Eskom	Strategy	Kriel Power Station/Engineering

Title: **Technical Evaluation Strategy for Provision of SO_3 Plant Maintenance & Refurbishment "on an as and when required basis" during Outages and Routine Maintenance at Kriel PS**

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1. INTRODUCTION

Kriel Power Station is situated approximately 10 kilometres from the town of Kriel in Mpumalanga. Access to the station is by road.

The current Atmospheric Emission License (AEL 17/AEL/MP312/11/9) issued on the 25 March 2019 for Kriel Power Station requires that the station should comply with a limit of 125mg/Nm^3 on continuous basis. New licence conditions were imposed in 2020 where Kriel Power station is expected to comply with new a limit of 125mg/Nm^3.

The scope of work entails inspections of the SO_3 plant, providing inspection reports, repair and/or replacement of the components within the SO_3 plant and commissioning during maintenance and outages (Planned and unplanned outages) at Kriel power station for a period of five (5) years. The maintenance scope of work also includes carrying out of scheduled- based maintenance (PM's) with the explicit objective of preventing functional plant and/or component failures. The contract duration will be for five (5) years covering units 1-6.

2. SUPPORTING CLAUSES

2.1 SCOPE

This document discusses the different technical aspects that will be evaluated and scored by the multi-disciplinary Technical Evaluation Team (TET) for SO_3 plant running maintenance and outages scope of work.The team members who will be involved in the evaluation are listed and appointed in this document along with their responsibilities. This document also describes the acceptable and unacceptable risks and qualifications and/or conditions that will be applicable to the Scope of Work. Once the Technical Evaluation Strategy is authorised, no changes will be made to the evaluation criteria without the appropriate authorisation.

2.1.1 Purpose

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

2.1.2 Applicability

This document shall apply to Kriel Power station.

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

2.2.2 Informative

[2] ISO 9001 Quality Management Systems

[3] 474-59 : Internal Audit Procedure

[4] 32 -1034 : Eskom Procument Policy and Supply chain policy

[5] 240-168966152: Generation Tender Technical Evaluation Procedure

[6] 240-94148512: ESP and SO_3 Generic SoW

[7] 555-EBP2065 : Kriel Power Station Electrostatic Precipitator Sulphur Trioxide (SO_3) Plant Maintenance and Outages Scope of Work (SOW)

2.3 DEFINITIONS

Definition	Description
SO_3	Is an oxide of **sulfur** that is released during the combustion of **sulfur** bearing fuels. It can be prepared by the oxidation of **sulfur** dioxide in the presence of vanadium pentoxide catalyst

2.3.1 Classification

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

2.4 ABBREVIATIONS

Abbreviation	Description
ECN	Engineering Change Notification
EDMS	Engineering Document Management System

Abbreviation	Description
ECM	Engineering Change Management
UCLF	Unplanned Capability Loss Factor
TET	Technical Evaluation Team

2.5 ROLES AND RESPONSIBILITIES

- Boiler Engineering Manager : Kriel Boiler Engineering ensure that the respective areas are and adhered to this procedure.
- Senior Advisor and System Engineer : The Advisor and Engineer are responsible for compiling and review of technical tender document.
- Technical Evaluation Team (TET) Member : The delegated engineers/technical specialists are responsible for review and evaluate technical aspects of the tender documentation Tender TET

2.6 PROCESS FOR MONITORING

The QCPs on work to be performed during outages and maintenance by the supplier will be done before work commence it is to be signed by the system engineer, maintenance supervisor, quality controller and hold/witness points should be marked to ensure the quality of the work is according to standard.

2.7 `RELATED/SUPPORTING DOCUMENTS

[5] QM 58 : Suppplier Contract Quality Requirements
[6] 240-53716746: Tender Technical Evaluation Report
[7] 240-53716712: Tender Technical Evaluation Results Form
[8]] 240-53716726: Tender Technical Evaluation Scoring Form
[9] 240-53716769: Tender Technical Evaluation Strategy

3. TENDER TECHNICAL EVALUATION STRATEGY

3.1 TECHNICAL EVALUATION THRESHOLD

Mandatory Technical Evaluation Criteria (gatekeepers) are 'must meet' criteria. These criteria shall not be weighted or point scored, but shall be assessed on a Yes/No basis as to whether or not the criteria are met unless set otherwise. An assessment of 'No' against any criterion shall technically disqualify the tenderer and shall not be further evaluated against Qualitative Criteria.

Qualitative Technical Evaluation Criteria are weighted evaluation criteria used to identify the highest technically ranked tenderer after determining that all the Mandatory Evaluation Criteria have been met.

The Qualitative Evaluation Criteria are weighted to reflect the relevant importance of each criterion. The minimum weighted final score (threshold) required for a tender to be considered from a technical perspective is 80%.

3.2 TET MEMBERS

Table 1: TET Members

TET number	TET Member Name	Designation
TET 1	Feyane Tivane	Engineer, Kriel Boiler Plant Engineering
TET 2	Spha Biyela	Engineer, Kriel Senior Advisor Emissions
TET 3	Mthoko Dlamini	Chief Engineer – Gx Engineering Specialist
TET 4	Rinae Muruge	Engineer, Kriel Boiler Plant Engineering

3.3 CRITERIA

3.3.1 Mandatory Technical Evaluation Criteria

Table 2: Mandatory Technical Evaluation Criteria

	Mandatory Technical Criteria Description	Reference to Technical Specification / Tender Returnable	Motivation for use of Criteria
1.	Valid ISO 3834-2:2005 Certification – For Welding Quality Purposes Complete certificate (all pages) of the valid ISO 3834-2:2005 certificate must be submitted and it must clearly indicate the following: Design Codes (BS EN 13480; BS EN 13445 and P5500) as well as the following material groups (1, 5, 6, and 8 according to 15608) for the tenderer is declared competent.	• To ensure that all welding Procedures make reference of the national standards to which it is drawn up from and the contractor is authorised by an accredited body to do hot work	• To ensure correct and proper usage of WPQR and WPS code/standard compliance • The OHS Act compliant hot work procedure is essential because it specifies a set of hot work principles and minimum requirements at all times
2.	The Service Provider must have a Quality Management System (QMS) in accordance with 240-105658000 Supplier Quality Management: Specification.	• Valid ISO 9001: Registration certificate.	• To ensure conformity to Eskom specified Quality Management System requirements.

3.3.2 Qualitative Technical Evaluation Criteria for Part 1

Table 3 : Qualitative Technical Evaluation Criteria

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.		

Qualitative Technical Criteria Description	Reference to Technical Specification/Tender Returnble	Criteria Weighting (%)
1. Completed Projects or maintenance works or refurbishment on a SO_3 plant or similar plant – Returnable's – Project Completion certificates **Points to be allocated using the following criteria** • 0 completed Projects . **0 pts** • 2 completed Projects . **2 pts** • 3 completed Projects . **4 pts** • More than 4 Projects. **5 pts**	Signed completion cerficate indictating project duration, project description and veriable contact details of project manager/contract manager.	**25**
2. EXPERIENCE PROJECT MANAGER / SITE SUPERVISOR Proof of qualifications and previous experience of the Project Manager Or Site Supervisor in the maintenance or refurbished of a chemical plant or similar environment (gas plant) – Returnable's – trade tests certificates, proof of relevant qualifications from testing institutions and actively working on a chemical plant or on the job training **Points to be allocated using the following criteria** • One year Proof attached with no references. **0 pts** • Two to three years Proof attached with references . **2 pts** • Four to Five years Proof attached with references. **4 pts** • More than five years Proof attached with references. **5 pts**	Proof of experienceon the CV attached with veriable references that can be contacted.	**5**
3. METHOD STATEMENT [1]: BURNER REFRACTORY The criterion covers the basic steps required for the refurbishment and commission of the Burner Refractory. They are used for the burning of liquid sulphur to SO_2 gas. **Points to be allocated using the following criteria** • Non-specific methodology steps or no sumbsion . **0 pts** • Method statement not clear/generic but shows the know how. **2 pts**	Detailed method statement for burner refractory comprising of all work execution and sequence for the refurbishment or manufacturing as detailed in the maintenance strategies / SOW document which shows at which stages during the outage involvement in terms of hold and witness points is required, and what types of inspections, testing, witnessing etc. are carried out to ensure that the requirements of the specifications are met	**20**

• Method statement detail but not sulphur plant specific & all Risks assessed and stipulated. **4 pts** • Method statement clear, SO_3 Plant specific and concise and all Risks assessed and stipulated . **5 pts**		
4. METHOD STATEMENT [2]:SULPHUR METERING PUMP Clearly define basic method statement or process on how the molten sulphur metering pump (LEWA LDB1) will be refurbished, installed and commissioned. Drawing to be provided. **Points to be allocated using the following criteria** • Non-specific methodology steps or no sumbsion . **0 pts** • Method statement not clear/generic but shows the know how. **2 pts** • Method statement detail but not sulphur plant specific & all Risks assessed and stipulated. **4 pts** • Method statement clear, SO_3 Plant specific and concise and all Risks assessed and stipulated . **5 pts**	Detailed method statement for sulphur metering pump comprising of all work execution and sequence for the refurbishment or manufacturing as detailed in the maintenance strategies / SOW document which shows at which stages during the outage involvement in terms of hold and witness points is required, and what types of inspections, testing, witnessing etc. are carried out to ensure that the requirements of the specifications are met	**15**
5. METHOD STATEMENT [3]:CATALYTIC CONVETOR PACKING Clearly define basic method statement or process on how catalyst will be packed. Catalyst is a single stage, consisting of ceramic balls and vanadium pentoxide catalyst. Illustration drawing to be provided. **Points to be allocated using the following criteria** • Non-specific methodology steps or no sumbsion . 0 pts • Method statement not clear/generic but shows the know how. 2 pts • Method statement detail but not sulphur plant specific & all Risks assessed and stipulated. 4 pts • Method statement clear, SO_3 Plant specific and concise and all Risks assessed and stipulated . 5 pts	Detailed method statement for catalytic convetor packing comprising of all work execution and sequence for the refurbishment or manufacturing as detailed in the maintenance strategies / SOW document which shows at which stages during the outage involvement in terms of hold and witness points is required, and what types of inspections, testing, witnessing etc. are carried out to ensure that the requirements of the specifications are met	**15**
6. QUALITY CONTROL PLAN SO_3 INJECTION LANCES REMOVAL, INSTALLATION AND COMMISSIONING.	Comprehansive Approved Quality Control Plan three historically fully signed-off plans	**10**

Clearly step-by-step works stipulated in the Quality Control Plan, SO_3 INJECTION LANCES REMOVAL, INSTALLATION AND COMMISSIONING fully signed-off plans to be submitted/Comprehenssive with all stakeholders to sign-off .. **Points to be allocated using the following criteria** • Non-specific QCP or no sumbsion . **0 pts** • QCP not clear/generic but shows the know how. **2 pts** • QCP shows know how on SO_3 lances but missing critical steps & all Risks assessed and covered on this document. **4 pts** • QCP clear showing witness , holding and survinence points and SO_3 lance specific and concise and all Risks assessed and stipulated . **5 pts**		
7.Technical Experience for the personnel on this project Boiler Maker-**Trade Test Certificate**, Mechanical Fitter-**Trade Test Certificate**, and Rigger-**Trade Test Certificate**). Submit certified copies of qualifications/certificates **Note: A minimum of 1 certified copy of qualifications/certificates for each occupation is suitable and be within a duration of 3 months** **Points to be allocated using the following criteria:** All team members must submit the certified copies for each as stated above. **Points to be allocated using the following criteria** • If there is one or more missing then .**0pts.** • Certified copy of certificates/trade test certificates within a duration of 3 months for all team members. **5pts**		**10**

7. TET Member Responsibilities for Part 1 **METHOD STATEMENT [3]:CATALYTIC CONVETOR PACKING**

Table 4: TET Member Responsibilities for Part 1

Mandatory Criteria Number	TET 1	TET 2	TET 3	TET 4
1. ISO 3848	X	X	X	X
2. Valid ISO 9001: Registration certificate.	X	X	X	X
Qualitative Criteria Number	**TET 1**	**TET 2**	**TET 3**	**TET 4**
1. Completed Projects or maintenance works or refurbishment on a SO_3 plant or similar plant.	X	X	X	X
2.Experience of the project manager/ site supervisor.	X	X	X	X
3. Method statement [1] : Burner refractory	X	X	X	X
4. Method statement [2] : Sulphur metering pump	X	X	X	X
5. Method statement [3] : Catalytic converter packing	X	X	X	X
6. Quality Control Plan	X	X	X	X
7. Technical Experience for the personnel on this project	X	X	X	X

3.4 FORESEEN ACCEPTABLE / UNACCEPTABLE QUALIFICATIONS

3.4.1 Risks

Table 5: Acceptable Technical Risks

Risk	Description
1.	None

Table 6: Unacceptable Technical Risks

Risk	Description
1.	Unavailable proof of Artisan qualification

3.4.2 Exceptions / Conditions

Table 7: Acceptable Technical Exceptions / Conditions

Risk	Description
1.	None

Table 8: Unacceptable Technical Exceptions / Conditions

Risk	Description
1.	Service has no ISO 14001:2015 Certification

4. AUTHORISATION

This document has been seen and accepted by:

Name	Designation
Feyane Tivane	Engineer, Kriel Boiler Engineering
Spha Biyela	Engineer, Kriel Senior Advisor Emissions
Mthoko Dlamini	Chief Engineer – PEI Specialist
Rinae Muruge	Engineer, Kriel Boiler Engineering

5. REVISIONS

Date	Rev.	Compiler	Remarks
July 2022	1	Feyane Tivane	New Document Issue
July 2023	2	Rinae Muruge	Maintenance SOW added

6. DEVELOPMENT TEAM

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

- See section 4 above

7. ACKNOWLEDGEMENTS

- N/A