Eskom	Scope of Work	Majuba Power Station

Title: **Scraper Chain Mobile Feeder Scope of Work**

Unique Identifier:	**ENG/GEN/SPEC/30**
Alternative Reference Number:	**N/A**
Area of Applicability:	**Engineering**
Documentation Type:	**Specification**
Revision:	**1**
Total Pages:	**7**
Next Review Date:	**N/A**
Disclosure Classification:	**CONTROLLED DISCLOSURE**

Compiled by	Functional Responsibility	Supported By	Authorised by
.....	.....	.....	.....
M Kubeka	**S Masango**	**E Venter**	**S Buthelezi**
System Engineer	**Manager Auxiliary (A)**	**Chief Engineer Asset Mechanical Engineering**	**Middle Manager Engineering (A)**
Date..2022/04/08.....	**Date**2022/04/08.....	**Date**.....	**Date**08/04/2022.....

CONTENTS

Page

1. INTRODUCTION 3

2. SUPPORTING CLAUSES 3

2.1 SCOPE 3
2.1.1 Purpose 3
2.1.2 Applicability 3
2.2 NORMATIVE AND INFORMATIVE REFERENCES 3
2.2.1 Normative 3
2.2.2 Informative 3
2.3 DEFINITIONS 3
2.3.1 Disclosure Classification 4
2.4 ABBREVIATIONS 4
2.5 ROLES AND RESPONSIBILITIES 4
2.6 PROCESS FOR MONITORING 4

3. SYSTEM REQUIREMENTS 5

3.1 SYSTEM DEFINITION 5
3.1.1 Scraper chain mobile feeder's requirement 5
3.1.2 Safety requirements 5
3.2 GENERAL REQUIREMENTS 6
3.3 DESCRIPTION OF THE WORKS 6
3.4 DESIGN AND CONSTRUCTION REQUIREMENTS 7
3.4.1 DOCUMENTATION 7
3.4.2 QUALITY ASSURANCE REQUIREMENTS 7

4. AUTHORISATION 7

5. REVISIONS 7

6. DEVELOPMENT TEAM 7

7. ACKNOWLEDGEMENTS 7

1. INTRODUCTION

Majuba Power Station receives coal through both coal trucks and train. The coal received by trucks is delivered at the coal stockyard and by train is conveyed to the station coal Silos. The coal from the coal stockyard is reclaim by conveyors to the Silos. The coal from the train is transferred by Tippler take-out conveyors on to the Overland conveyors. The Scraper Chain Mobile Feeders form part of the backup of coal on to both the Tippler take-out and the Overland conveyors.

2. SUPPORTING CLAUSES

2.1 SCOPE

This document describes the technical requirements for the purchase of the Scraper chain mobile feeders for Majuba Power Station. The document specifies the required capacity of the feeder in tonnes per hour as well as the on-board voltage required.

2.1.1 Purpose

The purpose of the document is to provide guidance and specify the requirement for the sourcing of the Scraper chain mobile feeders for Majuba Power Station.

2.1.2 Applicability

This document is applicable to Majuba Auxiliary Engineering.

2.2 NORMATIVE AND INFORMATIVE REFERENCES

2.2.1 Normative

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

[1] 240-163146409 Scraper Chain Feeder Standard.

2.2.2 Informative

[3] ISO 9001 Quality Management Systems.

2.3 DEFINITIONS

Definition	Description
Detail Design	Process to develop and issue Approved for Construction documents and drawings in accordance with the Design Base, including Quality Control, Quality Assurance, and Change Management.
System	An integrated set of constituent pieces that are combined in an operational or support environment to accomplish a defined objective. These pieces include people, hardware, software, firmware, information, procedures, facilities, services and other support facets
Availability	Relates to the ability of the system-of-interest to be accessed and operated when needed.

Maintainability	Relates to the ability of the intended system to be easily serviced or repaired, including the ability to be easily diagnosed. In this context, maintainability is synonymous with 'Repairability' or 'Serviceability'
Reliability	Relates to the ability of the intended system to perform within the specification limits with correct and consistent results over time. This includes the numerical reliability characteristics (with confidence levels, if appropriate).

2.3.1 Disclosure Classification

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

2.4 ABBREVIATIONS

Abbreviation	Description
IP	Ingress Protection
ISO	International Standards Organisation
kPa	Kilo Pascal
LV	Low Voltage
m	Meter(s)
mA	Millie Amp
m/s	Meters per second
MV	Medium Voltage
QCP	Quality Control Plan
OHS	Occupational Health and Safety
BMH	Bulk Materials Handling

2.5 ROLES AND RESPONSIBILITIES

The System Engineer is responsible for specifying the available infrastructure in terms of voltage level and power source when acquiring the new Scraper chain mobile feeders.

2.6 PROCESS FOR MONITORING

Not applicable.

3. SYSTEM REQUIREMENTS

3.1 SYSTEM DEFINITION

3.1.1 Scraper chain mobile feeder's requirement

The feeder shall be used outdoors for mobile truck off-loading as well as for reclaiming the live, seasonal, strategic and emergency stockpiles. Loading onto the feeders shall be done by either front end loaders or road trucks tipping on top of the deck or bulldozer pushing the coal onto the deck. The feeders consist of a steel frame structure with a chain scraper arrangement that moves and elevates the coal from the horizontal travel to the head end discharge.

The feeder shall have on board electrical and control equipment. The electrical and control connections and cabling shall be designed to facilitate connection and disconnection to alternative locations. The electrical connection for point of supply (bulk supply) shall be by means of a Short Circuit Protective Device (SCPD) e.g. Circuit-breaker or Fuse Switch Disconnector provided by the Employer from the source of supply identified by the Employer.

The Contractor sizes the machine's overall power consumption and informs the Employer to provide this power. The length of power cable will suit site specific electrical connection points (kiosks). A site layout shall be provided by the Employer.
The design of the feeder shall include for the handling of coarse as well as a very fine product. The return scraper deck shall be designed to ensure that the product does not accumulate at any location that will result in the generation of excessive additional friction and associated performance issues or plant damage. Machine needs to be fitted with spacers that will prevent the flights from touching the frame on the return side Wherever there is likelihood of this occurring, adequate maintenance access shall be provided. Machine must be fitted with inspection covers for ease of inspection the chain tension on the return side.
The application of the driving effort to the chain scraper conveyor shall include a torque limiting coupling technology that will prevent the system from damage in case of overloading with the ability to return to its normal operating torque after removing the overload condition without the necessity for replacing specific components.

3.1.2 Safety requirements

The *Contractor* is to comply with the latest revision of the Eskom Generation Plant Safety Regulations, site-specific procedures and stipulations of the OHS Act.

3.2 GENERAL REQUIREMENTS

The Contractor is responsible for the manufacture, supply and deliver to site, of all items specified according to the applicable codes and standards and the requirements in this document.

3.3 DESCRIPTION OF THE WORKS

The scope covers the purchase, delivery to site, installation, commissioning, and training of two Scraper chain mobile feeders to reclaim coal from the coal stockyard piles to the conveyor.

1.1. Capacity

The feeders shall be capable of delivering a throughput capacity of 1600 tons per hour. The scope includes 2X single short decks length (8m minimum)

1.2. Electrical and Control Instrumentation

i. All electrical equipment shall be ex-rated to Zone 21

ii. Each feeder shall have a 400V on-board transformer

The feeder shall be supplied with sufficient illumination

iii. The feeder must have sufficient protection against electrical and mechanical overload

1.3. Safety features

Each feeder shall be provided with the following safety features:

i. Sufficient mobile feeder protection (Emergency stops, pull keys, sirens and etc according to OHS Act Safety standards and Conveyor belt protection guideline)

ii. An interface to a belt speed switch on the receiving conveyor to allow for interlocking the feeders operation. If the receiving belt trips the feeder shall stop.

iii. Signage (safety and hazloc signs)

iv. The mobile feeder shall have sufficient maintenance access platforms and stairs (e.g. cat ladders with back bracing, handrails and etc)

1.4. Discharge Chute

i. Each feeder shall be supplied with a dust containment system on the discharge chute with sufficient maintenance accessibility. Discharge chute must have the ability to guide the coal for central loading onto the conveyor belt.

1.5. Mobility

The feeder shall be suitable to be moved around the coal stockyard (rubber lined wheels) and have pulling lugs to allow for towing using a dozer or front-end 8loader

1.6. Lubrication system

The feeder shall have a fully automatic lubrication system with an option for manual lubrication.

1.7. Materials

All materials shall be selected according to the Eskom bulk material handling specification Eskom specification (474-12186)

1.8. External and internal coating

The colour shall be Caterpillar Yellow or other accepted by the Engineer.

1.9. Training

The Contractor shall provide training to Employer's Personnel to perform safe operation, maintenance, and engineering of the feeder.

3.4 DESIGN AND CONSTRUCTION REQUIREMENTS

3.4.1 DOCUMENTATION

Designing and issuing of Drawings for the *works*. The format and layout of the Drawings is to comply with the Eskom Standards. Drawings issued to Eskom will be a minimum of one hardcopy and an electronic copy. All *Contractors* are required to submit electronic drawings in Micro Station (DGN) format, and scanned drawings in pdf format. No drawings in TIFF, AUTOCAD or any other electronic format will be accepted. Drawings issued to the *Employer* may not be "Right Protected" or encrypted.

3.4.2 QUALITY ASSURANCE REQUIREMENTS

The *Contractor* is to be responsible to record and archive all off-site, factory tests and on-site tests for Plant, Equipment and Material.

4. AUTHORISATION

This document has been seen and accepted by:

Name	Designation
Sipho Masango	Acting Auxiliary Engineering Manager
Sinothi Buthelezi	Acting Engineering Manager
Eugene Venter	Chief Engineer Asset Management Mechanical Engineering
Londi Mthembu	Maintenance Manager
Eunice Dhlamini	Acting Coal Maintenance Manager
Manqoba Kubeka	Mechanical Auxiliary Engineer
Zakhele Nkosi	Acting Technical Plant Manager

5. REVISIONS

Date	Rev.	Compiler	Remarks
April 2022	1	M Kubeka	New document

6. DEVELOPMENT TEAM

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

Sipho Masango.

7. ACKNOWLEDGEMENTS

N/A.