

The Municipal Manager
Gert Sibande District Municipality
PO Box 1748
ERMELO
2350

Date: 27 May 2024
Enquiries: X. Jila
Tel: +27 17 749 5100

E-mail: records@gsibande.gov.za

E-mail: dan.hlanyane@gsibande.gov.za

Dear Mr. Hlanyane

TUTUKA POWER STATION'S ATMOSPHERIC EMISSIONS ANNUAL REPORT – 2023/24

1. INTRODUCTION

This serves as the annual report required in terms of Section 7.6.3 of Tutuka Power Station Atmospheric Emission License (No Lekwa/Eskom H SOC Ltd TPS/0013/20/2019/F03 dated 25 April 2019). The report is for 2023/24 financial Year.

The Atmospheric Emission License (AEL) was issued by Gert Sibande District Municipality in terms section 41(1) of the National Environmental Management Act, 2004 in respect of listed activities in **Category 1**: Solid fuel combustion Installation; **Category 2**: Storage of Petroleum Products and **Category 5**: Storage and handling of Ore and Coal.

The contents of the report include information on the following as required by condition 7.6.3 of the license.

- a) NEMAQA Section 21 pollutant emissions trend for listed activity
- b) External compliance audit report(s)
- c) Major upgrades projects (i.e abatement equipment or process equipment)
- d) Greenhouse gas emissions annual report in line with National Greenhouse Gas Emissions Reporting Regulations
- e) Action taken to address complaints received.
- f) Annual report on implementation of Highveld Priority Air Management Plan and offset programme/projects
- g) Compliance status to statutory obligations (4.5) including any other issued authorisations.



TUTUKA POWER STATION'S ATMOSPHERIC EMISSIONS ANNUAL REPORT – 2023/24

1. INTRODUCTION

Eskom Holdings SOC Limited Tutuka Power Station obtained its Atmospheric Emission License (AEL) which was issued by Gert Sibande District Municipality in terms section 41(1) of the National Environmental Management Act, 2004 in respect of Listed Activity Category 1: Solid fuel combustion Installation; Category 2: Storage of Petroleum Products and Category 5: Storage and handling of Ore and Coal.

The AEL was issued subject to conditions and requirements which are binding to the holder. Amongst other conditions, is condition 7.6.3 which provides that the license holder must complete and submit to the licensing authority an annual report, which must include:

2. DISCUSSION

This discussion presents the information required by condition 7.6.3 for the year under review (April 2023 – March 2024)

a) NEM: AQA SECTION 21 POLLUTANT EMISSION TRENDS FOR LISTED ACTIVIT

MONTH	SO _x (Tons)	NO _x (Tons)	PMs (Tons)	COAL BURNED (Tons)
April 2023	8 936	3 867	12130.76	406 585
May 2023	7 847	3 781	18741.13	397 514
June 2023	7 820	3 776	21386.93	397 025
July 2023	3 485	1 962	15113.92	206 305
Aug. 2023	3 667	1 855	11267.93	195 082
Sept. 2023	8 314	4 569	9916.78	480 363
Oct. 2023	7 464	4 450	8426.65	467 870
Nov. 2023	5 440	3 262	10623.89	342 999
Dec. 2023	4 405	2 385	9321.80	250 796
Jan. 2024	4 839	2 433	7761.87	255 820
Feb. 2024	4 203	2 381	9107.64	250 322
Mar. 2024	5 006	2 172	10253.78	228 389
TOTAL	71 426	36 892	144053.09	3 879 070

Table 1: Section 21 Pollutants

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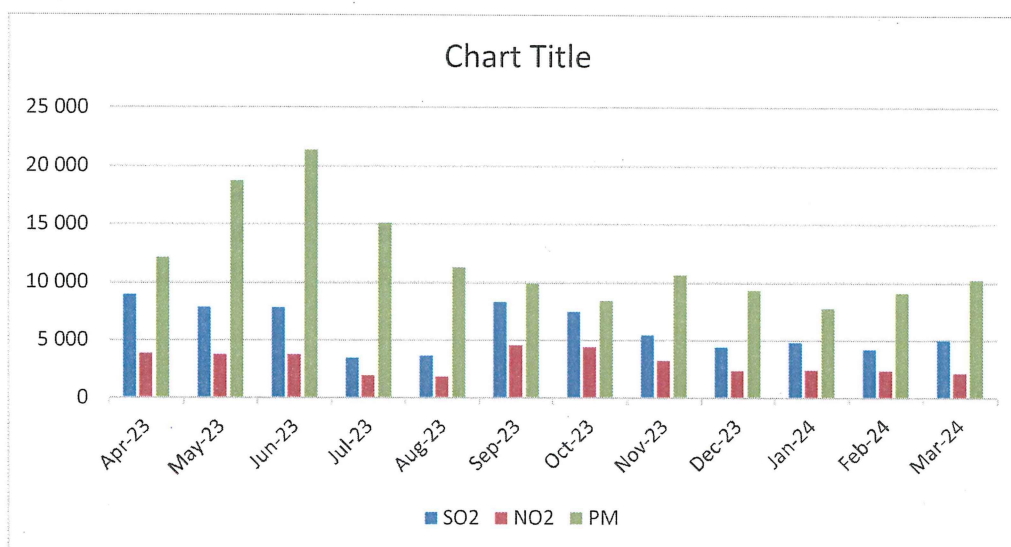


Figure 1: Section 21 pollutants

b) EXTERNAL COMPLIANCE AUDIT REPORT

An external legal compliance audit was conducted by **Vombe Environmental Consultants in February 2024**. The purpose of the independent compliance evaluation audit was to determine whether the Eskom Tutuka Power Station operations and Contractors are complying with the applicable Legal and regulatory requirements; conditions of various Environmental Authorisations (EA), Water Use Licences and General Water Use Authorisations; organisation's applicable ISO 14001:2015 standard requirements on evaluation of legal compliance; including conditions of various applicable Environmental Management Plans. A copy of an external legal compliance audit report is attached.

The summary Environmental Authorisations & Licences overall performance is presented in table 1 below:

Environmental Authorisations & Licences Summary

ITEM	POSSIBLE SCORE	ACHIEVED	RATING (%)
Atmospheric Emission Licence in Terms of The National Environmental Management: Air Quality Act, 2004 (Act No. 39 Of 2004) As Amended. (Lekwa/Eskom H SOC Ltd TPS /0013/2019/F03)	72	70	97%
Waste Management Licence in Terms of Section 49(1)(A) of the National Environmental Management: Waste Act, 2008 (Act No. 59 Of 2008) (12/9/11/L456/6/R1)	184	156	85%
Integrated Water Use License (IWUL) In Terms Of Chapter 4 of The National Water Act, 1998 (Act No. 36 Of 1998) (08/C11K/ABCFG/1016)	216	179	83%
Extension Of Ash Disposal Facility for Tutuka Power Station, Mpumalanga Province (14/12/16/3/3/52)	76	64	84%
TOTAL	548	469	86%

c) MAJOR UPGRADES PROJECTS (i.e., ABATEMENT EQUIPMENT OR PROCESS EQUIPMENT)

The Station has initiated four (4) major projects to upgrade its air abatement equipment after having recognised that the apparatus and equipment used for the abatement emission is ageing which subsequently affect the emissions performance. These major projects are discussed in detail below.

1. Electronic Precipitators (ESP's) and Dust Handling Plant upgrade

Tutuka P.S. currently utilises Electrostatic Precipitators (ESP's) to clean the boiler flue gasses. Each boiler has two (2) ESP casings, and both must be in operation to achieve maximum boiler load. The current design of the ESP's is no longer able to meet the future particulate emission licence limits as set out by the Department of Forestry, Fisheries and Environment (DFFE) of South Africa. To reduce the current particulate emissions and to meet the new licence limits of 100 mg/Nm³, the existing ESP's will be retrofitted.

The refurbishment of units 5 and 6 ESP were executed and completed during the unit outage that commenced on the 10th of November 2022 and October 2023, respectively.

The Project plan has been revised to include the DHP upgrade scope of work for 4 units. The procurement process for the DHP is currently at the adjudication stage.

2. High Frequency Power Supply project (HFPS)

The objective of this project is to install HFPS at Tutuka Power Station to enhance the performance of ESPs. The scope involves the removal of the 20 conventional transformers and replace them with 20 HFPS units. The HFPS units are installed on the footprint of the existing conventional transformers with the possible exception of the second and fifth field which might get a new platform due to space limitations.

Units 4, 5 and 6 have already been modified to HFPs. The procurement process for the remaining three units is at the contract award stage. The anticipated installation date for all units is March 2025.

3. Flue Gas Conditioning Plant (SO₃ plant)

Flue gas plant is one of the interventions planned to enhance the current performance of the Electrostatic Precipitators (ESPs) at Tutuka Power Station. The flue gas conditioning plant evaluate the feasibility of installing a sulphur injection plant and ammonia injection plant. The aim of installing the mentioned chemicals, is to reduce the particulate emissions at the Power Station by increasing efficiency of the existing ESP.

Unit 6 was used as a test plant and a full roll out is planned. The Environmental Authorization was issued in May 2023. The procurement process is underway. Based on the work done,

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it is now intended only to use Sulphur, hence changing from dual Flue Gas Conditioning to Flue Gas Conditioning. Execution is targeted between October 2024 and October 2026.

4. Low NOx Burner (LNB)

The objective of the project is to reduce the concentration of Nitrogen dioxide emissions into the atmosphere. The project is implemented based on the Eskom Board's decision of 31 July 2022. The project is at the procurement stage. Tender enquiry re-issued and closed on 17 July 2023. The contract was awarded on 07 February 2024 and the project is currently at Design Stage.

(d) GREENHOUSE GAS EMISSIONS ANNUAL REPORT IN LINE WITH THE NATIONAL GREENHOUSE GAS EMISSION REPORTING REGULATIONS.

MONTH	N ₂ O (Tons)	CH ₄ (Tons)
April 2023	3.907	5.470
May 2023	3.919	5.486
June 2023	3.921	5.490
July 2023	2.107	2.949
Aug. 2023	2.020	2.829
Sept. 2023	5.052	7.073
Oct. 2023	4.983	6.976
Nov. 2023	3.564	4.990
Dec. 2023	2.588	3.623
Jan. 2024	2.592	3.628
Feb. 2024	2.552	3.572
Mar. 2024	2.290	3.206
TOTAL	39.495	55.293

Table 2: Greenhouse gasses

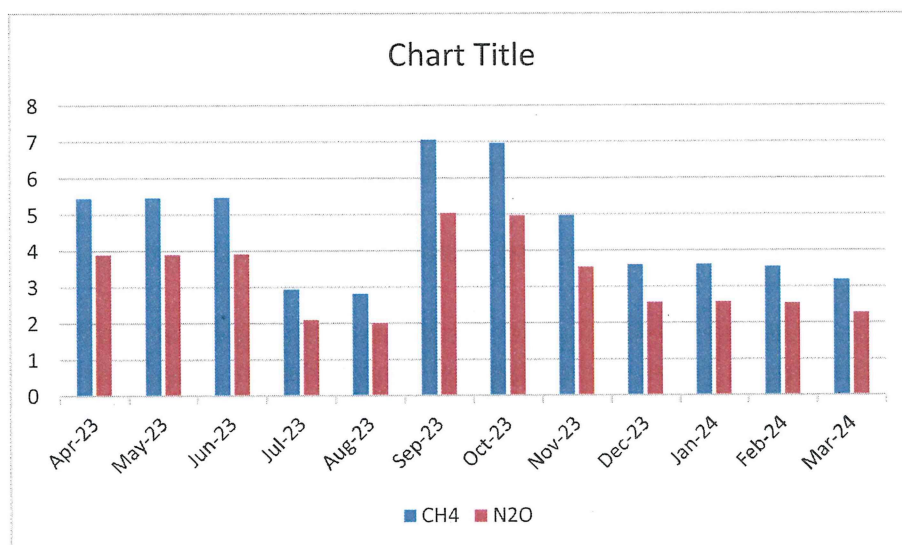


Figure 3: Methane and Di-Nitrogen Oxide trends

(e) ACTION TAKEN TO ADDRESS COMPLAINS RECEIVED

There were no complaints received during this financial year. This could be attributed to the location of the Power Station, which is about 20 kilometres away from Standerton residential area and about 5 kilometres from Thuthukani township (Eskom residents)

(f) ANNUAL REPORT ON IMPLEMENTATION OF HIGHVELD PRIORITY AIR QUALITY PLAN AND OFFSET PROGRAM/ PROJECTS

The key contributor to poor air pollution in Highveld is domestic coal burning. Based the results of the pilot studies conducted in 2016 – 2018, it was concluded that ambient air quality in the affected communities in the Highveld (Nkangala and Gert Sibande) could be improved by replacing household's coal stoves with a hybrid gas-electricity stoves and an LPG heater together with retrofitting the houses with a ceiling to insulate the houses.

The Air Quality Offset intervention for Nkangala and Gert Sibande District Municipality thus entails the following:

- Provision of a basic plus retrofit which consists of:
 - Insulation entailing installation of a SPF ceiling system and draft proofing.
 - Electrical rewiring and issuance of Certificate of Competence (CoC).
- Stove swap which entails:
 - Provision of electricity-based energy source with LPG backup. This will include a hybrid gas-electric stove, LPG heater plus 2x9 kg LPG cylinders and Compact fluorescent lamp (CFL) for energy efficiency lighting.
 - Removal and disposal of the coal stove

Funding for implementation in households around Tutuka (Sivukile – estimated 1160 households by March 2025) has been obtained and planning for implementation in 2024 is underway. Discussions with the district authorities on the rollout plans are underway, with initial community engagements held. A contract has been signed with the main contractor for the rollout in Sivukile starting in the first half of 2024.

(g) COMPLIANCE STATUS TO STATUTORY OBLIGATIONS (CONDITION 4.5) INCLUDING ANY OTHER ISSUED AUTHORISATION.

In addition to the Air Emissions License, the Station was issued with the following authorisations/Licenses.

- Waste Management License for Wastewater Treatment plant, General and Hazardous waste disposal facilities in terms of the National Environmental Management Waste Act, Act 59 of 2008: License no. 12/9/11/L456/6/R1
- Water Use License in terms of the National Water Act, Act 36 of 1998: License No. 08/C11K/ABCFGI/1016



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- Environmental Authorisation for Ash Disposal Facility in terms the National Environmental Management Act, Act 108 of 1998: License No. DEA/EIA/0001416/2012



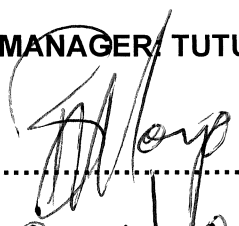
The Station also complies with relevant Municipal By-Laws and the provisions of the National Environmental Management Act (NEMA) & its Specific Environmental Management Act, Relevant regulations, and Standards.

3. CONCLUSION

Tutuka Power Station endeavours to comply with all its environmental obligations, this is evident by initiatives the station has embarked on to upgrade its Air Abatement equipment to effectively reduce its emissions. Furthermore, the Station complies with a number of environmental legislations in addition to the National Environmental Management Air Quality Act which governs the emissions.

For more information or enquiries contact the Tutuka environmental team.

Yours Sincerely

Compiled by: Xoli Jila SENIOR ADVISOR ENVIRONMENTAL Signature:  Date: 27 May 2024	Supported By: Mike Molepo SENIOR CHEMIST: BOILER ENGINEERING Signature:  Date : 27 May 2024
Approved by: Bruce Moyo GENERAL MANAGER, TUTUKA POWER STATION Signature:  Date : 2024/05/28	