PART 3: SCOPE OF WORK

Document reference	To supply, deliver, and install Inductively Coupled Plasma Optical Emission Spectroscopy instrument then train staff on how to use it at Grootvlei power station water laboratory. Service instrument and supply consumables for period of 60 months on as and when required basis.	No of pages
	This cover page	1
C3.1	*Employer*'s Service Information	
C3.2	*Contractor*'s Service Information	
	Total number of pages	

C3.1: EMPLOYER'S SERVICE INFORMATION

Contents

1 Description of the *service*

1.1 Executive overview

Supply, delivery, and installation of Inductively Coupled Plasma Optical Emission Spectroscopy Instrument at Grootvlei power station, water laboratory. Train staff on how to use instrument. Service the instrument and supply spares for period of 60 months.

Inductively Coupled Plasma Optical Emission Spectroscopy instrument is used to analyse Scaling cations in water to minimise scaling in the plant. Cations are determined using ICP-OES by dissolving the sample and introducing it into a hot argon plasma, which excites the atoms of the cations. These excited atoms then emit specific wavelengths of light as they return to their ground state. A spectrometer separates and detects this emitted light, and the intensity of each wavelength is measured to determine the concentration of the specific cation in the sample. During this process the instrument uses different consumables that need to be checked on a day to day running of instrument to ensure quality of results. The instrument needs to be serviced by a supplier on a yearly basis as per ISO 9001 Quality Management System.

The instrument is a benchtop instrument, and it will be used to analyse water samples from water treatment plant, cycle chemistry monitoring, cooling water chemistry monitoring and environmental dams monitoring.

The instrument uses computer with installed software to operate the instrument from the computer.

Electrical requirements- 220v

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

Grootvlei power station require Inductively Coupled Plasma Optical Emission Spectroscopy instrument for analysis of water, to be supplied and installed then training of staff. The instrument requires service and maintenance as per ISO 9001 Quality management on a yearly basis and as and when service is required during breakdowns. The supplier must supply us with consumables (as per price list) to run the instrument for a period of 60 months and must be available during callouts as per clause X17 appendix A.

Supply instrument as per below specification

a) Instrument must be able to analyse water samples from parts per billion (PPB) to parts per million (PPM). Must be able to produce repeatable results at 2.5ppb and less.
b) Instrument must use software and computer to run.
c) There must be an automated sampler with sample rack and operating with no risk of contamination between low level and high level.
d) Must be interchangeable between low level and high level.
e) It must be a bench top analyser.
f) Must be able to accept a wide range calibration for low level and for high level.
g) Must be able to detect multiple elements of periodic table.
h) Must use plasma

Scope of Service.

Service of Inductively Coupled Plasma Optical Emission Spectroscopy.

- Ensure flow of gases is happening as per design.
- Ensure the sample analysis is occurring according to design.
- Ensure instrument is producing required results by running standards.
- Ensure all the deviations are corrected.
- Change spares that are due for replacements during service.

- Supply spares for the instrument.
- Ensure instrument is running optimally.
- Provide calibration certificates.
- Provide calibration and service report detailing all work done.
- Provide sticker on the side of the instrument indicating date serviced, next service date and signature of service engineer.
- Perform detailed service of the instrument to check all the components that should be checked on annual service.

1.3 Interpretation and terminology

The following abbreviations are used in this Service Information:

Abbreviation	Meaning given to the abbreviation
ICP-OES	Inductively Coupled Plasma Optical Emission Spectroscopy
ISO	International Organisation for Standardization.
PPB	Parts Per Billion
PPM	Parts Per Million

2 Management strategy and start up.

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

The contractor to supply, deliver, install the Inductively Coupled Plasma Optical Emission Spectroscopy instrument then service instrument for period of 60 Months, ensuring the instrument is reliable to the employer. Supply of consumables of the instrument for the period of 60 months. Train Staff on how to use instrument that is supplied

The contractor will carry out the service activities:

a. All work to be performed by competent /skilled or trained personnel employed by the contractor.
b. Work execution will comply with occupational Health and Safety Act.
c. The contractor will carry out service activities on the instrument as stated by scope of work.
d. All works as stipulated in the task order.
e. Complying with the Employer's administration program.
f. The contractor will be called and respond according to X17 appendix A in this contract.
g. During call outs, the contractor should be readily available to respond within prescribed time as stated under X17 appendix A.
h. After service, the contractor will test the instrument by running a known concentration of standard and see the results.
i. The employer will process for payment when the instrument is in good working condition and standard used reading within acceptable limits (Repeatability and reproducibility).

2.2 Contractors Qualification and Experience

The contractor's employee who is conducting service must have qualification as follows:

a) Degree or higher in Electrical Engineering or
b) Degree or higher in Chemical Engineering or

c) Degree or higher in Chemistry or
d) Relevant NQF level qualification.

2.3 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:
Overall contract progress and feedback	Yearly, discussing Service that is planned. An Ad hoc meeting can be arranged should there be an urgent discussion required.	Virtual	*Employer*, *Contractor*
Contractor SHE meetings	Quarterly	Grootvlei power station	Contractor and Employer

2.4 Documentation control

The employer to issue task order then the contractor to do work. The contractor is then required to provide service report to the employer detailing the compliance of instrument to be used. The contractor attach sticker on instrument confirming service done date, next service date and names of service engineer with signature.

2.5 Invoicing and payment

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.

The *Contractor* shall address the tax invoice to
Eskom Grootvlei power station
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)

Add procedures for invoice submission and payment (e. g. electronic payment instructions)

2.6 Training workshops and technology transfer

The supplier will perform on job training during instrument installation and servicing.

2.7 Design and supply of Equipment

The instrument (Inductively Coupled Plasma Optical Emission Spectroscopy) should use plasma to excite atoms. Cations are determined using ICP-OES by dissolving the sample and introducing it into a hot argon

plasma, which excites the atoms of the cations. These excited atoms then emit specific wavelengths of light as they return to their ground state. A spectrometer separates and detects this emitted light, and the intensity of each wavelength is measured to determine the concentration of the specific cation in the sample. It must have desktop computer, with 19-inch or bigger screen. The software of the instrument should be installed in the computer to operate the instrument. Instrument must be able to operate in concentrations ranging from 1ppb for low level to 10ppm or more. The instrument must be able to analyse low level and high-level concentration without contamination with auto sampler.

Waste generated during analysis must be discarded into a drain or waste container.

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

2.8.1 Equipment

The Inductively Coupled Plasma Optical Emission Spectroscopy instrument is the asset of the employer, and it will remain the asset of employer at the end of contract.

2.9 Management of work done by Task Order

The task order must be sent to the contractor and the contractor will do the work then send invoice for payment after completion of service.

3 Health and safety, the environment and quality assurance

3.1 Health and safety risk management

The Contractor shall adhere to all OHS Legal requirements, OHS corporate policies, standards and procedures to which Eskom subscribes and as indicated on the issued SHE specification.

The Contractor shall, when coming on site (Grootvlei Power Station), abide by the Lifesaving Rules. These will be provided by the Employer on the start of the contract.

The Contractor shall also abide by the Grootvlei High risk Safety, Health and Environmental Specifications 240-73418055, which will also be provided by the Employer.

The Contractor shall, when coming on site (Grootvlei Power Station), make use of approved personal protective clothing such as overalls, safety shoes, safety hat, safety goggles, dust mask and gloves when necessary.

The Employer follows an Incident management procedure (32-95) that includes the investigation of all accidents involving personnel and property. This is done with the intention of introducing control measures to prevent a recurrence of the same incidents. The Contractor is expected to fully co-operate to achieve this objective. The Contractor will report any incident and accidents to Grootvlei Power Station within 24 hours or before end of shift . This report does not relieve the Consultant of his legal obligation to report certain incidents to the Department of Labour, or to keep records in terms of the Occupational Health and Safety Act, and Compensation for Occupational Injuries and Diseases Act.

The Contractor implements a safety plan and maintains the safety system until the completion of the whole of the works. The plan, will as a minimum, contain PPE information, written safe work procedures, job specific risk assessments, safety meetings, etc. The plan will be to the Employer's satisfaction and will be accepted prior to the commencement of any work.

The Contractor will be subject to periodic audits by the Employer to ensure compliance with the plan. Any deviations will be corrected to the Employer's satisfaction.

The Service Manager has the right to stop the Contractor's work activities which, in the opinion of Service Manager, is un-safe. The Contractor may only continue with work activities when all safety deficiencies have been corrected to the Service Manager's satisfaction. The Contractor shall have no claim against the Employer in respect of delay due to the above.

The Contractor shall comply with the health and safety requirements contained in the contract tender package (j) The *Contractor* allocates staff to be trained and authorised as Responsible Persons according to *Employer*'s Plant Safety Regulations and/or High Voltage Regulations. These Responsible Persons must be available on Site as and when required to take out permits to work.

3.2 Environmental constraints and management

3.2.1 Policy, Leadership and Commitment

a) The contractor shall comply with all Eskom Grootvlei Power Station environmental requirements such as policies, standards and procedures (work instructions).
b) The contractor shall appoint personnel in writing with basic Environmental knowledge who will have the responsibilities of implementing all environmental/SHE requirements on a specific contract.
c) Station Waste Management Procedure and color coding shall be adhered to at all times.
d) Ensure that all Environmental Requirements are communicated to relevant employees.

3.2.2 Legal and Other Requirements

a. Adherence to the 'Duty of Care' as stipulated in section 28 of the National Environmental Management Act 107 of 2008.
b. Adherence to applicable Environmental legislations, licences and permits and other requirements.
c. A letter from top management guaranteeing the protection of workers refusing to do environmentally hazardous work in terms of section 29 of NEMA 107, of 1998.

3.2.3 Aspects, Impacts, Objectives and Targets

a. The contractor shall ensure that all aspects and impacts that can result in negative impacts on the environmental through their operations are identified and documented.
b. Objectives and targets shall be established for aspects and impacts that are deemed to be significant. These objectives and targets will need to be documented and conveyed to all contractor personnel.

3.2.4 Incident Reporting and Investigation

a. All incidents shall be managed according to Eskom Environmental incident management procedure-**240-133087117.**
b. Polluter pays principles shall apply to all *Contractors*. It is the responsibility of the polluter to clean all spillages and for the rehabilitation of the polluted land and the cost associated with that.

3.2.5 Monitoring and Review

a. Client personnel will conduct regular environmental audits. Contractors are expected to participate and ensure that corrective actions are executed.
b. Eskom Grootvlei Power Station shall issue non-conformances where there are deviations from Grootvlei Power Station Procedures and any other environmental requirements.
c. All environmental system documentation, records, reports etc. shall be made available for review when requested.

The *Contractor* shall comply with the environmental criteria and constraints stated in Annexure A

3.3 Quality assurance requirements

The Contractor shall be required to demonstrate by means of a Contract Quality Plan (CQP) that this organization is so structured that all the requirements of the specification will be properly monitored and controlled. The Contract Quality Plan (CQP), which must include the Quality Control Plan (QCP), is to be drafted in accordance with (240-105658000) and the Supplier Contract Quality Requirement Specification (240-105658000).

No work may commence unless the Contract Quality Plan and Quality Control Plan documents have been approved in writing and a copy submitted to the Employers Representative. The Contractor, in conjunction with the Employers Representative must sign off all Quality Control documents after completing all work as per the agreed scope.

The Contractor shall be required to read and fully understand the contents of the Supplier Contract Quality Requirement Specification (240-10565800) and a copy is to be kept in possession or on premises. The Contractor shall be subjected to scheduled assessments/audits if Eskom deems it necessary.

The Supplier Contract Quality Requirement Specification (240-105658000) shall remain applicable in the event of the contract being extended or modified for reasons permitted.
By signature and acceptance of this contract the Contractor acknowledges and agrees to comply with and adhere to Eskom's policies and procedures (current and/or latest revisions) including the Supplier Contract Quality Requirement Specification (240-105658000).

4 Procurement

4.1 People

4.1.1 Minimum requirements of people employed

Contractor provides only one service engineer who is qualified to conduct Service as stated above under point 2.2. The installation is also done by the supplier.

The Supplier must ensure that the service engineer to conduct installation and service for period of 60 months is competent in conducting risk assessment as they are expected to familiarise themselves with the risks associated with installation and services of instrument.

The supplier must have a competent incident investigation (Root Cause Analysis) employee that can conduct incident investigation, should there be an incident to their service engineer during installation and service.

4.2 Plant and Materials

4.2.1 Specifications

Supply of new Inductively Coupled Plasma Optical Emission Spectroscopy and install the instrument. The supplied instrument should comply to above information under 1.1 Executive overview. The instrument must be serviced annually and supplied with consumables stated under price list, for period of 60 months on as and when required basis. The instrument must be able to run low and high level without contamination.

4.2.2 Correction of defects

The newly delivered instrument will be covered by warrant. Service and defects are covered by clause X17 Appendix A, under data by employer in this contract.

4.2.3 Contractor's procurement of Plant and Materials

The contractor will procure the required instrument and transport it to Eskom Grootvlei power station water laboratory. The instrument must be under warrant. The contractor then arranges a date to install instrument and train staff on how to use instrument. The supplier is responsible of ensuring instrument is working and

reliable. Call out will be initiated for contractor to come during emergency breakdowns as per Clause X17 Appendix A.

4.2.4 Plant & Materials provided "free issue" by the *Employer*

All the items that the supplier will bring are mentioned under Option A list. The asset of the employer remains the same at the employer address which is Grootvlei power station.

5 Working on the Affected Property

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

Contractor representative arrives at Grootvlei power station and attends a safety induction; the end-user will sign in the contractor representative. The contractor representative must have a valid police clearance certificate and completed medical test prior to coming to site.

5.2 People restrictions, hours of work, conduct and records

Supplier's employee must come to work at Grootvlei power station on Monday to Thursday between 7h15 and 16h30. Fridays between 07h15 and 12h15 when there is work to be done.

5.3 Health and safety facilities on the Affected Property

First aid box is situated less than 5meters away from the affected area the instrument will be placed. The emergency exit routes are clearly marked in case of emergency.

5.4 Records of *Contractor*'s Equipment

All the contractor equipment's entering site will be recorded at the security gate, all the registered equipment's will be allowed to be taken out of the gate.

5.5 Site services and facilities

5.5.1 Provided by the *Employer*

The employer will provide ablution, water, lighting, and equipment's availability during the agreed service date.

5.5.2 Provided by the *Contractor*

Equipment's to be used during service is the instrument being procured. The installation tools to ensure the instrument is installed according to its design.

5.6 Control of noise, dust, water, and waste

The employer to ensure the site provide the surrounding employees with noise and dust protection PPE if needs be during installation. Water and waste will be covered by employer.

5.7 Tests and inspections

5.7.1 Description of tests and inspections

Instrument being procured will be inspected and tested if it does comply to required analysis by supplier. Known concentration will be used to monitor instrument reproducibility.

5.7.2 Materials facilities and samples for tests and inspections

Grootvlei power station will provide samples for testing. The inspection will be completed by the supplier and instrument will be declared complying to use by the supplier.