

Kriel 	Scope of Work	Kriel Power Station
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Title: **Scope of Work: Coating and Lining for Kriel Demin head tanks, Condensers, Coolers, associated large bore pipework, waterboxes and tubesheets**

Document Identifier: **559-476560795**

Alternative Reference Number: N/A

Area of Applicability: Kriel Power Station

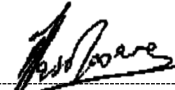
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Compiled by	Functional Responsibility	Authorized by
 Gontse Mathibedi	 Zacharia Ledwaba	 Rofhlwa Nelwamondo
O&M Snr Engineer	Turbine Plant Engineering Manager	Engineering Manager
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Unique Identifier: **559-476560795**
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Revision: **0**
Page 2 of 10

Content

Page

1.	Introduction.....	3
2.	Supporting Clauses	3
2.1	Scope	3
2.1.1	Purpose	4
2.1.2	Applicability.....	4
2.2	Normative/Informative References	4
2.2.1	Normative	4
2.2.2	Informative	4
2.3	Definitions	4
2.4	Abbreviations	5
2.5	Roles and Responsibilities	5
2.6	Process for Monitoring	5
2.7	Related/Supporting Documents	5
3.	Scope of Work.....	5
3.1	Plant Description and Quantity of scope.....	5
3.4	Documentation and certification requirements.....	9
	Revisions.....	9
	Development Team	9

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1. INTRODUCTION

This document outlines the scope of work requirements for **Coating and Lining for Kriel Condensers, Coolers, associated large bore pipework, water boxes, tube sheets and the Demineralised Head tank for a duration of 5 years on an as-and-when required basis.**

Kriel Power Station consists of 6 generating units, each equipped with condensers for the main and the boiler feed pump turbines, and other coolers for auxiliary cooling. These components are currently coated and full recoating or patch repairs are conducted during outages based on the condition of the coat. This scope is therefore for the coating of the following heat exchangers and/or pipes:

- a. Main turbine condensers tubesheets and waterboxes. Tubesheets, that is currently coated, or partially coated. Waterboxes and associated cooling water and crossover pipework is either coated, rubber lined, or a combination thereof.
- b. BFPT condensers tubesheets and waterboxes. Tubesheets, that is currently coated, or partially coated. Waterboxes and associated cooling water and crossover pipework is either coated, rubber lined, or a combination thereof.
- c. Main turbine oil coolers tubesheets and waterboxes
- d. BFPT turbine oil coolers tubesheets and waterboxes
- e. Stator coolers tubesheets and waterboxes
- f. Auxiliary cooling water strainers
- g. Primary cooling water strainers
- h. Associated cooling water pipework
- i. Demineralised Head tank that are currently fully coated

The scope is for repairs on the existing tubesheets coating where there are defects, for full coating or coating patch repairs on the waterboxes and associated cooling water pipework where the current corrosion protection has failed. Note: **Any existing rubber lining will be removed, and corrosion protection shall be by organic coatings.**

The scope of work on the tubesheets, waterboxes and piping shall entail the following:

- A detailed visual inspection to identify and mark-up the corrosion protection defects.
- Inspection report detailing the inspection findings.
- Surface preparation of the areas that need to be repaired.

2. SUPPORTING CLAUSES

2.1 SCOPE

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Unique Identifier: **559-476560795**
Alternative Identifier **N/A**
Document Type
Revision: **0**
Page 4 of 10

2.1.1 Purpose

The scope will address the failing corrosion protection systems on heat exchangers and pipework exposed to CW to ensure that the plant remain reliable until the end of station life

2.1.2 Applicability

This document applies to Kriel Power Station.

2.2 NORMATIVE/INFORMATIVE REFERENCES

2.2.1 Normative

Latest Revision of the following:

- a. 240-101712128, Standard for the Internal Corrosion Protection of Water Systems, Chemical Tanks and Vessels and Associated Piping with Linings.
- b. ISO 9001 Quality Management Systems.
- c. GE/MAT/26/006: Kriel Power Station Corrosion Protection of Cooling Water Ducts and piping.
- d. GE/MAT/26/007: Kriel Power Station Condenser and Tube/Shell Heat Exchangers (HEX) waterboxes.
- e. GE/MAT/26/008: Kriel Power Station Corrosion Protection of Condenser Tubesheets
- f. GE/MAT/26/009: Kriel Power Station Auxiliary Cooler Water Strainer
- g. GE/MAT/26/039: Kriel Power Station Demineralised Water Head Tank Corrosion Protection Specification

2.2.2 Informative

None

2.3 DEFINITIONS

None

2.3.1 Classification

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Unique Identifier: **559-476560795**

Alternative Identifier **N/A**

Document Type

Revision: **0**

Page 5 of 10

- b) Controlled disclosure: controlled disclosure to external parties (either enforced by law, or discretionary).

2.4 ABBREVIATIONS

Abbreviation	Explanation
BFPT	Boiler feed pump turbine
CW	Cooling Water
HP	High Pressure
LP	Low Pressure

2.5 ROLES AND RESPONSIBILITIES

It will be the role of Kriel Engineering and outage management to ensure the agreed scope for each unit is executed in line with the requirements as set out in this scope and accompanying documents and standards

2.6 PROCESS FOR MONITORING

N/A

2.7 RELATED/SUPPORTING DOCUMENTS

N/A

3. SCOPE OF WORK

3.1 PLANT DESCRIPTION AND QUANTITY OF SCOPE

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Revision: **0**
Page 6 of 10

SCOPE DESCRIPTION	SPECIFICATIONS
NB: Estimated area for one unit.	
MAIN & AUXILIARY HEAT EXCHANGERS (WATERBOX AND STAYBARS LINING)	
a. Main condenser complete lining , [Area 72 m² ,_medium – raw water , temperature 65 °C, 6 off per station] b. Main condenser patch repairs , [Area 36 m² ,_medium – raw water , temperature 65 °C, 6 off per station] c. BFPT condenser complete lining, [Area 36 m² ,_medium – raw water , temperature 65 °C , 6 off per station] d. BFPT condenser patch repairs, [Area 18 m² ,_medium – raw water , temperature 65 °C, 6 off per station] e. BFPT GSC complete lining, [Area – 3.6 m² , medium – raw water, running temperature 65 °C, 6 off per station] f. Staybars complete lining, [Area - 22.6 m² , medium – raw water , temperature 65 °C] g. Staybars lining patch repairs, [Area – 12 m² , medium – raw water , temperature 65 °C] h. Main oil coolers complete lining, [Area 2.6 m² medium – raw water, running temperature 85 °C, 12 off per station] i. BFPT oil coolers complete lining, [Area 2.2 m² medium – raw water, running temperature 85 °C, 12 off per station] j. Stator coolers complete lining, [Area – 2.4 m² , medium – raw water, running temperature 65 °C, 12 off per station] k. H2 coolers complete lining, [Area – 2.4 m² , medium – raw water, running temperature 65 °C, 24 off per station]	- Standard for the Internal Corrosion Protection of Water Systems, Chemical Tanks and Vessels and Associated Piping with Linings - 240-101712128 - GE/MAT/26/006: Kriel Power Station Corrosion Protection of Cooling Water Ducts and piping. - GE/MAT/26/007: Kriel Power Station Condenser and Tube/Shell Heat Exchangers (HEX) waterboxes.

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Alternative Identifier **N/A**
Document Type
Revision: **0**
Page 7 of 10

SCOPE DESCRIPTION	SPECIFICATIONS
MAIN & AUXILIARY HEAT EXCHANGERS (TUBESHEET COATING)	
a. Main condenser tubesheet coating , [Area 80 m² ,_medium – raw water , temperature 65 °C, 6 off per station] b. BFPT condenser tubesheet coating , [Area 55 m² ,_medium – raw water , temperature 65 °C, 6 off per station] c. H2 coolers tubesheet coating, [Area – 2.1 m² , medium – raw water, running temperature 65 °C, 24 off per station] d. Main oil coolers tubesheet coating, [Area 2.1 m² medium – raw water, running temperature 85 °C, 12 off per station] e. BFPT oil coolers tubesheet coating, [Area 1.8 m² medium – raw water, running temperature 85 °C, 12 off per station] f. Stator coolers tubesheet coating, [Area – 2.1 m² , medium – raw water, running temperature 65 °C, 12 off per station]	- Standard for the Internal Corrosion Protection of Water Systems, Chemical Tanks and Vessels and Associated Piping with Linings - 240-101712128 -GE/MAT/26/008: Kriel Power Station Corrosion Protection of Condenser Tubesheets
AUXILIARY COOLING WATER STRAINERS	
a. Complete lining of 4 off cooling water auxiliary strainers [Area – 3.6 m² , medium – raw water, running temperature 65 °C] b. Complete lining of 2 off cooling water primary strainers [Area – 3.6 m² , medium – raw water, running temperature 65 °C]	- Standard for the Internal Corrosion Protection of Water Systems, Chemical Tanks and Vessels and Associated Piping with Linings - 240-101712128 - GE/MAT/26/009: Kriel Power Station Auxiliary Cooler Water Strainer

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 Document Type
 Revision: **0**
 Page 8 of 10

SCOPE DESCRIPTION	SPECIFICATIONS
DEMINERALISED WATER HEAD TANK	
a. Complete lining of the Demin of Head Tank auxiliary [Area – 72 m ² – demineralised water/raw water, running temperature 25-40°C] b. Partial lining of the Demin of Head Tank auxiliary [Area – 36 m ² – demineralised water/raw water, running temperature 25-40°C]	Standard for the Internal Corrosion Protection of Water Systems, Chemical Tanks and Vessels and Associated Piping with Linings - 240-101712128 GE/MAT/26/039: Kriel Power Station Demineralised Water Head Tank Corrosion Protection Specification.
100 NB – 3000 NB pipe coating Coating of pipe work, [temperature 65 °C, medium – raw water] a. 3000NB partial lining [Area –2000 m ²] b. 1600NB partial lining [Area – 800 m ²] c. 800NB partial lining [Area – 800 m ²] d. 600NB complete lining, 1km length e. 500NB complete lining, 1km length f. 450NB complete lining, 1km length g. 400NB complete lining, 1km length h. 350NB complete lining, 1km length i. 300NB complete lining, 1km length j. 250NB complete lining, 1km length k. 200NB complete lining, 1km length l. 175NB complete lining, 1km length m. 150NB complete lining, 1km length n. 125NB complete lining, 1km length o. 100NB complete lining, 1km length	- Standard for the Internal Corrosion Protection of Water Systems, Chemical Tanks and Vessels and Associated Piping with Linings - 240-101712128 - GE/MAT/26/006: Kriel Power Station Corrosion Protection of Cooling Water Ducts and piping.

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Page 9 of 10

General considerations:

It is the responsibility of the contractor to ensure that the safety measures are adhered to in terms of the OSH act. The main condenser is classified as confined space as per OHS Act referenced below. The portable electrical tools need to comply with section 10 of the electrical installation regulations and the portable lights to section 11(2).

Site-Specific Data: Locality and Climatic Conditions

Mean Atmospheric Pressure 847 millibars

Site Utility Conditions

- Electricity 220/400 V

Other

- Instrument air 750 kPa
- Process water 6 bar

3.4 DOCUMENTATION AND CERTIFICATION REQUIREMENTS

- Before commencement of any work, a detailed method statement and QCP shall be submitted to Kriel Engineering for approval.
- For each order, the contractor shall do a detailed plant inspection with the Kriel Engineer to determine the final required scope of work and submit a project schedule to the contract manager.
- Within 14 days of completion of the work, a databook containing all QC documents (including test records) and product datasheets and batch numbers, shall be submitted to Kriel Engineering.

REVISIONS

Note: Start with the latest Revision History in the first row and go backwards.

Date	Rev.	Compiler	Remarks
Dec 2025	1	Gontse Mathibedi	Scope outlined for 5-year contract
May 2026	2	Gontse Mathibedi	Additional Scope of work

DEVELOPMENT TEAM

Gontse Mathibedi
Noko Pheta

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Page 10 of 10

Keith Northcott
Francois du Preez
Mthobisi Dlamini

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