Eskom	Specification	Kusile Power Station

Title: **Kusile Power Station C&I Maintenance Labour Service for a Period of Five (5) Years Scope of Work**

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1. Introduction

Kusile Power Station Generation-C&I Maintenance management intends to establish a partnership with a suitably qualified: experienced and well-established service provider for the provision of C&I maintenance labour service for commercial operating units and BOP sections. These commercial operating units and BOP sections comprise of multiple instrumentation, process control systems and interrelated sections and each with own maintenance requirements.

2. Supporting Clauses

2.1 Scope

2.1.1 Purpose

The purpose of this document is to define the scope of work specified for the provision of C&I maintenance labour activities requirements for Kusile Power Station commercial operating units and BOP sections.

The specified C&I maintenance provision of labour service must support the requirement of the station to perform at maximum output. The station is expected to achieve 85% UCF, 10% PCLF and 5% UCLF, and the service provider availability must support this requirement.

It is therefore imperative that the successful and suitably qualified partner aligns their organisation entirely to these specified scope(s) activities and processes laid clearly in this document.

2.1.2 Applicability

This document is applicable to Kusile Power Station Generation.

2.1.3 Effective date

This document is effective from the date of authorisation (last signature) until its succeeding document has been authorised.

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] 414 - 32 Rev 0: Kusile Maintenance User Requirement Specification

[2] GGR 0992: Plant Safety Regulations

[3] 240 – 56227443 Requirements for Control and Power cable for Power Stations Standard

[4] 240-56355754 Field Equipment Installation Standard

[5] 240-132042241 Power Plant Controls & Instrumentation; Control Systems; Distributed Control Systems (DCS); Part 1: General Standard

[6] NMP47-77 Application of KKS plant coding

2.2.2 **Informative**

[1] ISO 9001 : Quality Management Systems

[2] ISO 14001: Environmental management System

[3] Act No 14 of 2009: The National Environmental Act, 1989

[4] Act No 102 of 1980: National Key Points Act, 1980

[5] Act No 85 of 1993: Occupational Health and Safety Act & Regulations, 1993.

2.3 Definitions

2.3.1 **Availability:** Period when a system is operating satisfactory when used under specified conditions.

2.3.2 **Contractor:** Service provider contracted to provide a specific service to Eskom, Kusile Power Station.

2.3.3 **Employer**: Eskom, or Eskom Kusile Power Station or representative

2.3.4 **Normal Working Hours:** Monday to Thursday, 07h00 -- 16h15 & Firday, 07h00 -- 12h00

2.3.5 **Overtime Work:** Monday to Thursday, 16h15 -- 07h00 the following day; Friday 12h00 to 07h00 Monday morning and all National Public Holidays.

2.3.6 **Reliability:** the probability that a product, system, or service will perform its intended function adequately for a specified period of time, or will operate in a defined environment without failure.

2.4 Abbreviations

Abbreviation	Explanation
AP:	Appointed Person
C&I:	Control & Instrumentation
CM	Corrective Maintenance
NEC:	New Engineering Contract
OEM:	Original Equipment Manufacturer

Abbreviation	Explanation
OHS Act:	Occupational Health and Safety Act
PCLF:	Planned Capability Loss Factor
PPE:	Personal Protective Equipment
PM:	Planned Maintenance
PSR:	Plant Safety Regulations
PTW:	Permit to Work
QCP:	Quality Control Plan
RP:	Responsible Person
SAP PM:	SAP Plant Maintenance
SAP:	Systems, Applications, Products (Plant Maintenance, Procurement, Finance and Materials Management) integrated maintenance management system.
SHE:	Safety, Health, Environment
SOW:	Scope of Work
UCF:	Unit Capability Factor
UCLF:	Unplanned Capability Loss Factor
URS:	User Requirement Specification
IR	Interim Repairs
IN	Inspection Outage
MO	Mini Overhaul
GO	General Overhaul
SLA	Service Level Agreement

2.5 Roles and Responsibilities

All parties concerned in this SOW "shall act as stated in this contract and in a spirit of mutual trust and cooperation"

2.5.1 Employer

a) The *Employer* shall provide induction and ensure adherence and compliance at commencement stage of the contract to the entire SHEQR requirements.

b) Ensure compliance with contract conditions; enforce OHS act regulations and quality requirements.

c) Review, verify and approve receipt of service/deliverables from the contractor.

d) The *Employer* shall provide a complete conducive working environment for the contractor during the period of work.

e) Determine how many *Contractor* employees are required at any specified period

f) Provide contract managing Supervisors for all *Contractor* employees

1. Supervisor shall manage the plant section allocation of Contractor employees.
2. Supervisor shall issue and manage task orders as and when required.
3. Supervisor shall manage the issuing of plant spares requirements as per operational needs.

g) The *Employer* coordinates and manages contract budget and expense.

h) Holds contractual meetings with the *Contractor* on mutual intervals

i) Manage contract conditions records, resolve deviations and monitor *Contractor's* performance.

j) Oversee the planned and scheduled work on daily basis and provide technical advise.

k) Ensure availability of spares to adequately perform work consequently.

l) Provide training required for the consistent provision of plant maintenance.

m) Provide maintenance rights (DCS, SAP, etc) only to the selected *Contractor's* individuals for the implementation of the SOW

2.5.2 Contractor

a) *Contractor* shall provide the required, qualified and experienced Supervisor, Technicians, Field Technician, Mechanician to perform C&I maintenance and safety officer to ensure continuous safety standard and working procedure are carried out.

b) *Contractor* shall provide the required number of qualified and experienced C&I Technicians, Field Technicians, Mechanicians and required Assistants to perform C&I maintenance.

c) All *Contractor* employees shall comply with Eskom's policies and site regulations, adherence to Eskom's Life Saving Rules, adherence to Generation Occurrence Management Procedure, Smoking Policy, zero tolerance on alcohol usage.

d) These requirements shall be detailed during the induction training process.

e) *Contractor* employees shall provide essential maintenance in accordance with relevant procedures and specifications.

f) Ensure reliability of the plant is maintained within the parameters specified by *Employer*.

g) Ensure that all the C&I systems of Kusile Power Stations comply with the statutory and environmental requirements.

h) The *Contractor* shall provide technical support and advice on constant failure trends of the equipment.

i) Participate in plant investigation processes as initiated and/or as requested by the *Employer*.

j) Ensure the application of appropriate maintenance tools and innovative techniques and subsequently providing consistent and cost effective maintenance methods.

k) Ensure adherence to Key Performance Indicators (KPI), objectives and targets which support Employer's achievements.

l) All *Contractor* employees shall attend and be found competent in various trainings offered by *Employer* in support of the SOW

m) *Contractor* must provide reliable tools for his/her employees as per their employment grading.

n) *Contractor* must provide a minimum 179True RMS Fluke multi-meter for every Mechanician and Technician

o) The *Contractor* must provide a logbook for all equipment that remains the *Contractor's* assets e.g Toolbox, PPE, etc

p) Ensure logging and marking of all *Contractor* assets used during the contract period.

q) Contractor is to ensure the personal onsite comply with Kusile Power Station standby call out response time.

r) Emergency overtime shall be treated as emergency it is the contractor responsibility to ensure proper maintenance is done to prevent unnecessary call outs.

2.5.3 C&I Site Manager

The roles and responsibility of C&I Site Manager are and not limited to the following:

- Overseeing all aspects of the project.
- Planning and budgeting.
- Tracking milestones and addressing issues or delays proactively.
- Ensure compliance of the service provider in terms of TSC NEC.
- Ensure environmental compliance of the service provider.
- Ensure safety compliance are always met by the service provider.
- Ensure quality is met by the team. (For us at Eskom, Quality is more than just a certified process/product; it is fundamental to the way in which we work).
- Perform technical studies.
- Consult on discipline related issues.

- Previous work experience at new build Kusile or Medupi Power stations.

Site Manager need to be knowledgeable on

- Power plant systems and technology.
- Engineering theory
- Relevant processes, policies, guidelines and legislation
- Engineering design.
- Cost analysis/economic evaluation.
- Knowledge of Eskom's business and financial procedures.
- Extensive experience in successful plant configuration and project management technical problem solving.
- Eskom policies and procedures related to managerial remuneration and benefits specific to executive remuneration.
- Electrical Protection - maintenance and commissioning
- Knowledge of safety, health, environment and quality requirements
- Technical competency in the field of electrical and electronic engineering.
- Knowledge of statutory/legislative requirements.

2.5.4 C&I Technical Supervisor

The roles and responsibility of C&I Technical Supervisor are and not limited to the following:

- Propose modifications and determine the impact on process information system performance.
- Advise and guide Technicians and Mechanicians in solving complex technical problems.
- Address day to day technical issues.
- Render technical advice/support to Technicians and mechanicians.
- Execute and evaluate the effectiveness of modifications.
- Optimise fault finding methods.
- Perform project management.
- Attend to equipment and employee safety.
- Motivating of teams
- Coaching and mentoring of team
- Developing of the team.
- Be always professional.
- Report project status daily activities to contract supervisor.
- Advance knowledge in ABB DCS, PLC and analytical instruments

- Electrical Protection - maintenance and commissioning
- Knowledge of safety, health, environment and quality requirements.
- Technical competency in the field of electrical and electronic engineering
- Responsible for advance problem solving and trouble shooting.

Site Supervisor must be knowledgeable of the following.

- Technical Knowledge and analytical skills to diagnose problems in electrical equipment or systems and develop appropriate solutions.
- Investigation procedures.
- Knowledge of Eskom's procedures and standards
- Knowledge of Eskom's business and financial procedures.
- Knowledge of statutory/legislative requirements.
- Knowledge of network, plant, and equipment.

2.5.5 C&I Instrumentation Technician

The roles and responsibility of C&I technician are and not limited to the following:

- Trouble shooting of advance complex instrumentation loops and systems.
- Carry out the corrective, preventive and predictive maintenance activities for various automation systems in the plants, workshops and offsite facilities in accordance with established schedules to achieve effective functionality, reliability and efficiency in accordance with standard operating procedures HSE guidelines and quality standards.
- Performing all necessary servicing, condition monitoring, fault diagnosis and restorative maintenance duties on field instrumentation and local control panels.
- Advise and guide Field Technicians and Mechanicians in solving complex technical problems.
- Isolates power supply or security (fail safe or trip systems) in accordance with the strict Eskom rules and procedures for low voltage systems.
- Calibrate & Program precision electronic components.
- Maintains records of repairs, calibrations, and tests and documents related processes.
- Uses test equipment (PG, multi-meters electronic bridges, loop calibrators) and hand tools.
- Reads, and interprets electric generating plants P&ID's to locate, identify, troubleshoot, and repair plant systems, interlocks
- Have adequate knowledge on ABB DCS
- Maintain precise document of records and files that are subject to internal, corporate, federal and state audit / inspections.
- Perform installation, tuning, and testing of new process controls and instruments.
- Provide support to field Technician and mechanician.
- Completes all written and electronic records (work orders, calibration sheets, timecards, material requests) required to document the work in progress and as it is completed.

- Locating and diagnosing the cause of malfunction or failure of process analysers and performing the necessary preventative or corrective maintenance.
- Diagnosing and rectifying faults to ensure maximum equipment availability.
- Ensure accurate and timely administration of relevant documentation such as service or inspection reports, timesheets and orders.
- be knowledgeable in ABB DCS, PLC and analytical instruments.
- Identifying and analysing reported breakdowns or deviations in production equipment and determining their root cause. If needed, engaging expertise or support in line with internal guidelines, procedures, and work instructions to ensure clarity of the issue.

2.5.6 C&I Field Instrumentation Technician

The roles and responsibility of C&I Field Technician are and not limited to the following:

- Installs, inspects, repairs, services, and upgrades equipment according to instructions.
- Use a variety of tools and equipment such as power equipment, measuring devices, power tools, and testing equipment.
- Understanding of loop diagrams for diagnosing of cable faults, identifying of ground faults, floating voltage, distortions on control loops.
- Determine, install, and configure instrumentation equipment to various processes to meet required output or demand.
- Diagnose malfunctioning systems, apparatus, equipment, and components and correct the problem.
- Installation, calibration of flow, pressure, level & temperature instruments.
- Provide support to Mechanician.
- Address day to day technical issues.
- Optimise fault finding methods.
- Carry out onsite refurbishment of instruments.
- Calibrate and maintain mechanical, pneumatic, chemical, electrical and electronic process controls and measurement instrumentation to approved procedure.
- Executing preventative maintenance, inspections on all instrumentation equipment.
- be knowledgeable in ABB DCS, PLC and analytical instruments.
- Onsite instrumentation maintenance of all field instruments.
- Adhere to industrial standards of onsite calibration and maintenance of instruments.

The key roles of a field instrumentation technician are:

- Due to extensive knowledge in refurbishment of instrument field technician roles is to ensure devices remain in top condition to enable a smooth and efficient plant operation.
- Mitigate risk of premature field instrument failure by increasing device reliability, carry out efficient device diagnostics and minimise unexpected instrument downtime.
- Perform 1st line investigations service and repairs of faulty instruments before they get send out to external service providers for refurbishment.
- Issue a detailed defect report of faulty instruments.
- Keep track on routing maintenance inline with OEM service agreement.
- Provision of optimal maintenance & migration strategies to prevent costs and process performance issues.

2.5.7 C&I Mechanician

The roles and responsibility of C&I Mechanician are and not limited to the following:

- Calibrate and maintain mechanical, pneumatic, chemical, electrical and electronic process controls and measurement instrumentation to approved procedure.
- Understanding, evaluating, and executing the tests and procedures properly and investigating the Maintaining and setting up documentation and control procedures.
- Safely and efficiently execute daily tasks related to calibration, maintenance and instrumentation activities.
- installing, maintaining, repairing, overhauling, calibrating and testing a wide variety of industrial instrumentation such as control valves, transmitters, radars, levels, Controlling and regulating level, flow, pressure and temperature meters
- Generate Instrument Deviation Reports (IDR) for out of tolerance calibrations of process instrumentation and promptly notify the department supervisor on any defects and deviation found.
- Measure voltage, current, resistance and all other electrical parameters as and when required in line with defined Eskom procedures.
- Diagnosis of electrical problems and repairing.
- Tests electronic components and circuits to locate defects, using signal generators, amp meters, and voltmeters and other measurement equipment as required.
- Replaces defective components and wiring.
- Investigate, diagnose and correct measurement control and Instrumentation system problems.
- Executing preventative maintenance inspections on all instrumentation equipment.
- Interpret, evaluate and document calibration test results.
- Uses test equipment (PG, multi-meters electronic bridges, loop calibrators) and hand tools.

2.6 Process for Monitoring

This specification shall be reviewed every year period from date of initial authorisation or when necessary to conduct assessment on the following:

a) Understanding processes and/or C&I maintenance as per *Employer's* instructions, systems (e.g. field instruments, cable, earthing, actuators & any C&I equipment)

b) Be able to use test equipment e.g. Multimeter, Field Calibrator and PLC PG.

c) Be able to read cable diagrams, loop drawings and fault-finding using ABB DCS.

d) Able to obtain Plant Safety Regulation within specified period.

e) Problem solving technique of everyone shall be monitored daily.

f) Monitoring of proper executing of weekly preventative maintenance.

g) SAP close of all Preventative maintenance and corrective maintenance.

2.7 Related/Supporting Documents

a) *Contractor* to provide required qualifications (trade test certificates/or national diploma and other related C&I competency)

b) A daily attendance registers for all *Contractor* employees to be signed by all employees and maintained in a file.

c) All drawings or documents developed during the contract period remain the property of Eskom.

3. Document Content

3.1 Works Information

The entire function and services required by Kusile Power Station Gx-C&I Maintenance include online/live maintenance and opportunity maintenance including weekends and on various outages granted (e.g IR, GO, etc).

C&I Maintenance require a minimum of six (09) C&I Mechanicians, three (3) C&I Instrumentation Technicians, two (2) C&I Field Instrumentation Technician, One (1) C&I technical Supervisor, one (1) site manager plus one (1) Safety Officer qualified and experienced for the duration of the contract. The amount of all required and/or no more required C&I personnel shall be communicated timeously as and when amendments/changes required takes place.

They shall be doing 24-hour overall C&I maintenance in the commercial operating units and BOP sections. They shall report to site at normal working hours, as indicated above. They shall attend to all PMs and CMs as per C&I Maintenance requirements and continuously adhere to C&I

Maintenance working patterns. *Contractor* shall be expected to partake in a standby team roster and be ever ready to do overtime work.

The SOW is inclusive of commercially operating units and BOP sections and shall be applicable to upcoming plant sections as per project phasing.

Note: the service provider will be expected to take the scope below as works instruction and duties of the service provider are not limited to the scope. Other legitimate duties as we go will arise and the service provider will be expected to execute them at no extra cost. The service provider is to render C&I maintenance services at Kusile Power Station.

3.1.2 Planned Maintenance

- The contractor to ensure all resource perform morning walk down on all plant area (running units and BOP). Identify defects on instruments notify operator to load defect on SAP system
- Supervisor to follow up on all planned maintenance defect to ensure they are closed as per their priority validity period
- Preventative and corrective maintenance to be performed as by Eskom procedure.
- Plant history to be captured on SAP System.
- The contractor must inform the employer of deficiencies in their area of maintenance.
- The contractor must inform the employer about any factor known to them that may affect plant health performance.

3.1.3 onsite bench and preventative maintenance on major instrument

to prevent high expenditure of procurement of new devices the contractor shall provide field instrumentation technicians who has adequate knowledge in refurbishing of pressure, temperature, level and analytical equipment's. The field technician shall perform repairs and service of faulty instruments which failed before the expiration of the instrument life span.

3.1.3.1 contractor shall provide C&I workshop bench with correct equipment's to carry out onsite services for ABB, Endress & hauser, yokogwa instruments which are pressure, temperature, level and analytical instruments.

3.1.3.2 the contractor shall adhere to OEM service requirements.

3.1.3.3 repairs and service shall be offered by a manufacturer trained field instrumentation technician.

3.1.3.4 repairs and service done onsite shall be warranty rework and premature failure shall be off the contractor account.

3.1.3.5 the contractor will not bill the employer for strip and access of faulty instrument as this form part of daily task of a field instrument technician.

3.1.3.6 the contractor can only proceed with repairs and service of faulty instruments after authorization has been granted by service manager.

Authorization shall be granted with consideration of following factors:

- service and repairs quote issued by service provider is economically feasible compared to procurement of new device.
- Service and repairs carried out will guarantee a continuous operation and efficiency of the instrument.
- Premature defect on service instrument is guaranteed not to happened.
- A service warranty can be issued by service provider.
- Online service can not interfere with normal operation of the plant.
- Recalibration of the instrument shall not be required after service has been carried out.

3.1.3.7 bench calibration of instruments will not be billed as an extra by the service contractor since workshop establishment has been paid for by employer.

3.1.3.8 employer has the right to influence the quote for service and repairs, base price for service can be compared to market price to safeguard against unfair pricing by service provider.

3.1.4 Standby Services

3.1.4.1 The contractor to ensure the availability 24hour standby service with a response time of 1hour (one hour). The standby crew is to be competent on the power plant process, fault finding technique and authorised to act as a responsible person on permits as per PSR and also able to be carried out simulation when required.

3.1.4.2 The contractor shall provide daily feedback on work done on the plant in the previous 24hrs and weekends, details of task done the duration taken to complete each task.

3.1.4.3 The contractor shall ensure no planned work is done after normal working, all planned need to be completed in time.

3.1.4.4 The contractor shall be responsible for initiating, investigating and correcting any defects which occur regularly on standby.

3.1.4.5 The standby crew should consist of two (2) people always available on call-outs free from drugs and alcohol and shall report to the control room within one (1) hour after call-out had been made.

3.1.4.6 The standby roster should be submitted to Eskom at least a month prior to the standby month. The employer has the right to influence changes on the standby roster for the purpose of balancing the skill. Final draft of the standby list should be agreed by both parties.

3.1.4.7 call outs will be according to SAP prioritisation, all call outs should be accompanied by a notification number with a priority1 on it. Any notification which is not a priority 1 should be planned and done under planned work unless such notification cannot be done during the day and arrangement were made to execute it out of normal operating hours.

3.1.4.8 Management is not entitled for overtime payment. If there is any urgent work/callout that requires their presence such work/callout shall be done free on contractor's account. Supervisor will work overtime only if given written authorisation by the service manager, any overtime worked without written authorisation shall not be paid.

3.1.5 C&I Equipment's

- The contractor shall supply their own production equipment and all testing equipment.
- All testing equipment must be calibrated yearly.
- All equipment shall be always inspected and maintained in good condition no resources will be allowed to work without the correct tools.
- All production equipment used on level 1 and level 2 plants shall be accepted by the client for compliance before being used.
- The contractor shall provide its one C&I workshop equip with test bench and refurbishment facility for serving of instrument removed from the plant, restroom. Kitchen space, storage facilities for working tools and office space.
- Employer will only provide power supply to the container and servicing of septic tank; contractor shall provide own cleaning facility and jojo tank for portable water.

3.1.6 Plant Boundaries

- The contractor will maintain all instruments and apparatus covered by C&I maintenance department. Boundaries shall be issued by employer on a required basis, contractor shall be responsible for maintenance on all handed over plants and plant which will be handed over to Kusile generation C&I maintenance as the contract commences.
- The service provider will be expected similar scope, works instruction and duties of Kusile C&I Maintenance department.
- The contract will be expected to do 1st line of investigation where, as and when required basis contract with OEM exists. The contract is expected to have basic knowledge of such system and provide proof of such Knowledge.
- The contractor must perform functional checks and calibration on the entire field instruments and calibration sheet must be filled by both Eskom and contractor.
- The contractor is responsible for cleaning of workshop, all equipment rooms, server rooms. It will be the contractor's responsibility to submit defects for areas that are dirty. Inspection can be done by Employer representative at any given time.

3.1.7 General Requirements Required from The Contractor

The contractor shall

- Discus, clarify and submit revised technical documentation for approval.
- Maintain records of abnormal conditions introduced in the plant on temporary basis.
- Correcting of abnormal conditions in the plant.
- Researching of solutions to reoccurring defects.
- Maintain all records of calibration, procedures used and results.
- All information and drawings developed or acquired during the service is the property of Eskom and shall be handed over to Eskom at the end of contract.
- Developing of procedures and maintenance solution which will lead to higher production and minimum cost to the stations.
- Notify Employers representative by phone during call outs.
- Only proceed with replacement of spares once employer's representative agrees.
- All instruments removed from site shall be strip and asses identify source of failure service and repair on site where possible or send out for refurbishment when equipment is economical to repairs.
- Obey any lawful instruction issued by employers.
- Technical and SHEQ investigation of all incidents
- Do SMATS and plant walks.
- Develop QCPs
- Perform job observation on all plants area.

3.2 Training & Authorisation

a) The *Contractor* employees shall be expected to be PSR authorised within 2 months of the contract commencement.

b) The *Contractor* employees shall be expected to be familiar with SAP and Flip Op-suite.

c) The *Contractor* employees shall be expected to be familiar with DCS navigation.

d) There shall be other trainings offered and competency shall be compulsory.

1. HAZLOC
2. SHE REP
3. FIRE WARDEN
4. FIELD EQUIPMENT

e) transfer of knowledge in terms of field instrumentation repairs and service by field technician shall be an ongoing task for the duration of the contract.

f) The contractor will offer accredited service and repair onsite training for Eskom generation C&I maintenance Technicians.

3.3 Contractor Provisions

a) The *Contractor* shall provide a toolbox for each employee and tools must be marked and logged.

b) On each toolbox it is crucial to have a calibrated Fluke 179 True RMS Digital Multi-meter.

c) The *Contractor* shall provide PPE including arc flash and disposable PPE for each employee and must be marked and logged.

d) The *Contractor* shall provide home-work-home transport for employees during normal and overtime working hours.

e) Provide timesheet statement for each employee on monthly basis.

f) Give detailed report on instrument repaired serviced or send out for refurbishment.

g) Container for accommodation of employees fitted with restroom, kitchen, open plan office, locker room and air conditioning

h) C&I workshop equipped to carry our services and repair of pressure, level, temperature, and analytic instruments

i) Provide training for service and repairs.

3.4 Minimum requirements of resources

3.4.1 Site manager should hold a BTech in Electrical engineering, have a minimum of 4 years managerial experience, 2 years should be consecutive at new build Kusile/Medupi power station. Have a minimum of past 3 years consecutive experience in C&I maintenance department in a power plant or related industry.

3.4.2 Technical supervisor should hold a national diploma/ technical diploma with trade test with a minimum of 5 years of experience doing field work in process instrumentation as a senior technician in a power plant or related industry. 2 years should be consecutive at a new build Eskom Kusile/Medupi power station. Familiar with ABB DCS 800XA, siemens PLC and system 1 bently Nevada.

3.4.3 Field technician should hold a national diploma/technical diploma with trade test 5 years' experience in field instrumentation maintenance, repairs, service and refurbishment. A minimum of 3 years consecutive OEM field instrument refurbishment experience.

3.4.4 Mechanician should hold N4 with trade test certificate/technical diploma with trade test a minimum of 2 consecutive years of experience in a power plant or related field (Instrumentation).

3.4.5 Safety officer should hold a diploma in safety, must have a minimum of 2 years safety related experience in any industrial site.

3.4.6 it is the responsibility of the service provider to ensure that all employees meet the minimum requirements.

3.4.7 CVs, certified copies of qualifications, ID and appointment letters for all employed personnel should be given to the service manager on the day of kick off meeting, prior to the contract commencement.

4. Acceptance

This document has been seen and accepted by:

Name	Designation
Thabang Tholo	C&I Senior Technical Supervisor
Mvuselelo Shobede	C&I Senior Technical Supervisor
Marakeng Madigoe	C&I Senior Technical Supervisor

5. Revisions

Date	Rev.	Compiler	Remarks
January 2021	1	NS Tembe	First issue
March 2024	2	M Mhlongo	Second Issue

6. Development Team

The following people were involved in the development of this document:

Nzuzo Ndlovu- C&I System Engineer

Temosho Dibakoane - C&I Technician

Simiso Tembe- C&I Snr Technician

7. Acknowledgements

a) Kusile Power Station C&I Engineering and Maintenance department.

b) Matimba Power Station C&I Maintenance department