Eskom	Specification	Medupi Power Station

Title: **Medupi Power Station MPS265 Mill Hydraulic Cylinder Refurbishment Scope of Work**

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1. Introduction

Medupi Power Station has a need for refurbishment of 125 MPS265 Mill Hydraulic Cylinders that will be removed from the Mills due to operation failures and oil leaks; over a period of 60 months. Continues availability of refurbished cylinders will improve the reliability of the milling plant and hence Medupi UCLF. This document describes the details of the 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 specified Medupi Power Station MPS265 Mill Hydraulic Cylinder Refurbishment Scope of Work activity requirements for Medupi Power Station.

The station is expected to perform at 92% UCF, 6% PCLF and 2% UCLF, and the specified Milling Plant Maintenance activities and Management strategy must support this requirement.

It is therefore imperative that the successful and suitably qualified Contractor aligns his/her organisation fully to these specified scope activities and processes set out in this document.

2.1.2 Applicability

This specification shall apply to all maintenance employees as well as contracting employees that are required to perform maintenance work and/or activities in support of the Medupi Maintenance Department on the Milling Plant at Medupi Power Station.

2.1.3 Effective date

The effective date of this document will be the date of authorisation.

2.2 Normative/Informative References

The following documents contain provisions that, through reference in the text, constitute requirements of this document. At the time of publication, the editions indicated were valid. These documents are subject to revision and users are responsible to ensure that the most recent editions of the documents listed below are used.

2.2.1 Normative

[1] 240-97020108 v5.5: Medupi Power Station Maintenance Contract User Requirement Specification

[2] 237 - 0016 Rev 0: Integrated Business improvement – Prevention and Improvement Standard

[3] 240-86851633: Foreign Material Exclusion

[4] 32 - 726 Rev 0: Mandatory S.H.E. Requirements for the Eskom Procurement and Supply Chain Management Process

Note: See Annexure C: S.H.E. Requirements for Tender Enquiries

Annexure D: S.H.E. Tender Evaluation and Scoring Card

Annexure E: Supplier Suspension Process

[5] 36 - 505 Rev 1: Personnel and Entities Performing Welding Related Special Processes on Eskom Plant

[6] 36 - 942 Rev 0: Arc Flash Protection Specification

[7] Act No 107 of 1998: National Environmental Management Act, 1998

[8] Act No 14 of 2009: The National Environmental Laws Amendment Act, 2009

[9] Act No 73 of 1989: The Environment Conservation Act, 1989

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

[11] Act No 36 of 1998: National Water Act, 1998

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

[13] GGR 0992: Plant Safety Regulations

[14] 32-846 Rev 0 Operating Regulations for High Voltage Systems

[15] NMP47-7 Rev 0: Application of KKS Plant Coding

[16] 36 -702 Rev 1: Remnant Life Monitoring

2.2.2 Informative

[17] 240-85498379 Medupi Power Station Milling Plant Maintenance Strategy

2.3 Definitions

2.3.1 Contractor:	Service provider contracted for supplying specific service to Eskom, Medupi Power Station.
2.3.2 Employer:	Eskom, or Eskom Medupi Power Station

2.4 Abbreviations

Abbreviation	Explanation
BOM	Bill of Material
ISO	International Standards Organisation
KKS	Kraftwerk Kennzeichen System
NEC	New Engineering Contract
OEM	Original Equipment Manufacturer
PCLF	Planned Capability Loss Factor

Abbreviation	Explanation
SAP	Systems, Applications, Products (Plant Maintenance, Procurement, Finance and Materials Management) integrated maintenance management system.
SOW	Scope of Work
UCF	Unit Capability Factor
UCLF	Unplanned Capability Loss Factor

2.5 Roles and Responsibilities

Activity	Responsible	Accountable	Consult	Inform
Compilation	• Senior Technician	• Mechanical Maintenance Manager	• Maintenance Manager	• All
Revision and Template update	• Senior Technician • System Engineer	• Mechanical Maintenance Manager	• Maintenance Manager • Documentation Officer	• All
Implementation	• Contractor • Technician • Senior Technician • Mechanical Maintenance Manager • MM Refurbishment Officer	• Contractor • Technician • Senior Technician • Mech. Maintenance Manager • MM Manager	• Maintenance Manager • System Engineer	• All

2.6 Process for Monitoring

In case of any additions, subtractions and/or amendments to the contents of the scope of work or any part of this document, prior the revision date, the Mechanical Maintenance Manager shall appoint a technician or senior technician to effect the necessary changes and to use the most current approved template for new revision.

2.7 Related/Supporting Documents

The following additional documents are attached and form an integral part of this scope of work. Copies of the relevant Employer performance standards can be made available on request.

[1] B114103-35-99-GM03-00001 Technical Documentation Pulverizer Plant MPS® Mill

3. Scope of Work

3.1 Requirements

3.1.1 Contract Roles and Responsibilities

a) The Contractor shall be required to perform refurbishment of at least 2 Hydraulic Cylinders at a time within at most a period of **31 Calendar Days** inclusive of collection and delivery to Medupi site**;** to a total of 125 cylinders by the end of the contract.

b) The contract entered into with the Contractor is non-exclusive and work against this contract can only be performed upon receipt of a Task Order.

c) The Contractor shall ensure that he/she has all the necessary tools, equipment as well as lifting equipment (including a pick and carry crane) required to load, transport, and off load the cylinders.

- **Note**: All lifting equipment utilised by the Contractor must have the appropriate load test certification which is valid during the period of use on Medupi site. Copies of such documentation shall be made available for review by the Employer at any time both on Medupi site and at the Contractor's workshop.

d) The Contractor shall do intensive inspections, analysis, measurements, NDT test, etc, using the latest available technology and methodologies, to produce full detailed failure reports.

e) The Contractor is required to repair and/or fabricate to the best standard and conditions or replace those parts that are damaged. Such fabrications or repairs must be according to drawings tolerances and quality standards. The client must do quality checks and accept such fabricated or repaired parts before they can be installed on the cylinder.

3.1.2 Continuous Improvement

- The Contractor shall implement a program of continuous improvement to optimise component performance and reduce system and equipment failures.
- The Contractor shall participate in improvement programs as stipulated by the employer.

3.1.3 Management and Reporting

- Liaison meetings shall be held with the Employer's Representative or his/her delegate on an ad hoc basis to discuss progress, technical details, or any concerns relating to the contract or scope.

3.1.4 Quality and Documentation Control

a) The Contractor shall ensure that any witness, hold, and inspection points are strictly adhered to.
b) The Contractor to ensure that all measuring and test equipment are calibrated at all times & proof thereof must be readily available.
c) All Quality References and Standards as stipulated in this document will be adhered to.
d) Work will only be conducted with an Employer approved Quality Management Programme.
e) The Contractor shall submit to Eskom a method statement and detailed quality control plans for the refurbishment or repair of the cylinders. QCP's should include QCP's for the manufacture or repair of individual components. The supplier should also provide a time base production schedule to Eskom prior to starting work.
f) The following documentation, inspection and tests are required when refurbishing the Cylinders.

- Cylinder history and design.
- If no Drawing/s exists for the Hydraulic Cylinders and its components, the supplier shall include the cost of the drawings separately in his quotation. The relevant drawing numbers must be reflected on the quality control plans.
- Material certificates for new shafts and keys.
- Bearing numbers, bearing clearance and brand name for all replaced Bearings.

g) The supplier shall submit details of corrosion protection measures to protect the Cylinders from deterioration.
h) The Contractor shall use a unique Serial system to mark by either imprinting, stamping or tagging the Cylinders they worked on, for traceability purposes.

3.1.5 Re-commissioning

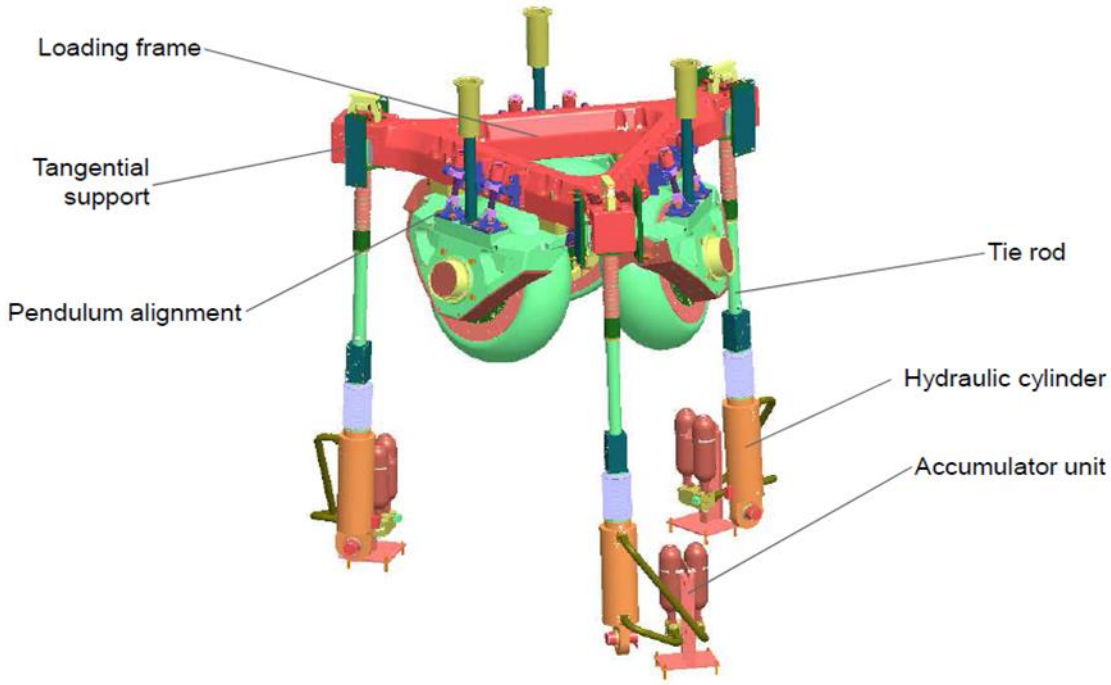
a) The Contractor shall deliver the refurbished Cylinders to Medupi site once the final quality checks has been concluded between the contractor and Eskom.
b) Eskom shall witness the pressure testing of the cylinder at the Contractor's workshop.
c) The Hydraulic Cylinders should be transported in such a manner as to prevent damage of the seals, fittings, and the cylinder as a whole and to prevent the ingress of dirt or moisture during transportation. It is preferable that a suitable crate be installed for transportation and handling purposes.

d) The Contractor shall be responsible or held liable for any defects arising from maintenance/operational faults 6 months after running of the refurbished cylinders.

3.2 Applicable Scope of work

3.2.1 Applicable Component

Component	Boundaries of Plant Area
MPS265 Mill Hydraulic Cylinder	This scope of work is applicable to the following component, within the Vertical Spindle MPS265 Mill. **Hydraulic Cylinder** This implies the following parts but not limited to: - The cylinder housing and all fitting - The shaft and piston and all fittings - Bearing - Level Transducer (NB – Only OEM spec transducers to be installed in the cylinder) - Sealing components



3.2.2 Strip and Assess

a) Upon stripping and assessing the Hydraulic Cylinder the contractor shall develop a Method Statement and QCP, both of which will be presented to Eskom for review and approval.

b) Intervention points must be indicated in the QCP, reviewed and or revised by Eskom QC. Once finalised, the QCP and Method Statement will be approved by Eskom.

c) All intervention points as agreed and stipulated in the QCPs shall be adhered to.

3.2.3 Inspections and Failure Report

a) The cylinders will be stripped carefully, and each component shall be inspected/tested/analysed for defect using the latest acceptable technology and methodology.

b) The supplier shall invite Eskom to witness the failure of the cylinder; during which time according to the intervention points; to take Eskom though their workshop processes through which the cylinders will follow during refurbishment process.

c) A detailed failure reported shall be compiled by the supplier and presented to Eskom either via email or during intervention visit arranged in time. This will include photos, measurements, crack reports, surface defects, etc. which will comprehensively highlight the extent of damage of the cylinder.

d) The scope of repair and spares to be replaced will be discussed with and accepted by Eskom before the actual repair commences.

3.2.4 Repair

a) If during inspections, it become evident that the cylinder is beyond repair, or the cost of repair is such that it would be viable to procure a new cylinder than to repair; then the supplier shall communicate such evidence in writing with supporting failure reports.

b) The supplier shall use reputable spares and acceptable engineering methods to restore the cylinder to its OEM state.

c) The supplier will be required to replace the level transducer of the hydraulic cylinder with the same spec transducer. (R-Series, 4-20mA, RD4CR6B0600MD60A01, enquire with Eskom for more information).

d) The supplier will remove old and apply new corrosion resistant coating on the cylinder housing after assembly. The spec of this coating must be shared with Eskom for review and approval.

e) The process of repairs must adhere to the QCP requirements and intervention pints must be adhered to at all levels.

3.2.5 Testing

a) Pressure Testing of the cylinder is mandatory and Eskom shall be invited to be part of and witness the pressure test of the cylinder at the end of refurbishment process. It is compulsory that Eskom should be part of the pressure test and should be physically available to witness when this test is being conducted.
b) Eskom will sign all intervention as defined in the approved QCPs.
c) The contractor shall build a reputable and safe pressure testing station with analogue and electronic pressure and displace feedback for the purpose of testing the cylinders at the end of the repair process.
d) Testing of the level transmitter should form part of the pressure testing station with technology compatible to that used by Eskom Medupi Power Station.

3.3 Communication and Correspondence

a) All correspondence includes:
    i. Medupi Power Station
    ii. Employer's Contract number
    iii. Contract description
    iv. Correspondence subject matter
    v. Employer's name and contact details
    vi. Contractor contact details
    vii. Date

b) Where appropriate the correspondence includes the Employer's reference and is delivered as a single package.
c) All communications from the Contractor are numbered sequentially with a prefix as advised by the Employer. The Employer responds in like manner. The prefix and numbering system are decided upon at the Inaugural meeting.

3.4 Tender Requirements

A proposal is to be submitted by the tenderers for the above-mentioned scope of work.

- Hereafter a contract shall be negotiated with the successful Contractor.
- The appointment of successful Contractor is at Eskom's (The Employer) sole discretion considering the factors which Eskom considers relevant.

4. Acceptance

This document has been seen and accepted by:

Name	Designation
Kenneth Ndumo	System Engineer Milling Plant
Sithokozile Hlongwa	Manager Boiler Engineering
Joshua Lekoloane	Mechanical Boiler Maintenance Manager

5. Revisions

Date	Rev.	Compiler	Remarks
June 2024	3	PM Mashita	Duration amendment
February 2024	2	PM Mashita	Second Issue
December 2023	1	PM Mashita	First Issue

6. Development Team

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

- The compiler

7. Acknowledgements

None