

	<p style="text-align: center;">Specification</p>	<p style="text-align: center;">Medupi Power Station</p>
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Title **Medupi Power Station Continuous Emission Monitoring Systems Calibration and Spare Supply Services Scope of Work User Requirement Specification**

Document Identifier **240-114234207**

Alternative Reference Number

Area of Applicability **Medupi Power Station**

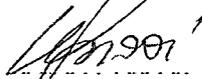
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**Medupi Power Station Continuous Emission
Monitoring Systems Calibration Services Scope
of Work User Requirement Specification**

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1. Introduction

Eskom, Medupi Power Station Management has decided to outsource the Continuous Emission Monitoring Systems Calibration and Spare Supply Services Scope of Work to a suitably qualified, experienced, and well-established *Contractor*

This document describes the detail of the applicable requirements, scope of work, specifications, terms & conditions as well as the criteria to qualify for the tender

2. Supporting Clauses

2.1 Scope

This document sets out the detailed User Scope of Work requirements necessary for the Continuous Emission Monitoring Systems Calibration and Spare Supply Services

2.1.1 Purpose

The purpose of this document is to define a User Scope of Work requirement based on which a service contract will be established between the Employer and the Contractor

Medupi Power Station is expected to perform at 92% UCF, 6% PCLF and 2% UCLF, and the specified Continuous Emission Monitoring Systems must support this requirement

It is therefore imperative that the successful and suitably qualified Contractor aligns his/ her organisation fully to these specified scope activities and processes laid down in this document

2.1.2 Applicability

This document shall apply to the Continuous Emission Monitoring Systems Calibration and Spare Supply Services associated with Eskom, Medupi Power Station

2.1.3 Effective date

The effective date of this document is as per the date and signature of the authoriser, as indicated on the cover page of this document

2.2 Normative/Informative References

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

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2.2.1 Normative

- [1] ISO 9001 Quality Management Systems
- [2] 240 - 97020108 REV 5 Medupi Maintenance Contracts User Requirement Specification (URS)
- [3] 240 – 119937149 Medupi Power Station Continuous Emission Monitoring System Maintenance Strategy
- [4] 32 – 1303 Process Control Manual (PCM) for Execute Maintenance Work
- [5] 32 – 1304 Process Control Manual (PCM) for Manage Work

2.2.2 Informative

- [1] Act No 85 Occupational Health and Safety Act & Regulations.
- [2] 240-46554063 Safety Health Environmental and Quality Policy
- [3] GGR-0992 Plant Safety Regulations

2.3 Definitions

- 2.3.1 Ad hoc A solution designed for a specific problem or task, non-generalizable, and not intended to be able to be adapted to other purposes
- 2.3.2 Contractor Partnership agreements and service provider contracted for supplying specific service to Eskom Generation Medupi Power Station
- 2.3.3 Controlled Disclosure Controlled disclosure to external parties (either enforced by law, or discretionary)
- 2.3.4 Employer Eskom or Eskom Generation, Medupi Power Station
- 2.3.5 Parties The Employer and the Contractor
- 2.3.6. Service Manager The Employer's representative regarding the contract agreement
- 2.3.7 Task Order The Service Manager's instruction to be carried out as a task

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2.4 Abbreviations

Abbreviation	Explanation
CEMS	Continuous Emission Monitoring System
C&I	Control and Instrumentation
EW	Emergent Work
KPA	Key Performance Area
KPI	Key Performance Indicator
NEC3	New Engineering Contract
NRC	Notification Response Compliance
OEM	Original Equipment Manufacturer
PCM	Process Control Manual
PDF	Portable Document Format
PM	Preventive Maintenance
PMC	Preventive Maintenance Compliance
QCP	Quality Control Plan
SAP	Systems, Applications Products
SAP PM	SAP Plant Maintenance
SOV	Statutory Order Violations
SOW	Scope of Work
TSSC	Term Service Short Contract
URS	User Requirement Specification

2.5 Roles and Responsibilities

2.5.1 Employer

Manage the Medupi Power Station Continuous Emission Monitoring Systems Calibration and Spare Supply Services contract in terms of NEC3 Term Service Contract's procedures and guidelines

Manage the Medupi Power Station Continuous Emission Monitoring Systems Calibration and Spare Supply Services contract in term of the 240 - 97020108 REV 5 Medupi Maintenance Contracts User Requirement Specification (URS)

2.5.2 Contractor

Provide a calibration and spare supply service to the Employer in accordance with 240 – 113172477 Medupi Power Station Continuous Emission Monitoring Systems Calibration Services SOW URS

Ensure that quality workmanship is delivered in Process for Monitoring in accordance with the Scope of Work as stipulated within 240 – 113172477 Medupi Power Station Continuous Emission Monitoring Systems Calibration Services SOW URS

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Obey any instruction which is in accordance with the contract and is given to him by the Service Manager

Acts in accordance with the Health, Safety and Environmental requirements as stated in 240 - 97020108 REV 5 Medupi Maintenance Contracts User Requirement Specification (URS).

2.6 Process of Monitoring

Maintenance process monitoring shall be done by means of the following

2.6.1 Process Control Manuals (PCM)

- [1] 32 – 1303 Process Control Manual (PCM) for Execute Maintenance Work
- [2] 32 – 1304 Process Control Manual (PCM) for Manage Work

2.6.2 On – Line Maintenance

- [1] Preventive Maintenance Compliance (PMC)
- [2] Notification Response Compliance (NRC)
- [3] Statutory Order Violations (SOV)
- [4] Emergent Work (EW)
- [5] Strategic & Critical Spares Availability (SCSA)

2.7 Related/Supporting Documents

- [1] 240 - 97020108 REV 5 Medupi Maintenance Contracts User Requirement Specification (URS)
- [2] NEC 3 Term Service Short Contract
- [3] 32 – 1303 Process Control Manual (PCM) for Execute Maintenance Work
- [4] 32 – 1304 Process Control Manual (PCM) for Manage Work

3. Document Content

3.1 General

3.1.1 Adherence to Eskom General Policies & Standards

The Employees of the *Contractor* shall comply with Eskom's policies and site regulations. The 240 - 97020108 Medupi Maintenance Contracts User Requirement Specification Rev 5 aims to normalise contract agreements and as such should be used as the point of departure on which this service contract will be based

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3.1.2 Quality Standard

The Contractor shall provide a complete Quality Assurance plan in accordance with the requirements of ISO 9001 2010 – Quality Management to the Employer for approval. This plan must ensure an integrated quality service as part of the contract.

Execution of all quality related activities, including inspection and test plans compilation and execution, stores material quality inspections and all quality-related record keeping is part of the Contractor's scope of work.

Workmanship shall, at all times, be of a grade accepted as the best practice of the particular trade involved and as stipulated in written standards of recognised organisations or institutes of the respective trades, except as exceeded or qualified by the specifications. The Employer shall determine the acceptability of workmanship.

3.1.3 Document Control

All contractual communication between the Employer and Contractor shall be in written format accompanied by an official letterhead and signed by the authorised Parties.

All attached documentation shall be in the format of Microsoft Word/ Excel and/ or Power Point.

All contractual communication letterheads and attached documentation shall be electronically mailed as per PDF format.

3.1.4 Contractual Meetings

The Contractor shall be required to adhere to and take part in the following meetings being held by the Service Manager and/ or person delegated in writing to do so:

- Safety File Meeting
- Contractual Start – up Meeting
- ADHOC Meetings

3.1.5 Correspondence

All verbal and non – verbal communication between the Employer and Contractor which this contract requires shall be communicated in a form which can be read, copied, and recorded. All correspondence between the Parties shall be in written format and exchanged by means of electronic mail service.

The rules of NEC3, Term Service Short Contract will set out the requirement for both Parties.

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3.1.6 Legal Requirements

The Employer shall provide representative to sign limited access register (LAR) and witness the calibration activity

The Contractor shall use the calibration gas cylinder product from the laboratory that is SANAS accredited. The Contractor shall produce proof of gas certificate before they can commence with the calibration of the Eskom CEMS equipment

3.1.7 Task Order

The Contractor shall by no means carry out any calibrations in terms of the Scope of Work Information, without the approval of the Employer

The Contractor shall by no means carry out any calibrations in terms of the Scope of Work Information, without the approval of an official SAP Task Order Number being supplied by the Employer to the Contractor

3.2 Manpower

3.2.1 Competent Personnel

The Contractor shall make use of competent personnel which has been fully trained and authorised to provide the Continuous Emission Monitoring Systems Calibration Services as stipulated in the scope of work information

The Contractor shall supply the Employer with valid documentation as proof regarding the competency of their personnel

The Contractor shall supply the Employer with criminal record or police clearance of their personnel before they can gain access in the Eskom Medupi premises

3.3 Callout Services

The Contractor shall provide a service technician that is qualified and have adequate expertise to manage the plant area issues on and as when required basis when requested by the Employer

The Contractor's response time to a callout shall be within 24 hours from the time that the Contractor is notified of the plant concern until the Contractor reports to the Employer on site.

3.4 Calibrations

3.4.1 Calibration Approval

The Contractor shall supply the Employer with proof of an OEM approved certificate indicating that the Contractor is competent to perform calibration on the specific Continuous Emission Monitoring System's (CEMS) equipment

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3.4.2 Calibration Test Equipment

The Contractor shall only make use of approved test equipment for calibrations, and which is of higher accuracy than the equipment to be calibrated

3.4.3 Calibration Test Gases

The Contractor shall only use test gasses as indicated in the OEM manual Dr Fodisch, operation and maintenance manuals for Continuous Emission Monitoring Systems (CEMS) calibrations

The Contractor shall supply the Employer with a Certificate of Analysis, for each test gas being used in calibrating Continuous Emission Monitoring Systems (CEMS) at the premises of the Employer

The certificate shall indicate the MSDS content of each test gas and the percentage of test gas content

3.4.4 Calibration Procedures

The Contractor shall only use approved calibration procedures in accordance with the OEM manual Dr Fodisch, operation and maintenance manuals

The Contractor shall supply the Employer with the approved calibration procedures used for Continuous Emission Monitoring Systems (CEMS) equipment calibrations

The Contractor shall notify the Employer of any revision changes of these approved calibration procedures and supply the latest release

3.4.5 Calibration Certificates

The Contractor shall only use and supply approved calibration certificates for each Continuous Emission Monitoring Systems (CEMS) equipment calibration

The Contractor shall only provide approved calibration certificates for each calibration done on Continuous Emission Monitoring Systems (CEMS) equipment

The calibration certificates shall be recorded in writing and carry the initials, surname and signature of the Contractor's employee who carries out the Continuous Emission Monitoring Systems (CEMS) calibration and the date of calibration

The calibration certificates shall record the "as found" and "as left" values, including the error and error tolerance of the Continuous Emission Monitoring Systems (CEMS) equipment

Test equipment which operates outside the acceptable error tolerances shall be recorded in the calibration certificate

3.5 Equipment and Tools

The Contractor shall supply their own tools, electrical equipment and approved test gas when providing the Continuous Emission Monitoring Systems Calibration Services to the Employer

The Contractor shall provide a comprehensive list of all tools and electrical equipment to be used for the calibration service before entering the premises of the Employer

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All tools and electrical equipment shall be checked for compliance purposes before commencement of work and during the period of contract by the Employer

3.6 Site Services Provided by the Employer

3.7 Site Facilities

Refer to document 240 – 97020108 Medupi Power Station Maintenance Contracts User Requirement Specification See Section 3 2 2 Site Service provided by the Employer

3.8 Services Provided By the Contractor

The Contractor shall be required to supply a calibration and spare supply service in terms of, 240-114234207 Medupi Power Station Continuous Emission Monitoring Systems Calibration and Spare Supply Services Scope of Work User Requirement Specification for the duration of the contract period.

Refer to document 240 – 97020108 Medupi Power Station Maintenance Contracts User Requirement Specification See Section 3 2 3 Site Service provided by the Contractor

3.9 Transport

3.9.1 Vehicle transport to and from the Employer's Premises

The Contractor shall be responsible to provide means of transport to get employees, spares and tools onto and out from the Employer's premises

The Contractor shall ensure that all employees who are authorised to drive a motor vehicle/ specialised vehicle have the required authorisation to do so

The Contractor shall supply the Employer with the required legal authorisation as proof of compliance

3.10 Scope of Work Information

3.10.1 Plant Areas to Be Covered

The Contractor shall be responsible for calibrations and spare supply of the current Continuous Emission Monitoring Systems (CEMS) equipment installed at Medupi Power Station

The Contractor shall also be responsible for implementing and adhering to good housekeeping practices in plant areas and any other facility allocated to the Contractor in terms of their maintenance responsibilities

The following plant areas shall form part of the calibration services covering the Continuous Emission Monitoring Systems (CEMS) equipment installed at Medupi Power Station

- Unit 1-6 Continuous Emission Monitoring Systems

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3.10.2 Calibration Services of Medupi Power Station Continuous Emission Monitoring Systems.

Perform calibrations services as per 240–119937149 Medupi Power Station Continuous Emission Monitoring System Maintenance Strategy requirements and standards on all CEMS equipment

Calibration Service Requirements as per OEM manual Dr Fodisch Operation & Maintenance Manuals

The following activities shall be performed by the Contractor on a bi- weekly basis as required by the Employer

3 10 2.1 Dr. Fodisch Multi Gas Analyser MGA 23

Check device and operation parameters of MGA 23 control unit

Check and calibrate multi gas analyser with required test gas

Measuring system to be calibrated for the following gasses

- CO (Carbon Monoxide)
- NO (Nitric Oxide)
- SO₂ (Sulphur dioxide)
- O₂ Fodisch Dust Measuring Device PFM 97 ED

3.10.2.2 Dr. Fodisch Multi Gas Analyser MGA 12

- Check device and operation parameters of MGA 12 control unit
- Check and calibrate MGA 12 with required test gas
- Measuring system to be calibrated for the following gas
- CO₂ (Carbon dioxide)

3.10.2.3 Dr. Fodisch Multi Gas Analyser PFM 97 ED

- Check device and operation parameters of PFM 97 ED control unit
- Check and calibrate PFM 97 ED
- Cleaning the measuring cell

3.10.2.4 Dr. Fodisch Flow Measuring Device FMD 99

- Check device and operation parameters of FMD 99 control unit
- Check and calibrate differential transmitter calibration
- Check and calibrate velocity and flow instruments

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3.10.3 Spares Management

The Contractor shall advise after every calibration which spares are needed for replacement for the integrity of the analyser and health operation

The contractor shall supply spares on as and when basis of items listed on Appendix A

3.10.4 Work Preparation and Work Management

The Eskom Plant Safety regulations shall always be adhered to Risk assessments shall be done and documented for each job

Safe working procedures or temporary working procedures shall be available and used for each job

The staff shall perform Job Observations on the required frequencies

All documentation required to complete work shall be referenced and filed for future reference (Test results, reports, drawings, etc)

3.10.5 Plant and Material

The Contractor shall be expected to make recommendations regarding to the inventory strategies to ensure that the correct spares are available in the Medupi Power Station Materials Management Warehouse

3.10.6 Continuous Improvement

The Contractor shall implement a program of continuous improvement to optimise plant performance and reduce system and equipment failures.

The Contractor shall be responsible for participating in root cause failure investigations required by the Employer

The Contractor shall participate in improvement programs pertaining to plant equipment

3.10.7 Management and Reporting

The Contractor shall be responsible for implementing a performance management system consistent with the Employers supplier management requirement

3.10.8 Safety

a) **The** purpose of this section is to provide clear and unambiguous Health & Safety specifications to enable the contractor to make provision for and comply with Health & Safety requirements - both in terms of relevant legislation and Employers' requirements, as well as any additional or site-specific H&S requirements

b) **This** section promotes legal compliance as well as a health and safety culture amongst those working in Employers' Generation projects

Health and Safety requirements that the Consultant shall comply with include

i Employers' Rules – Compliance is required for the following

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- ii Employers' SHE Policy (32-94)
 - iii Employers' Cardinal Rules (32-421)
 - iv Employers' Incident Management procedure (32-95)
 - v Vehicle and Driver Safety Management procedure (32-93)
 - vi Medical Surveillance Procedure (32-282)
 - vii Site Specific SHE Policies and Procedures
- c) The above mentioned procedures / documents shall be made available to **Contractor** in preparation of his/her health and safety management compliance to **Employers'** requirements
- d) The provided detailed costing for Health and Safety include
- Based on the overall scope of work/ service to be performed – compulsory demonstration of an adequate health and safety management system that the **Contractor** has a documented health and safety management system – provide proof

4. Acceptance

This document has been seen and accepted by

Name	Designation
M Mqadi	Maintenance Group Manager
J Mkhathshwa	Engineering Group Manager
M Mokgala	Environmental Manager
S Sehume	Maintenance C&I Manager
A Malapile	C&I Chief Engineer
S Mpangase	System Engineer
S Khanyile	Technical Support Senior Advisor
T Mpebe	Maintenance C&I Senior Supervisor
T Britz	Maintenance C&I Senior Supervisor
N Senama	Maintenance C&I Senior Supervisor
T Chauke	Maintenance C&I Senior Supervisor

5. Revisions

Date	Rev.	Compiler	Remarks
July 2020	2	N Hopane	Medupi Power Station Continuous Emission Monitoring Systems Calibration Services Scope of Work User Requirement Specification

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Date	Rev.	Compiler	Remarks
December 2023	3	TS Chauke	Medupi Power Station Continuous Emission Monitoring Systems Calibration Services and Spares Supply Scope of Work User Requirement Specification

6. Development Team

The following people were involved in the development of this document

- SM Sehume
- S Khanyile
- N Hopane
- T Mpebe
- T Britz
- T Chauke

7. Acknowledgements

Not Applicable

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8. Appendix

8.1 Appendix A. CEMS Spares List

Medupi Power Station			
Provision of CEMS calibration services and supply of spares at Medupi Power Station for 5 years			
QS Estimate Report			
Unit 1- 6 CEMS Spares			

Item	Type of Spares	Description	OEM	OEM Part Number	Unit	Quantity
1	Filter	Liquid particle filter	M&C	03F3005 - CLF5/W	Each	12
2	Gasket	GASKET, PRE CUT DIMENSIONS ID 27.5 X OD 38 MM, THICKNESS 2 MM, TYPE HIGH PRESSURE, MATERIAL ARAMIDE FIBRES/GRAPHITE FILLER/NBR, PRESSURE RATING 40 BAR, TEMPERATURE RATING 250 DEG C, MEDIA GAS, PROVIDE THE TECHNICAL SPECIFICATIONS (DATASHEET) OF THE MATERIAL FROM WHICH THE GASKETS WILL BE CUT, REFERENCE NO NOVAPRESS MULTI II, VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE)	Dr Fodisch UMT	ETL 538	Each	4

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3	Gasket	GASKET, PRE CUT DIMENSIONS ID 21 5 X OD 50 5 MM, THICKNESS 2 MM, TYPE HIGH PRESSURE, MATERIAL ARAMIDE FIBRES/GRAPHITE FILLER/NBR, PRESSURE RATING 40 BAR, TEMPERATURE RATING 250 DEG C, MEDIA GAS, PROVIDE TECHNICAL SPECIFICATION (DATASHEET) OF THE MATERIAL FROM WHICH THE GASKET WILL BE CUT, REFERENCE NO NOVAPRESS MULTI II, VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE)	Dr Fodisch UMT	ETL7693 1	Each	4
4	Gasket	GASKET, PRE CUT DIMENSIONS ID 26 5 X OD 37 MM, THICKNESS 2 MM, TYPE HIGH PRESSURE, MATERIAL ARAMIDE FIBRES/GRAPHITE FILLER/NBR, PRESSURE RATING 40 BAR, TEMPERATURE RATING 250 DEG C, MEDIA GAS, PROVIDE THE TECHNICAL SPECIFICATIONS (DATASHEET) OF THE MATERIAL FROM WHICH THE GASKETS WILL BE CUT, REFERENCE NO NOVAPRESS MULTI II, VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE)	Dr Fodisch UMT	ETL7693 2	Each	4
5	Gasket	GASKET, PRE CUT DIMENSIONS ID 21 X OD 30 MM, THICKNESS 2 MM, TYPE HIGH PRESSURE, MATERIAL ARAMIDE FIBRES/GRAPHITE FILLER/NBR, PRESSURE RATING 40 BAR, TEMPERATURE RATING 250 DEG C, MEDIA GAS, PROVIDE THE TECHNICAL SPECIFICATION (DATASHEET) OF THE MATERIAL FROM WHICH THE GASKETS WILL BE CUT, REFERENCE NO NOVAPRESS MULTI II, VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE)	Dr Fodisch UMT	ETL7693 3	Each	4
6	Filter	Humidifier bottle	M&C	FP-BF	Each	4
7	Filter	Filter Outletfilter 323x323mm	Rittal	SK 3326 207	Each	6
8	Filter	Universal filter FP-2T-D	M&C	02F1000	Each	12

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9	Solenoid	3/2-way-solenoid valve for aggressive media (type 120 24VDC, noncorrosive)	Burkert	Part 00022340 Type 0124	Each	40
10	Pump	Peristaltic condensate pump series JSR25	JCT	K1233002A	Each	20
11	Pump accessory	Hose set for condensate pump JSR25 pump tubing set with PVDF connector	JCT	12 90392	Each	72
12	Pump accessory	Rollcarrier for condensate peristaltic pump JSR25	JCT	6 100 106	Each	20
13	Tube	Sample tubing Type SL1-4/6 PTFE Polytetrafluorethylene (TEFLON)	M & C	02 B 1000	Meter	200
14	Tube	Sample tubing Type SL1-6/8 PTFE Polytetrafluorethylene (TEFLON)	M & C	02 B 2000	Meter	200
15	Pump accessory	Pulley holder condensate pump	JCT	K1233009A	Each	20
16	Pump accessory	contact pressure band for condensate pump	JCT	K1233011	Each	20
17	Transducer	DP Transmitter 12-36V, 4-20mA output, Range 0 - 1 psid(g) / 70mbar, 420SC01D - PCB D/C 2512	Sensor Technics	ETL 13217	Each	65
18	Filter	filter element	Dr Fodisch UMT / M&C	ETL 32, S-2K	Each	18
19	O-ring	o-ring set SP210	Dr Fodisch UMT	ETL 33	pack	18
20	Tube	gasket sampling tube	Dr Fodisch UMT	ETL 538	Each	50
21	Sensor	oxygen sensor KE-25F-3	Dr Fodisch UMT	ETL 177, KE-25F3	Each	30
22	Connector	Connector	Dr Fodisch UMT	ETL 780	Each	36
23	Filter	security filter, inside	Dr Fodisch UMT / Mahle	ETL 46, KL13	Each	18
24	Connector	Gas connector (black)	Dr Fodisch UMT	ETL 781	Each	36
25	Filter	Condensate trap inside	Dr Fodisch UMT	ETL 62	Each	36
26	O-ring	o-ring	Dr Fodisch UMT	ETL 761	Each	36
27	Pump accessory	sealing for pump	Dr Fodisch UMT	ETL 125	pack	18
28	Filter	aerosol filter	Dr Fodisch UMT / CMC	ETL 63, MDC123	Each	36
29	Filter	filter pad	Dr Fodisch UMT	ETL 65	Each	36
30	Pump accessory	contact pressure band for condensate pump	Dr Fodisch UMT	ETL 35	Each	36
31	Pump accessory	rollcarrier for condensate pump	Dr Fodisch UMT	ETL 36	Each	36
32	Pump accessory	hose set for condensate pump	Dr Fodisch UMT	ETL 37	Each	36
33	Filter	filter pad	Dr Fodisch UMT	ETL 23970	pack	36
34	Gasket	flange gasket DN65 PN6B	Dr Fodisch UMT	ETL 20778	Each	36
35	Pump accessory	sealing for pump	Dr Fodisch UMT	ETL 125	pack	18
36	Filter	spare filter element injector air blower	Dr Fodisch UMT	ETL 7607	Each	36
37	Gasket	gasket sensor injector	Dr Fodisch UMT	ETL 7693	Each	36
38	Gasket	gasket sampling bow	Dr Fodisch UMT	ETL 7625	Each	36
39	O-ring	round ring 51 x 4,5	Dr Fodisch UMT	ETL 7634	Each	36
40	Gasket	gasket dilution input	Dr Fodisch UMT	ETL 7633	Each	36

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**Medupi Power Station Continuous Emission
Monitoring Systems Calibration Services Scope
of Work User Requirement Specification**

Unique Identifier 240-114234207

Revision 3

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41	Gasket	gasket measuring chamber	Dr Fodisch UMT	ETL 7616	Each	36
42	Gasket	flange gasket DN80/PN6	Dr Fodisch UMT	ETL 7611	Each	24
43	Gasket	flange gasket DN80/PN6	Dr Fodisch UMT	ETL 7511 (etlf 13202)	Each	36
44	Filter	filter pad	Dr Fodisch UMT	ETL 65	Each	36
45	Filter	filter element	Dr Fodisch UMT	ETL 32	Each	36
46	Pump accessory	contact pressure band for condensate pump	Dr Fodisch UMT	ETL 35	Each	36
47	Pump	bellow sample gas pump MGP12	Dr Fodisch UMT	ETL 294043	Each	6
48	Pump	Set inlet / outlet valves 70°C sample gas pump	Dr Fodisch UMT	ETL 294044	Each	6
49	Pump accessory	Spare set cranc drive sample gas pump MGP12	Dr Fodisch UMT	ETL 294045	Each	12
50	Filter	sacnficial metal filling	Dr Fodisch UMT	OEM to supply	Each	18
51	Filter	Condensate bottle	Dr Fodisch UMT	OEM to supply	Each	4
52	Fitting	PVDF male connector G1/4" DN4/6	JCT	80 x0210*	Each	100
53	Actuator	CEMS Ball Valve Actuator	J + J Automation	J4C-S20	Each	6
54	filter	MANN filter	MANN	C1176/3	Each	12
55	Pump accessory	Liquid Peristaltic pump CO2 motor 5RPM (Straight)	Crouzet	29012581	Each	12
56	Pump accessory	Liquid Peristaltic pump NOx & Sox motor 5RPM (Gearbox type)	Crouzet	29012727	Each	12
57	Valve	CEMS Ball valve DN15 PN63 3/4" (Specify L- or T- ball valve)	Tameson	BL3SAT-034 / BL3SAL-034	Each	6
58	Fitting	MGA23 Analyser inlet / outlet port assemblies	Dr Fodisch UMT	OEM to supply	Each	30
59	Fitting	MGA12 Analyser inlet / outlet port assemblies	Dr Fodisch UMT	OEM to supply	Each	30
60	Fitting	PVDF female connector G1/4" DN4/6	JCT	80 10610*	Each	100
61	Fitting	PVDF male elbow connector G1/4" DN4/6	JCT	80 11610*	Each	100
62	Fitting	PVDF straight hose connector G1/4" DN4/6	JCT	80 1102	Each	100
63	Fitting	PVDF straight hose/tube connector G1/4" DN4/6	JCT	80 1122	Each	100
64	Fitting	PVDF elbow connector G1/4" DN4/6	JCT	80 12405*	Each	100
65	Fitting	PVDF T- connector G1/4" DN4/6	JCT	80 12005*	Each	100
66	Fitting	PVDF cross connector G1/4" DN4/6	JCT	80 12205*	Each	100
67	Fitting	PVDF compression fitting G1/8 for pipe OD 6mm on Vacuum diaphragm gas pump	KNF	14049	Each	101
68	Analyser	Dust Concentration Measuring Device	Dr Fodisch UMT	PFM 97 ED	Each	6
69	Analyser	Multi- Gas Analyser (Sulphur Dioxide, Nitrogen Oxide, Carbon Monoxide, Oxygen Measuring Components)	Dr Fodisch UMT	MGA 12	Each	6
70	Meter	Flow Measuring Device	Dr Fodisch UMT	FMD 09	Each	6
71	Analyser	Carbon Dioxide Measuring Component	Dr Fodisch UMT	MGA 12	Each	6

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