

PART 3: SCOPE OF WORK

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C3.1	<i>Employer's Service Information</i>	34
C3.2	<i>Contractor's Service Information</i>	TBA
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EMPLOYER'S SERVICE INFORMATION

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1 Description of service

1.1 Executive overview

The scope of this contract relates to Refurbishment of Auxiliary Turbine Pumps and motors at Majuba Power Station. This contract will be for five years. Purpose is for pumps on the condensate, turbine auxiliary and turbine centreline plant areas. The *Supplier* is required to have an approved quality management system in place.

The *Employer's* objectives for this contract include security of supply/refurbishment, competitive pricing, encouraging a long-term commercial relationship with the *Contractor* based on mutual trust, commitment to common goals and understanding of each Party's expectations and values.

1.2 Description of the works

Refurbishment of turbine pumps for Majuba Power Station, on an "as and when" required basis. The scope of work is summarised as follows:

The Contractor shall:

1. Transport the components, within 24 hours after removal and notification from a Majuba Power Station representative, in a suitable transportation cradle from the respective Majuba Power Station to the repair Contractors workshop.
2. Ensure safe transport of the components and equipment from and to the Power Station site, and to and from the Contractors and appointed sub-Contractors. The Contractor will be liable for any losses or damage due to mishandling or incidents during the transport process.
3. Receive the pump and/or associated auxiliary equipment from Majuba Power Station and record on a one pager the as found condition, supported by photographs.
4. Strip and assess the damage, determine spares requirement to enable the Contractor to refurbish and or repair damaged components.
 - a. It is the responsibility of the Contractor to send out all the components for refurbishment to the OEM or accredited and agreed-to supplier. The quality of the workmanship will be supervised by the *Contractor* and thus Eskom will hold him liable for sub quality work from others. The Employer reserves the right to inspect any of their components at the Contractors premises when they require too.
5. Ensure that all stripped components are marked with a unique job/project number and small parts are stored in a suitable container, also marked with the unique job/project number (If possible, reference the pump serial number with the job in order to be able to create a refurbishment history profile).
6. Ensure that all parts or stripped components are stored in a manner not to incur environmental or unintended accidental damage.
7. Document all findings in a detailed strip and assessment report which must include photographs to be presented to and discussed with the relevant Majuba Power Station System Engineer.
8. Provide an assessment report advising on the condition of the stripped components, and state if the components are to be re-used or replaced. Either decision must be supported by a technical justification based on specifications and condition.
9. Provide the scope of work which shall be discussed and agreed upon between the Contractor and the relevant System Engineer prior to proceeding with the repair or the refurbishment.
10. Submit the scope of work based on the reviewed assessment report, together with the Quality Control Plan (QCP), check sheets to the Eskom Service Manager or his/her delegate, Majuba Power Station System Engineer or his representative for acceptance and signatures. Once the scope of work and QCPs have been accepted for the Contractor to refurbish and or repair the pump or associated auxiliary equipment work may proceed in accordance with the agreed scope of work. Any

changes to the scope of work must be formally communicated to the Eskom Service Manager or his/her delegate, Majuba Power Station System Engineer or his representative, and agreed to in writing prior to commencing with the repair.

11. Submit a comprehensive quotation to the relevant Eskom Service Manager or his/her delegate for acceptance. The quotation must be submitted after the scope of work and QCP has been accepted and approved. The Eskom Service Manager or his delegate will review the work to be done and the price, and then issue a Task Order for the work to be undertaken.
12. The Contractor communicates in writing to the Eskom Service Manager or his delegate, 72 hours prior to any intervention point/s in the QCP which require client witness. In the event of an urgent job, warranty job or catastrophic failure, the Contractor may send the request in writing, followed by a telephonic call to the Service Manager or his delegate, requesting for a quicker turnaround time from Majuba Power Station System Engineer, QC personnel or his representative
13. Submit a comprehensive time schedule, in MS project or Primavera, to the Eskom Service Manager or his delegate for approval,.
14. Ensure that all tests to be done are done in accordance with the approved and signed QCP, taking into consideration the applicable latest standards in the list of standards, as a minimum.
15. Any new major components supplied by the Contractor to refurbish or repair the pump/s and their associated auxiliary equipment must have certification which complies to EN 10204 Type 3.1 Certification.
16. Acceptance of refurbished and/or repaired pump/s and their associated auxiliary equipment must achieve the performance levels as per original equipment design and specification. These pumps performance must be tested to ensure that they perform at their design parameters and no leaks observed on the mechanical seal.
17. Ensure that the refurbished and/or repaired pump/s and their associated auxiliary equipment are delivered back to Majuba Power Station stores with relevant documentation and in a suitable transportation cradle. Majuba Power Station stores, System Engineer and Eskom Service Manager or his delegate must be made aware of the delivery and furnished with a signed data book at the time of delivery.
 - a. Ensure that all scrapped components are returned to Majuba Power Station stores with a scrap certificate at the same time of delivering the refurbished pump or associated auxiliary equipment.
 - b. All components delivered to the Power Station should be preserved and packaged or crated for medium term storage. (2 – 5 years). Crates to be re-useable. Crates should be lift-able by crane or forklift. Crates to be marked with a purchase order number, weight, list of contents, and photos of contents.
18. Ensure that the hard copy and an electronic copy of the data book is sent to Majuba Power Station System Engineer and the Eskom Service Manager or his/her delegate at the time of pump/s and associated auxiliary equipment delivery to site.
 - a. The repair Contractor to keep the data available for a minimum duration 10 years.
 - b. Ensure that the Majuba Power Station Engineer or his representative reviews and accepts the pump and/or associated auxiliary equipment and signs off all the reviewed relevant paperwork before the pump leaves the Contractors premises.
19. Ensure that all welding repair work done by the Contractor, or his sub supplier is approved by the client, signed by AIA and after completion of the scope, the job must be accompanied by relevant documentation.
20. Welding and NDT work to be done according to the applicable ISO standards and Eskom Welding requirements. It is the responsibility of the Contractor to familiarise himself with the Eskom welding requirements and ensure compliance.
21. Welding procedure specification (WPS) and procedure qualification record (PQR) to be approved by an Eskom Welding Engineer prior to commencing with the work.
22. All welding repair works to have its own QCP which is a separate QCP from the overall pump refurbishment/repair QCP.

23. The Contractor supplies his own engineering services in relation to the refurbishment and repairs of all components. The Contractor shall contact Eskom engineering concerning any major decisions that will affect the refurbishment, repair, installation of the pump on site or its operational capabilities (out of the ordinary repairs).
24. The Contractor shall supply training (engineering, maintenance, and installation) to the client as and when required.
25. The Contractor shall agree to do material analysis as and when required for failure investigation purpose, at his costs.
26. Ensure that this Contract includes the procurement of OEM spares.

Motor-Pump Unit Refurbishment Requirements

Scope of Work: The motor within the motor-pump unit shall be refurbished in accordance with the "Refurbishment of Power Station Electric Motors Standard" (240-56358854). Motors rated at less than 22 kW are generally to be replaced. However, if the refurbishment costs are minimal (i.e., less than 50% of the cost of a replacement motor) and can ensure the reliability of the machine, and if the motor is less than 10 years old, a refurbishment scope submitted by the contractor may be considered.

Testing Requirements: Upon completion of the refurbishment scope, the following tests are to be conducted to verify the motor's performance:

- **Stator Winding Insulation Resistance**
- **Stator Winding Polarization Index**
- **Rotor Winding Insulation Resistance**
- **Rotor Winding Polarization Index**
- **Stator Winding Dielectric Test**
- **Rotor Winding Dielectric Test**
- **Stator Voltage Surge Test**
- **No Load Run** (including measurement of current, current balance, power, power factor, speed, acoustic noise, bearing vibration, bearing temperatures)
- **Temperature Rise, Efficiency, Power Factor** (at duty point and full load)
- **Torque/Speed Characteristic**

Insulation Requirements:

- The insulation class for new winding shall be **Class F**.
- The permitted maximum temperature of the new winding must comply with **Class B** insulation standards.

Documentation: The contractor is required to submit the following documents as per the "Refurbishment of Power Station Electric Motors Standard" (240-56358854):

- **Appendix B:** Proforma Specifications
- **Appendix C:** Monitoring and Testing for Motors
- **Appendix D:** Information Required in Data Pack for Repaired and Refurbished MV Motors
- **Appendix E:** Standard Form for Routine Test Certificates
- **Appendix G:** Miscellaneous Requirements

These documents and test results will form part of the deliverables to ensure compliance with the refurbishment standards and to verify the reliability of the refurbished motor.

1.2.1 Tests and inspections required

- a) The *Supplier* must submit a Quality Control Plan (QCP), indicating inspection interventions during refurbishment, this will give a *Purchaser* an opportunity to add intervention where required. QCP must be submitted as soon as contract is in place for all different items that will be refurbished under this contract. QCP must be submitted to the *Purchaser* before refurbishment of items.

1.2.2 The following abbreviations are used in this Service Information:

Abbreviation	Meaning given to the abbreviation
GO	General Overhaul
SOW	Scope of work

3. Specifications

Title	Date or revision	Tick if publicly available
<u>General Specifications:</u>		
Occupational Health and Safety Act, 85 of 1993		Act 85 of 1993
Programming and Progress Monitoring Service-Equipment Supply Contractor		NWS 1065
Plant Safety Regulations		OPR 3305
SABS Quality Standards		SABS ISO 9001
Safety, health and environmental requirements to be met by Contractors		BIA/RM/STD/01
Supplier Quality Management Specification	Latest	240-105658000
<u>Technical specifications:</u>		
Eskom Approval of personnel performing quality related special processes on Eskom Plant	Latest	240-83539994

4. Constraints on how the *Contractor* Provides the Works

4.1 Normal Stock, packing, transport and offloading of the goods

The *Supplier* must provide a Packaging & Transport procedure for all components/spares when required by the *Purchaser*.

4.2.1 Normal Stock

- All spares should be packaged to ensure medium to long term preservation.
- All items should be delivered with delivery note that includes a detailed component description, stock number, part number and signed quality release form.
- The *Contractor* should ensure that all components are refurbished to OEM specification.

4.2.2 Packing/crafting

- The *Supplier* must ensure that items are legible and indelibly marked/tagged with the *Purchaser's* Stock number where available, purchase order number, description, and *Supplier* reference number.
- The Supplier is responsible for packaging of all spares delivered to the *Employer* main stores. All spares supplied should be preserved for long term storage.
- All packaging within sealed containers must have an inspection sheet that is signed by the Supplier. All sealed containers must be provided with facility that can be opened for component inspection and be sealed again. This will give an opportunity to the *Employer* to inspect and accept components before storage. A signed copy of data book must be included in the sealed container.
- The container must indicate whether staking is permitted. If permitted, the maximum allowable weight must be clearly indicated.
- Packaging must be designed to enable lifting capability via overhead crane and forklift.
- The Gross packaging weight must be written on the sealed container.

4.2.3 Offloading

- a) All goods must be delivered and off loaded at the *Purchaser's* stores.
- b) All items must be delivered in crates. Crates to be lined inside to prevent dust ingress. Some of these components will be kept in store as spares, therefore it must be preserved accordingly.
- c) Crates to be such a design that it can be lifted with a forklift and must be able to be lifted with a sling using a crane, it must not collapse when lifted.

5. Management Strategy and Stat up

5.1 The Contractor's plan for the service

- To be discussed before each task can be carried out between the *Contractor* and *Employer*.
- Program to be supplied on request on a signed hard copy as well as soft copy, see Scope of Work.
- The contractor can start the work after the Purchase Order and task Order is issued.

5.2 Meetings

- Meetings of a specialist nature may be convened at times and locations to suit both the Parties.
- Records of these meetings shall be submitted to the *Purchaser* 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 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.

5.3 Contractor's management, supervision and key people

- All staff must be qualified, trained and competent to execute scope.

5.4 Documentation control

- Each instruction, certificate, submission, proposal, record, acceptance, notification, reply and other communication which this contract requires must be communicated in a form, which can be read, copied, recorded and filed.
- It must be written in a language of this contract.
- All reports must be discussed, compiled and handed to the *Employer's* Supervisor, *Service Manager* (to be announced by the *Employer*) and Engineer
- All communications must be printed and filed in the *Service Manager* file.
- All communications and documentations to be shared with the relevant end user.

5. Items to be refurbished

Description	Stock number
Stator water cooling pump	213697
FRF Main pump	207268
FRF Booster pump	207793
Jacking oil pump	193994
LP Hoodspray pump	193993
LP Bypass Power pack Pump (are we not going to changes these)	48891
Purifier Pump (U1-3)	750284
Purifier Pump (U4-6)	750285
Turbine condensate Pump (TCT)	579859
Flashbox pump	586847
Tapprogge pumps	245304
Unit 4-6 DC Lubricating Oil Pump	193756
Unit 4-6 Filling Lubricating Oil Pump	207124
Unit 1-3 AC/DC Lubricating Oil Pump	45062
Unit 1-3 Filling Lubricating Oil Pump	45063
U4-6 power packs	216697
Seal oil pump	207797
U1-6-Syncdrive pump	580048

