

	SCOPE OF WORK	Kendal Power Station
---	----------------------	-----------------------------

Title: **Kendal Ash Dump Parallel Shift of Extendible Conveyors 00ETK13&23 and Extension of Shiftable Conveyors 00ETK14-Electrical and C&I Scope of Work**

Document Identifier:

Alternative Reference Number:

Area of Applicability: **Engineering**

Functional Area: **Electrical Engineering**

Revision: **00**

Total Pages: **25**

Next Review Date: **N/A**

Disclosure Classification: **Controlled Disclosure**

Compiled by

Functional Responsibility

Authorized by

Date:

Date:

Date:

Content

	Page
1. Introduction.....	4
2. Supporting Clauses	4
2.1 Scope.....	4
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.....	5
2.3 Definitions	5
2.4 Abbreviations	5
2.5 Roles and Responsibilities	5
2.6 Process for Monitoring.....	6
2.7 Related/Supporting Documents.....	6
2.8 General Considerations.....	6
3. Outage Guidelines.....	6
3.1 Sources of Outage Activities.....	6
3.2 Measuring and Testing Equipment	6
3.3 Preservation of Product.....	6
3.4 Risk.....	7
4. Parallel Shift Electrical Scope of Work.....	8
4.1 00ETK13 Parallel Shift	8
4.2 00ETK14 Extension.....	10
4.3 00ETK23 Parallel Shift	11
4.4 Electrical Maintenance Scope of Work	13
4.4.1 00ETK13:	14
4.4.2 00ETK14:	14
4.4.3 Spreader:	14
4.4.4 Tripper:.....	14
4.4.5 00ETK23:	14
4.4.6 00ETK24:	15
4.4.7 Stacker:	15
4.4.8 Tripper:.....	15
5. Parallel Shift C&I Scope of Work	16
5.1 00ETK13 Parallel Shift	16
5.2 00ETK14 Extension.....	17
5.3 00ETK23 Parallel Shift	17
6. Bill of Materials (Electrical)	19
7. Bill of Materials (C&I).....	23

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

8. Acceptance.....	Error! Bookmark not defined.
9. Revisions.....	Error! Bookmark not defined.
10. Development Team	Error! Bookmark not defined.
11. Acknowledgements	25
12. Appendix A- Eskom Standard Codes for Power and Control Cables	26

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

1. Introduction

Kendal power station ash dump facility was originally designed for 40 years of operation. The lifespan of the station was extended to 60 years and with the coal quality deteriorating. Ash Spreader belt shift have always been done via forward movement. No reverse belt shifts have ever been done. Ash spreader reverse shift was completed successfully in August 2016. The reverse shift took about a month from start to finish.

The new design and drawings for ash in the new area requires a number of parallel shift for the extendable conveyors 0ETK 13&23 to be implemented. This type of parallel shift is not often done at Kendal since the ash dump belt shifts are mainly radial in nature.

2. Supporting Clauses

2.1 Scope

This document covers the scope of work to be executed by the contractor which entails all related activities required to construct the parallel shifts of 00ETK13&23 and extension of 00ETK14 located within the Ash Disposal Facility for ash handling plant at Eskom – Kendal Power Station. The scope of work shall cover Electrical and C&I disciplines as applicable to the construction of the parallel shifts with the intention to align the standby head station position from (SCP1 of the reverse shift) to about SCP 10 – 11 horizontal alignments continuous ash process to the new geometry configuration of the new design alignment. At SCP 10 – 11 the head station horizontal alignment will match to the new drawings for shiftable conveyor 00ETK14 for the standby.

2.1.1 Purpose

This report explains the electrical scope of work that need to be done to construct the four parallel belts shift(s) of 00ETK13&23 extendable conveyors to suit the new design of the Kendal Continuous Ash project. As well as to extend the belt length of the shiftable conveyor 00ETK14 to ensure that Kendal does not ash beyond the exempted area before expiry of the license. Both these activities will entail supply and install of Electrical and C&I work for the associated ash conveyors for the facility. This is to ensure that the facility has sufficient holding capacity, standard operation (Ash stacker and spreader) and that the current operations are environmentally compliant. To this effect the contractor is under the obligation to provide work that is fit for purpose.

2.1.2 Applicability

This document is applicable to Kendal Power station only.

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 9001:2008 Quality Management Systems.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

[2] Kendal Quality Manual	*1017374
[3] Document and Record Management	*1015695
[4] Non-Conformance, Corrective and Preventive Action	*1017357
[5] Integrated Risk Management	*1017401
[6] Control and Approval of Quality Plan	*1017482
[7] Control of Monitoring and Measuring Equipment	*1017483

2.2.2 Informative

N/A

2.3 Definitions

N/A

2.4 Abbreviations

Abbreviation	Explanation
JB	Junction Box
LV	Low Voltage
V	Volts
SOW	Scope Of Work
EMD	Electrical Maintenance Department
kW	Kilowatt
UVG	Control &Instrumentation Cables
TFFR	Transformer
DC	Direct Current
AC	Alternating Current
IP	Enclosure Protection Rating
RPM	Revolutions per Minute
HZ	Measurement of Frequency

2.5 Roles and Responsibilities

Below are the roles and responsibilities of each department:

- Work Execution - Contractor / EMD Outside Plant
- Quality Control – Compiled by Technical support and reviewed by Electrical Engineering.
- SOW – Electrical Engineering

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd,
Reg No 2002/015527/30.

2.6 Process for Monitoring

Inspections and quality control documents will be used to monitor progress and quality of the work.

2.7 Related/Supporting Documents

N/A

2.8 General Considerations

Description	Reference
Competency	
Competency shall be as indicated in Kendal Quality Manual, section 6.2.2	*1017374
Safety	
Kendal Power Station SHE specifications for principal contractors	
Kendal Power Station Occupational Health and Safety Hazard Identification	*1017372
Environment	
Waste Management procedure	*1014102
Kendal Environmental Procedures for Contractors	*1018332
Kendal Power Station Occupational Health and Safety Hazard Identification	*1017372
Quality	
To comply to Kendal Quality Manual	*1017374
Kendal Document and Records Management Procedure	*1015682
Occupational Health and Safety Act no. 85 of 1993	Act no. 85 of 1993

3. Outage Guidelines

3.1 Sources of Outage Activities

N/A

3.2 Measuring and Testing Equipment

All measuring and testing equipment shall comply with Kendal Quality Manual *1017374, section 7.6.

3.3 Preservation of Product

Unless specified, product handling shall comply with the following;

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

- Eskom Procurement and Supply Chain Management – 32-1034
- Maintenance procedures

3.4 Risk

Risk management during the replacement shall comply with *1017401 - Integrated Risk Management

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

4. Parallel Shift Electrical Scope of Work

4.1 00ETK13 Parallel Shift

SUBSYSTEM						
COMPONENT ACTIVITIES				GOVERNING DOCUMENTS		ACTION
No	COMPONENT ACTIVITY	TASK DESCRIPTION	ACTIVITY TYPE (INSPECTION / TEST / REFURBISH / REPLACE)	PROCEDURE / SAP TASK LIST	QUALITY INSPECTION PLAN	RESPONSIBLE DEPARTMENT
1		<ul style="list-style-type: none"> Supply and install 1x95mm², 500m, 3.3kV Armored cable for 00ETK14 A-Drive motor. Terminate Supply and install 1x95mm², 500m, 3.3kV Armored cable to Splitter box and F-House switchgear. 	REFURBISH		YES	CONTRACTOR
2		<ul style="list-style-type: none"> Supply and install 1x95mm², 500m, 3.3kV Armored cable for 00ETK14 B-Drive motor. Terminate Supply and install 1x95mm², 500m, 3.3kV Armored cable to Splitter box and F-House switchgear. 	REFURBISH		YES	CONTRACTOR
3		<ul style="list-style-type: none"> Supply and install 1x70mm², 500m, 3.3kV Armored cable for TRFR-Head Station. Terminate Supply and install 1x70mm², 500m, 3.3kV Armored cable to Splitter box and F-House switchgear. 	REFURBISH		YES	CONTRACTOR

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

5		<ul style="list-style-type: none"> Supply and install 1x70mm², 500m, 3.3kV Armored cable for Power Reeling Drum. Terminate Supply and install 1x95mm², 500m, 3.3kV Armored cable to Splitter box and F-House switchgear. 	REFURBISH		YES	CONTRACTOR
6		<ul style="list-style-type: none"> Move Splitter Box 50m close 00ETK13 transferee chute.(00BDH02GS001) 	REFURBISH		YES	CONTRACTOR
7		<ul style="list-style-type: none"> Supply and install 1x70mm², 500m, 3.3kV Armored cable for 00ETK13 Drive motor. Terminate Supply and install 1x70mm², 500m, 3.3kV Armored cable to 00ETK13 Drive motor and F-House switchgear 	REFURBISH		YES	CONTRACTOR
8		<ul style="list-style-type: none"> Supply and install 1x35mm², 500m, 380V Armored cable for 00EYG61GA500 power supply. Terminate Supply and install 1x35mm², 500m, 380V Armored cable 00EYG61GA500 power supply and F-House switchgear 	REFURBISH		YES	CONTRACTOR
9		<ul style="list-style-type: none"> Supply and install 1x35mm², 500m, 380V Armored cable for 00EYG51GA600 power supply. Terminate Supply and install 1x35mm², 500m, 380VV Armored cable 00EYG51GA600 power supply and F-House switchgear. 	REFURBISH		YES	CONTRACTOR
10		<ul style="list-style-type: none"> Supply and install 1x12 cores, 2.5mm², 500m, 380V Armored cable for 00EYG61GA500 power supply. Terminate Supply and install 1x12core,2.5mm², 500m, 380V Armored cable 00EYG61GA500 power supply and F-House switchgear. 	REFURBISH		YES	CONTRACTOR

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

11		<ul style="list-style-type: none"> Supply and install 1XUVG20, 500m, Armored C&I from F-house Sub to 00EYG61GA500. Terminate 1XUVG20, 500m, Armored C&I from F-house Sub to 00EYG61GA500. 	REFURBISH		YES	CONTRACTOR
----	--	---	-----------	--	-----	------------

4.2 00ETK14 Extension

SUBSYSTEM						
COMPONENT ACTIVITIES				GOVERNING DOCUMENTS		ACTION
No	COMPONENT ACTIVITY	TASK DESCRIPTION	ACTIVITY TYPE (INSPECTION / TEST / REFURBISH / REPLACE)	PROCEDURE / SAP TASK LIST	QUALITY INSPECTION PLAN	RESPONSIBLE DEPARTMENT
1		<ul style="list-style-type: none"> Supply and install 1x50mm², 300m, and 3.3kV Trailing cable supply to 00ETK14 A-Drive motor. 1X_termination1x50mm², 300m, 3.3kV Trailing cable supply to 00ETK14 A-Drive motor. 1XHV joint, 50mm², 300m, 3.3kV Trailing cable supply to 00ETK14 A-Drive motor. 	REFURBISH		YES	CONTRACTOR
2		<ul style="list-style-type: none"> Supply and install 1x50mm², 300m, and 3.3kV Trailing cable supply to 00ETK14 B-Drive motor. 1X_termination1x50mm², 300m, 3.3kV Trailing cable supply to 00ETK14 B-Drive motor. 1XHV joint, 35mm², 300m, 3.3kV Trailing cable supply to 00ETK14 B- 	REFURBISH		YES	CONTRACTOR

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

		Drive motor.				
3		<ul style="list-style-type: none"> Supply and install 1x35mm², 300m, and 3.3kV Trailing cable supply to 00ETK14 Head Station Transform. 1X_termination1x35mm², 300m, 3.3kV Trailing cable supply to 00ETK14 Head Station Transform. 1XHV joint, 35mm², 300m, 3.3kV Trailing cable supply to 00ETK14 Head Station Transform. 	REFURBISH		YES	CONTRACTOR
5		<ul style="list-style-type: none"> Supply and install 1x35mm², 300m, and 3.3kV Trailing cable supply to 00ETK14 Power Reeling Drum. 1X_termination1x35mm², 300m, 3.3kV Trailing cable supply to 00ETK14 Power Reeling Drum. 1XHV joint, 35mm², 300m, 3.3kV Trailing cable supply to 00ETK14 Power Reeling Drum. 	REFURBISH		YES	CONTRACTOR

4.3 00ETK23 Parallel Shift

SUBSYSTEM						
COMPONENT ACTIVITIES			GOVERNING DOCUMENTS		ACTION	
No	COMPONENT ACTIVITY	TASK DESCRIPTION	ACTIVITY TYPE (INSPECTION / TEST / REFURBISH / REPLACE)	PROCEDURE / SAP TASK LIST	QUALITY INSPECTION PLAN	RESPONSIBLE DEPARTMENT
1		<ul style="list-style-type: none"> Supply and install 1x95mm², 700m, 3.3kV Armored cable for 00ETK24 	REFURBISH		YES	CONTRACTOR

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

		<ul style="list-style-type: none"> A-Drive motor. Terminate Supply and install 1x95mm², 700m, 3.3kV Armored cable to Splitter box and F-House switchgear. 				
2		<ul style="list-style-type: none"> Supply and install 1x95mm², 700m, 3.3kV Armored cable for 00ETK24 B-Drive motor. Terminate Supply and install 1x95mm², 700m, 3.3kV Armored cable to Splitter box and F-House switchgear. 	REFURBISH		YES	CONTRACTOR
3		<ul style="list-style-type: none"> Supply and install 1x70mm², 700m, 3.3kV Armored cable for 00ETK24 TRFR-Head Station. Terminate Supply and install 1x70mm², 700m, 3.3kV Armored cable to Splitter box and F-House switchgear. 	REFURBISH		YES	CONTRACTOR
5		<ul style="list-style-type: none"> Supply and install 1x70mm², 700m, 3.3kV Armored cable for 00ETK24 Power Reeling Drum. Terminate Supply and install 1x95mm², 700m, 3.3kV Armored cable to 00ETK24 Splitter box and F-House switchgear. 	REFURBISH		YES	CONTRACTOR
6		<ul style="list-style-type: none"> Move Splitter Box 150m close 00ETK24 transferee chute. (00BDH01GS001) 	REFURBISH		YES	CONTRACTOR
7		<ul style="list-style-type: none"> Supply and install 1x70mm², 700m, 3.3kV Armored cable for 00ETK24 Drive motor. Terminate Supply and install 1x70mm², 700m, 3.3kV Armored cable to 00ETK24 Drive motor and F-House switchgear. 	REFURBISH		YES	CONTRACTOR
8		<ul style="list-style-type: none"> Supply and install 1x35mm², 700m, 380V Armored cable for 00EYG52GA600 power supply. 	REFURBISH		YES	CONTRACTOR

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

		<ul style="list-style-type: none"> Terminate Supply and install 1x35mm², 700m, 3.3kV Armored cable 00EYG52GA600 power supply and F-House switchgear. Supply and install 1x12 cores, 2.5mm², 700m, 380V Armored cable for 00EYG52GA600 power supply. 				
9		<ul style="list-style-type: none"> Supply and install 1x35mm², 700m, 380V Armored cable for 00EYG62GA500 power supply. Terminate Supply and install 1x35mm², 700m, 3.3kV Armored cable 00EYG62GA500 power supply and F-House switchgear. 	REFURBISH		YES	CONTRACTOR
10		<ul style="list-style-type: none"> Terminate Supply and install 1x12core,2.5mm², 700m, 380V Armored cable 00EYG52GA600 power supply and F-House switchgear. Supply and install 1XUVG20, 700m, Armored C&I from F-house Sub to 00EYG52GA600. Terminate 1XUVG20, 700m, Armored C&I from F-house Sub to 00EYG51GA500. 	REFURBISH		YES	CONTRACTOR

4.4 Electrical Maintenance Scope of Work

SUBSYSTEM						
COMPONENT ACTIVITIES				GOVERNING DOCUMENTS		ACTION
No	COMPONENT ACTIVITY	TASK DESCRIPTION	ACTIVITY TYPE (INSPECTION / TEST / REFURBISH / REPLACE)	PROCEDURE / SAP TASK LIST	QUALITY INSPECTION PLAN	RESPONSIBLE DEPARTMENT

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

1		4.4.1 00ETK13: <ul style="list-style-type: none"> Replace the 220kW,3.3kV extendable conv. Motor 	REFURBISH		YES	CONTRACTOR
2		4.4.2 00ETK14: <ul style="list-style-type: none"> Replace 2X220kW,3,3kV Shiftable Conv. Motors 	REFURBISH		YES	CONTRACTOR
3		4.4.3 Spreader: <ul style="list-style-type: none"> Replace 2X90kW,380V Boom & Link Conv. Motors Clean& Service 380V Tripper Car& Spreader Boards Replace 2X45kW DC Crawler Motors and 1.5kW Fans Replace 2X0,19kW Crawlers brakes 	REFURBISH		YES	EMD
5		4.4.4 Tripper: <ul style="list-style-type: none"> Replace 26X1.1kW travel brakes Replace 26X0,19kW travel motors Replace all limit switches and test functionality 	REFURBISH		YES	EMD
6		4.4.5 00ETK23:	REFURBISH		YES	EMD

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

		<ul style="list-style-type: none"> Replace the 220kW,3.3kV extendable conv. Motor 				
7		4.4.6 00ETK24: Replace 2X300kW,3,3kV Shiftable Conv. Motors				
8		4.4.7 Stacker: <ul style="list-style-type: none"> Replace 75kW,380V Boom& Replace 90kW Link Conv. Motor Clean& Service 380V Tripper Car& Stacker Boards Replace 2X45kW DC Crawler Motors and 1.5kW Fans Replace 2X0,19kW Crawlers brakes 	REFURBISH		YES	EMD
9		4.4.8 Tripper: <ul style="list-style-type: none"> Replace 26X1.1kW travel brakes Replace 26X0,19kW travel motors Replace all limit switches and test functionality 	REFURBISH		YES	EMD

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

5. Parallel Shift C&I Scope of Work

5.1 00ETK13 Parallel Shift

SUBSYSTEM						
COMPONENT ACTIVITIES				GOVERNING DOCUMENTS		ACTION
No	COMPONENT ACTIVITY	TASK DESCRIPTION	ACTIVITY TYPE (INSPECTION / TEST / REFURBISH / REPLACE)	PROCEDURE / SAP TASK LIST	QUALITY INSPECTION PLAN	RESPONSIBLE DEPARTMENT
1		<ul style="list-style-type: none"> Supply and install belt pull keys Supply and install interface module with PCB. 	REPLACE		YES	CONTRACTOR
2		<ul style="list-style-type: none"> Supply and install belt tear detector switch Supply and install belt tear detector switch mounting bracket 	REPLACE		YES	CONTRACTOR
3		<ul style="list-style-type: none"> Supply and install belt misalignment switch Supply and install belt misalignment switch mounting frame 	REPLACE		YES	CONTRACTOR
4		<ul style="list-style-type: none"> Supply and install 1x9core x0.75mm green wire cable. 	REPLACE		YES	CONTRACTOR

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

5.2 00ETK14 Extension

SUBSYSTEM

COMPONENT ACTIVITIES				GOVERNING DOCUMENTS		ACTION
No	COMPONENT ACTIVITY	TASK DESCRIPTION	ACTIVITY TYPE (INSPECTION / TEST / REFURBISH / REPLACE)	PROCEDURE / SAP TASK LIST	QUALITY INSPECTION PLAN	RESPONSIBLE DEPARTMENT
1		<ul style="list-style-type: none"> Supply and install belt pull keys Supply and install interface module with PCB. 	REPLACE		YES	CONTRACTOR
2		<ul style="list-style-type: none"> Supply and install belt tear detector switch Supply and install belt tear detector switch mounting bracket 	REPLACE		YES	CONTRACTOR
3		<ul style="list-style-type: none"> Supply and install belt misalignment switch Supply and install belt misalignment switch mounting frame 	REPLACE		YES	CONTRACTOR
4		<ul style="list-style-type: none"> Supply and install 1x9core x0.75mm green wire cable. 	REPLACE		YES	CONTRACTOR

5.3 00ETK23 Parallel Shift

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

SUBSYSTEM						
COMPONENT ACTIVITIES				GOVERNING DOCUMENTS		ACTION
No	COMPONENT ACTIVITY	TASK DESCRIPTION	ACTIVITY TYPE (INSPECTION / TEST / REFURBISH / REPLACE)	PROCEDURE / SAP TASK LIST	QUALITY INSPECTION PLAN	RESPONSIBLE DEPARTMENT
1		<ul style="list-style-type: none"> Supply and install belt pull keys Supply and install interface module with PCB. 	REPLACE		YES	CONTRACTOR
2		<ul style="list-style-type: none"> Supply and install belt tear detector switch Supply and install belt tear detector switch mounting bracket 	REPLACE		YES	CONTRACTOR
3		<ul style="list-style-type: none"> Supply and install belt misalignment switch Supply and install belt misalignment switch mounting frame 	REPLACE		YES	CONTRACTOR
4		<ul style="list-style-type: none"> Supply and install 1x9core x0.75mm green wire cable. 	REPLACE		YES	CONTRACTOR

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

6. Bill of Materials (Electrical)

SUBSYSTEM							
No	COMPONENT FLOC (KKS CODE)	COMPONENT DESCRIPTION	COMPONENT / MATERIAL SPECIFICATION	OPERATING PARAMETERS	PART NUMBER	STOCK NUMBER	DESIGN QUANTITY
1	00ETK14&24 (Free Issue by ESKOM)	EARTHING COPPER BARS	50X30MM EARTH POINTS				300
2	Refurbishable (Free Issue by ESKOM)	ASH STACKER/SPREADER CRAWLER MOTORS	MOTOR, ELECTRIC: POWER: 45 KW; SPEED: 1080 RPM; FRAME: 3155; CURRENT: 112 A; POTENTIAL: 440 VDC; MOUNTING: FOOT; ENCLOSURE RATING: IP55; SHAFT SIZE: DIA 84 X LG 170 MM; INSULATION CLASS: H; SERVICE FACTOR: S1; CONNECTION SEPARATE EXCITED; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).			179006	4
3	Refurbishable (Free Issue by ESKOM)	00ETK14 DRIVE MOTORS	MOTOR, ELECTRIC: POWER: 220 KW; POTENTIAL: 3.3 KVAC; CURRENT: 48 A; SPEED: 1486 RPM; FRAME: D355LX; MOUNTING: FOOT; PHASE: 3; ENCLOSURE RATING: IP55; SHAFT SIZE: DIA 11 X LG 210 MM; INSULATION CLASS: F; SERVICE FACTOR: S1; CONNECTION STAR, 50HZ; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).			179004	2
4	(Free Issue by ESKOM)	ASH STACKER/SPREADER LINK/BOOM DRIVE MOTORS	MOTOR, ELECTRIC: SPEED: 1480 RPM; FRAME: D280S; FOR SPREADER BOOM CONVEYOR ON ASH PLANT, NOTE TEST CERTIFICATE TO PROVE MOTOR CONDITION TO BE SUPPLIED			140428	4

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

			WITH DELIVERY; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).				
5	(Free Issue by ESKOM)	ASH STACKER/SPREADER TRAVELL DRIVES	MOTOR, GEARED: POWER: 1.1 KW; OUTPUT SPEED: 7 RPM; RATIO: 200:1; POTENTIAL: 400 V; ENCLOSURE RATING: IP65; TYPE ASH STACKER, BAUER GEARBOX COMPLETE WITH BRAKE, AG 53 -12/DK9-241-S / Z008B9 HL-SA, 50HZ; PART NO: 22783GB, SUPPLIER: UNKNOWN; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).			237030	26
	(Free Issue by ESKOM)	ASH STACKER/SPREADER SLEW DRIVES MOTORS	MOTOR, ELECTRIC: SPEED: 1000 RPM;POWER:1.5KW DC FRAME: 160 MSP; FOR SPREADER SLEW DRIVES ON ASH PLANT, NOTE TEST CERTIFICATE TO PROVE MOTOR CONDITION TO BE SUPPLIED WITH DELIVERY; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).			N/A	4
6	(Free Issue by ESKOM)	ASH STACKER/SPREADER CRAWLER THRUSTER BRAKES	EB: 500-60 II ,NO:086960 08/11 , STROKE: 60MM, S1 AND S3 TO: 2000C/H 100% ED,SETTING POWER:500 N RETING POWER:-N,3PH Y: 400V±10%, POWER:0,2KW, 0,4A 50HZ, FLUID: TRAFUOL, IP56,WEIGHT 19,0KG, TE:-25/+40			N/A	8
7	RF (Free Issue by ESKOM)	00ETK24 DRIVE MOTORS	MOTOR, ELECTRIC: POWER: 300 KW; SPEED: 1485 RPM; FRAME: 1LA74044; CURRENT: 64 A; POTENTIAL: 3.3 KVAC; MOUNTING: FOOT; ENCLOSURE RATING: IP55; SHAFT SIZE: DIA 110 X LG 210 MM; INSULATION CLASS: F; PHASE: 3;			178946	2

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

			SERVICE FACTOR: S1; CONNECTION STAR; 50HZ; SERIAL NO: K4-71636; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).				
8	RF (Free Issue by ESKOM)	00ETK13 AND 00ETK23 DRIVE MOTORS	MOTOR, ELECTRIC: POWER: 1600 KW; SPEED: 372 RPM; FRAME: UL800; CURRENT: 195 A; POTENTIAL: 6.6 KVAC; MOUNTING: FOOT; ENCLOSURE RATING: IP55; SHAFT SIZE: DIA 220 X LG 350 MM; INSULATION CLASS: F; PHASE: 3; SERVICE FACTOR: S1; CONNECTION STAR, 50HZ; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).			179004	2
9	CONTRACTOR	TRAILING CABLES	Type: Texoprene TR66. Insulation: Ethylene Propylene thermosetting compound in compliance to SANS 1411-3. Operating Voltage: 3.8/6.6kV. Operating current: 160A (at 30°C ambient). Fault Current > 3kA for 1 second Conductor Sizing: 3x50mm ² (Power Core) + 3x10mm ² (Pilot Core) UV, Sunlight, Ozone and Oil Resistant. Abrasion, tear resistant and Flame Retardant. Temperature Range: Minimum Ambient temperature -25°C. Maximum Conductor temperature 90°C. Tested in accordance to SANS 1520-2				600m
10	CONTRACTOR	TRAILING CABLES	Type: Texoprene TR66. Insulation: Ethylene Propylene thermosetting compound in compliance to SANS 1411-3. Operating Voltage: 3.8/6.6kV. Operating current: 160A (at 30°C ambient). Fault Current > 3kA for 1 second Conductor Sizing: 3x35mm ² (Power Core) +				600m

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

			3x10mm ² (Pilot Core) UV, Sunlight, Ozone and Oil Resistant. Abrasion, tear resistant and Flame Retardant. Temperature Range: Minimum Ambient temperature -25°C. Maximum Conductor temperature 90°C. Tested in accordance to SANS 1520-2				
11	CONTRACTOR	ARMORED CABLE	EVV3PCV				2400m
12	CONTRACTOR	ARMORED CABLE	EVV3NCN				2400m
13	CONTRACTOR	ARMORED CABLE	BVV4LCV				2400m
14	CONTRACTOR	ARMORED CABLE	BVV12DCV				1900m
15	CONTRACTOR	UVG	UVG20				1300m

Note: The items listed on the bill of material above are not final outage requirements. Quantities and additional items will be added even during outage when doing inspections.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

7. Bill of Materials (C&I)

SUBSYSTEM							
No	COMPONENT FLOC (KKS CODE)	COMPONENT DESCRIPTION	COMPONENT / MATERIAL SPECIFICATION	OPERATING PARAMETERS	PART NUMBER /	STOCK NUMBER	DESIGN QUANTITY
1	00ETK13,14&23 CONTRACTOR	Belt pull keys	Robust enclosure fabricated from dough molding compound and 3CR12 Stainless steel, Super bright lockout LED for trip visual indication,Pull slings on both sides of unit, canopy for sun and weather protection, IP68 rated	-50Deg to +200Deg, 24VDC and 30mA	AEG-PK-009		100
2	00ETK13,14&23 CONTRACTOR	Interface module with PCB	Robust enclosure fabricated from dough molding compound and 3CR12 Stainless steel, Super bright lockout LED for trip visual indication,Pull slings on both sides of unit, canopy for sun and weather protection, IP68 rated	-50Deg to +200Deg, 24VDC and 30mA	AEG-INT003-ENC		100
3	00ETK13,14&23 CONTRACTOR	Belt tear detector switch	Heavy-duty robust enclosure fabricated from aluminium alloy which houses 1,3,5 reed switches.	-10Deg to +50deg	AEG-RS-BT-001		12
4	00ETK13,14&23 CONTRACTOR	Belt tear detector mounting bracket	Heavy-duty robust enclosure fabricated from aluminium alloy	-10Deg to +50deg	AEG-BTDMB-001		12
5	00ETK13,14&23 CONTRACTOR	Belt misalignment Switch	Heavy-duty stainless steel enclosure which houses an electronic timing module and tripping switches the detector . 0 to 60seconds adjustable timing trip. IP 65, 10-24Vdc	-10Deg to +50deg	AEG-BMS-001		12
6	00ETK13,14&23 CONTRACTOR	Belt misalignment mounting frame	Heavy-duty robust enclosure fabricated from aluminium alloy	-10Deg to +50deg	AEG-BMB-002		12

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

Kendal Ash Dump Parallel Shift of Extendible Conveyors 00ETK13&23 and Extension of Shiftable Conveyors 00ETK14-Electrical and C&I Scope of Work

Unique Identifier:

Revision:

00

Page:

24 of 25

7	00ETK13,14&23 CONTRACTOR	Green wire cable	Heavy-duty robust cable that connects pull switches and all the interfaces that form protection system. 9core * 0.75mm	-10Deg to +50deg	AEG- PK-009		4km
----------	------------------------------------	------------------	---	------------------	----------------	--	-----

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd,
Reg No 2002/015527/30.

8. Acknowledgements

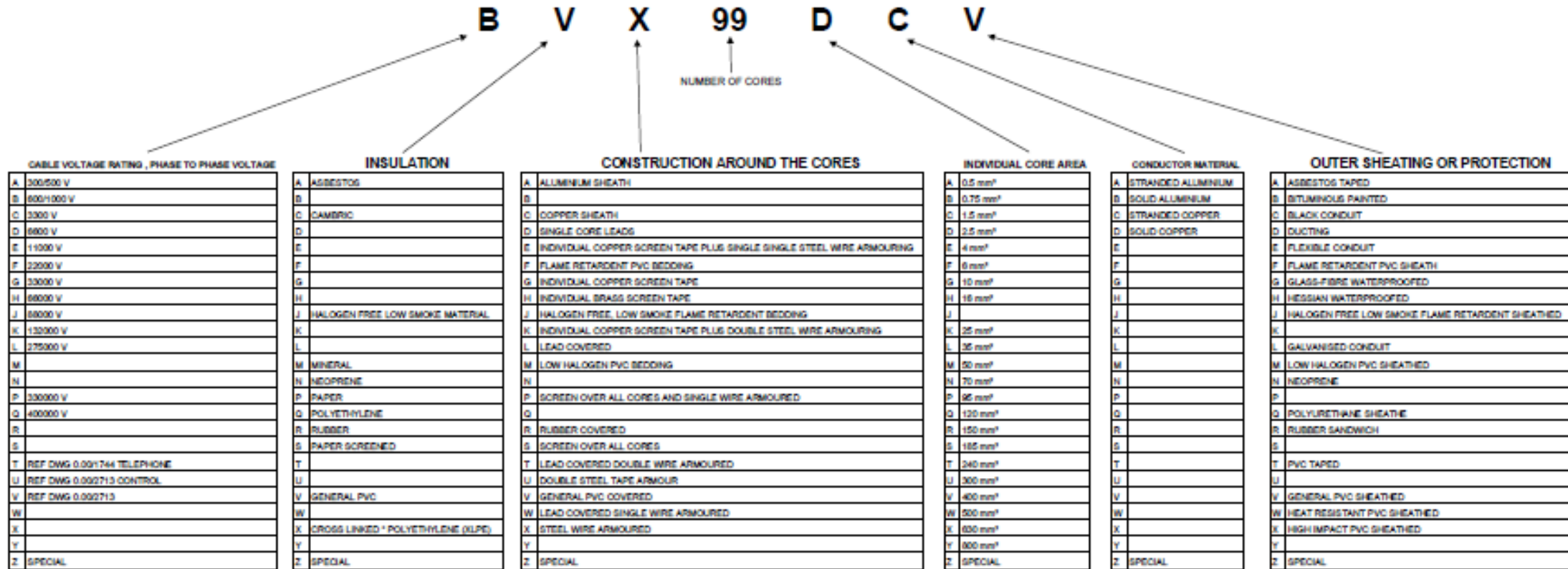
N/A

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.

9. Appendix A- Eskom Standard Codes for Power and Control Cables



CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorized version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd, Reg No 2002/015527/30.