

	<b>Scope of Work</b>	<b>Kusile Power Station</b>
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Title: **Scope of Work: Civil Facilities Maintenance at Kusile Power Station**

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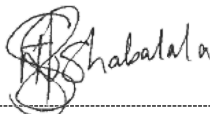

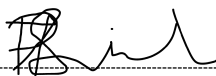

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## **CONTROLLED DISCLOSURE**

## **1. Introduction**

This document outlines the scope for the Civil Facilities Maintenance service Scope of Work to ensure timeous and quality maintenance of Civil Facilities at Kusile Power Station. Further, this document describes the detail of standards, quality requirements, specifications, terms & conditions as well as the criteria to qualify for the tender.

Kusile Power Station comprises of various civil and structural assets, whose service life is designed to last the power station's life. These structures are being subjected to various exposure conditions and subsequent deterioration and ageing is expected. Therefore, continuous maintenance of these Civil Facilities is required to render their structures safe for continued use

A suitably qualified and experienced Contractor is required to adequately perform maintenance service on Civil Facilities.

## **2. Supporting Clauses**

### **2.1 Scope**

#### **2.1.1 Purpose**

This document details the scope of works for the Civil Facilities Maintenance services to ensure timeous and quality maintenance of Civil Facilities at Kusile Power Station. The Station is expected to perform at 92% Unit Capability Factor (UCF), 6% Planned Capability Loss Factor (PCLF) and 2% Unplanned Capability Loss Factor (UCLF), and this scope of work supports these requirements.

#### **2.1.2 Applicability**

This document applies to Kusile Power Station only.

#### **2.1.3 Effective date**

Document is effective upon authorisation.

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

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

#### **2.2.1 Normative**

- [1] ISO 9001 Quality Management Systems
- [2] OHS ACT Occupational Health and Safety Act, 85 of 1993
- [3] 240-99527377 Inspection Manual for Civil Works at Eskom's Power Stations
- [4] 240-99611535 Civil Works Inspection Status Checklist Template
- [5] 240-98832565 Kusile Power Station Maintenance execution strategy for civil infrastructure

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## 2.2.2 Informative

[6] 237-0016 Rev 0 Integrated Business improvement – Prevention and Improvement Standard

[7] GGR 0992 Plant Safety Regulations

[8] GGS 0462 Quality Requirements for Engineering and Construction Works in Generation

## 2.3 Definitions

Definitions	Explanations
<b>Client</b>	The owner of the Power Station at which the inspections are to be done. Normally the Power Station or Plant Engineer will represent the Client
<b>Contractor</b>	Service provider contracted for supplying specific service to Eskom, Kusile Power Station.
<b>Condition Monitoring</b>	Non-intrusive monitoring carried out to determine the physical condition of asset / plant and equipment
<b>Employer</b>	Eskom, Kusile Power Station, or representative
<b>Building</b>	Permanent or temporary structure enclosed within exterior walls and a roof, and including all attached apparatus, equipment, and fixtures that cannot be removed without cutting into ceiling, floors, or wall.
<b>Inspection</b>	Activities, which by means of examination, observation, or measurement, determine the conformance of material, parts, components etc., to predetermined specifications and quality requirements.
<b>Structures</b>	Structures/Building structures are composed of structural elements such as trusses, beams, columns, etc.

## 2.4 Abbreviations

Abbreviation	Explanation
ACC	Air Cooled Condenser
ACCCT	Air Cooled Condenser Condensate Tank
ITP	Inspection, Testing Plan
MS	Method Statement
NDT	Non-Destructive Testing
OHS	Occupational Health and Safety
PPE	Personal Protective Equipment
QCP	Quality Control Procedure
SANS	South African National Standards
STP	Sewage Treatment Plant

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Abbreviation	Explanation
WTP	Water Treatment Plant
WWTP	Waste Water Treatment Plant

## **2.5 Roles and Responsibilities**

### **2.5.1 Employer**

The Employer shall ensure the following:

- a) Inform and issue the Contractor with the updated maintenance strategy
- b) Performance is measured by the Employer against those areas which contribute to the Employer's business and the Contractor shall ensure compliance to such measures (e.g. reliability, availability, and safety).
- c) Areas of measurement include the Employer's key business indicators and will be redefined from time to time.
- d) Review and approves the Contractor's construction method statement procedure, QCP and ITP
- e) Is present for all applicable points of the ITP
- f) Provide Engineering and Maintenance support for information required by the Contractor
- g) The Employer and Contractor in this SOW is committed towards the following:
  - i. Retention of critical skills
  - ii. Continuous cost reduction
  - iii. Health and environment safety

### **2.5.2 Contractor**

The Principal Contractor shall ensure the following:

- a) Execute the defined scope according to contractual agreement.
- b) All Contractor employees shall comply with Eskom's policies and site regulations, including non-use of cell phones in restricted areas, adherence to Eskom's life-saving rules, adherence to Generation Occurrence Management Procedure, no smoking policy, Kusile maintenance user requirement specification, etc. These requirements will be detailed during the induction training process and are stipulated in the referenced documents and their references.
- c) The Contractor shall comply with the Employer's Environmental, Health and Safety standards, policies, and procedures.
- d) The Contractor shall be responsible for all works as per Employer's instructions, processes, and systems.
- e) The Contractor is to ensure that any service rendered does not interfere with the Employer's scheduled work and should align himself with the Employer's work control management process.
- f) All works will be subject to anytime inspection by the Employer.

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- g) The Contractor shall provide resources that are required to execute this scope and any changes to the crew must be negotiated and agreed upon with the Employer.
- h) The Contractor shall provide equipment and tools required for the works.
- i) Contractor vehicles to comply with Eskom Vehicle Standards and Procedures.

### **2.5.3 Management and Reporting**

- a) The type of reports, level of detail and frequency of reporting will be mutually agreed upon by the Employer and the Contractor during the contract negotiation phase of this agreement. These may change from time to time on request by the Employer.
- b) The Contractor shall be represented at all maintenance related meetings which may be daily, weekly or monthly.
- c) The Contractor shall be represented at all Employer safety meetings.
- d) The Contractor shall be represented at any ad-hoc meetings that may arise in order to address any maintenance planning, execution, finalisation, or safety related matters.
- e) Liaison meetings shall be held with the Employer's Representative or his/her delegate on an as and when required basis to discuss any technical details, or concerns.

### **2.5.4 Contractor's Management, Meetings and Key People**

- a) Before work starts on site, an inaugural meeting is held with the Contractor and the Employer, to explain in detail all requirements of the site regulations.
- b) The Contractor is issued with a file of current site regulations on arrival. The file remains the property of the Employer and the Contractor is responsible for its maintenance and updating to include new or revised regulations as issued by the Employer.
- c) The Contractor must ensure that all personnel operating mobile equipment and vehicles are authorised
- d) The Contractor shall be responsible for the regular inspections and daily equipment checks of mobile equipment and vehicles including record keeping while onsite.
- e) The Contractor must ensure that all personnel performing work on the plant are authorised, this includes but not limited to:
  - i. Confined space locations
  - ii. Working at heights
  - iii. Heat stress areas
  - iv. Scaffolding Compliance
  - v. Hazardous substances

### **2.5.5 Quality and Documentation Control**

- a) The Contractor shall compile QCP's and method statements for task specific activities and submit to the Employer for review and approval.
- b) The Contractor shall ensure that any witness, hold and inspection points are strictly adhered to.

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- c) The Contractor shall ensure that all measuring and test equipment have a valid calibration certificate in accordance with the applicable SANS standard and proof thereof must be readily available.
- d) All Quality References and Standards as stipulated in this document will be adhered to.
- e) Work will only be conducted with an Employer approved Quality Management Programme.
- f) The Contractor shall utilise the Employer's quality documentation management system and processes.

### **2.5.6 Project Implementation**

The Contractor shall supply a maintenance execution plan including at least the following in Primavera or any other project plan acceptable to the Employer:

- a) Site establishment
- b) Activities
- c) Manpower plan (Resource loaded)
- d) Organogram
- e) Skills required and associated cost per skill (e.g., artisan, site manager, etc.)

### **2.6 Process for Monitoring**

Not applicable

### **2.7 Related/Supporting Documents**

Not Applicable

## **3. Civil Facilities/Structures Scope of Work**

### **3.1 Background**

Kusile Power Station comprises of various civil and structural assets, whose service life is designed to last the power station's life. These infrastructures will be subjected to various exposure conditions during the running of the plant or station operations and subsequent deterioration and ageing is expected. Therefore, continuous maintenance of these structures is required to render their structures safe for continued use. These structures include, but not limited to:

- a) Ash and Gypsum Co-disposal facility
- b) Ash Dump Dirty Dam
- c) Station Dirty Dam
- d) Coal Stockyard Settling Tanks
- e) Station Dirty Dams Settling Tanks
- f) Holding and Recycling Dams
- g) Raw Water Reservoir
- h) Roads
- i) Parking
- j) Fencing
- k) Substation Buildings
- l) General Services, Process and Admin Buildings

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- WTP Mechanical/Chemical and Laboratory Buildings
  - Waste Water Treatment Plant Building
  - Condensate Polishing Plant Building
  - West and East Compressor Building
  - Hydrogen Plant Building
  - Diesel General Building
  - Fire Water Pump Building
  - Holding/Recycling Dam Pump Building
  - Station Dirty Dam Pump Building
  - Coal Stockyard Office
  - Daily Issue Stores Building
  - Oil Store and Garage
  - Steam Cleaning Facility
  - Workshop and Store Building
  - Ash Dump Workshop
  - Administration Building
  - Access Control Building
  - Canteen
  - Fire Station and Medical Building
- m) Auxiliary Bay and Boiler Structures
- n) Coal lant Structures
- o) Chimney (Smoke Stacks)
- p) Steam Turbine Hall
- q) ACC Auxiliary Building
- r) ACCCT Building
- s) H2/CO2 Gas Storage Building
- t) ACC Concrete and Steel Structures
- u) STP Structures
- v) Auxiliary Cooling Structures

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**Figure 1: Plan view of Kusile Powe Station**

### **3.2 Scope Details**

The scope of work shall include the following

- Perform maintenance on civil structures mentioned in section 3.1, the works will include but not limited to:
  - i. Paint work
    - Steel door frames, floors, concrete, steel, ceiling, etc.
  - ii. Septic tanks
    - Unblocking, repair, replace, etc.
  - iii. Plumbing
    - Drainpipes, toilets, wash-basins, sink, geyser, bathroom, kitchen fitting and accessories, etc.
  - iv. Servicing and repairing f temporary ablution facilities

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- v. Subsurface drains
    - Unblocking, repair and replace of pipes, etc.
  - vi. Surface drains
    - Unblocking, repair and replace of drains, trenches, silt straps, etc.
  - vii. Carpentry
    - Ceiling, doors, door handles, door hinges, cupboards, etc.
  - viii. Maintenance of all building facilities and plant including substations
    - Tiles, gutters and downpipes, floors, roofs, window panels, windows, etc.
  - ix. Small construction works
    - To be determined by the System Engineer.
  - x. Road repairs
    - Paving blocks, potholes, paint road markings, safety barriers, manhole covers, drainage, etc.
  - xi. Signage
    - Safety signs, road signs, etc.
  - xii. Pipe works and this will include excavation on some pipe work
    - Drainage pipes, cable pipes, etc.
  - xiii. Sheetting
    - Repair, replace, etc.
  - xiv. Insulation and cladding
    - Repair, replace, etc.
  - xv. Walkways, Handrail, Gratings and Cat Ladders
    - NDT tests, paint, repair, replace, etc.
  - xvi. Metal structures and welding
    - Staircase, gratings, steel members, etc.
- Perform maintenance routine inspections as well as repairs and replacement of fittings and associated structures for all civil structures, refer to section 3.1 for the civil structures.
  - Provide a method statement indicating how maintenance on the civil structures will be performed.
  - Supply all the necessary equipment, tools, materials required to complete the works.
  - Submit detailed maintenance reports. The level of detail and frequency of reporting will be mutually agreed by the Employer and the Contractor. Further, the report shall include but not be limited to the following:

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- i. Scope of the inspection.
- ii. Finding of the inspection.
- iii. Remedial works conducted.
- iv. Location for the inspection and remedial works.
- v. Photographic record of the inspections and work conducted.

### **3.3 Site Visit and Documentation**

The following is required from the Contractor.

- a) Submit proposed method statement, QCP and ITP for approval by the Client
- b) Submit all the signed QCP and ITP documentation once works for a specific task are complete.
- c) Submit all the supplied material documentation once works for a specific task are complete.
- d) Submit maintenance progress feedback reports which entails inspections and work performed. The level of detail and frequency of reporting will be mutually agreed by the Employer and the Contractor during the contract negotiation.
- e) Submit a maintenance work schedule/programme for approval by the Client.

### **3.4 Test Requirements and Procedure**

Not applicable

## **4. Acceptance**

This document has been seen and accepted by:

<b>Name</b>	<b>Designation</b>
Nhlanhla Tshabalala	Senior Auxiliary Civil Engineer
Sbusiso Nzama	Auxiliary Civil Engineer
Mokete Mokhothu	Senior Technician Mechanical
Thami Simelane	Maintenance Manager
Itani Manwatha	Maintenance Group Manager

## **5. Revisions**

<b>Date</b>	<b>Rev.</b>	<b>Compiler</b>	<b>Remarks</b>
February 2023	1	N. Tshabalala	New document

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## **6. Development Team**

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

- a. Nhlanhla Tshabalala
- b. Sbusiso Nzama
- c. Mokete Mokhothu

## **7. Acknowledgements**

Not applicable

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