

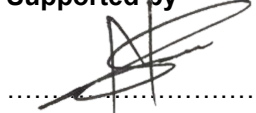





	Scope of Work	Camden Power Station
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Auxiliary Engineering System Engineer	Auxiliary Engineering Manager	Auxiliary Maintenance Manager	Engineering Group Manager
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Supported by

.....


Auxiliary Maintenance Senior Technician

Date: 25/02/2025

CONTENTS

	Page
1. INTRODUCTION	3
2. SUPPORTING CLAUSES	3
2.1 SCOPE	3
2.1.1 Purpose	3
2.1.2 Applicability	3
2.2 NORMATIVE/INFORMATIVE REFERENCES	3
2.2.1 Normative	3
2.2.2 Informative	3
2.3 DEFINITIONS	4
2.3.1 Disclosure Classification	4
2.4 ABBREVIATIONS	5
2.5 ROLES AND RESPONSIBILITIES	5
2.5.1 Auxiliary Engineering	5
2.5.2 Auxiliary Maintenance	5
2.5.3 Operating Department	5
2.5.4 Contractor	5
2.6 PROCESS FOR MONITORING	5
2.7 RELATED/SUPPORTING DOCUMENTS	5
3. SCOPE OF WORK	6
3.1 PREVENTATIVE AND CORRECTIVE MAINTENANCE TASKS	6
3.1.1 Preventative maintenance	6
3.1.2 Corrective maintenance	7
3.2 QCP'S, SAFE WORK PROCEDURES AND JOB OBSERVATIONS	7
3.3 SPARES MANAGEMENT	7
3.4 LIST OF ENGINES	8
4. AUTHORISATION	9
5. REVISIONS	9
6. DEVELOPMENT TEAM	9
7. ACKNOWLEDGEMENTS	9

TABLES

Table 1: Definition of terms used in this document.	4
Table 2: Abbreviation used in this document.	5
Table 3: List of engines in Camden Power Station	8

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1. INTRODUCTION

Camden Power station has mobile and fixed diesel engines which are used to power various pumps and generators. These engines are critical for uninterrupted operation of the power station as they are utilized for normal operation and emergencies.

The diesel engines are of different brands, including but not limited to Cummins, Caterpillar, Deutz, Mitsubishi, Kirloskar and Volvo Penta. The diesel engines in Camden are either water cooled, or air cooled.

2. SUPPORTING CLAUSES

2.1 SCOPE

This section outlines the scope of work for maintenance and repair of diesel engines in Camden Power Station purpose and applicability.

2.1.1 Purpose

The purpose for this scope of work is to outline employer's requirements from the contractor for maintenance and repairs of diesel engines by the qualified technicians in Camden Power Station.

2.1.2 Applicability

This document shall apply to Camden Power Station.

2.2 NORMATIVE/INFORMATIVE REFERENCES

Parties using this document shall apply the latest revision of the documents listed in the following paragraphs.

2.2.1 Normative

- [1] ISO 9001 Quality Management Systems.
- [2] Occupational Health and Safety Act 85 of 1993
- [3] 004 - 4830 employer's standards and procedures regarding 'health and safety at Camden power station: Camden power station safety, health, and environment specification
- [4] 240 - 78024412 Maintenance Execution Strategy for Diesel Engines
- [5] 240 - 107981488 Two yearly major inspect coolant & flush system - diesel engine (clm) – standby engine

2.2.2 Informative

- [6] 240 – 97052302 Maintenance, repair, and service of diesel engines

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2.3 DEFINITIONS

Table 1 below shows the definition of terms used in this document.

Table 1: Definition of terms used in this document.

Abbreviation	Explanation
Definition	Description
Maintenance	A combination of all technical, administrative, and managerial actions during the lifecycle of an item intended to retain it in or restore it to condition in which it can perform its required function.
Maintenance Strategy	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.
Maintenance Schedule	The timing of the maintenance strategy information stipulating when in the calendar year, work needs to be done.
Preventive Maintenance	Planned time or schedule-based maintenance carried out with the 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.
Contractor	Company rendering service to Eskom Holdings SOC Ltd (Camden Power Station).
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 particular application.
Condition Based Maintenance	Predictive maintenance carried out because of findings from analysis of parameters measured under a condition-monitoring regime, or from recommendations from reliability analysis.
Condition Monitoring	Non-intrusive monitoring carried out to determine the physical condition of asset / plant and equipment.
Employer	Eskom Holdings SOC Ltd (Camden Power Station).
Inspection	Activities, which by means of examination, observation, or measurement, determine the conformance of material, parts, components etc., to predetermined specifications and quality requirements.
In-service Inspection	All inspection and testing conducted on plant and equipment at regular intervals and prescribed by regulatory and statutory codes or other types of specification throughout its service life.
Testing	All activities required determining the actual performance or condition of an item.

2.3.1 Disclosure Classification

Controlled disclosure: controlled disclosure to external parties (either enforced by law, or discretionary).

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2.4 ABBREVIATIONS

Table 2 shows abbreviations used in this document.

Table 2: Abbreviation used in this document.

Abbreviation	Description
ISO	International Organization for Standardization
OEM	Original Equipment Manufacturer
PM	Preventative maintenance
QCP	Quality Control Plan
SABS	South African Bureau of Standards
SOW	Scope of Work

2.5 ROLES AND RESPONSIBILITIES

This section outlines roles and responsibilities of departments involved in the maintenance of diesel engines.

2.5.1 Auxiliary Engineering

- Compile the scope of work and set-up contract as per terms set out in the scope of work.
- Compile and update the maintenance strategy of diesel engines.

2.5.2 Auxiliary Maintenance

- Supervise the contractor executing diesel engine planned plant maintenance and repairs.
- Ensure preventative maintenance is performed by the contractor as per the maintenance strategy and schedule.
- Compile and update work packages for maintenance activities of diesel engines.
- Ensure the PM is handed back to the planner after execution of work for data capturing.

2.5.3 Operating Department

- Report all defects found during testing and inspection of the engines.

2.5.4 Contractor

- Execute the schedule maintenance tasks as per the employer's maintenance strategy and requirements.
- Repair the engines as required by the employer.

2.6 PROCESS FOR MONITORING

Procurement ensures that maintenance contract is set-up according to the terms given in the SOW.

2.7 RELATED/SUPPORTING DOCUMENTS

N/A

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3. SCOPE OF WORK

The scope of work is for inspection, maintenance, and repair of diesel engines at Camden Power Station as per the maintenance schedule and as required by the employer.

The contractor shall take permits as per the employer's regulations. The contractor shall have responsible competent technician(s) available for scheduled maintenance tasks and must have a competent technician(s) on standby to attend to breakdowns.

The contractor shall issue new PPE to its employees when it is no longer effective. All PPE and masks must be SABS approved.

The contractor shall execute scheduled maintenance of all diesel engines as per the employer's maintenance strategy. Maintenance strategy shall be shared with a successful contractor upon commencing with the contract. All scheduled maintenance work will be done in Camden Power Station.

The contractor shall be on standby throughout the contract period to attend breakdowns of the engines when required by the employer.

The contractor shall give the employer a guarantee of 12 months for all engines rebuild. Rebuilding of the engines shall be done off site. Rigging of engines will be done by the employer.

Engines taken out of site for repairs or rebuild must have dyno test performed. Employer's representatives from quality, maintenance and engineering shall be present during dyno test before the engine is returned to site.

All required spares and tools to execute maintenance or repair work shall be supplied by the contractor, the spares shall be SABS approved.

3.1 PREVENTATIVE AND CORRECTIVE MAINTENANCE TASKS

Preventative and corrective maintenance tasks are listed in the subsections below. The contractor is expected to execute preventative maintenance tasks as scheduled by the employer. Corrective maintenance will be executed as required, on request by the employer.

3.1.1 Preventative maintenance

Preventative maintenance tasks will be performed as per the employer's maintenance strategy. The tasks are not limited to the list below. Employer's full maintenance strategy for the engines will be shared with a successful contractor.

- Flush engine lubrication oil system and fill it up.
- Flush cooling water system and fill it up.
- Check all induction hoses and clamps.
- Check fuel supply line and connections at fuel tank, fuel filter and fuel pump.
- Replace engine oil filter.
- Replace fuel filter.
- Replace air filter.
- Replace coolant filter.
- Check the turbo end float.
- Check the exhaust system for leaks.
- Check the coolant level.

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- Check oil level.
- Check the radiator cooling efficiency (delta T between inlet and outlet temp)
- Check and adjust v-belts.
- Replace v-belts.
- Check the fan drive and pulleys.
- Check the safety guards.
- Check all gauges for correct operations.
- Sample lubrication oil and analyse for engine internals condition.
- Prepare and submit service report for the engine to the employer.

3.1.2 Corrective maintenance

Corrective maintenance task below will be performed when they are required by the employer on call out basis. The tasks are not limited to the list below.

- Repair engine oil leaks
- Repair water leaks
- Replace temperature sensor.
- Replace fuel pump.
- Clean radiator or cooling water cooler to enhance efficiency.
- Replace radiator or cooling water cooler.
- Repair or replace engines cylinder head.
- Troubleshoot the engine failures.
- Overhaul the engine.
- Perform dyno test.
- Perform pressure test.

3.2 QCP'S, SAFE WORK PROCEDURES AND JOB OBSERVATIONS

- Contractor shall develop and submit scheduled and corrective maintenance QCP's for approval by the employer before any work commences.
- QCP's shall have action plans, safe work procedures and job observations.
- The contractor with the help of the employer's representatives shall develop risk assessment as per the employer safety standards and procedures for the work to be performed.

3.3 SPARES MANAGEMENT

The Contractor will contribute to spares management by timeously providing detail of the spares required to the contract supervisor, conduct stores walk-down to identify zero stock levels/obsolete spares and cataloguing critical spares.

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3.4 LIST OF ENGINES

Table 3 shows the list of engines in Camden Power Station with application and model. The employer reserves a right ask for maintenance of any additional engines not listed in the table below.

Table 3: List of engines in Camden Power Station



Description/Plant area	Make	Number	Serial no.
Fire water pump diesel engine A	Caterpillar	01	Model 3406 Serial: 6TB22761
Fire water pump diesel engine B	SCT Cummins	01	Model 200/38 C360 Serial: JOB02041
Back up unit generator diesel engine	Cummins	05	Model NTA 400 IPG/CPL2025 Serial: SBN NO. 3758
Service water pump diesel engine	Kirloskar	03	Model 6K 1080TA Serial: 6H 3065/2220013
Demin water pump diesel engine	Deutz	01	Model F6L413, no.10519F7 Serial: 5885751
Mobile water pump diesel engine	Deutz	02	Model F6L912-158 Serial: 108995
Mobile water pump diesel engine	Kirloskar	01	Model: 6K 1080TA Serial: 6H 3065/2220024
Mobile water pump diesel engine	Kirloskar	01	Model 6K 1080TA Serial: DV8. 3566/2220026
Mobile generator diesel engine	Deutz	01	Model F6L912-158, Serial: 108995
Mobile generator diesel engine	Mitsubishi	01	Model S6R2-PTAA Serial: 70357
Back up main gate generator diesel engine	Volvo Penta	01	Model TAD734GE Serial: 5312617958

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4. AUTHORISATION

This document has been seen and accepted by:

Name & Surname	Designation	Signature
[REDACTED]	System Engineer Auxiliary Engineering	
[REDACTED]	Senior Technician Auxiliary Maintenance	

5. REVISIONS

Date	Rev.	Compiler	Remarks
August 2024	01	[REDACTED]	New Scope of Work for Maintenance of Diesel Engines
February 2025	02	[REDACTED]	Changing contract period to align with station closure in 2030.

6. DEVELOPMENT TEAM

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

- Sizwe Mabele
- Patrick Shange

7. ACKNOWLEDGEMENTS

- N/A

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