Eskom

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Date:
*05 January 2024*

Enquiries:
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Ref: GOU/2023/12

Dear Dr Schoeman

**GOURIKWA POWER STATION'S MONTHLY EMISSIONS REPORT FOR THE MONTH OF DECEMBER 2023**

This serves as the monthly report required in terms of Section 9 in Gourikwa Power Station's Atmospheric Emission License (WCED013). The report addresses the period from 1-31 December 2023 and covers Particulate Matter, CO, $SO_2$ and $NO_x$ (as $NO_2$) emissions.

## 1. Raw Materials and Products

Table 1: Quantity of Raw Materials and Products used/produced in Normal Operation

| **Raw Materials and Products used** | **Raw Material Type** | **Unit** | **Maximum Permitted Consumption/ Rate (Quantity)** | **Total consumption for the Month in litres** |
|---|---|---|---|---|
| | Fuel Oil/diesel | Tons/hour/unit | 40 | 24 792 159.51 |
| | | | | |
| **Production Rates** | **Product/ By-Product Name** | **Unit** | **Maximum Production Capacity Permitted (Quantity)** | **Total Production/Power sent out for the Month (MWh)** |
| | Energy | MWh/unit | 170 | 79930.16 |
| | | | | |
| | **Fuel use per hour per unit (L)** | | **Fuel Efficiency: Litre per MWh** | |
| | **Unit 11:** 36 633.59<br>**Unit 12:** 37 279.96<br>**Unit 13:** 34 262.62<br>**Unit 21:** 38 741.69<br>**Unit 22:** 37 365.21 | | **Unit 11**:315.37<br>**Unit 12**:303.86<br>**Unit 13**:306.81<br>**Unit 21**:310.37<br>**Unit 22**:312.54 | |
| | | | | |

## 2. Abatement Technology

Table 2: Abatement Equipment Control Technology utilisation for the month November

| Associated Unit/Stack | Technology Type | Actual Utilisation (%) for the month |
|---|---|---|
| Unit 11 | Low NOx burners | *100%* |
| Unit 12 | Low NOx burners | *100%* |
| Unit 13 | Low NOx burners | *100%* |
| Unit 21 | Low NOx burners | *100%* |
| Unit 22 | Low NOx burners | *100%* |

## 3. Emissions Reporting

Table 3: Total monthly emission rates and Licence limits

| | Date & time | CO (mg/Nm$^3$) | $NO_x$ (mg/Nm$^3$) | PM (mg/Nm$^3$) | $SO_2$ (mg/Nm$^3$) |
|---|---|---|---|---|---|
| **Hourly Licence Limit mg/Nm$^3$** | | | **250** | **50** | **500** |
| **Unit 11** | 2023/12/02 | 1.03 | 137.09 | 0.14 | 0.72 |
| | 2023/12/13 | 1.06 | 139.77 | 0.14 | 1.59 |
| | 2023/12/14 | 1.13 | 142 | 0.1 | 0.63 |
| | 2023/12/15 | 1.23 | 142.88 | 0.11 | 0.76 |
| | 2023/12/16 | 1.08 | 141.5 | 0.11 | 2.53 |
| | 2023/12/17 | 0.45 | 119 | 0.1 | 0.18 |
| | 2023/12/21 | 1.22 | 143.09 | 0.13 | 1.84 |
| | 2023/12/22 | 0.5 | 119.67 | 0.17 | 0.2 |
| | 2023/12/28 | 0.79 | 126.43 | 0.17 | 0.76 |
| | 2023/12/29 | 0.63 | 131.32 | 0.13 | 0.77 |
| | 2023/12/30 | 0.63 | 128.25 | 0.13 | 0.3 |
| | 2023/12/31 | 1.06 | 129.36 | 0.1 | 0.37 |
| | | | | | |
| | | | | | |
| | | | | | |
| **Unit 12** | 2023/12/02 | 2.17 | 193.8 | 0 | 0.18 |
| | 2023/12/14 | 4.25 | 196 | 0 | 0.18 |
| | 2023/12/15 | 3.64 | 200.5 | 0 | 0.16 |
| | 2023/12/16 | 9.57 | 191 | 0 | 0.8 |
| | 2023/12/21 | 2.82 | 195.57 | 0 | 0.34 |
| | 2023/12/22 | 5.37 | 168.67 | 0 | 0.06 |
| | 2023/12/28 | 3.74 | 188.57 | 0 | 0.11 |

| | | | | | |
|---|---|---|---|---|---|
| | 2023/12/29 | 3.44 | 187.47 | 0 | 0.28 |
| | 2023/12/30 | 4.6 | 175.25 | 0 | 0.2 |
| | 2023/12/31 | 3.44 | 174.31 | 0 | 0.11 |
| | | | | | |
| | | | | | |
| **Unit 13** | 2023/12/02 | 2.46 | 139.9 | 0 | 0.74 |
| | 2023/12/13 | 2.55 | 139.8 | 0 | 0.58 |
| | 2023/12/16 | 3.25 | 131.5 | 0 | 4.95 |
| | 2023/12/21 | 3.88 | 152.83 | 0 | 9.76 |
| | 2023/12/22 | 1.27 | 134.67 | 0 | 1.1 |
| | 2023/12/28 | 4.33 | 140.85 | 0 | 3.6 |
| | 2023/12/29 | 2.44 | 122.61 | 0 | 3.94 |
| | 2023/12/30 | 23.2 | 119 | 0 | 0.4 |
| | | | | | |
| | | | | | |
| **Unit 21** | 2023/12/02 | 22.15 | 179.73 | 0 | 0.71 |
| | 2023/12/14 | 13.5 | 183.75 | 0 | 1.35 |
| | 2023/12/15 | 12.1 | 183.13 | 0 | 0.75 |
| | 2023/12/16 | 18.77 | 182 | 0 | 1.53 |
| | 2023/12/21 | 12.41 | 183.72 | 0 | 1.26 |
| | 2023/12/22 | 21.42 | 148.78 | 0 | 1.24 |
| | 2023/12/28 | 9.73 | 173.29 | 0 | 0.04 |
| | 2023/12/29 | 15.08 | 174.11 | 0.23 | 0.97 |
| | 2023/12/30 | 20.19 | 164.5 | 0.2 | 1.1 |
| | 2023/12/31 | 22.53 | 159.5 | 0.43 | 0.91 |
| | | | | | |
| | | | | | |
| **Unit 22** | 2023/12/02 | 1.35 | 147.36 | 0 | 0.72 |
| | 2023/12/13 | 1.66 | 140.42 | 0 | 1.39 |
| | 2023/12/15 | 1.16 | 147.63 | 0 | 0.53 |
| | 2023/12/16 | 1.3 | 144.66 | 0 | 0.82 |
| | 2023/12/17 | 0.73 | 128.75 | 0 | 0.38 |
| | 2023/12/21 | 1.19 | 149.08 | 0 | 0.66 |
| | 2023/12/22 | 1.41 | 139.5 | 0 | 0.65 |
| | 2023/12/28 | 0.84 | 137.14 | 0 | 0.53 |
| | 2023/12/29 | 1.5 | 150.95 | 0 | 0.84 |
| | 2023/12/30 | 1.1 | 144.13 | 0 | 0.58 |
| | 2023/12/31 | 1.51 | 143.83 | 0 | 0.9 |
| | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Total Emission mass (tons)** | | 5.091 | 78.291 | 0 | 0.460 |
| | | | | | |
| | | | | | |
| | | | | | |

Table 4: Each unit and respective days operating under normal operation

| Unit | Hours operating under normal operation | Hours of start-up and shut-down | Total |
|---|---|---|---|
| 11 | 113 | 40 | 153 |
| 12 | 100 | 33 | 133 |
| 13 | 69 | 28 | 97 |
| 21 | 98 | 34 | 132 |
| 22 | 118 | 37 | 155 |
| | | | |
| Total | 498 | 172 | 670 |

Table 5: Monitoring Equipment-Continuous Emission Monitoring System (CEMS) availability

| Associated Unit/Stack | Technology Type | Actual Utilisation (%) for the month |
|---|---|---|
| Unit 11 | CEMS | *100%* |
| Unit 12 | CEMS | *100%* |
| Unit 13 | CEMS | *100%* |
| Unit 21 | CEMS | *100%* |
| Unit 22 | CEMS | *100%* |

**Note:** Continuous Emission Monitoring System (CEMS) is always online unless a fault is reported. The system auto calibrates every four (4) hours and raises an alarm if auto calibration is out of spec. Onsite technicians calibrate the system with calibration gas annually**.**

Table 6: Average Point Source Emissions released during start-up, maintenance and shut-down for the month of December 2023 in mg/Nm$^3$

| Unit | $NO_x$ | $SO_2$ |
|---|---|---|
| 11 | 138.27 | 2.55 |
| 12 | 182.18 | 4.57 |
| 13 | 149.5 | 5.37 |
| 21 | 169.97 | 3.81 |
| 22 | 145.86 | 1.31 |

**4. Comments on the performance and availability of each unit**

- All 5 units were available to generate power for the month of December 2023

- **Leak Detection and Repair programme-** No leaks were reported during December 2023.

5. **Load Factor:** 26.74%

6. **Complaints Register**

Table 7: Complaints

| 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 |
|---|---|---|---|---|---|
| *None* | *N/A* | *N/A* | *N/A* | *N/A* | *N/A* |

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

For any related queries, please do not hesitate to contact me on 021 573 6162

Yours sincerely

*Pamela Mrubata*
***GOURIKWA POWER STATION***