

Title: **Tender Technical Strategy :
Tender technical evaluation for
Kriel Power Station
Correlation and Parallel tests on
the smoke stacks**

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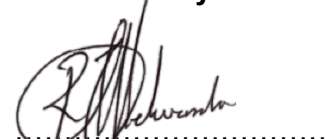
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1. INTRODUCTION

Kriel Power Station is categorised as a solid fuel combustion installation and is equipped with an Automated Measuring System (AMS) on both its north and south smoke stacks for the continuous online monitoring and reporting of several pollutants during operation as obligated by the National Environmental Management: Air Quality Act No. 39 of 2004. These pollutants include particulate matter, sulphur dioxide and oxides of nitrogen. Full Dust Correlation and Dust Correlation Spot Tests as well as Gaseous Parallel and Gaseous Verification Tests measurements of the emission monitors is necessary to maintain the integrity of data reported through AMS. To this end, a series of dust correlation and gaseous measurements is scheduled on all six (6) units at Kriel Power Station

2. SUPPORTING CLAUSES

2.1 SCOPE

2.1.1 Scope of work

- a) Particulate Matter measurement shall be conducted using Isokinetic measurement method. The isokinetic measurements will be in accordance with an Eskom approved equivalent (VDI, EN or ISO Standards). This requires the use of a calibrated gas meter, standard pitot tube, thermocouple instrumentation and simultaneous flow measurement and sampling.
- b) The Contractor shall conduct full Particulate Matter monitor correlations tests and spot measurement on stack 1 (Unit 1, 2 and 3) and stack 2 (unit 4, 5 and 6) during normal operating conditions.
- c) For a Full Dust Correlation Test: A minimum of 15 successful tests per correlation shall be done. Three (3) additional tests shall be conducted to make provision for outliers, if required. The Contractor will be given 7 days' notice to conduct the Full Correlation Test.
- d) For a Spot Dust Correlation Test: A minimum of 5 successful tests per correlation will be done. Two (2) additional tests will be conducted to make provision for outliers, if required.
- e) A Spot test may be requested anytime when the station deems it necessary. The Contractor will be given 7 days' notice to this effect. Depending on the outcome of the Spot test, a Full Correlation test must be arranged and conducted by the Contractor within 3-months of Spot test.
- f) Velocity and Total Air flow tests shall be included with each test.

3.2.1.1. Gaseous Emission Measurement Requirements

- a. Determining AMS calibration function, calibration range and operational variability by conducting gaseous AMS QAL2 Parallel Measurements using the standard reference measuring method (SRM) in accordance with international standards (EN 14181, EN 14792 (EPA 7E), EPA 6C, EN 15058 (EPA method 10), EPA CTM-030 with NDIR and Zirconia, EPA methods 2 & 4, ISO 12141) and with due regard of Eskom's Emissions Monitoring and Reporting Standard 240-56242363.
- b. A minimum of 15 successful tests per gaseous Parallel Test shall be done for purpose of determining gaseous AMS calibration function. Three (3) additional tests shall be conducted to make provision for outliers, if required. The Contractor will be given 7 days' notice to conduct the Parallel Test.
- c. A minimum of 5 successful tests per gaseous Surveillance test will be done. Two (2) additional tests will be conducted to make provision for outliers, if required.
- d. Gaseous Surveillance test may be requested anytime when the station deems it necessary. The Contractor will be given 7 days' notice to this effect. Depending on the outcome of the Surveillance test a Parallel test must be arranged and conducted by the Contractor within 3-months of Surveillance test.
- e. Tests must be done at a level closer or above the level of the currently installed gas monitors at Kendal Power Station. Samples analysed must be a representative of the gas stream being tested.

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- f. The following pollutants must be measured and quantified as part of the Works:
- i. Oxides of Nitrogen (expressed as NO₂).
 - ii. Sulphur Dioxide (SO₂)
 - iii. Carbon Dioxide (CO₂)
 - iv. Carbon Monoxide (CO)
 - v. Oxygen (O₂)
 - vi. Velocity (m/s)
- g. The SOW for Parallel measurements shall include calibration function of AMS peripheral parameters of moisture concentration, gas temperatures and gas pressures used by AMS during its function

2.1.2 Purpose

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

2.1.3 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

- [1] 240-56242363: Emissions standard

2.3 DEFINITIONS

2.2.3 Classification

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

2.3 ABBREVIATIONS

Abbreviation	Description
UCLF	Unplanned Capability Loss Factor
ECN	Engineering Change Notification

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Abbreviation	Description
EDMS	Engineering Document Management System
ECM	Engineering Change Management

2.4 ROLES AND RESPONSIBILITIES

As per 240-48929482: Tender Technical Evaluation Procedure

2.5 PROCESS FOR MONITORING

The QCPs on incoming product and services rendered by the supplier will be done and all materials are to be signed off by the system engineer, maintenance supervisor, quality controller and hold/witness points should be marked to ensure the quality of the supplied goods is according to standard.

2.6 RELATED/SUPPORTING DOCUMENTS

QM 58	Supplier Contract Quality Requirements
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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 80%.

3.2 TET MEMBERS

Table 1: TET Members

TET number	TET Member Name	Designation
TET 1	Feyane Tivane	System Engineer Boiler Plant Engineering
TET 2	Spha Biyela	Pr. Eng. Kriel Senior Technical Advisor

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3.3 CRITERIA

3.3 MANADATORY TECHNICAL EVALUATION CRITERIA

Table 2: Mandatory Technical Evaluation Criteria Mandatory Technical Criteria Description	Reference to Technical Specification / Tender Returnable	Motivation for use of Criteria
Service provider shall be SANAS accredited.	Returnable: Valid SANAS accreditation certificates/ Proof of submission for accreditation Authorities (SANAS)	This is in line with new requirements for service providers for correlation and parallel test to be SANAS accredited.
Previous work on stack with a diameter greater than 14 meters.	Returnable: Traceable Completion certificate or Signed report confirming the previous work done on larger diameter 14 m stack	Stack diameters are 14 meters and testing on this larger diameter stack is challenging and have different dynamics on testing positions.

3.4 QUALITATIVE TECHNICAL EVALUATION CRITERIA

Table 3: Qualitative Technical Evaluation Criteria

KPA - Area of Evaluation	KPI - Criteria Evaluation Indicator	Minimum Criteria Evaluation Requirements	Source	Weight (%)					Score TOTAL Weighted RATING
Company Profile and Capability	Evidence of historical stack correlation and parallel testing (SANAS)	Supplier has completed at least one successful correlation test and one correlation test in the smoke stack with a diameter of 14 m.	Submit proof of previous order or test reports for correlation and parallel testing on a stack with diameter greater than 14m	40%	(Score 0) No Submission Or Completed zero correlation test and zero parallel tests. (with out sanas)	(Score 40) Proof with two correlation sanas tests and two parallel sanas test completed on a stack with a diameter greater than 14m	(Score 80) Proof with two correlation sanas tests and three parallel sanas test completed on a stack with a diameter greater than 14 m	(Score 100) Proof with three or more correlation sanas tests and 3 three or more parallel sanas test completed on a stack with a diameter greater than 14m	
Method statement on how to carry correlation & parallel testing on the stack	Detailed Method Statement shall be developed to address the scope . The supplier shall demonstrate in details how the requirements of the scope will be met/executed and any requirements from the employer in regard to correlation and parallel test	Method statement shall cover the following 1. Test procedure for correlation test in line with minimum emission standard [10 Points] . 2. Test procedure for parallel test in line with minimum emission standard [10 Points] . 3. Calculations used previously to develop	Method Statement report	40%	(Score 0) No Method statement submitted OR Method statement score 5 points.	(Score 40) Method Statement Score: 10 Points	(Score 80) Method Statement Score: 15 Points	(Score 100) Method Statement Score: 20 Points	

Tender Technical Evaluation Strategy:

Unique Identifier:

Revision: 1

Page: 7 of 11

		correlation curves from the measured pollutants. [10 Points]							
		4. Calculations used previously to develop parallel tests curves from the measured pollutants. [10 Points]							

Proof of Electrostatic precipitator CFD modelling	Supplier has completed at least two successful CFD modelling on ESP plant	Submit proof of previous order or CFD reports for ESP plant	20%	(Score 0) No submission	(Score 40) Proof with two CFD reports on ESP plant or similar abatement plant	(Score 80) Proof with three CFD reports on ESP plant or similar abatement plant	(Score 100) Proof with four or more CFD reports on ESP plant or similar abatement plant	
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Appendix A3.5 TET MEMBER RESPONSIBILITIES

4. Table 4: TET Member Responsibilities

Mandatory Criteria Number	TET 1	TET 2
1	X	X
2	X	X
Qualitative Criteria Number	TET 1	TET 2
1	X	X
2	X	X
3	X	X

3.6 FORESEEN ACCEPTABLE / UNACCEPTABLE QUALIFICATIONS

3.6.1 Risks

Table 5: Acceptable Technical Risks

Risk	Description
1.	Supplier tender that has not supplied previously to Eskom.
2.	
3.	
4.	
5.	
6.	
7.	

Table 7: Acceptable Technical Exceptions / Conditions

Risk	Description
1.	
1.	
2.	
3.	
4.	
5.	
6.	

5. AUTHORISATION

This document has been seen and accepted by:

Name	Designation	Signature
Spha Biyela	Senior Advisor Pr .Eng.	
Nelson Debeila	System Engineer (Control and Instrumentation)	

6. REVISIONS

Date	Rev.	Compiler	Remarks
March 2022	1	S Biyela	

7. DEVELOPMENT TEAM

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

- Doctor Molefe
- Feyane Tivane
- Mthoko Dlamini

8. ACKNOWLEDGEMENTS

- N/A

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