

Ms Nompumelelo Simelane
Nkangala District Municipality
PO BOX 437
Middelburg
1050

Date:
20 November 2024

Enquiries:
Livhuwani Tshilate
017 615 2317

Ref: 17/4/AEL/MP312/11/09

Dear Ms. Simelane

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

This serves as the monthly report required in terms of Section 7.4 in Kriel Power Station's Atmospheric Emission License 17/4/AEL/MP312/11/09. The emissions are for the month of August 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 August 2024

| Raw Materials and Products used | Raw Material Type | Units | Maximum Permitted Consumption / Rate (Quantity) | Consumption / Rate in Month of August 2024 |
|---------------------------------|--------------------------|------------|--|--|
| | Coal | Tons/month | 1 227 600 | 523 927.00 |
| | Fuel Oil | Tons/month | 5 000 | 4 444.10 |
| | | | | |
| Production Rates | Product/ By-Product Name | Unit | Maximum Production Capacity Permitted (Quantity) | Production Rate in Month of August 2024 |
| | Ash | Tons/month | not specified | 546.8 |
| | RE PM | kg/MWh | not specified | 0.67 |

1/...

Abatement Technology

Table 2: Abatement Equipment Control Technology for August 2024.

| Associated Unit/Stack | Technology Type | Actual Efficiency (%) | Technology Type | SO ₃ Utilisation (%) |
|-----------------------|-----------------|-----------------------|-----------------|---------------------------------|
| Unit 1 | ESP& SO3 | 99.43 | SO3 Plant | 1.14 |
| Unit 2 | ESP& SO3 | 99.42 | SO3 Plant | 86.48 |
| Unit 3 | ESP& SO3 | 99.14 | SO3 Plant | 100.00 |
| Unit 4 | ESP& SO3 | 99.77 | SO3 Plant | 100.00 |
| Unit 5 | ESP& SO3 | Off | SO3 Plant | Off |
| Unit 6 | ESP& SO3 | 99.82 | 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 August 2024

| Characteristic | Stipulated Range (Unit) | Monthly Average Content |
|-----------------|-------------------------|-------------------------|
| Sulphur Content | 0.6-1.2 (%) | 0.74 |
| Ash Content | 27-32 (%) | 24.02 |

Monthly Monitor Reliability

| Associated Unit/Stack | PM (%) | SO _x (%) | NO _x (%) |
|-----------------------|--------|---------------------|---------------------|
| North | 84.69 | 88.12 | 90.27 |
| South | 67.47 | 100.00 | 100.00 |

Emissions Reporting

Table 6.5: 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 |

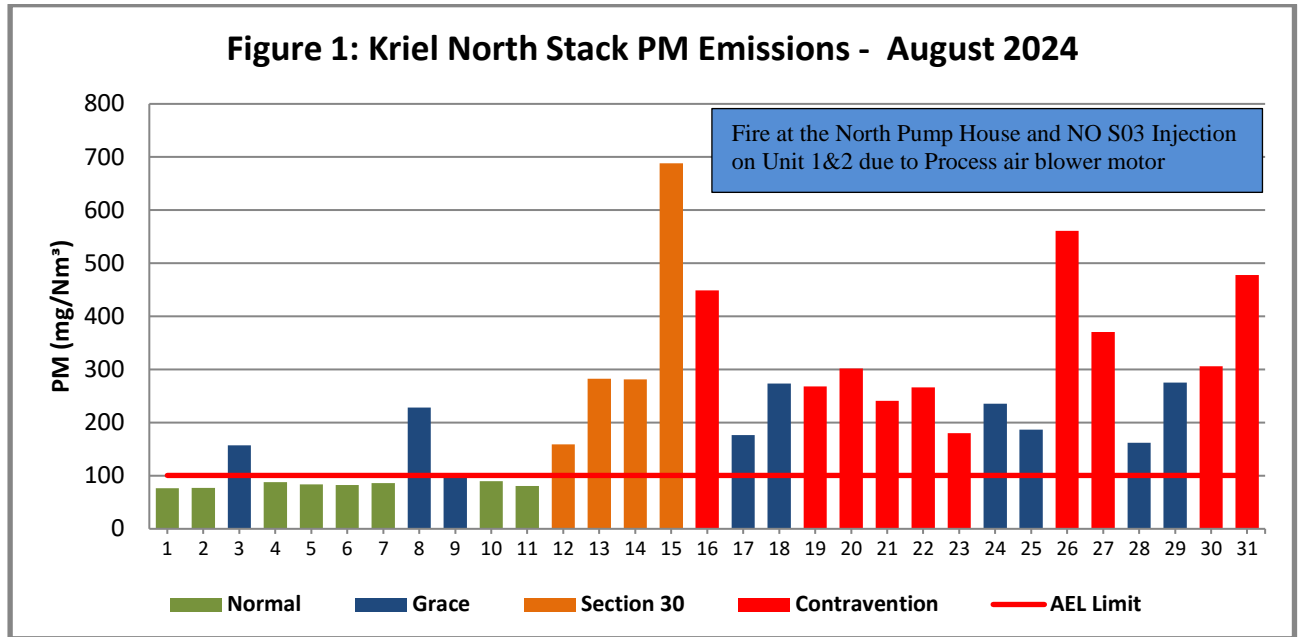


Figure 1: PM emissions for the month of August 2024 against emission limit (125 mg/Nm³) for the North Stack. Monthly average was 235.3 mg/Nm³.

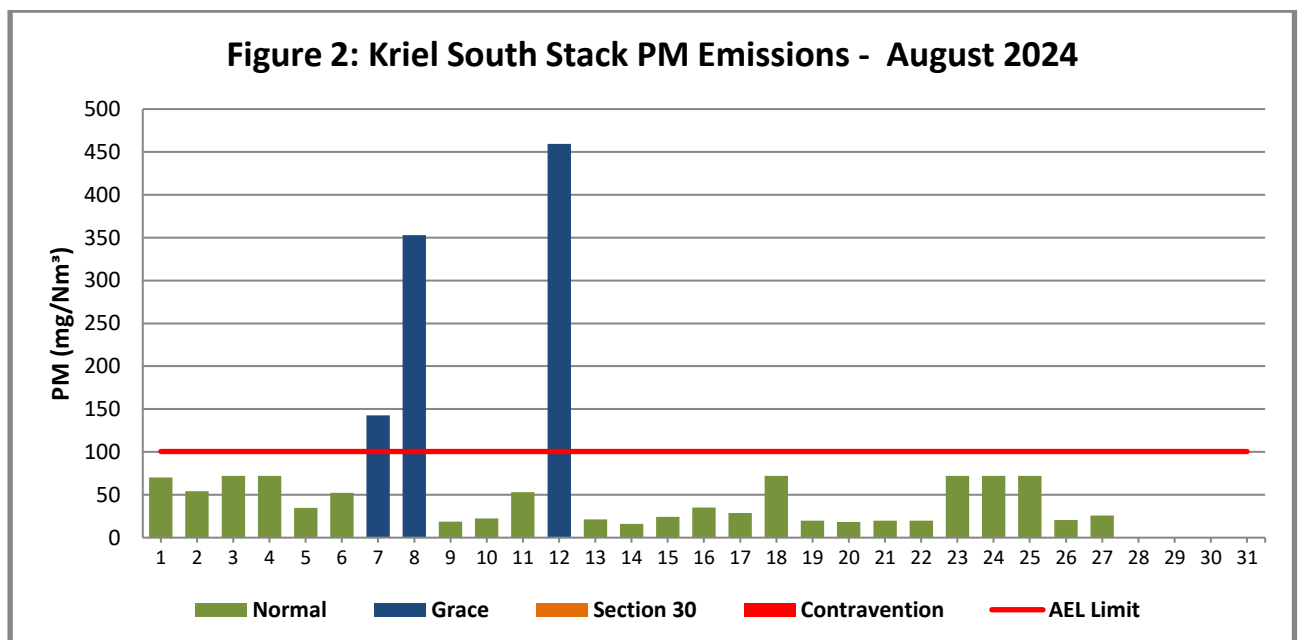


Figure 2: PM emissions for the month of August 2024 against emission limit (125 mg/Nm³) for the South Stack. Monthly average was 71.9 mg/Nm³.

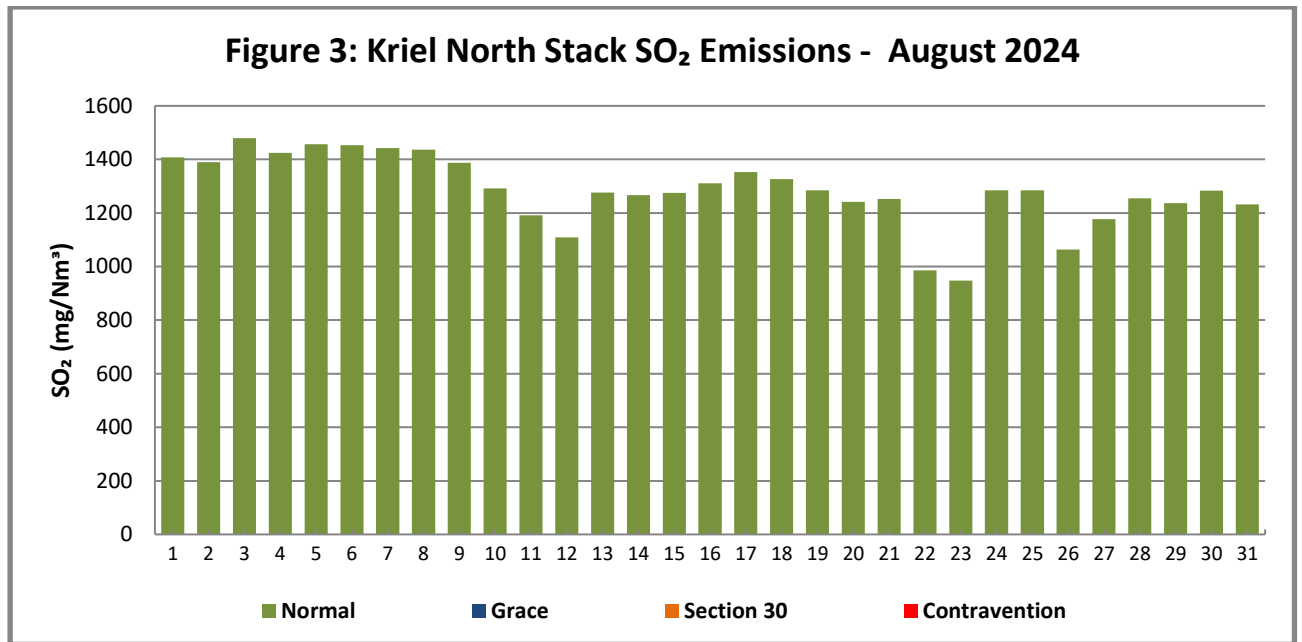


Figure 3. SO₂ emissions for the month of August 2024 against emission limit for the North Stack. The SO_x Limit is 3500mg/Nm³.

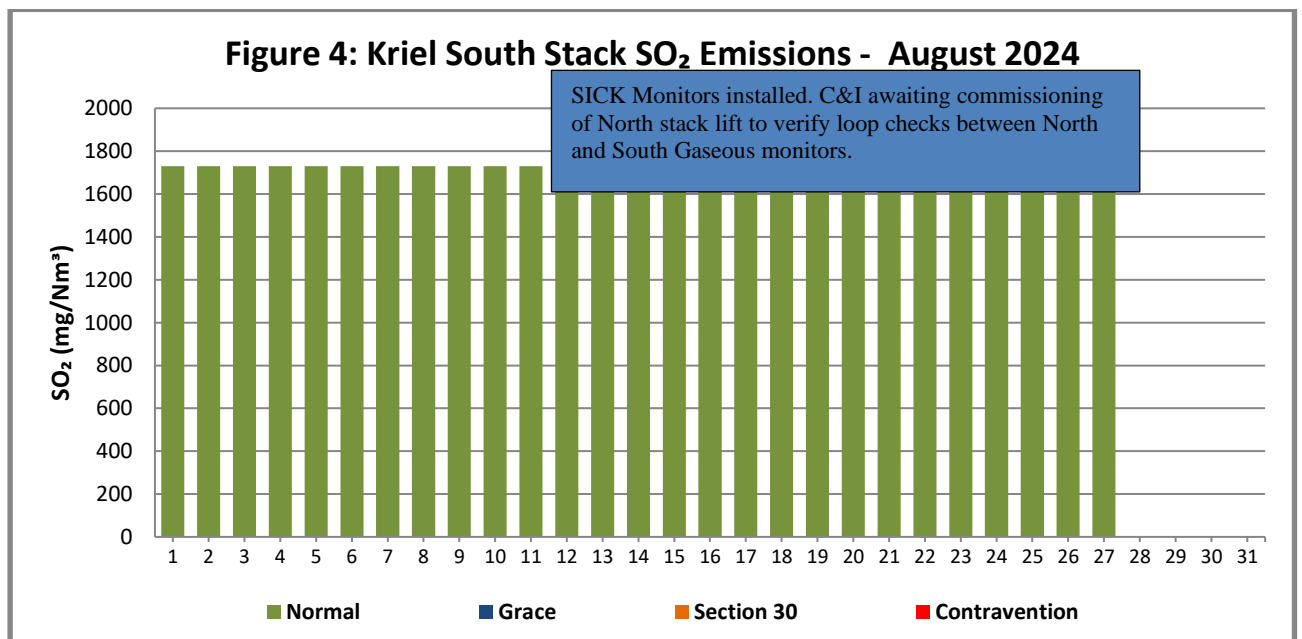


Figure 4. SO₂ emissions for the month of August 2024 against emission limit (3500mg/Nm³) for the South Stack. The SO_x Limit is 3500mg/Nm³

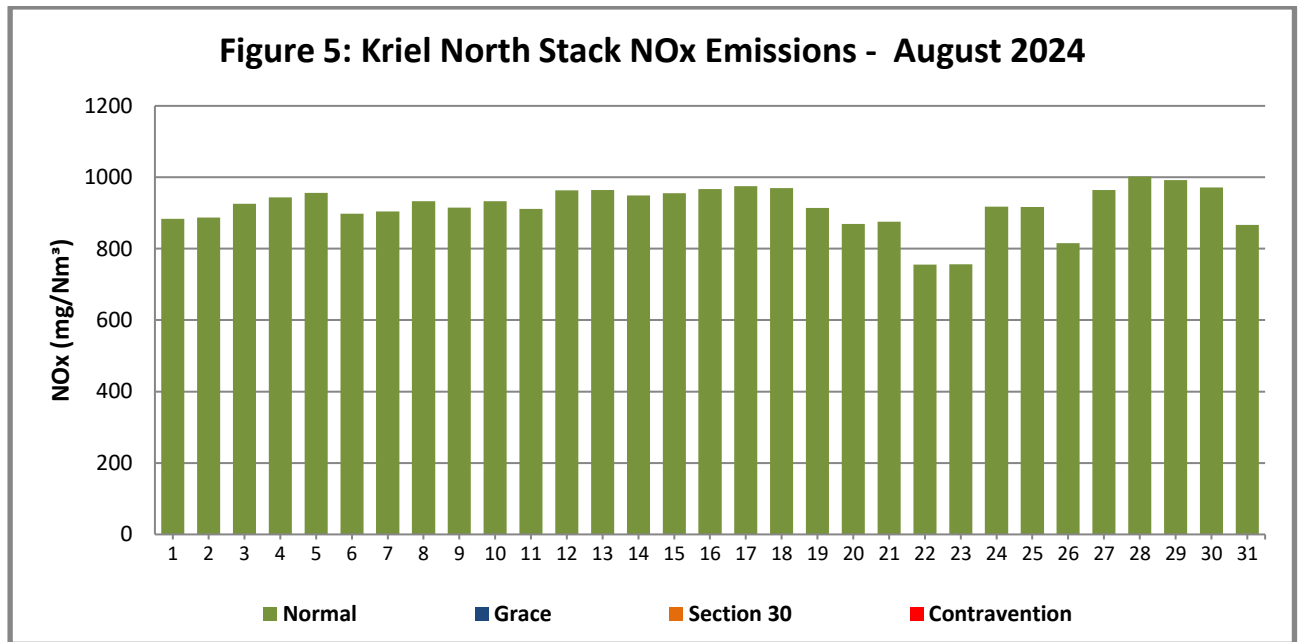


Figure 5. NO₂ emissions for the month of August 2024 against emission limit for the North Stack. The NO_x Limit is 1600mg/Nm³

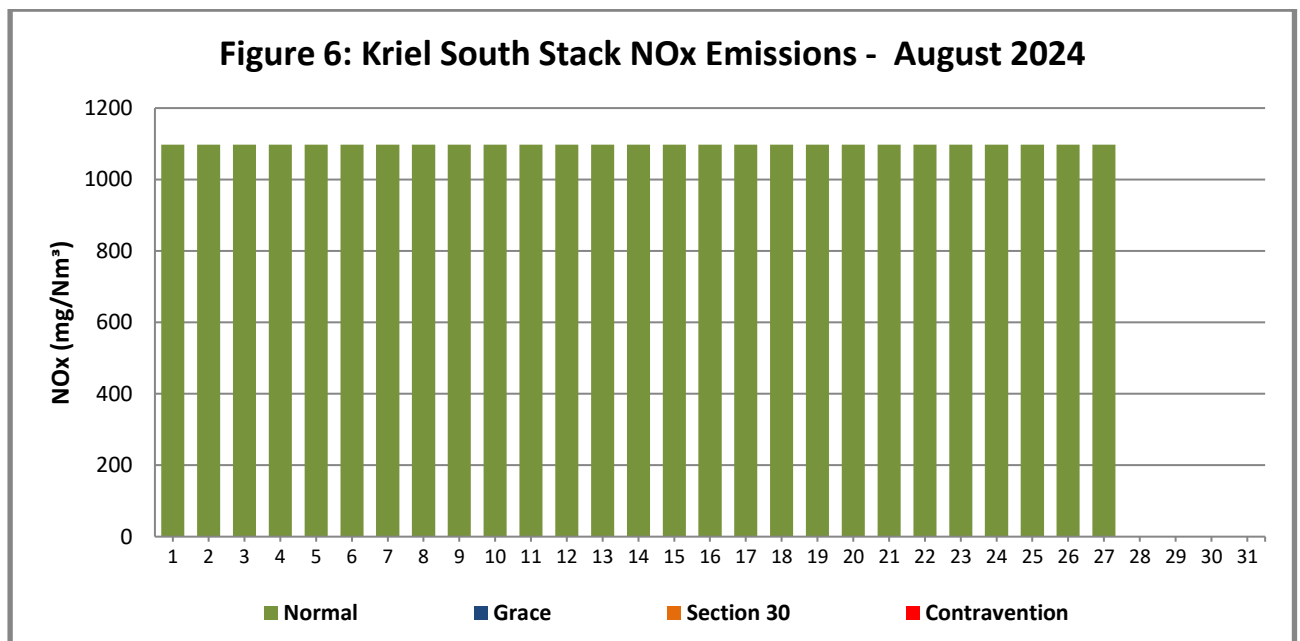


Figure 6. NO₂ emissions for the month of August 2024 against emission limit for the South Stack. The NO_x Limit is 1600mg/Nm³.

Table 4: Monthly tonnages for the month August 2024

| Unit | PM (tons) | SO ₂ (tons) | NO ₂ (tons) |
|------|-----------|------------------------|------------------------|
| SUM | 546.8 | 6 185.9 | 4 131.1 |

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 – August 2024

| Associated Unit/Stack | Normal | Grace | Section 30 | Contravention | Monthly Limit Exceedance | Average PM (mg/Nm³) |
|-----------------------|--------|-------|------------|---------------|--------------------------|---------------------|
| North | 8 | 9 | 4 | 10 | 23 | 235.3 |
| South | 24 | 3 | 0 | 0 | 3 | 71.9 |

Table 5.2: Operating days in compliance to SOx AEL Limit - August 2024

| Associated Unit/Stack | Normal | Grace | Section 30 | Contravention | Total Exceedance | Average SOx (mg/Nm³) |
|-----------------------|--------|-------|------------|---------------|------------------|----------------------|
| North | 31 | 0 | 0 | 0 | 0 | 1 284.1 |
| South | 27 | 0 | 0 | 0 | 0 | 1 730.8 |

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

| Associated Unit/Stack | Normal | Grace | Section 30 | Contravention | Total Exceedance | Average NOx (mg/Nm³) |
|-----------------------|--------|-------|------------|---------------|------------------|----------------------|
| North | 31 | 0 | 0 | 0 | 0 | 917.9 |
| South | 27 | 0 | 0 | 0 | 0 | 1 097.8 |

Light up information

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

| North Stack | Event 1 | | Event 2 | | Event 3 | | Event 4 | |
|--|----------|------------|----------|------------|----------|------------|-------------|-------------|
| Unit No. | Unit 1 | | Unit 2 | | Unit 2 | | Unit 3 | |
| Breaker Open (BO) | 2:50 am | 2024/08/21 | 6:40 pm | 2024/08/10 | 8:10 pm | 2024/08/14 | 1:10 am | 2024/08/06 |
| Draught Group (DG) Shut Down (SD) | 7:10 pm | 2024/08/21 | 8:05 am | 2024/08/11 | 9:00 am | 2024/08/16 | 1:30 am | 2024/08/06 |
| BO to DG SD (duration) | 00:16:20 | DD:HH:MM | 00:13:25 | DD:HH:MM | 01:12:50 | DD:HH:MM | 00:00:20 | DD:HH:MM |
| Fires in time | | | 10:00 am | 2024/08/17 | | | 2:40 pm | 2024/08/01 |
| Synch. to Grid (or BC) | | | 1:10 am | 2024/08/18 | | | 8:45 am | 2024/08/02 |
| Fires in to BC (duration) | | DD:HH:MM | 00:15:10 | DD:HH:MM | | DD:HH:MM | 00:18:05 | DD:HH:MM |
| Emissions below limit from BC (end date) | | | 4:00 pm | 2024/08/23 | | | not > limit | not > limit |
| Emissions below limit from BC (duration) | | DD:HH:MM | 05:14:50 | DD:HH:MM | | DD:HH:MM | n/a | DD:HH:MM |

| North Stack Cont | Event 4 | | Event 5 | | Event 6 | |
|--|-----------------------|-----------------------|---------------|---------------|-------------|-------------|
| Unit No. | Unit 3 | | Unit 2 | | Unit 2 | |
| Breaker Open (BO) | 6:00 pm | 2024/08/20 | BO previously | BO previously | 10:35 am | 2024/08/25 |
| Draught Group (DG) Shut Down (SD) | DG did not trip or SD | DG did not trip or SD | n/a | n/a | 2:00 am | 2024/08/26 |
| BO to DG SD (duration) | n/a | DD:HH:MM | n/a | DD:HH:MM | 00:15:25 | DD:HH:MM |
| Fires in time | 2:05 am | 2024/08/07 | 6:00 pm | 2024/08/20 | 10:45 pm | 2024/08/28 |
| Synch. to Grid (or BC) | 6:35 am | 2024/08/07 | 1:05 am | 2024/08/21 | 8:10 am | 2024/08/29 |
| Fires into BC (duration) | 00:04:30 | DD:HH:MM | 00:07:05 | DD:HH:MM | 00:09:25 | DD:HH:MM |
| Emissions below limit from BC (end date) | 6:00 am | 2024/08/10 | 4:00 pm | 2024/08/23 | not > limit | not > limit |
| Emissions below limit from BC (duration) | 02:23:25 | DD:HH:MM | 02:14:55 | DD:HH:MM | n/a | DD:HH:MM |

| South Stack | Event 1 | | Event 2 | | Event 3 | | Event 4 | |
|--|-------------|-------------|----------|------------|-------------|-------------|----------|------------|
| Unit No. | Unit 4 | | Unit 4 | | Unit 6 | | Unit 6 | |
| Breaker Open (BO) | 8:10 am | 2024/08/12 | 2:35 pm | 2024/08/26 | 8:40 am | 2024/08/05 | 8:40 pm | 2024/08/27 |
| Draught Group (DG) Shut Down (SD) | 9:00 am | 2024/08/12 | 3:00 am | 2024/08/27 | 10:30 pm | 2024/08/05 | 12:15 pm | 2024/08/28 |
| BO to DG SD (duration) | 00:00:50 | DD:HH:MM | 00:12:25 | DD:HH:MM | 00:13:50 | DD:HH:MM | 00:15:35 | DD:HH:MM |
| Fires in time | 10:40 am | 2024/08/12 | | | 12:00 pm | 2024/08/11 | | |
| Synch. to Grid (or BC) | 3:20 pm | 2024/08/12 | | | 1:35 am | 2024/08/13 | | |
| Fires into BC (duration) | 00:04:40 | DD:HH:MM | | DD:HH:MM | 01:13:35 | 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) | n/a | DD:HH:MM | | DD:HH:MM | n/a | DD:HH:MM | | DD:HH:MM |

Complaints Register

Table 9: Complaints for the month of August 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 August 2024. | | | | | |

General

The particulate matter (PM10) emissions on the North Common Stack exceeded the **monthly limit**; on average emissions figure of **235.2 mg/Nm³** while South Common Stack also exceeded the **monthly limit** on the recorded PM10 monthly average figure of **71.9 mg/Nm³**. The gaseous (NOx & SOx) emissions on the North and South common Stacks were within the **daily limit** during the month of August 2024; refer to graphs above.

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

Kriel Power Station's List of NEMA Section 30/Noncompliance Incidents for 2024/2025 Financial Year

| Month | Description of Section 30/Non-Compliance Incidents - including the reference number | Root Cause (s) | Status of S30/Non-Compliance Incident with DEFF (open or closed) | Remarks |
|-------------|---|---|--|---------|
| August-2024 | North Stack High Emissions | There was fire at the North SO3 pump house as well as no SO 3 due to Process Air blower | Open | |