	<b>Works Instruction</b>	<b>Medupi Power Station</b>
---	--------------------------	-----------------------------

Title: **Medupi Power Station HP Valves  
Spares Scope of Work.**

Document Identifier: **240-141834272**

Alternative Reference  
Number:

Area of Applicability: **Medupi Power Station**


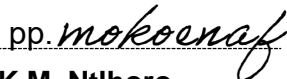

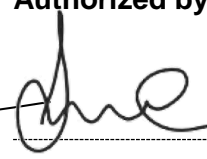
Functional Area: **Engineering**

Revision: **2**

Total Pages: **17**

Next Review Date: **N/A**

Disclosure  
Classification: **Controlled Disclosure**

Compiled by	Supported by	Functional Responsibility	Authorized by
	pp. 	p.p. 	
<b>E.U. Netshivhulana</b>	<b>K.M. Ntlhoro</b>	<b>T.S. Shuma</b>	<b>J.C. Mkhathshwa</b>
<b>Turbine System Engineer</b>	<b>Turbine Senior Engineer</b>	<b>Turbine Engineering Manager</b>	<b>Engineering Manager</b>
Date: 2022/04/20	Date: 2022/04/20	Date: 2022/04/20	Date: 2022-04-20

<b>Content</b>	<b>Page</b>
1. Introduction.....	3
2. Supporting Clauses .....	3
2.1 Scope.....	3
2.1.1 Purpose.....	3
2.1.2 Applicability .....	3
2.1.3 Effective date.....	3
2.2 Normative/Informative References .....	3
2.2.1 Normative.....	3
2.2.2 Informative.....	3
2.3 Definitions .....	3
2.4 Abbreviations .....	4
2.5 Roles and Responsibilities .....	4
2.6 Process for Monitoring.....	4
2.7 Related/Supporting Documents.....	4
3. Feedwater and Centreline Auxiliaries Spares Scope of Work .....	5
3.1 Supply and Delivery .....	5
3.2 Acceptance of Spares .....	6
3.2.1 Spares Identification .....	6
3.2.2 Replacement Parts Upgraded/Modified .....	7
3.2.3 Packaging .....	7
3.2.4 Acceptance of spares .....	7
3.2.5 Information to be provided .....	8
3.3 Spare Contract Bill of Material .....	9
4. Acceptance.....	17
5. Revisions.....	17
6. Development Team .....	17
7. Acknowledgements .....	17

## **Tables**

Table 1: Estimated 3 year BOM .....	9
-------------------------------------	---

## **CONTROLLED DISCLOSURE**

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

## **1. Introduction**

Medupi Power Station's High Pressure (HP) and High Temperature (HT) valves are utilized in the Feedwater, Main Condensate, LP heating, HP heating systems. These valves are critical and have an impact on production and station water consumption which can result in Unplanned Capability Loss Factor (UCLF).

In order to reduce the probability of a high UCLF, a proper stock holding of spares is required to fix and prevent breakdowns that negatively influence the plants throughput.

## **2. Supporting Clauses**

### **2.1 Scope**

The SOW specifies the required spares, quantities of spares to be supplied by the *Supplier*/OEM and conditions for acceptance. The scope included here does not substitute procurement procedures that will be followed during the procurement process. **Valves to be supplied shall comply with the latest revision of Eskom Procedure "240-128557196- Procurement Standard of High Pressure and High Temperature Valves in Coal Fired Power Stations"**.

#### **2.1.1 Purpose**

The purpose of this document is to formally request the *Supplier* to supply spares and ensure that all maintenance spares which are being procured by Medupi Power Station are correct. .

#### **2.1.2 Applicability**

This document shall apply to Medupi Power Station Feedwater and HP heating Materials Management.

#### **2.1.3 Effective date**

The effective date of this document is the date of authorisation.

### **2.2 Normative/Informative References**

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

#### **2.2.1 Normative**

#### **2.2.2 Informative**

### **2.3 Definitions**

<b>Definition</b>	<b>Explanation</b>
<b>Contractor</b>	Service provider contracted for supplying and delivering CCI spares.

#### **CONTROLLED DISCLOSURE**

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

Definition	Explanation
Employer	Eskom Medupi Power Station

## 2.4 Abbreviations

Abbreviation	Explanation
BOM	Bill of material

## 2.5 Roles and Responsibilities

Responsibility and accountability as per RACI.

Responsible	Accountable	Consult	Inform
Contract manager.	Contract manager	Buyer.	Maintenance, Feedwater and Centreline Auxiliaries System Engineer.
Assurance that all actions listed in this SOW are undertaken (follow up, advice, consultation)	Implementation of this SOW, random reviews and audits for adherence, provide assurance that any deviations will be corrected.	Provide support, advice and communication with outside stakeholders where needed.	Planning and advice.

## 2.6 Process for Monitoring

This document will be a once-off document to state the scope of work for a spares supply and delivery contract.

## 2.7 Related/Supporting Documents

N/A

### CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

### **3. Feedwater and Centreline Auxiliaries Spares Scope of Work**

#### **3.1 Supply and Delivery**

The contractor shall be responsible to supply and deliver spares Medupi's Feedwater and HP Heating. A list of the items is shown below.

It is important to note that the quantities are an estimate and can vary depending on breakdown and Medupi stockholding requirements for a 5 year period.

It should further be noted that because these are only estimated quantities based on the current experience and information, Medupi is under no obligation to procure the total estimated quantities and task order for specific spares will only be placed as and when they are required.

The items on the list are consisting of high moving stock and critical spares which include spares in the following areas:

- a) Feedwater
- b) HP Heating

The suppliers to provide quotes for deliveries of the following:

- Less than 1 ton.
- Between 1 and 8 ton.
- More than 8 ton.

The following are the *Supplier's* requirements:

- a) The *Supplier* will ensure that the correct spare is supplied and will replace or be liable for damage at his/her cost if the incorrect or defective spare/s is supplied.
- b) The *Employer's* (i.e. Eskom Holdings SOC) acceptance of delivered spare/s does not absolve the *Supplier* of the liability to supply the correct and/or defect free spare.
- c) The *Supplier* may, at the *Employer's* discretion, be given access to the plant to verify the information of the installed spare.
- d) The spare must be to the exact same specification as installed in the plant and specified on this works information. *Notwithstanding the stipulated condition that the Supplier is responsible for verifying the correctness of the spares information provided by the Employer in relation to the existing installed spare. This may include the Supplier consulting the original supplier of the spare to ensure correctness of information provided by the Employer.*
- e) The *Employer* may at his/her discretion make the *Employer's* Engineer or employees or *others* available to the *Supplier* for the purpose of soliciting additional information or verifying information as the need arises.
- f) The *Supplier* will supply any additional information such as brochure, general arrangement drawing, certificates, detailed specification, etc.
- g) The *Supplier* provides the *Employer* with additional spares information and verifies information required in the attached data capturing forms (DCF) at least three months after conclusion of

#### **CONTROLLED DISCLOSURE**

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

the contract or (where lead time is less than three months) a week before delivery of respective spare.

- h) The *Supplier* shall supply preservation and storage procedure/s, where applicable.
- i) The Spares Procurement Limit over the agreed contract period, indicated by the Employer in the attached table as one of the subheadings, is the estimated number the *Employer* may require the *Supplier* to supply over the contract period. However the *Supplier* may only supply the quantity as specified by the *Employer* in the individual order instruction and does not imply that the Supplier is entitled to supply the total number indicated in the Spares Procurement Limit over the agreed contract period.
- j) Where Eskom has entered into National Framework agreements with Suppliers, after this agreement came into existence, the *Employer* will not be obliged to purchase those items on this agreement, as this is an 'as-and-when-required' type agreement and quantity of items to be supplied are not fixed.
- k) Where the spare requires testing, the *Supplier* will inform the *Employer* to invite or make available the *Employer's* System Engineer to witness the tests.
- l) Should the Employer be dissatisfied with all or certain aspects relating to specific spare tests (including but not limited to suspected inferior quality or non-compliance) the *Supplier* will make good, rectify the faults or supply a new spare at his/her cost.
- m) A complete price breakdown must be supplied with the quotation and must include the cost of transport to Medupi Power Station. However, the *Employer* reserves the right to use the *Employer's* own transport.
- n) Spares will be opened for inspection, counting and quality control check at the *Employer's* stores.
- o) The Employer may make clarification sessions available to either prospective *Supplier/s* in order to further assist the prospective *Supplier's* to meet the requirements of the work to be performed by the *Supplier*.
- p) The *Supplier* will supply the lead time of all required items in the tender for contract.
- q) The *Supplier* must ensure that all parts supplied must be individually packed in such a way as to protect the parts during transport and storage. The packaging must also include the necessary labels to identify the items.

## **3.2 Acceptance of Spares**

### **3.2.1 Spares Identification**

- i. Table 1, in section 3.3, lists all the spares to be procured under this SOW. This list corresponds to the provided electronic copy of the DCF's that contain more information about the required spares. Each spare is identifiable by means of a KKS number (as is used in the Power Station), part description, OEM and/or OEM part number, where available.

#### **CONTROLLED DISCLOSURE**

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

### **3.2.2 Replacement Parts Upgraded/Modified**

- i. Where equipment or spares, including the whole assembly, have been upgraded / modified the *Supplier* shall indicate this to the *Employer* as part of the tender. The *Employer* shall be made aware immediately where the upgrade/modification to the component is only identified subsequent to the tender being issued. The detailed compatibility to the existing component shall be indicated.
- ii. If the components to be supplied will be obsolete, or envisaged to be obsolete, in the 3 years subsequent to tender being issued, the *Supplier* shall indicate this to the *Employer* and indicate viable alternatives thereof.

### **3.2.3 Packaging**

- i. All supplied spares shall be packaged in such a manner that they will be transported and stored without damage. This includes preventing damage due to moisture ingress, dust and foreign objects.
- ii. Different spare types shall be packaged separately such that each spare type can be stored separately. Packaging shall be such that the spare can be identified without opening the packaging. Packaging shall be of material that will not be damaged, to an extent possible, by harsh weather conditions during transportation. If that is not possible, then the packaging shall be protected against such conditions.
- iii. Where possible, packaging to be such that procured spares can be positively identified through the packaging. Where this is not possible, the packaging to be such that it allows opening and closing of packaging and still maintain the packaging integrity thereafter.
- iv. Delivery packaging to have the following details:
  - a) Order number
  - b) Physical address of Medupi Power Station and the *Supplier*
  - c) Contact details of the *Supplier*
  - d) Delivery note number

### **3.2.4 Acceptance of spares**

- a) No incorrect, damaged or faulty spares will be accepted.
- b) All the spares will be inspected before payment could be processed.
- c) Data capturing forms information must be supplied and must meet an acceptable level.
- d) Where applicable; test certificates, material certificate, manuals, data sheet and signature shall be provided as required.
- e) The *Supplier* must provide references of the companies that they have supplied similar spares to, and include the respective supply order/contract value, the contact name, physical address and telephone number.

### **CONTROLLED DISCLOSURE**

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

### **3.2.5 Information to be provided**

The *Supplier* is provided with electronic Data Capture Form (DCF) for each spare required. The *Supplier* is required to ensure that the correct information is captured on the DCF's. The DCF's are required by the *Purchaser's* Material Management System to be able to book the item in the store and the information should also be sufficient to procure the correct spares in future. Most of the DCF's have been populated by the *Purchaser* where information was available. This information may not be correct and needs to be reviewed and verified/corrected as part of the *Services*.

The DCF's are provided in Microsoft Word format. The *Supplier* needs to ensure the 'Track Changes' function is selected 'on' so that any changes to the existing information as well as inserted information can easily be identified and tracked. The following information needs to be provided as detailed as possible on the DCF's.

- a) Verify the existing information that is already populated on the DCF's and make changes where required. Ensure the 'track changes' function is on.
- b) Populate/verify all fields highlighted in 'yellow' on the DCF's, in the electronic format provided.
- c) Supply additional information in the field "Free Format Text" or "Purchase order text" on the DCF's. This includes:
  - The standards or specification that the product has to conform to.
  - Add any spares information which has been omitted, which is deemed relevant for spares identification, packaging and protection requirements during transportation and storage.
  - The Quality Control requirements for manufacturing and testing of the product to ensure that the spares conform to the correct specifications or standards, including certificates and test results, that is required with delivery of the goods.
- d) Supply any other additional information that has not been specified on the DCF's but necessary for storage, preservation, installation and utilisation of spares where applicable. Such information includes brochures, technical data, etc.
- e) These DCF's with the added information needs to be made available electronically to the employer.
- f) Supply any other additional information that has not been specified on the DCF's but necessary for storage, preservation, installation and utilisation of spares where applicable. Such information includes brochures, technical data, etc.

### **CONTROLLED DISCLOSURE**

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.



3.3 Spare Contract Bill of Material

Table 1: Estimated 5 year BOM

**CONTROLLED DISCLOSURE**

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

KKS	Description	Material / Additional info	Stock Number	Total Installed (6 units)	5Y Contract MIN	5Y Contract MAX
LAB31 AA401 LAB32 AA401 LAB33 AA401 LAB31 AA402 LAB32 AA402 LAB33 AA402 LAB40 AA401 LAB40 AA402 LAB71 AA401 LAB72 AA401 LAB71 AA402 LAB72 AA402	Forged Steel Globe Valve	VALVE, GLOBE: VALVE SIZE: 20 MM; DESIGN PRESSURE: PN640; DESIGN TEMPERATURE: 295 DEG C; FACE TO FACE LENGTH: 137 MM; OPERATED: MANUAL; CONNECTION: BUTT WELD; BODY MATERIAL: 13CRMO4-5; TRIM: SEAT STELLITED; SOFTGOODS: STEM PACKING GRAPHITE; APPLICATION: HP HEATER VENT VELVES; TYPE: FLOW; SYSTEM DESIGN PRESSURE : 335 BAR	0618822	144	100	120

**CONTROLLED DISCLOSURE**

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

LAB31 AA404	Forged Steel Throttle Valve	VALVE, GLOBE: VALVE SIZE: DN 40; DESIGN PRESSURE: PN640; DESIGN TEMPERATURE: 295 DEG C; FACE TO FACE LENGTH: 192 MM; OPERATED: MANUAL; CONNECTION: BUTT WELD; BODY MATERIAL: 13CRMO4-5; TRIM: SEAT STELLITED; SOFTGOODS: PACKING GRAPHITE; APPLICATION: HP VALVES; SYSTEM DESIGN PRESSURE : 335 BAR	0656083	84	84	140
LAB32 AA404						
LAB33 AA404						
LAB31 AA411						
LAB32 A411						
LAB33 AA411						
LAB31 AA412						
LAB32 A412						
LAB33 AA412						
LAB50 AA402						
LAB51 AA402						
LAB52 AA402						
LAB51 AA405						
LAB52 AA405						
LAB51 AA406						
LAB52 AA406						
LAB51 AA407						
LAB52 AA407						
LAB51 AA408						
LAB52 AA408						
LAB51 AA409						
LAB52 AA409						

**CONTROLLED DISCLOSURE**

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

LAB51 AA410 LAB52 AA410 LAB71 AA404 LAB72 AA404 LAB71 AA406 LAB72 AA406 LAB51 AA404 LAB52 AA404						
LAB41 AA401 LAB42 AA401	Forged Steel Gate Valve	VALVE, GATE: VALVE SIZE: DN20; TYPE: FORGED STL; DESIGN PRESSURE: PN640; DESIGN TEMPERATURE: 294 DEG C; CONNECTION: BUTT WELD; FACE TO FACE LENGTH: 137 MM; BODY MATERIAL: 13CRM04-5; TRIM: SEAT STELLITED; OPERATED: MANUAL; SYSTEM DESIGN PRESSURE : 335 BAR	0671081	4	4	8
LAB31 AA403 LAB32 AA403 LAB33 AA403 LAB50 AA401 LAB51 AA401 LAB52 AA401 LAB51 AA403 LAB52 AA403	Forged Steel Gate Valve	VALVE, GATE: VALVE SIZE: DN40; TYPE: PARALLEL SLIDE; DESIGN PRESSURE: PN400; DESIGN TEMPERATURE: 295 DEG C; CONNECTION: BUTT WELD; FACE TO FACE LENGTH: 203 MM; BODY MATERIAL: 15NICUMONB5; TRIM: SEAT STELLITED; OPERATED: MANUAL; APPLICATION: HP VALVES; REFERENCE NO: 20131033; BONNET 15NICUMONB5; DISC AND SEAT RING 13CR + HF; SYSTEM DESIGN PRESSURE : 335 BAR	0676962	60	60	140

**CONTROLLED DISCLOSURE**

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

LAB71 AA403 LAB72 AA403 LAB71 AA405 LAB72 AA405	Parallel Slide Gate Valve	VALVE, GATE: VALVE SIZE: DN 40; TYPE: GATE; DESIGN PRESSURE: PN 640; DESIGN TEMPERATURE: 207 DEG C; CONNECTION: BUTT WELD; FACE TO FACE LENGTH: 192; BODY MATERIAL: 15NICUMONB5; TRIM: BONNET 15NICUMONB5; OPERATED: MANUAL; SUPPL P/N: 20131033; HP VALVES: FORGED STEEL GATE VALVE USED FOR LAB3AA403; LAB32AA403; LAB33AA403; LAB50AA401; LAB51AA403; LAB51AA401; LAB51AA501; LAB52AA403; LAB52AA401; LAB52AA501; DN40; SYSTEM DESIGN PRESSURE : 335 BAR	0656149	24	24	40
--	------------------------------	--	---------	----	----	----

**CONTROLLED DISCLOSURE**

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

LAB31AA301	Forged Steel Globe Valve	VALVE, GLOBE: VALVE SIZE: DN 15; DESIGN PRESSURE: PN640; DESIGN TEMPERATURE: 295 DEG C; FACE TO FACE LENGTH: 132 MM; OPERATED: MANUAL; CONNECTION: BW; BODY MATERIAL: 13CRM04-5; TRIM: SEAT STELLITED GR6; SOFTGOODS: STEM PACKING GRAPHITE; APPLICATION: HP SYSTEM; SYSTEM DESIGN PRESSURE : 335 BAR	288	0656072	20	28
LAB31AA302						
LAB32AA301						
LAB32AA302						
LAB33AA301						
LAB33AA302						
LAB40AA301						
LAB40AA302						
LAB40AA303						
LAB40AA304						
LAB40AA305						
LAB40AA306						
LAB40AA307						
LAB40AA308						
LAB40AA309						
LAB40AA310						
LAB40AA311						
LAB40AA312						
LAB40AA313						
LAB40AA314						
LAB40AA315						
LAB40AA316						

**CONTROLLED DISCLOSURE**

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

LAB40AA317						
LAB40AA318						
LAB51AA301						
LAB51AA302						
LAB51AA303						
LAB51AA304						
LAB51AA305						
LAB51AA306						
LAB52AA301						
LAB52AA302						
LAB52AA303						
LAB52AA304						
LAB52AA305						
LAB52AA306						
LAB61AA301						
LAB61AA302						
LAB62AA301						
LAB62AA302						
LAB71AA301						
LAB71AA302						
LAB72AA301						
LAB72AA302						
LAB73AA301						

CONTROLLED DISCLOSURE

LAB73AA302						
LAB73AA303						
LAB73AA304						

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.



#### **4. Acceptance**

This document has been seen and accepted by

<b>Name</b>	<b>Designation</b>
Sandra Shuma	Turbine Plant Engineering Manager
Mangolo Masenya	Turbine Senior Engineer
Katlego Ntlhoro	Turbine Senior Engineer
Mahlane Letselane	Turbine Plant Maintenance Manager (Acting)

#### **5. Revisions**

<b>Date</b>	<b>Rev.</b>	<b>Compiler</b>	<b>Remarks</b>
Oct 2019	1	TF Mokoena	First revision
Mar 2022	2	EU Netshivhulana	Review of the SOW

#### **6. Development Team**

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

<b>Name</b>	<b>Designation</b>
Fortune Mokoena	System Engineer
Emanuel Netshivhulana	System Engineer

#### **7. Acknowledgements**

N/A

#### **CONTROLLED DISCLOSURE**

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.