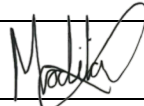
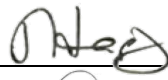


	Scope of Work Online Conveyor belt scanning	Doc. no. F/290/007
		Rev. 1
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Matimba Power Station		Reference Document: PS/290/003

System	System Engineer		Date
Coal Plant System Engineer	Tshegofatso Modiba		25/10/2023
Ash Plant System Engineer	Shandukani Manena		2023/10/25
	APPROVED		Date
Performance and Testing Manager	P Hloka		2023/11/15
Engineering Manager	NJ Mathobela		2024/09/09

Date printed: 2023/10/25

Controlled Disclosure

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1. Background

Coal Plant Overland Conveyors:

Coal is fed through a chute on the S1 conveyor, the S1 conveyor has a capacity of transporting coal of 3600 tons per hour. Coal is either stacked in the stockyard or transported directly to the silos. When stacking or utilising the bypass route it goes via the S2 and the S3 conveyor. Both S2 and S3 conveyors have got a capacity of 3600 tons/hours. Coal is also reclaimed with aid of a coal stacker reclaimer on S3 conveyor and gets transported via S5 to the control bin. Coal gets transferred directly to the control bin via S4 conveyor which has a capacity of 3600 tons.

Ash Plant Overland Conveyors:

Ash collected in the submerged scraper conveyor is transported through the course ash conveyors onto the transverse conveyors when transporting it to the ash dump. The transverse conveyor also collects conditioned ash from the conditioned ash conveyor, from the transverse conveyor ash is transported onto the cross conveyors then to the overland conveyors which transport the ash to the ash dump.

2. Objective

A contractor is required to provide a proposal with alternatives that meet the following criteria:

- A continuous belt monitoring of splices and cord condition with warning and alarm levels to identify the critical cord damage or splice movement and damage.
- The system should provide Automated email notification of warnings and alarms with reports on where the alarm is coming from. This monitoring needs to be stored for future reference.
- The proposed system will be stored on S1 coal conveyor belt as well as the overland conveyor belt on the ash plant. The S1 belt is a steel cord belt which is 7542m long, 1800mm wide and runs at a speed of 3.8m/s. The Overland belts are steel cord belts of which each is 3997m long and 1350 mm wide, the belt runs at a speed of 2.99m/s.

3. Scope of Work

To install an online conveyor belt scanning device on S1 and Overland 13/23 conveyor belts at Matimba Power Station. This should include the processing unit (CPU), sensor array, power supply and magnet array. This will also include the electrical cabling from the nearest supply point to the scanning device, and will not utilise current scan supply DB.

Plant Equipment: The Scanning equipment will remain the property of the contractor. The equipment will be rented to Matimba on an annual basis. The contractor will be responsible for periodic maintenance on the scanning equipment, and the cost should be included in the annual rental cost. The contractor will also be required to take out insurance on the equipment in the event of accidental damage to the equipment, including damage by lighting. Matimba will only pay for labour, travelling and accommodation to repair the accidental damage, but not the cost of damage to the hardware.

System Reporting: Matimba will require the contractor to continuously monitor the scanning equipment and to alert Matimba whenever major changes occur on the steel cord carcass or splices. The contractor should

immediately notify Matimba via email (work contacts) and telephonically. The contractor will also be required to send a daily condensed report to a minimum of three predetermined e-mail addresses on all the major and minor alarms that have occurred since the previous report was sent on all the working days.

Equipment communication/interfaces: There is a fibre optic cable installed from the plant to the outside plant control room equipment room, which should be linked to the office LAN. The contractor will be required to provide any hardware that will be required to connect the system to the office LAN. The contractor will be required to connect the system to the office LAN. The contractor will be required to install media converters on both sides of the fibre optic cable to enable data transfer. An alternative option of cellular data connectivity will be considered, where provider directly connect to their private monitored servers.

Graphical User Interface (GUI): The contractor will also ensure that the GUI is continuously available on a monitor in the outside plant control room. Alarms for major changes should also be displayed on this monitor. The GUI should also be accessible for other users on the office LAN, with the preferred information sharing, being per internet browser platform.

Control Function: This is not feasible according to Site Control and Instrumentation Engineering (C&I ENG), where the control philosophy is not drawn up by the System Engineer.

4. Handover Documentation as per list below

- Operators' manual (Control Manual to be included)
- Commissioning Procedure
- General Arrangement (GA) Drawings
- Project design manual
- Maintenance manual

5. Special Requirements

- All detailed designs to be approved by Eskom prior to installation.
- Hard and soft copies of all maintenance manuals and operating philosophies to be delivered to Eskom prior to installation.
- Contractor to supply Eskom with a method statement at tendering stage of how the works will be performed.
- Contractor to supply quality control plans (QCP) form/standard. This must be accepted by Eskom prior to commencing with any installation.
- The contractor will provide general training (at no additional training related cost) to predetermined personnel on how to navigate the system as well as how to analyse data from the system including the report.
- Specialised training per service cost on a yearly maintenance basis to maintenance end-users for optimal system usage, to minimise damages, with splicing identification as a primary.

6. Quality Control Plan and Management

- The contractor must produce and submit a Quality Control and test plan to Eskom one week before work is started.

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- The Quality Control and test plan must indicate relevant hold and witness points to be mutually agreed between Eskom and the Contractor.
 - The work shall not commence without the approved quality control and test plan by Eskom.

7. Constraints on how the contractor provides work

- **Coal plant:** S1 conveyor is Matimba's main supply coal conveyor and will normally only be shut down on predetermined days for maintenance. Installation of the equipment will only be done during these normal maintenance days.
- **Ash plant:** Overland 13 & 23 are run on a redundancy principle, unless both streams are being run for whatever the case, one of the two belts will be off, and the device can be installed if production permits. In a case where the belt cannot be put on permit, the only opportunity would be when either of the belts are shutdown for planned maintenance.
- The contractor will not be allowed to do any installation or maintenance in proximity of the running belt without a permit to work (PTW)
- During abnormal plant conditions the conveyor might only be down over a weekend, where the work will have to be done during this period. Matimba however will endeavour to make the conveyor available during the week where conditions permit.