

	Scope of Work	Kusile Power Station
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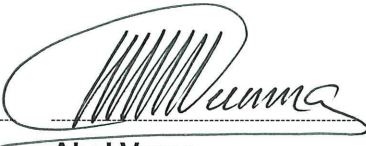
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1. Introduction

Kusile Power Station intends contracting maintenance of mobile diesel pumps with a suitable service provider on an as when required basis. This scope of work outlines the relevant plant areas, applicable standard, quality requirements, detailed specifications, terms & conditions as well as the tender criteria for maintenance of mobile diesel pumps covered in this scope to ensure a reliable and continuous service of plant.

Pumps are essential for transferring water from one location to another. Dam overflows can lead to legal contravention, so the station implements mitigating measures to prevent such incidents. One of these measures involves lowering dam levels using mobile centrifugal pumps powered by diesel engines. This document details the scope of work for the maintenance of these mobile diesel pumps, associated pipework, and the provision of a mobile diesel pump operator or attendant over a period of five-years. It also specifies all mandatory requirements for the contractor providing this service.

2. Supporting Clauses

2.1 Scope

The required service entails the maintenance and repair services diesel pumps used at Kusile Power Station. The scope includes the execution of scheduled/planned maintenance activities, provision of 24/7 standby support, and prompt response to emergency and call out situations. The contractor shall be responsible for supplying all necessary spare parts, components, and consumable materials required for the effective servicing, repair, and upkeep of the equipment. This scope is limited to the maintenance of mobile Diesel pumps, including associated pipework and fittings for a contractual duration of 5 years.

2.1.1 Purpose

The purpose of this document is to define and outline the scope of work for the mechanical maintenance and repair services for mobile diesel pump used at Kusile Power Station. This scope will be based on an asset's operational requirements and parameters, as well the availability and reliability that is expected, over the asset's entire lifecycle.

2.1.2 Applicability

This document is applicable only to mobile Diesel pumps used at Kusile Power Station.

2.1.3 Effective date

This document will be effective from the date of its authorization.

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2.2 Normative/Informative References

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

2.2.1 Normative

- [1] ISO 9001:2015 - Quality Management Systems
- [2] PG/BM/001 - Maintenance Execution Strategy for mobile Diesel pumps (NB - for reference purpose only)
- [3] PAM/233/011- Quality Control for mobile Diesel pumps repairs outside Eskom (NB - for reference purpose only)
- [4] 240-44974011- Routine Work Management Procedure
- [5] 32-1303 - Process Control Manual (PCM) for Execute Maintenance Work

2.2.2 Informative

- [6] Occupational Health and safety Act 85 of 1993.
- [7] PA/244/001 - Waste Water Oil, grease and contaminated materials and soils management to minimise environmental impact.
- [8] PAO/223/001 - Cleaning, removal and recycling of spilled oil at Kusile power station

2.3 Definitions

Definition	Description
Competent person	1)Is qualified by virtue of his knowledge, training, skills and experience to organise the work and its performance, 2)Is familiar with the provisions of the Act and Regulations which apply to the work to be performed, 3)Has been trained to recognise any potential or actual danger to health and safety in the performance of the work, 4)Is in possession of the appropriate certificate of competency where such certificate is required by these regulations
Thorough examination	Means examination or inspection to determine whether the equipment is safe to use;
Preventive Maintenance	Planned time or schedule-based maintenance carried out with the explicit objective of preventing functional failures and is directed towards maintaining the physical condition of the asset / plant or equipment. It includes scheduled overhauls and scheduled replacement of worn-out parts or failure prone components.

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Predictive maintenance	This is a form of condition-based scheduled maintenance, where a component replacement or servicing is planned based on its condition. It involves regular inspections and testing using diagnostic tools to identify defects or wear. If issues are detected, the affected components are either repaired or replaced to prevent failure and ensure continued reliability
Corrective Maintenance	The process of restoring asset / plant and equipment which have failed or deteriorated to a state which renders it unable to meet the acceptance criteria required for its application.
Routine Maintenance	This type of maintenance is performed on components that have reached their expected end of life or are due for service based on a predetermined schedule. It involves the routine overhaul or replacement of parts, regardless of their current condition, to prevent unexpected failures and ensure consistent performance
Maintenance Plan	A plan that details the maintenance that needs to be done on a specific asset / plant item or component and the frequency and quality requirements for that maintenance.
Contractor	An individual or company hired through a contractual agreement to perform a specific job or service for a client.
Employer	A person, company, or organization that pays people to work for them

2.4 Abbreviation

Abbreviation	Explanation
SDD	Station Dirty Dam
ADDD	Ash Dump Dirty Dam
CSY	Coal Stockyard
CSY ST	Coal Stockyard Settling Tank
QCP	Quality Control Plan
HRD	Holding Recycle Dam
NRV	Non-Return Valve
SDD ST	Station Dirty Dam Settling Tank
OWS	Oil Water Separator
PSR	Plant Safety Regulation
OHSA	Occupational Health and Safety Act

2.5 Roles and Responsibilities

2.5.1 Contract Manager (Employer`s Representative)

- i. Co-ordinating and manage contract budget and expenses
- ii. Ensure that the contractor operates within the budget
- iii. Holds monthly meetings with the contractor
- iv. Communicate technical interface between Eskom and the contractor

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- v. Ensure that all work performed complies with the OHS act regulation and quality requirements
- vi. Review, verify, and approve receipt of services/deliverables from the contractor
- vii. Manage and maintain a contract records and correspondence between the employer and the contractor
- viii. Ensure that the contractor compliance with the conditions of contract.
- ix. Resolving any deviations and breaches in relation to the agreed conditions of the contract
- x. Contracts manager must keep the original copy to file for history purposes
- xi. Assign works order as per maintenance schedule issued by the planner at pre-determined interval
- xii. Obtain monthly reports from the contractor supervisor, evaluate the information where necessary include identified defects.
- xiii. Assist contract manager with contract management administration
- xiv. Assess any work completed and align it to the scope of work and task order.

2.5.2 Contractor (Service Provider)

- i. Maintenance and repair services for all diesel pumps in accordance with the relevant procedure and specification.
- ii. Contractor shall maintain diesel pump maintenance and service log and submit such to the contract manager within 48hrs of performing such works for necessary reviews.
- iii. The contractor to provide technical support and advice on constant failure trends of the equipment.
- iv. Provide consistent and cost-effective maintenance strategy.
- v. Ensure that the application and implementation of appropriate maintenance tools and innovative techniques.
- vi. Develop Key performance Indicator (KPI), objectives and targets which support and which in line with the Employer's objectives.
- vii. To provide adequate resources capabilities to carry out maintenance and repair work and that support the Employer's objectives.
- viii. The contractor shall notify Eskom contract manager on any defects or repair work that fall outside the scope.
- ix. The contractor to adhere to all Employer's health and safety requirements and procedures on site
- x. The contractor to provide relevant documentation caters for the employer's equipment. This will include all records keeping of all activities, plant conditions and quality control and safety documentation
- xi. The contractor shall comply with all relevant SABS standards, OHS Act 1993 and with the Employer's standards as specified from time to time
- xii. The integrity of the plant is maintained within the parameters specified by the Employer

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- xiii. All other maintenance activities to be performed in accordance with the relevant procedure and specification where applicable
- xiv. All plant manuals and other documentation as requested by the Employers will be returned or submitted by the contractor
- xv. Contractor shall carry out routine check if deem necessary as per operations and maintenance manuals of such equipment.
- xvi. Movement of pumps is the responsibility of the service provide. The service provider must make available (provide) the resources for movement of Diesel Pumps (i.e. Lifting equipment and Truck or Hiab Truck)
- xvii. The contractor shall record and report to the Employer the following
 1. All incidents and equipment failure to be reported to the Employer within the same day.
 2. The contractor must provide monthly overall system performance report.
 3. The contractor submits to the Employer, a fully substantiated written damage report specifying the nature, scope and cost of rectification work required including a programme for execution.
- xviii. Execution of corrective maintenance activities.
- xix. Execution of preventative maintenance activities as specified by Engineering.
- xx. Supervision of maintenance activities to ensure quality, safety and productivity target are achieved.
- xxi. Quality control of maintenance activities.
- xxii. Quality inspections of all spares supplied by the contractor or stores (if applicable).
- xxiii. Work planning
- xxiv. Development of work instructions and procedures for maintenance activities.
- xxv. Assist with the investigation of incidents and their root cause analysis.
- xxvi. Ensure that all maintenance objectives and target are achieved.
- xxvii. Ensuring that the following SHEQ performance target are achieved:

Item	KPI	Targets
1	SHEQ Performance Report	>95%

2.6 Process for Monitoring

The contractor must use all available tools and resources available to his disposal to monitor all Diesel Pumps maintenance related functioning.

2.7 Related/Supporting Documents

The employer to provide/supply the updated operational and maintenance manual drawings of all the installed mobile Diesel pumps used at Kusile Power Station.

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3. Detailed Scope of Work Document

The scope of work involves executing maintenance (preventive, corrective, condition-based, in-service inspection and failure finding testing) activities at scheduled intervals,

A comprehensive maintenance strategy for mobile diesel pumps includes frequent checks of fluid levels (fuel, oil, coolant), lubrication of moving parts, battery health monitoring, and adherence to manufacturer guidelines. This proactive approach ensures high operational availability, extends equipment lifespan, and supports uninterrupted site operations.

3.1 Mechanical Maintenance Scope

The following mechanical inspections and checks shall be carried out as part of the mobile diesel pump maintenance program.

- 3.1.1.** Inspection of fan unit including impeller and bearings
- 3.1.2.** Inspection of cooling system including the coolant pump, and ventilation components to prevent the engine from overheating.
- 3.1.3.** Inspection of fuel system including fuel pre-filter, fuel injector, main fuel filter, fuel piping and thermostat to check if there is sufficient supply of fuel.
- 3.1.4.** Inspection of radiator including thermostat, radiator piping, radiator fan, and coolant pump to maintain effective engine cooling.
- 3.1.5.** Inspection of temperature monitoring devices to verify accurate temperature readings and system responsiveness.
- 3.1.6.** Inspection of cylinder assembly, including cylinder head gasket, engine block, crankshaft, and pistons to assess compression pressures.
- 3.1.7.** Inspection of inlet air system including rotor, turbo charger casing and turbo charger unit to ensure adequate air pressure.
- 3.1.8.** Inspection of turbo charger to check for mechanical fatigue, bearing condition and verify bearing clearance
- 3.1.9.** Inspection of emergency air shutoff flaps, including joints, lever, pull rod, and solenoid to check for any signs of Mechanical/Electrical failure
- 3.1.10.** Inspection of fuel injectors, fuel pumps, and fuel lines for damages, blockages or leaks.
- 3.1.11.** Inspection of oil pumps to ensure adequate oil flow and pressure
- 3.1.12.** Inspection of engine oil level and condition to ensure proper lubrication and identify signs of contamination.
- 3.1.13.** Inspection of starter motor for functionality and wear
- 3.1.14.** Inspection of engine mounting bolts and supports for signs of vibration, loosening, or damage.
- 3.1.15.** Inspection of water heater system to verify sufficient heating and proper operation

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3.1.16. Inspection of oil pressure monitoring system, including pressure sensor, transmitters, voltage sensors, tachometers, speed relays and potentiometer for accurate readings and functionality.

3.1.17. Inspect and test the battery for charge level, condition, and performance.

3.1.18. Inspection of coupling for signs of vibration, misalignment, or mechanical wear, the list is not limited to these items listed on this line for inspections

3.1.19. Please note that this list is not exhaustive and that all other maintenance work related to diesel pumps must be addressed as required.

3.2 The specification Of Mobile Diesel Pumps

- **Pump 4 specification**
 - V6 diesel engine:X4
 - 100m head
 - Diesel Tank Capacity of at least 18 hrs.
 - Pump to be easily movable.
 - Flowrate of 300 - 400 m3/h
- **Pump 4 specification**
 - V6/V8 diesel engine:X4
 - 150m head
 - Diesel tank capacity of at least 18 hrs.
 - Discharge Flowrate of 900 m3/h
- **Pump 4 specification**
 - V6/V8 diesel engine:X4
 - 180m head
 - Diesel tank capacity of at least 24 hrs.
 - Discharge Flowrate of 1200 m3/h
- The scope includes the maintenance and refurbishment of all four (4) existing mobile diesel-powered lighting towers (7m Hydraulic Mast 4x400w lights) that are on site
- The contractor to supply six (6) new mobile diesel-powered lighting towers (7m Hydraulic Mast 4x400w LED lights) with motion sensors

3.3 Contract Performance Requirements

The contractor shall fulfil the following performance obligations to ensure the effective maintenance and optimal operation of mobile diesel pumps:

- i. Provide a fully operational maintenance service on a 24 hour per day, seven (7) days per week basis, ensuring rapid response and minimal downtime
- ii. Continuously optimise systems and equipment to reduce operational costs while maintaining and improving equipment condition and performance Perform all maintenance activities in accordance with the Eskom Computerised Maintenance Management System, ensuring accurate scheduling, documentation, and compliance.

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- iii. Conduct regular inspections and functional testing of all relevant equipment to assess and monitor the condition and operational reliability.
- iv. Perform all maintenance work in accordance with specified standard procedures and approved check sheets as agreed between the contractor and the employer.
- v. Ensure all work is performed within the parameter of the scope of work, relevant legislative requirements, and applicable acts and regulations.
- vi. Maintain and make available all relevant maintenance instructions, procedures and reference documents. Supply Eskom with comprehensive maintenance records and equipment history logs as required.
- vii. Perform all work to the highest quality standards, with full compliance to safety regulations, procedures, and best practices.
- viii. Ensure mobile diesel pumps performance is guaranteed by adhering to industry best maintenance practices and maintaining equipment within safe operating limits.

3.3.1 Critical Spares Management

The contractor shall be responsible for the provision and management of all non-stock item spares required for the maintenance and replacement of components, as identified through work orders and defects reports. Only spares approved by Eskom may be used.

The following conditions shall apply:

- i. The contractor shall retain full ownership and responsibility for the management, storage and control of critical spares.
- ii. The contractor shall proactively identify potential delays in spare part availability and adjust maintenance plans accordingly to prevent disruptions.
- iii. The employer will only be invoiced for spares procured by the contractor after quality control has been performed by employer's representative before installed in the plant.
- iv. All claims for spare parts supplied must be accompanied by the appropriate supporting documentation, including proof of use, delivery notes, and compliance certificates if required.
- v. All replacement must be of the same brand currently in use on the equipment, unless otherwise approved in writing by Eskom.

NB. The contractor shall be responsible for supplying all additional material is required to perform both routine and emergency maintenance of the mobile Diesel pump.

Training and competencies

The contractor shall provide the employer with the following documentation and credentials to the employer

- i. The contract shall submit their key personnel qualifications which include certificate and curriculum vitae
- ii. The contractor shall provide the employer with accreditations certificate and previous references (if available)

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The contractor shall comply fully with Eskom's safety requirements, including all lifesaving rules and relevant occupational health and safety regulations

- i. No work may commence without a valid permit to work being issued.
- ii. The contractor will be expected to attend the PSR training provided by the Employer in order to be authorised within a certain period of 3 to 6 months

3.4 Deficiencies and modifications:

No modifications shall be done on Diesel Generator without notifying the employer and system engineer or contract manager.

3.5 Turn-around and response time

The maximum turnaround time for the breakdown repair work shall be in accordance with Routine Work Management Procedure (240-44974011)

3.6 Data Pack and Failure Reporting

Following any equipment failure, the contractor is required to perform an investigation and submit the following documentation to the employer:

- i. A failure analysis report with supporting photographs
- ii. A detailed service report specifying the work performed and required corrective actions
- iii. All reports must be signed and submitted to the contract manager within one (1) week after service is complete

3.7 Quality control standards:

Quality control plan shall be developed, maintained and implemented per task as agreed by the employer.

- i. The QCP must be discussed with the employer for approval.
- ii. The QCP shall comply with ISO 9001:2015 standards.
- iii. Any amendments to the QCP shall be discussed with the employer prior to implementation.

3.8 Compliance with Eskom Policies

The contractor's employees shall comply with Eskom's policies, procedures and site regulations, including but not limited to:

- i. Prohibition on mobile phone use while driving or in restricted areas.
- ii. Adherence to Eskom's lifesaving rules, smoking policy, zero tolerance on alcohol usage, etc. These and other safety and conduct requirements will be discussed in detail during induction training process.

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3.9 Emergency

Any emergency work performed by the contractor will be charged at overtime standard rates.

3.10 Records

- i. All official meeting must be documented with an attendance register and minutes of the meeting which are to be filed appropriately for audit and reference purposes.
- ii. All communications must be recorded in an email and kept in a file.

4. Acceptance

This document has been seen and accepted by:

Name & Surname	Designation
Mzoliswa Mfungula	Senior Supervisor BOP Maintenance
Abel Vuma	Middle Manager Maintenance
Siboniso Dladla	Line Manager BOP Maintenance
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5. Revisions

Date	Rev.	Compiler	Remarks
January 2026	1	Mzoliswa Mfungula	New document

6. Development Team

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

- Mzoliswa Mfungula
- Keoagile Kgaladi
- Siboniso Dladla

7. Acknowledgements

- Hlono Malatsi
- Siboniso Dladla

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8. APPENDIX 1 (List of minimum tools)

- Electrical tools
 - Personal Protective Clothing
 - Feeler gauge
 - Electrical testing and calibration equipment
- Mechanical tools
 - Personal Protective Clothing
 - Injector remover
 - Flywheel rotator
 - Spanner set
 - Socket set
 - Screwdriver set
 - Torque wrench
 - Ratchets
 - Extensions for sockets
 - Rower bar
 - Feeler gauge

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