



## NEC3 Term Service Contract (TSC3)

|                     |                                                                                                                                                                                               |                        |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| <b>Between</b>      | <b>ESKOM HOLDINGS SOC Ltd<br/>(Reg No. 2002/015527/30)</b>                                                                                                                                    |                        |
| <b>and</b>          |                                                                                                                                                                                               |                        |
| <b>for</b>          | <b>Provision of Main Air Ejector Condenser<br/>Refurbishment Services, Including Full Retubing, on<br/>an 'As and When Required' Basis for a Period of 3<br/>Years at Arnot Power Station</b> |                        |
|                     |                                                                                                                                                                                               |                        |
| <b>Contents:</b>    |                                                                                                                                                                                               | <b>No of<br/>pages</b> |
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| <b>Part C3</b>      | <b>Scope of Work</b>                                                                                                                                                                          | <b>29</b>              |
|                     |                                                                                                                                                                                               |                        |
| <b>CONTRACT No.</b> | <b>[Insert at award stage]</b>                                                                                                                                                                |                        |
|                     |                                                                                                                                                                                               |                        |

**CONTRACT TITLE:** PROVISION OF MAIN AIR EJECTOR CONDENSER REFURBISHMENT SERVICES, INCLUDING FULL RETUBING, ON AN 'AS AND WHEN REQUIRED' BASIS FOR A PERIOD OF 3 YEARS AT ARNOT POWER STATION

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## **PART C1:        AGREEMENTS & CONTRACT DATA**

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

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## C1.1 Form of Offer & Acceptance

### Offer

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

**Provision of Main Air Ejector Condenser Refurbishment Services, Including Full Retubing, on an 'As and When Required' Basis for a Period of 3 Years at Arnot Power Station.**

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 | The offered total of the Prices exclusive of VAT is                  | R [●] |
|           | Sub total                                                            | R [●] |
|           | Value Added Tax @ 15% is                                             | R [●] |
|           | The offered total of the amount due inclusive of VAT is <sup>1</sup> | R [●] |
|           | (in words) [●]                                                       |       |

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                             |                                           |      |  |
| <b>For the tenderer:</b>             |                                           |      |  |
| Name & signature of witness          | (Insert name and address of organisation) | Date |  |
| Tenderer's CIDB registration number: |                                           |      |  |

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

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## 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                          | General Manager - Arnot Power Station                                               |  |      |
| <b>for the<br/>Employer</b>       | Eskom Holdings Soc Ltd<br>Arnot Power Station<br>Private Bag X2<br>RIETKUIL<br>1097 |  |      |
| Name &<br>signature of<br>witness |                                                                                     |  | Date |

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

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### 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   | <b>Not applicable</b> | <b>Not applicable</b> |
|     |                       |                       |

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.

|                             | <b>For the tenderer:</b> | <b>For the <i>Employer</i></b>                                                      |
|-----------------------------|--------------------------|-------------------------------------------------------------------------------------|
| Signature                   |                          |                                                                                     |
| Name                        |                          |                                                                                     |
| Capacity                    |                          | General Manager - Arnot Power Station                                               |
| On behalf of                |                          | Eskom Holdings Soc Ltd<br>Arnot Power Station<br>Private Bag X2<br>RIETKUIL<br>1097 |
| Name & signature of witness |                          |                                                                                     |
| Date                        |                          |                                                                                     |

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## C1.2 TSC3 Contract Data

### Part one - Data provided by the *Employer*

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

| Clause | Statement                                                                               | Data                                                                                                                                                    |
|--------|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | <b>General</b>                                                                          |                                                                                                                                                         |
|        | The <i>conditions of contract</i> are the core clauses and the clauses for main Option: |                                                                                                                                                         |
|        |                                                                                         | <b>A: Priced contract with price list</b>                                                                                                               |
|        |                                                                                         |                                                                                                                                                         |
|        | dispute resolution Option                                                               | <b>W1: Dispute resolution procedure</b>                                                                                                                 |
|        | and secondary Options                                                                   |                                                                                                                                                         |
|        |                                                                                         | <b>X1: Price adjustment for inflation</b>                                                                                                               |
|        |                                                                                         | <b>X2 Changes in the law</b>                                                                                                                            |
|        |                                                                                         | <b>X17: Low service damages</b>                                                                                                                         |
|        |                                                                                         | <b>X18: Limitation of liability</b>                                                                                                                     |
|        |                                                                                         | <b>X19: Task Order</b>                                                                                                                                  |
|        |                                                                                         | <b>Z: Additional conditions of contract</b>                                                                                                             |
|        | of the NEC3 Term Service Contract April 2013 <sup>1</sup> (TSC3)                        |                                                                                                                                                         |
| 10.1   | The <i>Employer</i> is (name):                                                          | <b>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</b> |
|        | Address                                                                                 | <b>Registered office at Megawatt Park, Maxwell Drive, Sandton, Johannesburg</b>                                                                         |
|        | Tel No.                                                                                 | <b>0118008111</b>                                                                                                                                       |
|        | Fax No.                                                                                 | <b>Not Applicable</b>                                                                                                                                   |
| 10.1   | The <i>Service Manager</i> is (name):                                                   | <b>TBA</b>                                                                                                                                              |
|        | Address                                                                                 | <b>Eskom Holdings Soc Ltd<br/>Arnot Power Station<br/>Private Bag X2<br/>RIETKUIL<br/>1097</b>                                                          |

<sup>1</sup> Available from Engineering Contract Strategies Tel 011 803 3008 Fax 086 539 1902 [www.ecs.co.za](http://www.ecs.co.za)

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|          |                                                                  |                                                                                                                                                                                                |
|----------|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          | Tel                                                              | TBA                                                                                                                                                                                            |
|          | Fax                                                              | Not Applicable                                                                                                                                                                                 |
|          | e-mail                                                           | TBA                                                                                                                                                                                            |
| 11.2(2)  | The Affected Property is                                         | Arnot Power Station                                                                                                                                                                            |
| 11.2(13) | The <i>service</i> is                                            | Provision of Main Air Ejector Condenser Refurbishment Services, Including Full Retubing, on an 'As and When Required' Basis for a Period of 3 Years at Arnot Power Station                     |
| 11.2(14) | The following matters will be included in the Risk Register      | <ul style="list-style-type: none"> <li>• All matters notified on Early warnings,</li> <li>• All matters discussed during Risk reduction meetings</li> <li>• Delay deliveries</li> </ul>        |
| 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                                   | 24 hours for emergencies, and other period agreed between the parties and specified in the task order                                                                                          |
| 2        | <b>The Contractor's main responsibilities</b>                    | Data required by this section of the core clauses is also provided by the <i>Contractor</i> in Part 2 and terms in italics used in this section are identified elsewhere in this Contract Data |
| 21.1     | The <i>Contractor</i> submits a first plan for acceptance within | One (1) Week of the Contract Date                                                                                                                                                              |
| 3        | <b>Time</b>                                                      |                                                                                                                                                                                                |
| 30.1     | The <i>starting date</i> is                                      | TBC                                                                                                                                                                                            |
| 30.1     | The <i>service period</i> is                                     | Three (3) Years                                                                                                                                                                                |
| 4        | <b>Testing and defects</b>                                       | If a test or inspection shows that any work has a defect, the Service provider corrects the defect, and the test or inspection is repeated                                                     |
| 42.1     | Notifying and correction of defects                              | The <i>Contractor</i> corrects a Defect whether or not the <i>Service Manager</i> notifies him of it.                                                                                          |
| 42.2     | Defects correction period is                                     | Defect date is 52 weeks after completion of each task order. The defect correction period is 2 weeks, or any other period agreed between the parties.                                          |
| 5        | <b>Payment</b>                                                   |                                                                                                                                                                                                |
| 50.1     | The <i>assessment interval</i> is                                | between the 25th day of each successive month or as per the task order issued.                                                                                                                 |

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|      |                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------|-------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 51.1 | The <i>currency of this contract</i> is the                                                                                               | <b>ZAR (South African Rand)</b>                                                                                                                                                                                                                                                                                                                                                                                    |
| 51.2 | The period within which payments are made is                                                                                              | <b>30 days after the receipt of correct and undisputed tax invoice</b>                                                                                                                                                                                                                                                                                                                                             |
| 51.4 | The <i>interest rate</i> is                                                                                                               | <b>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</b>                                                                                             |
| 6    | <b>Compensation events</b>                                                                                                                | <b>All Compensation Events are to be managed as per core clause 6 of the NEC3 TSC</b>                                                                                                                                                                                                                                                                                                                              |
| 7    | <b>Use of Equipment Plant and Materials</b>                                                                                               | <b>To be managed ss per core clause 7 of the NEC3 TSC</b>                                                                                                                                                                                                                                                                                                                                                          |
| 8    | <b>Risks and insurance</b>                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 80.1 | These are additional <i>Employer's</i> risks                                                                                              | <b>1. Natural disaster<br/>2. Industrial action<br/>3. Community Unrest</b>                                                                                                                                                                                                                                                                                                                                        |
| 80.2 | The <i>Employer</i> provides these insurances from the Insurance Table                                                                    | <b>The <i>Employer</i> provides the insurances stated in the Insurance Table B</b>                                                                                                                                                                                                                                                                                                                                 |
| 80.3 | The <i>Contractor</i> will be liable for the applicable deductible if any                                                                 | <b>The <i>Contractor</i> provides the insurances stated in the Insurance Table A</b>                                                                                                                                                                                                                                                                                                                               |
| 9    | <b>Termination</b>                                                                                                                        | <b>To be managed as per core clause 9 of the NEC3 TSC</b>                                                                                                                                                                                                                                                                                                                                                          |
| 10   | <b>Data for main Option clause</b>                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                    |
| A    | <b>Priced contract with price list</b>                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 20.5 | The <i>Contractor</i> prepares forecasts of the final total of the Prices for the whole of the <i>service</i> at intervals no longer than | <b>Monthly (30 days) or as stated on the Task Order</b>                                                                                                                                                                                                                                                                                                                                                            |
| 11   | <b>Data for Option W1</b>                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                    |
| W1.1 | The <i>Adjudicator</i>                                                                                                                    | <b>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 <a href="http://www.ice-sa.org.za">www.ice-sa.org.za</a>). If the Parties do not agree on an Adjudicator the Adjudicator will be appointed by the Arbitration Foundation of Southern Africa (AFSA).</b> |
|      | Address                                                                                                                                   | <b>SAICE House, Thornhill Office Park, Bekker Road, Vorna Valley Midrand, 1685, South Africa</b>                                                                                                                                                                                                                                                                                                                   |
|      | Tel No.                                                                                                                                   | <b>TBA</b>                                                                                                                                                                                                                                                                                                                                                                                                         |



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|            |                                                                                                                                                                                      |                                                                                                                                                                                                                                      |                                    |                   |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-------------------|
|            | Fax No.                                                                                                                                                                              | TBA                                                                                                                                                                                                                                  |                                    |                   |
|            | e-mail                                                                                                                                                                               | TBA                                                                                                                                                                                                                                  |                                    |                   |
| 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 <a href="http://www.ice-sa.org.za">www.ice-sa.org.za</a> ) 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<br>- if the Parties cannot agree a choice or<br>- if the arbitration procedure does not state who selects an arbitrator, is | The Chairman for the time being or his nominee of the Association of Arbitrators (Southern Africa) or its successor body.                                                                                                            |                                    |                   |
| <b>12</b>  | <b>Data for secondary Option clauses</b>                                                                                                                                             |                                                                                                                                                                                                                                      |                                    |                   |
| <b>X1</b>  | <b>Price adjustment for inflation</b>                                                                                                                                                |                                                                                                                                                                                                                                      |                                    |                   |
| X1.1       | The <i>base date</i> for indices is                                                                                                                                                  |                                                                                                                                                                                                                                      |                                    |                   |
|            | The proportions used to calculate the Price Adjustment Factor are:                                                                                                                   | Proportion                                                                                                                                                                                                                           | linked to index for                | Index prepared by |
|            |                                                                                                                                                                                      | 15%                                                                                                                                                                                                                                  | Fixed (non-adjustable)             | Fixed Portion     |
|            |                                                                                                                                                                                      | 45%                                                                                                                                                                                                                                  | Labour (Journeyman)                | SEIFSA Table C-3  |
|            |                                                                                                                                                                                      | 30%                                                                                                                                                                                                                                  | Material (Mechanical Engineering ) | SEIFSA Table G-1  |
|            |                                                                                                                                                                                      | 5%                                                                                                                                                                                                                                   | Transport                          | SEIFSA Table L-1B |
|            |                                                                                                                                                                                      | 5%                                                                                                                                                                                                                                   | CPI                                | SEIFSA Table D-4  |
|            |                                                                                                                                                                                      | 100%                                                                                                                                                                                                                                 |                                    |                   |
| <b>X2</b>  | <b>Changes in the law</b>                                                                                                                                                            | Becomes a Compensation Event only if the changes in the Law of the Republic of South Africa took place after the Contract Date.                                                                                                      |                                    |                   |
| <b>X17</b> | <b>Low service damages</b>                                                                                                                                                           |                                                                                                                                                                                                                                      |                                    |                   |

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| X17.1                      | The <i>service level table</i> is in                                                                                                                                | As per task order<br><table><tr><th colspan="2">Service Level Table</th></tr><tr><th>Description</th><th>Penalty</th></tr><tr><td>Poor workmanship</td><td>Contractor to carry corrective cost</td></tr><tr><td>Compliance to SOW schedule</td><td>Cost incurred due to the no-compliance to the scope of work will be carried out by the contractor.</td></tr></table>                                                                                                                                                                                                                                                                                                                 | Service Level Table |  | Description | Penalty | Poor workmanship | Contractor to carry corrective cost | Compliance to SOW schedule | Cost incurred due to the no-compliance to the scope of work will be carried out by the contractor. |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--|-------------|---------|------------------|-------------------------------------|----------------------------|----------------------------------------------------------------------------------------------------|
| Service Level Table        |                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                     |  |             |         |                  |                                     |                            |                                                                                                    |
| Description                | Penalty                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                     |  |             |         |                  |                                     |                            |                                                                                                    |
| Poor workmanship           | Contractor to carry corrective cost                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                     |  |             |         |                  |                                     |                            |                                                                                                    |
| Compliance to SOW schedule | Cost incurred due to the no-compliance to the scope of work will be carried out by the contractor.                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                     |  |             |         |                  |                                     |                            |                                                                                                    |
| 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                                                           | R0.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                     |  |             |         |                  |                                     |                            |                                                                                                    |
| 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 described in the "Format A" insurance policy available on request from Eskom Group Insurance.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                     |  |             |         |                  |                                     |                            |                                                                                                    |
| X18.3                      | The Contractor's liability for Defects due to his design of an item of Equipment is limited to                                                                      | The greater of <ul style="list-style-type: none"><li>the total of the Prices at the Contract Date and</li><li>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 in the <i>Employer's</i> assets and works/maintenance policies.</li></ul>                                                                                                                                                                                                                                                                                  |                     |  |             |         |                  |                                     |                            |                                                                                                    |
| X18.4                      | The Contractor's total liability to the Employer, 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.<br><br>The <i>Contractor's</i> total liability for the additional excluded matters is not limited.<br><br>The additional excluded matters are amounts for which the <i>Contractor</i> is liable under this contract for <ul style="list-style-type: none"><li>Defects due to his design, plan and specification,</li><li>Defects due to manufacture and fabrication outside the Affected Property,</li><li>loss of or damage to property (other than the <i>Employer's</i> property, Plant and Materials),</li><li>death of or injury to a person and infringement of an intellectual property right.</li></ul> |                     |  |             |         |                  |                                     |                            |                                                                                                    |
| X18.5                      | The end of liability date is                                                                                                                                        | 52 weeks after the end of the service period.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                     |  |             |         |                  |                                     |                            |                                                                                                    |

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| <b>X19</b> | <b>Task Order</b>                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                        |
| X19.3      | Delay Damages are                                                                                                                                                                                                                                                                                                                                            | <b>Five percent (1%) of the Task Order Value per day from the day of delayed completion until the actual completion of the services, to be capped at the maximum of Ten percent (5%) of the Total Task Order Value</b> |
| X19.5      | The Contractor submits a Task Order programme to the Service Manager within                                                                                                                                                                                                                                                                                  | <b>24 hours after issuing of task order or as agreed between the parties.</b>                                                                                                                                          |
| <b>Z</b>   | <b>The additional conditions of contract are</b>                                                                                                                                                                                                                                                                                                             | <b>Z1 to Z15 always apply.</b>                                                                                                                                                                                         |
| <b>Z1</b>  | <b>Cession delegation and assignment</b>                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                        |
| Z1.1       | The <i>Contractor</i> does not cede, delegate or assign any of its rights or obligations to any person without the written consent of the <i>Employer</i> .                                                                                                                                                                                                  |                                                                                                                                                                                                                        |
| Z1.2       | Notwithstanding the above, the <i>Employer</i> may on written notice to the <i>Contractor</i> 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 because of the restructuring of the Electricity Supply Industry. |                                                                                                                                                                                                                        |
| <b>Z2</b>  | <b>Joint ventures</b>                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                        |
| Z2.1       | If the <i>Contractor</i> 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 <i>Employer</i> for the performance of this contract.                                                                     |                                                                                                                                                                                                                        |
| Z2.2       | Unless already notified to the <i>Employer</i> , the persons or organisations notify the <i>Service Manager</i> within two weeks of the Contract Date of the key person who has the authority to bind the <i>Contractor</i> on their behalf.                                                                                                                 |                                                                                                                                                                                                                        |
| Z2.3       | The <i>Contractor</i> does not alter the composition of the joint venture, consortium or other unincorporated grouping of two or more persons without the consent of the <i>Employer</i> having been given to the <i>Contractor</i> in writing.                                                                                                              |                                                                                                                                                                                                                        |
| <b>Z3</b>  | <b>Change of Broad Based Black Economic Empowerment (B-BBEE) status</b>                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                        |
| Z3.1       | Where a change in the <i>Contractor's</i> legal status, ownership or any other change to his business composition or business dealings results in a change to the <i>Contractor's</i> B-BBEE status, the <i>Contractor</i> notifies the <i>Employer</i> within seven days of the change.                                                                     |                                                                                                                                                                                                                        |
| Z3.2       | The <i>Contractor</i> is required to submit an updated verification certificate and necessary supporting documentation confirming the change in his B-BBEE status to the <i>Service Manager</i> within thirty days of the notification or as otherwise instructed by the <i>Service Manager</i> .                                                            |                                                                                                                                                                                                                        |
| Z3.3       | Where, as a result, the <i>Contractor's</i> B-BBEE status has decreased since the Contract Date the <i>Employer</i> may either re-negotiate this contract or alternatively, terminate the <i>Contractor's</i> obligation to Provide the Service.                                                                                                             |                                                                                                                                                                                                                        |
| Z3.4       | Failure by the <i>Contractor</i> to notify the <i>Employer</i> of a change in its B-BBEE status may constitute a reason for termination. If the <i>Employer</i> 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.                          |                                                                                                                                                                                                                        |
| <b>Z4</b>  | <b>Confidentiality</b>                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                        |
| Z4.1       | The <i>Contractor</i> 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                                                                                                                                                               |                                                                                                                                                                                                                        |

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|           | which at the time of disclosure or thereafter, without default on the part of the <i>Contractor</i> , enters the public domain or to information which was already in the possession of the <i>Contractor</i> at the time of disclosure (evidenced by written records in existence at that time). Should the <i>Contractor</i> disclose information to Others in terms of clause 25.1, the <i>Contractor</i> ensures that the provisions of this clause are complied with by the recipient.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Z4.2      | If the <i>Contractor</i> is uncertain about whether any such information is confidential, it is to be regarded as such until notified otherwise by the <i>Service Manager</i> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Z4.3      | If the <i>Contractor</i> is, at any time, required by law to disclose any such information which is required to be kept confidential, the <i>Contractor</i> , to the extent permitted by law prior to disclosure, notifies the <i>Employer</i> so that an appropriate protection order and/or any other action can be taken, if possible, prior to any disclosure. If such protective order is not, or cannot, be obtained, then the <i>Contractor</i> 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, while Providing the Service and after the end of the <i>service period</i> , requires the prior written consent of the <i>Service Manager</i> . All rights in and to all such images vests exclusively in the <i>Employer</i> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Z4.5      | The <i>Contractor</i> ensures that all his subcontractors abide by the undertakings in this clause.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Z5</b> | <b>Waiver and estoppel: Add to core clause 12.3:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Z5.1      | Any extension, concession, waiver or relaxation of any action stated in this contract by the Parties, the <i>Service Manager</i> or the <i>Adjudicator</i> 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Z6</b> | <b>Health, safety and the environment: Add to core clause 27.4</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Z6.1      | The <i>Contractor</i> undertakes to take all reasonable precautions to maintain the health and safety of persons in and about the execution of the <i>service</i> . Without limitation the <i>Contractor</i> : <ul style="list-style-type: none"> <li>• accepts that the <i>Employer</i> may appoint him as the "Principal Contractor" (as defined and provided for under the Construction Regulations 2014 (promulgated under the Occupational Health &amp; Safety Act 85 of 1993) ("the Construction Regulations") for the Affected Property.</li> <li>• warrants that the total of the Prices as at the Contract Date includes enough for proper compliance with the Construction Regulations, all applicable health &amp; 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 &amp; safety in and about the execution of the <i>service</i>; and</li> <li>• undertakes, in and about the execution of the <i>service</i>, to comply with the Construction Regulations and with all applicable health &amp; 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 <i>Contractor's</i> direction and control, likewise observe and comply with the foregoing.</li> </ul> |
| Z6.2      | The <i>Contractor</i> , in and about the execution of the <i>service</i> , 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 <i>Contractor's</i> direction and control, likewise observe and comply with the foregoing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Z7</b> | <b>Provision of a Tax Invoice and interest. Add to core clause 51</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Z7.1      | Within one week of receiving a payment certificate from the <i>Service Manager</i> in terms of core clause 51.1, the <i>Contractor</i> provides the <i>Employer</i> with a tax invoice in accordance with the <i>Employer's</i> procedures stated in the Service Information, showing the amount due for payment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

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|                                                                     | equal to that stated in the payment certificate.                                                                                                                                                                                                                                                                                                                                                              |
| Z7.2                                                                | If the <i>Contractor</i> does not provide a tax invoice in the form and by the time required by this contract, the time by when the <i>Employer</i> 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 <i>Employer</i> in terms of core clause 51.2 is then calculated from the delayed date by when payment is to be made. |
| Z7.3                                                                | The <i>Contractor</i> (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 <i>Employer's</i> VAT number 4740101508 on each invoice he submits for payment.                                                                                                                     |
| <b>Z8</b>                                                           | <b>Notifying compensation events</b>                                                                                                                                                                                                                                                                                                                                                                          |
| Z8.1                                                                | Delete the last paragraph of core clause 61.3 and replace with:<br><br>If the <i>Contractor</i> 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.                                                                                                                                                                         |
| <b>Z9</b>                                                           | <b><i>Employer's</i> limitation of liability</b>                                                                                                                                                                                                                                                                                                                                                              |
| Z9.1                                                                | The <i>Employer's</i> liability to the <i>Contractor</i> for the <i>Contractor's</i> indirect or consequential loss is limited to R0.00 (zero Rand)                                                                                                                                                                                                                                                           |
| Z9.2                                                                | The <i>Contractor's</i> entitlement under the indemnity in 82.1 is provided for in 60.1(12) and the <i>Employer's</i> 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.                                                                                                                                |
| <b>Z10</b>                                                          | <b>Termination: Add to core clause 91.1, at the second main bullet point, fourth sub-bullet point, after the words "against it":</b>                                                                                                                                                                                                                                                                          |
| Z10.1                                                               | or had a business rescue order granted against it.                                                                                                                                                                                                                                                                                                                                                            |
| <b>Z11</b>                                                          | <b>Ethics</b>                                                                                                                                                                                                                                                                                                                                                                                                 |
| For the purposes of this Z-clause, the following definitions apply: |                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Affected Party</b>                                               | means, as the context requires, any party, irrespective of whether it is the <i>Contractor</i> or a third party, such party's employees, agents, or Subcontractors or Subcontractor's employees, or any one or more of all these parties' relatives or friends,                                                                                                                                               |
| <b>Coercive Action</b>                                              | 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,                                                                                                                                                                                        |
| <b>Collusive Action</b>                                             | 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,                                                                                                                                                                                                                                                |
| <b>Committing Party</b>                                             | means, as the context requires, the <i>Contractor</i> , or any member thereof in the case of a joint venture, or its employees, agents, or Subcontractors or the Subcontractor's employees,                                                                                                                                                                                                                   |
| <b>Corrupt Action</b>                                               | 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,                                                                                                                                                                                                                                        |
| <b>Fraudulent Action</b>                                            | means any unlawfully or illegally intentional act or omission that misleads, or attempts to mislead, an Affected Party, to obtain a financial or other benefit or to avoid an obligation or incurring an obligation,                                                                                                                                                                                          |
| <b>Obstructive Action</b>                                           | 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                                                                                                                                                                                       |

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| <b>Prohibited Action</b> | means any one or more of a Coercive Action, Collusive Action Corrupt Action, Fraudulent Action or Obstructive Action.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| Z11.1                    | A Committing Party may not take any Prohibited Action during the procurement of this contract or in execution thereof.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Z11.2                    | The <i>Employer</i> may terminate the <i>Contractor's</i> obligation to Provide the Services if a Committing Party has taken such Prohibited Action and the <i>Contractor</i> did not take timely and appropriate action to prevent or remedy the situation, without limiting any other rights or remedies the <i>Employer</i> 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 <i>Employer</i> can terminate the <i>Contractor's</i> obligation to Provide the Services for this reason. |
| Z11.3                    | If the <i>Employer</i> terminates the <i>Contractor's</i> 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 <i>Employer</i> does not have a contractual bond with the Committing Party, the <i>Contractor</i> 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**

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

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| 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 | <b><u>Bodily injury to or death of a person</u></b><br>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**

| <b>Insurance against or name of policy</b>        | <b>Minimum amount of cover or minimum limit of indemnity</b> |
|---------------------------------------------------|--------------------------------------------------------------|
| 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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| <b>Z13</b> | <b>Nuclear Liability</b>                                                                                                                                                                                                                                                                                                        |
| Z13.1      | The <i>Employer</i> 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 <i>Employer</i> is solely responsible for and indemnifies the <i>Contractor</i> or any other person against any and all liabilities which the <i>Contractor</i> 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 |

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|                                                                     | due to the unlawful intent of the <i>Contractor</i> or any other person or the presence of the <i>Contractor</i> or that person or any property of the <i>Contractor</i> or such person at or in the KNPS or on the KNPS site, without the permission of the <i>Employer</i> or of a person acting on behalf of the <i>Employer</i> .                                                                                                                                                                                                  |
| Z13.3                                                               | Subject to clause Z13.4 below, the <i>Employer</i> 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 <i>Contractor</i> or any other person, or the presence of the <i>Contractor</i> or that person or any property of the <i>Contractor</i> or such person at or in the KNPS or on the KNPS site, without the permission of the <i>Employer</i> or of a person acting on behalf of the <i>Employer</i> . |
| Z13.4                                                               | The <i>Employer</i> 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.                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Z14</b>                                                          | <b>Asbestos</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| For the purposes of this Z-clause, the following definitions apply: |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>AAIA</b>                                                         | means approved asbestos inspection authority.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>ACM</b>                                                          | means asbestos containing materials.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>AL</b>                                                           | 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 to control asbestos exposure to prevent exceeding the OEL.                                                                                                                                                                                                                                                                                        |
| <b>Ambient Air</b>                                                  | 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.                                                                                                                                                                                                                                                                                                                                                       |
| <b>Compliance Monitoring</b>                                        | means compliance sampling used to assess whether the personal exposure of workers to regulated asbestos fibres follows the Standard's requirements for safe processing, handling, storing, disposal and phase-out of asbestos and asbestos containing material, equipment and articles.                                                                                                                                                                                                                                                |
| <b>OEL</b>                                                          | means occupational exposure limit.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Parallel Measurements</b>                                        | means measurements performed in parallel, yet separately, to existing measurements to verify validity of results.                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Safe Levels</b>                                                  | 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.                                                                                                                                                                                                                                                                                                                 |
| <b>Standard</b>                                                     | 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.                                                                                                                                                                                                                                                                                                                                |
| <b>SANAS</b>                                                        | means the South African National Accreditation System.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>TWA</b>                                                          | means the average exposure, within a given workplace, to airborne asbestos fibres, normalised to the baseline of a 4-hour continuous period, also applicable to short term exposures, i.e. 10-minute TWA.                                                                                                                                                                                                                                                                                                                              |
| Z14.1                                                               | The <i>Employer</i> ensures that the Ambient Air in the area where the <i>Contractor</i> will Provide the Services conforms to the acceptable prescribed South African standard for asbestos, as per the                                                                                                                                                                                                                                                                                                                               |



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|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            | 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 <i>Contractor</i> , the <i>Employer</i> certifies that these conditions prevail. All measurements and reporting are affected by an independent, competent, and certified occupational hygiene inspection body, i.e. a SANAS accredited, and Department of Employment and Labour approved AAIA. The <i>Contractor</i> may perform Parallel Measurements and related control measures at the <i>Contractor's</i> 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 <i>Employer</i> manages asbestos and ACM according to the Standard.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Z14.4      | If 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 to declare the area safe.                                                                                                                                                                                                                                                                                                                                                                                                     |
| Z14.5      | The <i>Contractor's</i> 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 <i>Contractor</i> 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 <i>Contractor</i> , instructed by the <i>Employer</i> at the <i>Employer's</i> expense, and conducted in line with South African legislation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Z15</b> | <b>The Employer's rights to Terminate the obligations to provide the Services due to Power Station Shutdown.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Z15.1      | The Employer is the operator of the Arnot Power Station, a coal fired plant installation, as designated by the National Electricity Regulator of South Africa (NERSA) and is the holder of the electricity generation licence in respect of the Arnot PS which is one of the stations selected for repurposing. Therefore, the contract usage may from time to time reduce during the ramping down of the units and the usage of services will be on an "as and when required" basis.                                                                                                                                                                                                                                        |
| Z15.2      | Subject to the provisions of sub-clause Z15.1 above, the Employer may after giving the Contractor a written notice of not less than 60 days (Sixty days) Terminate the Contractor's obligations to Provide the Services if the Employer's business cease to operate at Arnot Power Station prior to the end of the service period in this contract.                                                                                                                                                                                                                                                                                                                                                                          |
| Z15.3      | If the Contractor's obligation to Provide the Services is terminated for this reason sated in sub-clause Z15.1 above, this shall constitute a reason for termination by the Employer as contemplated under NEC3, and the procedures shall be those on termination table P1 and P4 as stated in clause 92 and the amount due on termination shall be A1 and A2 and stated in clause 93.                                                                                                                                                                                                                                                                                                                                       |

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## C1.2 Contract Data

### Part two - Data provided by the *Contractor*

#### Notes to a tendering *Contractor*:

1. Please read both the NEC3 Term Service Contract April 2013 and the relevant parts of its Guidance Notes (TSC3-GN)<sup>1</sup> 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.

| Clause   | Statement                                                       | 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     | <b>Availability of Spares and material and delivery dates</b> |
| 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:                                                         |                                                               |
|          | Job                                                             |                                                               |

<sup>1</sup> Available from Engineering Contract Strategies Tel 011 803 3008 Fax 086 5391902 or [www.ecs.co.za](http://www.ecs.co.za)

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|          |                                        |                                                                    |
|----------|----------------------------------------|--------------------------------------------------------------------|
|          | Responsibilities:                      |                                                                    |
|          | Qualifications:                        |                                                                    |
|          | Experience:                            |                                                                    |
|          |                                        |                                                                    |
|          |                                        | <b>CV's (and further key person's data including CVs) are in .</b> |
| <b>A</b> | <b>Priced contract with price list</b> |                                                                    |
| 11.2(12) | The <i>price list</i> is in            |                                                                    |
| 11.2(19) | The tendered total of the Prices is    | <b>R</b>                                                           |

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## PART 2: PRICING DATA

### TSC3 Option A

| Document reference    | Title                     | No of pages |
|-----------------------|---------------------------|-------------|
|                       | This cover page           | 1           |
| C2.1                  | Pricing Assumptions       | 2           |
| C2.2                  | <i>The Price Schedule</i> | 1           |
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## C2.1 Pricing assumptions: Option A

### 1. How work is priced and assessed for payment

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

|                                     |      |                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Identified and defined terms</b> | 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 <ul style="list-style-type: none"> <li>the Price for each lump sum item in the Price List which the <i>Contractor</i> has completed and</li> <li>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.</li> </ul> |
|                                     |      | (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.

### 2. 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.

### 3. 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).

### 4. 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.

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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 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 because of a compensation event.

#### 4.1. 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.

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## C2.2 the *price list*

Refer to Annexure A for detailed Price list and description

| Item nr                 | Description                                                                                                    | Unit     | Qty  | Rate | Price |
|-------------------------|----------------------------------------------------------------------------------------------------------------|----------|------|------|-------|
| <b>1</b>                | <b>Preliminaries and General</b>                                                                               |          |      |      |       |
| 1.1                     | Safety file fixed year 1                                                                                       | Once Off | 1    |      |       |
| 1.2                     | Safety file year 2-3                                                                                           | Annually | 2    |      |       |
| 1.3                     | Police clearance (4 Personnel)                                                                                 | Number   | 12   |      |       |
| 1.4                     | Collection/Delivery Transport (2ton truck)                                                                     | KM       | 2400 |      |       |
| <b>2</b>                | <b>Refurbishment &amp; full retube of 12 main air ejector condensers - Stock Number 0783090</b>                |          |      |      |       |
| 2.1                     | <b>Site Visit</b> (Incoming Inspection, Measurement of Current unit Design & Drawings)                         | Each     | 12   |      |       |
| 2.2                     | Materials -Tubes (Incoterm DAP)                                                                                | Each     | 12   |      |       |
| 2.3                     | <b>Materials to repair main air ejectors</b> , (e.g. Tubesheets, Baffle Plates, Gaskets, Bolting, Bellows etc) | Each     | 12   |      |       |
| 2.4                     | <b>Labour</b> (Skilled) for 12 units                                                                           | Each     | 12   |      |       |
| 2.5                     | NDE (Testing)                                                                                                  | Each     | 12   |      |       |
| 2.6                     | AIA (Approved Inspection Authority)                                                                            | Each     | 12   |      |       |
| <b>Outside Services</b> |                                                                                                                |          |      |      |       |
| 2.7                     | Heat Treatment                                                                                                 | Each     | 12   |      |       |
| 2.8                     | Transport - Local Material Collecting for 12 units                                                             | KM       | 4320 |      |       |
| 2.9                     | Transport - Local Material inspection and Release for 12 units                                                 | KM       | 4320 |      |       |
| 2.10                    | Surface Prepare and Painting                                                                                   | Each     | 12   |      |       |
| 2.11                    | Outside Rolling                                                                                                | Each     | 12   |      |       |

**The total of the Prices**

**NB:** The quantities on the contract are based on an "Estimate", they may be less or more.

Therefore, the contract value is not binding, only the rates apply

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## PART 3: SCOPE OF WORK

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## C3.1: *EMPLOYER'S* SERVICE INFORMATION

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# 1 Description of the service

## 1.1 Executive overview

This document provides the technical specifications for the Arnot Power Station main air ejector condenser refurbishment inclusive of full retube. Safely replace the tube bundle tubes (re-tube) to restore design heat transfer and integrity, eliminate leaks, and ensure code-compliant re-commissioning.

Outcomes:

- New tubes installed to design spec and code.
- All NDT, pressure tests, and performance checks passed.
- Successful return to service with baseline condition data captured.
- Updated MDR (Manufacturer's/Data Record) & nameplate/stamping as required by PER and SANS 347 category).

## 1.2 Employer's requirements for the service

### 1.2.1 GENERAL REQUIREMENTS

This specification is for the refurbishment of main ejector condensers for Arnot Power station. The exact quantity required will be provided by the commercial department.

2. The *Contractor* is responsible for the supply, manufacture and transport, delivery and offloading to Arnot Power Station of all items in the following sections of this document (hereafter referred to as "the works") according to the applicable codes and standards and the requirements in this document.

3. The main ejector condensers shall be refurbished using the following steps:

- Water boxes shall be re-used.
- Shells shall be cleaned, inspected, tested, and repainted (refer to section 3.4).
- Shell bellows to MPI tested, if damaged this might impact on re-use of the shell.
- Tubes to be pulled and shell be inspected internally via the shell steam side and vacuum connections. Inspections will be done visually via colour endoscope, and as far as possible with a camera that can be entered into the shell via the vacuum nozzle. The course of action will be determined through agreement between Eskom Engineering and the *Contractor*. There are two possible outcomes: the tube bundle will be refurbished or replaced (refer to sections 3.6 and 3.7).
- The main ejector condensers shall be assembled and preserved.
- The main ejector condensers shall be delivered and offloaded on site.

4. *Employer* will free issue the air ejectors in turn for refurbishment, on basis of two ejectors to be refurbished, and when those are installed the next two will be made available until all 12 has been refurbished

5. All new components shall be manufactured, and the complete assembly shall be carried out in South Africa. Replacement tubes may be imported but must be declared in the tender. The percentage value of the imported items must be stated in the tender.

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### 1.2.2 DESIGN CONDITIONS AND REQUIREMENTS.

1. The main ejector condensers are of a two-stage ejector with inter and after-coolers, two-pass design on water side (condensate/water inside the tubes) while steam flow is directed over the external surfaces of the tubes.
2. One side has a fixed tubesheet and the other a bellow/compensator on the shell side.
3. See table below for main ejector condensers mechanical design data:

**Table 1:** Main Ejector Condensers design

|                                       | Tube Side           | Shell Side           |
|---------------------------------------|---------------------|----------------------|
| <b>Medium</b>                         | Water               | Steam                |
| <b>Design Pressure (Max)</b>          | 1.35 MPa(g)         | 0.35 MPa(g)          |
| <b>Design Temperature (Max)</b>       | 80°C                | 80°C                 |
| <b>Test Pressure</b>                  | 2.7 bar(g)          | 0.53 bar(g)          |
| <b>Capacity</b>                       | 0.07 m <sup>3</sup> | 0.345 m <sup>3</sup> |
| <b>SANS 347 Hazard Category</b>       | SEP                 | III                  |
| <b>Vessel SANS 347 Categorisation</b> | CAT III             |                      |

4. The vessel is classified as CAT III in accordance with SANS 347 edition 3.1.
5. Any new components are to be designed and manufactured generally in accordance with PD 5500.
6. All NDE acceptance criteria are to be in accordance with PD 5500.
7. General arrangement drawings, including the bill of materials, are required for the main ejector condensers, clearly indicating existing/re-used components as well as new components.
8. Arnot Main Ejector Condensers drawing provides the layout and tube bundle details of the cooler. The drawing can be used for tender purposes, but the exact dimensions must be verified on the main ejector condensers before refurbishment.
9. Details regarding the tubesheets and the tubesheet-to-shell connection shall be determined by the *Contractor*, only if tubesheet or shell is replaced - if just retube these don't need to be cut, perhaps conduct all necessary NDT's as agreed with the *Employer*.

### 1.2.3 THE WATER BOX REFURBISHMENT

1. Existing water boxes shall be re-used.
2. Water boxes are to be cleaned.
3. All welds are to be surface tested.
4. Any indications found on the welds must be repaired. The exact repair methodology shall be discussed and agreed upon with Eskom engineering. All Welding in accordance with ISO 3834 part 2.
5. Flange faces are to be inspected. If required, the sealing faces will be resurfaced with a gramophone finish. If flanges need to be machined, this must be discussed with Eskom engineering first. The *Contractor* will have to prove that the flange is still fit for use after machining through calculations. If the flange is not fit for use, it must be replaced.
6. All tapped holes are to be inspected and re-tapped if required.
7. Existing water box is to be pressure tested as per section 3.14.

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#### 1.2.4 SHELL

1. Shells shall be re-used. Shell bellow might require replacement if defect found during NDT, Bellows will not be weld repaired.
2. Shells externals shall be cleaned and sandblasted. The nameplate and tubesheets shall be covered during sandblasting activities.
3. All welds shall be surface tested.
4. Wall thickness to be taken using Ultrasonic wall thickness examination intercooler and aftercooler (main air ejector condenser) and compared to the drawing thickness (0.41/5189 Arnot Main Air Ejector Condenser arrangement drawing), should more than 1mm wall loss be noted, repair action to be agreed with *Employer*.
5. Any indications found on the welds shall be repaired. The exact repair methodology shall be discussed and agreed upon with Eskom engineering.
6. Conduct shell below inspections after cleaning and sandblasting. Wall thickness to be taken using Ultrasonic wall thickness examination. Replace or repair bellows if damaged. Repair method to be review and approved by client engineering, as below replacement will require the shell to be cut in half, Care to be taken that shell sections are perfectly aligned before rewelding the shell, as any misalignment will cause tube next retubing to be hampered or not be possible.
7. Flange faces shall be inspected. If required, the sealing faces will be resurfaced with a gramophone finish. If flanges need to be machined, this must first be discussed with Eskom engineering. The *Contractor* will have to prove that the flange is still fit for use after machining through calculation. If the flange is not fit for use, it shall be replaced.
8. All tapped holes shall be inspected and re-tapped if required.
9. The shell shall be sandblasted to SA 2½, painted externally with a suitable primer, and then painted. (See Eskom document 240-106365693).
10. The shell shall be pressure tested as per section 3.14.

#### 1.2.5 TUBE BUNDLE INSPECTION

1. The existing tube bundle shall be inspected, and the tube material shall be verified by means of PMI. MPI on tubesheet, visual for grooving, pitting, erosion; UT for thickness where needed.
2. Re-tube all tubes, as re-expanding on more than 1 or max two occasions can render tube sheets not to be fit for re-use.
3. Extraction: Push/pull tubes using dedicated pullers; protect tubesheet ligaments and holes.
4. Hole Reconditioning: Ream/brush tube holes, remove deposits; inspect and gauge holes per tolerance.
5. If the tube bundle does not require replacement, the tube bundle will be refurbished as detailed in section 3.6 below.

#### 1.2.6 TUBE BUNDLE REFURBISHMENT

1. The tubesheet bundle shall be chemically. A method statement outlining the cleaning methodology and chemicals to be used shall be submitted to Eskom engineering for acceptance before cleaning begins.
2. Replace all consumables such as seals and gaskets.
3. Pressure test as per section 3.14.

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## 1.2.7 TUBE BUNDLE REPLACEMENT

The section below specifies the requirements for manufacturing and testing of retubing the bundles.

### 1.2.7.1 Tube plates

1. The tube plate shall be cleaned and tube holes as well. All scale deposits / Loctite (if used on tube plates during tube expansion will be removed).
2. The nominal tube plate hole diameter shall adhere to TEMA requirements for a nominal tube after removal of a tube for measurements of a tube and tube hole so we can specify the tubes correctly with tolerance. If required, the relevant tables shall be interpolated.
3. The tube plate hole diameter vs Tube OD tolerance shall comply with TEMA Standard Fit Tolerances.
4. Tube plate hole inside edges shall be free of burrs. Internal hole finishes shall be given a smooth workmanlike finish. A practical test for smoothness is that cotton wool shall not attach to the surface when wiped over it.

### 1.2.7.2 Tube

1. The tube material shall be stainless steel. Material grade will be determined after a tube has been pulled out and analysed.
2. The Main Ejector condenser tubes shall be procured in accordance with 240 76648318 *Specification for the Procurement of UNS S44660 Stainless Steel Condenser Tubes*.
3. The number of tubes and tube sizes shall match those of the original cooler. Information is provided in drawing [8]. Wall thickness to be confirmed by the *Contractor*. The *Contractor* is responsible for confirming the actual tube OD as well.
4. The minimum number of spare tubes to be procured per cooler is 2% additional tubes.
5. The length of tubes to be ordered shall be determined by the *Contractor*., but will be ordered in correct length per stage, tube cutting from a longer length will not be permitted as this cause the tube ends to become oval during such cutting process. A stick out of 2mm will be provided for, this stick out will be on the waterbox side, on the interface where stage 1 and stage two meet the tube ends will be flush with tubesheet.
6. Tolerances on outside diameter and wall thickness are in accordance with 240-76648318 *Specification for the Procurement of UNS S44660 Stainless Steel Condenser Tubes*  
The *Contractor* is responsible for ensuring the tubes are manufactured with acceptable tolerances on the OD, considering the tube plate tolerances as per standard fit criteria.

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### 1.2.7.3 Tube Expansion

#### 1.2.7.3.1 Tube Expansion Requirements

1. The tubes shall be attached to the tube plates by mechanical roller expansion using 3-pin rollers.
2. The *Contractor* shall provide a marked-up tube plate drawing indicating the tubes designated as calibration holes to verify and test wall thinning during the expansion process. These tubes should account for no less than 2% of the total tube plate holes. Under no circumstances should more than 50 tubes be expanded without a reference tube. These designated holes must be clearly marked on the tube plate, documented on a tube plate drawing, and measured using a 3-pin bore gauge before the tubes are loaded into the tube.
3. In addition to the tube hole measurement requirements, the *Contractor* shall test 100% of tube holes on each tube plate using a no-go gauge. No holes shall be larger than the maximum hole tolerance specified in the TEMA standard. Should such holes exist the *Contractor* to provide a method for sleeving that particular tube hole to bring it back to standard fit. Before sleeving a method statement will be provided to the *Employer*.
4. All joints at the interface tube plate between stage 1 and stage 2 end tube plate shall be made before any joints expansions will be done on the waterbox side tubeplate. The expanding procedure at the fixed end tube plate shall be as follows:
  - The tube will be positioned with a 2-3 mm stick-out tubesheet face on the waterbox side, the opposite tubeplate tubes will be flush.
  - The *Contractor* shall propose an expansion map or sequence to minimise any distortion of tube plate.
  - The tube will then be expanded according to the requirements of this Works Information and values achieved in the mock-up tests.
  - Full expansion shall terminate 3 - 5 mm from steam side (shell side) of tube plate.
5. When all expanded joints at the waterbox end tube plate have been completed, the joints at the waterbox side tube plate can be made. The expanding procedure at the expansion end tube plate shall be as follows:
  - The initial expansions shall be in approximately 5 clusters of around 10 tubes each, with the clusters spread out uniformly across the tube plate. This initial set of expansions aims to prevent distortion of the tube plate, which can otherwise occur due to forces imposed by the expansion process.
  - Once the clusters are complete, the remaining tubes can be expanded.
  - After expansion, all tube ends shall be trimmed back so that the maximum protrusion from the tube plate face is 2-3 mm on waterbox side where as the opposite tube plate tubes will be flush with tubesheet face.



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6. The *Contractor* shall continuously monitor and control the expanding process to ensure satisfactory tube-to-tube plate joints for every tube. As a minimum, the following checks and controls shall be implemented:
  - Roller expanders shall be cleaned at least after every 15 tubes and lubricated before each tube.
  - During each expansion of a hole identified for calibration as defined above, the following shall be done:
    - Clean expander.
    - Rotate manually and inspect rollers, verifying free movement, and inspect mandrill shaft for defects (score, abrasion, and pitting).
    - Verify that the torque setting on the expander torque scale is correct and ensure that the locking mechanism is securely tightened.
    - Inspections shall also be conducted in the event of torque fluctuations or evidence of damage to the tube inside surface.
    - For each tube that enters the tube plate on the calibration holes, the average tube OD shall be recorded (value "D" as detailed below). Additionally, the *Contractor* shall measure the average tube ID before the tube is expanded (Value "d" as detailed below). Alternatively, the average tube wall formula can be used provided at least 3 measurements are taken.
7. The *Contractor* shall avoid re-expansion of joints whenever possible and should employ a system for marking, recording, and controlling the expansion process to prevent accidental re-expansion.

Leaking tubes that need re-expansion must be clearly marked on a drawing included in the databook.

#### 1.2.7.3.2 Tube Expansion Measurements

1. At least 30 percent of all tubes, selected in a "Z" with reference to the tube sheet, shall have a backup documentation stating the expansion levels achieved. The following measurements that will be recorded:
  - Tube sheet hole ID before tube is inserted.
  - Tube OD before tube is inserted.
  - Wall thickness of tube before tube is inserted, measured at the midpoint of the expansion depth/length. If average wall thickness is used, a cross comparison between wall thickness/ID and OD will be provide.
  - Tube ID after expansion measured at the depth/length of expansion.
  - Results shall be in spreadsheet format and supported by a fully traceable tube sheet map indicating all measured tubes precisely.
2. The expansion records must be based on actual wall thickness, not average wall thickness. Wall thickness shall be determined from  $(OD-ID)/2$ .

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3. The following formula shall be used for wall thinning and mock-up testing:

$$Tw = \frac{(T - t) - (D - d)}{(d - t) * 100}$$

- D = Diameter of tubesheet hole, mm
- d = Outside diameter of tube, mm
- T = Tube inside diameter after expansion, mm
- t = Tube inside diameter before expansion, mm
- Tw = % wall thinning

4. Example recording: The following is provided to the *Contractor* as an example of recording the tube expansion data.

| Description                           | Symbol | Result |
|---------------------------------------|--------|--------|
| Tubesheet hole size                   | D      |        |
| Tube outside diameter                 | d      |        |
| Tube inside diameter before expansion | t      |        |
| Tube inside diameter after rolling    | T      |        |
| % Expansion                           | Tw     |        |

#### 1.2.7.3.3 Requirements for Tube-to-tubesheet Mock-up Test

1. Mock-up tests and pull-out tests shall be completed before expanding any tubes in the cooler. Only one set of mock-up tests is required in case of multiple coolers if the following conditions are met:
  - a) The same tube expander drives are used on the different units.
  - b) The tubes are of the same heat number
  - c) The tubesheets hole ID is to standard fit tolerance.
2. The torque value on the expander shall be adjusted until a for a wall thinning of between 4-6% is achieved. AS existing tubesheet will be re-used tubes will be expanded into one of the tubesheets to determine the required torque to achieve a wall thinning of 4-6%. The tube will then be subjected to a push out test to prove integrity of tube joint. This will be witnessed by the *Employer*, tests will be performed until the required thinning is achieved and an adequate joint strength is mutually agreed upon by all parties.
3. Before the pull-out test, measurements for wall thinning shall be taken, and wall thinning shall be calculated using the formular provided above.
4. The *Employer's* representative shall witness the expansion tests on the push out tests.

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#### 1.2.7.3.4 Requirements for pull-out test

1. The *Contractor* is responsible for concluding the datum point pull-out and push-test.
2. The following shall be determined from pull-out tests and the following conclusions should be derived:
  - The corresponding force (torque value used for the mechanical expansion) for the greatest load-bearing joint
  - Documentation of the test results for future reference on the tubesheets.
  - Tube or pull-out tests for various tube hole diameters: The *Contractor* is responsible to ensuring that all specified pull-out tests are conducted to assess the load-bearing capabilities of the expanded joints at various tube hole diameters.

#### 1.2.8 FLANGES

1. All flanges shall be inspected, if replacement is deemed required it will be to same flange table and pressure rating as the installed flanges. Orientation when refitting the flanges is of utmost importance to ensure alignment on site. Any misalignment correction during installation will be a negative compensation event on the *Contractor*, not ejector will be installed by others.
2. Blanks shall be fitted on all flanges before delivery to site.
3. All tapped holes to be blanked off with suitable plugs.

#### 1.2.9 MATERIAL REQUIREMENTS

1. The *Contractor* is responsible for the supply of all materials, including but is not limited to tubes, , bellows/compensators if required. Any other pressure containment part replacement will be handled on a compensation event basis, after mutual agreement with the *Employers* representative. Additionally, any consumables required, such as gaskets, bolts, and nuts shall be supplied by the *Contractor*.
2. All material forming part of the pressure envelope, including tubes, tubesheets, bellows/compensators and shell shall be provided with 3.1 material certification in accordance with BS EN 10204:2004.
3. The Stainless-Steel Condenser Tubes shall be procured following 240-76648318, amended as follows:
  - Section 3.2 is not applicable.
  - Section 11: 3.1 certification for the tubes in accordance with BS EN 10204 is required only; therefore, no AIA needs to be appointed.

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## 1.2.10 WELDING AND REQUIREMENTS

### 1.2.10.1 Welding Requirements

1. The *Contractor* responsible for welding that may be required shall be ISO 3834-2 certified. The provided ISO 3834-2 certificate shall include the scope of accreditation, specifying the design code to be used.
2. All welders for manual welding shall be coded to BS EN ISO 9606.
3. All welding procedures shall be qualified to the latest version of BS EN 15614-1.
4. Geometry-specific Weld Procedure Specifications (WPS) are required, supported by the relevant PQR.
5. All welding documentation, including weld maps, will be subject to approval by an Eskom welding Engineer, in accordance with current Eskom standards.
6. The following Eskom standard is applicable and shall be complied with for all welding activities: 240-106628253 Standard for Welding Requirements on Eskom Plant.

### 1.2.10.1 NDE Requirements

1. All required NDE shall be provide by the *Contractor*. *Contractor* to state during tender who the NDT sub*Contractor* will be and for which process they are approved / certified.
2. All NDE done shall comply with the following Eskom standards: 240-83539994 Standard for Non- Destructive Testing (NDT) on Eskom Plant.

## 1.2.11 QUALITY REQUIREMENTS

1. No work shall commence without an approved QCP from the *Employer*.
2. A QCP and dimensional drawings shall be submitted to the *Employer* 7 days prior to the commencement of the specific work.
3. QCPs and related documentation shall be subject to review and approval by the *Employer's* Quality Control personnel as well as Engineering. QCPs shall make provision for signatures indicating interventions by the *Contractor's* QC Representative, the *Employers* QC Representative, and the *Employer's* engineer.
4. Each QCP shall incorporate a designated page for proof signatures, allowing for the traceability of any signature to the specific individual who endorsed any activity within the QCP.
5. Intervention points will be signed as the work progresses, and no backdating will be allowed.
6. Notification for hold and witness points shall be provide in writing and at least 72 hours in advance.
7. The following minimum hold points shall be included for the *Employer's* Quality Control Department:
  - Approval of QCP
  - Review of expansion tests results before the commencement of actual expansion on the main air ejector condenser unit
  - Review material certificates
  - Final Visual Inspection
  - Witness of Pressure Test
  - Final Sign-off and Acceptance
  - Final Data Book Review

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### 1.2.12 DRAWING REQUIREMENTS

1. The *Contractor* shall provide a drawing of the complete main air ejector condenser with all relevant dimensions and full material list. Additionally, detailed information regarding the tube bundle shall be included. These drawing will be supplied to the *Employer* in CAD format and also readable PDF.
2. All Drawings to be provided shall adhere to the Engineering Drawing Standard – Common Requirement (240-86973501).
3. Drawings submitted to Eskom may not be “Right Protected” or encrypted.

### 1.2.13 DOCUMENTATION REQUIREMENTS

1. All documents provided by the *Contractor*, including QCPs, Method Statements, and other documents impacting the work, are subject to Eskom's approval. These documents must be approved by the *Employer* at least 7 working days before the commencement of the Works.
2. Each document or drawing revision shall be accompanied by a list of the comments from the *Employer* on the previous revision, if applicable, along with the *Contractor's* response and corrective actions taken. Changes will be documented in a revision table within each drawing or document. Upon approval of the new revision, all prior revisions will be removed from the production floor.
3. Documents and drawings shall indicate the *Employer's* assigned drawing number. The *Contractor* may have his own document or drawing number on the document or drawing, but where reference is made among documents or drawings, the *Employer's* number shall be used.
4. The *Contractor* shall compile a complete data book for all work completed, containing the following at a minimum, if applicable:
  - Scope of work.
  - Approved QCP / ITP.
  - Inspection reports and Procedures.
  - As-built drawings, including tube maps.
  - Mechanical design calculations.
  - Full traceable material certificates in accordance with EN 10204 3.1, traceable to the actual bill of materials, drawings, and designs (applicable only to materials requiring 3.1 certification).
  - Pressure test certificates, a photocopy of the nameplate, including calibration certificates of pressure gauges.
  - Pressure test reports.
  - All NCR/CARs and associated corrective actions.

### 1.2.14 PRESSURE TEST REQUIREMENTS

1. The pressure test shall be conducted according to the pressure required by the design code, based on design pressure. The test pressure shall be as specified in Table 1.
2. The shell side pressure test shall be conducted first, with the waterbox blank flanges removed to inspect for leaking tubes. After that, the waterbox pressure test shall carried out.
3. The pressure test shall be executed using normal tap water as the test medium at ambient temperature.
4. Any leaking tube-tube plate joints found during the test will be re-expanded once. This information will be indicated on a tube plate map. If the tube still leaks after a second expansion, consultation with the *Employer* will be necessary. In this case, the leaking tubes shall be replaced.
5. For the vessel to pass the pressure test, the pressure must be sustained for at least 30 minutes. No cyclic testing is required.

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#### **1.2.15 CONFIGURATION MANAGEMENT AND DOCUMENT MANAGEMENT**

1. Transmittal letters shall be provided with each document submittal. The transmittal letter shall include the *Contractor's* drawing/document number, revision number, and title for each drawing or document attached.
2. Each drawing title shall be unique and shall be descriptive of the specific drawing content.

#### **1.2.16 COATING REQUIREMENTS**

1. Main air ejector condenser to be painted Strong blue waterboxes and shell White as per typical Pipelines and Vessels and Eskom standard 240-145581571 Standard for the identification of contents of pipes and vessels.

#### **1.2.17 DRY AND PRESERVATION**

1. The *Contractor* shall submit the complete drying out and preservation procedures for the coolers. These procedures shall be approved by the *Employer* and the *Employer's* quality representative prior to pressure testing.
2. After completion of all hydrostatic testing, the main air ejector condensers shall be drained and dried out. The *Contractor* shall demonstrate that the main air ejector condenser is completely dry on both the shell side and the tube side.
3. The drying out of the main air ejector condensers will be monitored by the *Employer*, and final blanking off shall not be carried out without the approval of the *Employer* and the Inspection Agency.
4. For storage periods longer than a week, the main air ejector condensers shall be stored indoors or under a fixed roof to avoid exposure to direct sunlight and high ambient temperatures.

#### **1.2.18 DRY AND PRESERVATION**

The *Contractor* shall supply per cooler a set of 10 tube plugs to be kept by the *Employer*. *Contractor* will also provide a tube plugging procedure.

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## 1.3 Interpretation and terminology

The following abbreviations are used in this Service Information:

| Abbreviation | Meaning given to the abbreviation    |
|--------------|--------------------------------------|
| ISO          | International Standard Organisation  |
| SANAS        | South African Accreditation Standard |
| SABS         | South African Bureau of Standards    |
| FFFR         | Fossil Fuel Fired Regulation         |
| PPE          | Personal Protective Equipment        |
| SHE          | Safety Health and Safety             |
| QCP          | Quality Control Plan                 |
| PER          | Pressure Equipment Regulations       |
| NDT's        | Non-Destructive Testing              |
| WPS          | Weld Procedure Specifications        |

## 2 Management strategy and start up.

### 2.1 The *Contractor's* plan for the service

The *Contractor* shall undertake the refurbishment of the main ejector condensers at Arnot Power Station in accordance with the Scope and applicable standards. The exact quantity of units to be refurbished will be confirmed by the *Employer's* commercial department.

The *Contractor* will plan, resource, and execute the refurbishment activities to ensure minimal disruption to station operations, maintaining quality, safety, and compliance with all specified requirements. All work will be scheduled and coordinated in alignment with the *Employer's* programme and operational constraints.

The *Contractor* is responsible for the supply, manufacture and transport, delivery and offloading to Arnot Power Station of all items in the following sections of this document (hereafter referred to as "the works") according to the applicable codes and standards and the requirements in this document.

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## 2.2 Management meetings

Meeting will be held as and when required by the *Service Manager* or the *Contractor* and chaired by the *Service Manager*.

After every analysis are done the analysis report must be drafted and submitted by the *Contractor* to the *Employer* within 24 hours and a meeting is to be scheduled to discuss the results of the analysed samples. This must be done before invoice is submitted and service entry is done by the end user after every service is rendered.

| Title and purpose                                                             | Approximate time & interval | Location                          | Attendance by:                            |
|-------------------------------------------------------------------------------|-----------------------------|-----------------------------------|-------------------------------------------|
| Risk register and compensation events                                         | As in when required         | To be communicated by safety team | <i>Employer and Contractor</i>            |
| Overall contract progress and feedback and presentation of the monthly report | Quarterly                   | To be communicated                | <i>Employer, Contractor</i>               |
| Service Feedback                                                              | As in when required         | To be communicated                | <i>Employer, Contractor and End-Users</i> |
| SHE meetings                                                                  | As in when required         | To be communicated by safety team | <i>Employer, Contractor</i>               |

Meetings of a specialist nature may be convened as specified elsewhere in this Service Information or if not so specified by persons and at times and locations to suit the Parties, the nature and the progress of the service.

Records of these meetings shall be submitted to the *Service Manager* by the person convening the meeting within five days of the meeting.

All meetings shall be recorded using minutes or a register prepared and circulated by the person who convened the meeting.

Such minutes or register shall not be used for the purpose of confirming actions or instructions under the contract as these shall be done separately by the person identified in the conditions of contract to carry out such actions or instructions.

## 2.3 Contractor's management, supervision and key people

As an when required, an order will be placed, and the *Contractor* will be required to send an authorised and competent personnel to collect and analyse the samples that need analysis at their laboratory.

## 2.4 Provision of bonds and guarantees

Not applicable



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## 2.5 Documentation control

All formal Contractual communications shall be on a letterhead and bear as a minimum the date, subject, reference number, Identities of sender and receiver and signature of sender and shall be delivered as attachments in the case of emails and not as a message in the email itself. All formal communications to the *Employer* shall be addressed to the *Employer's Agent*.

Every document or report should have the 4600 number; task order should have both 4600 and 4500 number and the invoice should have both 4600 and 4500 numbers.

The person representing the *Employer* at Arnot Power Station will issue each Task Order to the Supplier. Each Task Order will be submitted at least one week prior to the starting date.

All documents provided by the *Contractor*, including QCPs, Method Statements, and other documents impacting the work, are subject to Eskom's approval. These documents must be approved by the *Employer* at least 7 working days before the commencement of the Works.

## 2.6 Invoicing and payment

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 showing the amount due for payment equal to that stated in the *Service Manager's* payment certificate.

The *Contractor* shall address the tax invoice to Finance Shared Service (FSS) [Fss@eskom.co.za](mailto:Fss@eskom.co.za) and include on each invoice the following information:

- Name and address of the *Contractor* and the *Service Manager*.
- The contract number and title.
- *Contractor's* VAT registration number.
- The *Employer's* VAT registration number 4740101508.
- Description of service provided for each item invoiced based on the Price List.
- Total amount invoiced excluding VAT, the VAT and the invoiced amount including VAT.
- (add other as required)

## 2.7 Contract change management

Any change of the *Contractor's* company ownership should be communicated through to the *Service Manager*. Failing to do this may lead to contract termination with legal consequences.

The correct processes and procedures will be communicated through to the *Contractor* by the *Service Manager*.

If the *Employer's Service Manager* change, the *Contractor* will be notified by the *Employer* as soon as possible to ensure that the *Contractor* follow the correct communication channels

Clause 6 Compensation events of the NEC3 Term Service Contract will apply to all changes in this contract.

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## **2.8 Records of Defined Cost to be kept by the Contractor**

To substantiate the Defined Cost of Compensation Events, the *Employer* may require the *Contractor* to keep records of amounts paid by him for people employed by the *Contractor*, Plant and Materials, work subcontracted by the *Contractor* and Equipment.

The *Contractor's* Site Manager will complete the site daily log, and this will be submitted to the *Service Manager* for his signature before 16H00 of the following morning barring weekends. The Friday and weekend logs will be submitted before 16H00 Mondays. The log will include but not be limited to the following:

- Date and day
- Weather
- Site Conditions
- Work Done
- People who are employed by the *Contractor*
- Work sub-contracted by the *Contractor* and
- Any incidents during that period

## **2.9 Insurance provided by the Employer**

As per the Eskom insurance policy, Refer to Insurance Section on point Z12 of Contract

## **2.10 Training workshops and technology transfer**

Not applicable.

## **2.11 Design and supply of Equipment**

All tools and equipment provided by the *Contractor* to be SABS Compliant and to be checked daily as to whether they comply with the necessary Health and Safety requirements of Arnot Power Station.

## **2.12 Things provided at the end of the service period for the Employer's use**

### **2.12.1 Equipment**

Not applicable

### **2.12.2 Information and other things**

Full analysis report, all data accumulated during the service of the contract must be left behind Eskom premises at the end of the contract.

No information must be shared without authorisation from the relevant stake holder is acquired.

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## 2.13 Management of work done by Task Order

All work is to be performed in Accordance with Task Order provided.

The *Service Manager* may at any time instruct the *Contractor* orally, followed up in writing, to carry out work which is of an emergency nature. The *Contractor* shall issue a quote for the emergency work to the *Service Manager* for this work before the end of the next business day. The *Service Manager* will then create the order for the task and send the task order assessment.

Within 14 days of Task Completion, the *Contractor* shall submit to the *Service Manager* a detailed technical report for every completed Task Order. This report shall include all technical information and data produced for the Task Order and a technical evaluation on findings from the work done with recommendations for future action by the Parties and other information the *Service Manager* may require.

The prices for each item of work within the service shall be those on the Price List. Clause X19.3 requires that the items of work within the service which are not on the Price List are assessed as for compensation events.

### A Task Order includes:

- A detailed description of the work in the Task
- A priced list of items of work in the Task in which items taken from the Price List are identified.
- The starting and completion dates for the Task
- Conditions of the service agreement is in accordance with the Task Order issued
- No Task Order is issued after the end of the service period.

When any emergencies do arise, it is required from the *Contractor* to adhere to the following terms:

- The *Contractor* will be informed of emergencies when the *Service Manager* first becomes aware of it.
- Response time within 1 hour for any communication when the *Contractor* acknowledges the emergency.

## 3 Health and safety, the environment and quality assurance

### 3.1 Health and safety risk management

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 "*Contractor*" (as defined and provided for under the Construction Regulations 2014 (promulgated under the Occupational Health & Safety Act 85 of 1993 (OHSAct)) ("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 Occupational Health and Safety Act 85 of 1993; its regulation and Safety, Health and Environmental (SHE Spec) requirements for this contract.

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 *Subcontractor's*, employees and others under the *Contractor's* direction and control, likewise observe and comply with the foregoing.

In addition to the requirements of laws governing health and safety, Eskom have some additional requirements particular to the service and affected property for this contract.

**NB:** The type of PPE needed for the project will be determined by the task risk assessment but taking into consideration the generic risk found at our plant.

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**Consideration must be given to following Eskom Life Saving Rules: 240-62196227:**

**1. Open, Isolate, Test, Earth, Bond, and/or insulate before touch.**

No person may work on any electrical network unless:

He/she is trained and authorised as competent for the task to be done.

**2. Hook up at height**

Working at height s defined as any work performed above a stable work surface or where a person puts himself/herself in a position where he/she exposes himself/herself to a fall from or into.

**3. Buckle up**

No person may drive any vehicle on Eskom business and/or on Eskom premises:

- Unless the driver and all passengers are wearing seat belts.

**4. Be sober**

No person is allowed to work under the influence of drugs and alcohol.

"Under the influence" means the use of alcohol, drugs, and/or a controlled substance.

This includes any level of an illegal substance in the body, irrespective of when the substance was used.

**5. Permit to Work**

Where an authorisation limitation exists, no person shall work without the required Permit to Work (PTW), which is governed by the Plant Safety Regulations, Operating Regulations for High Voltage Systems (ORHVS) etc.

**NB:** in the case of live work, a "live work declaration form" is to be completed by the authorised person who is the person responsible for the safe execution of work according to relevant standards and procedures.

Please ensure that these rules are understood and communicated with the urgency that they deserve. If any of these rules are unclear or the consequences not understood, please do not hesitate to discuss it with Eskom.

We would like to continue our current partnership and therefore urge your support in the implementation and upholding of these rules.

The *Contractor* shall comply with the health and safety requirements contained in Annexure \_\_\_\_\_ to this Service Information.

### **3.2 Environmental constraints and management**

All service providers appointed to render any services within Eskom Arnot Power Station are required to comply with the station's Environmental Management System requirements.

NB: Before commencing with any work, the service providers are required to visit the station's environmental section for evaluation. The station's environmental practitioner will evaluate the services to be rendered by the service provider and therefore allocate relevant legal and other requirements documents, which the *Contractor* shall comply with during the works.

The service provider shall then commence with the works but paying inordinate attention towards implementing the relevant legal and other requirements measures as agreed in the register. Failure to comply with this

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agreement may ultimately lead to the termination of this contract. This requirement shall also be clearly stipulated in the NEC contracts between Eskom Arnot Power Station and any service.

It should always be noted that Arnot Power Station is ISO14001 certified and therefore promotes Integrated Environmental Management (IEM) philosophy, which aims to achieve a desirable balance between conservation and development. All activities taking place within Arnot Power Station must consider section 28 of the National Environmental Management Act (107 of 1998) which makes provision for the duty of care approach. The *Contractor's* team must commit to review and to continually improve environmental management, with the objective of improving overall environmental performance. The *Contractor* must consult with Arnot Environmental section on a regular basis for on-going assistance and advice.

All spillages during delivery and collection must be reported to the *Employer* immediately. Where rehabilitation is needed the *Contractor* will be held responsible and will carry the cost.

### **Audits**

Audits covering various Environmental aspects, Occupational health and safety, Operational, IBI and Maintenance Management at the plant shall be carried out within an acceptable interval to ensure compliance with statutory requirements and Eskom's policies, Directives, procedures etc.

The *Contractor* shall comply with the environmental criteria and constraints stated in Annexure \_\_\_\_\_

### **3.3 Quality assurance requirements**

The *Contractor* is also expected to be ISO 17025 SANAS certified and compliant.

The *Contractor* shall be required to demonstrate by means of a Contract Quality Plan (CQP) that this organisation is so structured that all the requirements of the specification will be properly monitored and controlled. The Contract Quality Plan (CQP), which must include the Quality Control Plan (QCP), is to be drafted in accordance with QM-58 and the Supplier Contract Quality Requirement Specification (QM58).

The Quality documents are to be submitted for approval to the *Service Manager* within thirty (30) days after a contract has been awarded to the *Contractor*.

No work may commence unless the Contract Quality Plan and Quality Control Plan documents have been approved in writing and a copy submitted to the *Service Manager*. The *Contractor*, in conjunction with the *Service Manager* must sign off all Quality Control documents after completing all work as per the agreed scope. The *Contractor* to submit a copy of the final signed off documents/data packages to the *Service Manager* within one (1) week after completion of work.

The *Contractor* shall be required to read and fully understand the contents of the Supplier Contract Quality Requirement Specification (QM58) and a copy is to be kept in possession or on premises.

The *Contractor* shall comply with all *Employer's* requirements as set out in QM-58 (Supplier Contract Quality Specification).

The *Contractor* further ensures that the sub-*Contractor's* programmes comply with the requirements of the Service Information.

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The *Contractor* notifies the *Service Manager* of any changes to the Quality System and obtains agreement prior to implementation on existing orders and contracts, or sub orders and subcontracts.

The Supplier Contract Quality Requirement Specification (QM58) shall remain applicable in the event of the contract being extended or modified for reasons permitted.

By signature and acceptance of this contract the *Contractor* acknowledges and agrees to comply with and adhere to Eskom's policies and procedures (current and/or latest revisions) including the Supplier Contract Quality Requirement Specification (QM58).

#### **Contract Quality Management Plan Requirement**

The quality control plans are reviewed by the *Service Manager* to allow for insertion of his specific requirements, including hold and witness points, prior to commencement of work. The *Contractor* does not commence work until the *Service Manager* accepts

The *Contractor* periodically updates the contract quality management plan to reflect changes in any of the above details. The frequency of such updates is determined by the *Service Manager* but will not be greater than one year.

## **4 Procurement**

### **4.1 People**

#### **4.1.1 Minimum requirements of people employed**

The *Contractor* shall be required to utilise trained and qualified personnel for the respective disciplines which he/she will utilise in the execution of the work scope as per the evaluation criteria.

#### **4.1.2 BBBEE and preferencing scheme**

Not applicable.

#### **4.1.3 Accelerated Shared Growth Initiative – South Africa (ASGI-SA)**

The *Contractor* complies with and fulfils the *Contractor's* obligations in respect of the Accelerated and Shared Growth Initiative - South Africa in accordance with and as provided for in the *Contractor's* ASGI-SA Compliance Schedule stated below

### **4.2 Subcontracting**

#### **4.2.1 Preferred subcontractors**

Not applicable

#### **4.2.2 Subcontract documentation, and assessment of subcontract tenders**

Not applicable

#### **4.2.3 Limitations on subcontracting**

Not applicable

#### **4.2.4 Attendance on subcontractors**

Not applicable

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## 4.3 Plant and Materials

### 4.3.1 Specifications

All Materials used must conform to the OEM's standards and tolerances.

### 4.3.2 Correction of defects

The *Contractor* will be responsible for the correcting of all defects and must be addressed within 24 hours. The *Contractor* corrects a defect whether the *Service Manager* notifies him of it or not to minimise the adverse effect on the *Employer* or others.

If the *Contractor* does not correct a defect within the time required by this contract, the *Service Manager* assesses the cost to the *Employer* of having the defect corrected by other people and the *Contractor* pays this amount.

### 4.3.3 *Contractor's* procurement of Plant and Materials

The *Contractor* is responsible for the supply, manufacture and transport, delivery and offloading to Arnot Power Station

### 4.3.4 Tests and inspections before delivery

Inspections will be done visually via colour endoscope, and as far as possible with a camera that can be entered into the shell via the vacuum nozzle. The course of action will be determined through agreement between Eskom Engineering and the *Contractor*.

Conduct shell bellow inspections after cleaning and sandblasting.

There are two possible outcomes: the tube bundle will be refurbished or replaced.

### 4.3.5 Plant & Materials provided "free issue" by the *Employer*

Water, power and sanitation to be supplied by the *Employer*, no free issues, all analyzing tools are to be supplied by the *Contractor*.

*Employer* will free-issue the air ejectors in turn for refurbishment, on basis of two ejectors to be refurbished, and when those are installed the next two will be made available until all 12 have been refurbished.

### 4.3.6 Cataloguing requirements by the *Contractor*

Not applicable.

## 5 Working on the Affected Property

### 5.1 *Employer's* site entry and security control, permits, and site regulations

The *Contractor* must ensure that all his personnel attend a Health and Safety Induction presented by Arnot Power Station free of charge prior to commencement with the services. The induction is valid for the duration of one (1) year at the Power Station.

All Site access is controlled through the designated access gate.

The *Contractor* is informed of the access procedures through Site regulations and that such procedures may change depending on the prevailing security situation.

The *Contractor* shall provide and install barricades and warning devices to ensure that equipment and persons are not exposed to danger or to prevent access to dangerous areas.

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All welding, flame cutting and grinding work shall be properly screened to protect persons from arc flashes or eye injuries.

All grating shall be covered with an adequate protective screening when welding or flame cutting in the vicinity is undertaken strictly with the *Employer's* Directive ASSF 00005.

All vehicles must be driven with due consideration for personnel and property. A maximum speed limit of 40 kilometres per hour will be always adhered to on the premises.

The *Employer* follows an accident prevention policy that includes the investigation of all accidents involving personnel and property. This is done with the intention of introducing control measures to prevent a recurrence of the same incidents.

The *Contractor* is expected to 'co-operate fully to achieve this objective.

The Project Manager must be informed within 24 hours of any injuries or damage to property or equipment. This report does not relieve the *Contractor* of his legal obligation to report certain incidents to the Department of Labour, or to keep records in terms of the Occupational Health and Safety Act, and Compensation for Occupational Injuries and Diseases Act.

## **5.2 People restrictions, hours of work, conduct and records**

The *Contractor* keeps records of his people working on the Affected Property. The *Service Manager* shall have access to them at any time.

The *Contractor* collection and delivery must be done at the *Employer's* site as follows:

**Monday to Thursday – 07h00 to 16h15**

**Fridays – 07h00 to 12h00**

Deliveries can only be done during normal working hours unless in case of emergency.

## **5.3 Health and safety facilities on the Affected Property**

Medical facilities are available on site for emergencies only.

The *Contractor* shall comply with the health and safety requirements:

### **A. Road Safety**

Speed limit: 40km/h

By passing Speed humps not allowed

Transporting People at the back of the bakkie is not allowed

Buckle up always

Park only at demarcated areas

### **B. Sanitation**

Toilets for both genders are available at the plant

### **C. Emergency**

The emergency number for Arnot is 013 297 9184 Pax:5222

Emergency alarms are tested every Wednesday 10H00



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#### **D. Access**

Before access can be granted the following must be met:  
Safety file checked and approved

The *Contractor* shall comply with the latest version of Occupational Health and Safety Act No. 85 of 1993 and Eskom Health and Safety policy, procedures, specifications and guidelines.

### **5.4 Cooperating with and obtaining acceptance of Others**

*Contractor* co-operates with Others and shares the Affected Property with them as stated in the Service Information.

### **5.5 Records of Contractor's Equipment**

*Contractor's* equipment will be verified at the security gate and recorded whether it is owned or hired.

### **5.6 Equipment provided by the Employer**

The *Employer* will provide overhead crane in the event of lifting requirements and provide a scaffolding when required. provided the *Contractor's* employee is an authorised lifting machine operator.

### **5.7 Site services and facilities**

#### **5.7.1 Provided by the Employer**

##### **Potable water**

Potable water for construction purposes is also available free of charge. Any installation is for the *Contractor's* account.

##### **Meals**

Meals on site for *Contractor's* personnel are not available

##### **Sanitary Facilities**

Sanitary facilities are provided by the *Employer*.

##### **General**

The *Contractor* is to comply with all Site regulations and instructions. The onus is on the *Contractor* to ensure his familiarity with the *Employer's* Site regulations and inspections.

##### **Fire Protection**

The *Contractor* is to comply with requirements of Eskom Standard NWS 1494 Revision 4 "Fire prevention and protection of *Contractor's* premises on Engineering Sites" and of Site Regulations pertaining fire protection. (NWS1494 Revision 4).

##### **Fire Precautions**

Any tampering with the *Employer's* fire equipment is strictly forbidden. All exit doors, fire escape routes, walkways, stairways and stair landings must be kept free of obstruction, and not to be used for work or storage at any time. Firefighting equipment must always remain accessible.

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### **Plant Safety Regulations**

The *Employer* shall on request from the *Contractor* isolate required plant from all sources of danger as described in the Plant Safety Regulations. The *Contractor* shall conform to all rules and regulations applicable to Plant Safety and shall complete the Workman's Declaration Book prior to working on the plant.

### **Induction training to employees**

No person will be issued with an access permit without proof that the person did attend the local Arnot Power Station induction course.

A one-day access permit will be issued for persons attending the induction course. It is the *Contractor's* responsibility to arrange with the Project Manager one week in advance for a course booking.

### **Supply of construction power**

Conditions of supply for Erection In order to comply with the Electrical Installation Regulations under the Occupational Health and Safety Act,

no 85 of 1993 the following requirements are met before electricity is supplied it is expected that the *Contractor* is in possession of a valid certificate of compliance. Your electrical installation is inspected and tested by an accredited person to ensure that it complies with the requirements of the Occupational Health and Safety Act, 1993 and the code of Practice for wiring of premises, SABS 0142. After you have obtained the certificate of compliance, the *Employer* is to inspect your electrical installation and if satisfied, it is connected and supplied from the construction power supply.

The *Contractor* provides at his own expense all temporary wiring and cabling to lead power from the *Employer's* supply points, to where it is required, maintain same and remove on completion. These points of supply are the points designated by the Project Manager.

### **Warning:**

Phase rotation may change during power supply breaks. *Contractors* are responsible to check rotation of their Equipment before recommencing work.

### **Application for supply**

A standard 'Application for Power' form is completed and submitted to the Project Manager at least two weeks before a power supply is required. The *Employer* guarantees the continuity of power supply for a minimum 26 out of 30 days.

### **Cost of supply**

There is no charge for electricity used for construction purposes and no connection fee is levied for the point of supply.

#### **5.7.2 Provided by the *Contractor***

All service items required to complete the service, and repair successfully must be provided by the *Contractor*.

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## 5.8 Control of noise, dust, water and waste

### Refuse Disposal

The *Contractor* is responsible to keep the work area clean of any rubble.

All waste introduced and/or produced on the *Employer's* premises by the *Contractor* for this contract, is handled in accordance with the minimum requirements for the Handling and Disposal of Hazardous Waste in terms of Government Legislation as proclaimed by the Department of Water Affairs and Forestry Act 1994 Ref: ISBN0621 - 16296-5.

The *Employer* provides colour coded bins for refuse disposal. The *Employer* empties these bins.

*Contractor* keeps the work area clean of any rubble, and to places all refuse into the bins provided. The *Contractor* ensures that all workers under his control strictly adhere to the correct use of refuse bins.

While working at the plant all mandatory signs must be adhered to, if ear plugs/muffs, helmets with a chin strip and goggles are mandatory, they need to be always worn.

If there are safety restrictions at the plant the *Contractor* is to work on prior to the work.

The pre-task risk assessment done must indicate as such with mitigations of the safety issue in question.

## 5.9 Hook ups to existing works

Instruments are easily accessible no hooking at heights is required.

## 5.10 Tests and inspections

### 5.10.1 Description of tests and inspections

- The pressure test shall be conducted according to the pressure required by the design code, based on design pressure. The test pressure shall be as specified in Table 1.
- The shell side pressure test shall be conducted first, with the waterbox blank flanges removed to inspect for leaking tubes. After that, the waterbox pressure test shall be carried out.
- The pressure test shall be executed using normal tap water as the test medium at ambient temperature.
- Any leaking tube-tube plate joints found during the test will be re-expanded once. This information will be indicated on a tube plate map. If the tube still leaks after a second expansion, consultation with the Employer will be necessary. In this case, the leaking tubes shall be replaced.
- For the vessel to pass the pressure test, the pressure must be sustained for at least 30 minutes. No cyclic testing is required.
- Inspections shall also be conducted in the event of torque fluctuations or evidence of damage to the tube inside surface.

### 5.10.2 Materials facilities and samples for tests and inspections

A completed Quality Control Plan or Inspection and Test Plan of a similar heat exchanger refurbished or built by the Contractor in the past is required.

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## 6 List of drawings

### 6.1 Drawings issued by the *Employer*

This is the list of drawings issued by the *Employer* at beginning or before the Contract Date and which apply to the contract

| Drawing number | Revision | Title |
|----------------|----------|-------|
|                |          |       |