	<p style="text-align: center;">Scope of work</p>	<p style="text-align: center;">Medupi Power Station</p>
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Title: Medupi Power Station Provision of Calibration and Refurbishment of Safety Valves

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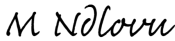

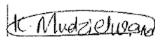

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1. Introduction

Medupi Power Station Management has taken a decision to outsource refurbishment and calibration of safety valves scope to a suitably qualified, experienced, and well-established Contractor. This document describes the detail of the applicable plant areas, scope of work, standards, quality, requirements, specifications, terms & conditions as well as the criteria to qualify for the tender.

2. Supporting Clauses

2.1 Scope

2.1.1 Purpose

The purpose of this document is to define the requirements for refurbishing and calibration of safety valves for a term services contract at Medupi Power Station.

2.1.2 Applicability

This document is applicable to all safety valves installed at Medupi Power Station.

2.1.3 Effective date

This document shall be effective from the date of authorisation as indicated on the cover page

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] Insert normative document references here.
- [3] OHSACT Occupational Health and Safety Act, 85 of 1993
- [4] 36-681 rev 2: Generation Plant Safety Regulations
- [5] 240-114967625 rev 1: Eskom Operating Regulations for High Voltage Systems
- [6] 240-9702010: Medupi Power Station Contracts User Requirement Specification
- [7] 240 – 69258336 Pressure Relieving Safety Devices Standard
- [8] 240-154283718 Pressure Equipment Regulations Compliance Manual

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[9] 240-63160711 Boiler Safety Valves functional test procedure work instruction

2.2.2 Informative

[10] ISO 9001 Quality Management Systems

[11] 240-76667211 Outage Management Foreign Material Exclusion Standard

[12] 241-2022339 Medupi Power Station Quality Control and Verification Work instruction

2.3 Definitions

- i. **Contractor:** Service provider contracted for supplying specific service to Eskom, Medupi Power Station.
- ii. **Employer Representative:** Any person appointed in writing by Employer as the delegated Employer representative in terms of the provisions.
- iii. **Employer:** Eskom, Medupi Power Station
- iv. **Outage:** An outage is a state of an item being unable to perform its required function. An outage can either be planned or unplanned.
- v. **Plant:** Any structure, machinery, apparatus, or equipment which does not fall within the scope of the operating regulations for high voltage systems, and excludes, mobile, portable lifting equipment, domestic circuits' appliances and tools.
- vi. **Task Order:** is the Service Manager's instruction to carry out a Task against a contract

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2.4 Abbreviations

Abbreviation	Description
BTS	Boiler Tubes Survey
FFFR	Fossil Fuel Fired Regulation
FME	Foreign Material Exclusion
GO	General Overhaul
IR	Interim Repairs
KKS	Kraftwerks-Kennzeichen-System (Plant labelling)
MGO	Mini General Overhaul
NDT	Non Destructive Testing
OEM	Original Equipment Manufacturer
PCLF	Planned Capability Loss Factor
PCM	Process Control Manual
PM	Plant Maintenance
PPE	Personal Protective Equipment
PSR	Plant Safety Regulations
SOW	Scope of Work
UCF	Unit Capability Factor
UCLF	Unplanned Capability Loss Factor
QA	Quality assurance
QC	Quality Control
QCP	Quality Control Plan

2.5 Roles and Responsibilities

2.5.1 Employer

As defined in the NEC contract documentation.

2.5.2 Contractor

As defined in the NEC contract documentation.

2.6 Process for Monitoring

This document will be updated on an “as and when required” basis.

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2.7 Related/Supporting Documents

- 1) SANS 347: Categorisation and Conformity Assessment Criteria for all pressure Equipment
- 2) ACT NO 85 of 1993: Occupational Health and Safety Act & Regulations
- 3) PER 2017 (Pressure Equipment Regulation)

3. Specification

3.1 General Requirements

- a) Before any work starts on site the Contractor is responsible to submit their Safety File to the Employer for review and acceptance.
- b) The Contractor will be required to contain spillages and clean up oil/grease spillages and will be held liable for all costs involved.
- c) The Employer shall be responsible for the removals of all waste in regard to this SOW e.g. oil and old spare items.
- d) All Contractor responsible personnel shall comply with Eskom's policies and site regulations, including adherence to Eskom's life-saving rules.
- e) Before work starts on site, an inaugural meeting is to be held by where the Contractor and the Employer will be present, to explain in detail all requirements of the Site Regulations.
- f) The Contractor will be required to attend all mandatory liaison meetings and any ad-hoc meetings that may arise to address any contract related matters.
- g) The Employer and Contractor in this SOW is committed towards the following:
 1. Continuous improvement and Plant performance
 2. Retention of critical skills
 3. Continuous cost reduction
- h) The Contractor will make use of local black economic empowerment through the use of black business and support of their skills training as far as is reasonably possible.
- i) The Contractor shall, as far as is reasonably possible, make use of local (Lephalale) manpower to execute the works.
- j) The Contractor shall immediately report any injuries as well as any threat to health or safety of which it becomes aware of on the site to the Employer.
- k) The contract entered with the Contractor is non-exclusive and work against this contract can only be performed upon receipt of a task order.
- l) All works will be subject to anytime inspection from the Employer or his/her appointed representative.
- m) The Employer and the Contractor shall mutually agree and schedule all applicable activities as part of the works stipulated within this document.
- n) The Contractor shall ensure that damaged plant labelling, including KKS labelling, (because of the Contractor's works execution) are replaced within a reasonable time period.

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- o) All staff brought onto site in connection with the SOW should be able to fully communicate in English.

3.2 Works Information

- 1) The scope is for refurbishment and calibration of safety valves during planned outages.
- 2) The contractor is required to disassemble, inspect, repair or refurbish and reassemble all the safety valves.
- 3) The Contractor shall ensure availability of competent and skilled staff for all works.
- 4) The Contractor shall compile data books which include the minimum requirements as stated in 240-154283718 "Pressure Equipment Regulations - Compliance Manual Section" 10.2
- 5) The Contractor shall ensure that any service rendered with regards to planned outages, is completed within the time frames as committed to by the Contractor.
- 6) The Contractor shall supply the required original OEM spares and consumables for all planned outages. The Contractor shall ensure that all spares required are readily available as and when required.
- 7) The Contractor shall supply a comprehensive total spares list with costing of each spare, as well as the lead time of every spare item.
- 8) The Contractor shall ensure that the work area is to be left in the same or a better state on completion of any work.
- 9) Prior to commencement of any refurbishment and/or calibration activities the Contractor shall ensure that a QCP is developed and approved by Eskom and/or his representative. The Contractor shall ensure that any witness and hold inspection points are strictly adhered to.
- 10) The Contractor shall provide full engineering 'root cause analysis' and corrective action reports on any breakdown or failure of any part or component, and is applicable to all safety valves.
- 11) The Contractor shall be responsible for repairing equipment that has failed based on the recommendations within the corrective action reports mentioned above. This should be conducted after a task order is received from the Employer, as the Employer will assess and agree to the failure report before repair works are conducted by the Contractor.
- 12) After refurbishment of safety valves at contractor's premises, the contractor shall be responsible for re-installing the refurbished valves at Medupi Power Station.

3.2.1. Valves

- 1) Strip the valve by means of removing the assembling nuts, bolts and screws
- 2) Spindle of valve to be inspected for scoring, pitting and erosion and surface crack tested (NDT) and conduct dimensional checks. Perform spindle run out test. Spindle to be repaired or replaced if damage or bend.

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- 3) Valve seats to be inspected for any damages or wear, all valves with damage seats must be repaired/replaced. Blue check shall be performed on all seats, followed by possible lapping. Blue check shall be accepted and approved by Eskom and/or its Representative.
- 4) Studs & Nuts -All gland retaining studs and nuts to be removed and inspected. All studs and nuts to be of same dimension with respect to the valve. Damage studs or nuts to be replaced.
- 5) Gland stuffing boxes- to be cleaned inspected and conducted dimensional checks. Worn press-in neck rings in stuffing boxes are to be replaced. Preformed packing graphite rings are to be used on all valves (as per the OEM specification).
- 6) Pressure seals -Valves fitted with pressure seals to be inspected for wear of retaining segments and segment location areas. Plug jacking screws to be inspected for thread damage and should not be seized. All heads to be inspected for stretching, splitting or oversize. Replace retaining screws as required. Pressure seals to be replaced, ensuring correct size and density. Plug size and body size to be checked to ensure tolerances are correct to avoid extrusions of pressure seal.
- 7) Other items to inspect include: stem threads, bush, and flange, thrust rings, grease nipples, condition of springs, ball bearings and plate rings check existence of packing metal ring. All items for inspection found to be defective shall be replaced.
- 8) Valve body must be inspected for cracks or damages, NDT must be done where crack like indications are noted. If the valve body is damaged repairs shall be done preferably in situ, where not possible the valve body shall be cut out to effect the necessary corrective actions.
- 9) Perform pressure test or trevi-test on the safety valves as required.
- 10) Assemble valve with new seals, gaskets and packing.

4. Acceptance

This document has been seen and accepted by:

Name	Designation
Sarita Fouche	Engineer Prof Mechanical
Emanuel Netshivulana	Engineer Prof Mechanical
Itumeleng Malefane	Snr Technician Mechanical

5. Revisions

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Date	Rev.	Compiler	Remarks
September 2023	1	M Ndlovu	New document

6. Development Team

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

- Itumeleng Malefane

7. Acknowledgements

Titus Ndlovu

Sarita Fouche

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