Eskom	**Scope of Work**	**Technology**

Title: **Duvha Emission Particulate Correlation & Gaseous Parallel Test Scope of Work**

Unique Identifier:	**382-170180**
Alternative Reference Number:	**N/A**
Area of Applicability:	**Engineering**
Documentation Type:	**Works Information**
Revision:	**4**
Total Pages:	**18**
Next Review Date:	**Not Applicable**
Disclosure Classification:	**CONTROLLED DISCLOSURE**

Compiled by	**Functional Responsibility**	**Authorised by**
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Date: 08-04-2025	Date: 08-04-2025	Date: 2025-04-14

PART 3: SCOPE OF WORK

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C3.1: EMPLOYER'S SERVICE INFORMATION

Contents

1 Description of the *service*

1.1 Executive overview

The scope of work is for Particulate Emissions Correlations and Gaseous Continuous Emissions Monitoring System Quality Assurance Level 2(CEMS QAL2) tests for all 5 units at Duvha Power Station for a period of 5 years. The tests and reports should be conducted by SANAS accredited laboratories or laboratories accredited by similar foreign authorities. The SANAS accreditation should be specific for the relevant standards methods as prescribed in the Minimum Emission Standard (MES) and it must be noted that Eskom prefers the use ISO/EN/BS standards.

The particulate emissions monitor correlation test will be done on the dust monitors installed at 200-meter level at the South and North smokestack on a two-yearly basis. The parallel (QAL2) test will be done on a two-yearly basis. The Particulate Emissions Correlations tests will be performed at 200-meter level where testing ports are located. The Gaseous CEMS QAL2 tests will be performed at 150 metre level where testing ports are located. Particulates correlation test may also be done on request after the replacement of fabric filter bags or replacement of continuous emissions monitors. Spot check measurements will also be done as and when required. The Particulate Emissions Correlations tests must include the Velocity Correlations tests. The QAL2 tests will also be done on requests as and when required.

Test	Units	Quantity	Frequency
Correlation Tests	Unit 1, 2, 4,5, 6 Smokestack	5 Units	2 yearly
Parallel Tests (QAL2)	Unit 1, 2, 4,5, 6 Smokestack	5 Units	2 yearly
Spot Check Measurements	Unit 1, 2, 4,5, 6 Smokestack	5 Units	As and when required

1.2 *Employer*'s requirements for the *service*

Duvha Power stations requires the services of qualified and accredited servicer provider to provide the following services for a period of 5 years:

Correlation Tests

1. Conduct Emission Particulate Correlation tests on the installed dust monitors at 200M level in unit 1,2,4,5 and 6. The tests will be conducted as per Emission Monitoring and Reporting standard (240-56242363).
2. Full Correlation tests to be Scheduled every 20 months to ensure that the tests are done within the 2-year period as required in the Emission Monitoring and Reporting standard.
3. Tests will be done after peak hour at night as and when production constrains allows.
4. Provision for additional spot check measurements as and when required.
5. Provision for Particulates correlation tests as and when required after the replacement of fabric filter bags or replacement of continuous emissions monitors.

QAL2 Tests

1. QAL2 tests shall be done on the 5 installed CEMs analyser at 150-meter level at the smokestacks North and South.
2. The QAL2 tests shall be done as per procedure 240-56242363 (Emission Monitoring and Reporting standard) latest available standard.
3. Parallel tests shall be performed every 20 months by a SANAS accredited stack testing service provider to ensure that tests are done on time within the 24 months period as stated in the Emission monitoring and reporting standard.

4. Provision for additional tests should ad hoc tests be required.
5. Provision of the following *Gas* cylinders during Gaseous Parallel test:

    1. *CO_2 in nitrogen - 15%*
    2. *NO in nitrogen - 600 ppm*
    3. *SO_2 in nitrogen - 900 ppm*
    4. *CO in nitrogen – 10 ppm*
    5. *O2 in nitrogen – 10%*

1.3 Interpretation and terminology

The following abbreviations are used in this Service Information:

Abbreviation	Meaning given to the abbreviation
C&I	Control & Instrumentation
PM	Particulate Matter
FFP	Fabric Filter Plant
ESP	Electrostatic Precipitator
LAR	Limited Access Register
VA	Visual Automation
DCS	Distributed Control System
TOI	Temporary operating instruction
PTW	Permit To Work
QCP	Quality Control Plan
CEMS	Continuous Emissions Monitoring System
QAL	Quality Assurance Level
SRM	Standard Reference Method
AMS	Automatic Measurement System
Am3(w)	Actual Cubic Metres on a wet basis
SHEQ	Safety Health Environment Quality
PPE	Personal Protective Equipment
NO	Nitrogen oxide
CO2	Carbon di-oxide
SO2	Sulphur di-oxide
CO	Carbon monoxide
O2	Oxygen

2 Management strategy and start up.

2.1 The *Contractor*'s plan for the *service*

To be communicated.

2.2 Management meetings

Regular meetings of a general nature may be convened and chaired by the *Supply Manager* as follows: Title and purpose	Approximate time & interval	Location	Attendance by:
Risk register	per visit	Duvha C&I Engineering office	Contract manager Service provider
Overall contract progress	per visit	Duvha C&I Engineering office	*Contract manager* *Service provider*
Safety Meetings	per visit	Duvha C&I Engineering office	Contract manager Service provider and their employees

2.3 *Contractor*'s management, supervision, and key people

1. The Contractor shall advise on how they will ensure that activities are supervised, monitored, controlled, and coordinated for the duration of a contract with Duvha Power Station.
2. The following people will be required when work is to be carried:
   - A manager that will be required to draft the final report or qualified person who will be compiling the report as per SOW
   - A Project leader that will ensure that the team working at the plant are on site and safe. Qualified personnel that will be carrying out the task.
3. The Contractor submits the following qualification during tender returnable.
   - Project Leader
   - Full CV, National Diploma or B-Tech Degree
4. Records of calibration certificates of all instruments will be required when work is to be carried as per SOW.

2.4 Provision of bonds and guarantees.

Not applicable.

2.5 Documentation control

After Work is completed, a comprehensive report detailing all the findings and results must be submitted.

2.6 Invoicing and payment

1. Within one week of receiving a payment certificate from the Service Manager in terms of core clause 51.1, the Contractor provides the Employer with a tax invoice showing the amount due for payment equal to that stated in the Service Manager's payment certificate.
2. The Contractor shall address the tax invoice to CRM_FSS@eskom.co.za and include on each invoice the following information:

    - Name and address of the *Contractor* and the *Service Manager.*
    - The contract number and title.
    - *Contractor*'s VAT registration number.
    - The *Employer*'s VAT registration number 4740101508.
    - Description of service provided for each item invoiced based on the Price List.
    - Total amount invoiced excluding VAT, the VAT and the invoiced amount including VAT.
    - (Add other as required)

2.7 Contract change management.

Not Applicable

2.8 Records of Defined Cost to be kept by the *Contractor.*

Not applicable.

2.9 Insurance provided by the *Employer.*

Not applicable.

2.10 Training workshops and technology transfer

1. The Contractor works with C&I Engineering personnel every time they come to site to ensure that emissions correlation and parallel (QAL 2) test are conducted as per requirement of emissions and reporting standard and to ensure skills transfer.

2.11 Design and supply of Equipment

Not Applicable

2.12 Things provided at the end of the *service period* for the *Employer*'s use.

2.12.1 Equipment

Not applicable.

2.12.2 Information and other things

Not applicable.

2.13 Management of work done by Task Order

1. A task order and PO will be issued before the work is done.

2. The Contractor submits a signed correlation or parallel test report after two weeks on completion of the test on site.

3 Health and safety, the environment and quality assurance

3.1 Health and safety risk management

The *Contractor* shall comply with the health and safety requirements contained in Annexure 240-77471969 Annexure C2 - Medium Risk to this Service Information.

3.2 Environmental constraints and management

The *Contractor* shall comply with the environmental criteria and constraints stated in Annexure 03A-ENVP0005.
Annexure 1 Doc No-240-47176064 Environmental Management

3.3 Quality assurance requirements

The *Contractor's* ISO 9001:2015 Certificate of compliance or equivalent must be supplied with tender documents. If the *Contractor* is not certified, the objective evidence of a developed and fully implemented Quality Management System that complies with ISO 9001:2015 requirements shall be submitted.

The *Contractor* shall comply with the *Employer*'s Quality Requirements as specified in the Supplier Quality Management Specification 240 – 105658000 (QM-58). Form A (Tender and contract quality requirements for QM 58 and Quality Requirements for ISO 9001 standard) of this Specification indicates the specific application thereof.

All Quality Control documentation must be submitted to the *Employer* at least one month before Outage start. Quality Plans must include hold and witness points, must clearly state 3rd party interventions and quality/test specifications where applicable.

The Quality Control documentation that will be handed over within 30 days of order placement by the successful *Contractor* to the Employer and shall consist of the following:

3.3.1 Quality Control Plan

The Quality Control Plan shall consist of the following as a minimum and shall accepted by the *Quality representative* of the *Contractor* prior to commencement of work and shall be sent to Eskom for approval. The QCP will also include welding procedures where necessary.

A covering page, table of contents and QCP which includes and makes provision for the following but not limited to: -

- QCP unique number.
- Revision number.
- Page number
- Provision for QCP approval signatures by the *Contractor* (Supervisor and Quality Controller) and Eskom System Engineer and/ or Eskom QC.
- Provision to incorporate all inspection reports or any form of records to prove conformity to requirements.
- High level description of work in execution including Item/ component/ system/ sub-system.
- Provision for nomination of intervention points for each activity as per SOW.
- Provision for review and approval signatures and dates by the *Contractor* (Supervisor and Quality Controller) and Eskom System Engineer and/ or Eskom QC.
- Provision for final releases/ approval signatures by the *Contractor* (Supervisor and Quality Controller) Eskom System Engineer and/ or Eskom QC.

3.3.2 Procedures

Contractor to submit all work procedures/instructions before any work commences. These must be submitted together with QCP for approval.

4 Procurement

(1) The *Contractor* shall comply with Basic Condition of Employment Act and Labour Relation Act for the use of labour in executing the works to give effect to the right to fair labour practices referred to in section 23(1) of the Constitution by establishing and making provision for the regulation of basic conditions of employment; and thereby to comply with the obligations of the Republic as a member state of the International Labour Organisation; and to provide for matters connected therewith.

4.1 People

4.1.1 Minimum requirements of people employed

(1) The *Contractor* supplies and ensures that his employees wear the correct PPE according to the risk assessments performed on the specific tasks to be carried out.
(2) The *Contractor* ensures that everyone entering Duvha Power Station under his supervision is medically, physically, and psychologically fit to enter Duvha Power Station.
(3) The medical examination, at the *Contractors* cost, is carried out by a Registered Professional Occupational Health Practitioner and the examination shall include the following tests:
   i. Eye Test, Blood Pressure,
   ii. Heart Function,
   iii. Hearing Test and
   iv. Lung function.

4.2 Subcontracting

4.2.1 Preferred subcontractors

(1) The *Contractor* shall make use of any supplier for sourcing of equipment, tools, and material whatever that the *Contractor* will use to execute works shall comply with the SABS.

4.2.2 Subcontract documentation, and assessment of subcontract tenders

Not applicable

4.2.3 Limitations on subcontracting

Not applicable

4.2.4 Attendance on subcontractors

Not applicable

4.3 Plant and Materials

4.3.1 Specifications

The *Works* must comply with the requirements of the National Environmental Management: Air Quality Act (39/2004) and the Eskom Standard for Emission Monitoring & Reporting 240-56242363.

4.3.2 Correction of defects

Correction of defects will be address by the form of Notification that is loaded on the SAP system.

4.3.3 *Contractor*'s procurement of Plant and Materials

(1) The *Contractor* shall make use of SABS approved plant and material.
(2) Test certificates shall be given to the *Service Manager* of the contract.

4.3.4 Tests and inspections before delivery

- Testing will be conducted in accordance with EN15259, accredited under ISO17025:2017 as required by Eskom procedure 240-56242363.
- Testing will be conducted in accordance with EN13284-1 and EN13284-2, accredited under ISO17025:2017 as required by Eskom procedure 240-56242363.
- The QAL2 shall be done according to Eskom procedure 240-56242363 Emissions Monitoring and Reporting Standard latest revision available from ESKOM's representative (Performance and Testing department)
- Testing will be conducted in accordance with EN14181, accredited under ISO17025:2017 as required by Eskom procedure 240-56242363

4.3.5 Plant & Materials provided "free issue" by the *Employer.*

(1) The *Employer* will provide power supply, water, and land for the storage of equipment and material.
(2) The *Contractor* shall supply all the necessary equipment and material required to execute the Works. *Contractor* to transport its employees.
(3) Should the *Contractor* require using of any of the *Employer's* Equipment, including compressed air, electricity, water supply and crane age, it must be specified in the Works Information supplied by the *Contractor*.
(4) The *Employe*r does not guarantee continuity of supply of any of these items required in point 3.

4.3.6 Cataloguing requirements by the *Contractor*

Not applicable

5 Working on the Affected Property

(1) Safety induction to be successfully completed
(2) Obtain LAR before work commences
(3) Conduct risk assessment before work is done
(4) Permit to work will be dependent on the plant accessibility and constraints.

5.1 *Employer*'s site entry and security control, permits, and site regulations.

(1) Pedestrian crossing is made on the road they should be used when crossing the road.
(2) Inside the plant walkways are clear makes they should be used when walking inside the plant to keep safe on any object that might fall.
(3) Barricades are provided where there are open trenches and around the sumps and manholes.
(4) The *Contractor* shall occupy only such ground as is necessary to carry out the works.
(5) All fences and other structure that have been damaged or interfered with by the *Contractor* shall be restored to be a condition at least equivalent to their original condition.

5.2 People restrictions, hours of work, conduct and records.

(1) The LAR is for the person in charge of the plant to maintain control over activities taking place on his plant that are not covered by the Plant Safety Regulation and Operating Regulations for High Voltage Systems.
(2) Activities that are allowed to be carried out under the LAR must not require a permit and must satisfy the following criteria:
(3) They must not involve danger to the person carrying out the activity.
(4) No plant isolations must be required.
(5) The activity must be performed by a skilled person and there must be no risk of a production loss.
(6) The duration of the activity must be less than 24 hours.
(7) The *Supervisor* accompanies the *Contractor* during the first instances of working under a LAR on a specific plant area.
(8) It is very important that the person who plans to do an activity on a plant under the LAR informs the person in charge of the plant (ASS on the panel or Operating Supervisor) of what will be done.
(9) This means verbally telling the person in charge of the plant what will be done and not just signing the LAR book. The LAR book is also signed.
(10) It is also important that as soon as the activity is completed the person, who was doing the activity, notify (verbally) the person in charge of the plant that conditions are back to normal, and that the LAR has been signed off. Just signing the LAR book is not sufficient.
(11) For more information, please refer to Plant Safety Regulation C11.

5.3 Health and safety facilities on the Affected Property

Refer to the attached SHE specification, 03A SAS 0012 document.

5.4 Environmental controls, fauna & flora

Refer to the attached SHE specification, 03A SAS 0012 document.

5.5 Cooperating with and obtaining acceptance of Others

Not applicable

5.6 Records of *Contractor*'s Equipment

The *Contractor* shall comply with Duvha Material Movement Control work instruction contained in Document SCP0003 – Annexure 2.9 attached.

5.7 Equipment provided by the *Employer.*

(1) Should the *Contractor* require using any of the *Employer's* Equipment, including compressed air, electricity, water supply and crane, it must be specified by the *Contractor* during the kick off meeting. The *Employer* does not guarantee continuity of supply of any of these items.
(2) The *Employer* shall be entitled to withdraw use of the said Equipment, should proper maintenance and cleanliness not be ensured. In that event, the *Contractor* shall be obliged to provide the necessary Equipment at his own cost.
(3) The *Contractor* is responsible for the repair, replacement, or correction as necessary of all pieces of tools and equipment supplied by the *Employer* which are damaged and / or lost whilst in the *Contractor's* custody and control.
(4) The *Contractor* site manager must ensure that any one of his employees or *Sub-Contractor*, operating hoist equipment belonging to the *Employer*, is authorised by an Accredited Company and retraining is done annually. Arrangements for training courses can be made via Duvha Power Station Maintenance Training, but the *Contractor* will absorb costs.
(5) A copy of this accredited and valid training certificate must be given to the *Employer's Supervisor*, who will then arrange access for usage.

5.8 Site services and facilities

5.8.1 Provided by the *Employer*

(1) Potable Water Supply:
   i. Potable water is available at the existing points. There are no portable points for the work that is done outside the station therefore the *Contractor* to provide his/her alternative supply.
(2) Electrical Power Supply
   i. Power is available at the existing points.
   ii. The *Contractor* provides his own portable 380V electrical distribution boards, and supply cables to and from the boards, for all his power supply requirements to execute the works.
   iii. *Contractors*' Electrical Distribution Boards complies with OHSA as referred to in the Electrical Installation Regulations and the Electrical Machinery Regulations.
   iv. Each board brought onto site has a Certificate of Compliance issued by an accredited person.
   v. The *Contractors'* electrical distribution boards are installed at the works on a time negotiated with the Supervisor, prior to the possession date.
   vi. The *Employer* connects distribution boards to a 380V three-phase AC power supply, only after the *Contractor* has submitted the valid Certificate of Compliance.
   vii. All *Contractors*' Electrical Distribution Boards are earthed to the steel structure of the plant.
   viii. There will be no supply points for work that will be done away/outside from the station therefore a *Contracto*r to provide alternative supply system (e.g., petrol/ diesel equipment)

5.8.2 Provided by the *Contractor*

(1) The *Contractor* should provide facilities they deem necessary in executing the work. This must be discussed with the *Project Manager* prior to commencement of work.

5.9 Control of noise, dust, water, and waste

(1) The *Contractor* shall take all responsible measure to minimise any dust nuisance, pollution of stream and inconvenience to or interference with public because of the execution of the works.
(2) Remove all rubble and dispose to appropriate facility as according Duvha waste management procedure (EVP0005)

5.10 Hook ups to existing works

Not applicable

5.11 Tests and inspections

5.11.1 Description of tests and inspections

(1) Where tests were performed, they shall be recorded, and the positions of measurements are traceable to the specific area of testing against the records.
(2) Therefore, the *Contractor* will submit all test reports that has been performed in the form of Data Pack.

5.11.2 Materials facilities and samples for tests and inspections

Not applicable.

6 List of drawings

6.1 Drawings issued by the *Employer.*

Not applicable