Eskom	Scope of Work	Kusile Power Station

Title: **Kusile Power Station BFP Mobile Oil Purifier Units Supply and Delivery Scope Of work**

Document Identifier: **KUS-20250449**

Alternative Reference Number:

Area of Applicability: **Kusile Power Station**

Functional Area: **Engineering, Maintenance**

Revision: **1**

Total Pages: **14**

Next Review Date: **N/A**

Disclosure Classification: **Controlled Disclosure**

Compiled by	Supported by	Functional Responsibility	Authorized by
Vincent Khumalo	Masande Gomomo	Sibusiso Vezi	Abel Vutha
Snr Tech Sup	System Engineer	Line Manager	Group Manager
Date: 16-04-2025	Date: 2025/04/16	Date: 17-04-2025	Date: 06/05/2025

Figures

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[6] 240-106024999 Kusile Power Station – Feedwater and HP Heating Maintenance Spares Strategy.

[7] 240-144246773 Kusile Power Station _Opening Piping Preservation Work Instruction.

2.3 Definitions

Definition	Explanation
Centrifuge	A device that uses centrifugal force to separate oil and water.
Lube oil	Oil used to lubricate and cool the Vorecon and BFP bearings.
Stakeholder	Is considered to be anyone that has an interest in the outcome of the project.

2.3.1 Document:

To add more applicable definitions

2.4 Abbreviations

Provide explanations of terms and abbreviations including documents, titles and departmental references that may cause confusion if not explained, and that are used in this document.

Abbreviation	Explanation
BFP	Boiler Feed Pump
C&I	Control and Instrumentation
QCP	Quality Control Plan
SANS	South African National Standard
SOW	Scope of Work

2.5 Roles and Responsibilities

- **Technical team**: Clarification of scope if required. Quality inspections for technical adherence. Documentation review, final acceptance and sign-off
- **Employer**: Issues the scope of work
- **Contractor**: Executes the specified scope of work.
- **Project Manager**: Planning and execution of the project

2.6 Process for Monitoring

This document is a once off document and is subject for revision as and when required

2.7 Related/Supporting Documents

- Mobile Oil purifier for BFPs ERA document
- Technical specification for Mobile Oil purifier for BFPs document

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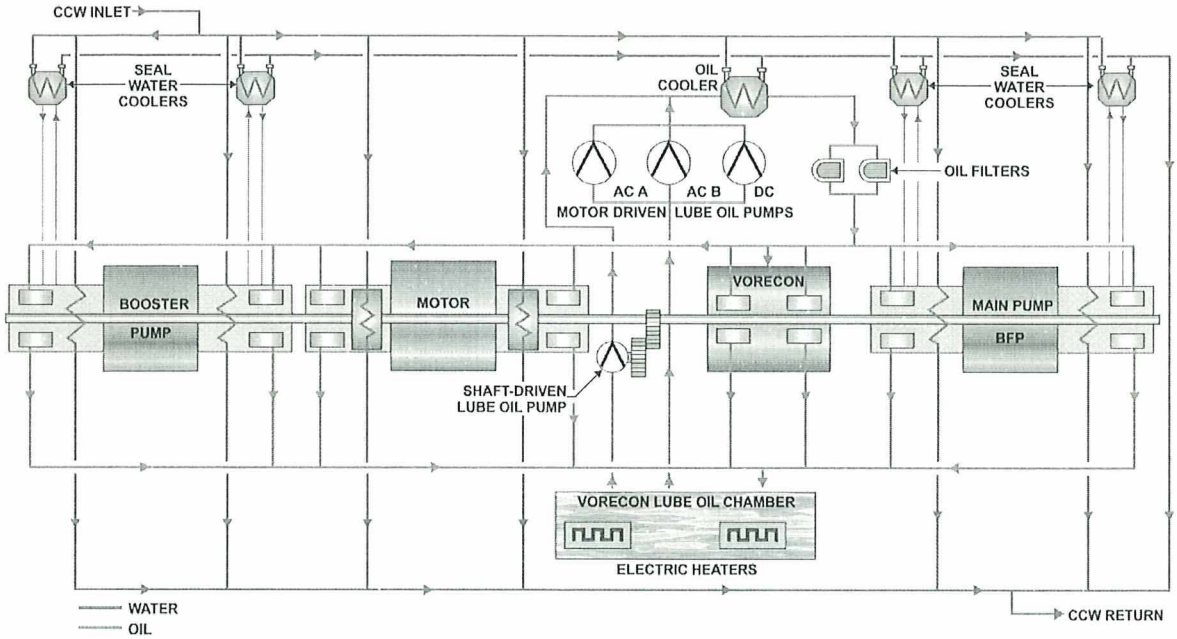

Figure 1: BFP Lube Oil System Simplified Flow Diagram

Figure 2: Typical mobile oil purifier photo

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3.2 Scope of Work

The purpose of this document is to define the scope of work for the procurement of gearbox mobile oil purifier units. These units will be used for the purification of ISO VG46 hydraulic oil, ensuring efficient operation of hydraulic systems by removing contaminants and extending the oil's service life.

3.2.1 Objectives

- Procure high-quality mobile oil purifier units designed for ISO VG46 hydraulic oil.
- Ensure that the mobile oil purifier units will be mounted on wheels with hand-braking system, and this will be capable of being pulled by hand for steering or towed/pulled around by a vehicle by means or the tow bar. The units must be fitted with proper and compliant lighting system to connect on the vehicle tow bar/auxiliary lighting. See fig.4
- Ensure the purifying units are sealable and lockable to prevent dust from accumulating. See fig.4
- Ensure efficient removal of contaminants such as water, particulates, and oxidation by-products.
- Enhance the performance and longevity of hydraulic systems.
- Ensure compliance with industry standards and regulations.

3.2.2 Technical Specifications

The equipment will be mounted on a common base or on castors and be supplied in the form of a pre-piped and prewired package and shall provide a fully workable unit in accordance with this specification when received by the purchaser.
Exclusions & Deviations: Foundations, installation of foundations, connection of services, electrical connections and any site work are excluded from the scope of supply.

The gearbox mobile oil purifier units must meet the following specifications:

- **Filtration Efficiency:** Capable of removing water, solid particles, and sludge to achieve cleanliness levels as per ISO 4406 standards.
- **Flow Rate:** Minimum 10 L/min to 100 L/min (customizable based on requirement).
- **Filtration System:** Multi-stage filtration, including coarse, fine, and ultra-fine filters.
- Water Removal Capability: Vacuum dehydration or coalescing technology for water separation.
- Particle Removal: Minimum filtration capability of 3–5 microns.
- Oil Compatibility: Designed specifically for ISO VG46 hydraulic oil.
- Pump Type: High-efficiency gear or vane pump with a pressure relief mechanism.

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- ASTM D975 (Standard Test Methods for Contaminants in Oil)
- Eskom standards for hydraulic oil

3.7 Safety requirements

- The *Contractor* shall comply with the latest revision of the Eskom Generation Plant Safety Regulations, site specific procedures and stipulations of the OHS Act

3.8 Purification capacity

- Designed for ISO VG46 oil with appropriate viscosity handling capabilities.
- Required Cleanliness specification (particle contamination) is 15/12 (maximum) according to ISO 4406.
- Flow rate: Minimum of 10-20 Liters per minute.
- Removal of contaminants down to 3–5 microns or better.
- Water removal efficiency: Capable of reducing water content to less than 200 ppm.

3.9 Operating features

- Equipped with vacuum dehydration technology or equivalent for water removal.
- Integrated filtration system with multi-stage filters for particle separation.
- Real-time monitoring for moisture and contamination levels (optional sensors for TDS and particle count).
- Temperature control to maintain oil integrity during operation (temperature range: ambient to 80°C).
- Oil heating system for viscosity management during purification.
- Performance in a single pass through the purifier at a full flow rate shall be as follows:
    - Water Removal: Free and emulsified water shall be removed from oil containing up to 5% water, down to less than 0.01%
    - Particular Matter Removal : - 98% of particles over 5 microns.

3.10 Mobility

- Portable with heavy-duty wheels and ergonomic handles for easy transport.
- Suitable for on-site use in industrial environments.

3.11 Material and durability

- Corrosion-resistant construction (e.g., stainless steel or durable alloys). Mobile purifier unit to be able to operate in humid conditions and dusty conditions at times.
- High-grade seals and components compatible with ISO VG46 oil.

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3.14.2 Installation and testing

- On-site installation and commissioning of the equipment.
- Functional testing to verify performance against specifications.

3.14.3 Training requirements

- Training sessions for operators and maintenance personnel.
- Guidance on troubleshooting, routine maintenance, and safe operation.

3.14.4 Documentation

- Certificates of compliance and warranty.
- Spare parts list and availability plan so that they can be DCF'd
- Maintenance schedules.
- Control philosophy and alarms
- Maintenance, operating and troubleshooting documentation of all new plant equipment installed (as a minimum).
- As-built drawings
- Where applicable, single line diagrams and schematics.

3.15 General

- This scope of work serves as the guideline for procuring high-quality gearbox mobile oil purifier units to ensure optimal performance and longevity of ISO VG46 hydraulic oil.

4. Acceptance

This document has been seen and accepted by:

Note: Initials not acceptable

Full Name and Surname	Designation
Sibusiso Vezi	
Vincent Khumalo	

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