Eskom	Scope of Work	Peaking Engineering

Title: **Scope of Work: Supply, Maintenance and Calibration of Medical, Occupational Hygiene and Security Equipment across Eskom Peaking Generation Sites**

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1. Introduction

Eskom Peaking Generation requires the establishment of service contracts for the following scope of works: (i) the Supply, Maintenance, and Calibration of Medical Equipment; (ii) the Supply, Maintenance, and Calibration of Occupational Hygiene Instruments and Equipment; and (iii) the Provision of Competency Training for Alcohol Testers and the Supply, Maintenance, and Calibration of Security Equipment. The above stated services are required across Eskom Peaking Generation sites for a period of five (5) years.

The purpose of these contracts is to ensure that instruments and equipment listed under each scope of work are inspected, tested, and maintained to the highest degree in accordance with SANS and other applicable local and international standards. Furthermore, the establishment of these contracts shall ensure that the equipment remains fit for purpose, accurate, reliable, safe for use and compliant with applicable statutory, regulatory, manufacturer and *Employer* requirements in support of the safe and efficient operation of the *Employer's* facilities.

This document is structured as follows:

- Section 3 – scope of work for the supply, maintenance and calibration of medical equipment.
- Section 4 – scope of work for the supply, maintenance and calibration of occupational hygiene instruments.
- Section 5 – scope of work for the provision of competency training for alcohol testers and the supply, maintenance, and calibration security equipment.

2. Supporting Clauses

2.1 Scope

2.1.1 Purpose

This document provides detailed scope of work for the establishment of a service contracts for: i) the Supply, Maintenance, and Calibration of Medical Equipment; (ii) the Supply, Maintenance, and Calibration of Occupational Hygiene Instruments and Equipment; and (iii) the Provision of Competency Training for Alcohol Testers and the Supply, Maintenance, and Calibration of Security Equipment.

2.1.2 Applicability

The requirements defined in this document apply to the whole of the *Works* for the establishment of a service contracts in accordance with the scope of works outlined on section 3, 4 and 5 for Eskom peaking Generation.

2.1.3 Effective date

As per the document authorisation date.

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2.2 Normative/Informative References

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

2.2.1 Normative

[1] ISO 9001 Quality Management Systems

[2] OHS Act No. 85 of 1993 Occupational Health and Safety Act

[3] IEC 61672-3:2013 procedures for periodic testing of time-weighting, integrating-averaging, and integrating sound level meter.

[4] IEC 60942:2017 international standard or procedures for periodic testing for the performance requirements for three classes of sound calibrators.

[5] IEC 61252:2017 standard for Electroacoustics specifications for personal sound exposure meters.

[6] IEC 61672-3:2013 procedures for periodic testing of time-weighting, integrating-averaging, and integrating sound level meter.

2.2.2 Informative

[7] SANAS

[8] ISO/IEC ISO/IEC 17025 standard on general requirements for the competence of testing and calibration laboratories.

2.3 Definitions

Definition	Description
Accuracy	The degree of correctness, with which the result of a measurement represents the true value of a quantity, usually expressed in terms of percentage 'error'.
Authorised person	A person who has been accredited by SANAS to calibrate process calibration equipment in an Eskom or national metrology laboratory.
Calibration	A comparison between a process calibration equipment item and a measuring standard of higher accuracy to detect, correlate, adjust, and document the accuracy of the item being compared.
Calibration Certificate	An official document that confirms a measurement device has been tested and calibrated against known standards for accuracy. It is issued by an accredited calibration lab and includes details about the procedure and results.
Eskom Peaking Generation Sites	Eskom Peaking fleet: Acacia, Ankerlig, Drakensberg, Gariep, Gourikwa, Ingula, Palmiet, Port Rex, Sere, Vanderkloof, Small Hydros.
Heat stress/WBGT monitor	It measures environmental heat as it affects humans. It combines three sensors, a dry-bulb thermometer, a natural (static) wet-bulb thermometer, and a black globe thermometer in determining acceptable temperatures.

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Definition	Description
IAQ Monitor	A device which measures indoor air pollutants and environmental factors—such as temperature, carbon dioxide, carbon monoxide, and humidity readings that indicate air quality levels and help you assess how safe and healthy your indoor environment is.
Lux meter	Is a device that is used to measure brightness and measure it according to how a human eye will perceive it or how it appears to a human eye.
Maintaining	Regular servicing and repair of equipment as needed according to the specification of the OEM to keep it in good order and to keep it operating within the tolerances specified for it.
National measuring standard	Measuring standards held by the NML as part of the CSIR and designated as national measuring standards in terms of the Measuring Units and National Measuring Standards Act No 76 of 1973, including amendment Act 24 of 1998. Such measuring standards are the physical realisation of a measuring unit.
Noise dosimeter	Is a specialised sound level meter intended specifically to measure the noise exposure of a person integrated over a period of time.
Occupational Hygiene	It is the science and discipline that involves anticipating, recognising, evaluating and control of health hazards at a workplace, that may cause adverse health effects.
SANAS	An institute of the Department of Trade Industry and Competitions responsible for Carrying out accreditations in respect of conformity assessments mandated through: • The Accreditation for Conformity Assessment, Calibration and Good Laboratory Practice Act (Act 19 of 2006). • The requirements of the international standard ISO/IEC 17011: Conformity Assessment – General Requirements for Accreditation Bodies Accrediting Conformity Assessment Bodies. • The requirements as stipulated in the various Memorandums of Agreement with the international bodies and the national regulatory bodies.
Testing	All activities required determining the actual performance or condition of an item.
Traceability	Traceability implies that each process calibration equipment item is regularly checked against another standard of higher accuracy up to the level of an accepted national measuring standard, and that these checks are documented and repeated often enough to ensure that there is reasonable confidence in the accuracy recorded.

2.4 Abbreviations

Abbreviation	Explanation
OEM	Original Equipment Manufacturer
DOL	Department of Employment and Labour
OHS Act	Occupational Health and Safet Act 85 of 1993

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Abbreviation	Explanation
SANAS	South African National Accreditation System
SANS	South African National Standard

2.5 Roles and Responsibilities

System Engineer	Provide the scope of work, give input during negotiations with the OEM and review the technical sections in the final NEC contract.
Functional Responsibility	The Functional Responsible person is responsible to approve the content of the document and assure its correctness before the document is submitted for authorisation.
Authoriser	The document authoriser is responsible to ensure that the correct processes were followed in developing this document and that the relevant stakeholders have been involved. The Authoriser also reviews the document for alignment to business strategy, policy, objectives and requirements. He/she shall authorise the release and application of the document.

2.6 Process for Monitoring

Generation Procurement and Supply Chain Management.

2.7 Related/Supporting Documents

N/A.

3. Scope of Work: Supply, Maintenance and Calibration of Medical Equipment

Eskom Peaking Generation has established Medical Centres at various sites to perform medical surveillances in accordance with the Occupational Health and Safety (OHS) Act 85 of 1993. To conduct these medical surveillances, each Medical Centre must be equipped with medical equipment that is compliant with SANS and the OHS Act. The effective operation of these Medical Centres is reliant on the reliability and availability of medical equipment used during medical screenings. Eskom Peaking Generation has procured medical equipment to assist Human resource, Health and Wellness section to conduct medical screenings and assessments as required by Eskom and the OHS Act.

Eskom Peaking Generation requires the establishment of a contract on an “as and when” required basis for the supply, maintenance, and calibration of medical equipment across its Medical Centres for a period of five (5) years.

- The *Contractor* shall provide labour, including specialised tools, equipment, SANAS accredited calibration laboratories, international procedures, and standards to carry out the services.
- The *Contractor* shall comply to the ISO/IEC 17025 standard that specifies general requirements for the competence of testing and calibration laboratories.

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- The *Contractor* shall be in possession of a valid South African Health Products Regulatory Authority (SAHPRA) licence to act as manufacturer, distributor, importer or exporter of medical equipment/ devices.
- The *Contractor* shall be in possession of a valid ISO 13485:2016 certificate for the sales, procurement, distribution and services of Occupational Health Screening Devices.

3.1 Supply and Delivery Service

The *Contractor* shall provide spares and replacements for damaged or defective medical equipment, including but not limited to those specified in this scope of work, at Eskom Peaking sites upon the *Employer's* request over the term of the contract. The scope of supply shall include configuration tools, software and licences necessary for the operation of equipment that have been supplied. The spares are to be delivered within a reasonable timeline and in a condition that is acceptable to the *Employer*.

All equipment spares (and replacements) supplied to the *Employer* are to be accompanied by the relevant OEM technical documentation, including but not limited to layout drawings, operating manuals, datasheets, maintenance manuals, calibration certificates from a SANAS accredited laboratory, warranty certificates, and any other documentation the *Employer* may deem necessary.

All spares supplied by the *Contractor* are to meet the minimum warranty and guarantee periods set out in the supplier agreement contract.

3.2 Calibration Service

The following general calibration requirements shall apply (where applicable) to the calibration of medical equipment.

- The *Contractor* shall ensure all calibration items are calibrated using measurement standards that are traceable, except where they have been derived from acceptable values of natural physical constants. In South Africa the traceability should be linked to a SANAS accredited laboratory. Additionally, the calibration activity shall be carried out in accordance with an approved work instruction and shall be performed by authorised person in a suitable stable environment.
- The *Contractor* shall ensure the accuracy of the measuring standard used for the calibration is greater than that of the item to be calibrated. After calibration, 'as found' together with as left' data shall accompany the item of when it is returned to the end-user in the form of a calibration certificate. The *Contractor* shall ensure that any item found to be out of tolerance shall be clearly identified, corrective action taken and reported to the end-user.
- Depending on the results of preceding calibrations, the *Employer* may shorten or lengthen the calibration period to ensure compliance with the following requirements: Any equipment, whose calibration period has lapsed; which has failed during calibration; which is suspected or known to be outside its accuracy limits; which shows signs of physical damage that may affect its accuracy; which has a broken seal withdrawn from service until its serviceability has been checked.
- The *Contractor* shall ensure calibration equipment are sealed with a device that will provide an indication of unauthorised interference or adjustment. If the seal is broken, the instrument shall be regarded as faulty and withdrawn from service.

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- A calibration label of compliance bearing calibration date, due date, certificate number and serial number must be affixed to the equipment.
- A calibration certificate of compliance bearing calibration date, calibration due date, model type, organisation, manufacturer, recommended due date, certificate number and serial number of the equipment must be issued upon completion.

3.3 Maintenance Service

The *Contractor* shall provide remote and on-site technical support, troubleshooting, diagnostics, and repair services on an “as and when” required basis for all medical equipment listed in this scope of work over the term of the contract. The provision of this service is not limited to the equipment listed on this scope of work. This service shall include the provision of testing and calibration equipment and consumables/ spares incidental to the work.

All repaired or serviced instruments and equipment are to be recertified with a certificate of manufacture and a warranty certificate. The *Contractor* shall provide a cause analysis report for all repaired instruments and equipment detailing the cause of the fault and what repairs were done. The turnaround time for repairs is 30 working days.

The *Contractor* shall develop, maintain and execute a maintenance strategy for medical equipment in this scope of work over the term of the contract. This is to ensure that all equipment are inspected, tested, and maintained to the highest degree in accordance with the SANS and other relevant local and international standards. Maintenance strategy is to include the identification of the individual assets to be maintained, and definition of specific component maintenance strategy (What activities to be performed and When) based on *Employer* recommendations, OEM recommendations, and industry best practices. The developed maintenance strategy shall be submitted to the *Employer* in .docx format for review and acceptance upon the establishment of the contract.

3.4 Record Keeping

The *Contractor* shall allocate and mark all items requiring repair, maintenance, or calibration services with a unique number (asset/ serial number) for traceability.

The *Contractor* shall maintain an asset register documenting calibration records for all equipment. These records shall demonstrate that each item is capable of performing measurements within the designated limits. When equipment is found to be outside these limits, the *Contractor* shall record the extent of error and corrective action shall be taken. Additional information to appear on the asset register includes, asset/serial number, item description, manufacturer, calibration date, the re-calibration date, certificate number, and where the meter is (site, lab, calibration, etc).

The *Contractor* shall maintain an asset register and calibration records for up to 2-years post the expiry of the contract.

All asset registers, and repair, maintenance and calibration records maintained by the *Contractor* shall be made available to the end-user within 2 working days of receiving request in electronic formats (.docx, pdf and other suitable media).

The scope of work for the supply, maintenance and calibration services applies (but not limited) to the following medical equipment:

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(1) Spirometry 3L Syringe

- Spirometry calibration check requires a certified 3-liter syringe to verify volume and flow accuracy across low, medium, and high speeds (typically ±3% or ±3.5% tolerance). Ambient temperature and barometric pressure must be entered into the software prior to testing.

(2) Easy-On Spirometer

Operational Standards:

- Compliance: Meets ATS/ERS 2005 and 2019 standards, plus NIOSH, OSHA, and SSA requirements.
- Operating Environment: Temperature 0 to 40 °C (32 to 104 °F), relative humidity 5% to 95%, atmospheric pressure 500 to 1060 hPA.

Required Test Parameters:

- FVC (Forced Vital Capacity): Total volume exhaled forcefully.
- FEV1 (Forced Expiratory Volume in 1 second): Volume exhaled in the first second.
- FEV1/FVC Ratio: Fraction of air blown out in the first second relative to total capacity.
- PEF (Peak Expiratory Flow): Maximum speed of expiration.

(3) Audio Booth

Testing and Verification Requirements:

- Operational State: Test with internal systems running (ventilation fans, lights on) under conditions matching real use.
- Microphone Placement: Position the SLM microphone precisely at the height and location of the test subject's head position.
- Frequency Range: Measure octave bands typically spanning from 500 Hz up to 8000 Hz (and one octave band below the lowest test frequency).
- Calibration Tracing: Perform pre- and post-test acoustic calibrations on the sound level meter itself.

(4) Audiometer Resonance RA074

- Audiometer must comply with South African National Standards (SANS), SANS 10083:2013 and IEC 60645-1.
- An annual acoustic calibration checks an audiometer's sound pressure output levels and signal linearity across standard test frequencies (typically 500 Hz to 8000 Hz).

(5) Vision Screener Titmus V4

- Illumination Standards: Light levels and colour temperature must comply with ISO 8596 and ANSI Z80.21 standards to ensure true colour testing and consistent target brightness.

(6) Welch-Allyn BP3400

- As per the general calibration requirements stated on the previous subsection.

(7) Weighting Scale 300-LP

- As per the general calibration requirements stated on the previous subsection.

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(8) Resonance Biological Audio Simulator

- Audiometer must comply with South African National Standards (SANS) SANS 10083:2013 and IEC 60645-1.
- An annual acoustic calibration checks an audiometer's sound pressure output levels and signal linearity across standard test frequencies (typically 500 Hz to 8000 Hz).

(9) Bacterial/ Viral Filters (Spirometry Filters)

- Supply only.

4. Scope of Work: Supply, Maintenance and Calibration of Occupational Hygiene Instruments

Eskom is a Type B Approved Inspection Authority registered in accordance with the provisions of the Occupational Health and Safety (OHS) Act 85 of 1993, as amended. It has been approved by the Department of Employment and Labour (DOL) to conduct inspection work under the Asbestos Abatement regulations, Hazardous Chemical Agents Regulations and Noise Exposure Regulations. The inspection work is reliant on instruments and equipment which must always be reliable and available to operate in performing the AIA's functions. Eskom Peaking Generation has recently procured instruments and equipment to assist Risk and Assurance, Occupational Hygiene section to conduct surveys and assessments as required by Eskom's accreditation with DOL.

Eskom Peaking Generation requires the establishment of a contract on an "as and when" required basis for the supply, maintenance, and calibration of occupational hygiene instruments for a period of five (5) years.

- The *Contractor* shall provide labour, including specialised tools, equipment, SANAS accredited calibration laboratories, international procedures, and standards to carry out the services.
- The *Contractor* shall comply to the ISO/IEC 17025 standard that specifies general requirements for the competence of testing and calibration laboratories.

The overall scope of work for the supply, maintenance and calibration applies (but not limited) to the following occupational hygiene instruments:

- Goldilux Lux Meter(s),
- Svantek Intrinsically Safe Type 1 Sound Level Meter(s),
- Svantek Type 1 Calibrator(s),
- Docking Station Sc56 Cable & Sa33 Power Supply,
- Svantek Sv104 Noise Dosimeter(s),
- QUEST TEMP QT44 WBGT Meter(s),
- IAQ CALC - CO_2, CO, TEMP, HUMIDITY, DATA LOG MONITOR(s),
- Air Velocity Meter(s), and
- Personal Sampling Pumps.

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4.1 Supply and Delivery Service

The *Contractor* shall provide spares and replacements for damaged or defective instrumentation and equipment, including but not limited to those specified in this scope of work, at Eskom Peaking sites upon the *Employer's* request over the term of the contract. The scope of supply shall include configuration tools, software and licences necessary for the operation of instruments and equipment that have been supplied. The spares are to be delivered within a reasonable timeline and in a condition that is acceptable to the *Employer*.

All equipment spares (and replacements) supplied to the *Employer* are to be accompanied by the relevant OEM technical documentation, including but not limited to layout drawings, operating manuals, datasheets, maintenance manuals, calibration certificates from a SANAS accredited laboratory, warranty certificates, local IA certification for Ex rated equipment and any other documentation the *Employer* may deem necessary.

All spares supplied by the *Contractor* are to meet the minimum warranty and guarantee periods set out in the supplier agreement contract.

4.2 Calibration Service

The following general calibration requirements shall apply to the calibration of occupational hygiene instruments.

- The *Contractor* shall ensure all calibration items are calibrated using measurement standards that are traceable, except where they have been derived from acceptable values of natural physical constants. In South Africa the traceability should be linked to a SANAS accredited laboratory. Additionally, the calibration activity shall be carried out in accordance with an approved work instruction and shall be performed by authorised person in a suitable stable environment.
- The *Contractor* shall ensure the accuracy of the measuring standard used for the calibration is greater than that of the item to be calibrated. After calibration, 'as found' together with as left' data shall accompany the item of when it is returned to the end-user in the form of a calibration certificate. The *Contractor* shall ensure that any item found to be out of tolerance shall be clearly identified, corrective action taken and reported to the end-user.
- Depending on the results of preceding calibrations, the *Employer* may shorten or lengthen the calibration period to ensure compliance with the following requirements: Any equipment, whose calibration period has lapsed; which has failed during calibration; which is suspected or known to be outside its accuracy limits; which shows signs of physical damage that may affect its accuracy; which has a broken seal withdrawn from service until its serviceability has been checked.
- The *Contractor* shall ensure calibration equipment are sealed with a device that will provide an indication of unauthorised interference or adjustment. If the seal is broken, the instrument shall be regarded as faulty and withdrawn from service.
- A calibration label of compliance bearing calibration date, due date, certificate number and serial number must be affixed to the equipment.
- A calibration certificate of compliance bearing calibration date, calibration due date, model type, organisation, manufacturer, recommended due date, certificate number and serial number of the equipment must be issued upon completion.

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4.3 Maintenance Service

The *Contractor* shall provide remote and on-site technical support, troubleshooting, diagnostics, and repair services on an “as and when” required basis for all occupational hygiene instruments listed in this scope of work over the term of the contract. The provision of this service is not limited to instruments and equipment listed on this scope of work. This service shall include the provision of testing and calibration equipment and consumables/ spares incidental to the work.

All repaired or serviced instruments and equipment are to be recertified with a certificate of manufacture and a warranty certificate. The *Contractor* shall provide a cause analysis report for all repaired instruments and equipment detailing the cause of the fault and what repairs were done. The turnaround time for repairs is 30 working days.

The *Contractor* shall develop, maintain and execute a maintenance strategy for occupational hygiene instruments in this scope of work over the term of the contract. This is to ensure that all instruments are inspected, tested, and maintained to the highest degree in accordance with the SANS and other relevant local and international standards. Maintenance strategy is to include the identification of the individual assets to be maintained, and definition of specific component maintenance strategy (What activities to be performed and When) based on *Employer* recommendations, OEM recommendations, and industry best practices. The developed maintenance strategy shall be submitted to the *Employer* in .docx format for review and acceptance upon the establishment of the contract.

4.4 Record Keeping

The *Contractor* shall allocate and mark all items requiring repair, maintenance, or calibration services with a unique number (asset/ serial number) for traceability.

The *Contractor* shall maintain an asset register documenting calibration records for all instruments and equipment. These records shall demonstrate that each item is capable of performing measurements within the designated limits. When equipment is found to be outside these limits, the *Contractor* shall record the extent of error and corrective action shall be taken. Additional information to appear on the asset register includes, asset/serial number, item description, manufacturer, calibration date, the re-calibration date, certificate number, and where the meter is (site, lab, calibration, etc).

The *Contractor* shall maintain an asset register and calibration records for up to 2-years post the expiry of the contract.

All asset registers, and repair, maintenance and calibration records maintained by the *Contractor* shall be made available to the end-user within 2 working days of receiving request in electronic formats (.docx, pdf and other suitable media).

The following guideline is provided to the *Contractor* on the execution of the required services on *Employers* assets.

(1) Type 1 Sound Level Meter/s

- The *Contractor* shall calibrate the Sound level meters using SANAS accredited standard and procedures for periodic testing for the performance requirements for Svantek Sound level meters.
- Dismantle, inspect/repair and re-assemble sound level meters where required.

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- Use of IEC 61672-3:2013 procedures for periodic testing of time-weighting, integrating-averaging, and integrating sound level meter.
- The *Contractor* shall consider the Environmental conditions specified in the IEC and ISO standards during calibration.
- The MEMS microphone/s must be calibrated electro Acoustically on A-Weighted Sound Pressure Level.
- Calibration parameters for the noise dosimeters must comply to the OEM's specification and requirements.
- Calibration parameters for the Sound pressure Level and exposure of the dBadge must include:
    - Input sensitivity
    - Amplitude Linearity
    - Weighting Network A
    - Integrating (Time Average and short duration signals)
    - Unipolar signals – Peak C
    - Overload Indication

(2) Personal noise dosimeters and microphone calibration

- The *Contractor* shall calibrate the noise dosimeters using SANAS accredited standard and procedures for periodic testing for the performance requirements for Svantek dosimeters complete with MEMS microphones.
- Provide noise dosimeters calibration in accordance to approved procedures and to the IEC 61252:2017 specifications.
- The *Contractor* shall perform the necessary repairs requirements for the execution of the maintenance of the noise dosimeters.
- The *Contractor* carries out annual calibrations and repairs as and when required.

(3) Goldi Lux Meter/ Auto-ranging light meters:

- The *Contractor* shall calibrate the lux meters using international standard or procedures for periodic testing for the performance requirements for digital and Auto-ranging Light meters.
- Calibration parameters for the Goldi-Lux Meter/ Auto-ranging light meters must comply to the OEM's specification and requirements.
- Calibration parameters for the Goldi-Lux Meter/ Auto-ranging light meters a must include:
    - Standard Lux
    - UUT Lux
    - Deviation
    - Correction Factor
    - Measurement Uncertainty Lux
    - Instrument Average Deviation

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(4) Sound Calibrator/ Acoustic Calibrator (Class 1)

- Use of IEC 60942:2017 international standard or procedures for periodic testing for the performance requirements for three classes of sound calibrators.
- Calibration parameters for the Acoustic Calibrator (Class 1) must comply to the OEM's specification and requirements as per the following:
    - Output level (IEC 60942:2017)
    - Output Frequency (IEC 60942:2017)
    - Selective Distortion (IEC 60942:2017)
- The calibration output level must be 114 dB at 1000 Hz with an accuracy deviation of +/- 0.3 dB at 1000 Hz.
- The *Contractor* shall consider the Environmental conditions specified in the IEC and ISO standards during calibration.

(5) Heat Stress monitor (TSI Quest)

- Calibrate the heat stress monitor using international guidelines and specifications to include ISO BS EB 27243 (1994), 7243 (2017) on Hot environments. Estimation of the heat stress on working man based on WBGT – Index (Wet bulb globe temperature).
- Calibration parameters for the QT44 must include:
    - Temperature – 18 to 25 °C
    - Humidity – 20 to 80%
    - Barometric Pressure – 950 to 1050 mBar

(6) Indoor Air Quality Monitor (TSI)

- Calibrate the Indoor Air Quality Meters using international guidelines and specifications.
- Calibration parameters for the TSI IAQ-Cal must include:
    - Carbon Dioxide Sensor
        - Range: 0 – 5000 ppm
        - Accuracy: +/-3% of reading or +/- 50 ppm, whichever is greater
    - Carbon Monoxide Sensor
        - Range: 0 – 500 ppm
        - Accuracy: +/-3% of reading or +/- 3 ppm
    - Temperature
        - Range: 0-60°C
        - Accuracy: +/- 0.6°C
        - Response time 30 seconds (90% of final value, air velocity at 2 m/s)
    - Humidity
        - Range: 5 to 95% RH
        - Accuracy: +/-3% RH (includes +/- hysteresis)

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- Response time: 20 seconds (for 63% of final value)

5. Scope of Work: Supply, Maintenance and Calibration of Security Equipment

Eskom acknowledges that alcohol and substance abuse pose a threat to the business. Eskom is, therefore, entitled to take reasonable steps to ensure that persons who are intoxicated and/or under the influence of any substances are identified and prevented from entering or working on any Eskom premises and/or operating any of Eskom's equipment or vehicles. Substance abuse has serious implications for employees' health and safety. Eskom Peaking Generation has recently procured instruments and equipment to assist Risk and Assurance, Stations and Offices to conduct screening and verification test as required by Eskom's Management of Substance Abuse in the Workplace.

Eskom Peaking Generation requires the establishment of a contract on an "as and when" required basis for the supply, maintenance, and calibration of the following security equipment across Eskom Peaking sites for a period of five (5) years.

- Lion products alco testers
- Dragger products alco testers
- Alco tech Products
- Walk Through Metal detectors
- Handheld metal detectors
- Visitor management system devices/scanners
    - Visitor management system devices/scanners should be able to scan and record vehicle disc, driver's licence & ID bar code. The information or records from visitor management system devices should be accessible from the central computer.
- Belly scope security searching mirrors
- Mini printer paper roll (LION AP1300) – supply and deliver only
- Breathalyzer plastic mouth pieces (LION A-700) – supply and deliver only

This section describes the scope requirements to ensure that the above listed equipment for Peaking, receive the highest degree of attention in quality of their maintenance and calibration. Furthermore, to ensure that they are inspected, tested, and maintained to the highest degree in accordance with the SANS and international Standards.

- The *Contractor* shall provide labour, including specialised tools, equipment, SANAS accredited calibration laboratories, international procedures, and standards to carry out the services.
- The *Contractor* shall comply to the ISO/IEC 17025 standard that specifies general requirements for the competence of testing and calibration laboratories.
- The *Contractor* shall provide training for designated *Employer* personnel on the safe operation, functionality, testing procedures, routine care, and handling of the equipment.

The security equipment per site for which the Contractor is responsible for providing the services required is detailed in Table 1.

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Table 1: Security Equipment per Site

Item	Description	Make	Model	Calibration Frequency	Quantity
Gariep Power Station					
1.	Alcometer	Lion	700	6 Monthly	1
2.	Alco Blow	Lion		Annually	1
3.	Alco Blow	Lion	SA21525	Annually	1
4.	Drug Tester	Drager	5000	Annually	1
5.	Alcotest	Drager	6510	6 Monthly	1
Vanderkloof Power Station:					
1.	Alcometer	Lion	A500	6 Monthly	1
2.	Alcometer	Lion	700	6 Monthly	1
3.	Alco Blow	Lion	SA21525	Annually	2
4.	Alco Blow	Lion		Annually	2
5.	Alcotest	Drager	7000	TBD	1
6.	Drug Tester	Drager	5000	TBD	1
Ankerlig Power Station:					
1.	ALCOTEST 6810	Drager			1
2.	ALCOTEST 6820	Drager			1
3.	MOBILE PRINTER	Drager			1
4.	ALCOFIND AF-100P	Alcotech			3
Drakensberg power Station:					
1.	Walkthrough Metal Detector	Garett	Garett PD6500i	6 Monthly	1
2.	Alco Blow	Lion	700	6 Monthly	6

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Ingula Power Station:					
1.	Handheld Breathalyzer	Lion	700	6 Monthly	5
2.	Handheld Breathalyzer	Lion	Lion Alcoblow	Annually	10
3.	Walk through scanners		ZK-D2180	Annually	2
4.	X-Ray Machine			Annually	1
Palmiet Power Station:					
1.	Alcotest	Drager	6510	6 Monthly	1
2.	Alcotest	Drager	6820	6 Monthly	1
3.	Alcotest	Drager	7000	6 Monthly	2
4.	Alcohol printer	Drager		N/A	2
Sere Wind Farm:					
1.	Alcohol Blow Rapid Screener	Lion	RAPIT TESTER	Annually	4
2.	Alcohol Breathalyzer	Lion	LION A-700	6 Monthly	2
Gourikwa Power Station:					
1.	Alcohol tester	Drager	ARCC-0289	6 Monthly	1
2.	Alcohol tester	Drager	ARCC-0314	6 Monthly	1
3.	Alere DDS drug tester		10003113	Annually	1
Acacia Power Station:					
1.	Alcotest	Drager	7000	6 Monthly	1
2.	Mobile Printer	Drager	ARSA-2179	N/A	1

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5.1 Supply and Delivery Service

The *Contractor* shall provide spares and replacements for damaged or defective instrumentation and equipment, including but not limited to those specified in this scope of work, at Eskom Peaking sites upon the *Employer's* request over the term of the contract. The scope of supply shall include configuration tools, software and licences necessary for the operation of instruments and equipment that have been supplied. The spares are to be delivered within a reasonable timeline and in a condition that is acceptable to the *Employer*.

All equipment spares (and replacements) supplied to the *Employer* are to be accompanied by the relevant OEM technical documentation, including but not limited to layout drawings, operating manuals, datasheets, maintenance manuals, calibration certificates from a SANAS accredited laboratory, warranty certificates, local IA certification for Ex rated equipment and any other documentation the *Employer* may deem necessary.

All spares supplied by the *Contractor* are to meet the minimum warranty and guarantee periods set out in the supplier agreement contract.

5.2 Calibration Services

The following general calibration requirements shall apply to the calibration of security equipment.

- The *Contractor* shall ensure all calibration items are calibrated using measurement standards that are traceable, except where they have been derived from acceptable values of natural physical constants. In South Africa the traceability should be linked to a SANAS accredited laboratory. Additionally, the calibration activity shall be carried out in accordance with an approved work instruction and shall be performed by authorised person in a suitable stable environment.
- The *Contractor* shall ensure the accuracy of the measuring standard used for the calibration is greater than that of the item to be calibrated. After calibration, 'as found' together with ‘as left' data shall accompany the item of when it is returned to the end-user in the form of a calibration certificate. The *Contractor* shall ensure that any item found to be out of tolerance shall be clearly identified, corrective action taken and reported to the end-user.
- Depending on the results of preceding calibrations, the *Employer* may shorten or lengthen the calibration period to ensure compliance with the following requirements: Any equipment, whose calibration period has lapsed; which has failed during calibration; which is suspected or known to be outside its accuracy limits; which shows signs of physical damage that may affect its accuracy; which has a broken seal withdrawn from service until its serviceability has been checked.
- The *Contractor* shall ensure calibration equipment are sealed with a device that will provide an indication of unauthorised interference or adjustment. If the seal is broken, the instrument shall be regarded as faulty and withdrawn from service.
- A calibration label of compliance bearing calibration date, due date, certificate number and serial number must be affixed to the equipment.
- A calibration certificate of compliance bearing calibration date, calibration due date, model type, organisation, manufacturer, recommended due date, certificate number and serial number of the equipment must be issued upon completion.

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5.3 Maintenance Service

The *Contractor* shall provide remote and on-site technical support, troubleshooting, diagnostics, and repair services on an “as and when” required basis for all security equipment listed in this scope of work over the term of the contract. The provision of this service is not limited to instruments and equipment listed on this scope of work. This service shall include the provision of testing and calibration equipment and consumables/ spares incidental to the work.

All repaired or serviced instruments and equipment are to be recertified with a certificate of manufacture and a warranty certificate. The *Contractor* shall provide a cause analysis report for all repaired instruments and equipment detailing the cause of the fault and what repairs were done. The turnaround time for repairs is 30 working days.

The *Contractor* shall develop, maintain and execute a maintenance strategy for security equipment in this scope of work over the term of the contract. This is to ensure that all equipment are inspected, tested, and maintained to the highest degree in accordance with the SANS and other relevant local and international standards. Maintenance strategy is to include the identification of the individual assets to be maintained, and definition of specific component maintenance strategy (What activities to be performed and When) based on *Employer* recommendations, OEM recommendations, and industry best practices. The developed maintenance strategy shall be submitted to the *Employer* in .docx format for review and acceptance upon the establishment of the contract.

5.4 On-Site Competency Training

The *Contractor* shall provide on-site competency training on an “as and when” required basis for Peaking employees, contractors and other service provides on the legal usage of alcometer/testers, walk-through metal detectors, handheld metal detectors and visitor management system devices/scanners over the contract duration. The *Contractor* shall ensure the training is recognized and certified by relevant legal bodies. The competency training scope is to include:

- Issuing of valid proof of training certificates for new and existing employees/ contractors,
- Refresher training for existing employees/ contractors.
- Copies of all training records and certificates shall be provided to the *Employer* within five (5) working days of completion of the training.

The provision of on-site competency training shall not be limited to the security equipment and instruments listed in this scope of work.

5.5 Record Keeping

The *Contractor* shall allocate and mark all items requiring repair, maintenance, or calibration services with a unique number (asset/ serial number) for traceability.

The *Contractor* shall maintain an asset register documenting calibration records for all instruments and equipment. These records shall demonstrate that each item is capable of performing measurements within the designated limits. When equipment is found to be outside these limits, the *Contractor* shall record the extent of error and corrective action shall be taken. Additional information to appear on the asset register includes, asset/serial number, item description, manufacturer, calibration date, the re-calibration date, certificate number, and where the meter is (site, lab, calibration, etc).

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The *Contractor* shall maintain an asset register and calibration records for up to 2-years post the expiry of the contract.

All asset registers, and repair, maintenance and calibration records maintained by the *Contractor* shall be made available to the end-user within 2 working days of receiving request in electronic formats (.docx, pdf and other suitable media).

6. Supply of Works Disclaimer

In the event that the *Contractor* is unable to provide spares and services within acceptable timelines, Eskom reserves the right to seek alternative suppliers to reduce the risk of damage and/or production loss to operating unit(s) or auxiliaries or non-compliance to Occupational Health and Safety Act 85 of 1993.

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