Eskom

Ms Nompumelelo Simelane
Air Quality Officer
Nkangala District Municipality
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Date:
11 July 2024

Enquiries:
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Ref: NDM/AEL/MP312/11/07

Dear Ms. Simelane

DUVHA POWER STATION'S ANNUAL EMISSIONS REPORT FOR FY 2023/24

This serves as the annual report required in terms of Section 7.6 in Duvha Power Station's Atmospheric Emission Licence as well as in terms of the reporting requirements listed in the Minimum Emission Standards. The emissions are for Eskom's 2023/24 financial year, which is from 1 April 2023 to 31 March 2024. Verified emissions of particulates as measured by installed CEMS and SO_2 and NOx (as NO_2) as calculated, are also included.

Name, description and reference number of plant as specified in the AEL:

Name of facility	Eskom Holdings SOC Limited
Description of facility	Duvha Power Station
Reference number of plant	NDM/AEL/MP312/11/07

Emission Trends:

The emissions in the table below are that of the 2023/24 financial year.

Table 1. General oversight of emissions at Duvha Power Station 2023/24

Power Station	**Coal-fired emissions (tons/annum)**	**Fuel-oil emissions (tons/annum)**		**Total (tons/annum)**
Duvha Power Station		**FO 150**	**Catlight**	
	PM: 4443.87	**PM:** 0	**PM: 0**	**PM:** 4443.87
	SO_2: 88 715	**SO_2:** 2 417.56	**SO_2:** 213.91	**SO_2:** 91346.47
	NO_x: 55 015	**NO_x:** 0	**NO_x: 0**	**NO_x:** 55 015

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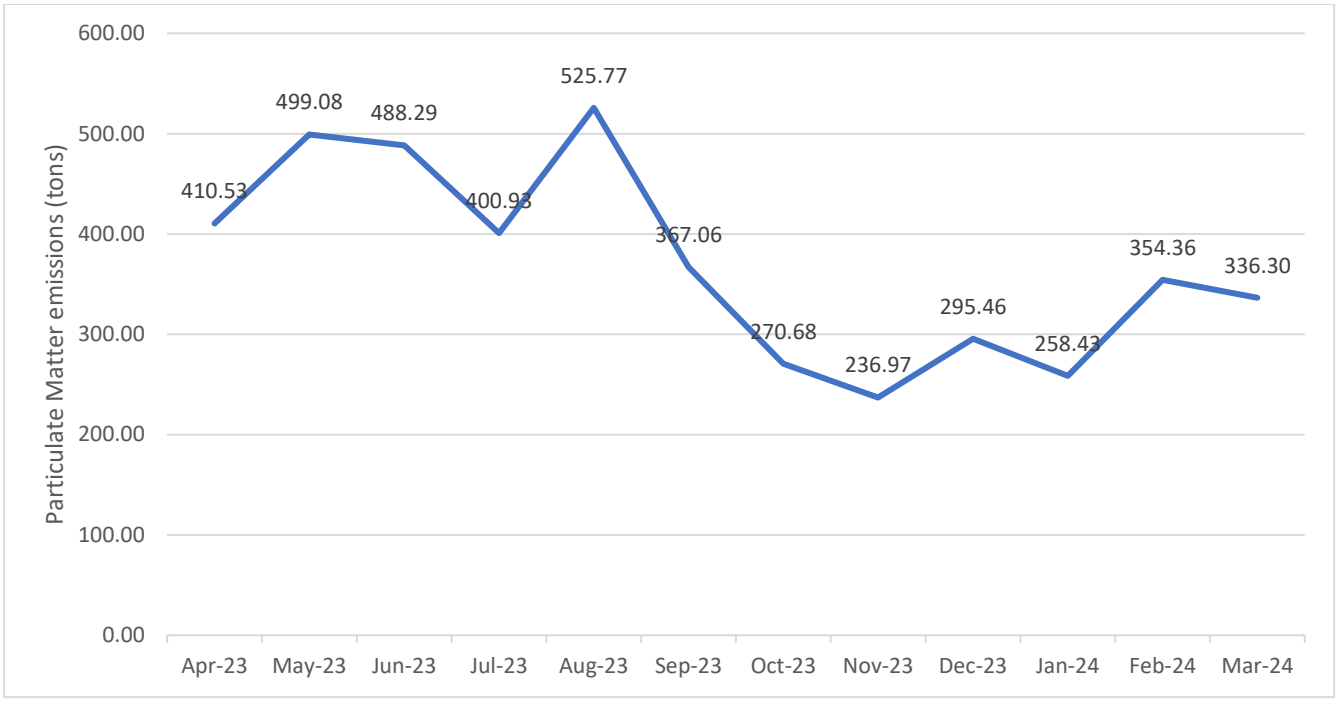

Figure 1. Monthly Particulate Emission in tons from Duvha Power Station 2023/2024.

Please note: Gaseous emissions, in particular, are largely dependent on the power generated by the power station, and thus the amount of coal burnt.

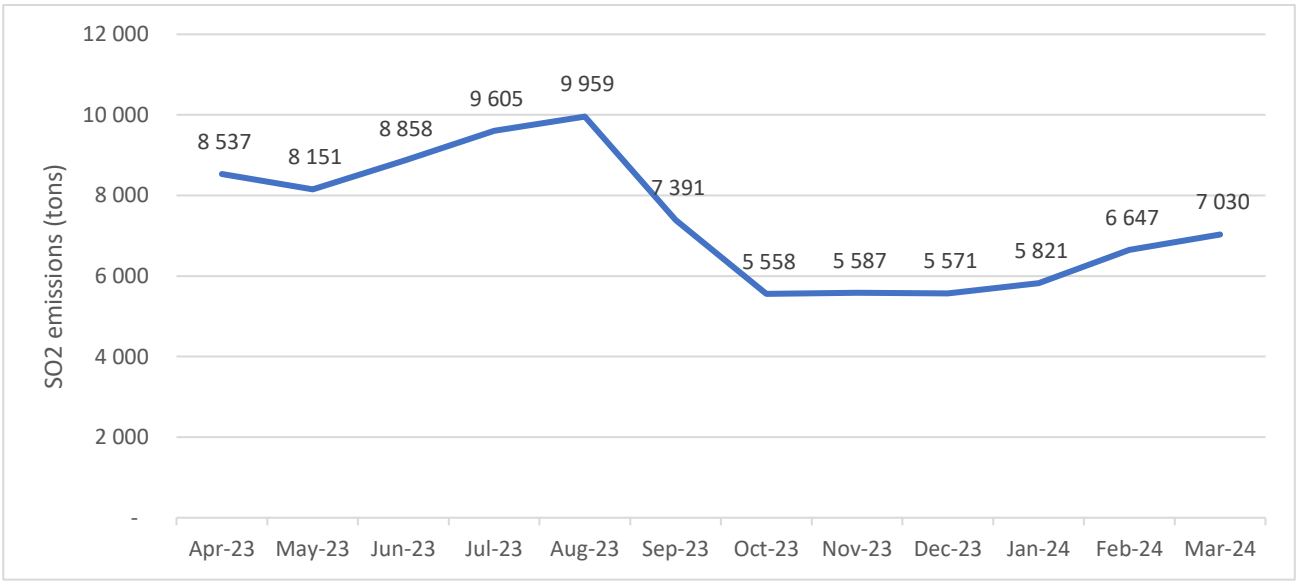

Figure 2. Monthly SO_2 Emissions in tons from Duvha Power Station 2023/2024.

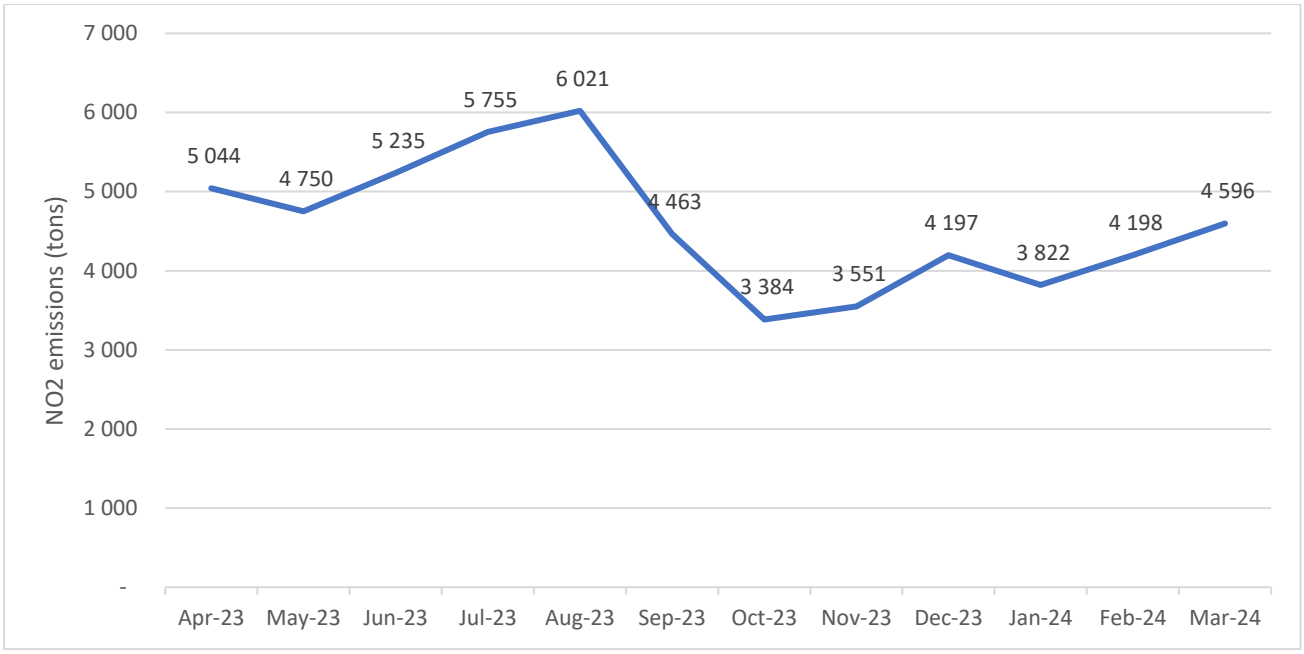

Figure 3. Monthly NO_2 Emissions in tons for Duvha Power Station 2023/2024.

All gaseous (SO_2 and Nox) emissions tonnages figures reported on this annual emissions report and previous annual emissions report are calculated figures.

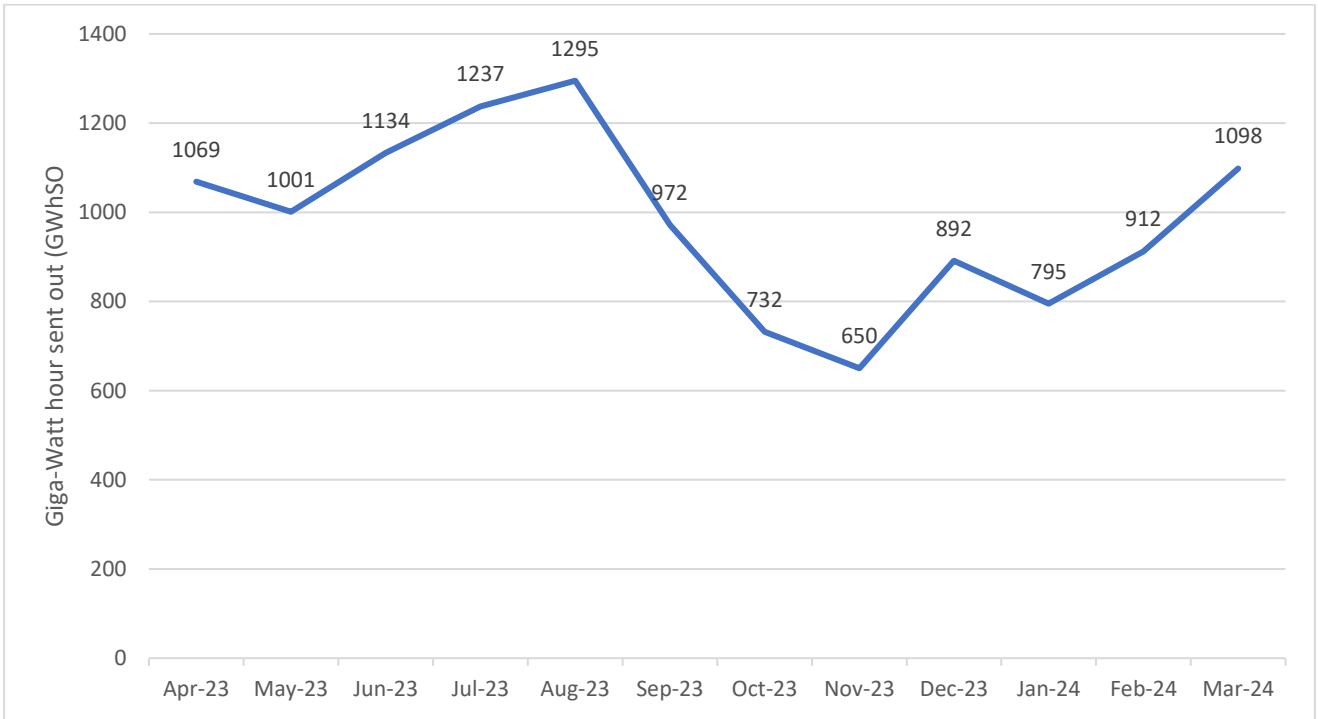

Figure 4. Monthly Energy sent out in GWh at Duvha Power Station 2023/24.

Figures showing compliance with the daily average emission limits of the respective pollutants have been presented to you in the monthly emission reports sent to your offices.

Monitoring data availability

Table 2. General oversight of monitoring data availability for Duvha Power Station 2023/24 in terms of the number of full hours per annum that valid results were obtained for the CEMS in question.

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
PM	99.86%	97.70%	Unit Offload	98.27%	99.73%	97.29%
SO_2	86.50%	91.25%	Unit Offload	93.03%	94.36%	97.34%
NOx	86.48%	90.98%	Unit Offload	94.43%	93.77%	97.37%

Compliance Audit Report(s):

An annual atmospheric emission license audit was conducted on 22 - 24 May 2023 (please refer to appendix A) to determine the power stations performance in relation to the conditions detailed in the Atmospheric emissions license (AEL)

An internal carbon dioxide (CO2) emissions review audit was conducted on 17-18 October 2023 (please refer to Appendix B). The purpose of the review was to verify the processes used by the station for producing the final fossil fuel burnt figures in the calculation of Eskom's CO2 emissions.

Major upgrades projects:

A project to install High Frequency Transformers (HFT's) on unit 4 and 6 which are currently using Electrostatic Precipitator (ESP) abatement equipment is at the commercial phase whereby the Project Execution Release Approval document was revised, and the investment request was re-approved. The Squad Check will be conducted by 30 June 2024.
This is aimed at reducing PM emissions to ensure compliance to the minimum emissions limits of 2020 (50mg/Nm^3 for all units).

Greenhouse gas emissions:

Greenhouse gas emissions are reported through the greenhouse gas reporting regulation process and as such are not included in this annual emissions report.

Results of spot measurements or correlation tests:

Table 3. Overview of dates of last conducted CEMS verification tests for PM, SO_2 and NOx (Please see annexure 2 for the verification test results)

Stack/ Unit	PM (Correlation tests)	SO_2 (Parallel tests)	NOx (Parallel tests)
Unit 1	16-20 May 2022	21 – 22 July 2023	21 – 22 July 2023
Unit 2	10-14 October 2023	18-21 July 2023	18-21 July 2023
Unit 4	08-10 February 2023	13-15 July 2023	13-15 July 2023
Unit 5	03-06 October 2022	04-07 July 2023	04-07 July 2023
Unit 6	31 October-06 November 2023	10-13 July-2023	10-13 July-2023

An explanation of all instances where the license requirements were exceeded:

Table 4. Overview of emission license limit exceedances for 2023/24 financial year

Stack/unit and pollutant	**Exceedance date** [from – to]	**Reason for exceedance**	**Remediation measure and effectiveness**
Unit 6 (PM)	27 April 2023	Reactive approach to frequent plant failures (no monitoring and follow up plans to check the reasons for repeated failures)	**Corrective actions:** • Establish and share the expected pressure requirements for the SO3 plant control air supply to the burner air block valve. • Share operating experience from this report with C&I Maintenance personnel. • Conduct daily monitoring of the SO3 plant and present the weekly SO3 plant health status at the Emissions Task team forum. • Draw a list of previous SO3 related investigated incidents and come up with scenarios that the team can be trained on as part of on-job skills improvement for improved troubleshooting. Arrange with Training department for Duvha PS specific training.
Unit 4 (PM)	11 – 14 May 2023	Poor decision making in terms of availing 4B as standby plant.	**Corrective actions:** • Conduct an awareness session on decision making of critical components and management of standby • Issue a scope of work to HMD ash plant team to unblock ash sump pots and inspect the functionality of the agitation nozzles. • Request for opportunity maintenance to execute scope from engineering once required equipment and resources are obtained. • Issue an NCR to Engineering and the Contract Manager for poor management of QCP during refurbishment. **Preventative actions:** • Expedite the procurement of a bigger submersible pump/Toya pump PR 1074935004 • Compile a standard memo that can be used to formally communicate the emissions risk to the GM and

			TPM within 24 hours as per procedure. • Contract Manager to update ash pump repair QCP as per latest Duvha quality procedures.
Unit 5 (PM)	19 May 2023	Pressure and temperature signals not part of plant initial design.	**Corrective actions:** • Issue a memo to maintenance to address the maintenance common practice on manually adjusting the valve at 57 ML. • Update Trouble shooting guide, ref to action 12.2 from issue 100066631: 12.2 Update SO_3 plant trouble shooting manual to ensure it adds all required operating parameters before and after calibration. The manual should also highlight the effects of Sulphur flow conditions when calibrating. **Preventative actions:** • Awareness training to be done for Ops personnel regarding SO3 plant, specifically including the need to manually blow down steam traps after low sulphur temperature conditions. • Develop a multi discipline team to review the SO3 plant design and implement required changes
Unit 6 (PM)	19 – 20 May 2023	Pressure and temperature signals not part of plant initial design.	**Corrective actions:** • Issue a memo to maintenance to address the maintenance common practice on manually adjusting the valve at 57 ML. • Update SO3 plant trouble shooting manual to ensure it adds all required operating parameters before and after calibration. The manual should also highlight the effects of sulphur flow conditions when calibrating. **Preventative actions:**

			• Awareness training to be done for Ops personnel regarding SO3 plant, specifically including the need to manually blow down steam traps after low sulphur temperature conditions. • Develop a multi discipline team to review the SO3 plant design and implement required changes.
Unit 4 (PM)	02 – 06 June 2023	Inadequate, LCI and troubleshooting guide regarding identifying correct Sulphur conditions when zeroing the flow sensor.	**Corrective actions:** • Address none adherence to ash plant philosophy and poorly managed ash plant defect. • Update the SO3 strategy to include steam-regulating valve. • Update SO3 P&ID to include steam regulating valve. **Preventative actions:** • Share lessons learned on this incident with C&I maintenance team. • Update SO3 plant trouble shooting manual to ensure it adds all required operating parameters before and after calibration. The manual should also highlight the effects of Sulphur flow conditions when calibrating. • Update LCI 6001 for C&I maintenance.
Unit 6 (PM)	20 July 2023	Sudden unexpected failure of a run to failure component during section 30 timeframe territory.	**Corrective action:** • Awareness training to be done by Ops personnel regarding SO3 plant, specifically including the need to manually blow down steam traps after low sulphur temperature conditions. • Review the operating Sulphur off-loading work instruction to include the capturing of the temperature of the tanker before off loading and precaution measures to the skids before offloading. **Preventative action**: • Implement a routine replacement of the SO# plant control air pipes based on typical failure rate or

			consider alternative material selection to reduce chance of failure.
Unit 4 (PM)	20-22 august 2023	Lack of communication within Electrical Maintenance Department (EMD).	**Corrective action:** • Compile handover work instruction to be used within EMD to ensure plant issues and findings are well communicated. **Preventative action:** • Replace DB/door cover at sandblasting workshop. • Address failure to adhere to emergency switching. • Normalize SO3 plant temporary cable. • Address plant safety regulations violation and connecting temporary supplies without OON.
Unit 5 (PM)	10 August 2024	Difficulty to get suitable suppliers to repair pumps using the open market procurement.	**Corrective action:** • Implement Project SP2 recommendations for spares. • Issue NCR to maintenance execution for non-adherence to QC process. **Preventative action:** • Finalise the split casing contract. • Address all departmental technicians on the non-adherence of Quality control process. • Review sluice pump repair QCP to ensure that include the direction flow of the impeller is included.
Unit 6 (PM)	19-20 August 2023	Difficulties in getting suppliers who can supply these spares on open tender.	**Corrective action:** • Finalize split casing contract **Preventative action:** • Compile fault finding procedure to ensure all components are tested

			when doing fault finding on MV Motors. • Maintenance standby procedure MGP0042 to be communicated clearly with all EMD employees. • Shift Manager to conduct an incident recall/awareness on the response of the Unit Controller with the Team. • Review resource planning to ensure every standby team has adequate RPs' for High voltage and PSR permits • Raise Engineering change notification against Electrical Engineering to correct the bolts that gets loose overtime on 3.3kV Siemens circuit breakers. • NCR to be issued to cabling Contractor for failure to avail a jack hammer.
Unit 6 (PM)	15-16 September 2023	Inadequate sense of urgency demonstrated in addressing emission related defects.	**Corrective action:** • Maintenance manager to address the issue of spares management to be effective. • Operating manager to enforce the discipline on sump man always monitoring the sump and filling of the running check sheet at all times. • Auxiliary Engineering to conduct a risk assessment of not having emergency plant such that the action can be formally tracked and expedited on formal platforms. • Emissions manager to address negligence and prioritization of emissions abatement plant defects. **Preventative action:** C&I Engineering to review the maintenance strategy for the cleaning of the ultrasonic level indication on regular basis.

Unit 6 (PM)	14 November 2023	Negligence by OPS personnel	**Corrective action:** Apply consequence management to the ops personnel for failing to adhere to the Emissions response procedure. **Preventative action:** • Shift managers to share the report with all Ops personnel regarding the use of Emissions response procedure. • Environmental manager to Conduct awareness on the response of High Stack emissions to all Ops personnel.

An explanation of all other daily instances of exceedances (including the grace periods) of the minimum emissions requirements are included on the monthly emissions reports submitted to your office.

NAEIS reporting:

Duvha Power Station submitted its annual report on the NAEIS system on the 22nd of May 2024.

General

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

Hoping the above will meet your satisfaction.

Supported by

M Mamoleka
ENGINEERING MANAGER: DUVHA POWER STATION

Yours sincerely

L Chauke
DUVHA POWER STATION: GENERAL MANAGER

Eskom	**Duvha Air Quality AEL Compliance Review Report**	**Generation Division: Environmental Management**

Title:	**Duvha Air Quality AEL Compliance Review Report**	Document number:	**GEM23-R173**
		Total Pages:	**36**
		Disclosure Classification:	**CONTROLLED DISCLOSURE**

Compiled by	**Reviewed by**	**Approved by**
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Date: 21/09/2023	Date: 25/09/2023	Date: 25 September 2023

Received by:

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CONTENTS

EXECUTIVE SUMMARY

An Atmospheric Emission Licence (AEL) Compliance Assurance Review was undertaken at Duvha Power Station on 13-14 July 2023. The objective of the AEL compliance review was to determine compliance with the AEL conditions and provide an initial AEL compliance sub-KPI score.

The review was undertaken to verify the station's compliance to the conditions in the Atmospheric Emission Licence (AEL) number: **17/04/AEL/MP312/11/07 (expired 30 June 2022)**[1], the National Environmental Management: Air Quality Act (Act No 39 of 2004), Listed Activities and Associated Minimum Emission Standards, 22 November 2013, National Ambient Air Quality Standards, 24 December 2009, National Dust Control Regulations, 01 Nov 2013 and Municipal Bylaws. **A detailed checklist with all AEL conditions reviewed is attached as Appendix 1.** The SAP QIM number for this report will be loaded upon receipt of the final report.

Key Findings:

1. **AEL condition 4.3** deals with sampling and/or analysis requirements. *"The license holder is responsible for quality assurance of methods and performance. Where the license holder uses external laboratories for sampling or analysis, accredited laboratories shall be used".*

   The latest parallel and correlation tests conducted at Duvha Power Station were done by Stacklabs in 2022 and 2023, respectively. At the time of the tests, Stacklabs was not accredited. This is a finding against the Station's AEL. However, the station provided proof that the service provider has applied for accreditation, and is undergoing evaluation (Application Number TES1643973621770).

2. **AEL condition 6.1** deals with raw materials used. Duvha Power Station is authorised to use no more than 5000 tons of fuel oil per month. The station has exceeded the fuel oil usage in the months of April, May and June 2023.

3. **AEL condition 7.1** deals with appliances and control measures. The Station is required to meet a minimum control efficiency of 99.6% and a minimum utilization of 96% for the Flue Gas Conditioning/ SO_3 plant. The station did not meet the control efficiencies and utilisation of the SO_3 plant for some units during the review period due to challenges in the plant.

[1] The station has initiated the process to renew this licence and as such the existing licence is considered legally valid until the renewal process is completed.

4. **AEL condition 7.2** deals with maximum emission rates (under normal working conditions). Stations are currently operating on the previous limits (prior to April 2020) until the MES Postponement Applications decision is finalised and enforced. Duvha Power Station exceeded the PM limit on Units 4, 5 and 6 during the months of April, May and June 2023.

Review Rating:

A simple rating of 1 (compliance) or 0 (non-compliance) was used for a % compliance score, which is calculated as the number of conditions in compliance divided by the total number of conditions reviewed for compliance, multiplied by 100. Based on this simple rating, the station scored a percentage score of **73.8%.** In terms of the categorisation of findings, an individual finding rating description outlined in Section 3.4.8 of the Assurance and Forensic Combined Assurance Standard (240-87242017) Rev4 of Nov 2021, was used to rate the findings' risk levels as described below (Table1). The risk rating of these findings is shown in section 5 (Table 4) of the report and in the checklist (Appendix 1).

In terms of the overall opinion rating classification outlined in Section 3.4.9 of the Assurance and Forensic Combined Assurance Standard (240-87242017) Rev4 of Nov 2021 (Table 2), Duvha scores an overall score of **3** – *this is because within the context of the AEL review, the primary business objective is to minimise the air quality impact of the stations operations on the environment and to ensure compliance to the defined emission limits and the accurate reporting of the emissions. Duvha Power Station exceeded the PM limit on Units 4, 5 and 6 during the months of April, May and June 2023. The station also did not meet the control efficiencies and utilisation of the SO_3 plant for some units during the review period due to challenges in the plant. Furthermore, the Station used an unaccredited Service Provider to conduct parallel and correlation tests. Several other non-compliances with the AEL exceedances were also observed.*

Given the critical importance of meeting the Listed Activities and Associated Minimum Emission Standards, 22 November 2013 and and the number of non-compliances observed, the system of control is regarded as adequate but ineffective to achieve the related business objectives. **Most** of the governance framework components of the system of control are regarded as ineffective, which results or could result in **most** of the related business objectives not being achieved.

Duvha Management Comments:

Duvha management was afforded an opportunity to comment on the draft report. The comments were taken into consideration during the development of the final report.

ABBREVIATIONS

Abbreviation	Description
AEL	Atmospheric Emission Licence
AEMP	Atmospheric Emission Management Plan
AQ CoE	Air Quality Centre of Excellence
CEM	Continuous Emission Monitoring
DFFE	Department of Forestry, Fisheries and the Environment
GM	General Manager
Gx	Generation
KPI	Key Performance Indicator
MES	Minimum Emission Standards
NEM: AQA	National Environmental Management: Air Quality Act 39 of 2004
PM	Particulate Matter
SO_3	Sulphur trioxide

1. INTRODUCTION

Generation Environmental Department, Air Quality Centre of Excellence (AQ CoE), represented by Gavaza Mhlarhi, conducted an Air Quality AEL Compliance Review at Duvha Power Station on 13-14 July 2023. The purpose of the review was to give assurance that the conditions of the Duvha AEL are being complied with.

The station was represented by the Environmental team consisting of Boitumelo Rathlogo and Maqhawe Nkambule. Other Departments that were represented include: Boiler Engineering, Quality Assurance, Operations and Engineering.

2. OBJECTIVES AND SCOPE

The objective of the review was to determine compliance with the atmospheric emission licence general conditions for the purpose of the AEL KPI scoring, as per specific sub-KPI 5. Within the scope of the review, compliance with air quality-related legislative requirements and identifying potential areas of improvement were determined. The period under review was quarter 1 of the 2023/24 financial

year (April to June 2023).This report aims to provide the station with identified gaps which the station will have an opportunity to address in the following months. The final year-end score (Q4) will then include the updated AEL compliance review score based on the closure of the identified gaps.

3. REFERENCE DOCUMENTS

During the review, compliance to the following legislation was evaluated:

- Duvha Station's Atmospheric Emission Licence - **17/4/AEL/MP312/11/07**
- National Environmental Management: Air Quality Act (Act No 39 of 2004)
- Listed Activities and Associated Minimum Emission Standards, 22 November 2013
- National Ambient Air Quality Standards, 24 December 2009
- National Dust Control Regulations, 01 Nov 2019
- Municipal Bylaws

During the review, there was a focus on the following high-risk areas:

1. *Continuous emission monitoring:* Calibration and correlations of the continuous emission monitoring systems was checked. Monthly air quality reports indicating PM and gaseous emissions were looked at to evaluate AEL compliance monitor reliability and report as required by the Minimum Emission Standards and the power station AEL. Data reviews are undertaken separately by the Generation Compliance Management department with the requirements for data reporting clearly defined in the Emission Monitoring and Reporting Standard (240-5624236 rev 3). This is to assess the correctness of emission data as generated by the station's CEMS and captured in the station's monthly emission reporting tool. It should be noted that data correctness as reported by the station was not evaluated as part of this review process, and reliance was placed on the Emission Review Data Integrity Feedback Report OGE/CM/APC/OCT22/07, dated 17 November 2022 (The recently completed 2023 review while still in draft notes similar issues to this report).
2. *Fugitive emissions:* Compliance with the station's fugitive emissions management plan was evaluated. The fugitive emission monitoring network and the monthly fugitive reports since April 2023 were looked at for compliance.
3. *Section 30 reporting:* The close-out of all section 30 high-emission incidents reported since April 2023 was evaluated.
4. *General AEL monthly reporting:* A sample of the station's monthly AEL reports was reviewed to determine their correctness in terms of data presented and interpretation.

5. *Previous Authority air quality compliance actions or commitments, assurance or compliance reviews and environmental incidents.*

4. REVIEW PROCESS FOLLOWED

The AQ CoE sent out a notification letter to the station's GM and the Environmental practitioners in preparation for the review. The reviewer received additional documents requested during the review. All the documents requested were provided by the power station. A detailed checklist with all AEL conditions reviewed is attached as Appendix 1.

The following programme was followed during the review:

i) Opening meeting: a presentation was done on the review objectives and plan. The station was afforded an opportunity to share their emission performance, including challenges followed by action plans to address such challenges.
ii) Documentation review: the station representatives were interviewed on each condition of the AEL and were requested to upload supporting documents for review on MS Teams.
iii) Closing meeting: a closing meeting was held on the day of the Review, where high-level findings were shared with the station management team.

A draft report was sent to the station for comments. The station had 1 week to provide comments on the draft report, for consideration by the reviewer. A final the report is issued following receipt of the station team's comments on the draft report. The power station must submit an action plan with due dates for the close-out of the findings within two weeks of receipt of the final report. The final report's findings will be tracked monthly through SAP QIM and the findings spreadsheet in place by AQ CoE.

Criteria for the review

The compliance status of the power station was rated in terms of a simple rating of 1 (compliance) or 0 (non-compliance) for a percentage (%) compliance score, which is the number of conditions in compliance divided by the total number of conditions reviewed for compliance, multiplied by 100.

In addition, the individual finding rating description outlined in Section 3.4.8 and overall opinion rating classification outlined in Section 3.4.9 of the Assurance and Forensic Combined Assurance Standard (240-87242017) Rev4 of Nov 2021, were used as described below (Tables 1 and 2). Within the context of the AEL review, the primary business objective is to minimise the air quality impact of the stations'

operations on the environment and to ensure compliance to the defined emission limits and the accurate reporting of the emissions.

Table 1: **Individual Finding Rating Description (Section 3.4.8 of the combined assurance standard)**

Rating	Rating description
1	Isolated/negligible instances of ineffectiveness in relation to internal controls tested (effectiveness testing). Gaps in internal controls have a negligible impact on the control environment (adequacy testing). Findings do not necessarily need to be formally corrected. Relative ease to correct findings in terms of time, effort and cost.
2	Multiple immaterial instances of ineffectiveness in relation to internal controls tested (effectiveness testing). Gaps in internal controls have a minor/immaterial negative impact on the control environment (adequacy testing). Findings may require slightly more time, effort and cost to correct. Findings must be corrected within 12 months.
3	Isolated or multiple material instances of ineffectiveness in relation to internal controls tested (effectiveness testing). Gaps in internal controls have a material negative impact on the control environment (adequacy testing). Findings are serious and significant time, effort and cost may be required to remediate. Findings must be corrected within 30-60 days.
4	Pervasive instances of ineffectiveness in relation to internal controls tested (effectiveness testing). Gaps in internal controls have a material pervasive impact on the control environment (adequacy testing). Findings are critical and significant time, effort and cost may be required to remediate. Findings must be corrected within 30 days.

Table 2: **Overall opinion rating (Section 3.4.9 of the combined assurance standard)**

Overall Opinion Rating	Rating
The system of control is regarded as adequate **and/or** effective to achieve all the related business objectives. **No or insignificant control deficiencies were identified.**	**1**
Overall, the system of control is regarded as adequate **and/or** effective to achieve the related business objectives. However, control deficiencies were identified relating to some of the governance framework components of the system of control, which could affect the achievement of some of the related business objectives.	**2**
The system of control is regarded as adequate **but** ineffective to achieve the related business objectives. **Most** of the governance framework components of the system of control are regarded as ineffective, which results or could result in **most** of the related business objectives not being achieved. **OR** Overall, the system of control is regarded as inadequate to achieve the related business objectives. **Most** of the governance framework components of the system of control are regarded as inadequate, which results or could result in **most** of the related business objectives not being achieved.	**3**
The system of control is regarded as adequate **but** ineffective to achieve the related business objectives. **Collectively,** the governance framework components of the system of control are regarded as ineffective, which results or could result in all of the related business objectives not being achieved. **OR** The system of control is regarded as inadequate to achieve the related business objectives. **Collectively,** the governance framework components of the system of control are regarded as inadequate, which results or could result in all of the related business objectives not being achieved.	**4**

5. LIST OF FINDINGS

Table 3 below contains a list of non-compliances with the AEL and observations for the station to action.

Table 3: Non-compliances with the AEL and observations for station to action

Number	Legal requirement	Compliance Action	Responsible Person	Due Date	Station Response/ Comments	A&F Risk Rating (1-4)
1	AEL condition 4.3	**AEL condition 4.3** deals with *sampling and/or analysis requirements.* "The license holder is responsible for quality assurance of methods and performance. Where the license holder uses external laboratories for sampling or analysis, accredited laboratories shall be used". The latest parallel and correlation tests conducted at Duvha Power Station were done by Stacklabs in 2022 and 2023, respectively. <u>At the time of the tests, Stacklabs was not accredited. This is a finding against the Station's AEL.</u> However, the station provided proof that the service provider has applied for accreditation, and is undergoing evaluation (Application Number TES1643973621770).				3

Number	Legal requirement	Compliance Action	Responsible Person	Due Date	Station Response/ Comments	A&F Risk Rating (1-4)
		Furthermore, the Emission Review Data Integrity Feedback Report OGE/CM/APC/OCT22/07, dated 17 November 2022 and the recently completed draft review report OGE/CM/APC/SEP23/04, dated 19 September 2023, identified repeat findings relating to incorrect reporting of CO2-O2 relationship, operating with expired gas parallel test factors on Unit 4 and incorrect implementation of Unit 4 PM correlation factors. These findings remain open. **Recommendation:** The station needs to focus some time into closing the above findings with a clear plan shared with the AQ CoE endorsed by Rakesh.				

Number	Legal requirement	Compliance Action	Responsible Person	Due Date	Station Response/ Comments	A&F Risk Rating (1-4)
	AEL condition 4.4	**AEL condition 4.4** deals with general requirements for licence holder. The License Holder is required to "*nominate the emission control officer or any other official to attend all the Highveld Priority Area Air Quality Management Plan (HPA-AQMP:ITT) Implementation Task Team and also the Multi-Stakeholder Reference Group Meetings".* <u>Simthandile Nhlapo was appointed as the official to attend all meetings in a letter valid from 28 June 2017 to 31 May 2022. This appointment is no longer valid.</u> Station to nominate the ECO or any other official to attend all the HPA- AQMP: ITT and MSRG Meetings. Eskom Duvha Power Station is further required *to provide and implement, a specific and time bound Atmospheric Emission Off-set Plan to reduce PM pollution in the ambient/receiving*				2

Number	Legal requirement	Compliance Action	Responsible Person	Due Date	Station Response/ Comments	A&F Risk Rating (1-4)
		environment that must be approved by the Atmospheric Emission Licensing Authority annually. The Eskom offsets plan has been developed and an implementation progress report was submitted to the Licensing Authorities on 03 March 2023. <u>However it should be noted that the progress on implementation has been slow.</u> This is a finding against the condition but will not be held against the station as coordination of the implementation is at Head Office level.				

Number	Legal requirement	Compliance Action	Responsible Person	Due Date	Station Response/ Comments	A&F Risk Rating (1-4)
3	AEL condition 6.1	**AEL condition 6.1** deals with raw materials used. Duvha Power Station is authorised to use no more than 5000 tons of fuel oil and 1 400 000 tons of coal per month. Coal usage was within the specified limit for the months of April, May and June 2023. <u>However, the station exceeded the fuel oil usage during those months.</u> The Licensing Authority was notified of the exceedances in the monthly reports, where the station indicated that a detailed investigation report with root cause and preventative actions will be made to the Authorities once the investigation is complete. **Recommendation:** Station to complete and submit investigation report to the Authorities.				2

Number	Legal requirement	Compliance Action	Responsible Person	Due Date	Station Response/ Comments	A&F Risk Rating (1-4)
4	AEL condition 6.2	**AEL condition 6.2** deals with *production rates*. The maximum permitted electricity capacity in the AEL does not match what the station uses on their monthly reports. <u>The station is reporting against 3600 “GWh” instead of 3600MW without actually converting from MW to GWh.</u> **Recommendation:** The correct unit of measurement must be communicated to the Authorities to ensure consistency and to avoid confusion in the monthly report.				1
5	AEL condition 7.1	**AEL condition 7.1** deals *with appliances and control measures.* Duvha Units 4, 5 and 6 are required to meet a minimum control efficiency of 99.6% and a minimum utilization of 96% for the flue gas conditioning/SO_3 plant.				2

Number	Legal requirement	Compliance Action	Responsible Person	Due Date	Station Response/ Comments	A&F Risk Rating (1-4)
		The station did not meet the control efficiencies and utilisation of the SO_3 plant for some units during the review period due to challenges in the SO_3 plant.				
6	AEL condition 7.2	**AEL condition 7.2** deals with *the maximum emisssions rates under normal working conditions.* Stations are currently operating on the previous limits (prior to April 2020) until the MES Postponement Applications decision is finalised and enforced. The Station exceeded the PM limit on units 4, 5 and 6 during the months of April, May and June 2023.				3

Number	Legal requirement	Compliance Action	Responsible Person	Due Date	Station Response/ Comments	A&F Risk Rating (1-4)
7	AEL condition 7.2.1	**AEL condition 7.2.1** requires the Licence Holder to report its operational performance against the conditions of the License at least on a bi-annual basis, to the Licensing Authority. The Station submitted the bi-annual report for the period October 2022-March 2023. However, the report was only submitted in July 2023 (late reporting).				1
8	AEL condition 7.6	**AEL condition 7.6** deals with routine reporting and record keeping. The License holder is required to "*maintain a complaint register at its premises, and such register must be made available for inspection. The complaint register must include the following on the complaint, namely: the name, physical address, telephone number, date and the time when the complaint was registered. The register*				1

Number	Legal requirement	Compliance Action	Responsible Person	Due Date	Station Response/ Comments	A&F Risk Rating (1-4)
		must also provide space for noise, dust and offensive odours complaints". The station maintains a complaints register in the form of an Excel spreadsheet on site. The register was made available for the review. <u>The register contains most of the required information but does not contain the physical address of the complainant or the time the complaint was received.</u> The condition further requires *the License Holder to complete and submit to the Licensing Authority an annual report. The report must include information for the year under review. The report must be submitted not later than 60 days after the end of each reporting period. The annual report must include items as prescribed in the AEL.*				

Number	Legal requirement	Compliance Action	Responsible Person	Due Date	Station Response/ Comments	A&F Risk Rating (1-4)
		Duvha's last annual report was due at the end of May 2023, but was only sent to the Licencing Authority on 12 July 2023, more than sixty days later than the end of the reporting period. The report includes items a-c; however, it does not contain GHG as these are reported in SAGERS system which is considered acceptable based on engagements with DFFE.				
9	AEL condition 7.7	**AEL condition 7.7** deals with Investigations. Duvha Power Station was required to investigate the occurrence of multiple of NEMA Section 30 Control of Emergency Incidents, with a completion date of six months from the date of issue. The investigation was done by the station only in April 2019 (late reporting).				1

Number	Legal requirement	Compliance Action	Responsible Person	Due Date	Station Response/ Comments	A&F Risk Rating (1-4)
10	AEL condition 10.1	**AEL condition 10.1** deals with the appeal of the license. The License Holder is required to *notify every registered interested and affected party, in writing within 5 days of receiving the municipal decision.* The AEL was issued on 30 June 2017, and the notification to I&Aps was done on 08 August 2017, which is more than 5 days after receiving the municipal decision.				1
11	AEL condition 10.2.3	**AEL condition 10.2.3** requires the notification referred in 10.1 to specify the date on which the licence was issued. Duvha's notification indicates the date on which the AEL was received (05 July 2022) and not the date it was issued (30 June 2017).				1

It is the responsibility of the station to ensure that the actions are closed. Proof of closure and progress made on the actions are sent to Air Quality Centre of Excellence monthly, and updated on the SAP QIM system.

6. CONCLUSION

The AEL Compliance review concluded with **eleven (11) main findings** raised. The station is requested to take the above summary of findings and develop a detailed execution plan to drive the close-out of actions relating to the findings. This plan should be submitted to Gx Environmental Management, AQ CoE within 2 weeks from this feedback report. GEM AQ CoE will track and report on the status of the findings.

The station should also ensure that the above findings are captured within the station's internal review tracking system such as the SAP QIM.

7. RATING

Based on the simple rating explained above, the station scored a percentage score of **73.8%** and in terms of the overall opinion rating classification outlined in Section 3.4.9 of the Assurance and Forensic *Combined Assurance Standard (240-87242017) Rev4 of Nov 2021* and Table 1 of the executive summary above, Duvha scores an overall score of **3** – *this is because within the context of the AEL review, the primary business objective is to minimise the air quality impact of the stations operations on the environment and to ensure compliance to the defined emission limits and the accurate reporting of the emissions. Duvha Power Station exceeded the PM limit on Units 4, 5 and 6 during the months of April, May and June 2023. The station also did not meet the control efficiencies and utilisation of the SO_3 plant for some units during the review period due to challenges in the plant. Furthermore, the Station used an unaccredited Service Provider to conduct parallel and correlation tests. Several other non-compliances with the AEL exceedances were also observed.*

Given the critical importance of meeting the Listed Activities and Associated Minimum Emission Standards, 22 November 2013 and and the number of non-compliances observed, the system of control is regarded as adequate but ineffective to achieve the related business objectives. **Most** of the governance framework components of the system of control are regarded as ineffective, which results or could result in **most** of the related business objectives not being achieved.

APPENDIX 1: Duvha AEL Compliance Review Checklist

Duvha Checklist for AEL Compliance Review conducted 13-14 July 2023 **AEL No: 17/04/AEL/MP312/11/07** **Issued 30 June 2017** **Valid until 30 June 2022**				**Legends**		
				Compliance	**1**	
				Non-compliance	**0**	
				A&F Rating	1 2 3 4	
AEL Condition No./ Section	**AEL Conditions/ subsection**	Required evidence for compliance	**Comments/ Action required**	**Compliance Rating**	**A&F Rating**	**Condition Number**
	Front page of the Licence	Check information is correct and reflects the station				
1	**ATMOSPHERIC EMISSION LICENCE HOLDER DETAILS**					
Name of Licensing Authority	Nkangala District Municipality	Check information is correct and reflects the station	Noted - no corrections	**1**		**1**
Atmospheric Emission License Number	17/04/AEL/MP312/11/07	Check information is correct and reflects the station	Noted - no corrections			
Atmospheric Emission License Issue date	Friday, 30 June 2017	Check information is correct and reflects the station	Noted - no corrections			
Atmospheric Emission License Type	Renewal	Check information is correct and reflects the station	Noted - no corrections			
Review date not later than	31/03/2022	Check information if the licence is still valid	At the time of the review, the AEL had expired. The delay was sitting with the Licensing Authority pending the MES decision. The station provided proof of submittal of the renewal application on SAAELIP, dated 23 May 2023, as evidence that submission was done prior to 31 March 2023.			

2	**ATMOSPHERIC EMISSION LICENSE HOLDER DETAILS**	Check information is correct and reflects the station				
Enterprise name	Eskom Holdings SOC Limited	Check information is correct and reflects the station	Noted - no corrections	**For verification not to be scores under compliance, refer to condition 4.4 for any changes and updates**		
Trading as	Duvha Power Station		Noted - no corrections			
Enterprise registration number	2002/015527/30		Noted, no corrections			
Registered address	Megawatt Park, Maxwell Drive, Sunninghill, Sandton		Noted - no corrections			
Postal Address	PO Box 2199, Witbank, 1035		Noted - no corrections			
Telephone number (General)	(013) 690 0111		Noted - no corrections			
Industry Sector	Power Generation		Noted - no corrections			
Name of Responsible Officer	Anthony Kuzelj	Changes communicated to the authorities?	The responsible officer and/or emission control officer has been changed to Mr Lourence Chauke. The Licensing Authority was notified of the change in a letter dated 16 February 2021.			
Name of Emission Control Officer	Anthony Kuzelj					
Telephone number	(013) 690 0401					
Cell phone number	(082) 338 2579					
Fax number	(013) 690 0423					
Email address	kuzeljA@eskom.co.za					
After Hours contact details	(082) 332 2579		Noted - no corrections			
land use zoning as per town planning scheme	Agricultural and Heavy Industry	check zoning of the land document	Station to ensure that zoning certificate is available for Authorities			

3.	**LOCATION AND EXTENT OF THE PLANT**					
Physical address of the Premises	Duvha Power Station, Speekfontein, 335JS, Middelburg Old Bethal Road	Check information is correct and reflects the station	Noted - no corrections	**For verification not to be scores under compliance.**		
Description of site	Duvha Kragstasie No. 337JS		Noted - no corrections			
Coordinates of appropriate center operations	Latitude: $25^0$57'36.73"S Longitude:$29^0$20'30,44"E		Station to ensure that co-ordinates are correct			
Extent (KM^2)	1822.4768 ha		Station to ensure the extent is correct and it includes - ash dam/dump and coal stock pile/yard			
Elevation above sea level (m)	1596		Station to check elevation information			
Province	Mpumalanga		Noted - no corrections			
District Municipality	Nkangala District Municipality		Noted - no corrections			
Local municipality	Emalahleni Local Municipality		Noted - no corrections			
Designated Priority Area	Highveld Priority Area		Noted - no corrections			
3.2 Description of surrounding land use (within 5km radius)	Duvha Power station is situated close to Witbank Dam. There is agricultural land, houses and hostels (Sannieshof and ikageng) for mostly the power station employees and the R575 motor way in close proximity to the power station. The surrounding land-use includes the following: coal mining, brick manufacturing (Corobrik), farming and residential properties (Rhenosterfontein section 3; Dreifontein section 11; Vlakfontein section 2; Speekfontein section 5 and naauwpoort No. 335)		Noted - no corrections			

4.	**GENERAL CONDITIONS**					
4.1 Process and ownership changes	The Licence Holder must ensure that all unit processes and apparatus used for the purpose of undertaking the listed activity in question, and all appliances and mitigation measures for preventing or reducing atmospheric emissions, are at all times properly maintained and operated.	•Check for maintenance plan or philosophy and if these are followed. •Triggers: Check for recurring S30s, LCs, emission performance, repeat plant failures •Check for emission reduction plans	According to the Station, preventative and corrective maintenance is undertaken as and when required. Proof of PMs for the dust and gas monitors, ESPs, FFPs and SO_3 plant were submitted as evidence. The station also has an emission reduction plan.	**1**		**2**
	No building, plant or site of works related to the listed activity or activities used by license holder shall be extended, altered or added to the listed activity without an environmental authorisation from the competent authority.	Any extension and alterations noted?	Noted, no changes.			
	Any changes in processes or production increases, by the License Holder, will require prior approval by the Licensing Authority.	Check for changes in processes, quantities, material against month end report and what has been stipulated in section 6.1 of this licence. Any changes increase must be communicated in writing to the authorities.	Noted, no changes.			
	Any changes to the type and quantities of input materials and products, or to production equipment and treatment facilities will require prior written approval by the Licensing Authority.		Noted, no changes.			
	The License Holder must, in writing, inform the licensing authority of any change of ownership of the enterprise. The Licensing Authority must be informed within 30 (thirty) days after the change of ownership.		Noted, no changes.			

	The License Holder must immediately on cessation or decommissioning of the listed activity inform, in writing the licensing authority.		According to the station, Unit 3 has ceased operations and removed from production. The Authorities were notified in the December 2022 monthly report that the unit is permanently offload and that the Station will no longer be reporting on it.			
4.2 General duty of care	The License Holder must, when undertaking the listed activity, adhere to the duty of care obligations as set out in section 28 of the NEMA	How is station practicing duty of care? Is station taking emission related load losses?	According the the station, duty of care is practiced as follows: continuous emissions monitoring, station has a procedure in place for emissions response, have a speedy response to emissions and have established a task team which responds to emissions even after hours. Should the station have done everything then the unit gets shutdown. The station also takes load losses (proof provided).	**1**		**3**
	The License Holder must undertake the necessary measures to minimize or contain the atmospheric emissions. The measures are set out in section 28(3) of the NEMA.		The Station confirmed that they undertake the necessary measures, as set out in section 28(3) of the NEMA, to minimize or contain the atmospheric emissions.			
	Failure to comply with the above condition is a breach of the duty of care and the License Holder will be subject to sanction set out in section 28 of the NEMA.		Noted. No PCNs related to emissions			
4.3 Sampling and or analysis requirements	Measurement, calculation and/or sampling and analysis shall be carried out in accordance with any nationally or internationally acceptable standard. A different method may be acceptable to the Licensing Authority as long as it has been consulted and agreed to the satisfactory documentation necessary in confirming the equivalent test reliability, equality and equivalence of analysis.	Compliance to Emission monitoring and reporting Standard	The latest parallel and correlation tests were conducted by Stacklabs in 2022 and 2023, respectively. At the time of the tests Stacklabs was not accredited. This is a finding against the Station's AEL. However, the station provided proof that the service provider has applied for accreditation, and is undergoing evaluation (Application Number TES1643973621770). Furthermore, the latest Emission Review Data Integrity Feedback Report OGE/CM/APC/OCT22/04, dated 14 September 2023 (draft report), identified repeat findings relating to the incorrect installation of O2 analysers (resolved),	**0**	**3**	**4**

			incorrect reporting of CO2-O2 relationship, operating with expired gas parallel test factors on Unit 4 and incorrect implementation of Unit 4 PM correlation factors. These findings remain open. **Recommendation:** The station needs to focus some time into closing the above findings with a clear plan shared with the AQ CoE endorsed by Rakesh.			
	The license holder is responsible for quality assurance of methods and performance. Where the license holder uses external laboratories for sampling or analysis, accredited laboratories shall be used.	Check if accredited external laboratories are used.	The latest parallel and correlation tests were conducted by Stacklabs in 2022 and 2023, respectively. At the time of the tests Stacklabs was not accredited. This is a finding against the Station's AEL. However, the station provided proof that the service provider has applied for accreditation, and is undergoing evaluation (Application Number TES1643973621770).			
4.4 General requirements for license holder	The License Holder is responsible for ensuring compliance with conditions of this license by any person acting on his, her or its behalf, including but not limited to, an employee, agent, sub-contractor or person rendering services to the holder of the licence.	Awareness, communication, training, compliance operators meetings	According to the station, the conditions of the AEL are communicated during induction. Awareness is also done monthly with employees and contractors. Station provided a Teams attendance register for an Environmental Awareness Session held in March 2023.	**0**	**2**	**5**
	The license does not relieve the License Holder to comply with other statutory requirements that may be applicable to the carrying of the listed activity.	Statuary requirements applicable may not be in the licence but must be complied with	Noted.			
	A copy of the license must be kept at the premises where the listed activity is undertaken. The licence must be made available to the environmental management inspector representing the Licensing Authority who requests to see it.		A copy of the AEL is kept at the documentation centre.			

	The License Holder must nominate the emission control officer or any other official to attend all the Highveld Priority Area Air Quality Management Plan (HPA-AQMP:ITT) Implementation Task Team and also the Multi-Stakeholder Reference Group Meetings	Check if there is a nomination form/appointment letter done by GM as LH - or representatives from the station	Simthandile Nhlapo was appointed as the official to attend all meetings in a letter valid from 28 June 2017 to 31 May 2022. This appointment is no longer valid. Station to nominate the ECO or any other official to attend all the HPA- AQMP: ITT and MSRG Meetings.			
	The License Holder must inform, in writing the Licensing Authority of any charge to its details including the name of the emission control officer, postal address and or telephonic details.	Check the name of the control officer?	The name of responsible officer and/or emission control officer has been changed to Mr Lourence Chauke. The Authorities were notified of the change in a letter dated 16 February 2021.			
	Eskom Duvha Power Station is required to provide and implement, a specific and time bound Atmospheric Emission Off-set Plan to reduce PM pollution in the ambient/receiving environment that must be approved by the Atmospheric Emission Licensing Authority annually.	The station to have a copy of the HPA AQMP objectives and plans	The Eskom offsets plan has been developed and an implementation progress report was submitted to the Licensing Authorities on 03 March 2023. However it should be noted that the progress on implementation has been slow. This is a finding against the condition but will not be held against the station as coordination of the implementation is at Head Office level.			
4.5 Statutory obligations	The Licence holder must comply with the obligations as set in chapter 5 of the Act.	Check how the station is complying to statutory obligations as set out in chapter 5 of the Act.	The Station is licensed in terms of its listed activities. No PCN Or directive issued	**1**		**6**
5	**NATURE OF PROCESS**					
5.1 Process description	Process as described in the AEL	Check if process as described is accurate and still the same	The electricity generating process is as described in the AEL. No errors and therefore no amendments required.	**1**		**7**

5.2 Listed activity(ies)	Activities as described in the AEL Table 5.2	Check if listed activities as listed are correct and still the same	All listed activities per Table 5.2 are in order as listed in the EAL	**1**		**8**
5.3 Unit process(es)	As per Table 5.3 of the AEL with listed activities undertaken at the premises	Check if correct and still in order	Listed activities per Table 5.3 are in order. Unit 3 removed from application.	**1**		**9**
5.4 Hours of operations	As described in Table 5.4 of the AEL per unit (1 to 6), coal stockpile, and fuel oil storage tanks_24 hours_365 days of operation per year.	Check if correct and still the same	Still the same	**1**		**10**
5.5 Graphical process information	Graphic illustration of the process per figure 2	Check if correct and still the same	Still in order and illustrate the exact electricity generation process as known to the station	**1**		**11**
6	**RAW MATERIAL AND PRODUCTS**					
6.1 Raw materials used	Regulated Raw Material table 6.1 - max consumption rate - **coal: 1 400 000 tons/monh; fuel oil: 5000 tons/month**	Check if these limits were not exceeded in the past April, May, June (if available)	Coal usage was within the specified limit. However, the station exceeded the fuel oil usage in the months of April, May and June 2023. The Licensing Authority was notified of the exceedances in the monthly reports, where the station indicated that a detailed investigation report with root cause and preventative actions will be made to the Authorities once the investigation is complete. **Recommendation:** Station to complete and submit investigation report to the Authorities.	**0**	**2**	**12**
6.2 Production rates	Electricity max production capacity at 3600 MW	Check if these limits were not exceeded in the past April, May, June (if available)	The maximum permitted electricity capacity in the AEL does not match what the station uses on their monthly reports. The station is reporting against 3600 “GWh” instead of the 3600MW in the AEL without actually converting from MW to GWh. The correct unit of measurement must be communicated to the Authorities to ensure consistency and to avoid confusion in the monthly report.	**0**	**1**	**13**

6.3. Materials used in energy sources	Coal1 400 000 tons/monh; fuel oil: 5000 tons/month	Check if these limits were not exceeded in the past April, May, June (if available). Step report	Characteristics for coal are up to date. No evidence of fuel oil characteristics was provided.	**1**		**14**
6.4	Sources of Atmosperic emissions					
6.4.1 Point Source parameters	Stack information on table	Check if information per Table 6.4.1 and 2 of AEL is still the same and accurate for the station.	The station indicated that the information is still the same	**1**		**15**
6.4.2 Area/Line Source parameters	Coal stock pile, Ash Dam		The station indicated that the information is still the same	**1**		**16**
7	**CONTROL DEVICES, EMISSION UNITS, AND REPORTING GROUP**					
7.1 Appliances and Control Measures	Appliances and control measures, as described in the AEL. Control efficiency FFP: 99%, ESP: 99.6% and utilization 100%	Check for 99% Min control efficiency for and 100% Min utilization	The station did not meet the control efficiencies and utilisation of the SO3 plant for some units during the review period due to challenges in the SO3 plant.	**0**	**2**	**17**
7.2 Reporting Group / Emission Unit - maximum emission rates (under normal working conditions)	Limit table: Stack 1 and stack 2 :PM = 100mg/Nm3, SO2 = 3500mg/Nm3, NOx = 1100mg/Nm3	Check if station complies with the said limits from April - June 2023	Stations are currently operating on the previous limits (prior to April 2020) until the MES Postponement Applications decision is finalised and enforced. Station exceeded the PM limit on units 4, 5 and 6 during the months of April, May and June 2023.	**0**	**3**	**18**
	7.2.1 The Licence Holder must report its operational performance against the conditions of the License at least on a bi-annual basis, to the Licensing Authority	Request proof of submission of bi-annual report	Noted. Station submitted bi-annual report for the period October 2022-March 2023. The report was however submitted only in July 2023 (late reporting).	**0**	**2**	**19**
	7.2.2. This operation is located in the HPA designated Area. Further review of the set conditions may be introduced to align to the implementation of the Highveld Air Pollution Priority Area interventions		Noted, no review of set conditions to date.	**1**		

	7.2.3 A copy of the AEL shall be retained at the Power Station and should be available in case authorities would like to view it	Noted	A copy of the AEL is available at the documentation centre and retained within the station	**1**		**20**
	7.2.4 All records related to operational performance in terms of this license must be maintained and kept for at least five (5) years	Noted	Records are kept in the document centre and G-Drive, and procedure indicates where documents are kept and how long they should be kept.	**1**		**21**
	7.2.5 The licence holder shall be liable to prevent and mitigate against the risk of harm to human health and the environment, and shall put in place measures necessary to prevent and/ or mitigate against such risks.	Check FEMP	The station has a Fugitive emission management plan which is being implemented, Monitoring is being done, reports are being submitted to the Authorities and the station is complying to set limits.	**1**		**22**
7.3	**Point Source - Maximum emission rates (Under start-up, Maintenance and Shut-down Conditions)**					
	7.3.1 The License Holder must take all reasonable measures to control atmospheric emissions during start-up, maintenance and shut-down operations	Any section 30s?	Station has had exceedances during start-up or maintenance. Station provided logs showing measures taken to control emissions taken during light up.	**1**		**23**
	7.3.2 Normal maintenance and shut-down conditions shall not exceed a period of forty eight (48) hours. Should maintenance, upset and shut-down conditions exceed a period of 48 hours, section 30 of the National Environmental Management Act, 107 of 1998 (as amended) shall apply	Check start-up schedule	Noted. Duvha has exceeded the PM limit on units 4, 5 and 6 during the months of April, May and June 2023. Incidents where the station exceeded the 48 hours have been reported as non-compliances where they did not meet the Section 30 criteria.	**1**		**24**
	7.3.3 PM emissions should be below the limit value within 48 hours of synchronising with the grid during a hot start, and below the limit value within 72 hours of synchronising with the grid during cold start	Check monitoring data against S30s reported, in the past months, based on sub-conditions in this section.	Noted. This is a condition that is applied on the ERT.	**1**		**25**

	7.3.4 Should start-up exceed the period in 7.3.3, section 30 of the National Environmental Management Act, 107 of 1998 (as amended) shall apply.		Noted. Duvha has exceeded the PM limit on units 4, 5 and 6 during the months of April, May and June 2023. Incidents where the station exceeded the 48 hours have been reported as non-compliances as they did not meet the Section 30 criteria (i.e., sudden, unexpected, never happened before)	**1**		**26**
	7.3.5 Reporting on particulate emissions to commence 24 hours after the unit has synchronized with the grid during start-up		Noted. This is a condition that is applied on the ERT.	**1**		**27**
	7.3.6 During start-up, maintenance and shut-down, or in the event where there is an indication of adverse impacts to human health and/ or the environment, the License Holder must take appropriate measures to avoid such from occurring and / or recurring		The station has start-up, maintenance and shutdown checklists which are adhered to.	**1**		**28**
	7.3.7 In order to put into effect the provisions of section 42 of the Act, the Licensing Authority may from time to time review the conditions set herein and may set maximum emission limits to be adhered to by the License Holder during start-up, maintenance and shut-down conditions.		Noted. No review of conditions to date.	**1**		**29**
7.4 Point source emission monitoring and reporting requirements	As described in the AEL table - Sampling frequency (continuous), sampling duration, parameters to be measured (PM, SO2, NOx), Parameters to be reported (PM, SO2 NOx) and reporting frequency (monthly)	Check correlation test and parallel test being conducted Regulations require 80% and above monitor reliability. If the monitor reliability per Unit is 80% and above the station will score a one (1) for each Unit and where it is less than 80% the station will score a zero (0) per Unit.	Monitoring and reporting is done as per table 7.4. All correlation and parallel tests were still valid at the time of the Review. PM Calibrations are up to date, gases are done bi-weekly by OEM (waiting for report). Monitor relaibility above 80% during April, may and June 2023.	**1**	**3**	**32**

7.5 Area and/or line source-management and mitigation measures	Table for coal stock pile, ash dump and unpaved road fall-out dust monitoring	Check the dust fall out reports/ fugitive emissions management plan.	Stockpile compaction and water spraying are done as per Schedule (Dust suppression schedules were provided). Dust fallout monitoring is conducted on site and the station has complied with the industrial dustfallout limits during the review period.	1		**33**
7.6 Routine reporting and record keeping	**Complaint Register**					
	The License holder must maintain a complaint register at its premises, and such register must be made available for inspection. The complaint register must include the following on the complaint, namely: the name, physical address, telephone number, date and the time when the complaint was registered. The register must also provide space for noise, dust and offensive odours complaints.	Check complaints register and feedback on how the issues were addressed. Also if there was summarised reporting to the licensing authority.	The station maintains a complaints register in the form of an Excel spreadsheet. The register was made available for the review. The register contains most of the required information but does not contain the physical address of the complainant or the time the complaint was received.	**0**	**1**	**34**
	Furthermore the License Holder is to investigate and monthly report to the Licensing Authority in a summarised format on the total number of complaints logged. The complaints must be reported in the format with each component indicated as may be necessary: a,b,c,d and e stated in the AEL	Check annual report and that it contain items as required. Also that it was submitted on time. The due date is 30 May 2023	Complaints are reported on monthly. Addendum A of the station's monthly reports contains a summary of the complaints for the month. The complaints in the register are reported in the monthly reports as per the prescribed format.			
	The Licensing Authority must be provided with a copy of the register. The record of a complaint must be kept for at least 5 years after the complaint was made.		The station reports complaints to the Licensing Authority in every monthly report. Records of the complaints register are kept as required. The station provided the 2020/21 complaints register as evidence that records are kept for at least 5 years.			

	Annual Reporting					
	The License Holder must complete and submit to the Licensing Authority an annual report. The report must include information for the year under review. The report must be submitted not later than 60 days after the end of each reporting period. The annual report must include items as prescribed in the AEL.	Check if the annual report was submitted to the LA and within the required time?	Duvha's last annual report was due at the end of May 2023, but was only sent to the Licencing Authority on 12 July 2023, more than sixty days later (late reporting). The report includes items a-c ; however, it does not contain GHG as these are reported in SAGERS system which is considered acceptable based on engagements with DFFE.			
	The annual report must be kept for a period of 5 years	Does the station have previous records of the annual reports?	Station keeps reports for at least 5 years as required.			
7.7 Investigation	Investigation on the influx of NEMA Section 30 Control of Emergency Incidents. Completion date: 6 months from date of issue	Check if any investigations were done and on time	The investigation was done and submitted to the Authorities on 23 April 2019, later than 6 months from the issue date (late submission).	**0**	**1**	**35**
8.	**Disposal of waste and effluent arising from abatement equipment control technology**					
	The disposal of any waste and effluent arising from abatement equipment control technology must comply with the relevant legislation and requirements of the relevant authorities, per Table in AEL	Check for proof of disposal of hazardous material such as fabric filter bags.	Station submitted waste manifest documents as proof of fabric filter bags and sulphur disposal to Holfontein. Ash is sent to the ash dams daily.	**1**		**36**
9.	**Penalties for non-compliance with AEL and statutory conditions or requirements**					
	Failure to comply with the AEL and relevant statutory conditions and requirements is an offence, and the license holder if convicted will be subjected to those penalties as set out in section 52 of the AQA 39 Of 2004	Noted. Check if the station has received PCN, Directive, warning from LA ?	No PCN or CN issued and no complaints from neighbouring communities.	**1**		**37**

10.	**Appeal of license**					
10.1	The License Holder must notify every registered interested and affected party, in writing within 5 days of receiving the municipal decision	Check if this notification was done accordingly	The AEL was issued on 30 June 2017, and the notification to I&APs was done on 08 August 2017, which is more than 5 days after receiving the municipal decision	**0**	**1**	**38**
10.2	The notification referred in 10.1 must:					
	10.2.1 Inform the registered parties of the appeal procedure provided for in the Municipal Systems Act		Reference to Section 62 of the Municipal Systems Act included in notification.	**1**		**39**
	10.2.2 Advise the I&APs that a copy of the AEL and reasons for the decision will be furnished on request		Included in notification	**1**		**40**
	10.2.3 Specify the date on which the licence was issued		The notification indicates the date on which the AEL was received and not the date it was issued.	**0**	**1**	**41**
	10.2.4 An appeal against the decision must be lodged in terms of Section 62 of the Municipal system Act with Appeal Authority		Included in notification	**1**		**42**
			Total conditions reviewed	**42**		
			Total compliance	**31**		
			Percentage Scored	**73.8%**		**3**

Eskom	**2023/24 Internal Carbon Dioxide Emissions Review** **Duvha Power Station**	**Generation Division: Environmental Management**

Title: **Duvha Internal Carbon Dioxide (CO_2) Emissions Review**

Document number: **GEM23-R194**

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Compiled by	**Reviewed by**	**Approved by**
Gavaza Mhlarhi	**Bryan Mc Court**	**Deidre Herbst**
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Date: 17 November 2023	Date: 17 November 2023	Date: 06 December 2023

Received by:

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CONTENTS

EXECUTIVE SUMMARY

An Internal Carbon Dioxide (CO_2) Emissions Review was undertaken at Duvha Power Station on 17-18 October 2023. The purpose of the review was to verify the processes used by the station for producing the final fossil fuel burnt figures in the calculation of Eskom's CO_2 emissions.

The review was undertaken to verify the station's CO_2 figures reported annually in the Eskom's Integrated Report (IR) and in the compliance greenhouse gas (GHG) emissions report submitted to the Department of Foresty, Fisheries, Forestry and the Environment (DFFE) annually. **The SAP QIM number for this report will be loaded upon receipt of the final report.**

Key Findings:

A total of **eight (8) key findings** were raised from this review, below is the high-level summary of key findings:

- ***Coal accounting section:***

1. According to page 7 of 9 of the station's Operation and Maintenance of Mass Meters procedure (03A-CMP0002 Rev 2), "the weighbin and 20 kg mass pieces must be **calibrated** and certified annually by a competent SANAS accredited supplier in terms of trade metrology act 1973". **A verification certificate was provided for the weighbin instead of a calibration certficate. The station is in non-compliance with the Eskom Coal Quantity and Quality Accounting Standard for Thermal Efficiency Determination (Rev 3) and its own internal procedure (03A-CMP0002 Rev 2).**

- ***Carbon in refuse section:***

1. A sample of April, May and June 2023 Ce-grit sampler reports was provided by the station. **The average sample collection was below 75% for April, May and June 2023, respectively.** According to the station, the units were offline each time there was no data in the checksheet. However no further evidence was provided to support this.

- ***Fuel oil section***

1. **The CV instrument for fuel oil and coal analysis was out of commission since July 2023. The station has therefore not conducted CV analysis from July to October 2023**. It is noted that during the finalisation of this report the station provided a service report, dated 02 November 2023, and indicated that the instrument was back in service from 09 November 2023.

- ***Coal sampling, preparation and analysis section***

1. **The automatic sampling plant located on Conveyor 24 has been out of operation since December 2022. Both the mine and the station have not been collecting coal samples or doing analysis since then.** While it is noted that a service provider (Siza) has been contracted to do grab sampling as an indicator of what is being sent to the units, there is a risk that the current sampling is not giving a representative sample.

Review Rating:

An individual finding rating, as outlined in Section 3.4.8 of the Assurance and Forensic Combined Assurance Standard (240-87242017) Rev4 of Nov 2021, was used to rate the risk levels of each finding as described in Table 1 of the report. An overall opinion rating classification, as outlined in Section 3.4.9 of the Assurance and Forensic Combined Assurance Standard (240-87242017) Rev4 of Nov 2021 (Table 2), was then used to rate the overall risk report.

In terms of the overall opinion rating, Duvha scores an overall score of **3.** Overall, the system of control is regarded as adequate **but** ineffective to achieve the related business objectives. **Most** of the governance framework components of the system of control are regarded as ineffective, which results or could result in **most** of the related business objectives not being achieved.

Duvha Management Comments:

Duvha management was afforded an opportunity to comment on the draft report. The comments were taken into consideration during the development of the final report.

ABBREVIATIONS

Abbreviation	Description
AQ CoE	Air Quality Centre of Excellence
CO_2	Carbon Dioxide
COLLOPS	Colliery Operations - data base system
DFFE	Department of Forestry, Fisheries and the Environment
GHG	Green House gases
Gx	Eskom Generation
GM	General Manager
NEM: AQA	National Environmental Management: Air Quality Act 39 of 2004

1. INTRODUCTION

Generation Environmental Department, Air Quality Centre of Excellence (AQ CoE), represented by Gavaza Mhlarhi, Mbali Mhlana and Tshilidzi Vilane conducted an Internal Carbon Dioxide (CO_2) Emissions Review at Duvha Power Station on 17-18 October 2023. The purpose of the review was to verify the processes used by the station to produce the final fossil fuel burnt figures in the calculation of Eskom's CO_2 emissions.

1.1 POLICY/LEGISLATIVE CONTEXT

The annual reporting of CO_2 and other Greenhouse Gas (GHG) emissions to the Department of Fisheries Forestry and the Environment (DFFE) is a legal requirement in terms of the National Greenhouse Gas (GHG) Emission Reporting Regulations published on 03 April 2017.

Eskom uses a mass balance method to calculate its GHG emissions. This method (referred to as Tier 3 category) requires data of high accuracy and integrity. The following station specific data inputs are required to complete the monthly emissions calculation: ***coal burnt, coal composition, unburnt carbon in ash, fuel oil composition*** and ***fuel oil consumed.*** Therefore, the following sectional activities: (i) coal accounting, (ii) coal and ash sampling and analysis, (iii) fuel oil accounting and analysis at the station level need to be performed accurately and be verifiable at all times in order to improve the integrity of the data (refer to the Eskom Methodology for the calculation of CO_2, SO_2, NOx, CH_4 and N_2O emissions from Fossil Fuel Generation, Document Identifier: 240-122402546 Rev 4).

Eskom's CO_2 emission figures are audited annually by external auditors. In 2016 Eskom introduced annual Internal CO_2 Emissions Reviews to ensure Eskom's readiness for the CO_2 key performance indicator (KPI) for external audits and as part of the ISO requirement for self-assessments. The audited figures are reported annually in the Eskom's Integrated Report (IR) and are used to compile an annual GHG emissions report submitted to the DFFE.

The annual CO_2 emissions review process takes place prior to Eskom's audit conducted by Eskom's Assurance and Forensics (A&F), should they be scheduled, and the subsequent external audits conducted by external auditors.

2. OBJECTIVES AND SCOPE

The purpose of the review was to assess the integrity and accuracy of the processes and equipment used by the station to measure, collect and report data for the CO_2 emission calculation, and subsequently the annual carbon tax liability. The period under review was the April to September of the 2023/24 financial year.

The scope as prescribed in the CO_2 reviews checklist, included a focus on the following sections:

- Station's CO_2 Self-Assessment
- Coal accounting
- Carbon in refuse
- Fuel oil
- Coal sampling, preparation, and analysis

The outcomes and findings of the reviews are to be loaded onto the Eskom's SAP QIM system. The identified gaps should be addressed in order to avoid repeat findings during the next cycle of 2024/25 CO_2 reviews. A lessons learnt awareness session is shared with all stations to ensure stations update and correct the gaps which may be picked up on the self-assessment (which is a requirement for all stations to conduct).

3. REFERENCE DOCUMENTS

During the review, the following standards and procedures were used to determine conformance:

- Eskom Methodology for the calculation of CO_2, SO_2, NOx, CH_4 and N_2O emissions from Fossil Fuel Generation Document Identifier: 240-122402546 Rev 4
- Coal Quantity and Quality Accounting Standard for Thermal Efficiency Determination Unique Identifier: 240-87607698 Rev 2
- Generation Fuel Oil Accounting Standard Document Identifier: 240-142214582, Rev 2
- Eskom Annual Carbon Dioxide (CO_2) Emissions Review Checklist for 2023/24
- Station's processes, work instructions, procedures, standards and other documents and records

4. REVIEW PROCESS FOLLOWED

The following process was followed to conduct the review:

1. A sample of stations were selected for the reviews. This sample was determined based on the following ***criteria***: (i) number of findings in the last 2 years; (ii) frequency of reviews; (iii) relative emissions Kg/GWh of the station.

2. The AQ CoE sent out a notification letter to the selected station's GM, the Risk and Assurance Department and the Environmental practitioners in preparation for the review. The dates of the review were confirmed with the key contact person at station.

3. The comprehensive CO_2 review checklist used by the review team was circulated to the power station several weeks prior to the site review (same as the check list used for station's self - assessment).

4. The station was requested to upload all supporting documentation on Teams prior to the review. Additional documentation was also requested during the review. All the documents requested were provided by the power station.

5. The review took place over a period of two (2) days – the first day was onsite and the second day was via Ms Teams. The following programme was followed:

I. Day 1 (onsite):
   a. *Opening meeting:* a presentation was done on the review objectives and plan.
   b. *Site visit:* key areas (coal mine, fuel oil storage tanks area, the lab and cegrit samplers) were visited and key personnel (as presented in Appendix 1) were interviewed.

II. Day 2 (online):
   a. *Documentation review:* the station representatives were interviewed and were requested to upload supporting documents for review on MS Teams. Requested documentation was provided by the station.
   b. Closing meeting: a closing meeting was held where high-level findings were shared with the station management team.

6. A high-level approach was taken during the site review. Attention was given to the following:
   I. Determining whether the required procedural framework (including identified data gaps; confirmation of processes; and documents) is in place and adequate at station level.
   II. The frequency of sampling conducted for:
      a. coal samples.
      b. ash samples; and
      c. fuel oil samples.
   III. Availability of required calibration certificates of key equipments used within the calculation process.
   IV. Adequacy of coal and fuel oil accounting.
   V. Analysis of the coal and ash samples; and
   VI. Submission of monthly coal and fuel oil samples to Research, Testing & Development (RT&D) for analysis

7. Where applicable, proof of compliance was submitted by the power station as evidence of compliance and conformance with the procedures.

A draft report is sent to the station for comments. The station has 1 week to provide comments on the draft report, for consideration by the reviewer. A final the report will be issued in 1 week from receipt of the station team's comments on the draft report. The power station must submit an action plan with due dates for the close-out of the findings within two weeks of receipt of the final report. The final

report's findings will be tracked monthly through SAP QIM and the findings spreadsheet in place by AQ CoE.

Criteria for the review

The station was rated based on the individual finding rating description outlined in Section 3.4.8 and thereafter an overall opinion rating was issued based on the classification outlined in Section 3.4.9 of the Assurance and Forensic Combined Assurance Standard (240-87242017) Rev4 of Nov 2021, were used as described below (Tables 2 and 3).

Table 1: **Individual Finding Rating Description (Section 3.4.8 of the combined assurance standard)**

Rating	Rating description
1	Isolated/negligible instances of ineffectiveness in relation to internal controls tested (effectiveness testing). Gaps in internal controls have a negligible impact on the control environment (adequacy testing). Findings do not necessarily need to be formally corrected. Relative ease to correct findings in terms of time, effort and cost.
2	Multiple immaterial instances of ineffectiveness in relation to internal controls tested (effectiveness testing). Gaps in internal controls have a minor/immaterial negative impact on the control environment (adequacy testing). Findings may require slightly more time, effort and cost to correct. Findings must be corrected within 12 months.
3	Isolated or multiple material instances of ineffectiveness in relation to internal controls tested (effectiveness testing). Gaps in internal controls have a material negative impact on the control environment (adequacy testing). Findings are serious and significant time, effort and cost may be required to remediate. Findings must be corrected within 30-60 days.

Rating	Rating description
4	Pervasive instances of ineffectiveness in relation to internal controls tested (effectiveness testing). Gaps in internal controls have a material pervasive impact on the control environment (adequacy testing). Findings are critical and significant time, effort and cost may be required to remediate. Findings must be corrected within 30 days.

Table 2: **Overall opinion rating (Section 3.4.9 of the combined assurance standard)**

Overall Opinion Rating	Rating
The system of control is regarded as adequate **and/or** effective to achieve all the related business objectives. **No or insignificant control deficiencies were identified.**	1
Overall, the system of control is regarded as adequate **and/or** effective to achieve the related business objectives. However, control deficiencies were identified relating to some of the governance framework components of the system of control, which could affect the achievement of some of the related business objectives.	2
The system of control is regarded as adequate **but** ineffective to achieve the related business objectives. **Most** of the governance framework components of the system of control are regarded as ineffective, which results or could result in **most** of the related business objectives not being achieved. **OR** Overall, the system of control is regarded as inadequate to achieve the related business objectives. **Most** of the governance framework components of the system of control are regarded as inadequate, which results or could result in **most** of the related business objectives not being achieved.	3

Overall Opinion Rating	Rating
The system of control is regarded as adequate **but** ineffective to achieve the related business objectives. **Collectively,** the governance framework components of the system of control are regarded as ineffective, which results or could result in all of the related business objectives not being achieved. **OR** The system of control is regarded as inadequate to achieve the related business objectives. **Collectively,** the governance framework components of the system of control are regarded as inadequate, which results or could result in all of the related business objectives not being achieved.	4

5. LIST OF FINDINGS

Table 3 below contains a list of non-conformances and observations for the station to action.

Table 3: Observations and non-conformances raised during the review against processes, procedures and/or standards as per reference list under section 3 of this report

Number	Observations / non-conformance	Recommended Action	Responsible Person	Due Date	Risk Rating
	Coal accounting section				
1	According to ***Section 2.5.1 (l)*** of Eskom's Coal Quantity and Quality Accounting Standard for Thermal Efficiency Determination" (Rev 3), the station should "calibrate MP2 and/or MP3 mass meters and Weighbridges quarterly, including an Auto span test". **The calibration certificates provided by the station for the 6A, 6B, 8A, 8B, and the reclaim mass meters are valid for a year instead of a quarter. Furthermore, Duvha's calibration schedules show annual (instead of quarterly) calibrations scheduled for the mass meters and weighbridges.**	It is recommended that the station calibrate the MP2 mass meters and weighbridges quarterly, as per Eskom's Coal Quantity and Quality Accounting Standard for Thermal Efficiency Determination" (Rev 3).			**3**
2	According to page ***7 of 9*** of the station's Operation and Maintenance of Mass Meters procedure (03A-CMP0002 Rev 2), *"the weighbin and 20 kg mass pieces must be*	It is recommended that the station ensure that what is received from the certifying body in relation			**2**

Number	Observations / non-conformance	Recommended Action	Responsible Person	Due Date	Risk Rating
	calibrated and certified annually by a competent SANAS accredited supplier in terms of trade metrology act 1973". **A verification certificate was provided for the weighbin instead of a calibration certficate.** The station is in non-compliance with the Eskom Coal Quantity and Quality Accounting Standard for Thermal Efficiency Determination (Rev 3) and its own internal procedure (03A-CMP0002 Rev 2).	to the weighbin is calibration certificates and not verification certificates. Furthermore, the station should update the Operation and Maintenance of Mass Meters procedure (03A-CMP0002 Rev 2) to align with the quarterly calibration frequency of MP2.			
3	**According to the station, there is always a discrepancy in the payment scales' (D1, D2 and D3) zero calibration scale totalizer reading and the daily mine report reading. Additionally, the physical and digital figures at the mine have been swopped around, therefore D1 figures in the mine report are reported as D2 figures, and vice versa. Both of these explanations are not documented anywhere.** While it was explained that there is a digit missing on the mine side and that both the mine	It is recommended that the faulty instrument giving discrepencies in readings between the scale totalizer and the mine report is fixed, or that the station documents this error in the work instruction explaining the discrepancy and how the mine and the station agree on what the missing digit should be.			**2**

Number	Observations / non-conformance	Recommended Action	Responsible Person	Due Date	Risk Rating
	and station are aware of this issue, it results in a significant difference in the station and mine report coal tonnage figures. Without an explanation these reports can lead to a major misinterpretation or misrepresentation of the figures.				
4	**At the time of the Review, poor housekeeping was noted at the outbound weighbridge, compromising the integrity of the weighbridge.** This is not in line with ***section 2.5.1 (e)*** of the Eskom Coal Quantity and Quality Accounting Standard for Thermal Efficiency Determination (Rev 3) which requires daily cleaning of the mass meters and weighbridge.	It is recommended that the station ensure that the the weighbridge and mass meters are cleaned daily as per ***section 2.5.1 (e)*** of the Eskom Coal Quantity and Quality Accounting Standard for Thermal Efficiency Determination (Rev 3).			**2**
Carbon in refuse section					
5	A sample of April, May and June Ce-grit sampler reports was provided by the station. The average sample collection for April, May and June 2023 was determined to be below 75% for each month. According to the station, the units were offline each time there was no data in the	Station to ensure 75% sample collection per month as required.			**2**

Number	Observations / non-conformance	Recommended Action	Responsible Person	Due Date	Risk Rating
	checksheet. However no further evidence was provided to support this.				
6	At the time of the Review, it was noted that the ce-grit sampler at Unit 2 was not properly collecting sample.	It is recommended that the station ensure that there are no blockages on the Unit 2 cegrit sampler to ensure proper sample collection.			**2**
Fuel oil section					
7	**The CV instrument for fuel oil and coal analysis was out of commission since July 2023. The station has therefore not been doing CV analysis since then.** It is noted that during the finalisation of this report the station provided a service report, dated 02 November 2023, and indicated that the instrument was back in service from 09 November 2023.	Station to fix the CV analysis instrument and to ensure that is analysis performed as required.			**2**
Coal sampling, preparation and analysis section					
8	**The automatic sampling plant located on Conveyor 24 has been out of operation since December 2022. Both the mine and the station have therefore not been collecting coal samples or doing analysis since then.** While it is noted that a service provider (Siza)	It is recommended that the station put efforts in ensuring that the sampling plant is returned to operation.			**3**

Number	Observations / non-conformance	Recommended Action	Responsible Person	Due Date	Risk Rating
	has been contracted to do grab sampling as an indicator of what is being sent to the units, there is a risk that the current sampling is not giving a representative sample.				

It is the responsibility of the station to ensure that the actions are closed. Proof of closure and progress made on the actions are sent to Air Quality Centre of Excellence monthly, and updated on the SAP QIM system. Failure to close actions by the due date will trigger an escalated involvement of the power station General Manager.

6. CONCLUSION

The Internal CO_2 Emissions review concluded with **eight (8) main findings** raised. In terms of the overall opinion rating classification outlined in the the Combined Assurance Standard (240-87242017), Duvha Power Station scores an overall score of **3.** Overall, the system of control is regarded as adequate but ineffective to achieve the related business objectives. **Most** of the governance framework components of the system of control are regarded as ineffective, which results or could result in **most** of the related business objectives not being achieved.

The station is requested to take the above summary of findings and develop a detailed execution plan to drive the close-out of actions relating to the findings. This plan should be submitted to Gx Environmental Management, AQ CoE within 2 weeks from this feedback report. GEM AQ CoE will track and report on the status of the findings. **The station should also ensure that the above findings are captured within the station's internal review tracking system such as the SAP QIM**.

The review team notes the station's efforts to reduce risks associated with the findings identified above. The Head Office Air Quality team does, however, believe it is critical to highlight these issues and the significant risk they pose to station's operations as well as any compliance risk to the station.

The Gx Environmental Management Air Quality CoE team would like to thank Duvha Power Station and to commend the team for their responsive and proactive attitude during the review, and the accommodating manner in which the station CO_2 review was handled.

Any queries on the report must first be addressed with the Lead Reviewer, then if not resolved can be appealed to Bryan McCourt (McCourBA@eskom.co.za). An escalation to Bryan McCourt and Deidre Herbst (HerbstDL@eskom.co.za), can be done at exceptional cases after the station's team has engaged its Power Station General Manager.

APPENDIX 1: RESPONSIBILITIES FOR CO2 EMISSIONS INPUT DATA

Please return to Mbali Mhlana.

Name of Power Station: Duvha Power Station

Input data	Activity	Responsible person
Overall	Main contact person	Simthandile Nhlapo Tintswalo Baloyi
Coal	Coal metering (MP1 & MP2)	Karabo Kgaphola
	Daily coal sample collection	Nomathemba Nkumane
	Coal analysis	Nomathemba Nkumane
	Composite coal sample to RT&D	Nomathemba Nkumane
	Reconciliation of coal burnt figures	Uwe Kaphengst
Ash	Fly ash sampling with ce-grit sampler	Bongi Gowa
	Fly ash analysis	Nomathemba Nkumane
Fuel oil	Fuel oil accounting	Bongi Gowa
	Fuel oil sample collection and sending to RT&D	Bongi Gowa
Other		

NB Ndlovu
Name and Signature:

Date: 2023/10/24

STATION GENERAL MANAGER