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## Content

## 1. Introduction

This document provides a SOW to supply delivery and commissioning of Laboratory Analytical Instruments to Majuba Power Station

## 2. Supporting Clauses

### 2.1 Scope

#### 2.1.1 Purpose

This document outlines the scope of work to supply, delivery and commissioning of Laboratory Analytical Instruments to Majuba Power Station

#### 2.1.2 Applicability

This procedure applies to Majuba Power Station Chemical Services Laboratory

#### 2.1.3 Effective date

Date of authorisation

### 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] ISO 9001 Quality Management Systems

#### 2.2.2 Informative

[2] None

### 2.3 Definitions

| Abbreviation | Explanation |
|---|---|
| BBBEE | Broad Based Black Economic Empowerment |
| CSM | Chemical Services Manager |
| KPI | Key performance indicator |
| ISO | International Standard Organisation |

| | |
|---|---|
| OEM | Original Equipment Manufacturer |
| PO | Purchase order |
| SSB | Station Services Building |
| SOW | Scope of Work |
| SC | Supply Contract |

### 2.4 Roles and Responsibilities

- Contract Manager manages the Contract
- Contract manager coordinates the execution of the SOW on site
- Contract Manager conducts assessment
- The Supplier complies to the SOW
- The Supplier executes the SOW as stipulated in the NEC.

### 2.5 Process for Monitoring

- Quality Check

### 2.6 Related/Supporting Documents

- NEC SC document

## 3. Scope of Work

The once off supply, delivery and commissioning of Laboratory Analytical Instruments to Majuba Power Station

### 3.1 Overview and purpose of the *goods* and *services*

The once off supply, delivery and commissioning of Laboratory Analytical Instruments to Majuba Power Station

Only goods delivered according to the prescribed specifications will be accepted

### 3.2 Specification and description of the goods

Supply, deliver and commissioning of Laboratory Analytical Instruments

Suppliers should supply according to the specifications below

- **Benchtop Autotitrator with Autosampler**

Supply, delivery, commissioning and training of 1x Auto Titrator with touch terminal, computer and instrument control software where the auto titrator must be capable of performing complexiometric, redox, photometric, argentometric, thermometric and acid-base titrations

Must include all necessary accessories to perform the following water analysis pH, total alkalinity, conductivity, total hardness (photometrically), calcium hardness (photometrically), magnesium hardness (photometrically) in one sample

The touch terminal included must be a colour touch screen that must allow dual operation of the titrator via both the instrument control software and the touch screen simultaneously

Burettes must have built-in titrant identification chips, specifically RFID (radio frequency identification), which must include automatic detection of the presence of a specific titrant, the concentration thereof, titer value with last standardization date and burette size

Besides the RFID reader to identify burette information, the autotitrator main unit must also have a separate built-in RFID (radio frequency identification) sample reader, capable of reading and utilising sample information from sample beakers to automatically run a specific method Such information must include sample weight and sample ID

Burette drives must have a minimum resolution of 20 000 steps or higher

The system must include an additional dosing unit and 2 burettes

It shall be possible to connect 2 additional dosing units to the titrator to host 4 burettes in total, simultaneously and each burette should be able to titrate together within the same method

It must include a compatible autosampler to the autotitrator of twenty-three or more beaker positions

The auto sampler must perform multi-angle active spray rinsing of electrodes with a membrane pump before commencing analysis of any sample (not dip rinsing)

Titration system must include a propeller stirrer to perform all stirring steps during titration and measurements (not magnetic stirrer bars)

The following standards methods are required for analysis

Conductivity ISO 7888, ASTM D1125 EPA 120 1

pH EN ISO 10523, ASTM D1293 EPA 150 1

Alkalinity ISO 9963 ASTM D1067, EPA 310 1

Ca/Mg content ISO 6059, ASTM D1126, EPA 130 2

- **Total Organic Carbon Benchtop analyser**

Supply, delivery, commissioning and training on Total Organic Cabon benchtop analyser

Powersource 220-240V

lowest detection 0 050ppm

Simultaneous analysis of Total Carbon, Inorganic Carbon, Total Organic Carbon and Dissolved Organic Carbon

Analysis method High temperature catalytic up to 950 degrees Celsius

Sample injection automated septumless rotary injection port, gas CO2 free synthetic or zero grade method EPA 415 1, Standard methods 5310B, ASTM D5173, EN 1484 USEPA 9060, ISO 8245, DIN 38409 H3

Required for analysis in septum sealed vials of 40ml, CO2 Scrubber

Autosampler to be included, PC and operating software

Supply the following

Zero grade air or oxygen gas (measuring range <1% Carbon), free of CO2 and organic contaminants

Waste facility container

Required Chemicals: All chemicals must be at least analytical grade with the highest purity available (assay > 99%)

- TC Calibration
- Potassium hydrogen phthalate C8H5KO4
- IC Calibration
- Sodium carbonate Na2CO3
- Sodium hydrogen carbonate NaHCO3

**IC Acid + Cleaning**

- Phosphoric acid, H3PO4 (85%)

### 5.9.1 Quality

Supplier must provide data sheets, delivery notes, Safety data sheets and certificate of analysis

The supplier must use suitable packaging method for the safety of each component

## 6. Supplier Contract Quality Requirements Specification (QM 58) 240-105658000 must be followed.

### 6 1 *Invoicing and payment*

| List the information that is to be shown by the Supplier on his invoices State any other requirements relating to payment For example |
|---|

Within one week of receiving a payment certificate from the Supply Manager in terms of core clause 51 1 the Supplier provides the Purchaser with a tax invoice showing the amount due for payment equal to that stated in the Supply Manager's certificate

The Supplier shall address the tax invoice to Purchaser and include on each invoice the following information

- Name and address of the Supplier and the Supply Manager
- The contract number and title
- Supplier's VAT registration number
- The Purchaser s VAT registration number
- Description of goods and services provided for each item invoiced based on the Price Schedule
- Total amount invoiced excluding VAT, the VAT and the invoiced amount including VAT
- (add other as required)

| Add procedures for invoice submission and payment (e g electronic payment instructions) |
|---|

### C3.2 SUPPLIER'S GOODS INFORMATION

See Paragraph 2 under heacing Specification and description of the *good*

## 7. Acceptance

This document has been seen and accepted by

| *Name* | *Designation* |
|---|---|
| Pretty Johannes | Senior Chemist |
| Phindile Mgaga | Laboratory Technician |
| Lindokuhle Mbiko | Officer Assistant Documentation |

## 3. Revisions

| Date | Rev. | Compiler | Remarks |
|---|---|---|---|
| February 2026 | 1 | S Mahlaba | First Issue |

## 8. Development Team

The following people were involved in the development of this document

- S Mahlaba

## 9. Acknowledgement

None