 Eskom	Specification	Medupi Power Station
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Title: **Scope of Work for the Supply and Delivery of Calcium Lignosulphonate based Chemical for Ash Dust Suppression in Medupi Power Station**

Document Identifier:

Alternative Reference Number:

Area of Applicability: **Eskom Holdings SOC Ltd**



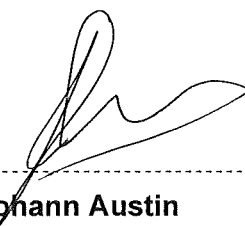
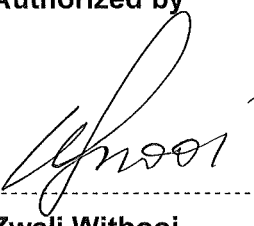
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Compiled by	Functional Responsibility	Supported by	Authorized by
			
Sibusiso Vilakazi Contract Supervisor	Lala Sako Manager Coal Supply	Johann Austin Senior Technical Plant Manager	Zweli Witbooi General Manager
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1. Introduction

Eskom's Medupi Power Station is a six (6) unit dry cooled, coal fired power plant that produces a total of 4 788MW of energy and came into operation in 2015. Exxaro's Grooteegeluk mine is located within 5km from Medupi and is likely to supply power station coal to Medupi over its expected 50-year lifetime.

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Ash is formed from the coal burning process and is transported to the Ash Disposal Facility (ADF) to the west of the Power Station by means of a conveyor system. The power station is equipped with a dry ash dump facility for ash disposal purposes. The ADF forms an integral part of the power station's infrastructure and requires continuous monitoring and management. The operation of the facility involves controlling the geometry of the ash facility and managing the storm water, while ensuring that adverse effects on the environment are minimised

The Medupi Ash dump currently has a total capacity of 29 484 952m³ which is accumulated by an average of 1500m³ ash per day from the station. The ash plant discharges ash on the ash dump through stacker system using conveyor system, the ash discharged incorporates both course ash and fly ash

Dust fall emissions generated by gusty winds and mechanical movement are entrained into the atmosphere through mechanical disturbance in the ash dump atmosphere. The effects of dust fall are dependent on the quantity and composition of Particulate matter and the proximity to sensitive receptors. High quantities of dust fall can be a nuisance due to its soiling potential (UK Environment Agency 2013), reduction in visibility (World Health Organization 2006), and affect the social conditions of people (e.g. soiling of cars, laundry, buildings, etc.), vegetation (including agricultural practices) and invertebrates (UK Environment Agency 2013)

The chemical composition of dust may further impact on the above-mentioned nuisance factors, and in addition, result in health impacts from direct (oral ingestion) or indirect (eating of contaminated foods) ingestion, and from dermal reactions (absorption of chemicals through the skin) (UK Environment Agency 2013). Dust fall emissions have the potential to reduce the overall air quality of an area in the short term with negative socio-economic consequences. The South African government has implemented legislation to monitor activities that result in dust emissions through the National Dust Control Regulations (NDCR) of 2013 (South Africa 2013).

Eskom Medupi Power Station has a water-based ash dump irrigation for dust suppression which is administered using 30-50mm canons, above to that, the business has assumed a position to use the chemical suppression, calcium lignosulphonate has been tested and a recommendation to use calcium lignosulphonate-based chemical in liquid form is to be utilized.

2. Supporting Clauses

2.1 Scope

This document will cover the requirements for the supply and delivery of calcium Lignosulphonate based chemical for ash dust suppression.

2.1.1 Purpose

The purpose of this document is to provide the SOW for the prescribed Contract.

2.1.2 Applicability

This document shall apply to Medupi Power Station

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2.1.3 Effective Date

These SOW will be effective from the date of 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] ESKOM SHEQ Policy 32-727
- [2] Life Saving-Rules – 240-62196227 Medupi Power Station - SHE File Evaluation Checklist - 240-97661287
- [3] Medupi Power Station Water Use License - 348-859607

2.2.2 Informative

- [4] Act 107 of 1998 National Environmental Management Act, 1998
- [5] Act 14 Of 2009 The National Environmental Laws Amendment Act, 2009
- [6] Act 73 of 1989 The Environment Conservation Act 1989
- [7] Act No 102 of 1980 National Key Points
- [8] Act No 85 of 1993 Occupational Health and Safety & Regulations
- [9] SANS 10108 The Classification of hazardous Location and the Selection of Apparatus for use in such location
- [10] Act No 36 of 1998 National Water
- [11] GGR 0992 Plant Safety Regulations

2.3 Definitions

Definition	Explanation
Contractor	Service provider contracted for supply of spares and various services on the machines
Free Ash	Ash that is placed by a stacker which does not require further dozing.

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2.4 Abbreviations

Abbreviation	Explanation
ADF	Ash Dump Facility
ADI	Ash Dump Irrigation
BoQ	Bill of Quantities
BOM	Bills of Material
C&I	Control and Instrumentation
CAD	Computer Aided Design
CoE	Centre of Excellence
CSY	Coal Stock Yard
DEA	Department of Environmental Affairs
DRA	Definition Release Approval
DTM	Digital Terrain Model
DWS	Department of Water and Sanitation
ECSY	Excess Coal Stock Yard
EIA	Environmental Impact Assessment
FGD	Flue Gas Desulphurisation
GCL	Geosynthetic Clay Liner
GTE	Group Technology Engineering
LPS	Low Pressure Services
PCD	Pollution Control Dam
PLCM	Project Life Cycle Model
PLCC	Project Life Cycle Costing
RRD	Rehabilitation Runoff Dams
SHE	Safety Health and Environmental
SHEQ	Safety, Health, Environment and Quality
SME	Subject Matter Expert
WML	Waste Management Licence
WUL	Water Use Licence

2.5 Roles and Responsibilities

Coal Management: will be responsible for managing the contract and ensuring that the contractor carries out the tasks as per the scope of work and the ash dump operations manual.

Commercial division: will be part of the contract placement process and communication with the contractor until contract award.

The Operating Department: will be responsible for the Operation of the Ash Stacker Machines and conveyors.

The Maintenance Department: will be responsible for the maintenance of the Ash Dump Conveyors and machines as well as the Dust Suppression and irrigation pump station pumps piping up to the connection tap-off points.

The Contractor: will be responsible for the executing tasks as per the scope of work and the ash dump operations manual. The contractor will also be responsible for the procurement of required dust suppression spares to ensure that the impact of dust emissions is controlled/minimised on the ash dump facility, transfer house 9 and the ash dump gravel roads.

Engineering department: is responsible for providing overall technical support and advise.

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2.6 Process for Monitoring

N/A

2.7 Related/Supporting Documents

Medupi Ash Dump Operating Manual - **200-149964 rev C**

Medupi Capping System Design Drawings - **(I544-11-001 – I544-11-032)**

Medupi Mixed Ash Plant Maintenance Strategy - **237-603-AE-SG**

Medupi Bottom Ash Removal Maintenance Strategy - **237-540-AE-SG**

Medupi Power Station Ash Stacker Shift Procedure - **240-151090690**

3. Document Content

3.1 Period

Subjected to the completion of chemical delivery.

3.2 General

This scope of work includes the supply of 1 720 000L of liquid form calcium lignosulphonate chemical for dust suppression in the Medupi Power Station Ash Dump Facility for a period of 18 months covering twice an area of 43 hectares. Minimum physical and chemical properties as:

Physical State:	Viscous liquid.
Colour:	Brown
Odour:	Very slight odour
pH (10% solution):	5.4 ± 3.0
Dry Matter:	55.0 ± 1.0%
Density(250C):	1285 kg/m3

The contractor is required to supply and deliver chemicals timely as per contract within two weeks of task order issuance, the quality control and traceability, the supplier shall supply a chemical together with the MSDS and COA corresponding to the specific batch number of a chemical.

Delivery of all chemicals shall be as per the employer's request, either at a suitable storage area, bulk storage tank or semi bulk storage tank. An Eskom employee shall sign on the chemical received form in Annexure B and file the necessary documents.

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3.3 KPI's (Key Performance Indicators)

The Contractor will be measured monthly on the agreed KPI's on Annexure A.

4. Acceptance

This document has been seen and accepted by:

Name	Designation
Sibusiso Vilakazi	Senior Technician Coal Management
Lala Sako	Coal Supply Manager

5. Revisions

Date	Rev.	Compiler	Remarks
November 2023	1	S. Vilakazi	

6. Development Team

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

- Coal Management

7. Acknowledgements

N/A

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Annexure A

ADF Cut and Fill Contract KPI's 2022 to 2027 - Station: MEDUPI												
Site Specific	KPA	Weight (%)	Source	Unit Measure	Base	Kick in	Target	Stretch	Ceiling	Actual	Score	Weighted Score
100%	Quality Control system	30%	Certificate of analysis	Percentage	100%	100%	100%	100%	100%			
	Progress	40%	Delivery note (delivery as per the agreed schedule)	Percentage	70%	80%	100%	100%	100%			
	SHE Control System	30%	Registered SHE incidents (Safety and Environmental)	Number	2	1	0	0	0			
		100%								Overall Performance		

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