Eskom	Technical Specification	Generation

Title: **Kusile De-grit Sump Submersible Pumps Technical Specification**

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Date: 24.02.2026	Date: 06/03/2026	Date: 10/03/2026

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1 INTRODUCTION

The de-grit system – dirty drains recovery consists of one sump per unit for all 6 units. The Dirty Drains Recovery - de-gritting Sumps accumulate water containing fly ash and coarse ash particles in sumps located around the plant site and transfer this water to the coal stockyard settling basin. Each sump consists of two submersible pumps and units 4 to 6 had the same sized pump units. During the startup of Unit 4 and 5 there were pump failures which resulted in unit 6 pumps being used at these units. Two replacement pumps are therefore required for unit 6.

2 SUPPORTING CLAUSES

2.1 SCOPE

2.1.1 Purpose

The purpose of this document is to define the Works required on all stated structures and systems.

2.1.2 Applicability

This document is applicable to Kusile Power Station.

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]. All work shall be conducted in accordance with the requirements of the Occupational Health and Safety Act (Act 85 of 1993) as amended.

[3]. SANS 1200 Series: Standardised Specification For Civil Engineering Construction

[4]. SANS 10142-1: The wiring of premises. Part 1: Low-voltage installations.

[5]. ESKASAAA3 Approval of Personnel Performing Quality Related Special Processes on all Eskom Plant.

[6]. GGS 0462 Eskom Quality Requirement.

[7]. NWS 1058 Safety at Construction Sites.

[8]. OHSACT Occupational Health and Safety Act, 85 of 1993.

[9]. PA/270/003 Safety Guide for *Contractor*s.

[10]. PS/031/001 Scaffolding Erection, Use and Inspection Standard Process.

[11]. SABS ISO 9000 I-III SERIES Code of Practice for Quality Systems (as Amended).

[12]. OPR 3305 (rev 3) Eskom Plant Safety Regulations.

2.2.2 Informative

[13]. 32-727 Safety, Health, Environment and Quality (SHEQ) Policy/Procedure

2.3 DEFINITIONS

Table 1: Table of Definitions

Definition	Description
Contractor	Service provider contracted to provide a specific service to Eskom, Kusile Power Station.
Employer	Eskom, or Eskom Kusile Power Station or representative
Engineer	A registered Professional Engineer or a registered Professional Engineering Technologist specialising in and having experience in the design of lifting stations.

2.4 ABBREVIATIONS

Table 2: Abbreviations

Abbreviation	Explanation
CoC	Certificate of Completion
KET	Kusile Execution Team
OHSA	Occupational health and Safety Act
PPE	Personal Protective Equipment
QA	Quality Assurance
QC	Quality Control
QCP	Quality Control Plan
QMS	Quality Management System
SABS	South African Bureau of Standards
SANS	South African National Standards
SHE	Safety Health and Environmental
SOW	Scope of Work

2.5 ROLES AND RESPONSIBILITIES

- *Contractor* to provide personnel with appropriate and suitable skills to perform the work.
- The *Contractor* ensures Compliance with all requirements of the Occupational Health and Safety Act no 85 of 1993 and its regulations so as to ensure the health and safety of persons carrying out the *Works*.

2.6 PROCESS FOR MONITORING

Not applicable.

2.7 RELATED/SUPPORTING DOCUMENTS

As referenced herein and appendix A

3 ENGINEERING AND *CONTRACTOR*'S DESIGN

3.1 DESCRIPTION OF WORKS/ WORKS INFORMATION

The following sections contain the details of the *Works* required to be completed by the *Contractor*. The work under these specifications shall include furnishing of two submersible sump pumps, including driver and all other specified accessories.

3.1.1 General

The sump pumps shall be submersible unit supplied in accordance with section 3.1.3 and Appendix A.

3.1.2 Scope of Supply

Scope of supply shall include the furnishing of two (2) submersible sump pumps including drivers.

3.1.3 Performance and Design Requirements

Performance and design requirements for the equipment to be furnished under this section of these specifications are indicated herein.

The sump pumps shall be sized for the following conditions:

Pump Identification numbers/ KKS Tags	6 0GME11 AP001; 6 0GME12 AP001;
Rated capacity	169 m^3/h
Rated total head, meters of water	44m
Maximum Shutoff Head, percent of rated head	125%
Specific Gravity at rated conditions – light slurry (at 5 deg. C Water)	1.0317
Specific gravity at worst case solids (30% solids) (at 5 deg. C Water)	1.226
Maximum solids diameter	40mm
Min/Rated/Design Temperature, Deg. C	5/ 34/ 65
Power	70 kW
Maximum Rated Speed	1,500 rpm
Rated Voltage	400v
Frequency	50 Hz
Phases	3-Phase plus neutral.
Rated Current	132A
NEMA/IEC Enclosure	IP 68

Electrical Service	See Standard 240-57617975
Factory performance Test	Yes
Power supply cable length from existing terminal box	10.0 m

3.1.4 Drawings and Data

Catalog cuts and manufacturer's specifications covering the sump pump and accessories shall be Submitted to Engineer for approval.

3.1.5 Motor Assembly

The Contractor provides low voltage motors that are designed and purchased with the pumps and associated pump cables, in accordance with Eskom Standard 240-57617975. All LV motors are rated at 400V. The motors are provided for being submerged in the sump along with the pump.

Motors shall be arranged for vertical mounting integral with the driven equipment. Enclosure shall be waterproof submersible type. External surfaces shall be coated with moisture corrosion-resistant alkyd enamel or with polyester or epoxy paint or coating. Metal-to-metal fits shall be coated with corrosion resistant compound. Shaft and hardware shall be of corrosion-resistant material. The shaft shall be threaded for attaching the impeller. Rotors shall be dynamically balanced and coated with a corrosion-resistant polyester paint.

Routine tests shall be performed on each motor at the manufacturer's factory to confirm that there are no electrical or mechanical defects. The motor shall be able to operate above the water level without overheating.

3.1.6 Other Accessories

Connections shall be provided at the top of the pumps for lifting. Each pump shall be supplied with an agitator at the pump suction that connects to the impeller shaft.

3.1.7 Test Requirements

The manufacturer shall allow for a workshop performance test or at least a run test prior to the release of the pump.

4 AUTHORISATION

This document has been seen and accepted by:

Name & Surname	Designation
Tumiso Railo	Kusile Project Engineering Manager
Yuvir Gokul	Kusile Engineering EDWL
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5 REVISIONS

Date	Rev.	Compiler	Remarks
January 2025	0	T. Malwandla	-
July 2025	1	T. Malwandla	Pump quantity revision
February 2026	2	T. Malwandla	Pump quantity revision

6 DEVELOPMENT TEAM

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

- Tiyani Malwandla

APPENDIX A: *EMPLOYER*'S DOCUMENTS FOR THE WORKS

The latest revisions of the following listed drawings are included as Attachments and shall form part of the *Employer*'s Documents.

Table 3. *Employer*'s Drawings

Drawing No.	Rev No.	Title
366-27222	1	Unit 6 Sump Pump Performance Curve
366-27223	5	Unit 6 Degrit Sump Motor Data Sheet

APPENDIX B– ESKOM STANDARDS AND GUIDELINES

CODE	DESCRIPTION
SANS 60529	Degrees of Protection Provided by Enclosures (IP Code)
SANS 10142-1	The Wiring of Premises – Low Voltage Installations
240-56227443	Requirements for Control and Power Cables for Power Stations
SPF 200-4190	The Application of KKS Plant Coding Standard
240-128515850	Documentation Handover Specification.
240-86973501	Engineering Drawing Standards – Common Requirements
240-57617975	Low Voltage Motor Procurement Standard
240-106365693	Standard for the External Corrosion Protection of Plant Equipment Associated Piping with Coating
OHSA	Personnel protection