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Strategy - Supply of Water  
Treatment Plant Resin**

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## **1. INTRODUCTION**

The production of demineralised water with prescribed quality is critical to the optimum generation of power in the turbines. Demin water is produced when all dissolved solids are removed from the water. These solids, in the form of cations and anions, are removed in the Cation, Anion and Mixed Bed Vessels (i.e. a demin train) by the use of ion exchange resin through a process called demineralisation. Functional life of the resin is determined by the volume of water treated. A demin train should be able to treat approximately 4000 m<sup>3</sup> of water before the train needs to be regenerated. As the resin ages the volume of water treated before a regeneration is required decreases. This is an indication that the resin has reached its end of life and should be replaced.

## **2. SUPPORTING CLAUSES**

### **2.1 SCOPE**

This document covers the different aspects that will be evaluated and scored by the multi-disciplinary Technical Evaluation Team (TET) to complete the technical evaluation of the Camden Supply of Water Treatment Plant Resin enquiry. The team members are listed and appointed in this document along with their responsibilities. The document also describes the acceptable and unacceptable risks and qualifications and/or conditions.

Once the Technical Evaluation Strategy is authorised no changes will be made to the evaluation criteria without appropriate authorisation.

#### **2.1.1 Purpose**

The purpose of this tender technical evaluation strategy is to define the Mandatory Evaluation Criteria, Qualitative Evaluation Criteria and Technical Evaluation Team (TET) member responsibilities for tender technical evaluation. The technical evaluation strategy serves as basis for the tender technical evaluation process.

#### **2.1.2 Applicability**

This document is applicable to the Supply of Water Treatment Plant Resin enquiry.

### **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**

- [1] 240-168966153: Generation Tender Technical Evaluation Procedure
- [2] 32-1034: Eskom Procurement Policy
- [3] Contract Strategy

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## 2.3 DEFINITIONS

### 2.3.1 Classification

**Controlled Disclosure:** Controlled Disclosure to external parties (either enforced by law, or discretionary).

## 2.4 ABBREVIATIONS

Abbreviation	Description
CV	Curriculum Vitae
ECSA	Engineering Council of South Africa
TET	Technical Evaluation Team

## 2.5 ROLES AND RESPONSIBILITIES

As per 240-168966153: Generation Tender Technical Evaluation Procedure

## 2.6 PROCESS FOR MONITORING

N/A

## 2.7 RELATED/SUPPORTING DOCUMENTS

N/A

## 3. TENDER TECHNICAL EVALUATION STRATEGY

### 3.1 TECHNICAL EVALUATION THRESHOLD

The minimum weighted final score (threshold) required for a tender to be considered from a technical perspective is 70%.

**NB.**

- Please note that the Contractor will be required to obtain a minimum score of 70% in both section 3.3 **AND** 3.4 to be considered technically acceptable
- The final score will be calculated as an average of the scores for section 3.3 and 3.4

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**Table 1: Qualitative Evaluation Criteria Scoring Table**

Score	(%)	Definition
5	100	<b>COMPLIANT</b> <ul style="list-style-type: none"> <li>Meet technical requirement(s) AND;</li> <li>No foreseen technical risk(s) in meeting technical requirements.</li> </ul>
4	80	<b>COMPLIANT WITH ASSOCIATED QUALIFICATIONS</b> Meet technical requirement(s) with; <ul style="list-style-type: none"> <li>Acceptable technical risk(s) AND/OR;</li> <li>Acceptable exceptions AND/OR;</li> <li>Acceptable conditions.</li> </ul>
2	40	<b>NON-COMPLIANT</b> <ul style="list-style-type: none"> <li>Does not meet technical requirement(s) AND/OR;</li> <li>Unacceptable technical risk(s) AND/OR;</li> <li>Unacceptable exceptions AND/OR;</li> <li>Unacceptable conditions.</li> </ul>
0	0	<b>TOTALLY DEFICIENT OR NON-RESPONSIVE</b>

**Note 1:** The scoring table does not allow for scoring of 1 and 3.  
**Note 2:** Foreseen acceptable and unacceptable risk(s), exceptions and conditions shall be unambiguously defined in the relevant Tender Technical Evaluation Strategy.

### 3.2 TET MEMBERS

**Table 2: TET Members**

TET number	TET Member Name	Designation
TET 1	Natasha Naidu	Auxiliary Engineering System Engineer
TET 2	Pierre Leibbrandt	Snr Chemist Inst Chemistry
TET 3	Sidwell Muthavhine	Chief Scientist Chemistry
TET 4	Sumayyah Sulliman	Chief Engineer

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### **3.3 CATION AND ANION RESIN**

#### **3.3.1 Mandatory Technical Evaluation Criteria for Cation and Anion Resin**

**Table 3: Mandatory Technical Evaluation Criteria for Cation and Anion Resin**

	<b>Mandatory Technical Criteria Description</b>	<b>Reference to Technical Specification / Tender Returnable</b>
1.	Results of the simulation output for the resin recommended	Results of the complete electronic simulation output of the demineralisation process (cation and anion)
2.	Product data sheets	Supply product data sheets for all resins recommended

### 3.3.2 Qualitative Technical Evaluation Criteria for Cation and Anion Resin

Table 4: Qualitative Technical Evaluation Criteria for Cation and Anion Resin

QUALITATIVE TECHNICAL CRITERIA DESCRIPTION	REFERENCE TO TECHNICAL SPECIFICATION / TENDER RETURNABLE	CRITERIA SUB WEIGHTING (%)	SCORE SCALE			
			FLOOR	KICK IN	AVERAGE	CEILING
CRITERIA			0=0%	2=40%	4=80%	5=100%
1.1 Simulation output for the resin recommended	Complete electronic simulation output of the demineralisation process (cation and anion) showing calculated throughput, leakages and regeneration chemical consumption for the demineralisation plant based on the water qualities and plant data provided	45	Not an option	Not an option	Scoring criteria as per Demin Cation and Anion resin technical evaluation acceptable (75- 90%)	Scoring criteria as per Demin Cation and Anion resin technical evaluation acceptable (>90%)
1.2 References	Industrial references where the products are of use in similar application to Camden Power Station.  Plants designed for above 50m³/hr demin production.  References to be submitted as signed completion certificates and must include the following:  - Name of project/site  - Details of the work (i.e. size of plant, throughput etc.)  - Contact details of reference.	20	Totally Deficient or Non- responsive	Reference list contains one completed project	Reference list contains two or three completed projects	Reference list contains four or more completed projects

QUALITATIVE TECHNICAL CRITERIA DESCRIPTION	REFERENCE TO TECHNICAL SPECIFICATION / TENDER RETURNABLE	CRITERIA SUB WEIGHTING (%)	SCORE SCALE			
			FLOOR	KICK IN	AVERAGE	CEILING
CRITERIA			0=0%	2=40%	4=80%	5=100%
1.3 List of Services	List of services (e.g. resin analysis, troubleshooting, optimization, training, etc.) included in the price	15	One service included in the tender price	Two services included in the tender price	Three services included in the tender price	All four or more services included in the tender price
1.4 Resin lead times	Submit resin lead times	20	No lead time provided	The lead time provided is longer than 20 weeks	The lead time provided is between 13 to 20 weeks	The lead time provided is equal to or shorter than 12 weeks



### **3.4 MIXED BED RESIN**

#### **3.4.1 Mandatory Technical Evaluation Criteria for Mixed Bed Resin**

	<b>Mandatory Technical Criteria Description</b>	<b>Reference to Technical Specification / Tender Returnable</b>
1.	Simulation output for the resin recommended	Results of the complete electronic simulation output of the demineralisation process (mixed bed)
2.	Product data sheets	Supply product data sheets for all resins recommended
3.	Resin pairs	Provide evidence that the demineralisation mixed bed resins are designed to operate as pairs, which assumes good resin separation and minimize resin cross contamination

### 3.4.2 Qualitative Technical Evaluation Criteria for Mixed Bed Resin

QUALITATIVE TECHNICAL CRITERIA DESCRIPTION	REFERENCE TO TECHNICAL SPECIFICATION / TENDER RETURNABLE	CRITERIA SUB WEIGHTING (%)	SCORE SCALE			
			FLOOR	KICK IN	AVERAGE	CEILING
CRITERIA			0=0%	2=40%	4=80%	5=100%
1.1 Simulation output for the resin recommended	Complete electronic simulation output of the demineralisation process (mixed bed) showing calculated throughput, leakages and regeneration chemical consumption for the demineralisation plant based on the water qualities and plant data provided	45	Not an option	Not an option	Scoring criteria as per Demin Cation and Anion resin technical evaluation acceptable (75-90%)	Scoring criteria as per Demin Cation and Anion resin technical evaluation acceptable (>90%)
1.2 References	Industrial references where the products are of use in similar application to Camden Power Station.  Plants designed for above 50m³/hr demin production.  References to be submitted as signed completion certificates and must include the following:  - Name of project/site  - Details of the work (i.e. size of plant, throughput etc.)  - Contact details of reference.	20	Totally Deficient or Non-responsive	Reference list contains one completed project	Reference list contains two or three completed projects	Reference list contains four or more completed projects

QUALITATIVE TECHNICAL CRITERIA DESCRIPTION	REFERENCE TO TECHNICAL SPECIFICATION / TENDER RETURNABLE	CRITERIA SUB WEIGHTING (%)	SCORE SCALE			
			FLOOR	KICK IN	AVERAGE	CEILING
CRITERIA			0=0%	2=40%	4=80%	5=100%
1.3 List of Services	List of services (e.g. resin analysis, troubleshooting, optimization, training, etc.) included in the price	15	One service included in the tender price	Two services included in the tender price	Three services included in the tender price	All four or more services included in the tender price
1.4 Resin lead times	Submit resin lead times	20	No lead time provided	The lead time provided is longer than 20 weeks	The lead time provided is between 13 to 20 weeks	The lead time provided is equal to or shorter than 12 weeks

### 3.5 TET MEMBER RESPONSIBILITIES

**Table 5: TET Member Responsibilities**

	<b>TET 1</b>	<b>TET 2</b>	<b>TET 3</b>	<b>TET 4</b>
<b>Mandatory Criteria for Cation and Anion Resin</b>				
1 to 2	X	X	X	X
<b>Qualitative Criteria for Cation and Anion Resin</b>				
1 to 4	X	X	X	X
<b>Mandatory Criteria for Mixed Bed Resin</b>				
1 to 3	X	X	X	X
<b>Qualitative Criteria for Mixed Bed Resin</b>				
1 to 4	X	X	X	X

X – Mandatory

### **3.6 FORESEEN ACCEPTABLE / UNACCEPTABLE QUALIFICATIONS**

#### **3.6.1 Risks**

**Table 6: Acceptable Technical Risks**

<b>Risk</b>	<b>Description</b>
1.	Long lead times on some of the resins up till 6 months. Anything beyond that becomes unacceptable.

**Table 7: Unacceptable Technical Risks**

<b>Risk</b>	<b>Description</b>
1.	Resin lead times not provided.
2.	Product/Technical data sheets for all resins recommended not provided.

#### **3.6.2 Exceptions / Conditions**

**Table 8: Acceptable Technical Exceptions / Conditions**

<b>Risk</b>	<b>Description</b>
1.	Not applicable

**Table 9: Unacceptable Technical Exceptions / Conditions**

<b>Risk</b>	<b>Description</b>
1.	Not applicable

#### **4. REVISIONS**

<b>Date</b>	<b>Rev.</b>	<b>Compiler</b>	<b>Remarks</b>
February 2023	1	N. Naidu	Original Issue

#### **5. DEVELOPMENT TEAM**

- Pierre Leibbrandt
- Sidwell Muthavhine

#### **6. ACKNOWLEDGEMENTS**

N/A

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