



PetroSA

The Petroleum
Oil and Gas Corporation
of South Africa (Pty) Ltd
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User Code: MAAA...
Password: newuser

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<http://www.procurement.petrosa.com/Downloads/Documents/SupplierSelfRegistration.pdf>

SCOPE OF WORK

ENQUIRY NO: CTT0000026638

DESCRIPTION: CHEMICAL TREATMENT OF THE UTILITY COOLING WATER SYSTEM, FIRE WATER SYSTEM, AND DECOMMISSIONING OF THE MAIN & AIR SEPARATION COOLING WATER SYSTEMS FOR PetroSA – MOSSEL BAY GTL REFINERY.

1. INTRODUCTION

This Scope of Work (SOW) outlines the requirements for the chemical treatment, monitoring, and management of PetroSA's Cooling Water and Fire Water Systems, as well as the decommissioning and lay-up of the Main and Air Separation Cooling Water Towers at the Mossel Bay GTL facility.

The contract is divided into two distinct parts:

- PART 1: Shock dosing, draining, preservation, and dry lay-up of the Main Cooling Water Tower and Air Separation Cooling Water Tower.
- PART 2: Continuous chemical treatment and monitoring of the Utility Cooling Water Tower and the Fire Water System for a period of two years.

Directors:

Interim Chairman: Mr Tembinkosi Bonakele;
Ms Brenda Moagi; Mr Llewellyn Delpoit; Ms Ditsietsi Morabe
Group Chief Executive Officer (acting): Ms Nombulelo Tyandela
Group Chief Financial Officer (acting): Mr Linda Nene
Group Company Secretary: Ms Marlene Khumalo



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All services shall comply with PetroSA safety standards, environmental requirements (ISO 14001), and operational procedures.

2. BACKGROUND

The GTL refinery was decommissioned in October 2020 due to reduced gas feedstock. Chemical treatment of cooling water and fire water systems continued until June 2023, after which only water circulation was maintained. As a result, no chemical dosing was performed for more than two years, which must be considered in the new treatment programme.

3. OVERALL SCOPE OF WORK

The Supplier shall provide the complete chemical treatment programme for the Cooling Water Systems and Fire Water System, including supply of chemicals, dosing systems, monitoring equipment, on-site testing, reporting, and performance management.

The Supplier shall:

- Supply and manage chemicals
- Implement corrosion, scale, biological and fouling control programmes
- Monitor key performance indicators (KPIs)
- Provide dosing and control hardware
- Maintain all equipment supplied by the Supplier
- Ensure safe and compliant handling of chemicals

PetroSA remains responsible for the operation and maintenance of all PetroSA-owned plant and equipment.

4. PART 1: DETAILED SCOPE OF WORK

Decommissioning & Preservation of Main and Air Separation Cooling Water Towers

4.1 SERVICES REQUIRED

The Supplier shall perform shock dosing, drainage, decommissioning, and dry lay-up of:



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- Main Cooling Water Tower
- Air Separation Cooling Water Tower

Objectives of Part 1:

- Minimise corrosion during shutdown
- Prevent scale formation
- Prevent biological growth
- Ensure effective preservation during extended non-operation

4.2 SUPPLIER RESPONSIBILITIES – PART 1

The Supplier shall:

4.2.1 Lay-Up Regime

- Develop and implement a dry lay-up strategy in accordance with PetroSA instructions
- Shock dose chemicals prior to draining
- Provide and install necessary dosing equipment and packaged satellite dosing systems

4.2.2 Chemical Management

- Identify suitable chemicals for shock dosing and preservation
- Supply and transport all chemicals to the cooling towers (excluding PetroSA-handled chemicals such as acid and caustic)
- Maintain stock control and storage of chemicals on and off site

4.2.3 Monitoring and Testing

- Conduct all required testing not performed by PetroSA
- Implement a programme specifying sampling methods, test frequencies, and specification limits

4.2.4 Equipment

- Supply dosing systems including:
 - Bulk containers ($\pm 1 \text{ m}^3$)
 - Dosing pumps

- Online measurement equipment
- Maintain all dosing and control systems installed by the Supplier

4.3 TECHNICAL REQUIREMENTS

4.3.1 Technical Competence

The Supplier shall provide:

- A reference list of experience in petrochemical cooling-water treatment
- Details of local and international technical support

4.3.2 Chemical Control Plan

The Supplier shall submit a chemical management plan covering:

- Storage
- Transport
- Inventory control
- Logistics

4.4 GENERAL REQUIREMENTS – PART 1

4.4.1 Maintenance

PetroSA retains responsibility for all existing plant instrumentation (DCS, ETS, pH systems).

The Supplier maintains all dosing hardware supplied.

4.4.2 Representatives & Meetings

- Supplier must provide a local representative available during office hours and after hours for emergencies
- Attend progress meetings and present graphical performance data

4.4.3 Safety

- Compliance with PetroSA safety induction
- Chemical handling competency training
- Availability of MSDS sheets at designated points



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5. PART 2: DETAILED SCOPE OF WORK

Two-Year Continual Treatment of Utility Cooling Water and Fire Water Systems

5.1 SECTION A — UTILITY COOLING WATER SYSTEM

5.1.1 SERVICES REQUIRED

The Supplier shall provide continuous chemical treatment for the Utility Cooling Tower including:

- Corrosion control
- Scale prevention
- Biological control
- Fouling reduction

Performance Targets

- Average corrosion rate < **0.15 mm/year**
- 4-year cycle between exchanger cleanouts
- Stable biological activity control
- Water conservation through efficient cycles of concentration

5.1.2 SUPPLIER RESPONSIBILITIES – UTILITY COOLING

Chemical Treatment Programme

- Identify and supply corrosion inhibitors (anodic/cathodic, yellow-metal protection)
- Supply biocides, biodispersants, and dispersants
- Include chlorine dosing system

Monitoring & Control

- Develop a continuous monitoring schedule (daily/weekly/monthly)
- Provide specification limits and control boundaries
- Maintain onsite logs and submit weekly reports

Equipment

- Supply dosing pumps, bulk tanks (1 m³), online monitors



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- Maintain all equipment installed by the Supplier

KPIs

- Fouling rate
- Corrosion rate
- Chemical usage vs. targets

Poor Performance

Failure to correct deviations within **two weeks** may trigger contractual remedies in accordance with Clause 41.

5.2 SECTION B — FIRE WATER SYSTEM

5.2.1 SERVICES REQUIRED

The Supplier shall maintain chemical treatment of the plant-wide Fire Water System, which includes:

- Fire water tanks (45TK106 & 45TK105)
- Six fire water pumps (650 m³/h)
- 16 km of 14" distribution piping
- 9 km of 16" tank-farm piping
- Hydrants, monitors, isolation valves

5.2.2 SYSTEM OPERATING CONDITIONS

- System maintained at **gravity pressure**
- Pumps set to auto-start only during emergencies
- Weekly circulation and sampling
- Historical lack of chemical dosing for >2 years

5.2.3 SUPPLIER RESPONSIBILITIES – FIRE WATER

Chemical Treatment

- Provide molybdenum-based corrosion inhibitors
- Provide oxidising and non-oxidising biocides



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- Weekly dosing at designated points (tank outlet/suction line)
- Shock dosing as needed

Monitoring & Reporting

- Conduct on-site testing
- Maintain full logs and submit weekly reports
- Attend Fire Water review meetings

Equipment

- Provide corrators, coupon racks, dosing equipment
- Maintain all equipment supplied

5.2.4 PERFORMANCE MONITORING

Supplier must rectify non-compliance immediately at own cost unless caused by abnormal conditions.

5.2.5 Upset Conditions

Supplier must notify PetroSA of any contamination or abnormality and propose corrective actions with associated cost implications.

6. PetroSA RESPONSIBILITIES (PART 1 & PART 2)

PetroSA will:

- Operate all PetroSA-owned equipment (pumps, valves, DCS, pipelines)
- Provide water analysis through PetroSA Laboratory
- Assist with access, valve alignment, and operational setups for dosing
- Provide storage space, forklift, and driver for chemical handling
- Reset valves after dosing

7. REPORTING REQUIREMENTS

- Weekly reports (graphical performance, chemical usage, KPI trends)
- Quarterly management reports



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- Incident reporting (immediate)
- Stock management reports

8. SAFETY REQUIREMENTS

- Compliance with OHS Act, Mines Act, PetroSA Safety Systems
- Chemical handling competency certification
- Full PPE adherence
- Immediate reporting of spills, leaks, or incidents
- MSDS available at all required locations

9. PRICING AND COSTING

The Supplier shall use PetroSA-provided system data for cost modelling, including:

- System volumes
- Load factors
- Evaporation and bleed-off rates
- Monthly make-up water quantities

Costing shall be reviewed every three months, with recommendations for improvements and savings.

10. CONCLUSION

This Scope of Work outlines all technical, operational, safety, and reporting requirements for the two-phase chemical treatment programme. The Supplier shall ensure full compliance with all specifications and performance standards throughout the contract period.

11. ENQUIRIES



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Any enquiries regarding this tender should be addressed to **Zonazihle Sityata** in the Tender Office at telephone no. **021 929 9108 / 044 601 2311** or e-mail address **zonazihle.sityata@petrosa.co.za**.