Eskom

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Date:
22 May 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 APRIL 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 April 2025. Verified emissions of particulates matter, $SO_2$ and $NO_x$ (as $NO_2$) are also included.

**Raw Materials and Products**

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

| **Raw Materials and Products used** | **Raw Material Type** | **Units** | **Maximum Permitted Consumption / Rate (Quantity)** | **Consumption / Rate in Month of April 2025** |
|---|---|---|---|---|
| | Coal | Tons/month | 1 227 600 | 415 536.00 |
| | Fuel Oil | Tons/month | 8 000 | 5065.38 |
| | | | | |
| **Production Rates** | **Product/ By-Product Name** | **Unit** | **Maximum Production Capacity Permitted (Quantity)** | **Production Rate in Month of April 2025** |
| | Energy | GWh | 3 000/2 232 | 663.277 |
| | Ash | Tons/month | 320 000 | 3111.9 |
| | RE PM | kg/MWh | not specified | 4.141 |

1/…

**Abatement Technology**

**Table 2:** Abatement Equipment Control Technology for April 2025.

| Associated Unit/Stack | Technology Type | Actual Efficiency (%) | Technology Type | $SO_3$ Utilisation (%) |
|---|---|---|---|---|
| Unit 1 | ESP& SO3 | 97.24% | SO3 Plant | 100.00 |
| Unit 2 | ESP& SO3 | 96.85% | SO3 Plant | 100.00 |
| Unit 3 | ESP& SO3 | 98.77% | SO3 Plant | 100.00 |
| Unit 4 | ESP& SO3 | 91.14% | SO3 Plant | 100.00 |
| Unit 5 | ESP& SO3 | 96.36% | SO3 Plant | 100.00 |
| Unit 6 | ESP& SO3 | Exempt | SO3 Plant | Exempt |

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 April 2025

| Characteristic | Stipulated Range (Unit) | Monthly Average Content |
|---|---|---|
| **Sulphur Content** | 0.6-1.2 (%) | 0.75 |
| **Ash Content** | 27-32 (%) | 22.82 |

**Monthly Monitor Reliability**

| Associated Unit/Stack | PM (%) | SOx (%) | NOx (%) |
|---|---|---|---|
| North | 74.59 | 96.27 | 100.00 |
| South | 38.13 | 91.50 | 100.00 |

**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 |

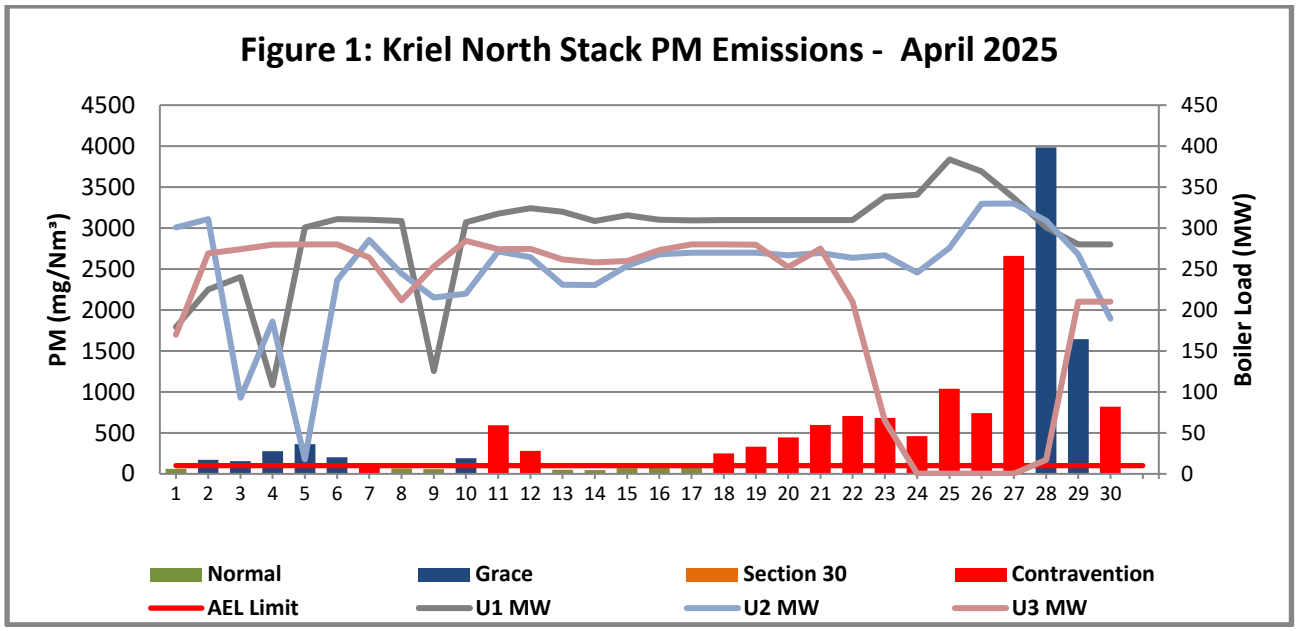


***Figure 1: PM emissions for the month of April 2025 against daily emission limit (100 mg/Nm3) for the North Stack.***

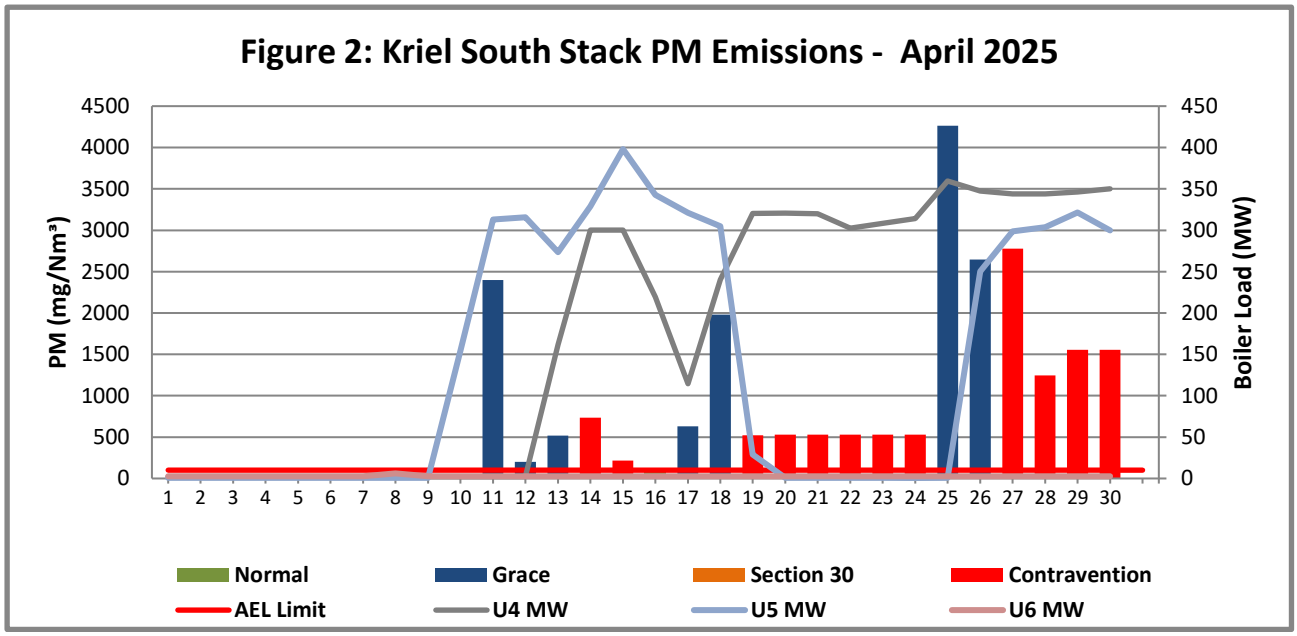


***Figure 2: PM emissions for the month of April 2025 against daily emission limit (100 mg/Nm3) for the South Stack. Units 4-6 were not running in the first week of the month due to half station shutdown.***

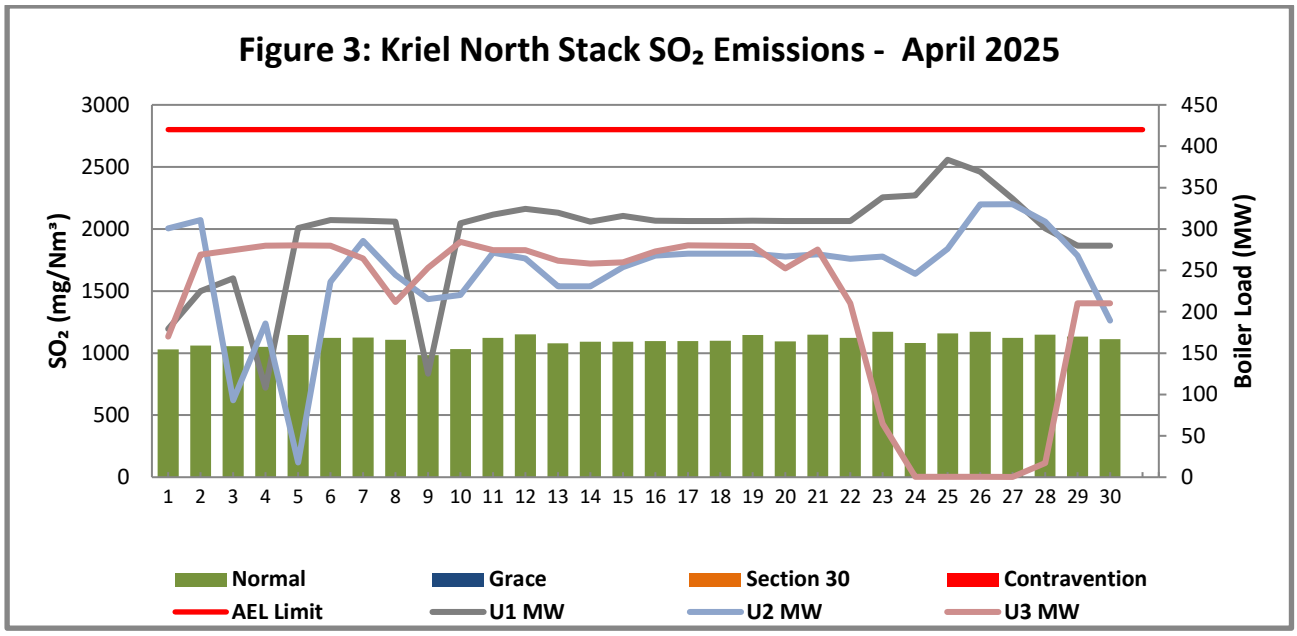


***Figure 3. $SO_2$ emissions for the month of April 2025 against daily emission limit (2800 mg/Nm3) for the North Stack.***

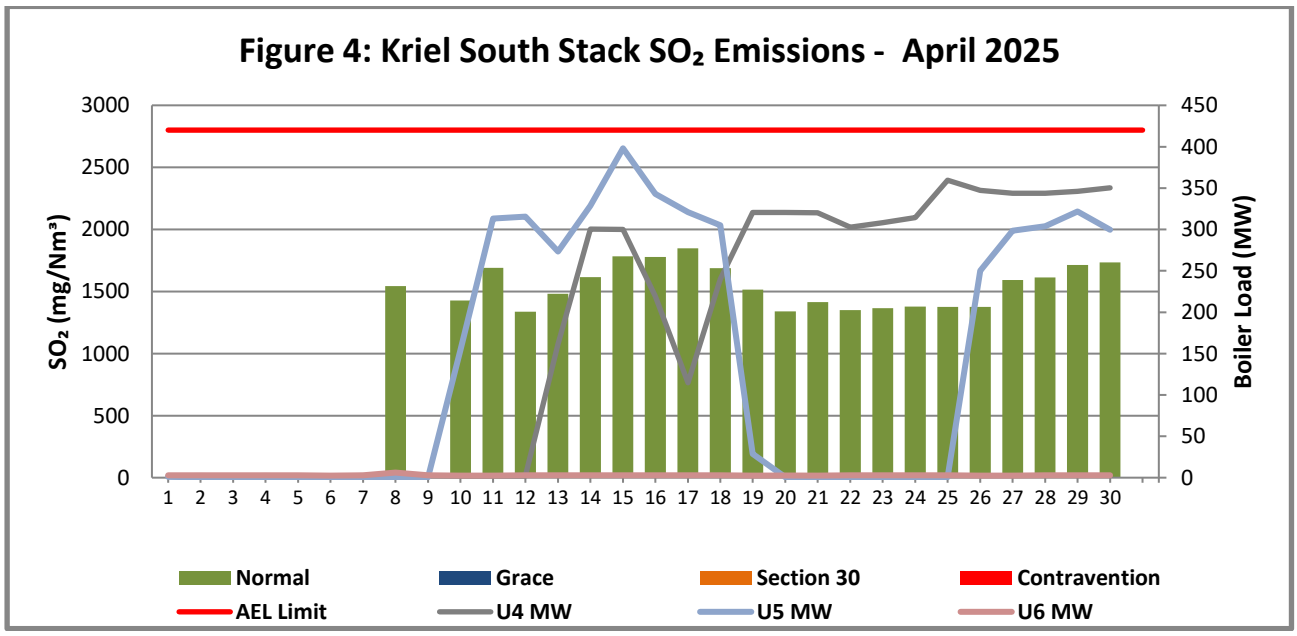


***Figure 4. $SO_2$ emissions for the month of April 2025 against daily emission limit (2800mg/Nm3) for the South Stack. Units 4-6 were not running in the first week of the month due to half station shutdown.***

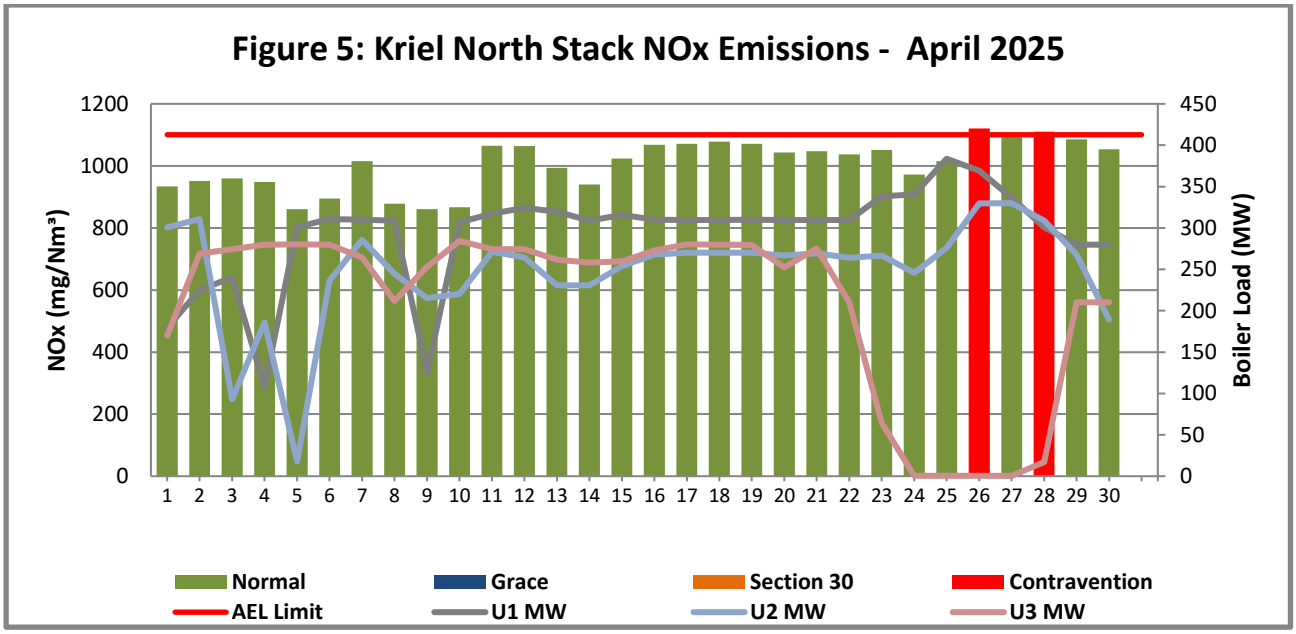


***Figure 5. $NO_x$ emissions for the month of April 2025 against daily emission limit (1100 mg/Nm3) for the North Stack. Two contraventions due to $NO_x$ exceedances are recorded and investigation for these two exceedances will be carried out.***

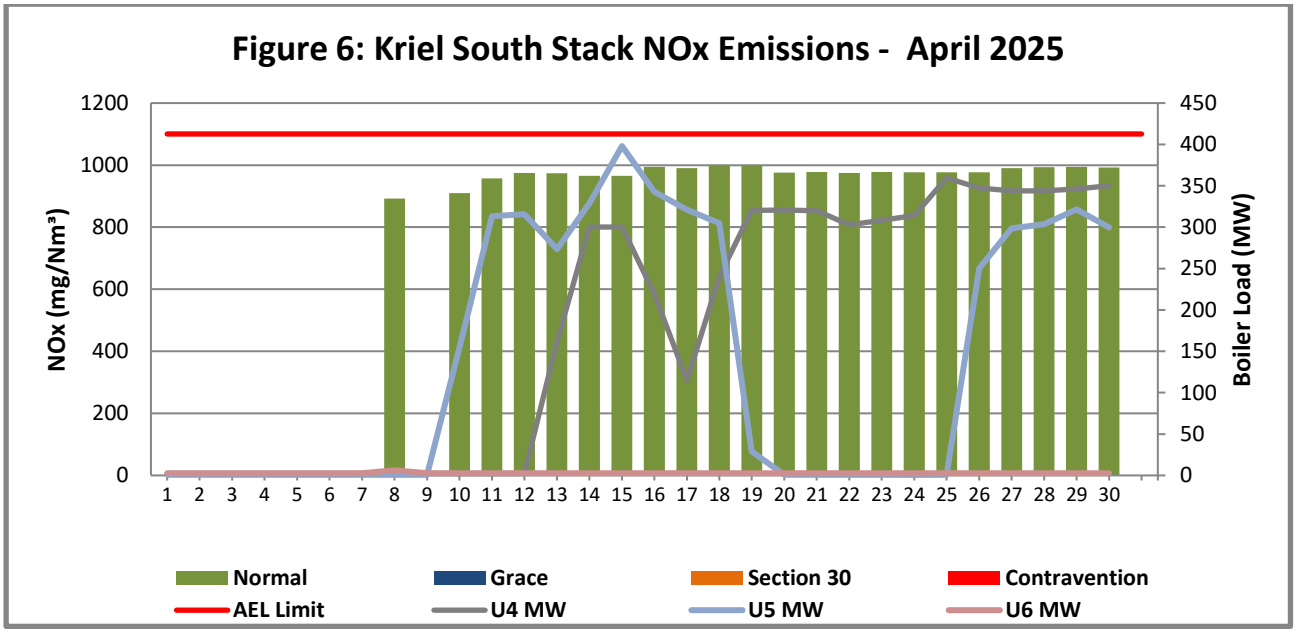


***Figure 6. $NO_x$ emissions for the month of April 2025 against daily emission limit (1100mg/Nm3) for the South Stack. Units 4-6 were not running in the first week of the month due to half station shutdown.***

**Table 4:** Monthly tonnages for the month April 2025

| Unit | PM (tons) | $SO_2$ (tons) | $NO_2$ (tons) |
|---|---|---|---|
| **SUM** | 3111.9 | 4870.7 | 3855.0 |

**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 – April 2025

| Associated Unit/Stack | Normal | Grace | Section 30 | Contravention | Monthly Limit Exceedance | Average PM (mg/Nm³) |
|---|---|---|---|---|---|---|
| North | 8 | 8 | 0 | 14 | 22 | 665.8 |
| South | 1 | 7 | 0 | 12 | 19 | 1584.8 |

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

| Associated Unit/Stack | Normal | Grace | Section 30 | Contravention | Total Exceedance | Average SOx (mg/Nm³) |
|---|---|---|---|---|---|---|
| North | 30 | 0 | 0 | 0 | 0 | 1 104.9 |
| South | 22 | 0 | 0 | 0 | 0 | 1 543.6 |

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

| Associated Unit/Stack | Normal | Grace | Section 30 | Contravention | Total Exceedance | Average NOx (mg/Nm³) |
|---|---|---|---|---|---|---|
| North | 28 | 0 | 0 | 2 | 2 | 1006.2 |
| South | 22 | 0 | 0 | 0 | 0 | 974.0 |

**Light up information**

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

| North Stack | Event 1 | | Event 2 | | Event 3 | | Event 4 | |
|---|---|---|---|---|---|---|---|---|
| Unit No. | Unit 1 | | Unit 1 | | Unit 1 | | Unit 2 | |
| Breaker Open (BO) | | | 6:10 pm | 2025/04/03 | 9:40 am | 2025/04/09 | 3:00 am | 2025/04/03 |
| Draught Group (DG) Shut Down (SD) | | | 6:40 pm | 2025/04/03 | 11:45 am | 2025/04/09 | 6:15 am | 2025/04/05 |
| BO to DG SD (duration) | | DD:HH:MM | 00:00:30 | DD:HH:MM | 00:02:05 | DD:HH:MM | 02:03:15 | DD:HH:MM |
| Fires in time | | | 6:25 am | 2025/04/04 | 4:30 pm | 2025/04/09 | 6:50 pm | 2025/04/05 |
| Synch. to Grid (or BC) | | | 10:40 am | 2025/04/04 | 12:25 am | 2025/04/10 | 9:25 pm | 2025/04/05 |
| Fires in to BC (duration) | | DD:HH:MM | 00:04:15 | DD:HH:MM | 00:07:55 | DD:HH:MM | 00:02:35 | DD:HH:MM |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Emissions below limit from BC (end date) | | | 12:00 am | 2025/04/08 | 12:00 am | 2025/04/13 | 12:00 am | 2025/04/08 |
| Emissions below limit from BC (duration) | | DD:HH:MM | 03:13:20 | DD:HH:MM | 02:23:35 | DD:HH:MM | 02:02:35 | DD:HH:MM |

| North Stack …Cont. | Event 1 | | Event 2 | | Event 3 | | Event 4 | |
|---|---|---|---|---|---|---|---|---|
| Unit No. | Unit 3 | | Unit 3 | | Unit 2 | | no event | |
| Breaker Open (BO) | 3:40 am | 2025/04/01 | 3:40 pm | 2025/04/22 | 1:30 am | 2025/04/30 | | |
| Draught Group (DG) Shut Down (SD) | DG did not trip or SD | DG did not trip or SD | 6:35 pm | 2025/04/23 | DG did not trip or SD | DG did not trip or SD | | |
| BO to DG SD (duration) | n/a | DD:HH:MM | 01:02:55 | DD:HH:MM | n/a | DD:HH:MM | | DD:HH:MM |
| Fires in time | 3:40 am | 2025/04/01 | 10:35 pm | 2025/04/27 | 1:30 am | 2025/04/30 | | |
| Synch. to Grid (or BC) | 11:45 am | 2025/04/01 | 9:05 pm | 2025/04/28 | 3:35 am | 2025/04/30 | | |
| Fires in to BC (duration) | 00:08:05 | DD:HH:MM | 00:22:30 | DD:HH:MM | 00:02:05 | DD:HH:MM | | DD:HH:MM |
| Emissions below limit from BC (end date) | not > limit | not > limit | 10:35 am | 2025/05/05 | 10:35 am | 2025/05/05 | | |
| Emissions below limit from BC (duration) | n/a | DD:HH:MM | 06:13:30 | DD:HH:MM | 05:07:00 | DD:HH:MM | | DD:HH:MM |

| South Stack | Event 1 | | Event 2 | | Event 3 | | Event 4 | |
|---|---|---|---|---|---|---|---|---|
| Unit No. | Unit 4 | | Unit 4 | | Unit 5 | | Unit 5 | |
| 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 | | | 10:10 pm | 2025/04/12 | | | 11:25 am | 2025/04/09 |
| Synch. to Grid (or BC) | | | 9:15 am | 2025/04/13 | | | 7:25 am | 2025/04/10 |
| Fires in to BC (duration) | | DD:HH:MM | 00:11:05 | DD:HH:MM | | DD:HH:MM | 00:20:00 | DD:HH:MM |
| Emissions below limit from BC (end date) | | | 11:00 pm | 2025/04/16 | | | not > limit | not > limit |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Emissions below limit from BC (duration) | | DD:HH:MM | 03:13:45 | DD:HH:MM | | DD:HH:MM | n/a | DD:HH:MM |

| South Stack …Cont. | Event 1 | | Event 2 | | Event 3 | | Event 4 | |
|---|---|---|---|---|---|---|---|---|
| Unit No. | Unit 4 | | Unit 5 | | Unit 5 | | no event | |
| Breaker Open (BO) | 10:20 pm | 2025/04/16 | 2:40 am | 2025/04/19 | 10:05 pm | 2025/04/30 | | |
| Draught Group (DG) Shut Down (SD) | 10:45 pm | 2025/04/16 | 2:55 pm | 2025/04/19 | DG did not trip or SD | DG did not trip or SD | | |
| BO to DG SD (duration) | 00:00:25 | DD:HH:MM | 00:12:15 | DD:HH:MM | n/a | DD:HH:MM | | DD:HH:MM |
| Fires in time | 5:45 am | 2025/04/17 | 2:05 am | 2025/04/24 | 10:05 pm | 2025/04/30 | | |
| Synch. to Grid (or BC) | 10:35 am | 2025/04/17 | 12:25 am | 2025/04/26 | 2:30 am | 2025/05/01 | | |
| Fires in to BC (duration) | 00:04:50 | DD:HH:MM | 01:22:20 | DD:HH:MM | 00:04:25 | DD:HH:MM | | DD:HH:MM |
| Emissions below limit from BC (end date) | not > limit | not > limit | 12:00 am | 2025/05/03 | 12:00 am | 2025/05/03 | | |
| Emissions below limit from BC (duration) | n/a | DD:HH:MM | 06:23:35 | DD:HH:MM | 01:21:30 | DD:HH:MM | | DD:HH:MM |

**Reasons for poor emissions performance for both stacks in April 2025**

Table 7: Reasons for poor emissions performance for April 2025

| Start Date | Plant | Reason | Impact on Emissions | Actions | Feedback | Completion Date |
|---|---|---|---|---|---|---|
| | | | | | | |
| Continuous Emission Monitoring Systems | | | | | | |
| | | | | | | |
| | | | | | | - |
| Plant Failures | | | | | | |
| 12/04/2025 | North Stack | Unit 1 faulty sulphur flow sensor | No SO3 injection resulting in high emissions | Maintenance to inspect and carry out necessary repairs | Completed | 12/04/2025 |
| 18/04/2025-30/04/2025 | North and South Stack | The PM emissions increased above the limit from the 18/04/2025 due to unavailability of the overland conveyors (18A and 18B), 18A was not in service to allow for cleaning | The consequence of failure to transport was ash accumulation inside the fields and | Opportunity outage is required for ESP internal inspection. | | TBC |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | around the 18B tail end pulley. On the 20/04/2025 18B was on PTW to replace overland belt tail end pulley bearings. On the 21/04/2025 18B was available but not transporting due to defective conditioners (1B, 2B, 4B and 5B blocked). Transportation commenced on the 22/04/2025 with conditioner 1B and 4B & Ash conditioner 2B was on PTW until the 25/04/2025. | stuck plate rappers. | | | |

**Complaints Register**

Table 8: Complaint for the month of April 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 were no complaints related to air quality received during the month of April 2025. | | | | | |

**General**

Units 4-6 were not running in the first week of the month due to half station shutdown. Two contraventions due to $NO_x$ exceedances are recorded on the 26 and 28 of April (North Stack) and investigation for these two exceedances will be carried out.

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