| Eskom | Scope of Work | Kusile Power Station |
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Title: **Kusile Power Station Chute Lining and Tiling Scope of Works**

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## Content

Page

# 1. Introduction

Kusile Power Station is a coal fired power station located in the Mpumalanga province in the Ogies area. Kusile Power Station is designed with six (6) units each with a generating capacity of 800MW. Kusile Power Station is also the only plant that has Flue gas Desulphurisation (FGD) system in the Eskom fleet.

The six (6) unit are supported by coal that is conveyed from the coal stockyard to the mill bunkers by means of conveyor belt systems. The byproduct of the combustion process is ash, the ash comes in two (2) different forms namely coarse ash and fly ash. Both forms of ash must be evacuated to the Ash Dump via the conveyor belt system. The FGD plant uses limestone as the raw material which is conveyed by means of conveyor belt system to the mills. Gypsum comes out of the FGD as a byproduct and get conveyed to the Ash dump via the conveyor belt system.

The conveyor system consists of transfer chutes which are a guided material flow system which redirects the bulk material with a minimal to no spillages. The chutes are lined and/or tiled to prevent buildups and to prolong the lifespan.

# 2. Supporting Clauses

## 2.1 Scope

The scope of the document covers the Employer's requirements in relation to the issue of frequent chute leakages and blockages.

### 2.1.1 Purpose

The purpose of this document is to define the maintenance activities with regard to the Chute lining and/or tiling service requirements for Kusile Power Station. The station is expected to perform at 92% UCF, 6% PCLF and 2% UCLF, and the Conveyor Belt management strategy efforts must support this requirement. It is therefore imperative that the successful and suitably qualified Contractor aligns his/her organisation fully to the Chute lining and/or tiling services scope activities and processes laid down in this document.

### 2.1.2 Applicability

This document is applicable to Kusile Power Station only.

### 2.1.3 Effective Date

This document will be effective from the date of its 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

[1] ISO 9001 Quality Management Systems

[2] 36-681 Generation Plant Safety Regulations

[3] 32-727 SHEQ Policy

[4] 240-84513751: Material Specification and Certification Guideline for Power Generation Plant

### 2.2.2 Informative

[5] 240-55864434: Storage and Handling of Conveyor Belting in Eskom Guideline

[6] 240-55864503: Belt Conveyor Mechanical Components Standard

[7] 240-55864504: Belt Conveyor Structural Steelwork and Welding Standard

[8] 240-55864505: Erection of Belt Conveyor Mechanical Standard

[9] 240-106628253: Standard for Welding Requirements on Eskom Plant

[10] 366-31570: Kusile Power Station Corrosion Protection Specification

[11] 240-92783805: Kusile Coal Handling Plant Maintenance Strategy

## 2.3 Definitions

| Definition | Explanation |
|---|---|
| Cataloguing | A process of describing goods, works or services in a standardised manner and assigning a unique number, description and classification to specific items. It is also known as codification. Cataloguing is based on the principles of “Fit”, “Form” and “Function”, which are used to describe a specific item. Cataloguing makes no reference to any specific brand. |
| Contract | An agreement duly entered between a properly authorised person, acting on behalf of Eskom and a third party, setting out the rights and obligations of the parties. Within Eskom, a properly compiled and lawfully established contract consists of documentation signed by the contracting Parties on the terms as approved by the DAA or its delegate. The contract documentation references or contains the applicable conditions of contract, which are usually standard and, amongst other elements, provides for communication requirements, steps to follow for certain circumstances and defines other rights, obligations, and risks of the parties. It also comprises documents to define the scope clearly (to the detail available at the time the contract comes into existence) and/or how it will be provided later, which typically includes specifications, drawings, and constraints. The pricing data, the data of the contract provided by the Parties (which may include additional pricing information such as fee percentages and rates applicable for Compensation Events / Claims / Variation Orders), clauses additional to the standard conditions of contract selected or to modify parts of it, written information relevant and available concerning the site or affected area, and other parts contained or referenced in the contract, also form part of the contract. |

| Definition | Explanation |
|---|---|
| Contractor | Service provider contracted to provide a specific spares & documentation to Kusile Power Station. Referred to as the Supplier on this document. |
| Contracts Manager | This person is an employee of Eskom and is the DCF Holder, who is trained and has appropriate skill, knowledge and (if required) professional registration, and who is appointed in writing to ensure delivery of the contractually specified goods, services and/or works and that the contract is managed and administered on behalf of Eskom in terms of the contract itself and applicable law. This person is appointed by way of and in terms of a DCF, which is issued for each contract following approval by the relevant DAA or its delegate at the award of a contract and signed by the Contract Signatory. Where the DCF Holder is not the Eskom Agent, the DCF Holder should regularly ensure that the Eskom Agent reports, consults, and confirms decisions with the DCF Holder. |
| Original Equipment Manufacturer (OEM) | The entity that is the original manufacturer of goods or products or parts of a product. |
| Procurement | Procurement is the process whereby goods, works or services are acquired. |
| Procurement Practitioner | An employee within P&SCM appointed to execute functions related to the procurement of goods, works, and services on behalf of an end user. As used in this Procedure, a Procurement Practitioner includes both an Accredited Procurement Practitioner and a non-accredited Procurement Practitioner except that any adjudication function may only be performed by an Accredited Procurement Practitioner and the Procedure must be so interpreted. |
| Supplier | A provider, or potential provider, of goods, works or services to Eskom |
| Employer | Eskom Kusile Power Station |

## 2.4 Abbreviations

| Abbreviation | Explanation |
|---|---|
| ISO | International Organisation for Standardisation |
| KPI | Key Performance Indicator |
| OEM | Original Equipment Manufacturer |
| OHS | Occupational Health & Safety |
| PSR | Plant Safety Regulations |
| SHEQ | Safety, Health, Environmental & Quality |
| SOW | Scope Of Work |

### 2.5 Roles And Responsibilities

| Department | Designation |
|---|---|
| Engineering | ○ Compile the Technical Evaluation<br>○ To facilitate the Engineering interfacing and lead the Engineering change |
| Maintenance | o End user for maintenance<br>○ Compile the Scope of Work for the maintenance department |
| Procurement | o Develop commercial strategy<br>o Tender management<br>o Supplier selection<br>o Contract management |
| Materials Management | o Consolidate project strategy<br>o Manage schedule, cost and quality<br>o Resource plan<br>o All other disciplines |
| Quality | o Manage the quality control plans<br>o Manage Risks |

#### 2.5.1 Contractor

a) Contractor shall assess the condition of all the chute lining and ceramic tiles in the plant and provide a detailed report.

b) The Contractor shall supply lining/tiling material, epoxies, bolts, plastic welding equipment and all required tools to execute works.

c) The Contractor shall ensure that all maintenance is executed as per Employer's instructions, maintenance strategies, processes and systems.

d) The Contractor shall be responsible for all mechanical maintenance activities within this scope of work.

e) Contractor shall provide engineering support services that will be discussed and approved by the Employer

f) The Contractor shall manage and ensure the availability of all required spares necessary for ensuring smooth plant/equipment operation. Employer and contractor will discuss and agree on on-site/off-site spares strategy necessary to meet the operation strategy.

g) The Contractor shall provide the following complementary services to improve Plant and labour performance

I. Method statements and Material Safety Data Sheet

II. Compile and improve task list's and QCP's

III. Implement approved design and modification

IV. Spares management

V. Technical advice

VI. Component failure analysis reporting

h) The Contractor shall 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.

i) Should the Employer become aware of any changes to the activity schedule (programme of notifications), the Employer may issue the Contractor with a revised programme.

j) The Employer and contractor to agree on what repairs should be done onsite and off-site.

k) This contract is for preventative, predictive, corrective maintenance (breakdowns) and opportunity maintenance.

l) The contractor shall be responsible to clean up any chemical spillages and housekeeping should be done during and/or after execution of the tasks.

m) The contractor shall apply QCP process on all the tasks to be executed.

n) The Contractor shall ensure that they have responsible persons (in terms of PSR) for any work performed on plant. All maintenance technically qualified (above semi-skilled) Contractors will be trained and authorised (in terms of PSR) within 6 months after the contract start date.

o) The Contractor shall implement of continuous improvement to optimise Plant performance and reduce system and equipment failures.

### 2.5.2 Employer

a) Performance is measured by the Employer against those areas which contribute to the Employer's business and the Contractor shall be evaluated monthly against specific Key Performance Indicators. (e.g. Reliability, Availability and Safety).
b) The Employer is to provide power connection points that are within a reasonable proximity to the work areas.
c) Employer shall provide training for PSR, and any other training as deemed necessary by the Employer. All other functionality training shall be the responsibility of the Contractor.
d) The Employer and Contractor in this SOW are committed towards the following.
I. Retention of critical skills
II. Continuous cost reduction
III. Health & Safety Environment
IV. Transfer of operational experience and skills

## 2.6 Process For Monitoring

This document is governed and monitored by 32-1034, Eskom Procurement and Supply Chain Management Procedure.

## 2.7 Related/Supporting Documents

Not Applicable

## 3. Scope Of Work

The scope of work seeks to source an experienced and competent chute lining Contractor for the period of 5 years to inspect, assess and repair damaged chute lining making use of the material of the exact specification the original installation. The installed chute lining materials that are used throughout Kusile Power Station are Ceramic, Flowline, UHWPE, Glass and Linashield. The preferred method of lining installation by bonding the liner with epoxies. The scope of work also welcomes continuous improvement proposals where the Contractor identifies design defects in the currently installed liners.

### 3.1 Works Information

#### 3.1.1 Applicable Plant Area

This scope of work to repair chute lining applies to all transfer chutes in the following plant areas:

a. Limestone Handling Plant
b. Mixed Ash Handling Plant
c. Coal Handling Plant

#### 3.1.2 Chute Lining Scope Of Work

The scope of work is to regularly inspect the chutes for lining damages, provide the lining materials, epoxies and the required tools for repairs, apply for permit and execute chute repairs. This contract will be an as and when required basis, but the contractor shall ensure there is a standby to provide a 24-hour coverage and ensure attendance on daily feedback meetings. The contractor is also required to perform weekly chute inspections as per scheduled PMs and provide monthly report. The Contractor shall provide a qualified and competent team with all the necessary equipment to do chute tiling and lining and repairs.

### 3.2 General

a. The chute lining must be performed by qualified personnel in the field of chutes design and flow modelling.
b. The chute lining must be performed in such a manner that the tiling and/or lining material is flush with the chute body internal surfaces.
c. The chute lining methodology or activity plans must clearly be indicative of whether the works can be executed on the chutes whilst in situ or if the chutes require disassembly and offsite works.
d. The chute lining material must have a good resistance to pure sliding abrasion
e. The chute lining material used must be non-absorbent, repels water, giving non-stick properties which greatly assist the handling of damp and sticky cohesive materials.
f. The chute lining material to be used must have good chemical resistance and is unaffected by inorganic chemicals and able to withstand temperatures up to 95°C. the lining must maintain its properties at very low temperatures.

### 3.3 Exclusions

a. Scaffolding
b. Unauthorised Modifications
c. Mobile Crane

### 3.4 Description Of The Works

The works entails chute inspections, chute surface preparation and installation of chute Ceramic tiles or plastic lining material. The installation of the tiling and lining material must be executed on planned basis or as breakdown (emergency callout) as the transfer chutes are already in operation to support production. Preventive maintenance activities shall be carried out, over and above the Contractor recommended preventive maintenance activities.

### 3.5 Documentation

Prepare a Databook to document all the chute tiling and lining repair works from procurement of material to execution of works. The data book must entail the following information.

a. Lining material Fabrication drawings and offsite QCPs
b. Onsite delivery QCPs
c. Material Datasheet for tiling, lining, epoxies, bolts.
d. Welding Procedures and specifications
e. Onsite chute tiling and lining installation QCPs

### 3.6 Material Fabrication

The offsite material fabrication processes and fabrication workshop must be ISO 9001:2015 compliant.

### 3.7 Site Establishment

The Employer is to allocate an area within the power station for the Contractor to establish site. The established site must comply with the General Safety Regulations as stipulated in the Occupational Safety Act of 1993.

### 3.8 Material Delivery To Site

All materials delivered to site for the purpose of works execution must be quality checked offsite, and quality checked upon delivery to Kusile Power Station by the Eskom personnel.

### 3.9 Consumables Required

The Contractor shall supply his own consumables to satisfy the requirements for the duration of the contract.

## 4. Acceptance

This document has been seen and accepted by:

| Full Name and Surname | Designation |
|---|---|
| | Maintenance Manager |
| | Senior Advisor |
| | Senior Engineer |
| | Senior Supervisor |
| | System Engineer |

## 5. Revisions

| Date | Rev. | Compiler | Remarks |
|---|---|---|---|
| June 2025 | 1 | | |

## 6. Development Team

## 7. Acknowledgements

Not applicable