Sasol Secunda Operations Steam Plant Monthly SO_2 emission limit compliance assessment for:

September 2025

OCTOBER 17

ARM (PTY) LTD

Authored by: A. Ramandh

Revision: Final

DOCUMENT TITLE

Client		Sasol South Africa Limited
Title		Sasol Secunda Operations Steam Plant Monthly SO_2 emissions limit assessment for September 2025
Our Reference		SO-12A-September-00
Issued to Client		17th October 2025

DOCUMENT APPROVAL

	Name	Date
Prepared by	Avishkar Ramandh	7th October 2025
Approved by	Fred Goede	17th October 2025

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Executive Summary

1. Introduction

The Gert Sibande District Municipality issued a renewed atmospheric emission license (AEL) governing the Synfuels activities on 25 February 2025 (*Sasol South Africa Limited – Secunda Operations Synfuels/0016/2025/F04*). It incorporates, as a necessary variation, the conditions of the appeal decisions by the Minister of Forestry, Fisheries and the Environment granted on 4 April and 25 August 2024 relating to the Clause 12A application regarding SO_2 emissions from the boilers at the Secunda Operations' (SO) Steam Plants.

Clause 7.2.1 of the SO AEL imposes *inter alia* the following requirements:

iv. Additionally, a monthly report must be compiled by the license holder's independent consultant, which should (a) analyse the data and assess compliance with any stipulated concentration standards and (b) assess compliance with any mass-based standards. This report must be submitted monthly to NAQO to ensure compliance with the stipulated concentration standards.

v. For transparency, the above-mentioned report must be made publicly available on the license holders' website.

Air Resource Management (Pty) Ltd (herein referred to ARM) was appointed by Sasol South Africa Limited to conduct the independent third-party compliance assessment as required by condition (iv) above and for purposes of submitting the report to the National Air Quality Officer and publicly disclosing it on Sasol's website as per condition (v) above.

2. Objective of the assessment and report

The principal objective of the assessment informing this report is to evaluate relevant monitoring data from the Continuous Emissions Monitoring Systems (CEMS) to determine compliance with both the concentration and load-based (also referred to as mass-based) limits for Steam Plant SO_2 emissions (Table i), as stipulated in the SO AEL.

Table i: SO AEL Steam Plant SO_2 emission limits

Point Source (Name/Code)	Pollutant Name	Maximum Release Rates		Compliance Timeframe	Average Period	Duration of Emissions
		Concentration limit (mg/Nm³) under normal conditions of 10% O_2, 273 Kelvin and 101.3kPa	Load-based limit (tons)			
B1 (West Stack)	**SO_2**	**1700**		1 April 2025 - 31 March 2030	**Daily**	Continuous
B2 (East Stack)		**1400**		1 April 2025 - 31 March 2030	**Daily**	Continuous
B1 (West Stack) & B2 (East Stack)			**503**	1 April 2025 - 31 March 2030	**Monthly**	Continuous

3. Assessment Approach

ARM has conducted an independent, objective assessment aligned with the principles outlined in the ISO 19011:2018 guidelines for environmental management system audits. Our responsibility is to express an objective view on SO's compliance with the specified emission limits for SO_2 in the SO AEL. We undertook the evidence-based Steam Plant SO_2 assessment (Table ii) in accordance with strict ethical requirements and professional standards.

Table ii: Criteria utilised in the assessment.

Number	Component	Assessment Criteria
1	**Compliance of the B1 (West Stack) to the SO AEL SO_2 daily average concentration limit**	The B1 (West Stack) SO_2 daily average concentration limit (mg/Nm³) under normal conditions (of 10% O_2, 273 Kelvin and 101.3kPa) is below 1700 mg/Nm^3 for the assessment period
2	**Compliance of the B2 (East Stack) to the SO AEL SO_2 daily average concentration limit**	The B2 (East Stack) SO_2 daily average concentration limit (mg/Nm³) under normal conditions (of 10% O_2, 273 Kelvin and 101.3kPa) is below 1400 mg/Nm^3 for the assessment period
3	**Compliance of the B1 (West Stack) and B2 (East Stack) to the SO AEL SO_2 monthly average load-based limit**	The B1 (West Stack) and B2 (East Stack) SO_2 monthly average load-based limit (mg/Nm³) is below 503 tons for the assessment period

4. Assessment findings

It is noted that for the assessment period from 1st September 2025 to 30th September 2025, SO complied (Table iii and Figure i) with the:

1) SO AEL SO_2 daily concentration limit of 1400 mg/Nm3 for the East Stack (Figure ii)
2) SO AEL SO_2 daily concentration limit of 1700 mg/Nm3 for the West Stack (Figure iii) and
3) SO AEL SO_2 monthly average load-based emissions limit of 503 tons (Figure iv).

Table iii: Summary of compliance with applicable SO AEL Steam Plant SO_2 limits

Category	Compliance with the SO AEL Steam Plant SO_2 emissions	Overall compliance with the SO AEL Steam Plant SO_2 emissions (%)
Compliance	3	100%
Non-compliant	0	
Noted	0	
Not auditable	0	
Total number of SO AEL Steam Plant SO_2 assessment criteria	3	100%

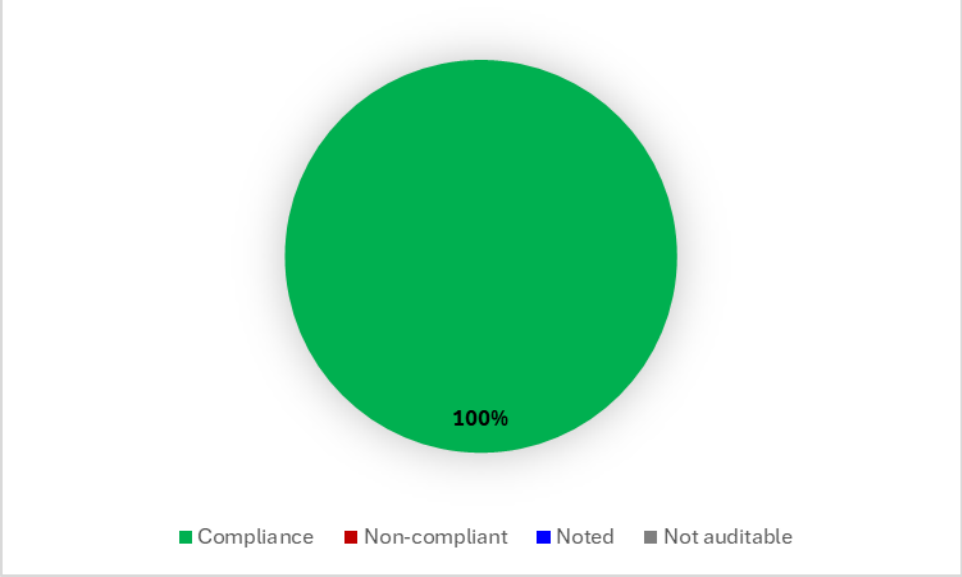


Figure i: Percentage compliance per assessment category

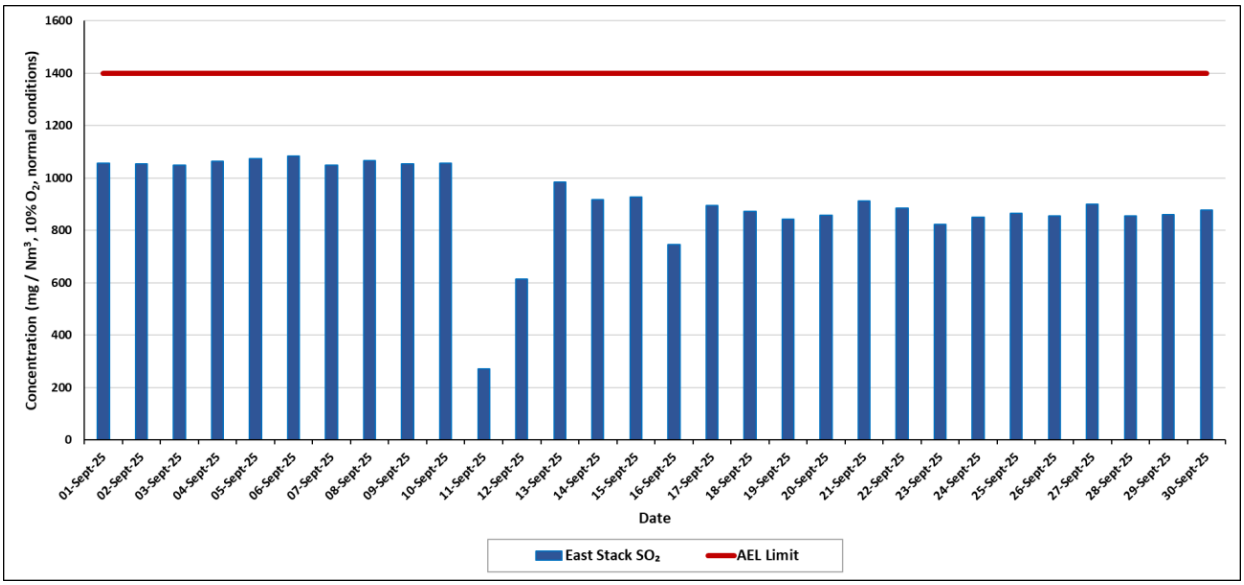


Figure ii: SO measured daily average SO_2 emissions in the East stack at 10% O_2 correction for the period 1st September to 30th September 2025

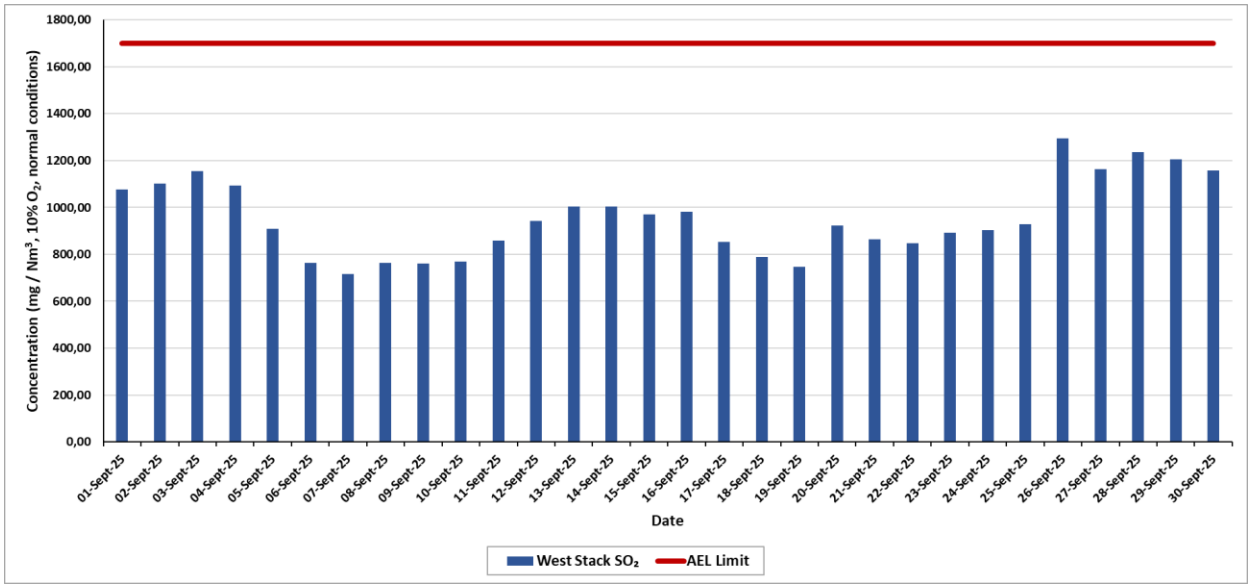


Figure iii: SO measured daily average SO_2 emissions in the West stack at 10% O_2 correction for the period 1st September to 30th September 2025

On 11th September 2025, the East Stack achieved a notably low SO_2 concentration of 270 mg/Nm^3. Sasol has indicated:

- The reduced SO_2 concentration resulted from an operational trip at the East Plant on 11th September 2025 (Van Zyl, pers. comm., 2025).

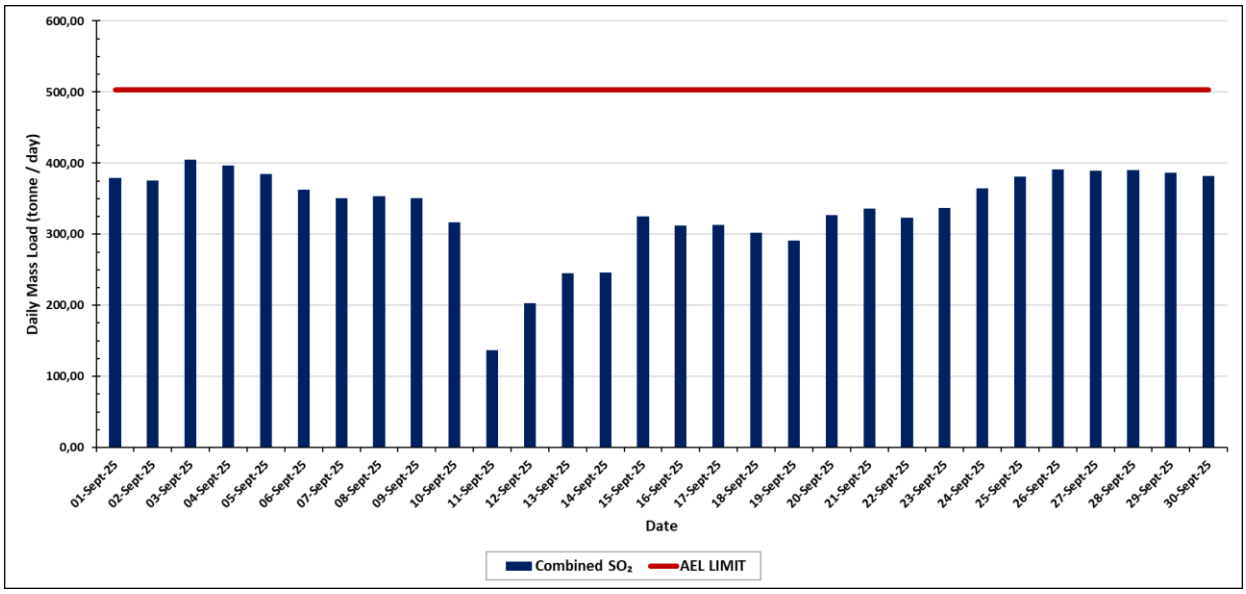


Figure iv: SO daily average SO_2 load-based limit for the period 1st September to 30th September 2025

5. Conclusion

ARM has conducted a systematic, independent and documented process for obtaining assessment data for purposes of ascertaining SO's SO_2 Steam Plant AEL compliance for September 2025. The assessment findings have demonstrated that the SO Steam Plant has exhibited compliance with all the relevant SO_2 limits specified in the SO AEL for the period: 1st September 2025 to 30th September 2025. Additionally, all CEMS assurance criteria adopted by ARM for purposes of this assessment are as outlined in Annexure 1 have been met for purposes of affirming the reliability of the SO_2 data produced by the SO CEMS.

Glossary

Definitions in terms of the National Environmental Management: Air Quality Act (Act No. 39 of 2004) (NEM: AQA) and definitions of terms as per GN 893 and GN 687 which have relevance herein:

Listed activity – In terms of Section 21 of the NEM: AQA, the Minister of Environment, Forestry and Fisheries (formerly Environmental Affairs) has listed activities that require an AEL. Listed activities must comply with prescribed emission standards. The standards are predominantly based on 'point sources', which are single identifiable sources of emissions, with fixed location, including industrial emission stacks, called a "point of compliance".

GN 687- Government Notice 687, in Government Gazette 42472 of 22 September 2019, published in terms of Section 21 of the NEM: AQA and entitled Amendments to the Listed Activities and Associated Minimum Emission Standards Identified in Terms of Section 21 of the National Environment Management: Air Quality Act, 2004 (Act No.39 of 2004). GN 687 amends category 1: Combustion installations by the addition to subparagraph(a) of paragraph (1) Subcategory 1.1: Solid Fuel Combustion Installations of the following item: (iv) Existing plants shall comply with a new plant emission limit of 1000 mg/Nm^3 for sulfur dioxide (SO2).

GN 893 – Government Notice 893, Gazette No. 37054 dated 22 November 2013, published in terms of Section 21 of the NEM: AQA and entitled 'List of Activities which Result in Atmospheric Emissions which have or September have a Significant Detrimental Effect on the Environment, Including Health and Social Conditions, Economic Conditions, Ecological Conditions or Cultural Heritage'. GN 893 repeals the prior List of Activities published in terms of Section 21, namely GN 248, Gazette No. 33064 dated. 31 March 2010. GN 893 deals with aspects including: the identification of activities which result in atmospheric emissions; establishing minimum emissions standards for listed activities; prescribing compliance timeframes by which minimum emissions standards must be achieved; and detailing the requirements for applications for postponement of stipulated compliance timeframes. Amendments to GN 893 have been made in 2015 (GN 551) and in 2018 (GN 1207).

GN 1207 – Government Notice 1207, Gazette No. 42013 dated 31 October 2018, published in terms of Section 21 of the NEM: AQA and entitled ‘Amendments to the Listed Activities and Associated Minimum Emission Standards Identified in Terms of Section 21 of the National Environment Management: Air Quality Act, 2004 (Act No.39 of 2004).

List of abbreviations

AEL	Atmospheric Emission License
ARM	Air Resource Management
CEMS	Continuous Emissions Monitoring System
CTL	Coal-to-liquid
DFFE	Department of Forestry, Fisheries and Environment
ECO	Emissions control officer
GNR	Gazette Notice
HPA	Highveld Priority Area
MES	Minimum Emission Standard
NEMA	National Environmental Management Act: No. 107 of 1998
NEM: AQA	National Environmental Management: Air Quality Act 39 of 2004
SO	Sasol Secunda Operations
SO AEL	Sasol Secunda Operations Atmospheric Emission License (ref. number: 0016/2025/F04)
SO_2	Sulfur dioxide

Table of Contents

1. Background

The Gert Sibande District Municipality issued a renewed atmospheric emission license (AEL) governing the Synfuels activities on 25 February 2025 (*Sasol South Africa Limited – Secunda Operations Synfuels/0016/2025/F04*). It incorporates, as a necessary variation, the conditions of the appeal decisions by the Minister of Forestry, Fisheries and the Environment granted on 4th April and 25th August 2024 relating to the Clause 12A application regarding SO_2 emissions from the boilers at the Secunda Operations' Steam Plants.

Clause 7.2.1 of the SO AEL imposes the following requirements:

i. NOx and PM emissions must comply with the new plant standards from 1 April 2025, failing which the alternative limits for SO_2 emissions will be withdrawn.
ii. The license holder must continue to implement its integrated solution and must achieve the reductions in emissions as undertaken in its 12A application and appeal thereof.
iii. The National Air Quality Officer must monitor and evaluate the appellant's compliance with its load-based limit from 2025 onwards. In this regard, the license holder currently conducts continuous stack monitoring on the east and west stacks. The license holder must send stack monitoring data (emission concentration and volumetric flow) at a 10-minute resolution to the licensing authority weekly.
iv. Additionally, a monthly report must be compiled by the license holder's independent consultant, which should (a) analyse the data and assess compliance with any stipulated concentration standards and (b) assess compliance with any mass-based standards (Table 1). This report must be submitted monthly to NAQO to ensure compliance with the stipulated concentration standards.
v. For transparency, the above-mentioned report must be made publicly available on the license holders' website.
vi. Any exceedances of the above standards for SO_2 on load-based limit will require a full Atmospheric Dispersion Assessment to determine likely health incidents (with reporting that is line with the Atmospheric Impact Report Regulations) and for any exceedance of the above standard of SO_2 on concentration limit will require to report the incident in line with Section 30 NEMA.

Table 1: SO AEL Steam Plant SO_2 emission limits

Point Source (Name/Code)	Pollutant Name	Maximum Release Rates		Compliance Timeframe	Average Period	Duration of Emissions
		Concentration limit (mg/Nm³) under normal conditions of 10% O_2, 273 Kelvin and 101.3kPa[1]	Load-based limit (tons)			
B1 (West Stack)	**SO_2**	**1700**		1 April 2025 - 31 March 2030	**Daily**	Continuous
B2 (East Stack)		**1400**		1 April 2025 - 31 March 2025	**Daily**	Continuous
B1 (West Stack) & B2 (East Stack)			**503**	1 April 2025 - 31 March 2030	**Monthly**	Continuous

2. Introduction

2.1 Basis of report

Air Resource Management (Pty) Ltd (herein referred to ARM) was appointed by Sasol South Africa Limited to conduct the independent third-party compliance assessment for the Steam Plant monthly SO_2 reporting. This report outlines the results of the external compliance assessment conducted on SO's adherence to relevant SO_2 limits specified in the SO AEL (Table 1) for the period: 1st September 2025 to 30th September 2025.

ARM has prepared this report based on an agreed scope of work and exercises all reasonable skill and care in the provision of professional services in a manner consistent with the level of care and expertise exercised by air quality management professionals (Section 7). ARM is an independent consultant and has no business, financial, personal, or other interest, except fair remuneration for the undertaking of this third-party assessment. There are no circumstances

[1] *Sasol applies the respective concentration-based limits of 1700 mg/Nm³ and 1400 mg/Nm³ using a daily average period, from 1 April 2025, in terms of the appeal and determination decisions. Sasol accordingly also applies the load-based limit on a monthly basis. Sasol noted a discrepancy in this regard in the varied AEL, which may be read to mean that the above limits all apply on a monthly basis. The licensing authority however confirmed Sasol's application to align with the Minister's decision and confirm it as the correct, intended approach to be followed.*

that compromise the objectivity of this report. The assessment findings given in this report are based on the application of the best scientific and professional knowledge and the information made available by the Client. It's noted that Sasol provided all relevant information to conduct this assessment.

2.2 Assessment objectives

The objectives and scope of the assessment is outlined in section 2.2.1 below.

2.2.1 Assessment Scope and Objective

The principal objective of the assessment informing this report is to evaluate relevant monitoring data from the Continuous Emissions Monitoring Systems (CEMS) to determine compliance with both concentration and load-based limits for Steam Plant SO_2 emissions (Table 1), as stipulated in the SO AEL. For the purposes of the assessment, criteria have been adopted by ARM, as explained in Annexure 2 hereto, in the interest of placing reliance on the SO_2 data generated through the SO CEMS. This aims to:

1) Validate the technical accuracy and reliability of Sasol's CEMS at SO.
2) Verify the CEMS integrity of data acquisition, processing, and reporting systems that support compliance with load-based and concentration-based limits.
3) Confirm that appropriate CEMS quality assurance and quality control procedures are implemented and maintained.
4) Evaluate staff CEMS knowledge and adherence to required CEMS procedures.

2.3 Assessment limitations and assumptions

The assumptions and limitations listed below pertain to the assessment informing this report:

i. This report outlines the findings and observations made during the assessment period from the 1st September 2025 to 30th September 2025. Any findings or observations occurring before or after this timeframe have not been considered in relation to SO's Steam Plant SO_2 compliance.
ii. The information and findings presented in this report are considered to be accurate to the best of ARM's understanding. This is based on the internal (Sasol) and third-party monitoring information provided to ARM by SO during the assessment.

iii. This final report September not be modified, adjusted or supplemented.

3. Methodology

3.1 ARMs Responsibilities

ARM has conducted an independent, objective assessment aligned with the principles outlined in the ISO 19011:2018 guidelines for environmental management system audits (Figure 1). Our responsibility is to express an objective view on SO's compliance with the specified emission limits for SO_2 in the SO AEL. We undertook the evidence-based Steam Plant SO_2 assessment in accordance with strict ethical requirements and professional standards.

Figure 1: Principles utilised in the Steam Plant SO_2 assessment by ARM

3.2 Assessment Approach

ARM followed a three-phased approach as illustrated by Figure 2. This is detailed in sections 3.2.1 to 3.2.3.

Figure 2: ARM approach to the Steam Plant SO_2 Monthly Assessment

3.2.1 Phase 1: Pre-Assessment Planning

- **Document collection and review**
  - ARM began by requesting and reviewing all relevant documentation, including the SO AEL, quality assurance plans, maintenance procedures, and calibration records. This allowed us to develop a comprehensive understanding of the CEMS configuration and requirements before arriving on-site.
- **Gap analysis and risk assessment**
  - Based on document review, ARM identified potential information gaps and areas requiring special attention during the on-site phase. This helps focus the assessment on areas of greatest importance or concern.
- **Development of site-specific audit protocols**
  - Using information gathered during document review, ARM developed tailored assessment protocols and checklists specific to the SO facility's CEMS configuration and applicable AEL requirements.
- **Coordination with SO facility personnel**
  - ARM worked closely with SO facility employees to plan the assessment schedule, arrange access to necessary areas and systems, and ensure key SO employees were available for interviews and assistance during the on-site phase.

3.2.2 Phase 2: On-Site Evaluation

- **Verification of the CEMS components**

- ARM conducted a review & verification of the CEMS sample systems, calibration gas systems, environmental controls, and data acquisition hardware to assess installation, condition, and maintenance.

- **Performance verification**
  - ARM reviewed documentation of calibration procedures, linearity checks and other performance evaluations to verify the reliability of the online monitoring data.
- **Data system review**
  - ARM examined the data acquisition systems, database structures, calculation methods, validation procedures, and reporting mechanisms to ensure data integrity and applicable AEL compliance.
- **Employee interviews**
  - Interviews with SO CEMS technicians and environmental staff were held to provide insight into actual practices, knowledge levels, and operational challenges that might not be evident from documentation alone.

3.2.3 Phase 3: Analysis & Reporting

- **Audit findings development with classification**
  - ARM systematically analysed all observations and information collected, classifying findings based on compliance.
- **Final Audit report preparation**
  - ARM prepared an assessment report as outlined herein.

3.3 Assessment documentation

The following key documentation was considered for the assessment:

- SO AEL
- CEMS data
- SO SO_2 emissions load & concentration data
- Quality Assurance documentation
- Data Management documentation

3.4 Classification of Assessment Findings

The ISO 19011:2018 guides the principles of auditing, managing audit programs, and conducting environmental management system assessments. Aligned to this, the level of compliance for the SO Steam Plant SO_2 assessment findings are reported as shown in Table 2. It's noted that should an assessment finding result in non-compliance it will be further classified based on significance Table 3.

Table 2: Compliance categories utilised in the assessment

Category	Description
Compliance	Where the assurance evidence fully meets the assessment criteria, i.e. requirements.
Non-compliant	Where the assurance evidence does not meet the assessment criteria fully.
Noted	Where the condition is to be noted and cannot be subjected to assessment.
Not auditable	The condition is not applicable to the current assessment period or scope

Table 3: Classification based on significance for non-compliance assessment findings

Significance	Description
Critical Findings	Non-compliance issues requiring immediate action (7-14 days)
Major Findings	Systemic issues affecting data quality or compliance status (30-day resolution). These represent systemic problems that impact data quality or compliance status but don't pose immediate significant risk. For example, deficiencies in data backup procedures.
Minor Findings	Isolated issues with limited compliance impact (60-day resolution). These represent isolated issues or opportunities for improvement that have limited impact on compliance or data quality. For example, documentation formatting issues.
Observations	Potential future concerns for system improvements. These are noted items that don't represent non-compliance but could develop into issues if not addressed. For example, aging equipment approaching end of useful life.

3.5 Criteria utilised in Assessment

The primary objective of this assessment is to analyse the relevant monitoring data to assess compliance with the concentration and load-based standards specified in the SO AEL (Table 1) for SO_2 emissions from the boilers at the Secunda operations' Steam Plants. Aligned to this, the three assessment criteria utilised herein are shown in Table 4.

Table 4: Assessment criteria utilised

Number	Component	Assessment Criteria
1	**Compliance of the B1 (West Stack) to the SO AEL SO_2 daily average concentration limit**	The B1 (West Stack) SO_2 daily average concentration limit (mg/Nm^3) under normal conditions (of 10% O_2, 273 Kelvin and 101.3kPa) is below 1700 mg/Nm^3 for the audit period
2	**Compliance of the B2 (East Stack) to the SO AEL SO_2 daily average concentration limit**	The B2 (East Stack) SO_2 daily average concentration limit (mg/Nm^3) under normal conditions (of 10% O_2, 273 Kelvin and 101.3kPa) is below 1400 mg/Nm^3 for the audit period
3	**Compliance of the B1 (West Stack) and B2 (East Stack) to the SO AEL SO_2 monthly average load-based limit**	The B1 (West Stack) and B2 (East Stack) SO_2 monthly average load-based limit (mg/Nm^3) is below 503 tons for the audit period

4. Summary of Assessment Findings

The following section provides a high-level overview of the findings identified during the SO Steam Plant SO_2 assessment. The detailed results are presented in Annexure 1.

4.1 Degree of compliance

ARM has conducted an independent, objective assessment aligned with the principles outlined in ISO 19011:2018 guidelines for environmental management system assessments. Our findings for the Steam Plant SO_2 assessment are summarised in Table 5 and illustrated by Figures 3 to 6.

It is noted that during the assessment period from 1st September 2025 to 30th September 2025, SO was in compliance with the following:

1) SO AEL SO_2 daily concentration limit of 1400 mg/Nm^3 for the East Stack (Figure 4),
2) SO AEL SO_2 daily concentration limit of 1700 mg/Nm^3 for the West Stack (Figure 5) and
3) SO AEL SO_2 monthly average load-based emissions limit of 503 tons (Figure 6).

Furthermore, it is noted that all CEMS assurance criteria applied by ARM for purposes of this assessment and as detailed in Annexure 1, have been met, thereby affirming the reliability of the SO_2 data generated by the SO CEMS.

Table 5: Summary of compliance with applicable SO AEL Steam Plant SO_2 limits

Category	Compliance with the SO AEL Steam Plant SO_2 emissions	Overall compliance with the SO AEL Steam Plant SO_2 emissions (%)
Compliance	3	100%
Non-compliant	0	
Noted	0	
Not auditable	0	
Total number of SO AEL Steam Plant SO_2 assessment criteria	3	100%

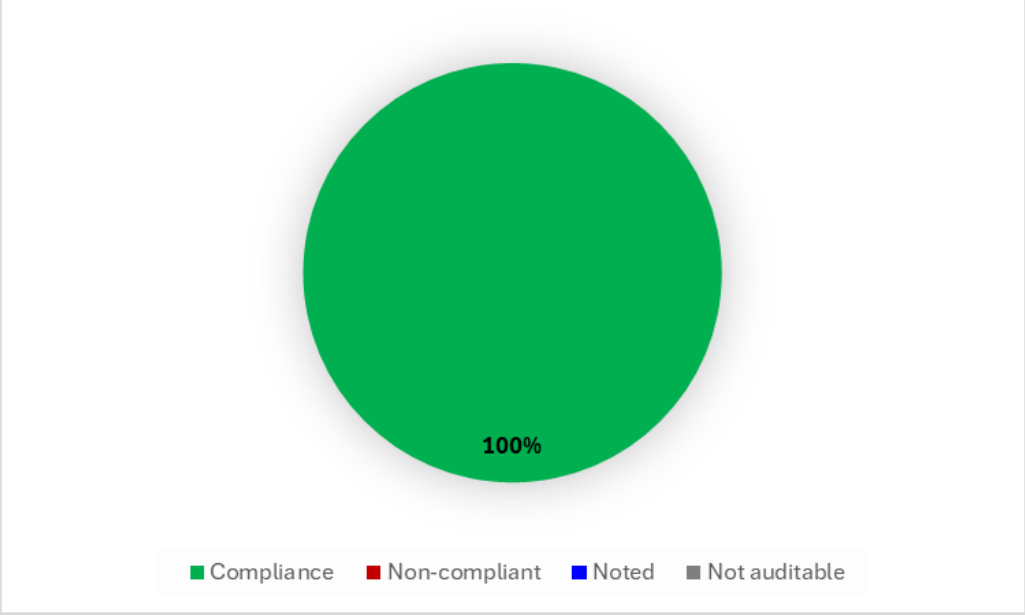


Figure 3: Percentage compliance per assessment category

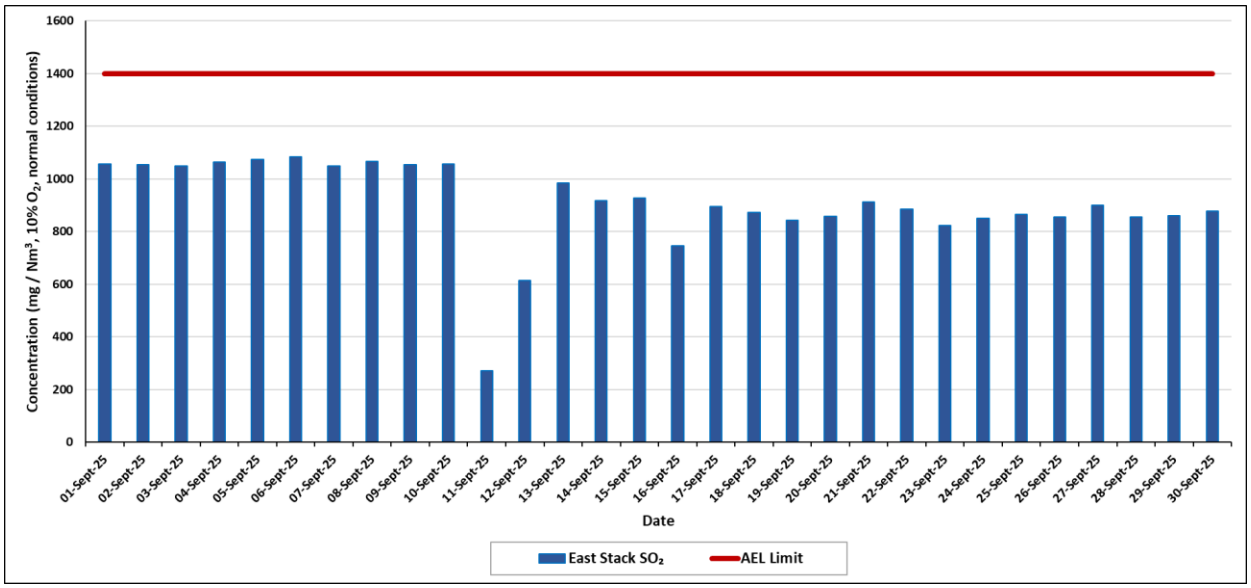


Figure 4: SO measured daily average SO_2 emissions in the East stack at 10% O_2 correction for the period 1st September 2025 to 30th September 2025

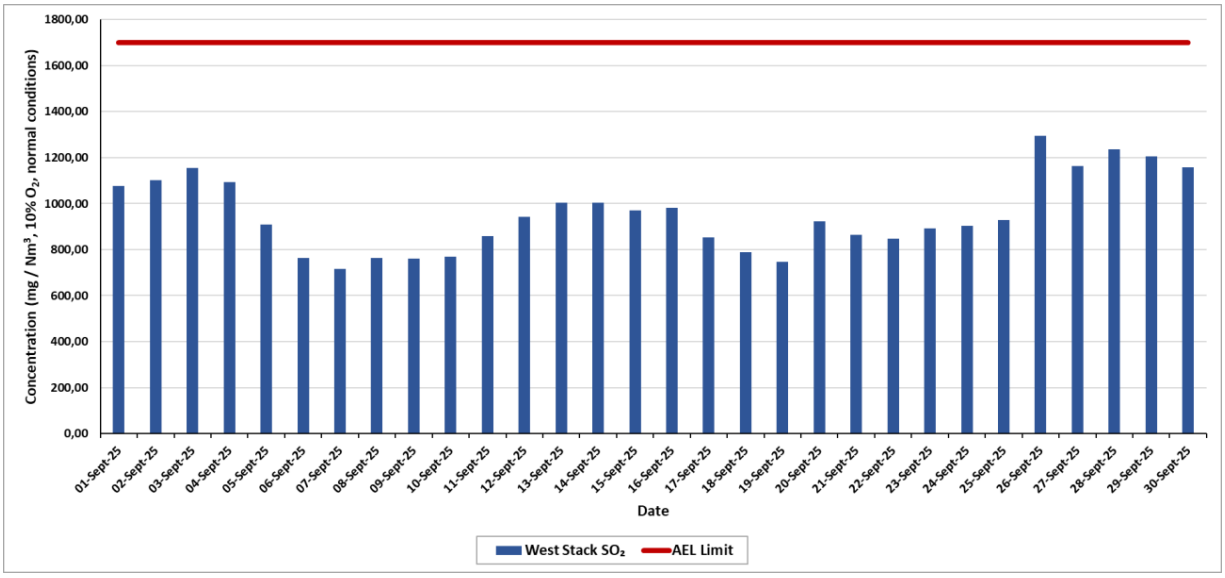


Figure 5: SO measured daily average SO_2 emissions in the West stack at 10% O_2 correction for the period 1st September 2025 to 30th September 2025

On 11th September 2025, the East Stack achieved a notably low SO_2 concentration of 270 mg/Nm^3. Sasol has indicated:

- The reduced SO_2 concentration resulted from an operational trip at the East Plant on 11th September 2025 (Van Zyl, pers. comm., 2025).

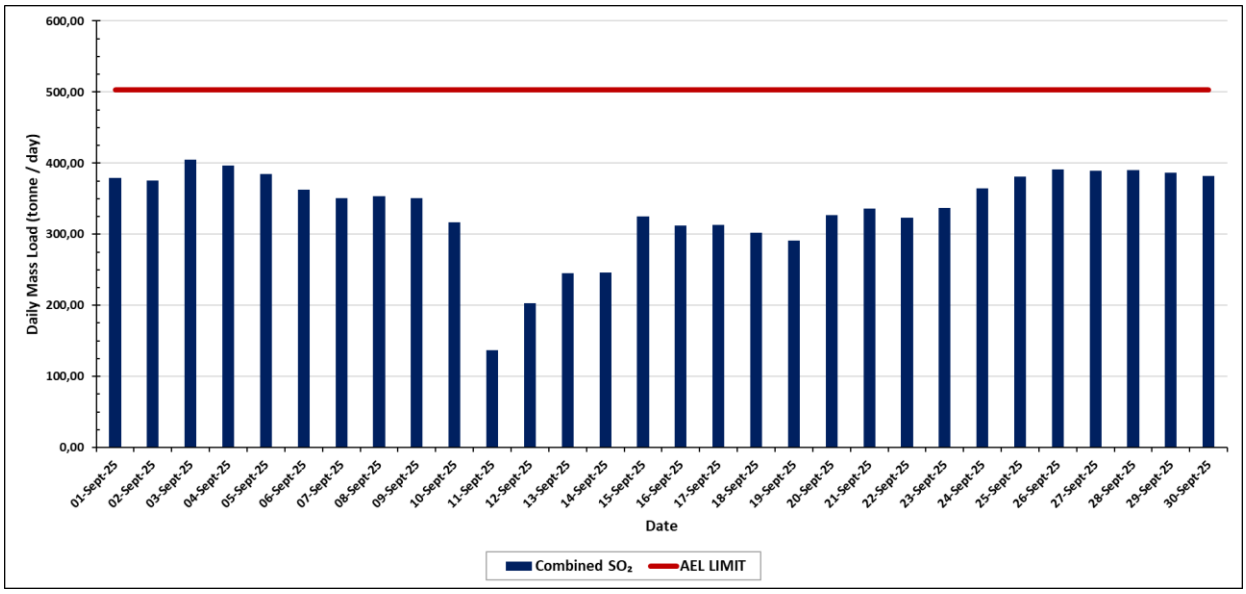


Figure 6: SO daily average SO_2 load-based limit for the period 1st September 2025 to 30th September 2025

5. Conclusion

ARM has conducted a systematic, independent and documented process for obtaining assessment data for purposes of ascertaining SO's SO_2 Steam Plant AEL compliance for September. The assessment findings (Table 5) demonstrate that SO has exhibited compliance with the relevant SO_2 limits specified in the SO AEL (Table 1) for the period: 1st September 2025 to 30th September 2025. Additionally, all CEMS assurance criteria applied by ARM and as outlined in Annexure 1 have been met, thereby affirming the reliability of the SO_2 data produced by the SO CEMS.

6. Declaration of accuracy of information

Name of Company: Sasol South Africa Limited operating through its Secunda Synfuels Operations

I, Hannes Buys, in my capacity as emission control officer (ECO) for Secunda Operations, declare that the information provided to ARM in their assessment of the Secunda Operations' compliance with the SO_2 emissions limits for emissions from the boilers at the steam plants is to the best of my knowledge true and correct as at the date of signature.

Signed at Secunda this ____ day of October 2025

Signed by:Hannes Buys
Signed at:2025-10-22 12:19:38 +02:00
Reason:I approve

_____

Signature of ECO

7. Declaration of independence

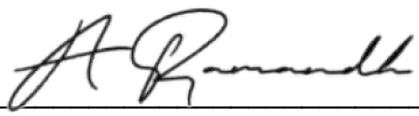
Name Of Independent Auditor: Avishkar Ramandh

UNDERTAKING

I, Avishkar Ramandh, the undersigned and duly authorized thereto, by ARM prepared this report based on an agreed scope of work and exercises all reasonable skill and care in the provision of professional services in a manner consistent with the level of care and expertise exercised by air quality management professionals

I also hereby declare that neither myself nor ARM, an independent consulting service provider, has no business, financial, personal or other interest, except fair remuneration for the undertaking of this third-party compliance AEL assessment. There are no circumstances that compromise the objectivity of this report. The audit findings given in this report are based on the application of the best scientific and professional knowledge and the information made available by the Client. It's noted that Sasol provided all relevant information for the purpose of conducting this assessment.

Signed at ARM (Midrand) on this the 17th of October 2025



SIGNATURE OF INDEPENDENT CONSULTANT

Annexure 1: SO Steam Plant CEMS SO_2 Assessment Criteria

CEMS Assessment Criteria			Criteria Met
Component		Assessment Criteria	(Yes/No)
1. In-Situ Analyser	**1.1 Analyzer certification status**	Analyser certification status (USEPA/MCERTS/TUV)	**Yes**
	1.2 Physical condition and installation	Physical condition and installation: Visual inspection for corrosion, damage, improper mounting, or other issues affecting performance	**Yes**
	1.3 Stack/duct mounting verification	Stack/duct mounting verification: Confirm that in-situ analysers are mounted at appropriate locations considering flow characteristics, stratification, and accessibility	**Yes**
	1.4 Orientation and alignment	Orientation and alignment: Verify that optical components are properly aligned and oriented according to manufacturer specifications	**Yes**
	1.5 Environmental Controls	Environmental Controls: Assess temperature, humidity, and vibration controls for analyser protection, focusing on purge air systems and weather protection	**Yes**
	1.6 Calibration gas concentrations	Calibration gas delivery system: Inspect gas delivery lines, fittings, manifolds, and solenoid valves for proper installation, integrity, and functionality	**Yes**
		Calibration gas certifications: Verify that certificates for all calibration gases show traceability, accurate concentrations, and valid expiration dates	**Yes**

CEMS Assessment Criteria			Criteria Met
Component		Assessment Criteria	(Yes/No)
	1.7 Serial numbers match documentation	Serial number match documentation: Verify that analyser serial numbers match certification documentation, inventory records, and calibration reports	**Yes**
	1.8 Flow measurements	Flow measurements: Verify calibration and performance of flow measurement systems specifically for SO2 load calculations	**Yes**
2.1 Data Verification	**2.1.1 Data averaging calculations**	Data averaging calculations: Verify algorithms used to calculate SO2 10-minute, 24-hour and monthly averages from raw data points against submitted figures for any discrepancies	**Yes**
	2.1.2 Conversion factors and constants	Conversion factors and constants: Check factors used for the SO2 unit conversions, standard conditions, and parameter calculations for accuracy and proper application	**Yes**
	2.1.3 Data validation algorithms	Data validation algorithms: Verify how SO2 data during calibration cycles is handled, flagged, and excluded from compliance calculations	**Yes**
	2.1.4 Treatment of calibration periods	Treatment of calibration periods: Examine computational methods for identifying invalid data, statistical outliers, and suspect measurements	**Yes**
	2.1.5 Missing data handling	Missing data handling: Confirm that missing data points are not substituted but rather alarmed and appropriately documented	**Yes**

CEMS Assessment Criteria			Criteria Met
Component		**Assessment Criteria**	**(Yes/No)**
	2.1.6 Reporting calculations and compliance determination	Reporting calculations and compliance determination: Review calculations used to determine compliance with SO2 AEL limits, including averaging periods, exceedance determinations, and exception handling	**Yes**
2.2 Data Validation	**2.2.1 Auto-flagging rules implementation**	Auto-flagging rules implementation: Verify the implementation of rules for automatically flagging data during calibrations, maintenance periods, or analyser failures	**Yes**
	2.2.2 Manual validation by Technical Signatories	Manual validation by Technicians: Review procedures for manual data review and validation by qualified technician	**Yes**
	2.2.3 Treatment of operational upsets	Treatment of operational upsets: Examine protocols for handling data during process upsets, abnormal operations, or startup/shutdown periods	**Yes**
	2.2.4 Documentation of maintenance periods	Documentation of maintenance periods: Review procedures for documenting analyser maintenance, including start/end times and impact on data validity	**Yes**
	2.2.5 Sasol approval process for review and approval of data during upset conditions	Approval process for upset conditions: Verify the process for environmental team and approval of data during upset conditions or maintenance	**Yes**

CEMS Assessment Criteria			Criteria Met
Component		**Assessment Criteria**	**(Yes/No)**
3.1 AEL Concentration Standard	**AEL Concentration Standard: Compliance with "Synfuels" AEL, with reference number 0016/2025/F04, under subsection 7.2.1 concentration standard**	3.1.1 Compliance with “Synfuels” AEL, with reference number 0016/2025/F04, under subsection 7.2.1 concentration standard of 1700 mg/Nm^3 for the B1 (West Stack)	**Yes**
		3.1.2 Compliance with “Synfuels” AEL, with reference number 0016/2025/F04, under subsection 7.2.1 concentration standard of 1400 mg/Nm^3 for the B2 (East Stack)	**Yes**
3.2 AEL Mass-Based Standard	**AEL Mass-Based Standard: Compliance with "Synfuels" AEL, with reference number 0016/2025/F04, under subsection 7.2.1 mass-based standard including the 503t/d limit for SO2**	3.2 Compliance with “Synfuels” AEL, with reference number 0016/2025/F04, under subsection 7.2.1, mass-based standard of 503 t/day monthly	**Yes**
4.1 Hardware Systems	**4.1.1 Data loggers functionality**	Data loggers functionality: Verify operation of data acquisition devices, including signal processing, storage capacity, and reliability	**Yes**
	4.1.2 System configuration	System Configuration: Review configuration of Electrical Controls for Windows System, focusing on communication interfaces and data handling	**Yes**

CEMS Assessment Criteria			Criteria Met
Component		Assessment Criteria	(Yes/No)
	4.1.3 Citect display systems	Citect display systems: Verify that the operator interface displays proper presentation of real-time data, alarms, and system status	**Yes**
	4.1.4 Logger configuration	Logger Configuration: Examine configuration of the logging device with operating system, including communication settings and data storage	**Yes**
	4.1.5 Communication infrastructure	Communication infrastructure: Evaluate the fiber, 4G, and radi telemetry systems for communications	**Yes**
4.2 Software and Database	**4.2.1 SQL database structure and organization for data storage and retrival**	SQL database structure: Examine database schema, table structures, relationships, and indexing for efficient data storage and retrieval	**Yes**
	4.2.2 Data backup procedures and verification	Data backup procedures: Verify implementation of daily, weekly, monthly and annual backup procedures, including offsite storage	**Yes**
	4.2.3 User access controls and permissions	User access controls: Review user account management, access levels, authentication requirements, and audit trails	**Yes**
	4.2.4 Data validation rules configuration	Data validation rules: Examine configuration of automated data validation rules, including range checks, rate-of-change limits, and status flags	**Yes**

CEMS Assessment Criteria			Criteria Met
Component		Assessment Criteria	(Yes/No)
	4.2.5 Auto-flagging rules implementation	Auto-flagging implementation: Verify the rules used for automatically flagging suspect data, including calibration periods and analyser alarms	**Yes**
	4.2.6 Manual validation procedures by Technical Signatories	Manual validation procedures: Review procedures for manual data review and validation by qualified Technical Signatories.	**Yes**
4.3 Operational Integration	**4.3.1 Operator displays in control room**	Operator displays: Evaluate how CEMS data is presented to operators in the control room, including alarm indications and trend displays	**Yes**
	4.3.2 Alarm configuration and response procedures	Alarm configuration: Review alarm thresholds, notification methods, and documented response procedures for CEMS-related alarms	**Yes**
	4.3.3 Integration with process control systems	Process control integration: Examine how CEMS data interfaces with process control systems for emissions management	**Yes**
	4.3.4 Data display functionality	Local display functionality: Verify operation of the display system in analyser shelters for local data access	**Yes**
	4.3.5 End-user software configuration (decentralized)	End-user software: Review configuration of decentralized end-user software for data acquisition, trending, and compliance reporting	**Yes**
	4.3.6 PI Tags system integration	PI Tags Integration: Examine integration with PI Tags system for plant-wide data access and trending capabilities	**Yes**

CEMS Assessment Criteria			Criteria Met
Component		Assessment Criteria	(Yes/No)
5.1 Calibration Procedures	5.1.1 Zero checks	Zero checks: Review the daily zero check procedures	Yes
	5.1.2 Span calibration procedure (monthly/quarterly)	Span calibration: Examine protocols for performing quarterly span calibrations, including gas introduction and acceptance criteria	Yes
	5.1.3 Dynamic calibration methodology	Dynamic calibration: Review procedures for dynamic calibrations performed quarterly, including multi-point testing	Yes
	5.1.4 Annual linearity checks procedure	Annual linearity checks: Examine the methodology for annual linearity testing across the measurement range	Yes
5.2 Performance Testing	5.2.1 Interference checks	Interference checks: Examine procedures for evaluating potential interferences from water vapour, VOCs, and other stack constituents	Yes
	5.2.2 System bias testing	System bias testing: Review protocols for determining measurement bias through comparison with reference methods or certified gases	Yes
	5.2.3 Drift assessment methodology	Drift assessment: Examine procedures for evaluating and documenting analyser drift between calibrations	Yes
	5.2.4 Reference method comparison	Reference method comparison: Review protocols for comparing CEMS results with EPA reference methods or equivalent standard test methods	Yes

CEMS Assessment Criteria			Criteria Met
Component		Assessment Criteria	(Yes/No)
6.1 Network Security	6.1.1 Multi-layered firewall implementation	Multi-layered firewall: Evaluate the implementation of Sasol's elaborate multi-layered firewall system protecting CEMS networks	Yes
	6.1.2 Access control measures	Access control measures: Review physical and logical access controls for CEMS equipment and data systems	Yes
	6.1.3 User permissions and roles	User permissions: Examine the hierarchy of user permissions, including authentication requirements and role-based access controls	Yes
	6.1.4 Change management procedures	Change management: Review protocols for implementing, documenting, and testing changes to CEMS hardware, software, or configuration	Yes
	6.1.5 Audit trails for system changes	Audit trails: Verify that changes to system configuration, software, or validation rules are documented with timestamps and user identification	Yes
6.2 Data Backup	6.2.1 Daily backup procedures	Daily backup procedures: Examine implementation of daily data backup processes, including verification of successful completion	Yes
	6.2.2 Weekly backup procedures	Weekly backup procedures: Review weekly backup activities, including different storage media or locations from daily backups	Yes
	6.2.3 Monthly backup procedures	Monthly backup procedures: Verify monthly backup processes, including retention policies and storage security	Yes

CEMS Assessment Criteria			Criteria Met
Component		Assessment Criteria	(Yes/No)
	6.2.4 Annual backup procedures	Annual backup procedures: Examine annual data archiving procedures, including offsite storage	**Yes**
	6.2.5 Offsite storage security	Offsite storage security: Verify security measures for offsite backup storage, including access controls and environmental protections	**Yes**
	6.2.6 Recovery procedures and testing	Recovery procedures: Review documented procedures for data recovery and evidence of periodic recovery testing	**Yes**
6.3 Data Integrity	**6.3.1 Raw data preservation (unaltered)**	Raw data preservation: Verify that original 1-minute data averages are preserved unaltered in the database	**Yes**
	6.3.2 Mirror copy processing for data checking	Mirror copy processing: Verify procedures for creating and using mirror copies of data for validation and processing	**Yes**
	6.3.3 Audit trails for manual changes	Audit trails for changes: Verify that any manual changes to data are recorded with user identification, timestamp, reason, and original value	**Yes**
	6.3.4 Data completeness verification	Data completeness: Review procedures for identifying and documenting periods of missing data	**Yes**
	6.3.5 Historical data retrieval capability	Historical data retrieval: Test the system's ability to retrieve historical data for specific time periods and parameters	**Yes**

CEMS Assessment Criteria			Criteria Met
Component		Assessment Criteria	(Yes/No)
	6.3.6 System time synchronization	Time Synchronization: Verify that all CEMS components and data systems maintain synchronized time references	**Yes**
7.1 Personnel	**7.1.1 Training records for CEMS operators**	Training records: Review documentation of initial and ongoing training for personnel operating CEMS equipment.	**Yes**
	7.1.2 Technical Signatory qualifications	Technical Signatory qualifications: Verify that personnel designated as Technical Signatories for data validation have appropriate qualifications and training.	**Yes**
	7.1.3 Certification of maintenance personnel	Certification: Review certifications and specialized training for staff performing CEMS maintenance and repairs	**Yes**
	7.1.4 Understanding of auto-flagging rules	Auto-flagging: Assess staff knowledge of the auto-flagging system and interpretation of flagged data.	**Yes**
	7.1.5 Knowledge of regulatory requirements	Regulatory requirements: Evaluate staff understanding of permit conditions, emission limits, and compliance determination methods.	**Yes**
	7.1.6 Emergency response procedures	Emergency response procedures: Review staff knowledge of procedures for responding to CEMS failures, exceedances, or other emergency conditions.	**Yes**
7.2 Operating Procedures	**7.2.1 Staff adherence to SOPs**	SOP adherence: Evaluate how consistently staff follow standard operating procedures for CEMS operations and maintenance	**Yes**
	7.2.2 Understanding of calibration procedures	Calibration knowledge: Assess staff knowledge of calibration methods, acceptance criteria, and corrective actions	**Yes**

CEMS Assessment Criteria			Criteria Met
Component		Assessment Criteria	(Yes/No)
	7.2.3 Knowledge of alarm response protocols	Alarm response knowledge: Evaluate staff understanding of alarm response protocols and required actions	**Yes**
	7.2.4 Documentation of maintenance activities	Maintenance documentation: Review staff practices for recording maintenance activities, parts replacements, and system adjustments	**Yes**
	7.2.5 Communication protocols during malfunctions	Malfunction communication: Assess procedures for communicating CEMS malfunctions to appropriate personnel	**Yes**
	7.2.6 Reporting procedures	Reporting knowledge: Evaluate staff knowledge of data reporting requirements, report generation, and submittal processes	**Yes**

Annexure 2: Report Disclaimer

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