JUNE 2025

# HENDRINA POWER STATION MONTHLY EMISSIONS REPORT

Atmospheric Emission License 17/4/AEL/MP312/11/16


## 1 RAW MATERIALS AND PRODUCTS

| | | | | |
|---|---|---|---|---|
| Raw Materials and Products | Raw Material Type | Units | Max. Permitted Consumption Rate | Consumption Rate Jun-2025 |
| | Coal | Tons | *820 000* | *301 881.0* |
| | Fuel Oil | Tons | *3 200* | *1741.99* |
| | | | | |
| Production Rates | Product / By-Product Name | Units | Max. Production Capacity Permitted | Production Rate Jun-2025 |
| | Energy | GWh | *1440* | *441.32* |
| | Ash | Tons | *290 000* | *66 595* |
| | RE PM | kg/MWh | *not specified* | *0.240* |

## 2 ENERGY SOURCE CHARACTERISTICS

| Coal Characteristics | Units | Stipulated Range | Monthly Average Content |
|---|---|---|---|
| Sulphur Content | % | *0.6 to < 1* | *0.68* |
| Ash Content | % | *20 to < 35* | *22.06* |

## 3 EMISSION LIMITS (mg/Nm³)

| Associated Unit/Stack | PM | $SO_2$ | NOx |
|---|---|---|---|
| North | *50* | *3200* | *1100* |
| South | *50* | *3200* | *1100* |

## 4 ABATEMENT TECHNOLOGY (%)

| Associated Unit/Stack | Technology Type | Efficiency Jun-2025 |
|---|---|---|
| Unit 1 | *Fabric Filter Plant (FFP)* | *Unit Off-line* |
| Unit 2 | *Fabric Filter Plant (FFP)* | *100%* |
| Unit 3 | *Fabric Filter Plant (FFP)* | *Unit Off-line* |
| Unit 4 | *Fabric Filter Plant (FFP)* | *Unit Off-line* |
| Unit 5 | *Fabric Filter Plant (FFP)* | *100%* |
| Unit 6 | *Fabric Filter Plant (FFP)* | *100%* |
| Unit 7 | *Fabric Filter Plant (FFP)* | *100%* |
| Unit 8 | *Fabric Filter Plant (FFP)* | *Unit Off-line* |
| Unit 9 | *Fabric Filter Plant (FFP)* | *Unit Off-line* |
| Unit 10 | *Fabric Filter Plant (FFP)* | *100%* |

*Note: Abatement plant does not have bypass mode operation, hence plant 100% Utilised.*

## 5 MONITOR RELIABILITY (%)

| Associated Unit/Stack | PM | $SO_2$ | NO | $O_2$ | CO2 |
|---|---|---|---|---|---|
| North | | | | | |
| South | | | | | |

*Note: NOx emissions is measured as NO in PPM. Final NOx value is expressed as total $NO_2$*

-Monitors were removed on 13 June 2025 for Continuous Emissions Monitoring Systems (CEMS) replacement project to improve long-term reliability and meet the Minimum Emission Standards requirements.

## 6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of June-2025

| Associated Unit/Stack | PM (tons) | $SO_2$ (tons) | NOx (tons) |
|---|---|---|---|
| North | 56.2 | 2 813.4 | 1 059.8 |
| South | 49.9 | 1 855.7 | 553.1 |
| SUM | 106.1 | 4 669.2 | 1 612.9 |

**Note:** Average values from the 13th May to 12 June 2025 were used for the period of (13-30 June) where monitors were removed.

Table 6.2: Operating days in compliance to PM AEL Limit - June 2025

| Associated Unit/Stack | Normal | Grace | Section 30 | Contravention | Total Exceedance | Average PM (mg/Nm³) |
|---|---|---|---|---|---|---|
| North | 29 | 1 | 0 | 0 | 1 | 42.4 |
| South | 2 | 8 | 0 | 20 | 28 | 61.2 |
| **SUM** | **31** | **9** | **0** | **20** | **29** | |

**Note:** Out of the 20 days of contravention 18 fall within the period when monitors were removed and average values used.

Table 6.3: Operating days in compliance to $SO_2$ AEL Limit - June 2025

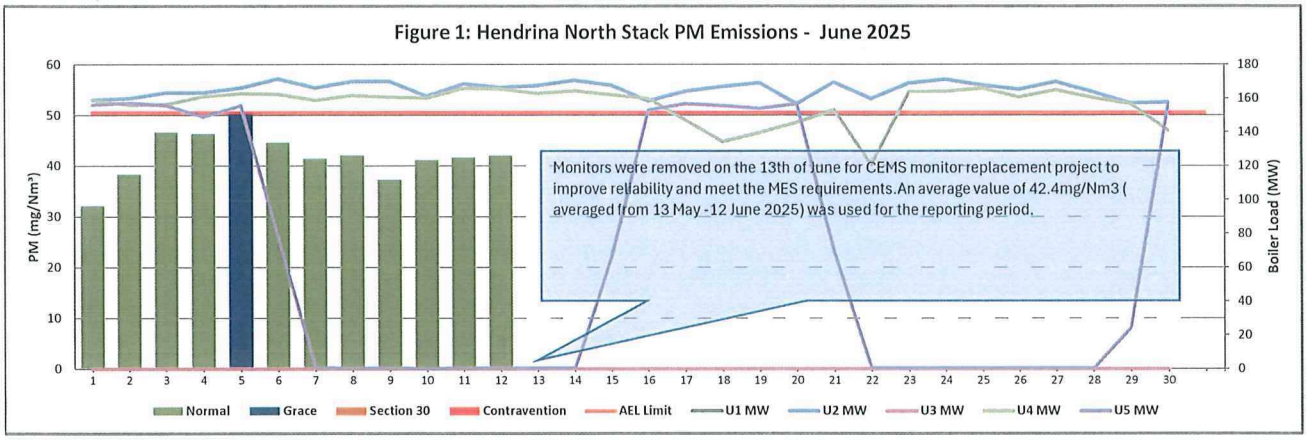
| Associated Unit/Stack | Normal | Grace | Section 30 | Contravention | Total Exceedance | Average $SO_2$ (mg/Nm³) |
|---|---|---|---|---|---|---|
| **North** | 30 | 0 | 0 | 0 | 0 | 2 039.0 |
| **South** | 30 | 0 | 0 | 0 | 0 | 2 036.5 |
| **SUM** | **60** | **0** | **0** | **0** | **0** | |

Table 6.4: Operating days in compliance to NOx AEL Limit - June 2025

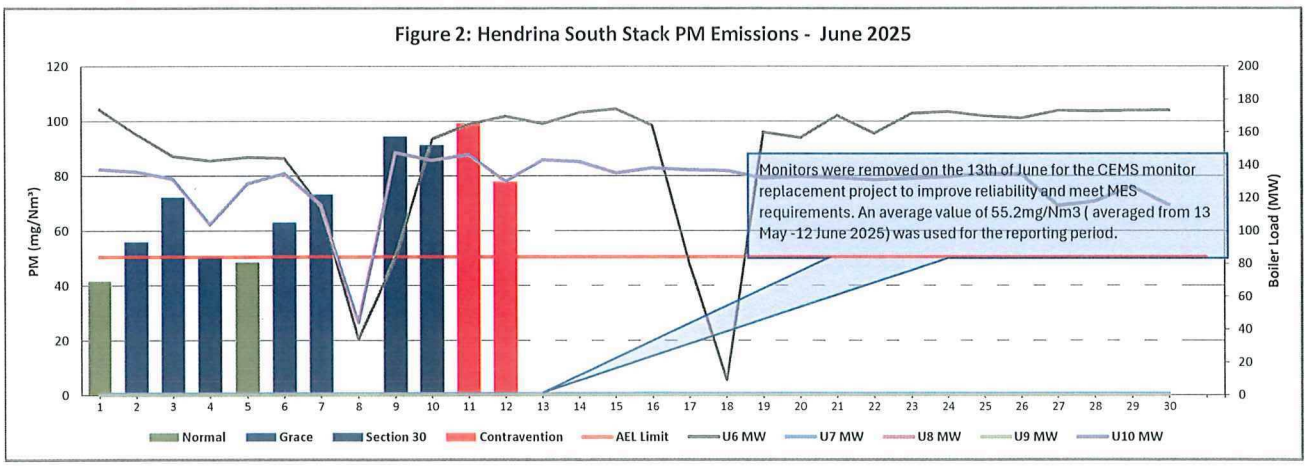
| Associated Unit/Stack | Normal | Grace | Section 30 | Contravention | Total Exceedance | Average NOx (mg/Nm³) |
|---|---|---|---|---|---|---|
| North | 30 | 0 | 0 | 0 | 0 | 759.4 |
| South | 30 | 0 | 0 | 0 | 0 | 609.8 |
| **SUM** | **60** | **0** | **0** | **0** | **0** | |

Table 6.5: 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 |




Half loads were arranged as a mitigation measure during the period where monitors were unavailable, visual inspections of the FFP were conducted and 87 damaged bags were replaced at unit 05.




Load losses were taken as a mitigation measure during the period where monitors were unavailable, visual inspections of the FFP were conducted and 96 damaged bags were replaced at unit 10.

The station tried to arrange for spot checks but were unsuccesful.

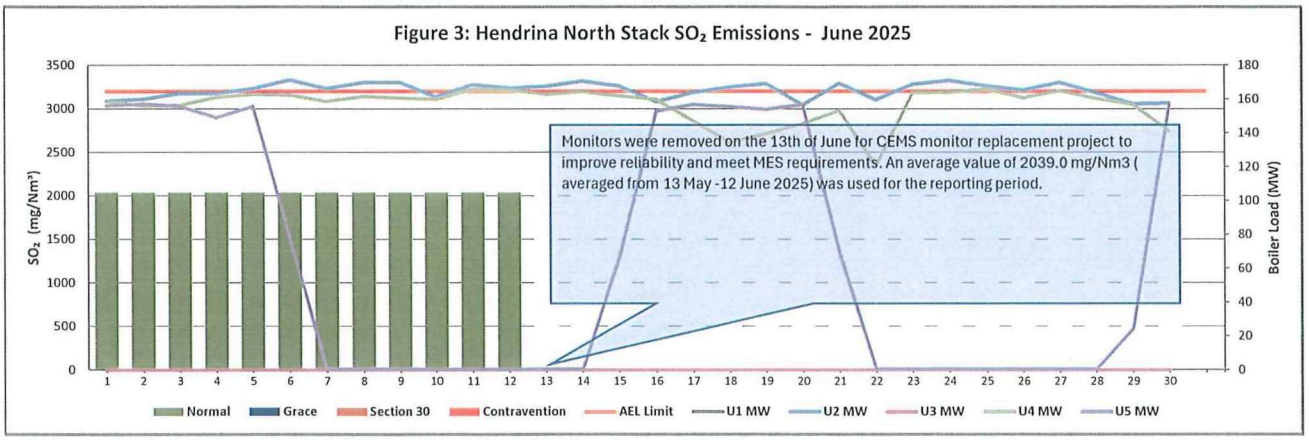


Figure 3: Hendrina North Stack $SO_2$ Emissions - June 2025
$SO_2$ (mg/Nm³)
Boiler Load (MW)
Monitors were removed on the 13th of June for CEMS monitor replacement project to improve reliability and meet MES requirements. An average value of 2039.0 mg/Nm3 ( averaged from 13 May -12 June 2025) was used for the reporting period.
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW
U2 MW
U3 MW
U4 MW
U5 MW

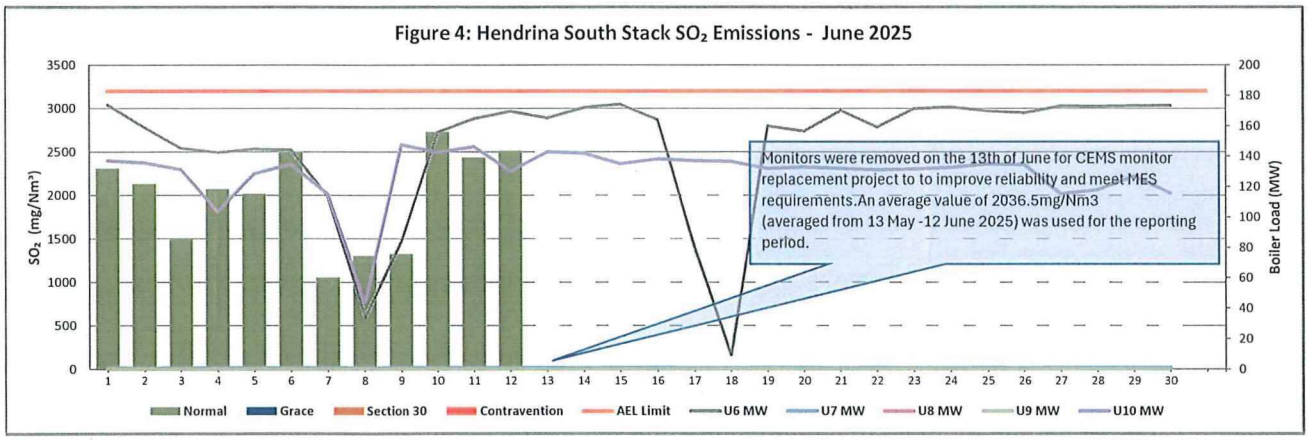


Figure 4: Hendrina South Stack $SO_2$ Emissions - June 2025
$SO_2$ (mg/Nm³)
Boiler Load (MW)
Monitors were removed on the 13th of June for CEMS monitor replacement project to to improve reliability and meet MES requirements.An average value of 2036.5mg/Nm3 (averaged from 13 May -12 June 2025) was used for the reporting period.
Normal
Grace
Section 30
Contravention
AEL Limit
U6 MW
U7 MW
U8 MW
U9 MW
U10 MW

Figure 5: Hendrina North Stack NOx Emissions - June 2025

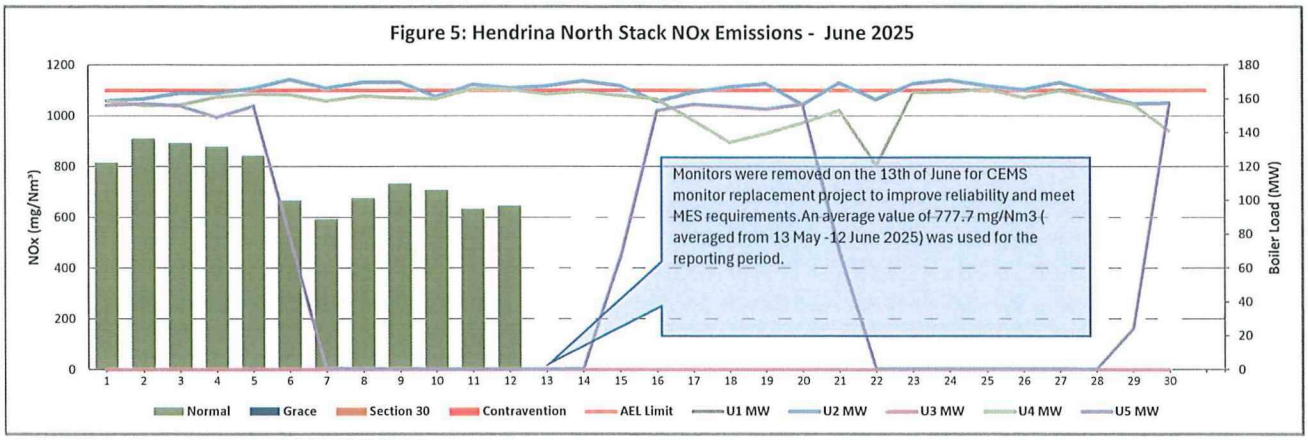
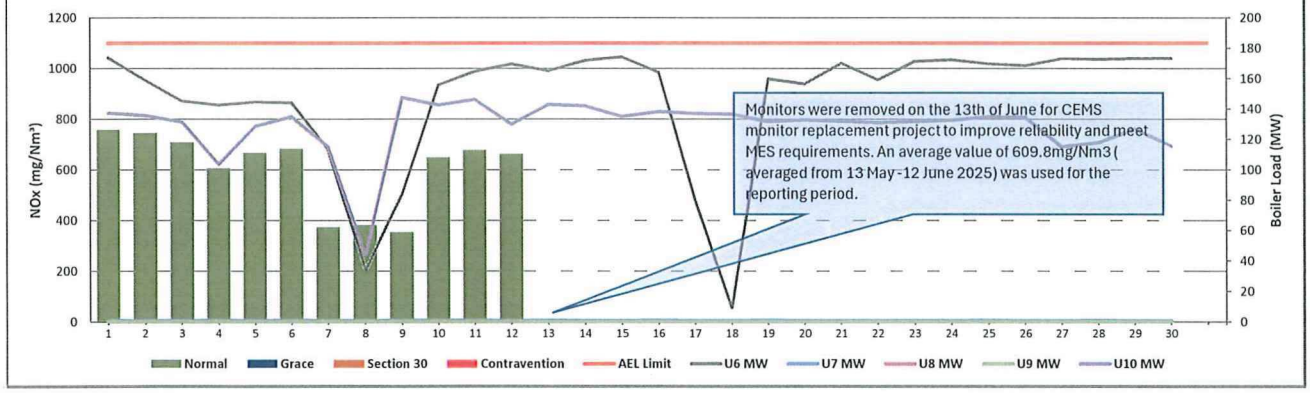



Figure 6: Hendrina South Stack NOx Emissions - June 2025




Gaseous Emission (NOx and SOx) for the North Stack: Surrogate values from QAL2 (RSL 411) have been used for reporting due to erronous data from the Continuous Emission Monitoring System (CEMS) .

Spot Check measurements have been performed internally and they confirmed the error. The station has installed new CEMS monitors. Services of an accredited service provider have been sourced for conducting both correlation and parallel tests on the recently replaced CEMS for both stacks.

## 7 SHUT DOWN AND LIGHT UP INFORMATION

Table 7 1 PM Start-up information for the month of June-2025

| North Stack | Event 1 | | Event 2 | | Event 3 | | Event 4 | |
|---|---|---|---|---|---|---|---|---|
| Unit No | Unit 4 | | Unit 5 | | Unit 5 | | no event | |
| Breaker Open (BO) | 8 55 pm | 2025/06/21 | 11 45 am | 2025/06/06 | 10 45 am | 2025/06/21 | | |
| Draught Group (DG) Shut Down (SD) | DG did not trip or SD | DG did not trip or SD | 11 05 am | 2025/06/07 | 12 45 am | 2025/06/22 | | |
| BO to DG SD (duration) | n/a | DD HH MM | 00 23 20 | DD HH MM | 00 14 00 | DD HH MM | | DD HH MM |
| Fires in time | | | 2025/06/14 | 2025/06/14 | 29 07 15 | 2025/06/29 | | |
| Synch to Grid (or BC) | | | 12 10 pm | 2025/06/15 | 6 00 pm | 2025/06/29 | | |
| Fires in to BC (duration) | | DD HH MM | 00 15 15 | DD HH MM | 00 10 45 | 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 |

| South Stack | Event 1 | | Event 2 | | Event 3 | | Event 4 | |
|---|---|---|---|---|---|---|---|---|
| Unit No | Unit 6 | | Unit 6 | | no event | | Unit 10 | |
| Breaker Open (BO) | 2 05 am | 2025/06/07 | 12 45 pm | 2025/06/17 | | | 6 15 pm | 2025/06/07 |
| Draught Group (DG) Shut Down (SD) | 2 25 am | 2025/06/08 | DG did not trip or SD | DG did not trip or SD | | | 9 05 pm | 2025/06/07 |
| BO to DG SD (duration) | 01 00 20 | DD HH MM | n/a | DD HH MM | | DD HH MM | 00 02 50 | DD HH MM |
| Fires in time | 10 05 pm | 2025/06/08 | | | | | 2025/06/08 | 2025/06/08 |
| Synch to Grid (or BC) | 4 20 pm | 2025/06/09 | | | | | 3 10 pm | 2025/06/08 |
| Fires in to BC (duration) | 00 18 15 | DD HH MM | | DD HH MM | | DD HH MM | 00 12 15 | 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 | | DD HH MM | n/a | DD HH MM |

08 Complaints register

| Source Code / Name | Root Cause Analysis | Calculation of Impacts / emissions associated with the incident | Dispersion modeling of pollutants where applicable | Date measure will be implemented | Measures implemented to prevent reoccurrence |
|---|---|---|---|---|---|
| *The Station did not receive complaints related to air quality during the month of June 2025* | | | | | |

09 General

| |
|---|
| The station has installed new CEMS monitors Services of an accredited service provider have been sourced for conducting both correlation and parallel tests on the recently replaced CEMS for both stacks to improve reliability and meet MES requirements |
| Reporting as per AEL Condition 7 2 8<br>South Stack Hours exceeded between 11-13 June 2025 43 Hours (exceedance on the average (averaged from 13 May to 12 June 2025) surrogate values used after the monitors were removed for replacement 18 days) |

06/08/2025
Compiled Environmental Officer — Date
A Boja

07/08/2025
Checked by System Engineer Boiler/ FFP — Date
Moyahabo Cetlyff Maoto

Validated by Manager — Boiler Engineering Manager — Date
G Kgwatlhe

07/08/2025
Authorised by GM — Date
T Lekalakala

Supported by — Environmental Manager — Date
L Ntila

| | | |
|---|---|---|
| Compiled by | Boiler Engineering Department | FFP SE/ Environmental Officer |
| For | Nkangala District Municipality | Air Quality Officer |
| Copies | Eskom Environmental Management | D Herbst<br>B Mccourt |
| | Group Technology Engineering | R Rampiar<br>E Patel |
| | Hendrina Power Station | Engineering Manager<br>Operating Manager<br>Maintenance Manager<br>Unit Production Manager<br>Boiler Engineering Manager<br>System Engineer Boiler Engineering<br>Environmental Officer<br>C & I Engineering Manager<br>Production Manager<br>Environmental Manager<br>PSM |