

Title: **Tender Technical Evaluation
Strategy for the Installation of
the Online Elemental Analyser**

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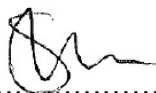
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1. INTRODUCTION

Tutuka Power Station receives various sources of coal and needs to have access to coal results at any given moment. This is to determine what coal qualities are being used to determine the effect thereof on the plant and to continuously work on the stations thermal efficiency. Tutuka currently relies on PED and onsite lab results that have various challenges in terms of trending and reliability.

In 2012 a coal online analyser was installed and was proven to be inefficient and unreliable. It could not produce results as it could not calibrate the coal received. The calibration was not achieved due to the analyser's inability to analyse various sources of coal at a time (could only analyse one source at a time). The analyser has been in the plant over conveyor 15A and 15B and has not been producing results since installation.

Since installation the analyser never produced results and Tutuka continued depending solely on PED and an onsite lab for coal qualities. This continues to be a problem with the lack of knowledge on coal qualities received at any given moment. This knowledge plays a big role in Tutuka's thermal efficiency and to be able to predict future plant issues due to coal qualities received.

Accurate, readily available and reliable coal analyses is needed in order to predict plant issues such as poor mill performance, more air and coal needed with poor qualities and to determine the booking of PLL's due to coal qualities. The old analyser needs to be decommissioned and in this report an installation of a more reliable analyser will be discussed to produce coal quality results.

2. SUPPORTING CLAUSES

2.1 SCOPE

The Scope of work is applicable to conveyor 6A and 6B

The Works consist of the following:

- Supply/purchase of 2 x elemental analysers, 2 x analyser base frames, 2 x mass meters
- Civil works for Analyser base frame for the analysers on conveyor 6A/B
- Install the online elemental analyser and mass meter across conveyor 6A/6B
- Connect C&I cabling from the analyser to the nearest DCS for plant interface
- Supply the analyser and associated equipment with power supply
- Decommissioning of old analysers
- Calibration and testing of elemental analysers

2.2 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. This document will also provide a guideline as to what technical tender returnables are expected and how to assess each tender returnable by providing acceptable and unacceptable criteria's.

2.3 APPLICABILITY

This document is applicable to the Tender Evaluation Team for Tender Technical Evaluation Strategy for the Installation of Online Elemental Analyser.

2.4 NORMATIVE/INFORMATIVE REFERENCES

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

Normative

- [1] ISO 9001 Quality Management Systems.
- [2] 240-48929482: Tender Technical Evaluation Procedure
- [3] 240-53716726 Technical Scoring Form
- [4] 240-53716712 Technical Evaluation Results

Informative

- [1] 15ENG GEN-1205: Technical Specification of the Installation of the Online Coal Analyser

2.5 DEFINITIONS

Design Report - A detailed design report, approved by an ECSA Professional Registered Engineer, providing a technical justification for the Contractor's design. This report shall apply and reference applicable European, South African or US based Standards and Guidelines. The report shall furthermore make reference to, and provide details of, verifiable references of similar designs and case studies in previous contracts performed by the Contractor.

Classification

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

2.6 ABBREVIATIONS

Table 1: Abbreviations

Abbreviation & Acronyms	Description
ROC	Required Operational Capability
SRD	Stakeholders Requirements Definition
MOD	Modification
PLL	Partial Load loss
PED	Primary Energy Department
CV	Calorific Value

Abbreviation & Acronyms	Description
VM	Volatile Matter
LDE	Lead Discipline Engineer
EDWL	Engineering Design Work Lead
PEIC	Production Engineering Integration Coal
C&I	Control and Instrumentation
DCS	Distributor Control System
AKZ	Functional Location
OEM	Original Equipment Manufacturer
PECA	Plant Engineering Change Authority
EtaPro	Performance and Conditioning Monitoring software supplied by GP Strategies. Serves as the ITMS interface and platform.
ITMS	Integrated Technical Management System.
PLC	Programmable Logic controller
PIS	Process Information Management

2.7 ROLES AND RESPONSIBILITIES

As per 240-48929482: Tender Technical Evaluation Procedure

2.8 PROCESS FOR MONITORING

As per 240-48929482: Tender Technical Evaluation Procedure

2.9 RELATED/SUPPORTING DOCUMENTS

As per 240-48929482: Tender Technical Evaluation Procedure

2.10 PREREQUISITES

All personnel on the technical tender evaluation team must be familiar with this document before the tender evaluation can proceed.

2.11 PRECAUTIONS AND LIMITATIONS

- One belt will be taken off at a time to install the analysers
- The supplier to decommission the old analyser

3. TENDER TECHNICAL EVALUATION STRATEGY

A weighted score-card approach is used to evaluate the technical compliance of the tenders against the specifications or ability to perform the work. Tenderers need to have a minimum weighted score of 70% overall or more to technically qualify for further evaluation.

3.1 TECHNICAL EVALUATION TEAM

The following personnel will form part of the technical evaluation team (requires minimum 2 people):

Table 2: TET

TET Number	Evaluator's name	Role and responsibility	Designation
TET 1	Sigourney Wilson	All Technical Tender Evaluation Criteria	Process Engineer
TET 2	Tom Xaba	All Technical Tender Evaluation Criteria	Mechanical System Engineer
TET 3	Nompumelelo Dlamini	All Technical Tender Evaluation Criteria	Civil Engineering Manager
TET 4	Ryan Hector	All Technical Tender Evaluation Criteria	Electrical system engineer
TET 5	Petru Bosman	All Technical Tender Evaluation Criteria	PR C&I system engineer
TET 6	Sekese Maema	All Technical Tender Evaluation Criteria	Mechanical Maintenance
TET 7	Nomkhosi Ramonotsi	All Technical Tender Evaluation Criteria	C&I Maintenance
TET 8	John Green	All Technical Tender Evaluation Criteria	C&I Maintenance

3.2 QUALITATIVE TECHNICAL EVALUATION CRITERIA

Section references made below refers to the Technical specification for Tutuka Power Station recovery of water from station terrace dams.

Table 3: Qualitative technical evaluation

Gatekeepers		
Criteria		Yes/No
1.	The analyser has to be a neutron source based analysers which will have detectors to measure both fast and slow gamma rays are a must.	
2.	The analyser must have appropriate gamma ray detectors whether they only have backscatter gamma ray detectors or have two positioned above the belt to detect the through gamma rays and one gamma ray detector position below the belt to detect the backscattered gamma ray detectors.	
3.	The Contractor or his/her subcontractor that will calibrate the online analyser needs to provide a high level calibration plan and needs to provide a service level agreement.	
NB: Tenders which do not satisfy the all three of the gatekeepers will not be given further consideration. Contractors need to comply with the gate keepers		
Technical Evaluation Criteria		Weighting [%]
3.1	Provide a method statement or Design proposal/method for the works, this must include the Electrical works, Controls & Instrument works, Civil works and Mechanical works (as per 15ENG GEN-1205: Technical Specification of the Installation of the Online Coal Analyser)	30
3.2	Project schedule including lead times to complete the project must be submitted detailing the milestones completion dates	15
3.3	Submit CV's and qualifications of the key resources. The organisation organogram must be included. It is expected that the qualifications should give confidence that the team will be able to execute the work.	10
3.4	Provide proof that all the equipment spares intended to be used in the project are supported locally (a signed letter from OEM must be supplied as proof).	10
3.5	Provide proof of similar project where online analysers were designed and installed	10
3.6	Exclusions / deviations from the full scope.	10
3.7	Provide a high level of QCP with Hold point, witness points. This should include/indicate how the supplier will avoid rework during the project execution	15
TOTAL		100%
NB: A minimum total of 70 % is required in this section for further consideration. The tenderer is to ensure that all the evaluation criteria are submitted as stated with the tender application.		

3.3 TECHNICAL EVALUATION SCORING GUIDE

In the table below is a guide on how to score each qualitative technical tender returnable. This guide is obtained for the Tender Engineering Evaluation Procedure.

Table 4: Scoring guide

GATEKEEPERS						
Section	Criteria					Yes / No
1	The analyser has to be a neutron source based analysers which will have detectors to measure both fast and slow gamma rays are a must.					
2	The analyser must have appropriate gamma ray detectors whether they only have backscatter gamma ray detectors or have two positioned above the belt to detect the through gamma rays and one gamma ray detector position below the belt to detect the backscattered gamma ray detectors.					
3	The Contractor or his/her subcontractor that will calibrate the online analyser needs to provide a high level calibration plan and needs to provide a service level agreement.					
Technical evaluation						
NB: Tenders which do not satisfy these gatekeepers will not be given further consideration. Contractors need to comply with all three gate keepers						
*Section references below refers to the technical specification						
Minimum score of 70% required			Score			
No	Criteria	Weight [%]	0	2	4	5
3.1	Provide a method statement or Design proposal/method for the works, this must include the Electrical works, Controls & Instrument works, Civil works and Mechanical works (as per 15ENG GEN-1205: Technical Specification of the Installation	30	Deficient or non-responsive	Only partially complies with the required scope of work		Satisfactory Process diagram and conceptual design. Able to complete all work detailed in method statement

	of the Online Coal Analyser)					
3.2	Project schedule including lead times to complete the project must be submitted detailing the milestones completion dates	15	Deficient or non-responsive	Project/lead time/milestone dates not clearly indicated	Project schedule detailing milestones included but completion dates not included	Project schedule detailing milestones, lead time and completion dates included
3.3	Submit CV's and qualifications of the key resources. The organisation organogram must be included. It is expected that the qualifications should give confidence that the team will be able to execute the work.	10	Deficient or non-responsive	No Technical background or the organogram is not clear		Full organogram with technical background and qualifications
3.4	Provide proof that all the equipment spares intended to be used in the project are supported locally (a signed letter from OEM must be supplied as proof).	10	Deficient or non-responsive	Part or spares are partially locally supported		All Spares are locally supported
3.5	Provide proof of similar project where online analysers were designed and installed	10	Deficient or non-responsive	Contractor/ subcontractor has experience in installing but not design or the other way around		Contractor/ subcontractor has experience in both installing and design of online analysers
3.6	Exclusions / deviations from the full scope.	10	Exclusions /Deviation			No exclusions/ deviations

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3.7	Provide a high level of QCP with Hold point, witness points. This should include/indicate how the supplier will avoid rework during the project execution	15	Deficient or non-responsive	QCP is not sound or does not have hold points or Witness points	QCP is sound but does not have hold points or Witness points	QCP has sound hold points and witness point. Indicative of no re-work
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FORESEEN ACCEPTABLE / UNACCEPTABLE QUALIFICATIONS

Risks

Table 5: Acceptable Technical Risks

Risk	Description
•	Contracting appointing sub-contractors to design, supply and install all electrical, control& instruments and mechanical components to commission the online analyser

Table 6: Unacceptable Technical Risks

Risk	Description
•	Contractor unable to design, supply and Install required specifications of the online analysers
•	Contractor installing inadequate or substandard equipment
•	Spares not locally supported with very long lead time

Exceptions / Conditions

Table 7: Acceptable Technical Exceptions / Conditions

Risk	Description
[1]	The analyser has gamma ray detectors that only have backscatter gamma ray detectors

Table 8: Unacceptable Technical Exceptions / Conditions

Risk	Description
[1]	Cannot design, manufacture, supply, install and commission the online analysers

CONTROLLED DISCLOSURE

4. AUTHORISATION

This document has been seen and accepted by

Name	Designation
Ryan Hector	Electrical System Engineer
Petru Bosman	C&I PR Engineer
Monyane Mokoena	Auxiliary Engineering Manager
Sekese Maema	Mechanical Maintenance
Nomkhosi Ramonotsi	C&I Maintenance
John Green	C&I Maintenance
Nompumelelo Dlamini	Civil Engineering Manager

5. REVISIONS

Date	Rev.	Compiler	Remarks
May 2021	1	Sigourney Wilson	New Document

6. DEVELOPMENT TEAM

Sigourney Wilson

7. ACKNOWLEDGEMENTS

None