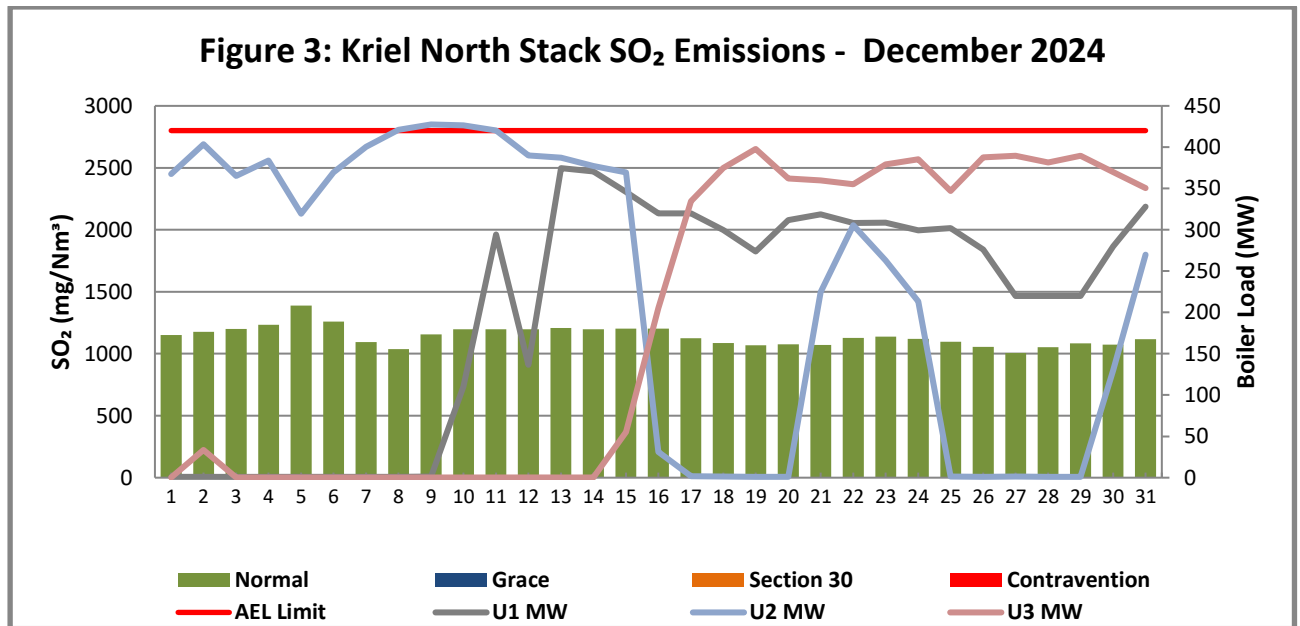
Condition	Colour	Description
Normal	Green	Emissions below Emission Limit Value (ELV)
Grace	Blue	Emissions above the ELV during grace period
Section 30	Orange	Emissions above ELV during a NEMA S30 incident
Contravention	Red	Emissions above ELV but outside grace or S30 incident conditions



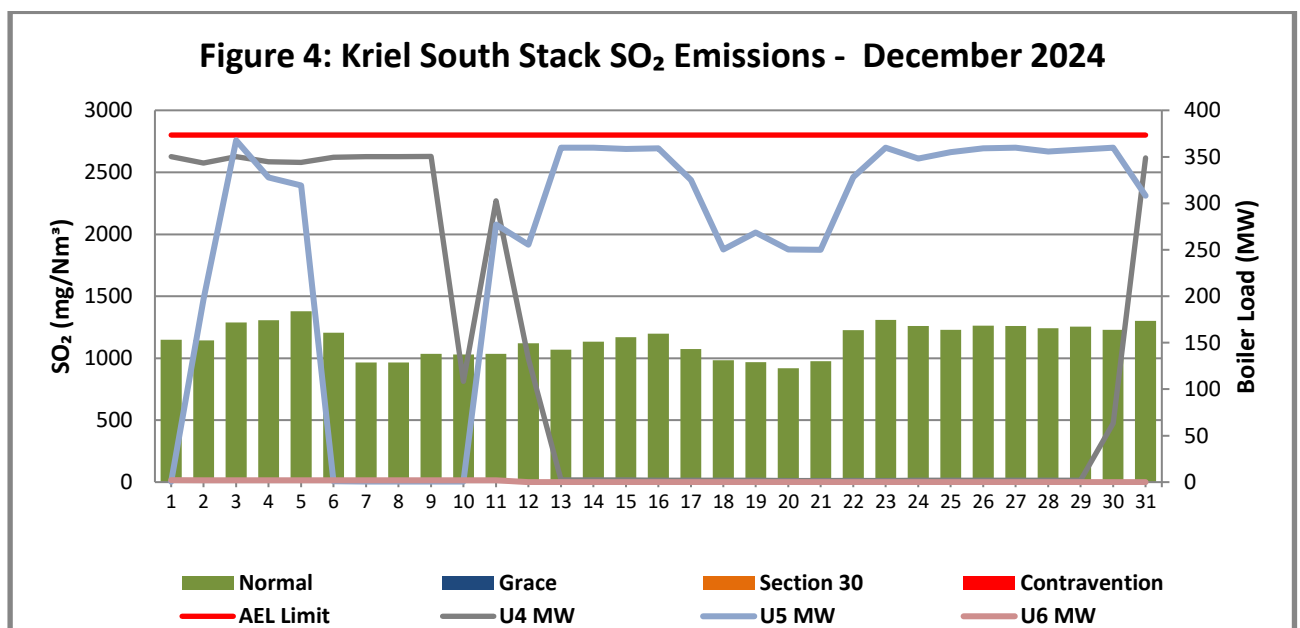
**Figure 1: PM emissions for the month of December 2024 against daily emission limit (100 mg/Nm³) for the North Stack.**



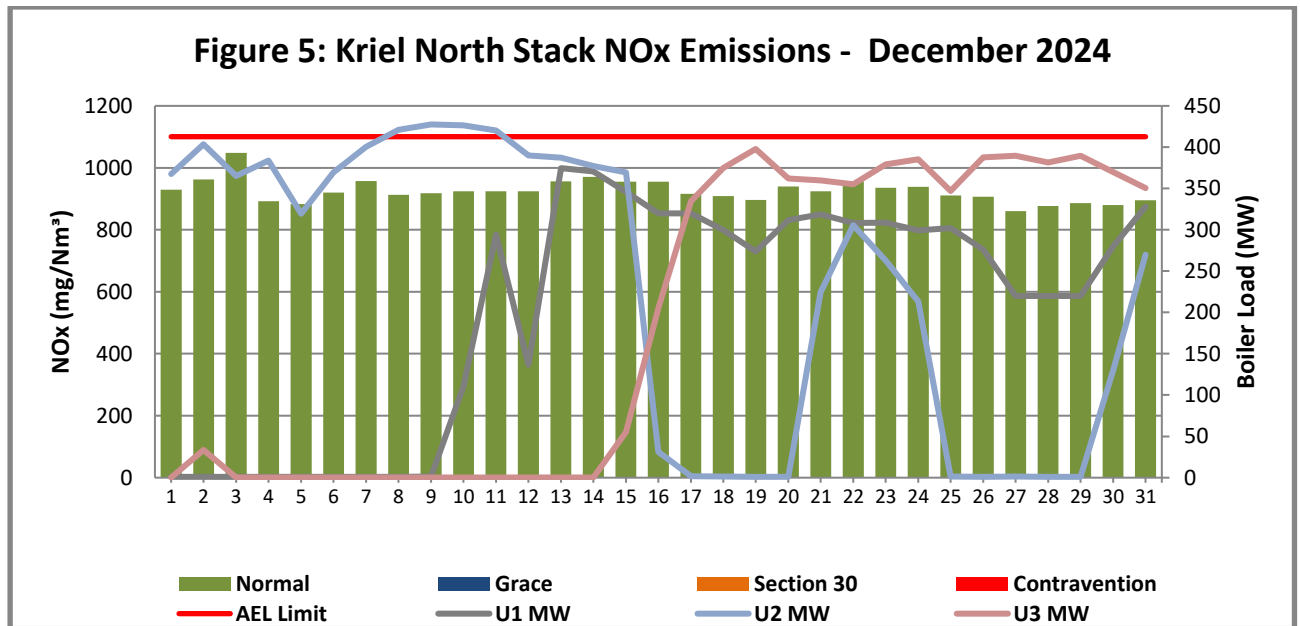
**Figure 2: PM emissions for the month of December 2024 against daily emission limit (100 mg/Nm³) for the South Stack.**



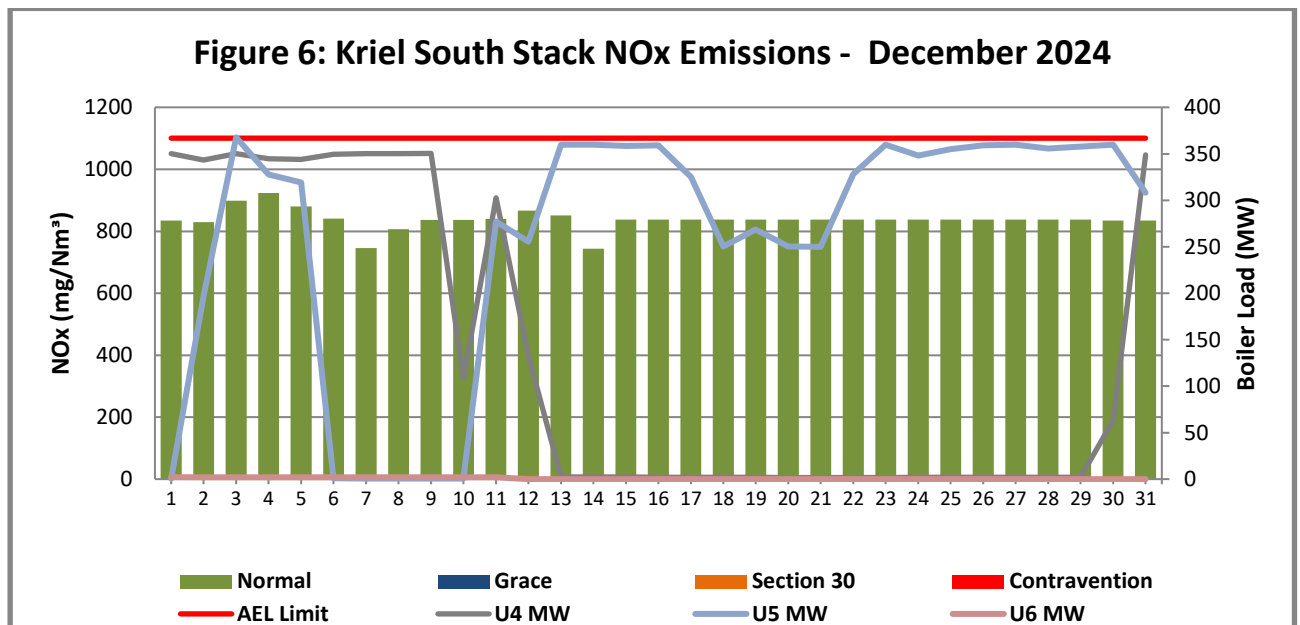
**Figure 3. SO<sub>2</sub> emissions for the month of December 2024 against daily emission limit (2800 mg/Nm<sup>3</sup>) for the North Stack.**



**Figure 4. SO<sub>2</sub> emissions for the month of December 2024 against daily emission limit (2800mg/Nm<sup>3</sup>) for the South Stack.**



**Figure 5. NO<sub>2</sub> emissions for the month of December 2024 against daily emission limit (1100 mg/Nm<sup>3</sup>) for the North Stack.**



**Figure 6. NO<sub>2</sub> emissions for the month of December 2024 against daily emission limit (1100mg/Nm<sup>3</sup>) for the South Stack.**

**Table 4:** Monthly tonnages for the month December 2024

Unit	PM (tons)	SO <sub>2</sub> (tons)	NO <sub>2</sub> (tons)
<b>SUM</b>	553.5	4 065.9	3 153.7

**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 – December 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Monthly Limit Exceedance	Average PM (mg/Nm <sup>3</sup> )
North	5	8	0	18	26	243.2
South	24	1	0	5	6	93.7

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SOx (mg/Nm <sup>3</sup> )
North	31	0	0	0	0	1141.6
South	31	0	0	0	0	1151.0

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm <sup>3</sup> )
North	31	0	0	0	0	924.7
South	31	0	0	0	0	837.7

## Light up information

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

North Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 1		Unit 2		Unit 2		Unit 2	
Breaker Open (BO)	BO previously	BO previously	7:40 am	2024/12/05	2:25 am	2024/12/16	8:35 pm	2024/12/24
Draught Group (DG) Shut Down (SD)	n/a	n/a	DG did not trip or SD	DG did not trip or SD	3:00 pm	2024/12/16	10:10 am	2024/12/25
BO to DG SD (duration)	n/a	DD:HH:MM	n/a	DD:HH:MM	00:12:35	DD:HH:MM	00:13:35	DD:HH:MM
Fires in time	7:25 am	2024/12/09	7:40 am	2024/12/05	6:55 pm	2024/12/20	12:00 am	2024/12/30
Synch. to Grid (or BC)	1:50 pm	2024/12/12	11:10 am	2024/12/05	4:45 am	2024/12/21	10:20 am	2024/12/30
Fires in to BC	03:06:25	DD:HH:MM	00:03:30	DD:HH:MM	00:09:50	DD:HH:MM	00:10:20	DD:HH:MM

(duration)								
Emissions below limit from BC (end date)	12:00 am	2024/12/20	12:00 am	2024/12/20	not > limit	not > limit	not > limit	not > limit
Emissions below limit from BC (duration)	07:10:10	DD:HH:MM	14:12:50	DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM

North Stack ... Cont.	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 3		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	8:15 pm	2024/12/14						
Synch. to Grid (or BC)	10:15 am	2024/12/16						
Fires in to BC (duration)	01:14:00	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	12:00 am	2024/12/20						
Emissions below limit from BC (duration)	03:13:45	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM

South Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 4		Unit 4		Unit 4		no event	
Breaker Open (BO)			1:45 am	2024/12/10	12:50 pm	2024/12/12	12:00 am	2025/01/01
Draught Group (DG) Shut Down (SD)			9:25 am	2024/12/10	7:10 am	2024/12/14	DG did not trip or SD	DG did not trip or SD
BO to DG SD (duration)		DD:HH:MM	00:07:40	DD:HH:MM	01:18:20	DD:HH:MM	n/a	DD:HH:MM
Fires in time			12:05 pm	2024/12/10	9:25 am	2024/12/30		
Synch. to Grid (or BC)			4:05 pm	2024/12/10	5:45 pm	2024/12/30		
Fires in to BC (duration)		DD:HH:MM	00:04:00	DD:HH:MM	00:08:20	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)		DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM		DD:HH:MM
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South Stack ...Cont.	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 5		Unit 5		Unit 5		no event	
Breaker Open (BO)			11:30 pm	2024/12/05	2:55 pm	2024/12/12		
Draught Group (DG) Shut Down (SD)			12:05 pm	2024/12/06	DG did not trip or SD	DG did not trip or SD		
BO to DG SD (duration)		DD:HH:MM	00:12:35	DD:HH:MM	n/a	DD:HH:MM		DD:HH:MM
Fires in time	1:50 am	2024/12/02	11:00 pm	2024/12/10	2:55 pm	2024/12/12		
Synch. to Grid (or BC)	9:05 am	2024/12/02	5:00 am	2024/12/11	8:45 pm	2024/12/12		
Fires in to BC (duration)	00:07:15	DD:HH:MM	00:06:00	DD:HH:MM	00:05:50	DD:HH:MM		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	n/a	DD:HH:MM	n/a	DD:HH:MM		DD:HH:MM

### Reasons for emissions poor performance for both stack in December 2024

Table 7: Reasons for emissions poor performance for December 2024

Start Date	Plant	Reason	Affect on Emissions	Action	Feedback	End Date
CEMS Issues						
2024/12/02	North and South stack	PI System currently being upgraded.	CEMS Readings may be false or frozen readings.	Siemens and C&I Engineering to attend to PI Systems	Still in progress	TBC
Plant related issues						
2024/12/03	North stack	Unit 2 load unstable	Unit 2 is running with oil burner support	Operating to stabilize unit 2 and clear 70 MW Load loss	Unit 2 tripped on High Condenser Level	2024/12/05
2024/12/04	North stack	Unit 2 ESP Poor performance with 6 Field lines running below 25% capacity	Compromised Rapping system. Increase in emissions.	MMD (Vanedi) and EMD to attend to poor performing fields	Unit 2 tripped, Maintenance to fix poor fields upon opportunity.	2024/12/05
2024/12/05	North stack	Overland conveyor 18A structure	No transporting of ash. High hopper alarms accumulated.	MMD and CID maintenance to	Defects attended. 18A is running.	2024/12/06



		collapse. 18B constantly tripping on RIP Detector 8.		attend to both defects		
2024/12/06	North Stack	Unit 2 BFPT Trip on low lube oil level, only EFP B in-service. Unit on oil support.EFP A on ptw due to low oil pressure.	No SO3 dosing.	Lube oil tank topped up. Inline filters cleaned.	BFPT back in-service. Oil burners removed.	2024/12/07
2024/12/07	North and South stack	Overland conveyor 18A Snub pulley fails to turn. 18B PTW	No transporting of ash. High hopper alarms accumulated.	MMD to attend defect	18A conveyor back in-service	2024/12/08
2024/12/10	North stack	Unit 1 on low load, and Oil burner support.	No SO3 dosing.	Operating to stabilize unit 1	Oil burners removed, Unit stable.	2024/12/11
2024/12/10	North stack	Unit 2 Blow tank 2.1 Solenoid faulty. Blow tank 2.2 Discharge instrument pipe burst.	No transporting of ash. High hopper alarms accumulated.	CID and MMD Dry dust to attend.	Blow tank 2.2 is back in-service. Transportation of ash commenced.	2024/12/10
2024/12/11	North stack	Unit 1 SO3 plant has no power supply	No SO3 dosing.	EMD to attend defect	Power restored	2024/12/11
2024/12/12	North Stack	Unit 1 ESP Left hand side with poor performing field lines	Rapping system compromised.Accumulation of hopper alarms.	EMD and Vanedi (contractor) to attend	Defects attended.	2024/12/12
2024/12/13	North Stack	Unit 1 Pate rappers faulty(PR no.1, 10, 3, 21) Wire rappers no.21 and 23 Gearbox failure	Rapping system compromised.Accumulation of hopper alarms.	EMD and Vanedi (contractor) to attend	Defects attended.	2024/12/14
2024/12/13	North Stack	Unit 1 SO3 plant not in-service	No SO3 dosing.	TE Filters to attend	Defects attended.	2024/12/13
2024/12/13	North Stack	Unit 1 Blow tank 1.1 O/C due to faulty solenoid	Hopper alarms increase to 20. Increase in emissions	MMD and CID maintenance to attend defects	Defects attended.	2024/12/14
2024/12/14	North Stack	Unit 1 Transfer Silo fails to transport due to Max level probe alarm not clearing	No transporting of ash. High hopper alarms accumulated.	CID and MMD Dry dust to attend.	Defects attended.	2024/12/14
2024/12/14	North Stack	Overland conveyor 18A on Standby due to AWR Trip	No transporting of ash. High hopper alarms accumulated.	AWR Pump to be attended.	Defects attended	2024/12/14
2024/12/15	North Stack	18A fails to start	No transporting of ash. High hopper alarms accumulated.	CID to attend to defects	Defects attended	2024/12/15

2024/12/15	North Stack	Multiple ash line defects (Unit 1; F6P1 Seal failure, F1 blocks continuously, F3P4 Seal failure), ( Unit 2; F2P2 Seal failure)	Unit 1 Hopper alarms increased to 17. Unit 2 Hopper alarms increased to 16. Increasing in emissions	MMD to attend defect	Defects attended	2024/12/15
2024/12/16	North Stack	Unit 3 unstable and on Oil burner support. E + F Mills not in-service, B Mill tripped on thermal overland.	Increase in emissions.	Boiler Engineering to return EFP B to stabilize unit	EFP B back in-service	2024/12/16
2024/12/16	North Stack	Unit 2 Conditioner 2A blocked	No transporting of ash. High hopper alarms accumulated.	HP Cleaning to be done on conditioner	MMD attended to defect	2024/12/16
2024/12/16	North Stack	Unit 2 Blow tank 2.2 fails to pressurize, with multiple ash line defects (F2P2 Open failure, F3P2 Seal failure)	Hopper alarms increase to 17. Increase in emissions	CID and MMD Dry dust to attend.	Defects attended.	2024/12/16
2024/12/17	North Stack	Unit 3 SO3 heater temps not increasing	No SO3 dosing.	EMD and TE Filters(Contractor) to attend	Defects attended. Temperatures are increasing.	2024/12/17
2024/12/17	North Stack	Unit 3 Blow tank Emergency route blocked	No transporting of ash. High hopper alarms accumulated.	CID to change from emergency route to Normal route	CID attended	2024/12/17
2024/12/17	North Stack	Blow tank 3.1 striker pin broken. 3.2 Blow tank O/C (No Solenoid)	No transporting of ash. High hopper alarms accumulated.	MMD to attend defect	Defects attended	2024/12/17
2024/12/17	North Stack	Unit 3 Transfer Silo Max	No transporting of ash. 22 hopper alarms accumulated.	MMD to attend defect	Defects attended	2024/12/17
2024/12/18	North Stack	Unit 1 on Oil support, C mill shutdown due to feeder speed fell away, A Mill Gearbox repairs, F Mill tripped on Motor DE Bearing Temperature high.	No SO3 dosing.	Boiler Maintenance to return C + F mill back in-service	Mills returned to service. Unit stabilized	2024/12/18
2024/12/19	North Stack	Unit 1 ESP Plate Rapper 1, 10. Wire Rappers 21 and	Rapping system compromised. Accumulation of hopper alarms.	MMD and Vanedi to attend Rappers	Rappers back in-service	2024/12/19

		23 not in-service				
2024/12/19	North Stack	Overland 18A on PTW,due to spillage and Skirting repairs.	No transporting of ash. High hopper alarms accumulated, Unit 1 (14) and Unit 3(20).	MMD to attend defect	18A conveyor back in-service	2024/12/19
2024/12/20	North stack	Blow tank 1.1 faulty solenoid	Increase in hopper alarms to 17	CID to replace faulty solenoid	No spares available	2024/12/30
2024/12/22	North Stack	Poor ESP Performance on Left hand side	Increase in emissions.	EMD to attend poor performing fields	Fields attended and performance improved	2024/12/24
2024/12/23	North and South stack	Centac compressor 1 keeps tripping on Over-pressure protection	Dry dust ash lines tripping. No transportation of ash.	MMD Compressors to attend	Defects attended	2024/12/23
2024/12/24	North stack	Blow tank 2.1 discharge valve replacement	Increase in hopper alarms to 21	MMD to attend defect	Defect attended and valve replaced	2024/12/24
2024/12/24	North stack	Unit 2 and 3 SO3 temperatues not increasing.	No SO3 dosing on units	TE Filters and EMD to attend defects	Defects attended	2024/12/24
2024/12/24	North and South stack	18A overland conveyor snub pulley bearing inspections	Main Silo 1 and 2 on max level, no transportation of ash. Increasing hopper alarms on Unit 1 and 2.	MMD to attend defect	Defects attended	2024/12/24
2024/12/25	North stack	Blow tank 3.2 fails to pressurize	Increase in hopper alarms.	CID to attend defect	Defect attended.	2024/12/25
2024/12/21	North stack	Unit 1 transfer silo sequentials not operational and De-dusting fan fails to start.	Increase in hopper alarms to 22. Increase in emissions.	EMD and MMD to attend to defects	Defects are currently still being attended to.	2024/12/26
2024/12/31	North stack	North side steam leak repairs	No SO3 Dosing	Maintenance to attend steam leaks.	Steam leaks repaired	2024/12/31
2024/12/31	North stack	2A Ash conditioner blocked	Unit 2 accumulated high hopper alarms.	MMD to attend defect	Conditioner cleaned and running.	2024/12/31
2024/12/31	South stack	5A Ash conditioner blocked, and not running.	Unit 5 high hoppers affecting ESP Performance.	MMD to attend defect	Conditioner motor replaced and cable repaired.	2024/12/31

## Complaints Register

Table 8: Complaint for the month of December 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
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There was no complaint related to air quality received during the month of December 2024.
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**General**

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