

 Eskom	Specification	Medupi Power Station
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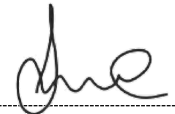
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1. INTRODUCTION

The technical evaluation strategy herein was written for the placement of a contract for Medupi Power Station to supply metallographic replication on medium and high pressure pipework, supply of drone inspections services as well as services for Tube SOLO (Steam Side Oxide Life Optimisation). The technical specification includes an audit strategy to assess companies for compliance to Eskom's standard requirements of which when met an Eskom Approval is granted.

2. SUPPORTING CLAUSES

2.1 SCOPE

This document covers the mandatory and qualitative evaluation criteria for the technical evaluation of Metallographic Replication, Drone Inspections and Tube SOLO service providers for the execution of Medupi Power Station boiler and turbine scope of work.

2.1.1 Purpose

The purpose of this tender technical evaluation strategy is to define the Mandatory Evaluation Criteria, Qualitative Evaluation Criteria and Technical Evaluation Team (TET) member responsibilities for tender technical evaluation. The technical evaluation strategy serves as the basis for the tender technical evaluation process.

2.1.2 Applicability

This document applies to Medupi Power Station only.

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] 240-83539994: Standard for Non-destructive testing (NDT) on Eskom Plant
- [2] 240-134999797: Standard for Implementation of Tube-SOLO NDT on Eskom Coal Fired Plant

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- [3] 240-75109745: Standard for Metallographic Replication Applicable to High Temperature High Pressure Components in Eskom Plants
- [4] 240-83539806: Manual Ultrasonic Wall Thickness Testing on Eskom Power Plants Standard
- [5] 240-124465578: Standard for Portable Hardness Testing
- [6] ISO9001: Quality Management System

2.2.2 Informative

N/A

2.3 DEFINITIONS

Non-destructive testing (NDT) also known as non-destructive examination (NDE) is the testing/examination of materials and components by various inspection methods without changing or destroying their usefulness.

An **NDT system** is the interaction between an inspection method's NDT procedure, personnel and equipment to influence the quality of the NDT product (inspection outcome).

2.3.1 Disclosure Classification

Confidential: the classification given to information that may be used by malicious/opposing/hostile elements to **harm** the objectives and functions of Eskom Holdings Limited.

2.4 ABBREVIATIONS

Abbreviation	Description
GO	General Outage
NDT	Non-destructive testing
SP	Service Provider
TET	Technical Evaluation Team
Tube SOLO	Tube Steam Side Oxide Life Optimisation – Herein together with metallographic replication, referred to as NDT

2.5 ROLES AND RESPONSIBILITIES

N/A

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2.6 PROCESS FOR MONITORING

N/A

2.7 RELATED/SUPPORTING DOCUMENTS

N/A

3. TENDER TECHNICAL EVALUATION STRATEGY

3.1 TECHNICAL EVALUATION THRESHOLD

- The **Mandatory Criteria** shall be assessed on a Yes/No basis as to whether or not the criteria are met. An assessment of 'No' against any criterion shall technically disqualify a tendering services supplier and shall not be further evaluated against Qualitative Criteria.
- Qualitative Evaluation Criteria** weighted are used to identify the highest technically ranked tenderer after determining that all the Mandatory Evaluation Criteria have been met. A tendering supplier shall score a minimum weighted final score (threshold) of 70% for Qualitative Criteria to be further **considered** for this contract.
- All suppliers that meet the 70% threshold shall still be further evaluated for Eskom Approval at the supplier's head-office or workshop. A supplier that does not obtain an Eskom Approval will not be considered for the tender, even if they have met the minimum threshold of 70%. This evaluation will include the verification of submitted documentation to tender, personnel certificates, authorisations, appointments and equipment verification checks. This evaluation will measure capability and capacity of the supplier's NDT systems (processes) to execute a Medupi Power Station Scope of Work.

3.2 TET MEMBERS

Table 1: TET Members

TET number	TET Member Name	Designation
1 - Core	Mpho Sekhuto	HP Piping System Engineer
2 - Core	Oratile Mekgwe	Pressure Parts System Engineer
3 - Core	Bernard Matanda	Senior Advisor – Boiler Engineering
4 - Core	Teboho Molokwane	Plant Metallurgist
5 - Optional	Benji Rahlogo	Chief Engineer

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3.3 MANDATORY TECHNICAL EVALUATION CRITERIA

For mandatory technical requirements, suppliers must ensure that the **Tender Returnables** are filed in a chronological order from **1.a)**, **1.b)**, **2.a)** and **3.a)** as shown in the table below.

Table 2: Mandatory Technical Evaluation Criteria

	Mandatory Technical Criteria Description	Reference to Technical Specification / Tender Returnable	Motivation for use of Criteria
1.	Appointed NDT Level 3 compliant with the Eskom Standard 240-83539994 (Standard for NDT on Eskom Plant) in terms of roles and responsibilities.	1.a) Appointment letter signed by NDT level 3 and employer for acceptance (the appointment letter must be current) 1.b) Valid NDT Level 3 certificates certified to ISO 9712	- The NDT Service Provider (SP) Level 3 is the responsible suitably qualified persons that has oversight of an NDT system
2.	Appointed Metallurgist	2.a) Appointment letter signed by the metallurgist and the employer for acceptance (the appointment letter must be current)	- The metallurgist is responsible for on-site evaluation of the replica quality before the replicas are sent to Eskom metallurgist for final life assessment.
3.	NDT Procedures compliant to Eskom standard and the minimum relevant applicable EN ISO code requirements <ul style="list-style-type: none"> - Tube SOLO Procedure - Metallographic Replication Procedure 	3.a) Signed NDT Procedure referencing the EN and/or ASME code to which it is drawn up from and authorised by the Service Provider NDT Level 3.	- An NDT procedure is essential because it specifies a set of principles and minimum requirements required to perform a particular inspection.

3.4 QUALITATIVE TECHNICAL EVALUATION CRITERIA

For qualitative technical requirements, suppliers must ensure that the **Tender Returnables** are filed in a chronological order from **1.1.1** to **3.2.2** as shown in the table below.

	Qualitative Technical Criteria Description		Reference to Technical Specification / Tender Returnable	Scoring	Criteria Weighting (%)	Criteria Sub Weighting (%)
1.	NDT Procedures and Core Crew Personnel Requirements				50	
	1.1	<p>NDT Procedures showing all the required equipment for execution of the job for the following methods</p> <ul style="list-style-type: none"> - Tube SOLO Procedure - Metallographic Replication Procedure <p>Service Provider to list and demonstrate that all their equipment meet the minimum specification as per Eskom Standard 240-134999797</p>	<p>1.1.1. Authorised and Signed NDT Procedures by the appointed Level 3</p> <p>(Procedures must be current and signed by NDT Level 3)</p>	<ul style="list-style-type: none"> - For all listed NDT methods showing all the equipment = 5 - Anything other than the above = 0 		30
	1.2	<p>Personnel and Company Authorisation to cover core crew</p> <p>A. 1 x Metallurgist CV</p> <p>B. 1 x Level 3 NDT Personnel</p>	<p>1.2.2. Signed Appointment Letters – Signed by the employee and employer</p>	<ul style="list-style-type: none"> - For all listed personnel (A – F) more than 3 years industry experience = 5 		20

	Qualitative Technical Criteria Description		Reference to Technical Specification / Tender Returnable	Scoring	Criteria Weighting (%)	Criteria Sub Weighting (%)
		C. 10 x Replica Technicians CV with Eskom competency certification D. 1 x UT Level 2 (supervisor) with Eskom competency certification E. 2 x UT Level 1 with WT with Eskom competency certification F. 1 x Safety Personnel G. 1 x Drone Operator H. 1 x Admin Personnel	1.2.3. CV's with copies of qualifications/certificates 1.2.4. Internal drone and crawler operator competency certificate/letter	<ul style="list-style-type: none"> - For any listed personnel (A – F) with less than 3 years experience but more than 1 years experience = 4 - For any listed personnel (A – F) having less than 1 years experience = 2 - Anything other than the above = 0 - No attached Signed Appointment Letters for one or more personnel = 0 - No CV's attached for one or more personnel = 0 - No certificates and company authorisation attached for one or more personnel = 0 - The admin Personnel need not have 3 years experience but their CV must be attached. 		
2.	Industry involvement				30	

	Qualitative Technical Criteria Description		Reference to Technical Specification / Tender Returnable	Scoring	Criteria Weighting (%)	Criteria Sub Weighting (%)
	2.1	NDT Service Provider Experience in the execution of similar scope of works	2.1.1. Previously held contracts to execute a similar NDT scope of work <ul style="list-style-type: none"> - Verifiable References - Certified Copies Completion certificates - Orders 	<ul style="list-style-type: none"> - 36 or more cumulative active months = 5 - 13 to 35 cumulative active months = 4 - Less than 13 cumulative active months or new in the industry and has scored a 5 in both criteria 1.1 & 1.2 above = 2 - Anything other than above = 0 		20
	2.2	Inspection reports meeting NDT SP procedure reporting requirements (and code requirements) and report templates of the inspection report for metallographic replication and Tube SOLO.	2.2.1. Three (3) previous inspection reports for each method (Tube SOLO and Metallographic Replication) for the last years 2.2.2. Report Templates for all inspections methods	<ul style="list-style-type: none"> - Submitted the required NDT reports for all methods plus the templates reports for all methods in the last 3 years = 5 - Does not have previous inspections reports but has submitted all the report templates for all the methods mentioned = 4 - No previous reports and no report templates = 0 		10

	Qualitative Technical Criteria Description		Reference to Technical Specification / Tender Returnable	Scoring	Criteria Weighting (%)	Criteria Sub Weighting (%)
3.	Equipment and Consumables				20	
-	3.1	<ul style="list-style-type: none"> - Calibrated NDT equipment (If supplier intends to lease out equipment, he must demonstrate that equipment can be made available within 2 weeks if contract is awarded) - - - - - 	<p>3.1.1.Spreadsheet controlled list of all calibrated equipment</p> <p>3.1.2.Current calibration certificates</p> <p>-</p>	<ul style="list-style-type: none"> - Tube SOLO machine calibrated (including additional to outage scope) = 5 - Only submitted calibration certificates but has not submitted the control spreadsheet = 4 - Expired Calibration Certificates = 0 - No submission = 0 	-	- 10
	3.2	<p>1 x High-tech remote controlled drones with the following minimum specification:</p> <p>Camera: 12MP with 2x Optical Zoom capability or have attached camera with these minimum specs</p> <p>Video transmission: 1080P 4K</p> <p>Durability: Dust and Water Resistant,</p> <p>Flash Light: 3000 Lumens or has capacity to attach a flash light with minimum 3000 Lumens</p> <p>Flight time: 30 minutes</p> <p>Speed: 20km/h</p>	<p>3.2.1.Technical Specification of the Drones and Crawler with colour pictures of the equipment the company has or to be procured or leased.</p> <p>3.2.2.A technical report on how the drone and the crawler work and how they will be used at Medupi Power Station for inspections of boilers and their equipment.</p>	<ul style="list-style-type: none"> - Submitted the full technical specification and technical report for the drones and crawlers with the minimum required specification = 5 - Submitted the Technical specifications and report but technical specification not meeting the minimum requirements = 0 		10

	Qualitative Technical Criteria Description	Reference to Technical Specification / Tender Returnable	Scoring	Criteria Weighting (%)	Criteria Sub Weighting (%)
	<p>Payload: 2Kg Camera Storage Capacity: 8GB internal storage or SD card support at least 64GB Dimensions: The longest length in any axis must not exceed 600mm when in flight. When launched the drone must be able to fit through the smallest boiler manhole of 600mm diameter without obstruction.</p> <p style="text-align: center;">AND</p> <p>1 x High Tech remote controlled pipe crawler that can fit in a 50mm ID inspection nozzle and be able to crawl in a minimum 20m long header pipe. The crawler shall have: Camera: Minimum 5MP with Optical Zoom capability or have attached camera with these minimum specs Video transmission: Minimum 720P Durability: Dust and Water Resistant, Flash Light: Bright</p>				
				TOTAL: 100	

All TET members shall independently evaluate and score each Qualitative Evaluation Criteria for each tenderer in accordance with the table below:

Table 3: Qualitative Evaluation Criteria Scoring Table

Score	(%)	DEFINITION
5	100	COMPLIANT Meet technical requirement(s) AND; No foreseen technical risk(s) in meeting technical requirements.
4	80	COMPLIANT WITH ASSOCIATED QUALIFICATIONS Meet technical requirement(s) with; Acceptable technical risk(s) AND/OR; Acceptable exceptions AND/OR; Acceptable conditions.
2	40	NON-COMPLIANT Does not meet technical requirement(s) AND/OR; Unacceptable technical risk(s) AND/OR; Unacceptable exceptions AND/OR; Unacceptable conditions.
0	0	TOTALLY DEFICIENT OR NON-RESPONSIVE
Note 2: Foreseen acceptable and unacceptable risk(s), exceptions and conditions shall be unambiguously defined in the relevant Tender Technical Evaluation Strategy.		

3.5 TET MEMBER RESPONSIBILITIES

Table 4: TET Member Responsibilities

Mandatory Criteria Number	TET 1	TET 2	TET 3	TET 4	TET 5
1	X	X	X	X	X
2	X	X	X	X	X
3	X	X	X	X	X
Qualitative Criteria Number	TET 1	TET 2	TET 3	TET 4	TET 5
1.1	X	X	X	X	X
1.2	X	X	X	X	X
2.1	X	X	X	X	X
2.2	X	X	X	X	X
3.1	X	X	X	X	X
3.2	X	X	X	X	X

3.6 FORESEEN ACCEPTABLE/UNACCEPTABLE QUALIFICATIONS

3.6.1 Risks

Table 5: Acceptable Technical Risks

Risk	Description
1.	Not applicable
2.	
3.	
4.	
5.	
6.	
7.	

Table 6: Unacceptable Technical Risks

Risk	Description
1.	Lack of equipment to execute scope
2.	Procedures not meeting the minimum relevant applicable code requirements
3.	Equipment not meeting the minimum specification
4.	
5.	
6.	
7.	

3.6.2 Exceptions/Conditions

Table 7: Acceptable Technical Exceptions/Conditions

Risk	Description
1.	Not applicable
1.	
2.	
3.	
4.	
5.	
6.	

Table 8: Unacceptable Technical Exceptions/Conditions

Risk	Description
1.	If supplier cannot guarantee that leased out equipment can be secured within 2 weeks if contract is awarded.
2.	
3.	
4.	
5.	
6.	
7.	

4. AUTHORISATION

This document has been seen and accepted by:

Name	Designation
Teboho Molokwane	Medupi Power Station Metallurgist
Benji Rahlogo	Chief Engineer – Boiler Engineering
Bernard Matanda	Senior Advisor – Boiler Engineering
Rulani Masingi	Senior Advisor - Outages
Oratile Mekgwe	Pressure Parts System Engineer

5. REVISIONS

Date	Rev.	Compiler	Remarks
May 2022	0	M P Sekhuto	Draft
June 2022	1	M P Sekhuto	
February 2023	2	M P Sekhuto	Addition of inspection crawlers and reduction of minimum threshold from 80% to 70%.

6. DEVELOPMENT TEAM

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

M P Sekhuto High Pressure Piping System Engineer

7. ACKNOWLEDGEMENTS

- None

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