Eskom	Scope of Work	Technology

Title: **Maintenance Services on routine, non-routine on as and when required basis on Coolers – MOC, Stator Coolant, Seal Oil, GEN. H2**	Unique Identifier:	
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Station: GROOTVLEI POWER STATION

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Table of Contents

1. INTRODUCTION

The Grootvlei Power Station uses cooler for the cooling down of turbine lubrication oil, seal oil and cooling down of stator coolant water by the Stator coolant coolers and cooling down of the hydrogen inside the generator by using Hydrogen coolers. All these coolers are being maintained by maintenance department. As part of maintenance, a contractor is required to carry out the refurbishment scope of work for the coolers during outages and opportunity outages.

The aim of this document is to define the scope of work for refurbishment of the turbine aux coolers.

2. SUPPORTING CLAUSES

2.1 SCOPE

The scope of work covers the refurbishment of the turbine aux coolers.

2..1 Purpose

The aim of this document is to define scope of work for the refurbishment of the turbine aux coolers.

2..2 Applicability

This document shall apply to the Grootvlei Power Station only.

2.2 NORMATIVE/INFORMATIVE REFERENCES

2..3 Normative

[1] Occupational Health and Safety Act, (Act No. 85 of 1993)

2..4 Informative

[3] 32-727 - Eskom Safety, Health, Environment and Quality (SHEQ) Policy

2..5 Disclosure Classification

Controlled disclosure: controlled disclosure to external parties (either enforced by law, or discretionary).

2.3 ABBREVIATIONS

Abbreviation	Description
SANS	South African National Standards
CoC	Certificate of Compliance
QA	Quality Assurance
QC	Quality Control
QCP	Quality Control Plan

2.4 INTERPRETATION AND TERMINOLOGY

Abbreviation	Meaning given to the abbreviation
PSR	Plant Safety Regulations
CM	Corrective Maintenance
ECSA	Engineering Council of South Africa
PM	Planned maintenance
QC	Quality control

2.5 ROLES AND RESPONSIBILITIES

The *Contracto*r ensures that the requirements of this scope are met. It is the role of the It is the role of the *Employer* that the scope is executed in accordance with this document.

2.6 RELATED/SUPPORTING DOCUMENTS

- Coolers drawings
- All coolers' operational manuals
- All coolers design parameters

3. SCOPE OF WORKS

3.1 GENERAL

The *Contractor's* provision includes the following:

- qualified labour to carry out the refurbishment of the turbine aux coolers.
- tools, spares, equipment, consumables, and transport requirements to carry out the scope of work.
- Ensures the safety of own personnel, other contractors, and Eskom employees in the vicinity of the works by complying to the OHS Act.
- Performs quality control on own work as per pre-approved control plans.

- Performs work within the specified period and to the acceptable quality and standards.

The *Contractor* shall provide a project co-ordinator to supervise, monitor, control and co-ordinate all activities during the execution of this contract and report to Eskom project manager or appointed supervisor.

The *Contractor* remains liable for complete refurbishment of the coolers and in compliance with the relevant standards.

The *Contractor* submits a comprehensive damage and inspection reports.

The *Contractor* provides all tools, equipment and personnel required to execute and implement the *Contractor's* responsibilities detailed in this document.

The *Contractor* remains liable for all works conducted as per the requirements of this document.

The *Contractor* submits a fully detailed Quality Control Plan (QCP) to the *Employer* prior commencing of work, for review and acceptance.

Any discrepancy or ambiguity between the *Employer's* scope of work is immediately brought to the attention of the *Employer* for clarification.

3.2 MECHANICAL SCOPE

The *Contractor* is to carry out the scope to repair damages on the turbine aux coolers belonging to Grootvlei Power Station.

The scope includes:

- Collecting the damaged pumps from Grootvlei Power Station,
- Transporting them to the Contractors workshop,

  Remove upper and lower water boxes.
- Release gland rings on lower shell flanges
- Remove tube bundles.
- Re-coat water boxes if fouling has eroded the coating to the parent material, if not, chemical clean the water boxes
- Repair the water boxes on the eroded area. If water boxes cannot be repaired, manufacture new water boxes.
- Install sacrificial anode to each water boxes.
- Remove the inner shells from the tube bundles.
- Boil out tube bundle for 24 hours with soda solution or some other oil solvent alkaline medium.
- Blow out the tube bundles with saturated steam.
- Flush with hot water until the water samples have a completely neutral reaction.
- Re-fit the inner shells.
- Insert the tube bundles.
- Fit the upper water boxes.
- Secure the lower gland ring on the lower shell flanges, fitting the packing ring in between carefully.
- Insert the second packing ring and fit the lower water boxes.
- Pressure test coolers

- Plug the leaking tubes or Re-tube the cooler if 10% of tube has been plugged.
- Paint the cooler.
- Assessing a damage,
- Submitting prices as per the price list for assessment,
- Repairing the damage,
- Transporting and delivering of the Coolers to the Grootvlei Power Station workshop after refurbishment.

3.1 Requirements for Performing Work on the Pumps at Grootvlei Power Station

After receiving issued task order by the *Employer's* Representative: The *Contractor* must collect the damaged cooler/s from the site, transport it to the Contractor's workshop, strip the coolers and assess the damage. The *Contractor* must then compile a list of all the damaged items and work required to repair scope of work (with reference to the Price List). This list must then immediately be submitted to the *Employer's* Representative for assessment and approval. Only after the *Contractor* has received the go-ahead from the *Employer's* Representative can he proceed with required repair scope of work.

Standard of work - The *Contractor* must work according to each cooler's manufacturing specifications and drawings. It is the responsibility of the *Contractor* to obtain the correct manufacturing specifications and drawings for each cooler. Each cooler that is repaired by the *Contractor* r must be guaranteed for at least six months.

Hold points - The Employer's Representative can from time to time visit the *Contractor's* workshop to inspect the repair work and progress without prior notice.

The *Employer's* Representative must be contacted at the following times to conduct quality control inspections:

- Once the cooler has been stripped to verify the list of damaged parts compiled by the Contractor.
- Once the refurbished parts are ready to be assembled to the coolers.
- When the cooler is assembled and ready for pressure test.
- The *Contractor* is not relieved of his responsibilities if the *Employer's* Representative chooses to waive the witnessing of any tests or hold points.
- Test documentation and guarantees – Once the cooler has passed all hold points and has been assembled it must undergo the pressure.
- The following documentation must be supplied to the Employer's Representative before a cooler will be accepted to site:
- Inspection report
- Pressure test certificate
- Signed QCP with all the intervention points.
- Data book package

Below is a list of all turbine aux coolers at Grootvlei Power Station, the contractor may be required to inspect and refurbish other coolers at Grootvlei Power Station that are not listed below:

Item no.	Description	Unit	Quantity
10	Turbine lube Main Oil Cooler (MOC)	Per Cooler	9 Coolers
20	Turbine Seal Oil Coolers	Per Cooler	6 Coolers
30	Turbine Stator Coolant Coolers	Per Cooler	6 Coolers
40	Generator Hydrogen Coolers	Per Cooler	12 Coolers

4. DRAWINGS ISSUED BY THE *EMPLOYER*

The *Contractor* uses the related supporting documents listed in section 2.6 of this document where applicable as a basis to conduct this scope of work.

5. ACCEPTANCE

This document has been seen and accepted by:

- Mechanical Engineering Department

6. REVISIONS

Date	Rev.	Compiler	Remarks
August	0.0	Stanley Cele	First Draft

7. DEVELOPMENT TEAM

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

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