

Mr. Vusi Mahlangu
Air Quality Officer
DEDET
Private bag X11215
NELSPRUIT
1200

Date:
31 May 2024

Enquiries:
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Dear Mr. Mahlangu

ARNOT POWER STATION'S ANNUAL EMISSIONS REPORT: 2023 / 2024 FINANCIAL YEAR.

1. EXECUTIVE SUMMARY

This serves as the annual report required in terms of Section 7.6 in Arnot Power Station's Atmospheric Emission License. The emissions are for Eskom Arnot Power Station's 2023/2024 financial year, which is from 1 April 2023 to 31 March 2024. Verified measured emissions of particulates, SO₂ and NO_x (as NO₂) and calculated greenhouse gas emissions are included. Conditions 7.2.1 requires the License Holder to report its operational performance against the conditions of license on a regular basis and at least on an annual basis, to the licensing authority.

This annual report will cover the following: Daily particulate emissions, Gaseous emissions (NO_x and Sox) in mg/Nm³ and emissions tonnages (PM, SO₂, NO₂, N₂O and GWh) for 2023/2024 financial year.

AEL FACILITIES DETAILS:

| | |
|----------------------------|--|
| Name of facility | Eskom Holding SOC Limited: Arnot Power Station |
| Description of facility | Power Station- Electricity Generation |
| AEL Reference Number | 17/4/AEL/MP312/11/15 |
| Current Responsible Person | Marcus Nemadodzi |

ARNOT POWER STATION'S ANNUAL EMISSIONS REPORT: 2023 / 2024 FINANCIAL YEAR

Table 1: Pollutants Tonnages 01 April 2023 - 31 March 2024

| Month | Arnot PM (tons) | Arnot SO ₂ (tons) | Arnot NO ₂ (tons) | Arnot CO ₂ (tons) | GWh (COAL FIRED) | N ₂ O tons (Coal Fired) |
|--------------|-----------------|------------------------------|------------------------------|------------------------------|------------------|------------------------------------|
| April 23 | 245.2 | 7122 | 3688 | 658 598 | 0.30 | 13.959 |
| May 23 | 260.5 | 6298 | 3279 | 562 637 | 0.35 | 13.870 |
| June 23 | 191.8 | 6021 | 3292 | 547 252 | 0.28 | 11.227 |
| July 23 | 273.4 | 5635 | 3058 | 501 892 | 0.34 | 11.771 |
| August 23 | 263.4 | 6369 | 4169 | 566 011 | 0.32 | 14.396 |
| September 23 | 213.7 | 7051 | 3832 | 563 321 | 0.33 | 10.718 |
| October 23 | 205.2 | 5945 | 2990 | 532 227 | 0.29 | 13.894 |
| November 23 | 263.3 | 7069 | 3733 | 620 851 | 0.36 | 13.437 |
| December 23 | 255.7 | 5361 | 2880 | 459 827 | 0.43 | 10.136 |
| January 24 | 118.3 | 2243 | 2243 | 397 150 | 0.148 | 9.759 |
| February 24 | 270.1 | 5636 | 3132 | 554 386 | 0.264 | 10.193 |
| March 24 | 242.1 | 5539 | 2584 | 551 175 | 0.144 | 13.359 |

ARNOT POWER STATION'S ANNUAL EMISSIONS REPORT: 2023 / 2024 FINANCIAL YEAR

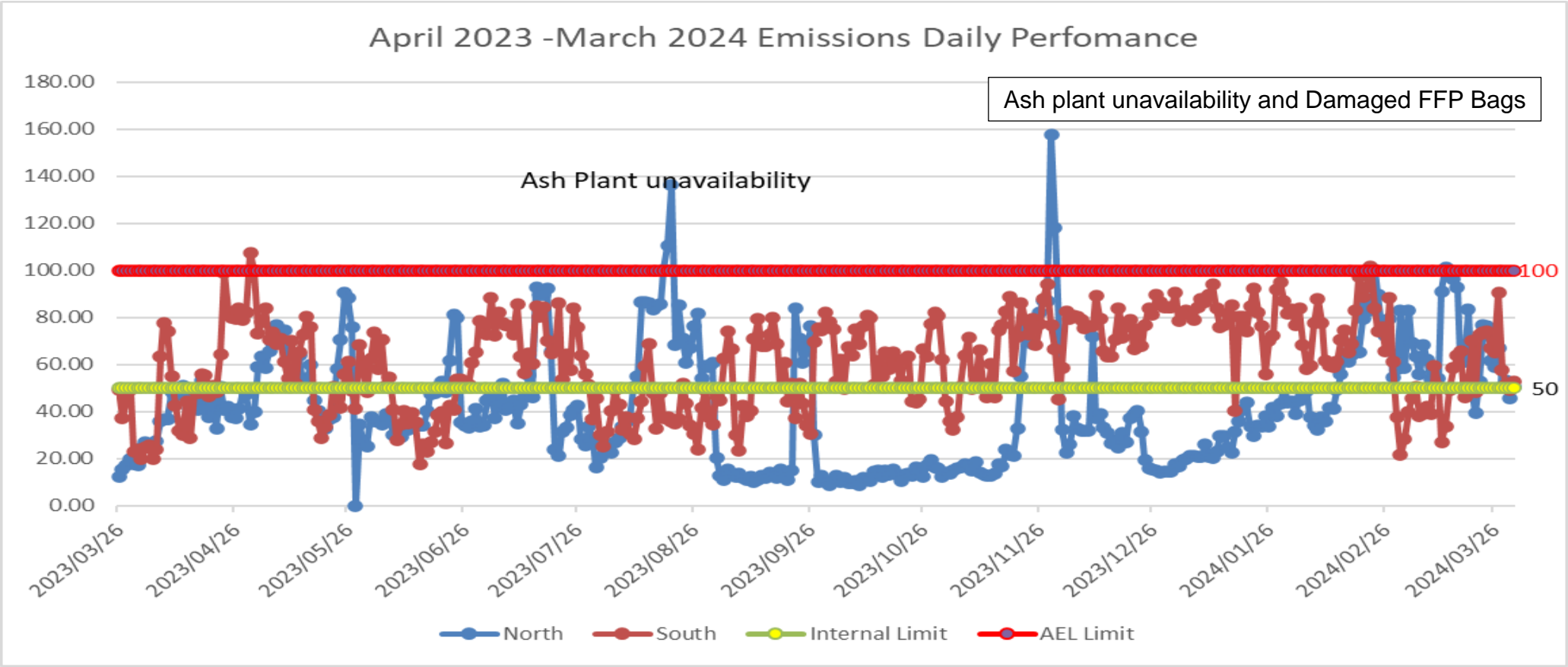


Figure 1. Daily Particulate Matter Emissions Performance 01 April 2023 - 31 March 2024

ARNOT POWER STATION'S ANNUAL EMISSIONS REPORT: 2023 / 2024 FINANCIAL YEAR

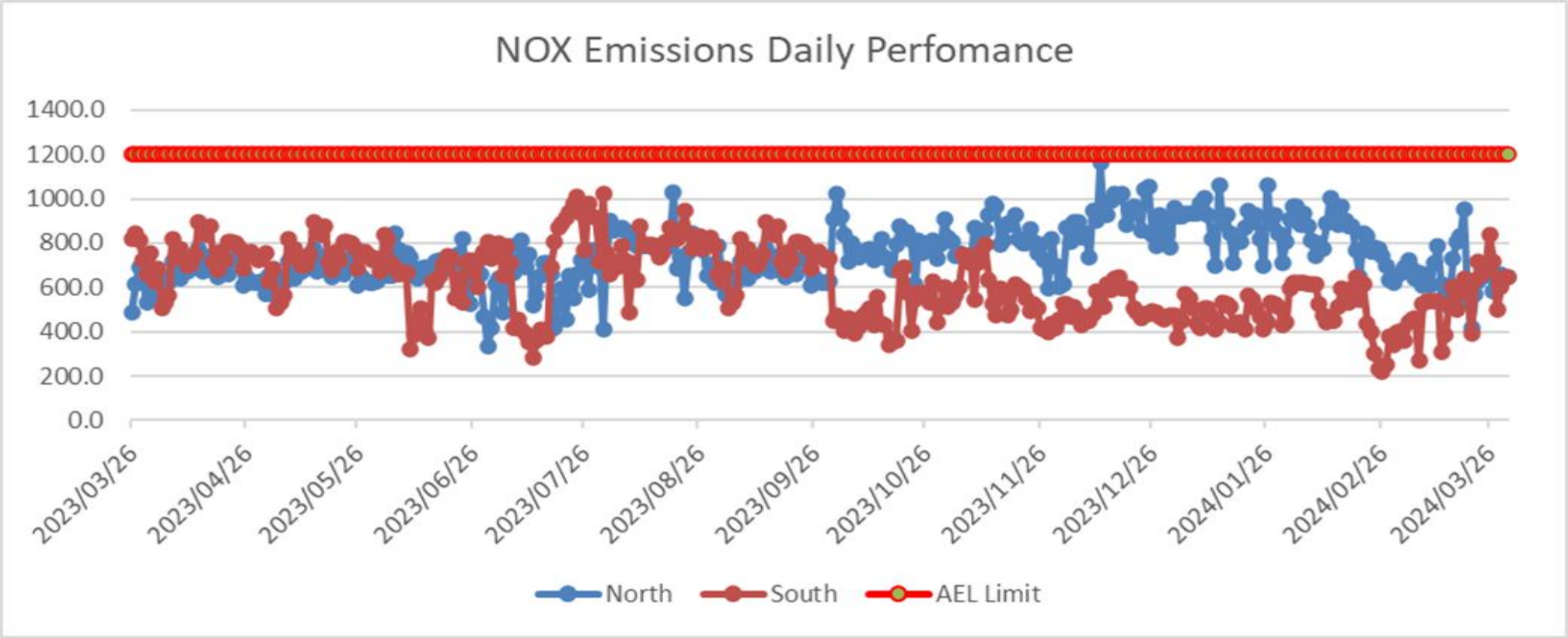


Figure 2. Daily NOX (Oxides of Nitrogen) Emissions Performance 01 April 2023 - 31 March 2024

ARNOT POWER STATION'S ANNUAL EMISSIONS REPORT: 2023 / 2024 FINANCIAL YEAR

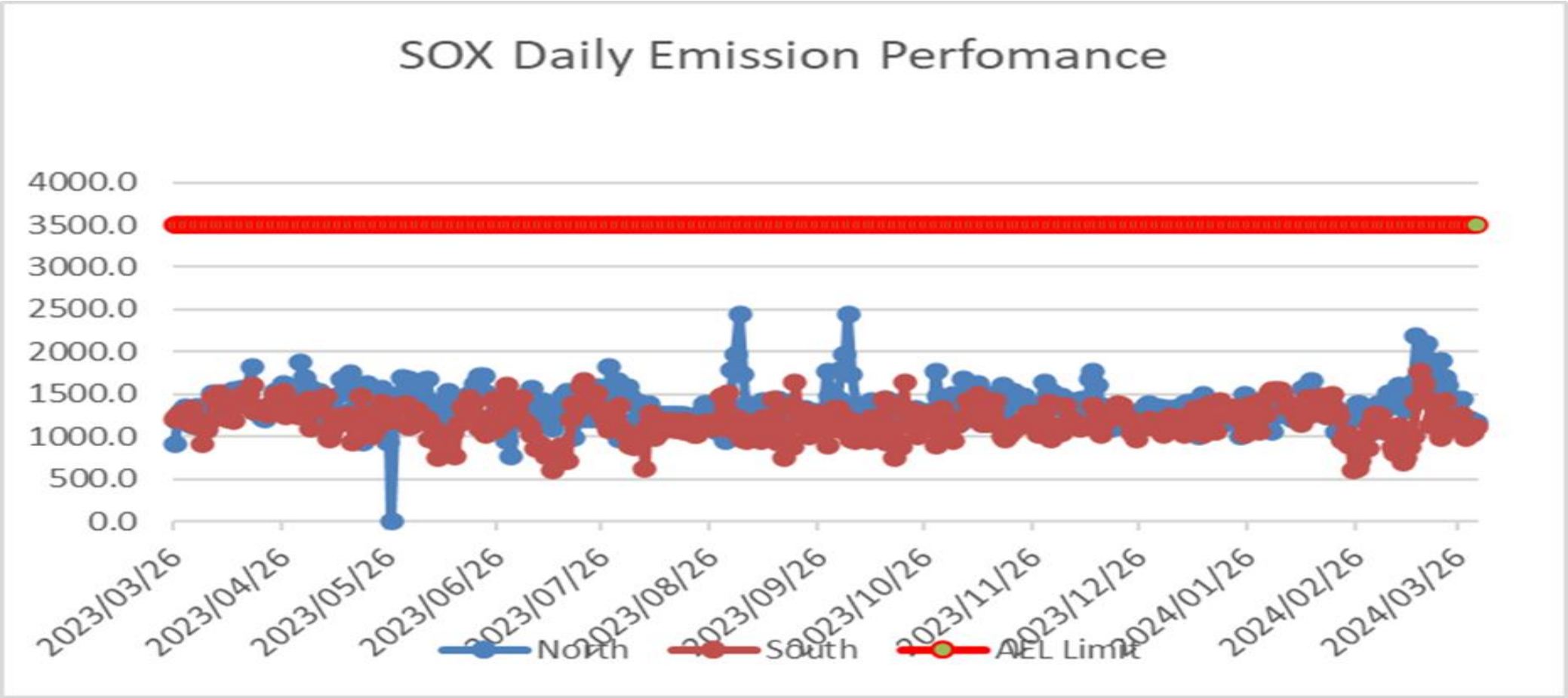


Figure 3. Daily SOX (Sulfur dioxide) Daily Emissions Performance 01 April 2023 - 31 March 2024

ARNOT POWER STATION'S ANNUAL EMISSIONS REPORT: 2023 / 2024 FINANCIAL YEAR

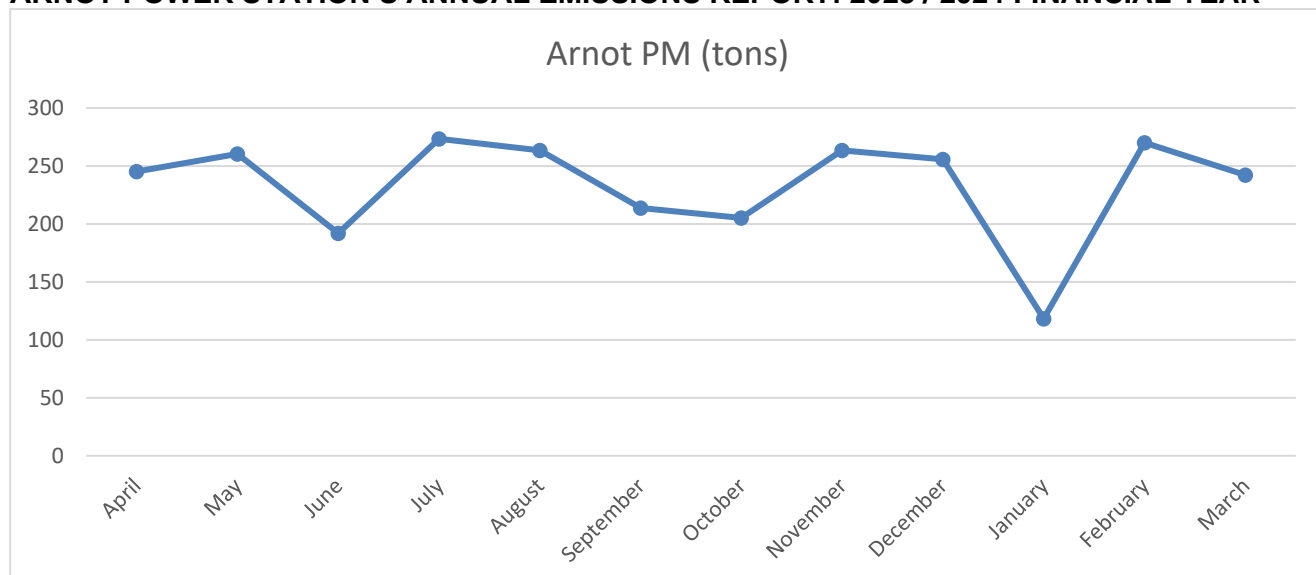


Figure 4. Particulate Matter (tonnages) 01 April 2023- 31 March 2024

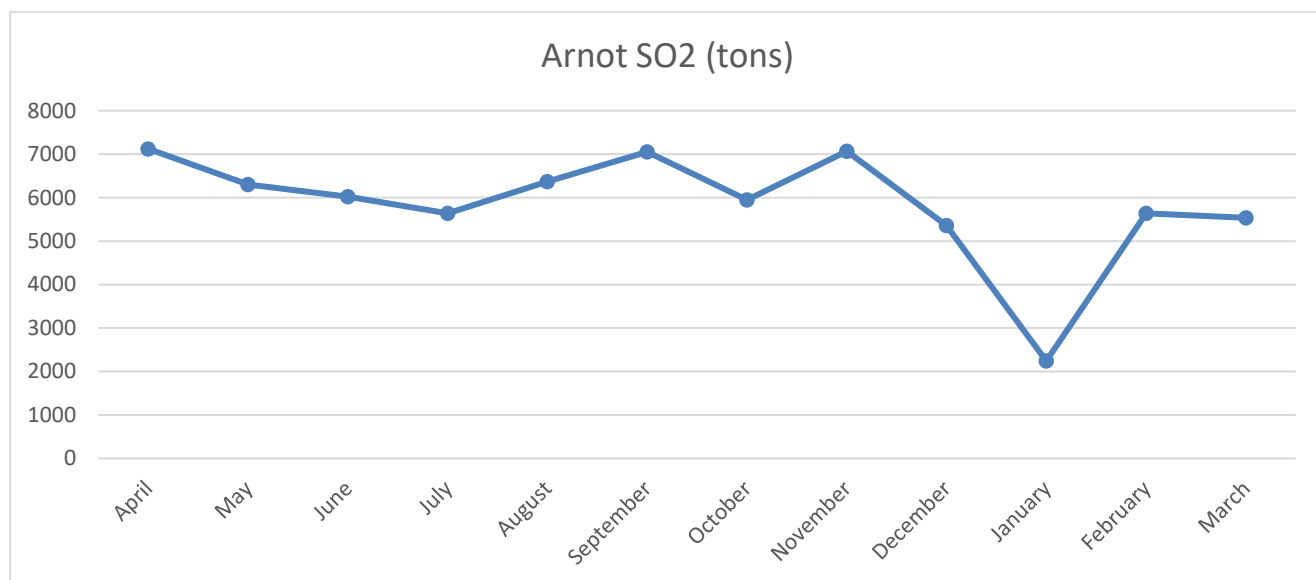


Figure 5. SO₂ (tonnages) 01 April 2023 - 31 March 2024

ARNOT POWER STATION'S ANNUAL EMISSIONS REPORT: 2023 / 2024 FINANCIAL YEAR

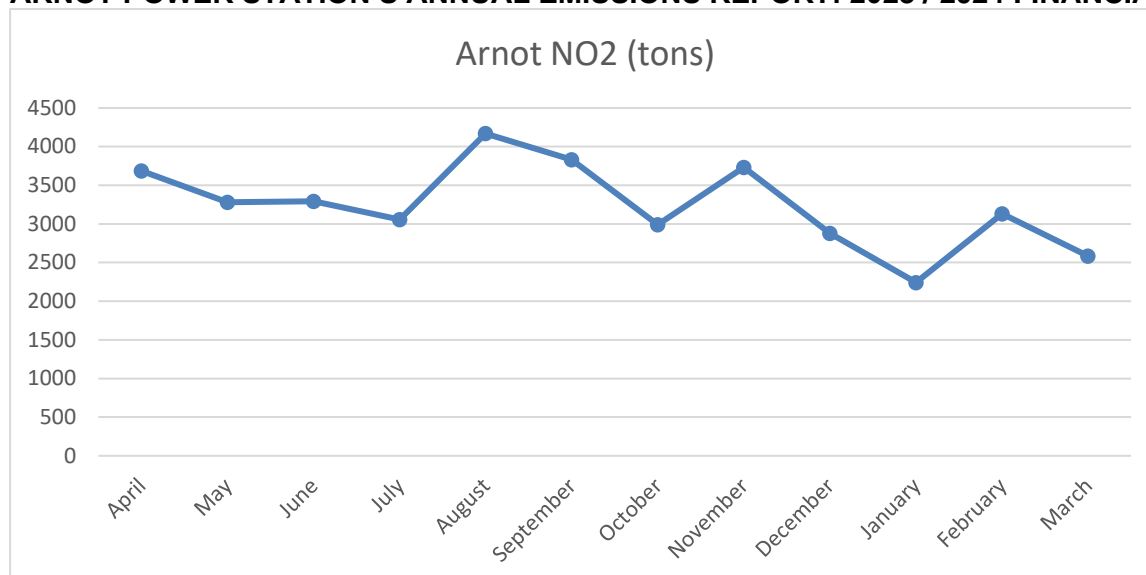


Figure 6. NO₂ (tonnages) 01 April 2023 - 31 March 2024

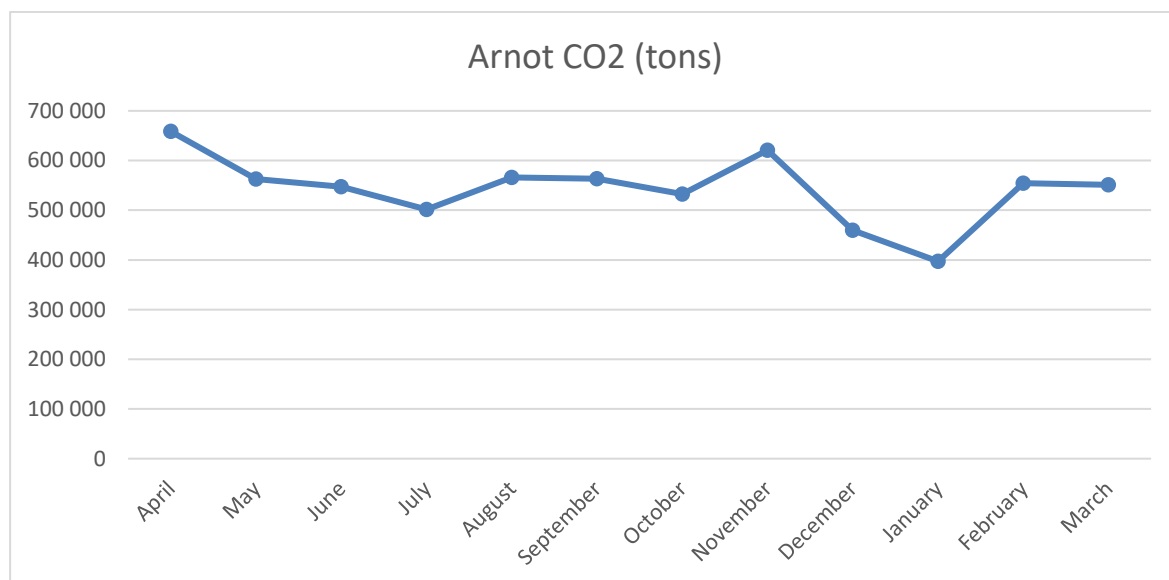


Figure 7. CO₂ (tonnages) 01 April 2023 - 31 March 2024

ARNOT POWER STATION'S ANNUAL EMISSIONS REPORT: 2023 / 2024 FINANCIAL YEAR

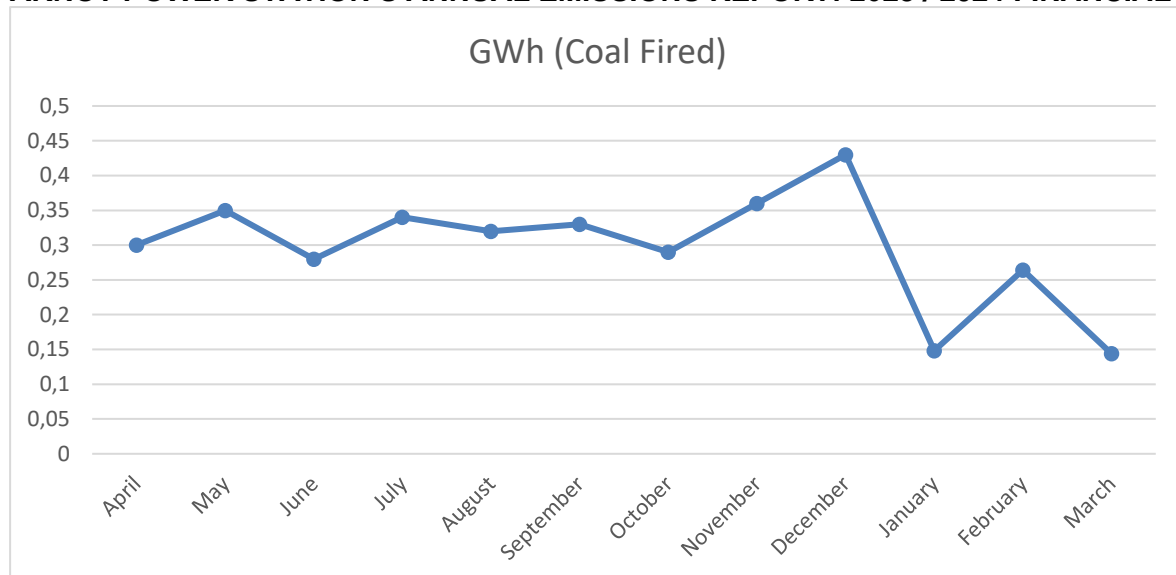


Figure 8. Gigawatt hour (GWh) (tonnages) 01 April 2023 - 31 March 2024

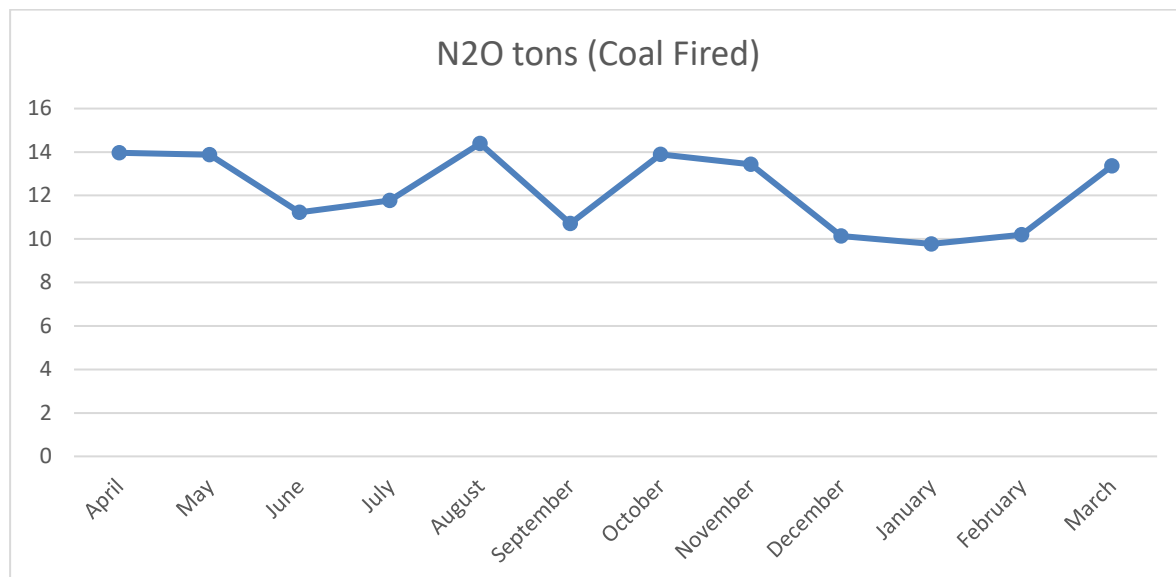


Figure 9. Nitrous Oxide N2O (tons) 01 April 2023- 31 April 2024

Compliance Audit Report(s):

Arnot Checklist for AEL Compliance Review conducted on the 20 July 2024

Major upgrades projects:

No major projects related to the atmospheric emissions license were done for the financial year.

ARNOT POWER STATION'S ANNUAL EMISSIONS REPORT: 2023 / 2024 FINANCIAL YEAR

Greenhouse gas emissions:

Please refer to table 1 and figure 1- 9

Gaseous and Particulate Monitoring Data availability:

The Table below indicates the availability of the PM and Gaseous monitors on both the south and north stack for each month between 01 April 2023 and 31 March 2024

Table 2: Monitoring System Availability (%)

| | North Stack PM | South Stack PM | North Stack SO ₂ | South Stack SO ₂ | North Stack NO ₂ | South Stack SO ₂ |
|--------------|----------------|----------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Apr-2023 | 100 | 100 | 98.1 | 99.3 | 100 | 98.3 |
| May-2023 | 100 | 99.9 | 100 | 100 | 100 | 100 |
| June-2023 | 99.7 | 100 | 99.7 | 100 | 100 | 100 |
| July-2023 | 100 | 100 | 99.4 | 91.4 | 100 | 100 |
| Aug-2023 | 100 | 100 | 100 | 99.6 | 100 | 100 |
| Sep- 2023 | 100 | 100 | 98.4 | 98.1 | 100 | 100 |
| Oct-2023 | 100 | 100 | 99.6 | 99.6 | 99.6 | 100 |
| Sep-2023 | 100 | 100 | 99.8 | 98.2 | 99.8 | 100 |
| Nov-2023 | 100 | 100 | 99.9 | 99.7 | 99.7 | 100 |
| Dec-2023 | 100 | 100 | 100 | 95.6 | 93.6 | 99.6 |
| Jan-2024 | 100 | 100 | 54.1 | 99.7 | 51.9 | 99.7 |
| Feb-2024 | 98.9 | 98.4 | 100 | 100 | 94.4 | 99.6 |
| Mar-2024 | 100 | 100 | 100 | 96.8 | 100 | 100 |
| Total | 99.8 | 99.8 | 96.8 | 98.3 | 95.9 | 99 |

For instances in case the gaseous monitors were performing below 80%, it was due to the analyzers being out of commission. The station has a contract with SI Analytics who are responsible for the maintenance, repairs; when monitors are found to be out of commission the supplier is called out to do repairs.

ARNOT POWER STATION'S ANNUAL EMISSIONS REPORT: 2023 / 2024 FINANCIAL YEAR

Complaints Register

Table 3: Complaints for 01 April 2023- 31 March 2024

| Source Code/ Name | Root Cause Analysis | Calculation of Impacts/ emissions associated with the incident and dispersion modelling of pollutants, where applicable | Dispersion modeling of pollutants where applicable | Measures implemented to prevent reoccurrence | Date by which measure will be implemented |
|----------------------|---------------------|--|---|---|---|
| None | 0 | 0 | 0 | 0 | 0 |

No emissions related complaints registered for the past financial year 2023/2024.

Most recent correlation/ spot tests

Correlation test was conducted on the North Stack on 10 November 2023.

Parallel Tests

Parallel test on the North Stack was conducted for South and North on the Stack 02-05 April 2024.

NAIES

Arnot Power Station has submitted its annual NAIES report on the system for the 2023 reporting period in March 2024

General

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

ARNOT POWER STATION'S ANNUAL EMISSIONS REPORT: 2023 / 2024 FINANCIAL YEAR

Hoping the above will meet your satisfaction.

Compile by



Lawrence Machebe

ENVIRONMENTAL OFFICER: ARNOT POWER STATION

Date: 2024/05/31

Verified By

pp 

Rofhiwa Tshikovha

SENIOR ENVIRONMENTAL ADVISORT: ARNOT POWER STATION

Date: 2024/05/31

Approve By



Jan-Louis Human

FLUE GAS SYSTEM ENGINEER

Date:

31-05-2024

Yours sincerely

pp 

Marcus Nematodzi

GENERAL MANAGER: ARNOT POWER STATION

Date: 31 May 2024