



NEC3 Term Service Contract (TSC3)

Between **ESKOM HOLDINGS SOC Ltd**
(Reg No. 2002/015527/30)

and **[Insert at award stage]**
(Reg No. _____)

for **The provision for C&I Maintenance, Calibration and
Spares Supply of Inlet and Outlet Oxygen Analysers
on Boiler Gas Air Heaters**

Contents:	No of pages
Part C1 Agreements & Contract Data	[•]
Part C2 Pricing Data	[•]
Part C3 Scope of Work	[•]

CONTRACT No. [Insert at award stage]

PART C1: AGREEMENTS & CONTRACT DATA

Contents:	No of pages
C1.1 Form of Offer and Acceptance	[•]
[to be inserted from Returnable Documents at award stage]	
C1.2a Contract Data provided by the <i>Employer</i>	[•]
C1.2b Contract Data provided by the <i>Contractor</i>	[•]
[to be inserted from Returnable Documents at award stage]	
C1.3 Proforma Guarantees	[•]

C1.1 Form of Offer & Acceptance

Section 1.01 Offer

The Employer, identified in the Acceptance signature block, has solicited offers to enter into a contract for the procurement of:

Article II. Maintenance, Calibration and Spares Supply of Inlet and Outlet Oxygen Analysers on Boiler Gas Air Heaters

The tenderer, identified in the Offer signature block, has examined the documents listed in the Tender Data and addenda thereto and by submitting this Offer has accepted the Conditions of Tender.

By the representative of the tenderer, deemed to be duly authorised, signing this part of this Form of Offer and Acceptance the tenderer offers to perform all of the obligations and liabilities of the *Contractor* under the contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the *conditions of contract* identified in the Contract Data.

Options A or C	The offered total of the Prices exclusive of VAT is	R [●] Rate based
Option E	The first forecast of the total Defined Cost plus the Fee exclusive of VAT is	R [●] Rate based
	Sub total	R [●] Rate based
	Value Added Tax @ 15% is	R [●] Rate based
	The offered total of the amount due inclusive of VAT is ¹	R [●] Rate based
	(in words) [●] Rate based	

This Offer may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document including the Schedule of Deviations (if any) to the tenderer before the end of the period of validity stated in the Tender Data, or other period as agreed, whereupon the tenderer becomes the party named as the *Contractor* in the *conditions of contract* identified in the Contract Data.

Signature(s)

Name(s)

Capacity

For the
tenderer:

(Insert name and address of organisation)

Name &
signature of
witness

Date

Tenderer's CIDB registration number:

¹ This total is required by the *Employer* for budgeting purposes only. Actual amounts due will be assessed in terms of the *conditions of contract*.

Section 2.01 Acceptance

By signing this part of this Form of Offer and Acceptance, the Employer identified below accepts the tenderer's Offer. In consideration thereof, the Employer shall pay the Contractor the amount due in accordance with the *conditions of contract* identified in the Contract Data. Acceptance of the tenderer's Offer shall form an agreement between the Employer and the tenderer upon the terms and conditions contained in this agreement and in the contract that is the subject of this agreement.

The terms of the contract, are contained in:

Part C1	Agreements and Contract Data, (which includes this Form of Offer and Acceptance)
Part C2	Pricing Data
Part C3	Scope of Work: Service Information

and drawings and documents (or parts thereof), which may be incorporated by reference into the above listed Parts.

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Returnable Schedules as well as any changes to the terms of the Offer agreed by the tenderer and the Employer during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Form of Offer and Acceptance. No amendments to or deviations from said documents are valid unless contained in this Schedule.

The tenderer shall within two weeks of receiving a completed copy of this agreement, including the Schedule of Deviations (if any), contact the Employer's agent (whose details are given in the Contract Data) to arrange the delivery of any securities, bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the *conditions of contract* identified in the Contract Data at, or just after, the date this agreement comes into effect. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this agreement.

Notwithstanding anything contained herein, this agreement comes into effect on the date when the tenderer receives one fully completed and signed original copy of this document, including the Schedule of Deviations (if any).

Signature(s)

Name(s)

Capacity

**for the
Employer**

(Insert name and address of organisation)

Name &
signature of
witness

Date

Note: If a tenderer wishes to submit alternative tenders, use another copy of this Form of Offer and Acceptance.

Section 2.02 Schedule of Deviations to be completed by the *Employer* prior to contract award

Note:

1. This part of the Offer & Acceptance would not be required if the contract has been developed by negotiation between the Parties and is not the result of a process of competitive tendering.
2. The extent of deviations from the tender documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender.
3. A tenderer's covering letter must not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid be the subject of agreement reached during the process of Offer and Acceptance, the outcome of such agreement shall be recorded here and the final draft of the contract documents shall be revised to incorporate the effect of it.

No.	Subject	Details
1	[•]	[•]
2	[•]	[•]
3	[•]	[•]
4	[•]	[•]
5	[•]	[•]
6	[•]	[•]
7	[•]	[•]

By the duly authorised representatives signing this Schedule of Deviations below, the Employer and the tenderer agree to and accept this Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Tender Schedules, as well as any confirmation, clarification or changes to the terms of the Offer agreed by the tenderer and the Employer during this process of Offer and Acceptance.

It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the tender documents and the receipt by the tenderer of a completed signed copy of this Form shall have any meaning or effect in the contract between the parties arising from this Agreement.

(i) For the tenderer:

(ii) For the Employer

Signature

Name

Capacity

On behalf
of

(Insert name and address of organisation)



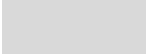
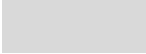
(Insert name and address of organisation)

Name &
signature
of witness

Date

C1.2 TSC3 Contract Data

Article III. Part one - Data provided by the *Employer*

Clause	Section 3.01 Statement	Section 3.02 Data
1	Section 3.03 General	Section 3.04
	The <i>conditions of contract</i> are the core clauses and the clauses for main Option:	
		A: Priced contract with price list
	dispute resolution Option	W1: Dispute resolution procedure
	and secondary Options	
		X1: Price adjustment for inflation
		X2: Changes in the law
		X17: Low service damages
		X18: Limitation of liability
		X19: Task Order
		Z: Additional conditions of contract
	of the NEC3 Term Service Contract April 2013 ² (TSC3)	
10.1	The <i>Employer</i> is (name):	Eskom Holdings SOC Ltd (reg no: 2002/015527/30), a state-owned company incorporated in terms of the company laws of the Republic of South Africa
	Address	Registered office at Megawatt Park, Maxwell Drive, Sandton, Johannesburg
	Tel No.	[•]
	Fax No.	[•]
10.1	The <i>Service Manager</i> is (name):	Lerato Sehume
	Address	Medupi Power Station, Steenbokpan Road
	Tel	[•]
	Fax	[•]
	e-mail	[•]
11.2(2)	The Affected Property is	Medupi Power Station

² Available from Engineering Contract Strategies Tel 011 803 3008 Fax 086 539 1902 www.ecs.co.za

11.2(13)	The <i>service</i> is	Maintenance, Calibration and Spars Supply of Inlet and Outlet Oxygen Analysers on Boiler Gas Air Heaters
11.2(14)	The following matters will be included in the Risk Register	All risks will be identified prior and addressed and registered during the risk register meeting that will take place as agreed between the parties
11.2(15)	The Service Information is in	Part 3: Scope of Work and all documents and drawings to which it makes reference.
12.2	The <i>law of the contract</i> is the law of	the Republic of South Africa
13.1	The <i>language of this contract</i> is	English
13.3	The <i>period for reply</i> is	Two (2) weeks
Section 3	Section 3.06 The Contractor's main responsibilities	Data required by this section of the core clauses is also provided by the Contractor in Part 2 and terms in italics used in this section are identified elsewhere in this Contract Data
21.1	The Contractor submits a first plan for acceptance within	Two (2) weeks of the Contract Date
Section 3	Section 3.08 Time	Section 3.09
30.1	The <i>starting date</i> is.	TBO
30.1	The <i>service period</i> is	60 Months
Section 3	Section 3.11 Testing and defects	Section 3.12 There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data
Section 3	Section 3.14 Payment	Section 3.15
50.1	The <i>assessment interval</i> is	between the 21 days of each successive month.
51.1	The <i>currency of this contract</i> is the	South African Rand
51.2	The period within which payments are made is	between 4 to 8 weeks.
51.4	The <i>interest rate</i> is	<p>the publicly quoted prime rate of interest (calculated on a 365-day year) charged by from time to time by the Standard Bank of South Africa Limited (as certified, in the event of any dispute, by any manager of such bank, whose appointment it shall not be necessary to prove) for amounts due in Rands and</p> <p>(ii) the LIBOR rate applicable at the time for amounts due in other currencies. LIBOR is the 6 month London Interbank Offered Rate quoted under the caption "Money Rates" in The Wall Street Journal for the applicable currency or if no rate is quoted for the currency in question then the rate for United States Dollars, and if no such rate appears in The Wall Street Journal</p>

then the rate as quoted by the Reuters Monitor Money Rates Service (or such service as may replace the Reuters Monitor Money Rates Service) on the due date for the payment in question, adjusted *mutatis mutandis* every 6 months thereafter (and as certified, in the event of any dispute, by any manager employed in the foreign exchange department of The Standard Bank of South Africa Limited, whose appointment it shall not be necessary to prove.

Section 3	Section 3.17 Compensation events	There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data
Section 3	Section 3.19 Use of Equipment Plant and Materials	Section 3.20 There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data
Section 3	Section 3.22 Risks and insurance	Section 3.23
80.1	These are additional <i>Employer's</i> risks	1. As per Z-clause 12
Section 3	Section 3.25 Termination	There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data.
Section 3	Section 3.27 Data for main Option clause	Section 3.28
A	Priced contract with price list	
20.5	The <i>Contractor</i> prepares forecasts of the final total of the Prices for the whole of the service at intervals no longer than	Four (4) weeks.
Section 3	Section 3.30 Data for Option W1	
W1.1	The <i>Adjudicator</i>	the person selected from the ICE-SA Division (or its successor body) of the South African Institution of Civil Engineering Panel of Adjudicators by the Party intending to refer a dispute to him. (see www.ice-sa.org.za). If the Parties do not agree on an Adjudicator the Adjudicator will be appointed by the Arbitration Foundation of Southern Africa (AFSA).
	Address	[•]
	Tel No.	[•]
	Fax No.	[•]
	e-mail	[•]

W1.2(3)	The <i>Adjudicator nominating body</i> is:	the Chairman of ICE-SA a joint Division of the South African Institution of Civil Engineering and the Institution of Civil Engineers (London) (see www.ice-sa.org.za) or its successor body.		
W1.4(2)	The <i>tribunal</i> is:	arbitration		
W1.4(5)	The <i>arbitration procedure</i> is	the latest edition of Rules for the Conduct of Arbitrations published by The Association of Arbitrators (Southern Africa) or its successor body.		
	The place where arbitration is to be held is	South Africa		
	The person or organisation who will choose an arbitrator	the Chairman for the time being or his nominee of the Association of Arbitrators (Southern Africa) or its successor body.		
	- if the Parties cannot agree a choice or - if the arbitration procedure does not state who selects an arbitrator, is			
Section 3.32 Data for secondary Option clauses		Section 3.33		
X1	Price adjustment for inflation	Suggested CPA		
X1.1	The <i>base date</i> for indices is	Rates are fixed and firm for first 12 months after first order placement date. There after CPA escalation will apply. Base date will be the month before the month which the enquiry closes.		
	The proportions used to calculate the Price Adjustment Factor are:	proportion	linked to index for	Index prepared by
		0,15	[Labour]	SEIFSA TABLE [C3]
		0,70	[Electrical Engineering]	SEIFSA TABLE [G-1]
		0,15	non-adjustable	
		1.00		
X2	Changes in the law	There is no reference to Contract Data in this Option and terms in <i>italics</i> are identified elsewhere in this Contract Data.		
X17	Low service damages			
X17.1	The <i>service level table</i> is in			

No	Item	Employers Requirements/ Descriptions	Damages payable by contractor
1	PM/SC compliance	Station monthly PM/ SC compliance is 92%. Not complying within three (3) consecutive months.	2% of monthly fixed rate per month not complying after three months of not complying.

2	PSR and authorization within 8 months of the contract	Unavailability of Responsible person (RP) beyond seven (7) days of being notified of non-compliant	2% of monthly fixed cost of RP provided by the Employer per day.
3	PSR and ORHVS within 8 months of the contract	Unavailability of Responsible persons (RP) beyond sixty (60) days of being notified of non-compliant	2, 5% of monthly fixed cost of RP provided by the Employer per day.
4	Response time to urgent breakdowns	Beyond 1 hour of being notified of urgent breakdowns during office hours	1% of monthly fixed cost per incident/ call-out.
5	Delays in breakdown	Contract must submit a realistic plan/ schedule with timelines	2% of monthly assessment per 1hr delay on the plan
6	Poor workmanship	Through an investigation and findings that proof poor workman ship.	Contractor to carry corrective cost
7	SDL&I Compliance	Contractor is expected to comply to SD&LI requirements as per contract.	2,5 % retention of monthly fixed rate per month not complying.

X18	Limitation of liability		
X18.1	The <i>Contractor's</i> liability to the <i>Employer</i> for indirect or consequential loss is limited to	R0.0 (zero Rand)	
X18.2	For any one event, the <i>Contractor's</i> liability to the <i>Employer</i> for loss of or damage to the <i>Employer's</i> property is limited to	the amount of the deductibles relevant to the event	
X18.3	The <i>Contractor's</i> liability for Defects due to his design of an item of Equipment is limited to	The greater of the total of the Prices at the Contract Date and the amounts excluded and unrecoverable from the <i>Employer's</i> insurance (other than the resulting physical damage to the <i>Employer's</i> property which is not excluded) plus the applicable deductibles	
X18.4	The <i>Contractor's</i> total liability to the <i>Employer</i> , for all matters arising under or in connection with this contract, other than the excluded matters, is limited to	the total of the Prices other than for the additional excluded matters. The <i>Contractor's</i> total liability for the additional excluded matters is not limited. The additional excluded matters are amounts for which the <i>Contractor</i> is liable under this contract for Defects due to his design, plan and specification, Defects due to manufacture and fabrication outside the Affected Property, loss of or damage to property (other than the <i>Employer's</i> property, Plant and Materials), death of or injury to a person and infringement of an intellectual property right.	

X18.5	The <i>end of liability date</i> is	[•] months after the end of the <i>service period</i>.
X19	Task Order	
X19.5	The <i>Contractor</i> submits a Task Order programme to the <i>Service Manager</i> within	[•] days of receiving the Task Order
Z	The <i>additional conditions of contract</i> are	Z1 to Z14 always apply.

Z1 Cession delegation and assignment

- Z1.1 The *Contractor* does not cede, delegate or assign any of its rights or obligations to any person without the written consent of the *Employer*.
- Z1.2 Notwithstanding the above, the *Employer* may on written notice to the *Contractor* cede and delegate its rights and obligations under this contract to any of its subsidiaries or any of its present divisions or operations which may be converted into separate legal entities as a result of the restructuring of the Electricity Supply Industry.

Z2 Joint ventures

- Z2.1 If the *Contractor* constitutes a joint venture, consortium or other unincorporated grouping of two or more persons or organisations then these persons or organisations are deemed to be jointly and severally liable to the *Employer* for the performance of this contract.
- Z2.2 Unless already notified to the *Employer*, the persons or organisations notify the *Service Manager* within two weeks of the Contract Date of the key person who has the authority to bind the *Contractor* on their behalf.
- Z2.3 The *Contractor* does not alter the composition of the joint venture, consortium or other unincorporated grouping of two or more persons without the consent of the *Employer* having been given to the *Contractor* in writing.

Z3 Change of Broad Based Black Economic Empowerment (B-BBEE) status

- Z3.1 Where a change in the *Contractor's* legal status, ownership or any other change to his business composition or business dealings results in a change to the *Contractor's* B-BBEE status, the *Contractor* notifies the *Employer* within seven days of the change.
- Z3.2 The *Contractor* is required to submit an updated verification certificate and necessary supporting documentation confirming the change in his B-BBEE status to the *Service Manager* within thirty days of the notification or as otherwise instructed by the *Service Manager*.
- Z3.3 Where, as a result, the *Contractor's* B-BBEE status has decreased since the Contract Date the *Employer* may either re-negotiate this contract or alternatively, terminate the *Contractor's* obligation to Provide the Service.
- Z3.4 Failure by the *Contractor* to notify the *Employer* of a change in its B-BBEE status may constitute a reason for termination. If the *Employer* terminates in terms of this clause, the procedures on termination are P1, P2 and P4 as stated in clause 92, and the amount due is A1 and A3 as stated in clause 93.

Z4 Confidentiality

- Z4.1 The *Contractor* does not disclose or make any information arising from or in connection with this contract available to Others. This undertaking does not, however, apply to information

which at the time of disclosure or thereafter, without default on the part of the *Contractor*, enters the public domain or to information which was already in the possession of the *Contractor* at the time of disclosure (evidenced by written records in existence at that time). Should the *Contractor* disclose information to Others in terms of clause 25.1, the *Contractor* ensures that the provisions of this clause are complied with by the recipient.

- Z4.2 If the *Contractor* is uncertain about whether any such information is confidential, it is to be regarded as such until notified otherwise by the *Service Manager*.
- Z4.3 In the event that the *Contractor* is, at any time, required by law to disclose any such information which is required to be kept confidential, the *Contractor*, to the extent permitted by law prior to disclosure, notifies the *Employer* so that an appropriate protection order and/or any other action can be taken if possible, prior to any disclosure. In the event that such protective order is not, or cannot, be obtained, then the *Contractor* may disclose that portion of the information which it is required to be disclosed by law and uses reasonable efforts to obtain assurances that confidential treatment will be afforded to the information so disclosed.
- Z4.4 The taking of images (whether photographs, video footage or otherwise) of the Affected Property or any portion thereof, in the course of Providing the Service and after the end of the *service period*, requires the prior written consent of the *Service Manager*. All rights in and to all such images vests exclusively in the *Employer*.
- Z4.5 The *Contractor* ensures that all his subcontractors abide by the undertakings in this clause.

Z5 Waiver and estoppel: Add to core clause 12.3:

- Z5.1 Any extension, concession, waiver or relaxation of any action stated in this contract by the Parties, the *Service Manager* or the *Adjudicator* does not constitute a waiver of rights, and does not give rise to an estoppel unless the Parties agree otherwise and confirm such agreement in writing.

Z6 Health, safety and the environment: Add to core clause 27.4

- Z6.1 The *Contractor* undertakes to take all reasonable precautions to maintain the health and safety of persons in and about the execution of the *service*. Without limitation the *Contractor* accepts that the *Employer* may appoint him as the "Principal Contractor" (as defined and provided for under the Construction Regulations 2014 (promulgated under the Occupational Health & Safety Act 85 of 1993) ("the Construction Regulations") for the Affected Property; warrants that the total of the Prices as at the Contract Date includes a sufficient amount for proper compliance with the Construction Regulations, all applicable health & safety laws and regulations and the health and safety rules, guidelines and procedures provided for in this contract and generally for the proper maintenance of health & safety in and about the execution of the *service*; and undertakes, in and about the execution of the *service*, to comply with the Construction Regulations and with all applicable health & safety laws and regulations and rules, guidelines and procedures otherwise provided for under this contract and ensures that his Subcontractors, employees and others under the *Contractor's* direction and control, likewise observe and comply with the foregoing.
- Z6.2 The *Contractor*, in and about the execution of the *service*, complies with all applicable environmental laws and regulations and rules, guidelines and procedures otherwise provided for under this contract and ensures that his Subcontractors, employees and others under the *Contractor's* direction and control, likewise observe and comply with the foregoing.

Z7 Provision of a Tax Invoice and interest. Add to core clause 51

- Z7.1 Within one week of receiving a payment certificate from the *Service Manager* in terms of core clause 51.1, the *Contractor* provides the *Employer* with a tax invoice in accordance with the *Employer's* procedures stated in the Service Information, showing the amount due for payment equal to that stated in the payment certificate.
- Z7.2 If the *Contractor* does not provide a tax invoice in the form and by the time required by this contract, the time by when the *Employer* is to make a payment is extended by a period equal in time to the delayed submission of the correct tax invoice. Interest due by the *Employer* in terms of core clause 51.2 is then calculated from the delayed date by when payment is to be made.
- Z7.3 The *Contractor* (if registered in South Africa in terms of the companies Act) is required to comply with the requirements of the Value Added Tax Act, no 89 of 1991 (as amended) and to include the *Employer's* VAT number 4740101508 on each invoice he submits for payment.

Z8 Notifying compensation events

- Z8.1 Delete the last paragraph of core clause 61.3 and replace with:

If the *Contractor* does not notify a compensation event within eight weeks of becoming aware of the event, he is not entitled to a change in the Prices.

Z9 Employer's limitation of liability

- Z9.1 The *Employer's* liability to the *Contractor* for the *Contractor's* indirect or consequential loss is limited to R0.00 (zero Rand)
- Z9.2 The *Contractor's* entitlement under the indemnity in 82.1 is provided for in 60.1(12) and the *Employer's* liability under the indemnity is limited to compensation as provided for in core clause 63 and X19.11 if Option X19 Task Order applies to this contract.

Z10 Termination: Add to core clause 91.1, at the second main bullet point, fourth sub-bullet point, after the words "against it":

- Z10.1 or had a business rescue order granted against it.

Z11 Ethics

For the purposes of this Z-clause, the following definitions apply:

- Affected Party** means, as the context requires, any party, irrespective of whether it is the *Contractor* or a third party, such party's employees, agents, or Subcontractors or Subcontractor's employees, or any one or more of all of these parties' relatives or friends,
- Coercive Action** means to harm or threaten to harm, directly or indirectly, an Affected Party or the property of an Affected Party, or to otherwise influence or attempt to influence an Affected Party to act unlawfully or illegally,
- Collusive Action** means where two or more parties co-operate to achieve an unlawful or illegal purpose, including to influence an Affected Party to act unlawfully or illegally,
- Committing Party** means, as the context requires, the *Contractor*, or any member thereof in the case of a joint venture, or its employees, agents, or Subcontractors or the Subcontractor's employees,
- Corrupt Action** means the offering, giving, taking, or soliciting, directly or indirectly, of a good or service to unlawfully or illegally influence the actions of an Affected Party,

Fraudulent Action means any unlawfully or illegally intentional act or omission that misleads, or attempts to mislead, an Affected Party, in order to obtain a financial or other benefit or to avoid an obligation or incurring an obligation,

Obstructive Action means a Committing Party unlawfully or illegally destroying, falsifying, altering or concealing information or making false statements to materially impede an investigation into allegations of Prohibited Action, and

Prohibited Action means any one or more of a Coercive Action, Collusive Action, Corrupt Action, Fraudulent Action or Obstructive Action.

Z11.1 A Committing Party may not take any Prohibited Action during the course of the procurement of this contract or in execution thereof.

Z11.2 The *Employer* may terminate the *Contractor's* obligation to Provide the Services if a Committing Party has taken such Prohibited Action and the *Contractor* did not take timely and appropriate action to prevent or remedy the situation, without limiting any other rights or remedies the *Employer* has. It is not required that the Committing Party had to have been found guilty, in court or in any other similar process, of such Prohibited Action before the *Employer* can terminate the *Contractor's* obligation to Provide the Services for this reason.

Z11.3 If the *Employer* terminates the *Contractor's* obligation to Provide the Services for this reason, the amounts due on termination are those intended in core clauses 92.1 and 92.2.

Z11.4 A Committing Party co-operates fully with any investigation pursuant to alleged Prohibited Action. Where the *Employer* does not have a contractual bond with the Committing Party, the *Contractor* ensures that the Committing Party co-operates fully with an investigation.

Z12 Insurance

Z 12 .1 Replace core clause 83 with the following:

Insurance cover 83

- 83.1 When requested by a Party, the other Party provides certificates from his insurer or broker stating that the insurances required by this contract are in force.
- 83.2 The *Contractor* provides the insurances stated in the Insurance Table A from the *starting date* until the earlier of Completion and the date of the termination certificate.

INSURANCE TABLE A

Insurance against	Minimum amount of cover or minimum limit of indemnity
Loss of or damage caused by the <i>Contractor</i> to the <i>Employer's</i> property	<p>The replacement cost where not covered by the <i>Employer's</i> insurance.</p> <p>The <i>Employer's</i> policy deductible as at Contract Date, where covered by the <i>Employer's</i> insurance.</p>
Loss of or damage to Plant and Materials	<p>The replacement cost where not covered by the <i>Employer's</i> insurance.</p> <p>The <i>Employer's</i> policy deductible as at Contract Date, where covered by the <i>Employer's</i> insurance.</p>

Loss of or damage to Equipment	The replacement cost where not covered by the <i>Employer's</i> insurance. The <i>Employer's</i> policy deductible as at Contract Date, where covered by the <i>Employer's</i> insurance.
The <i>Contractor's</i> liability for loss of or damage to property (except the <i>Employer's</i> property, Plant and Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the <i>Contractor</i>) arising from or in connection with the <i>Contractor's</i> Providing the Service	<u>Loss of or damage to property</u> The replacement cost <u>Bodily injury to or death of a person</u> The amount required by the applicable law.
Liability for death of or bodily injury to employees of the <i>Contractor</i> arising out of and in the course of their employment in connection with this contract	The amount required by the applicable law

Z 12.2 Replace core clause 86 with the following:**Insurance
by the
Employer**

86

86.1 The *Employer* provides the insurances stated in the Insurance Table B**INSURANCE TABLE B**

Insurance against or name of policy	Minimum amount of cover or minimum limit of indemnity
Assets All Risk	Per the insurance policy document
Contract Works insurance	Per the insurance policy document
Environmental Liability	Per the insurance policy document
General and Public Liability	Per the insurance policy document
Transportation (Marine)	Per the insurance policy document
Motor Fleet and Mobile Plant	Per the insurance policy document
Terrorism	Per the insurance policy document
Cyber Liability	Per the insurance policy document
Nuclear Material Damage and Business Interruption	Per the insurance policy document

Nuclear Material Damage Terrorism	Per the insurance policy document
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Z13 Nuclear Liability

- Z13.1 The *Employer* is the operator of the Koeberg Nuclear Power Station (KNPS), a nuclear installation, as designated by the National Nuclear Regulator of the Republic of South Africa, and is the holder of a nuclear licence in respect of the KNPS.
- Z13.2 The *Employer* is solely responsible for and indemnifies the *Contractor* or any other person against any and all liabilities which the *Contractor* or any person may incur arising out of or resulting from nuclear damage, as defined in Act 47 of 1999, save to the extent that any liabilities are incurred due to the unlawful intent of the *Contractor* or any other person or the presence of the *Contractor* or that person or any property of the *Contractor* or such person at or in the KNPS or on the KNPS site, without the permission of the *Employer* or of a person acting on behalf of the *Employer*.
- Z13.3 Subject to clause Z13.4 below, the *Employer* waives all rights of recourse, arising from the aforesaid, save to the extent that any claims arise or liability is incurred due or attributable to the unlawful intent of the *Contractor* or any other person, or the presence of the *Contractor* or that person or any property of the *Contractor* or such person at or in the KNPS or on the KNPS site, without the permission of the *Employer* or of a person acting on behalf of the *Employer*.
- Z13.4 The *Employer* does not waive its rights provided for in section 30 (7) of Act 47 of 1999, or any replacement section dealing with the same subject matter.
- Z13.5 The protection afforded by the provisions hereof shall be in effect until the KNPS is decommissioned.

Z14 Asbestos

For the purposes of this Z-clause, the following definitions apply:

AAIA	means approved asbestos inspection authority.
ACM	means asbestos containing materials.
AL	means action level, i.e. a level of 50% of the OEL, i.e. 0.1 regulated asbestos fibres per ml of air measured over a 4-hour period. The value at which proactive actions is required in order to control asbestos exposure to prevent exceeding the OEL.
Ambient Air	means breathable air in area of work with specific reference to breathing zone, which is defined to be a virtual area within a radius of approximately 30cm from the nose inlet.
Compliance Monitoring	means compliance sampling used to assess whether or not the personal exposure of workers to regulated asbestos fibres is in compliance with the Standard's requirements for safe processing, handling, storing, disposal and phase-out of asbestos and asbestos containing material, equipment and articles.
OEL	means occupational exposure limit.
Parallel Measurements	means measurements performed in parallel, yet separately, to existing measurements to verify validity of results.
Safe Levels	means airborne asbestos exposure levels conforming to the Standard's requirements for safe processing, handling, storing, disposal and phase-out of asbestos and asbestos containing material, equipment and articles.

Standard	means the <i>Employer's</i> Asbestos Standard 32-303: Requirements for Safe Processing, Handling, Storing, Disposal and Phase-out of Asbestos and Asbestos Containing Material, Equipment and Articles.
SANAS	means the South African National Accreditation System.
TWA	means the average exposure, within a given workplace, to airborne asbestos fibres, normalized to the baseline of a 4-hour continuous period, also applicable to short term exposures, i.e. 10-minute TWA.

- Z14.1 The *Employer* ensures that the Ambient Air in the area where the *Contractor* will Provide the Services conforms to the acceptable prescribed South African standard for asbestos, as per the regulations published in GNR 155 of 10 February 2002, under the Occupational Health and Safety Act, 1993 (Act 85 of 1993) ("Asbestos Regulations"). The OEL for asbestos is 0.2 regulated asbestos fibres per millilitre of air as a 4-hour TWA, averaged over any continuous period of four hours, and the short-term exposure limit of 0.6 regulated asbestos fibres per millilitre of air as a 10-minute TWA, averaged over any 10 minutes, measured in accordance with HSG248 and monitored according to HSG173 and OESSM.
- Z14.2 Upon written request by the *Contractor*, the *Employer* certifies that these conditions prevail. All measurements and reporting are effected by an independent, competent, and certified occupational hygiene inspection body, i.e. a SANAS accredited and Department of Employment and Labour approved AAIA. The *Contractor* may perform Parallel Measurements and related control measures at the *Contractor's* expense. For the purposes of compliance, the results generated from Parallel Measurements are evaluated only against South African statutory limits as detailed in clause Z14.1. Control measures conform to the requirements stipulated in the AAIA-approved asbestos work plan.
- Z14.3 The *Employer* manages asbestos and ACM according to the Standard.
- Z14.4 In the event that any asbestos is identified while Providing the Services, a risk assessment is conducted and if so required, with reference to possible exposure to an airborne concentration of above the AL for asbestos, immediate control measures are implemented and relevant air monitoring conducted in order to declare the area safe.
- Z14.5 The *Contractor's* personnel are entitled to stop working and leave the contaminated area forthwith until such time that the area of concern is declared safe by either Compliance Monitoring or an AAIA approved control measure intervention, for example, per the emergency asbestos work plan, if applicable.
- Z14.6 The *Contractor* continues to Provide the Services, without additional control measures presented, on presentation of Safe Levels. The contractually agreed dates to Provide the Services, including the Completion Date, are adjusted accordingly. The contractually agreed dates are extended by the notification periods required by regulations 3 and 21 of the Asbestos Regulations, 2001.
- Z14.7 Any removal and disposal of asbestos, asbestos containing materials and waste, is done by a registered asbestos contractor, instructed by the *Employer* at the *Employer's* expense, and conducted in line with South African legislation.

C1.2 Contract Data

Article IV. Part two - Data provided by the *Contractor*

[Instructions to the contract compiler: (delete this note before issue to tenderers with an enquiry)

Whenever a cell is shaded in the left-hand column it denotes this data is optional and would be required in relation to the option selected. In the event that the option is not required select and delete the whole row.]

Notes to a tendering contractor:

1. Please read both the both the NEC3 Term Service Contract April 2013 and the relevant parts of its Guidance Notes (TSC3-GN)³ in order to understand the implications of this Data which the tenderer is required to complete.
2. The number of the clause which requires the data is shown in the left-hand column for each statement however other clauses may also use the same data.
3. Where a form field like this [] appears, data is required to be inserted relevant to the option selected. Click on the form field **once** and type in the data. Otherwise complete by hand and in ink.

Completion of the data in full, according to Options chosen, is essential to create a complete contract.

Section 4 Clause	Section 4.02 Statement	Section 4.03 Data
10.1	The <i>Contractor</i> is (Name): Address Tel No. Fax No.	
11.2(8)	The <i>direct fee percentage</i> is	%
	The <i>subcontracted fee percentage</i> is	%
11.2(14)	The following matters will be included in the Risk Register	
11.2(15)	The Service Information for the <i>Contractor's</i> plan is in:	
21.1	The plan identified in the Contract Data is contained in:	
24.1	The key people are: 1 Name: Job: Responsibilities: Qualifications: Experience: 2 Name:	

³ Available from Engineering Contract Strategies Tel 011 803 3008 Fax 086 5391902 or www.ecs.co.za

Job

Responsibilities:

Qualifications:

Experience:

CV's (and further key person's data including CVs) are in _____.

A	Priced contract with price list
11.2(12)	The <i>price list</i> is in _____
11.2(19)	The tendered total of the Prices is R _____
C	Target contract with price list
11.2(12)	The <i>price list</i> is in _____
11.2(20)	The tendered total of the Prices is R _____
E	Cost reimbursable contract
11.2(12)	The <i>price list</i> is in _____

PART 2: PRICING DATA

TSC3 Option A

Document reference	Title	No of pages
C2.1	Pricing assumptions: Option A	2
C2.2	The <i>price list</i>	[2]

C2.1 Pricing assumptions: Option A

Article V. How work is priced and assessed for payment

Clause 11 in NEC3 Term Service Contract (TSC3) core clauses and Option A states:

Identified and defined terms	11	
	11.2	(12) The Price List is the <i>price list</i> unless later changed in accordance with this contract.
		(17) The Price for Services Provided to Date is the total of the Price for each lump sum item in the Price List which the <i>Contractor</i> has completed and where a quantity is stated for an item in the Price List, an amount calculated by multiplying the quantity which the <i>Contractor</i> has completed by the rate.
		(19) The Prices are the amounts stated in the Price column of the Price List. Where a quantity is stated for an item in the Price List, the Price is calculated by multiplying the quantity by the rate.

This confirms that Option A is a priced contract where the Prices are derived from a list of items of service which can be priced as lump sums or as expected quantities of service multiplied by a rate or a mix of both.

Article VI. Function of the Price List

Clause 54.1 in Option A states: "Information in the Price List is not Service Information". This confirms that instructions to do work or how it is to be done are not included in the Price List but in the Service Information. This is further confirmed by Clause 20.1 which states, "The *Contractor* Provides the Service in accordance with the Service Information". Hence the *Contractor* does **not** Provide the Service in accordance with the Price List. The Price List is only a pricing document.

Article VII. Link to the *Contractor's* plan

Clause 21.4 states "The *Contractor* provides information which shows how each item description on the Price List relates to the operations on each plan which he submits for acceptance". Hence when compiling the *price list*, the tendering contractor needs to develop his first clause 21.2 plan in such a way that operations shown on it can be priced in the *price list* and result in a satisfactory cash flow in terms of clause 11.2(17).

Article VIII. Preparing the *price list*

Before preparing the *price list*, both the *Employer* and tendering contractors should read the TSC3 Guidance Notes pages 14 and 15. In an Option A contract, either Party may have entered items into the *price list* either as a process of offer and acceptance (tendering) or by negotiation depending on the nature of the service to be provided. Alternatively, the *Employer*, in his Instructions to Tenderers or in a Tender Schedule, may have listed some items that he requires the *Contractor* to include in the *price list* to be prepared and priced by him.

It is assumed that in preparing or finalising the *price list* the *Contractor*:

- Has taken account of the guidance given in the TSC3 Guidance Notes relevant to Option A;
- Understands the function of the Price List and how work is priced and paid for;
- Is aware of the need to link operations shown in his plan to items shown in the Price List;
- Has listed and priced items in the *price list* which are inclusive of everything necessary and incidental to Providing the Service in accordance with the Service Information, as it was at the time of tender, as well as correct any Defects not caused by an *Employer's* risk;

- Has priced work he decides not to show as a separate item within the Prices or rates of other listed items in order to fulfil the obligation to complete the *service* for the tendered total of the Prices.
- Understands there is no adjustment to items priced as lump sums if the amount, or quantity, of work within that item later turns out to be different to that which the *Contractor* estimated at time of tender. The only basis for a change to the (lump sum) Prices is as a result of a compensation event.

Section 8.01 Format of the *price list*

(From the example given in an Appendix within the TSC3 Guidance Notes)

Entries in the first four columns in the *price list* in section C2.2 are made either by the *Employer* or the tendering contractor.

If the *Contractor* is to be paid an amount for the item which is not adjusted if the quantity of work in the item changes, the tendering contractor enters the amount in the Price column only, the Unit, Expected Quantity and Rate columns being left blank.

If the *Contractor* is to be paid an amount for an item of work which is the rate for the work multiplied by the quantity completed, the tendering contractor enters the rate which is then multiplied by the Expected Quantity to produce the Price, which is also entered.

If the *Contractor* is to be paid a Price for an item proportional to the length of time for which a service is provided, a unit of time is stated in the Unit column and the expected length of time (as a quantity of the stated units of time) is stated in the Expected Quantity column.

C2.2 the *price list*

<u>Material No.</u>	<u>Description</u>	<u>UoM</u>	<u>Qty</u>	<u>Rate</u>
	PRELIMINARIES & GENERAL			
	-			
	SITE ESTABLISHMENT			
	The contractor will be required to a price to purchase the Units in which case the units will become the property of the employer.			
	<u>The price to purchase the units should include:</u>			
	(a) Installation of Sewage removal pipes from the ablution mobile units to the nearest connection sewage pipeline of the employer. (b) Connection of potable water from the supply. by the Employer to the various units that require potable water. (c) Connection of power from the nearest Eskom supply point to the various mobile workspace units. (d) Siting and erection at designated contractor lay down area. (e) All Certificates of compliance. (f) All fittings (excluding furniture). (g) Container should be in accordance with Eskom safety Requirements. (h) Delivery of the containers to Medupi Power Station, including Establishment on site.			
	Delivery of Containers to Medupi Power Station including Establishment on site	Once-off	1	
	12.00 x 3.00m Wide Storage Container complete (1)	Once-off	1	
	15.00 x 7.00m Wide Office+Kitchen Container complete (1)	Once-off	1	

	Mobile Toilets - Male+Female (2)	Once-off	1	
	<u>SAFETY, HEALTH, ENVIROMENT AND QUALITY</u>			
	Occupational Health and Safety Requirements			
	SHE file	No	1	
	Standard PPE (1 - set per year)	Yearly	5	
	Pre-entry medical surveillance (8 employees)	Once-off	1	
	Periodic medical surveillance (8 employees)	Yearly	4	
	Exit medical surveillance (8 employees)	Once-off	1	
	Security Clearance (8 employees)	Yearly	5	
	<u>TRANSPORT</u>			
	Travelling HWH - Own Vehicle Double Cab (2)	Km	132000	
	<u>ACCOMMODATION</u>			
	Accommodation for staff - White Collar employees (5)	Monthly	60	

	<u>SCOPE OF WORK ACTIVITIES</u>			
	Refer to SOW Document Number [241-20221028]			
	<u>LABOUR</u>			
	<u>Normal Working Hours (Mon-Fri)</u>			
	Quality Controller (1)	Hrs	12408	
	Admin Clerk (1)	Hrs	12408	
	SHE Officer (1)	Hrs	12408	
	Supervisor (1)	Hrs	12408	
	Technicians (2)	Hrs	24816	
	Semi-Skilled Artisans (2)	Hrs	24816	
	<u>Overtime & Saturdays</u>			
	Quality Controller (2)	Hrs	3008	
	Admin Clerk (1)	Hrs	1504	

	SHE Officer (1)	Hrs	1504	
	Supervisor (1)	Hrs	1504	
	Technicians (2)	Hrs	3008	
	Semi-Skilled Artisans (2)	Hrs	3008	
	<u>Sundays & Public Holidays</u>			
	Quality Controller (2)	Hrs	3776	
	Admin Clerk (1)	Hrs	1888	
	SHE Officer (1)	Hrs	1888	
	Supervisors (1)	Hrs	1888	
	Technicians (2)	Hrs	3776	
	Semi-Skilled Artisans (2)	Hrs	3776	
	<u>TESTING, CALIBRATION AND COMMISSIONING</u>			
	Commission, calibration & verification of analysers, including testing	Item	1	
	<u>CERTIFICATES, ETC</u>			
	Data packs, including documentation and certification	Item	1	

	<u>SPARES SUPPLY OF INLET AND OUTLET OXYGEN ANALYSERS</u>			
679890	ANALYZER: TYPE: WDG1200; RANGE: 4-20 MA; POWER SOURCE: 230VAC 50HZ V AC; APPLICATION: GAH INLET AND OUTLET; SPECIFICATION: INNER PROBES ONLY; LENGTH: 36 INCH AND 72 INCHES; BOTH LENGTHS NEEDS TO BE SUPPLIED BY THE VENDOR ON REQUEST FROM THE EMPLOYER; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE)	EA	120	
690344	ASSEMBLY: TYPE: ELECTRONIC; APPLICATION: INDUSTRIAL O2 ANALYSER; SPECIFICATION: AMETEK THERMOX WDG; OEM P/N: 12097JE; ASSEMBLY TYPE: ELECTRONIC ASSEMBLY; SPECIFICATION; AMETEK THERMOX WDG-1200/1210/INSITU; PART NO 12097JE	EA	150	
690358	CELL: TYPE: ZIRCONIUM OXIDE CELL; POTENTIAL: 230 VAC; RANGE: 0-20.9 PCT OXYGEN CONCENTRATION; MOUNT: SCREW INTO OXYGEN ANALYSERS PROBE; OEM P/N: 71785SE; AMETEK THERMOX WDG OXYGEN MEASURING CELL (SENSOR) INSITU	EA	180	
690405	POWER SUPPLY: INPUT: 240 VAC; OUTPUT VOLTAGE: 100 - 240 VAC; OUTPUT CURRENT: 4 A; APPLICATION: INDUSTRIAL OXYGEN ANALYSER; MOUNTING: MOUNTED ONTO O2 ANALYSER; OEM P/N: 80586SE; POWER SUPPLY TYPE: PCB POWER SUPPLY; OUTPUT VOLTAGE: 100-240 VAC AMETEK THERMOX WDG - 1200/1210/INSITU, PART NO: 80586SE; CURRENT RATING: 4 A PEAK; POWER 250W	EA	150	
690407	PROBE: TYPE: INDUSTRIAL OXYGEN; LENGTH: 36 IN; CABLE LENGTH: 36 IN; MATERIAL: SS 310; OEM P/N: 71922SE; PROBE TYPE: COMPLETE SET; LENGTH: 36 INCHES; PCT; MATERIAL AMETEK THERMOX WDG - 1200/1210/INSITU PROBE: 71922SE; INDUSTRIAL PROBE; MATERIAL: 310 STAINLESS STEEL; CASE MATERIAL; POWDER-COATED ALUMINIUM; WEIGHT: 11.5KG	EA	150	
690424	KIT: TYPE: AMETEK THERMOX WDG; APPLICATION: INDUSTRIAL O2 ANALYSER REPLACEMENT KIT; SPECIFICATION: AMETEK THERMOX WDG; OEM P/N: 25818J; KIT TYPE: CONNECTOR KIT; SPECIFICATION: AMATEK THERMOX WDG - 1200/1210/INSITU/; PART NO:			

	25818J; CONNECTOR KIT (INCLUDES 2 CONNECTORS)	EA	150	
690440	DISPLAY: TYPE: INDUSTRIAL OXYGEN LED; OEM P/N: 80585SE; DISPLAY TYPE: DIGITAL PCB: AMETEK THERMOX WDG - 1200/1210/INSITU; PART NO: 80585SE; INDUSTRIAL OXYGEN ANALYSER PCB DISPLAY	EA	150	
690442	PROBE: TYPE: INDUSTRIAL OXYGEN PROBE; LENGTH: 72 IN; CABLE LENGTH: 72 IN; MATERIAL: 310 STAINLESS STEEL; OEM P/N: 71923SE; PROBE TYPE: COMPLETE SET; LENGTH: 72 INCHES; PCT; CABLE LENGTH 72 INCHES; MATERIAL: AMETEK THERMOX WDG - 1200/1210/INSITU; PART NO: 71923SE; INDUSTRIAL OXYGEN PROBE	EA	150	
DCF to be completed	GAS, MIXTURES: TYPE: NITROGEN/OXYGEN; CONTAINER CAPACITY: 10 L; CONTAINER TYPE: CYLINDER; CONCENTRATION: N 81/O2 20,9 PCT; PHYSICAL FORM: GAS; TEST GAS; BALANCE NITROGEN; N2; MATERIAL SAFETY DATA SHEET WITH ENVIRONMENT INFORMATION IN THE 16 POINT FORMAT TO BE PROVIDED WITH EVERY DELIVERY AS REQUIRED BY THE OCCUPATION HEALTH AND SAFETY ACT	EA	1750	
DCF to be completed	GAS, MIXTURES: TYPE: NITROGEN/OXYGEN; CONTAINER CAPACITY: 10 L; CONTAINER TYPE: CYL; CONCENTRATION: N 98/O2 1 PCT; TEST GAS, BALANCE NITROGEN, N2; MATERIAL SAFETY DATA SHEETS WITH ENVIRONMENTAL INFORMATION IN THE 16 POINT FORMAT TO BE PROVIDED WITH EVERY DELIVERY AS REQUIRED BY THE OCCUPATIONAL HEALTH AND SAFETY ACT	EA	1750	
DCF to be completed	PROBE: TYPE: INDUSTRIAL OXYGEN ZR202G; LENGTH: 1 METRE; RANGE: 0-25% O2; MATERIAL: SUS316 (JIS); OEM P/N: ZR202G- 100-S-G-N-C-T-M-E-A/F2; PROBE TYPE: INDUSTRIAL YOKOGAWA ZIRCONIA OXIDE OXYGEN ANALYSER WITH DUST GUARD PROTECTOR AND FILTER FITTED ON THE TIP; FILTER TYPE: MESH WIRE; PROBE MATERIAL: STAINLESS STEEL; CASE MATERIAL: ALUMINIUM ALLOY; PROCESS CONNECTION: DIN PN10-DN100-A; MOUNT: FLANGE TO STRAIGHT SPOOL PIECE; ELECTRICAL CONNECTION: M20 X 1,5MM; VOLTAGE: 100- 240VAC; FREQUENCY: 48-62 HZ; POWER: 250W; CURRENT: 4A; CURRENT OUTPUT: 4- 20MA	EA	60	

DCF to be completed	SPOOL, PIPE: TYPE: SPOOL PIECE STRAIGHT; NOMINAL PIPE SIZE: DN100 PN10; CONNECTION TYPE: DN100 PN6/10 STRAIGHT; DIAMETER: 110MM; MATERIAL: STAINLESS STEEL 316L; FLANGE MATERIAL STAINLESS STEEL; SPECIFICATION: STRAIGHT SPOOL PIECE USED TO CONNECT THE YOKOGAWA OXYGEN ANALYSER TO THE FLANGE ON THE FLUEGAS DUCTING; SUPPL P/N: DIN PN10-DN100-A (EQ.)	EA	50	
DCF to be completed	PROBE: TYPE: INDUSTRIAL OXYGEN ZR202G; LENGTH: 2 METRE; RANGE: 0-25% O2; MATERIAL: SUS316 (JIS); OEM P/N: ZR202G-200-S-G-N-C-T-M-E-A/F2; PROBE TYPE: INDUSTRIAL YOKOGAWA ZIRCONIA OXIDE OXYGEN ANALYSER WITH DUST GUARD PROTECTOR AND FILTER FITTED ON THE TIP; FILTER TYPE: MESH WIRE; PROBE MATERIAL: STAINLESS STEEL; CASE MATERIAL: ALUMINIUM ALLOY; PROCESS CONNECTION: DIN PN10-DN100-A; MOUNT: FLANGE TO STRAIGHT SPOOL PIECE; ELECTRICAL CONNECTION: M20 X 1,5MM; VOLTAGE: 100-240VAC; FREQUENCY: 48-62 HZ; POWER: 250W; CURRENT: 4A; CURRENT OUTPUT: 4-20MA	EA	60	
DCF to be completed	TYPE: MESH FILTER; STAINLESS STEEL CONNECTOR; 20 MICRONS MESH; RANGE: 0-20,9 PCT OXYGEN CONCENTRATION; MOUNT: STAINLESS STEEL CONNECTOR INTO OXYGEN ANALYSERS PROBE; OEM P/N: 72346SE; AMETEK THERMOX WDG INSITU	EA	50	
DCF to be completed	TYPE: CERAMIC FILTER; CERAMIC COATING WITH 5 MICRONS AND A STAINLESS-STEEL CONNECTOR; RANGE 0-20,9 PCT OXYGEN CONCENTRATION; MOUNT: CONNECTOR INTO OXYGEN ANALYSERS PROBE; OEM P/N: 71895SE; AMETEK THERMOX WDG INSITU	EA	50	
DCF to be completed	SHIELD: TYPE: CERAMIC; RANGE: 5 MICRONS; MOUNT: SCREW INTO OXYGEN ANALYSERS PROBE; OEM P/N: 7186SH; AMETEK THERMOX WDG INSITU	EA	50	

DCF to be completed	CERAMIC: TYPE: MULLITE TUBE, RANGE: 5 MICRONS WITH SHIELD; MOUNT: FIT INTO OXYGEN ANALYSERS PROBE; OEM P/N: 310792LM; AMETEK THERMOX WDG OXYGEN MEASURING FILTER WITH SHIELD	EA	50	
DCF to be completed	TYPE: FILTER GUARDS; STAINLESS STEEL CONNECTORS; RANGE: 0-20,9 PCT OXYGEN CONCENTRATION; MOUNT: CLAMP INTO QXYGEN ANALYSERS PROBE; OEM P/N: 19010GM; AMETEK THERMOX WDG INSITU	EA	50	
	<u>SPARES, MATERIALS, AND CONSUMABLES</u>			
	Allow for Spares, Materials, and Consumables not specified	Yearly (Prov.)	5	
	Profit percentage on the above	%		

Note:

The service period is for 5 years (60 months). All the quantities provided shall be of a period of 5 years thereof and shall be supplied on an as-and-when required basis (ADHOC).

Furthermore, the tenderer(s) should only provide rates (**RATES ONLY**) and shall not be required to work out the total tendered amount. The total tendered amount shall be dealt with during the Tender Evaluation process by the Quantity Surveyor - Eskom.

PART 3: SCOPE OF WORK

Document reference	Title	No of pages
	This cover page	1
C3.1	<i>Employer's Service Information</i>	
C3.2	<i>Contractor's Service Information</i>	
	Total number of pages	

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1. Introduction

Medupi Power Station is a coal fired power station located in Lephalale, Limpopo Province, South Africa. The station consists of six 800 MW units which supplies a total of 4800 MW. Medupi Power Station main steam generation boilers from Unit 1 to 6 are equipped with oxygen analysers located on the flue gas side of the inlet and outlet of the gas air heater. They serve the purpose of measuring the oxygen concentration at the economizer exit as required by the Fossil Fuel Fired Regulations. The analysers are critical in monitoring the quality and efficiency of combustion in the furnace. As such, these are expected to have high accuracy and availability during the operation of the Boiler to produce steam. The measurement is critical because with comparison to stoichiometric air, it is possible to achieve efficient combustion.

2. Supporting Clauses

2.1 Scope

This document describes the detail of the applicable requirements, scope of work, specifications, terms & conditions as well as the criteria necessary for the Medupi Power Station Scope of Work for Maintenance, Calibration and Spares Supply of Inlet and Outlet Oxygen Analysers on Boiler Gas Air heaters to ensure compliance to Eskom Standards.

2.1.1 Purpose

The purpose of this document is to define the URS on which the 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 services rendered to the *Employer* will support this requirement. It is therefore imperative that the successful and suitably qualified *Contractor* aligns their organisation fully to these specified scope activities and processes laid down in this document.

2.1.2 Applicability

This document sets out the detailed User Scope of Work requirements necessary for the maintenance of oxygen analysers installed at the inlet and outlet of the boiler gas air heaters in 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.

CONTROLLED DISCLOSURE

2.2.1 Normative

- [1]. ISO 9001 Quality Management Systems.
- [2]. 240 - 97020108 Rev 5 Medupi Maintenance Contracts User Requirement Specification (URS).
- [3]. NEC 3 Term Service Short Contract.
- [4]. ISBN 0-9638650-0-5 - Calibration: Philosophy in Practice
- [5]. SANS 17025 General requirements for the competence of testing and calibration laboratories
- [6]. OPS 6501 Calibration Standard for Process Measurement Instruments
- [7]. 32-1034 Eskom procure and supply management procedure.
- [8]. 32-1033 Eskom Procurement and Supply Chain Management Policy
- [9]. SABS Quality Standards
- [10]. National Key Point Act no 102 of 1980.
- [11]. Eskom Plant Safety Regulations (PSR) - GGR 0992.
- [12]. Occupational Health and Safety Act No. 83 of 1993.
- [13]. BS 5750 for Quality Management.
- [14]. 240-62196227 Eskom Lifesaving Rules.
- [15]. 32-520 Occupational Health and Safety Risk Assessment Procedure.
- [16]. 32-95 Environmental, Occupational Health and Safety Incident Management Procedure.

2.2.2 Informative

- [1]. Act No 85 Occupational Health and Safety Act & Regulations.
- [2]. 240-46554063: Safety Health Environmental and Quality Policy.
- [3]. 240-78787829 Medupi Power Station Coal Plant Operating and Control Philosophy.
- [4]. 240-87607698 Coal Quantity and Quality Accounting Standard for Thermal Efficiency Determination.
- [5] 240-103826026 Medupi Power Station Operating Technical Specification

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2.3 Definitions

Term	Description
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
<i>Contractor</i>	Service provider contracted for supply specific service to Eskom Medupi Power Station.
Controlled Disclosure	Controlled disclosure to external parties (either enforced by law, or discretionary).
Corrective Maintenance	The process of restoring plant and equipment which have failed or deteriorated to a state which renders it unable to meet the acceptance criteria required for its application.
<i>Employer</i>	Eskom or Eskom Medupi power station representative appointed in writing.
In-service Inspection	All inspection and testing conducted on plant and equipment at regular intervals and prescribed by regulatory and statutory codes or other types of specification throughout its service life.
Inspection	Activities, which by means of examination, observation or measurement, determine the conformance of material, parts, components etc, to predetermined specifications and quality requirements.
Maintenance	A combination of all technical, administrative and managerial actions during the life cycle of an item intended to retain it in, or restore it to, a condition in which it can perform the required function.
Maintenance Philosophy	The principal approach decided upon for performing maintenance, such as pro-active or reactive maintenance.
Maintenance Plan	A plan that details the maintenance that needs to be done on a specific plant item or component and the frequency and quality requirements for that maintenance.
Maintenance Schedule	The timing of the Maintenance Plan information stipulating when in the calendar year, work needs to be done.
Maintenance Strategy	The type of maintenance selected for specific plant and equipment, such as time or condition-based maintenance, corrective or preventative maintenance.

CONTROLLED DISCLOSURE

Parties	The <i>Employer</i> and the <i>Contractor</i>
Preventive Maintenance	Planned time or schedule-based maintenance carried out with the explicit objective of preventing functional failures and is directed towards maintaining the physical condition of the plant or equipment. It includes scheduled overhauls and scheduled replacement of worn-out parts or failure prone components.
Service Manager	The <i>Employer's</i> representative regarding the contract agreement.
Task Order	The Service Manager's instruction to be carried out as a task.

2.4 Abbreviations

Abbreviation	Explanation
C&I	Control and Instrumentation.
SHE	Safety Health and Environmental
SHEQ	Safety Health Environmental and Quality
H&S	Health and Safety
KPA	Key Performance Area
KPI	Key Performance Indicator
MSDS	Material Safety Data Sheet
NEC3	New Engineering Contract
OEM	Original Equipment Manufacturer.
PDF	Portable Document Format
QCP	Quality Control Plan.
SANAS	South African National Accreditation System
SOW	Scope of Work.
TSSC	Term Service Short Contract
URS	User Requirement Specification
V1	Re-Order Point for Non-Repairable Material (Normal)
VB	Manual Re-Order Point Planning (RF)
PD	Order on Request (As and When required)
RF	Refurbishment of items

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2.5 Roles and Responsibilities

2.5.1 Employer

Manage the Medupi Power Station Scope of Work for Maintenance, Calibration and Spares Supply of Inlet and Outlet Oxygen Analysers on Boiler Gas Air heaters contract in terms of NEC3 Term Service Contract's procedures and guidelines in terms of the URS specified in *Section 2.2.1[2]*

2.5.2 Contractor

Provide a supply, maintain and calibration service to the *Employer* in accordance with 241-20221028 Medupi Power Station Medupi Power Station Scope of Work for Maintenance, Calibration and Spares Supply of Inlet and Outlet Oxygen Analysers on Boiler Gas Air heaters SOW.

Ensure that quality workmanship is delivered by means of providing quality control plans for the execution of the works and providing hold points for the *Employer* to sign off acceptance of the works being executed.

Obey any instruction which is in accordance with the contract and is given to the *Contractor* 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).

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.

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.

CONTROLLED DISCLOSURE

Workmanship shall always be of a grade accepted as the best practice of the 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.
- Ad hoc 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.

3.1.6 Legal Requirements

The *Employer* shall provide a representative to sign limited access register (LAR) and witness the maintenance and/or calibration activity.

The *Contractor* shall use the required 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 oxygen analysers specified in the SOW.

CONTROLLED DISCLOSURE

In an event where calibrations of the Oxygen Analysers are not possible, the *Contractor* should perform a calibration verification by means of using SANAS accredited test equipment to prove the correctness of the verification being executed. As a result, a calibration verification certificate should be provided for each, and every verification being executed accompanied with the SANAS accredited calibration certificate of the specific test equipment used for the verification. In addition, each specific Calibration Verification Certificate being provided should be linked to the specific SANAS Accredited calibration certificate on their respective documents by means of endorsing serial numbers on both the SANAS Accredited calibration certificate and the Calibration Verification Certificate for traceability.

3.1.7 Task Order

The *Contractor* shall by no means carry out any maintenance and/or calibration services in terms of the SOW without the approval, without an official Task Order 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 Maintenance, Calibration and Spares Supply of Inlet and Outlet Oxygen Analysers on Boiler Gas Air heaters as stipulated in the SOW under *Section 3.11*.

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

The *Contractor* shall supply the *Employer* with the relevant documentation, criminal records and/or police clearance of their personnel AND undergo safety induction 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 48 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 authorizing that the *Service Provider* is competent to perform calibration on the specific calibration services specified in *Section 3.11* on the Medupi Power Station Scope of Work for Maintenance, Calibration and Spares Supply of Inlet and Outlet Oxygen Analysers on Boiler Gas Air heaters contract SOW.

CONTROLLED DISCLOSURE

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 SANAS Accredited test gasses required to execute the calibrations of Inlet and Outlet Oxygen Analysers on Boiler Gas Air heaters and mentioned under legal requirements in *Section 3.1.6*.

The *Contractor* shall supply the *Employer* with a Certificate of Analysis, for each test gas, liquid and/or sample being used in calibrating the associated Analysers specified in *Section 3.10* at the premises of the *Employer*.

The certificate shall indicate the MSDS content of each test gas, liquid and/or sample with the percentage of test gas content and/or any supporting information to justify the calibration results.

3.4.4 Calibration Procedures

The *Contractor* shall supply the *Employer* with the approved calibration procedures or method statements used for the calibrations related to the Medupi Power Station Scope of Work for Maintenance, Calibration and Spares Supply of Inlet and Outlet Oxygen Analysers on Boiler Gas Air heaters contract SOW.

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 SANAS Accredited calibration certificates for each equipment calibration service. In the event where an approved calibration certificate cannot be supplied, refer to the legal requirements in *Section 3.1.6*.

The calibration certificates shall be recorded in writing and carry the initials, surname and signature of the *Contractor's* employee who carries out the equipment calibration service and the date of calibration. The calibration certificates should also be accompanied with serial numbers of each equipment being calibrated for ease of traceability and records.

The calibration certificates shall record the "as found" and "as left" values, including the error and error tolerance of each equipment being calibrated specified in *Section 3.11*.

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

CONTROLLED DISCLOSURE

3.4.6 Calibration Gas Specifications

The following specifications are to be used or as close as possible to the value being provided.

- Zero gas – 2%
- Span Gas – 18% or above

3.4.7 Service of Medupi Power Station Oxygen Analysers on Boiler Gas Air heaters

The *Contractor* shall upon request through the task order, service the analysers on site or offsite at their premises. In cases offsite, the *Employer* shall arrange for a spare to be availed for continued production. A record shall be availed for condition and serial number of the item being serviced offsite. Specialist services shall also be provided by the *Contractor* as and when required in case of more advanced challenges.

3.4.8 Spares

The contractor shall supply the following but not limited to, on as and when required basis. See appendix for detailed information.

For Ametek Thermox Analysers:

- Cell Lead Kits
- Filters
 - 5 micron
 - 5 micron with shield
 - 20-micron SS
- Complete probe
 - 900mm (36 inch)
 - 1800 mm (72 inch)
- Inner Probes
 - 900mm (36 inch)
 - 1800 mm (72 inch)
- Heater Assemblies
- Thermocouple Assemblies
- Connector kit
- Display PCB
- Electronics Assembly
- Insulating tube
- Miscellaneous components
- O-rings

CONTROLLED DISCLOSURE

- In-situ Cell
- Ceramic washers
- Power supply PCB
- Gasket

For Yokogawa ZR202G

- Complete Probe
- Contact
- Sensor
- Metal O-ring
- Filter
- Dust filter
- Heater Unit
- U-pipe
- Cell assembly
- Thermocouple assembly

3.5 Specific Requirements

A compact oxygen analyser that comes as probe and display integrated on one unit.

The oxygen probe must come with dust filter fitted on it.

The oxygen probe must come with a dust guard protector fitted on the tip to prevent dust settling on the cell.

For the Yokogawa equipment, the O₂ analyser must come with the stainless-steel spool piece flanged DN100 (PN6/PN10 316L)

Display range of 0 – 100 vol% O₂

Output signal of 4 – 20mA

Tolerance of $\pm 1\%$ maximum value of set range

List of spares to maintain the system.

The system annual average availability of 100 % is required during the course of the life of the system and a daily reliability > 90%

Probe head to be IP65 protected.

The system should come with operating and maintenance manuals.

The system's installation should be similar to the current installation.

CONTROLLED DISCLOSURE

3.6 Equipment and Tools

The *Contractor* shall supply their own tools, electrical equipment and approved calibration test gas that might be required when providing the spares supply, maintenance and 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*.

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

3.7 Site Services Provided by the *Employer*

The *Employer* shall support the *Contractor* with site access and plant availability or any associated communication or arrangements that enables the contractor to execute the tasks required in relation to the contract.

3.8 Site Facilities

Refer to document 240-97020108 Medupi Power Station Maintenance Contracts User Requirement Specification.

3.9 Services Provided by the *Contractor*

The *Contractor* shall be required to provide a Supply, Maintain and Calibration service in terms of 241-20221028 Medupi Power Station Medupi Power Station Scope of Work for Maintenance, Calibration and Spares Supply of Inlet and Outlet Oxygen Analysers on Boiler Gas Air heaters for the duration of the contract period.

Refer to document 240-97020108 Medupi Power Station Maintenance Contracts User Requirement Specification.

3.10 Transport

3.10.1 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 and have the required authorisation to do so.

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

The *Contractor* shall be responsible for the safe keeping and transportation of Oxygen Analysers and associated spare parts in an event where the calibration and/or maintenance activities cannot be executed at the *Employer's* Premises.

CONTROLLED DISCLOSURE

3.11 Scope of Work Information

3.11.1 Plant Areas to Be Covered

The *Contractor* shall be responsible for Maintenance, Calibration and Spares Supply of Inlet and Outlet Oxygen Analysers on Boiler Gas Air heaters 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 and/or calibrations responsibilities of the Oxygen Analysers instrumentation installed on the Inlet and Outlet of Unit Boiler Gas Air heaters.

The *Contractor* shall also be responsible to execute calibration and/or maintenance activities of Oxygen analyser instrumentation off the *Employer's* Premises in an event where these activities cannot be executed on site. In such a case, full approval shall be provided by the responsible senior supervisor responsible and cannot leave the plant operations in abnormal state without the prior approved Out of Normal or simulation if required.

The following plant areas shall form part of the Services covering the Spares Supply, Maintenance and Calibration Services:

- a) Units 1 & 6 C&I Workshops
- b) Units 1 - 6 Boiler plant
- c) *Contractor* Workshop

3.11.2 Maintenance and Calibration of Oxygen Analysers

Maintenance and Calibration services as per 241-20221028 Medupi Power Station Scope of Work for Maintenance, Calibration and Spares Supply of Inlet and Outlet Oxygen Analysers on Boiler Gas Air heaters. The *Contractor* will also be expected to keep inspection reports and calibration certificates for work done on these analysers. Condition reports may also be requested at times.

Refer to *Appendix A* for the detailed spares list of the Oxygen Analysers and its associated spares parts. The supply of spare parts is not limited to the spares list in *Appendix A* only, therefore the *Contractor* should be aware and ensure that spares can be supplied under this agreement on an **“as and when required”** basis provided that the *Employer* provides the detailed specifications of spare parts required to maintain and calibrate the Oxygen Analysers at Medupi Power Station.

IMPORTANT:

The spares supply, maintenance and calibration of oxygen analysers will be applicable on an “as and when required” basis and the Contractor needs to ensure the availability of spares are managed efficiently and a minimum quantity of spares are readily available off the shelf due to long lead times for sourcing of spares. In this manner it will prevent delays and/or negative influence on the Employer's obligations to support continuous load of Electricity Supply to South Africa.

CONTROLLED DISCLOSURE

The following inspections and calibrations shall be performed by the *Contractor* on a ONE yearly frequency and on an “as and when required” basis where necessary, which will be communicated from the *Employer* to the *Contractor*.

3.11.2.1 Ametek Thermox Oxygen Analysers

- a) Inspect and calibrate the analyser.
- b) Inspect and replace wearable components where necessary.
- c) Provide service report with recommendations.
- d) Refurbish and/or replace with a new heater, temperature measurement or any other damaged component.
- e) Provide SANAS Accredited calibration gas certificate, endorsed with its serial number and expiry date of each gas cylinder.
- f) Provide calibration verification certificates endorsed with the SANAS accredited calibration gas certificate for traceability. Each calibration verification certificate should be endorsed also with the KKS number, serial number and description of the analyser probe AND the serial number and expiry date of each gas cylinder.

3.11.2.2 Yokogawa Oxygen Analysers

- a) Inspect and calibrate the analyser.
- b) Inspect and replace wearable components where necessary.
- c) Provide service report with recommendations.
- d) Refurbish and/or replace with a new heater, temperature measurement or any other damaged component.
- e) Provide SANAS Accredited calibration gas certificate, endorsed with its serial number and expiry date of each gas cylinder.
- f) Provide calibration verification certificates endorsed with the SANAS accredited calibration gas certificate for traceability. Each calibration verification certificate should be endorsed also with the KKS number, serial number and description of the analyser probe AND the serial number and expiry date of each gas cylinder.

3.11.3 Spares Management

The *Contractor* shall advise after every calibration which spares are needed for replacement or servicing to ensure the integrity and the health operation of the specified oxygen analysers. The sourcing and making of the spares available required to refurbish the oxygen analysers will be planned and managed by the *Contractor* until the execution phase has been completed and acceptance signed off by the *Employer*. The *Contractor* shall supply spares based on the findings and recommendations recorded in their service reports issued to the *Employer*.

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3.11.4 Work Preparation and Work Management

The *Contractor* shall ensure that the Occupational Health and Safety Act are always adhered to and partner with *Employer* to create and maintain a safety culture of striving towards “Zero Harm” and report any unsafe conditions and/or actions.

The *Contractor* shall ensure the LAR procedure is always followed, maintain healthy work relations and communication with the Unit Controller.

The *Contractor* shall ensure the risk assessments are done and documented for each activity.

The *Contractor* shall be responsible to maintain their Safety File and keep it always up to date and always attend SHEQ meetings.

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 supporting documentation required to complete work shall be managed, referenced, and filed for future reference by the *Contractor* for example test results, certificates, reports, drawings, etc.

3.11.5 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.

3.11.6 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.

3.11.7 Management and Reporting

The *Contractor* shall be responsible for implementing a performance management system consistent with the *Employer's* supplier management requirement.

The *Contractor* shall be responsible to do assessments on all the plant equipment inspections specified in the SOW, provide a detailed service report with findings and recommendations on each activity.

ESKOM HOLDINGS SOC Ltd

CONTRACT NO. _____

TITLE OF CONTRACT: MAINTENANCE, CALIBRATION AND SPARES SUPPLY OF INLET AND OUTLET OXYGEN ANALYSERS ON
BOILER GAS AIR HEATERS

CONTROLLED DISCLOSURE

3.12 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.
- c) Health and Safety requirements that the Consultant shall comply with includes *Employers'* Rules where compliance is required for the following:
 - a) *Employers'* SHE Policy (32-94)
 - b) *Employers'* Cardinal Rules (32-421)
 - c) *Employers'* Incident Management procedure (32-95)
 - d) Vehicle and Driver Safety Management procedure (32-93)
 - e) Medical Surveillance Procedure (32-282)
 - f) Site Specific SHE Policies and Procedures
- d) The above-mentioned procedures / documents shall be made available to the *Contractor* in preparation of his/her health and safety management compliance to the *Employers'* requirements.
- e) The provided detailed costing for Health and Safety includes:
 - 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.
 - Approved Safety file

4. Acceptance

This document has been seen and accepted by:

Name	Designation
Lerato Sehume	C&I Maintenance Manager
Cornelius Mulaudzi	C&I Senior Technical Supervisor
Nare Senama	C&I Senior Technical Supervisor
Tankiso Mpebe	C&I Senior Technical Supervisor
Tumelo Chauke	C&I Senior Technical Supervisor
Lebo Pebane	Material Management Manager
Chuene Boshomane	Material Management Planner

5. Revisions

Date	Rev.	Compiler	Remarks
November 2024	1	Thys Britz	First revision

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6. Development Team

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

Name	Designation
Andrew Lekganyane	C&I Engineer
Thys Britz	C&I Senior Technical Supervisor

7. Acknowledgements

Not Applicable.

8. Appendix

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8.1 Appendix A: Bill of Materials / Oxygen Analysers Spares List

Material	Material short description	Material full description	Material Type	Unit of Measure	Max	Required Quantity	Lab Code
679890	ANALYZER: WDG1200;4-20 MA	ANALYZER: TYPE: WDG1200; RANGE: 4-20 MA; POWER SOURCE: 230VAC 50HZ V AC; APPLICATION: GAH INLET AND OUTLET; SPECIFICATION: INNER PROBES ONLY: LENGTH: 36 INCH AND 72 INCHES; BOTH LENGTHS NEEDS TO BE SUPPLIED BY THE VENDOR ON REQUEST FROM THE EMPLOYER; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).	PD	EA	24	120	BAH
690344	ASSY: ELECTRONIC; INDUSTRIAL 02 ANALYSER	ASSEMBLY: TYPE: ELECTRONIC; APPLICATION: INDUSTRIAL 02 ANALYSER; SPECIFICATION: AMETEK THERMOX WDG; OEM P/N: 12097JE; ASSEMBLY TYPE: ELECTRONIC ASSEMBLY; SPECIFICATION: AMETEK THERMOX WDG-1200/1210/INSITU; PART NO 12097JE	V1	EA	30	150	C&I
690358	CELL: ZIRCONIUM OXIDE CELL;230 VAC	CELL: TYPE: ZIRCONIUM OXIDE CELL; POTENTIAL: 230 VAC; RANGE: 0-20.9 PCT OXYGEN CONCENTRATION; MOUNT: SCREW INTO OXYGEN ANALYSERS PROBE; OEM P/N: 71785SE; AMETEK THERMOX WDG OXYGEN MEASURING CELL (SENSOR) INSITU	V1	EA	36	180	C&I

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690405	POWER SUPPLY: I/P 240 VAC;100 - 240 VAC;4	POWER SUPPLY: INPUT: 240 VAC; OUTPUT VOLTAGE: 100 - 240 VAC; OUTPUT CURRENT: 4 A; APPLICATION: INDUSTRIAL OXYGEN ANALYSER; MOUNTING: MOUNTED ONTO O2 ANALYSER; OEM P/N: 80586SE; POWER SUPPLY TYPE: PCB POWER SUPPLY; OUTPUT VOLTAGE: 100-240 VAC AMETEK THERMOX WDG - 1200/1210/INSITU, PART NO: 80586SE; CURRENT RATING: 4 A PEAK; POWER 250W	V1	EA	30	150	C&I
690407	PROBE: INDUSTRIAL OXYGEN; LG 36 IN;36 IN	PROBE: TYPE: INDUSTRIAL OXYGEN; LENGTH: 36 IN; CABLE LENGTH: 36 IN; MATERIAL: SS 310; OEM P/N: 71922SE; PROBE TYPE: COMPLETE SET; LENGTH: 36 INCHES; PCT; MATERIAL AMETEK THERMOX WDG - 1200/1210/INSITU PROBE: 71922SE; INDUSTRIAL PROBE; MATERIAL: 310 STAINLESS STEEL; CASE MATERIAL; POWDER-COATED ALUMINIUM; WEIGHT: 11.5KG	V1	EA	30	150	C&I
690424	KIT: AMETEK THERMOX WDG	KIT: TYPE: AMETEK THERMOX WDG; APPLICATION: INDUSTRIAL O2 ANALYSER REPLACEMENT KIT; SPECIFICATION: AMETEK THERMOX WDG; OEM P/N: 25818J; KIT TYPE: CONNECTOR KIT; SPECIFICATION: AMATEK THERMOX WDG - 1200/1210/INSITU/; PART NO: 25818J; CONNECTOR KIT (INCLUDES 2 CONNECTORS)	V1	EA	30	150	C&I
690440	DISPLAY: INDUSTRIAL OXYGEN LED	DISPLAY: TYPE: INDUSTRIAL OXYGEN LED; OEM P/N: 80585SE; DISPLAY TYPE: DIGITAL PCB: AMETEK THERMOX WDG - 1200/1210/INSITU; PART NO: 80585SE; INDUSTRIAL OXYGEN ANALYSER PCB DISPLAY	V1	EA	30	150	C&I

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690442	PROBE: INDUSTRIAL OXYGEN PROBE; LG 72 IN	PROBE: TYPE: INDUSTRIAL OXYGEN PROBE; LENGTH: 72 IN; CABLE LENGTH: 72 IN; MATERIAL: 310 STAINLESS STEEL; OEM P/N: 71923SE; PROBE TYPE: COMPLETE SET; LENGTH: 72 INCHES; PCT; CABLE LENGTH 72 INCHES; MATERIAL: AMETEK THERMOX WDG - 1200/1210/INSITU; PART NO: 71923SE; INDUSTRIAL OXYGEN PROBE	V1	EA	30	150	C&I
DCF to be completed	GAS MIXT: NITROGEN/OXYGEN 20.9 PCT;10 L; CYLINDER	GAS, MIXTURES: TYPE: NITROGEN/OXYGEN; CONTAINER CAPACITY: 10 L; CONTAINER TYPE: CYLINDER; CONCENTRATION: N 81/O2 20,9 PCT; PHYSICAL FORM: GAS; TEST GAS; BALANCE NITROGEN; N2; MATERIAL SAFETY DATA SHEET WITH ENVIRONMENT INFORMATION IN THE 16 POINT FORMAT TO BE PROVIDED WITH EVERY DELIVERY AS REQUIRED BY THE OCCUPATION HEALTH AND SAFETY ACT	V1	EA	350	1750	C&I
DCF to be completed	GAS MIXT: NITROGEN/OXYGEN 1 PCT;10 L; CYLINDER	GAS, MIXTURES: TYPE: NITROGEN/OXYGEN; CONTAINER CAPACITY: 10 L; CONTAINER TYPE: CYL; CONCENTRATION: N 98/O2 1 PCT; TEST GAS, BALANCE NITROGEN, N2; MATERIAL SAFETY DATA SHEETS WITH ENVIRONMENTAL INFORMATION IN THE 16 POINT FORMAT TO BE PROVIDED WITH EVERY DELIVERY AS REQUIRED BY THE OCCUPATIONAL HEALTH AND SAFETY ACT	V1	EA	350	1750	C&I

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DCF to be completed	PROBE: INDUSTRIAL OXYGEN; LG 1M	PROBE: TYPE: INDUSTRIAL OXYGEN ZR202G; LENGTH: 1 METRE; RANGE: 0-25% O2; MATERIAL: SUS316 (JIS); OEM P/N: ZR202G-100-S-G-N-C-T-M-E-A/F2; PROBE TYPE: INDUSTRIAL YOKOGAWA ZIRCONIA OXIDE OXYGEN ANALYSER WITH DUST GUARD PROTECTOR AND FILTER FITTED ON THE TIP; FILTER TYPE: MESH WIRE; PROBE MATERIAL: STAINLESS STEEL; CASE MATERIAL: ALUMINIUM ALLOY; PROCESS CONNECTION: DIN PN10-DN100-A; MOUNT: FLANGE TO STRAIGHT SPOOL PIECE; ELECTRICAL CONNECTION: M20 X 1,5MM; VOLTAGE: 100-240VAC; FREQUENCY: 48-62 HZ; POWER: 250W; CURRENT: 4A; CURRENT OUTPUT: 4-20MA	V1	EA	12	60	C&I
DCF to be completed	SPOOL PIPE: STRAIGHT SPOOL PIECE; DN100 PN10	SPOOL, PIPE: TYPE: SPOOL PIECE STRAIGHT; NOMINAL PIPE SIZE: DN100 PN10; CONNECTION TYPE: DN100 PN6/10 STRAIGHT; DIAMETER: 110MM; MATERIAL: STAINLESS STEEL 316L; FLANGE MATERIAL STAINLESS STEEL; SPECIFICATION: STRAIGHT SPOOL PIECE USED TO CONNECT THE YOKOGAWA OXYGEN ANALYSER TO THE FLANGE ON THE FLUEGAS DUCTING; SUPPL P/N: DIN PN10-DN100-A (EQ.)	PD	EA	10	50	C&I

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DCF to be completed	PROBE: INDUSTRIAL OXYGEN PROBE; LG 2M	PROBE: TYPE: INDUSTRIAL OXYGEN ZR202G; LENGTH: 2 METRE; RANGE: 0-25% O ₂ ; MATERIAL: SUS316 (JIS); OEM P/N: ZR202G-200-S-G-N-C-T-M-E-A/F2; PROBE TYPE: INDUSTRIAL YOKOGAWA ZIRCONIA OXIDE OXYGEN ANALYSER WITH DUST GUARD PROTECTOR AND FILTER FITTED ON THE TIP; FILTER TYPE: MESH WIRE; PROBE MATERIAL: STAINLESS STEEL; CASE MATERIAL: ALUMINIUM ALLOY; PROCESS CONNECTION: DIN PN10-DN100-A; MOUNT: FLANGE TO STRAIGHT SPOOL PIECE; ELECTRICAL CONNECTION: M20 X 1,5MM; VOLTAGE: 100-240VAC; FREQUENCY: 48-62 HZ; POWER: 250W; CURRENT: 4A; CURRENT OUTPUT: 4-20MA	V1	EA	12	60	C&I
DCF to be completed	AMETEK Mesh filter; 20 Micron SS	TYPE: MESH FILTER; STAINLESS STEEL CONNECTOR; 20 MICRONS MESH; RANGE: 0-20,9 PCT OXYGEN CONCENTRATION; MOUNT: STAINLESS STEEL CONNECTOR INTO OXYGEN ANALYSERS PROBE; OEM P/N: 72346SE; AMETEK THERMOX WDG INSITU	V1	EA	10	50	C&I
DCF to be completed	Ceramic filter; 5 Micron	TYPE: CERAMIC FILTER; CERAMIC COATING WITH 5 MICRONS AND A STAINLESS-STEEL CONNECTOR; RANGE 0-20,9 PCT OXYGEN CONCENTRATION; MOUNT: CONNECTOR INTO OXYGEN ANALYSERS PROBE; OEM P/N: 71895SE; AMETEK THERMOX WDG INSITU	V1	EA	10	50	C&I

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		V1	EA	10	50	C&I	
DCF to be completed	Ceramic filter Deflector	SHIELD: TYPE: CERAMIC; RANGE: 5 MICRONS; MOUNT: SCREW INTO OXYGEN ANALYSERS PROBE; OEM P/N:7186SH; AMETEK THERMOX WDG INSITU					
DCF to be completed	AMETEK Mullite Insulating tube	CERAMIC: TYPE: MULLITE TUBE, RANGE: 5 MICRONS WITH SHIELD; MOUNT: FIT INTO OXYGEN ANALYSERS PROBE; OEM P/N: 310792LM; AMETEK THERMOX WDG OXYGEN MEASURING FILTER WITH SHIELD	V1	EA	10	50	C&I
DCF to be completed	AMETEK FILTER GUARDS	TYPE: FILTER GUARDS; STAINLESS STEEL CONNECTORS; RANGE: 0-20,9 PCT OXYGEN CONCENTRATION; MOUNT: CLAMP INTO QXYGEN ANALYSERS PROBE; OEM P/N: 19010GM; AMETEK THERMOX WDG INSITU	V1	EA	10	50	C&I