

Title: **Tender Technical Evaluation
Strategy for Maintenance of Air
and Flue Gas Ducts and Metallic
Expansion Joints**

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1. INTRODUCTION

The air and flue gas ducts erode during operation. The flue gas ducts from the flue gas hoods to the precipitator inlet ducts are subject to erosion of the walls/casings, stays/bracings, turning vanes and dampers and the associated protecting channels/angle irons, cover plates and expansion joints sleeves/covers. There is very minor erosion, if any, in the precipitator flue gas outlet ducts to smoke stack but areas may be subjected to corrosion instead. The air duct walls erode around the control air dampers especially around the hot air recirculating and secondary air dampers. Metallic expansion joints are subject to cracking and corrosion (for one on the low temperature flue gas ducts) and erosion when the sleeves are eroded. The consequences of failure of ducts/ eroded ducts are:

- 1) The eroded sealing surfaces of the control air dampers result in the dampers passing and duct walls result in secondary air leaks and these lead to FD fans and PA fans running out of capacity or the motors draw high currents and high motor currents or poor mill load losses incurred.
- 2) Holes often develop on the flue gas ducts resulting in air ingress into the flue gas stream. The ID fans run out of capacity or the ID fan motors draw high currents or RVC's open fully leading to positive furnace pressure or high motor currents partial load losses incurred.
- 3) The eroded turning vanes fail to direct the flue gas causing high flue gas velocities at particular areas resulting in accelerated erosion in these areas.
- 4) The eroded damper blades fail to stop flue gas flows when one draught group is out of service with the other draught group on load. Although the dampers cannot be used as points of isolations, they do assist to minimize exposure of the precipitators and ID fan impellers to high flue gas temperatures for the draught group that is out of service.
- 5) The eroded stays/bracings fail to keep the ducts rigid and at times the eroded bracings or covers on the vertical and inclined ducts fall into the air heaters and cause them to get stuck. This results in the load losses being incurred as the affected unit will have to be shut down in order to remove the fallen bracings.

The maintenance of the ducts during outages is planned to be contracted out through open tender/enquiry. This document serve as the strategy for technical evaluation on the tender returnable documentation to ensure Eskom requirements are met.

2. SUPPORTING CLAUSES

2.1 SCOPE

The document describes the technical evaluation for the Maintenance of Air and Flue Gas Ducts at Tutuka Power Station.

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 responsibilities in the tender technical evaluation of the Maintenance of Air and Flue Gas Ducts. The technical evaluation strategy serves as basis for the tender technical evaluation process.

2.1.2 Applicability

This tender technical evaluation document is applicable Maintenance of Air and Flue Gas Ducts at Tutuka Power Station.

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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] 240-48929482: Tender Technical Evaluation Procedure
- [2] 15ENG STR 001: Draught Plant Maintenance Execution Strategy
- [3] 15ENG GEN-1438: Scope of Work for Maintenance of Air and Flue Gas Ducts

2.2.2 Informative

- [1] ISO 9001 Quality Management Systems

2.3 DEFINITIONS

- [2] **Enquiry:** A competitive or non-competitive request for information, quotations or proposals made to a supplier, a group of suppliers or the market at large
- [3] **Tender:** A tender refers to an open or close competitive request for quotations / prices against a clearly defined scope / specification

2.3.1 Classification

Controlled Disclosure: Controlled Disclosure to external parties (either enforced by law, or discretionary)

2.4 ABBREVIATIONS

Abbreviation	Description
CV	Curriculum Vitae
GO	General Overall
FD	Forced Draught
ID	Induce Draught
IR	Interim Repair
ITP	Inspection Test Plan
PA	Primary Air
RVC	Radial Vane Control
TET	Technical Evaluation Team
QCP	Quality Control Procedure
WPS	Welding Procedure Specification

2.5 ROLES AND RESPONSIBILITIES

All responsibilities have been defined in the Tender Engineering Evaluation Procedure (240-48929482).

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2.6 PROCESS FOR MONITORING

N/A

2.7 RELATED/SUPPORTING DOCUMENTS

[1] 240-48929482: Tender Technical Evaluation Procedure

3. TENDER TECHNICAL EVALUATION STRATEGY

3.1 TECHNICAL EVALUATION THRESHOLD

The minimum weighted final score (threshold) required for a tender to be considered from a technical perspective is 70%.

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3.2 TECHNICAL EVALUATION TEAM MEMBERS

Table 1: TET Members

TET number	TET Member Name	Designation
1		
2		
3		
4		

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3.3 MANADATORY TECHNICAL EVALUATION CRITERIA

Table 2: Mandatory Technical Evaluation Criteria

N/A

QUALITATIVE TECHNICAL EVALUATION CRITERIA

Table 3: Qualitative Technical Evaluation Criteria

	Qualitative Technical Criteria Description		Reference to Technical Specification / Tender Returnable	Criteria Weighting (%)	Criteria Sub Weighting (%)
1.	Compliance to Standard for Welding requirements on Eskom Plant 240-106628253			30	
	1.1	Accreditation to ISO3834 Part 3 (Parts 1 and 2 are accepted)	• 5: Copy of ISO3834 Part 3 Certificate (Parts 1 and 2 are accepted) • 2: Letter from assessment service provider indicating tenderer has fully satisfied the requirements but waiting for certificate • 0: No certificate of accreditation		70
	1.2	Qualified Welding Procedure Specification (WPS) for 15Mo3 plate up to 20mm and pipes up 300mm diameter	• 5: Copies of Certificate of Welding Procedures for plates and pipes • 4: Copy of certificate of welding procedure for plate only • 2: copy of certificate of welding procedure for pipe only • 0: No copies of welding of procedures		30
2.	Verifiable reference list of similar work (repair of ducts or fabrication) within Eskom and/or any other industry in the last 5 years. Feedback from the reference list will be used during evaluation.		<u>Returnable:</u> List of projects completed in the last 5 years meeting the specified criteria with verifiable references. • 5: List with 4 or more references • 4: List with 3 references • 2: List with 1 or 2 references • 0: No list of references	20	
3.	Experience and qualifications of Company staff for maintenance work done for Eskom Power Plant and/or any other industry			20	

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	Qualitative Technical Criteria Description		Reference to Technical Specification / Tender Returnable	Criteria Weighting (%)	Criteria Sub Weighting (%)
	3.1.	Management level experience and qualifications for maintenance work done for Eskom Power Plant and/or any other industry.	<u>Returnable:</u> Manager with at least 5 years relevant experience (CV) and copies of qualifications. 5: Manager with at least 5 years of experience 4: Manager with 4 years of experience 2: Manager with 2 to 3 years of experience 0: Manager with 0 to 1 year of experience		20
	3.2.	Supervisor level experience and qualifications for maintenance work done for Eskom Power Plant and/or any other industry	<u>Returnable:</u> List of supervisors (at least 3 - welding, pipe fitting boiler-making) with relevant experience (CV) and copies of qualifications. 5: 3 x Supervisors with at least 3 years of experience 4: 3 x Supervisors with 2 years of experience 2: 3 x Supervisors with 1 year of experience 0: Supervisor with 0 years of experience		40
	3.3.	Artisan/ technicians level experience (boilermakers, pipe fitters, quality inspectors, riggers etc.) and qualifications for maintenance work done for Eskom Power Plant and/or any other industry	<u>Returnable:</u> List of personnel on artisans/technicians with relevant experience (CV) and copies of qualifications. 5: List with 4 different disciplines artisans/ technicians 4: List with 3 different disciplines artisans/ technicians 2: List with 2 different disciplines artisans/ technicians 0: No list of artisans/ technicians		40
4.	List of welders qualified to WPS as provided in the mandatory Technical Evaluation Criteria		<u>Returnable:</u> List of welders with relevant experience (CV's) and copies of qualifications 5: List with at least 5 welders 4: List with 4 welders 2: List with 3 or less welders 0: No list of artisans/ technicians	10	

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	Qualitative Technical Criteria Description	Reference to Technical Specification / Tender Returnable	Criteria Weighting (%)	Criteria Sub Weighting (%)
5.	Submit a general inspection test plans (ITP's) for window patch, stay pipe, protecting channel, multi-convoluted metallic expansion joint and gusset repairs and for weld build up (5 off ITP's)	<u>Returnable:</u> Approved general ITP's 5: 5 x Approved general ITP's for window patch, stay pipe, protecting channel, multi-convoluted metallic expansion joint and gusset repairs and for weld build up (5 off) 4: 4 x Approved general ITP's for window patch, stay pipe, protecting channel, multi-convoluted metallic expansion joint and gusset repairs and for weld build up (4 off) 2: 2 or 3 x Approved general ITP's for window patch, stay pipe, protecting channel, multi-convoluted metallic expansion joint and gusset repairs and for weld build up (2 to 3 off) 0: 1 or 0 x Approved general ITP's for window patch, stay pipe, protecting channel, multi-convoluted metallic expansion joint and gusset repairs and for weld build up (0 to 1 off)	20	
		TOTAL:	100	

Table 4: 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 1: The scoring table does not allow for scoring of 1 and 3. Note 2: Foreseen acceptable and unacceptable risk(s), exceptions and conditions shall be unambiguously defined in the relevant Tender Technical Evaluation Strategy.		

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3.4 TET MEMBER RESPONSIBILITIES

Table 5: TET Member Responsibilities

Qualitative Criteria Number	TET member 1	TET member 2	TET member 3	TET member 4
1.	√	√	√	√
2.	√	√		√
3.	√	√	√	√
4.	√	√	√	√
5.	√	√	√	√

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3.5 FORESEEN ACCEPTABLE / UNACCEPTABLE QUALIFICATIONS

3.5.1 Risks

Table 6: Acceptable Technical Risks

Risk	Description
1.	• Copy of ISO3834 Part 3 Certificate (Parts 1 and 2 are accepted) • Copy of certificate of welding procedure for plate only
2.	Verifiable list of references of similar work • List with 3 or 4 references
3.	List of personnel with their experience and qualification • Manager with 4 years experience • Supervisor with 2 years experience • List with 3 different disciplines artisans/ technicians
4.	List of welders qualified to WPS as provided in the mandatory Technical Evaluation Criteria • List with 4 welders
5.	Approved general ITP's for window patch, stay pipe, protecting channel and gusset repairs and for weld build up • Approved general ITP's for window patch, stay pipe, protecting channel, multi-convoluted metallic expansion joint and gusset repairs and for weld build up (4 off)

Table 7: Unacceptable Technical Risks

Risk	Description
1.	- No 3834 certificate - Welding procedure for pipes only
2.	List with 1 or 2 references
3.	- Manager with 2 to 3 years experience - Supervisor with 1 years experience - List with 2 different disciplines artisans/ technicians
4.	List with 2 welders
5.	Approved general ITP's for window patch, stay pipe, protecting channel, multi-convoluted metallic expansion joint and gusset repairs and for weld build up (2 to 3 off)

3.5.2 Exceptions / Conditions

Table 8: Acceptable Technical Exceptions / Conditions

Risk	Description
1.	Verifiable references of work/projects/contracts currently active included in the list
2.	All staff levels of the company have no relevant Eskom Power Plant Outage work but have experience on similar scope of work outside Eskom.
3.	All ITP's give a good understanding of the scope of work on part of the tenderer

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Table 9: Unacceptable Technical Exceptions / Conditions

Risk	Description
1.	No verifiable references for project completed Eskom Power Plant Outage and/or oil refinery plant maintenance shut downs.
2.	No relevant experience on Eskom Power Plant Outage and/or other industry or no certified copies of qualifications are submitted.
3.	ITP's do not show any good understanding of the scope of work

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