External Structural Rehabilitation of the Jetty 508 mm Crude Oil Pipeline at SANPC Saldanha Terminal

Document Reference Number:

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Site:

SANPC SALDANHA TERMINAL

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TABLE OF CONTENT

1. INTRODUCTION

The purpose of this Scope of Work is to appoint a competent and experienced contractor to:
Engineer, design, and execute repairs on a 508mm diameter pipeline (750m length)
The pipeline is currently filled with seawater
Repairs will be conducted externally without draining the pipeline
The contractor shall:

- Develop a detailed repair methodology
- Provide engineered designs and drawings
- Execute repairs
- Perform testing and certify the pipeline fit for operation.

2. SCOPE OVERVIEW

The works include:

- External repair of pipeline in 20m sections
- Replacement and repair of corroded pipe supports, supports equispaced @6m over the 750m length. An estimated total of 125 supports subject to site verification.
- Structural repair of corroded pipe sections
- Installation of doublers (reinforcement plates) on areas of wall loss
- Inspection, testing, and certification

Total pipeline length: 750m
The contractor shall take full engineering responsibility for the repair design, execution, and certification of the pipeline as fit for operation

3. APPLICABLE CODES AND STANDARDS

All work shall comply with (latest editions):

- ASME B31.4 – Pipeline Transportation Systems for Liquids
- ASME PCC-2 – Repair of Pressure Equipment and Piping
- ISO 24817 – Composite Repairs (where applicable)
- API 570 – Piping Inspection Code
- API 571 – Damage Mechanisms
- SANS / OHS Act (Act 85 of 1993)
- AIA Requirements (South Africa)

The contractor shall demonstrate full compliance in their methodology.

4. SCOPE OF WORK DETAILS

4.1 Engineering & Design

The contractor shall:

- Conduct site verification and measurements
- Review existing condition data and photographs
- Develop a detailed repair methodology including:
- Repair philosophy per defect type
- Welding procedures (WPS/PQR)
- Structural reinforcement approach
- Sequencing of repairs (20m sections)
- Temporary support requirements
- Corrosion mitigation strategy
- Produce:
    - **Detailed engineering drawings**
    - Repair layouts per section
    - Doubler plate designs
    - Support replacement designs
- All designs must be:
    - **Approved and signed off by a Pr. Eng**
    - Suitable for execution on a **water-filled pipeline**

4.2 Inspection & Assessment

- Conduct **visual and dimensional inspection**
- Identify corrosion types:
    - General corrosion
    - Pitting
    - Localised wall loss
    - Support corrosion
- Perform:
    - **Ultrasonic Thickness Testing (UTT)**
    - Additional NDT as required

4.3 Pipeline Repairs

Repairs shall include:

a) Pipe Section Repairs

- Installation of:
    - **Doubler plates (reinforcement pads)**
    - Engineered sleeves (if required)
- Surface preparation:
    - Grit blasting / mechanical cleaning
    - Removal of corrosion products
- Welding:
    - In accordance with approved WPS
    - Controlled heat input (due to water-filled condition)

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b) Structural Support Repairs

- Replacement of corroded supports:
  - Channels, beams, brackets
- Repair/reinforcement of:
  - Pipe racks
  - Clamps and saddles
- Ensure:
  - Proper load distribution
  - Alignment maintained

c) Corrosion Protection

- Application of:
  - Approved coating systems
  - Marine-grade corrosion protection

4.4 Execution Approach

- Work shall be executed in **controlled 20m sections**
- Provide:
  - Temporary supports where required
  - Safe access and working platforms
- Contractor must ensure:
  - No compromise to pipeline integrity
  - No introduction of new defects

5. TESTING & QUALITY ASSURANCE

The contractor shall:

- Develop a **Quality Control Plan (QCP)** and **Inspection Test Plan (ITP)**
- Conduct:
  - Weld inspections (VT, NDT)
  - Dimensional verification
- Perform:
  - Pressure testing (if required by AIA)
  - Integrity validation

6. CERTIFICATION & APPROVAL

The contractor shall:

- Engage an **Approved Inspection Authority (AIA)**
- Ensure:
  - Inspection and approval of repairs
  - Certification of pipeline

Final deliverables:

- **Certificate of Fitness for Operation**
- AIA sign-off
- As-built drawings

7. SAFETY, HEALTH, & ENVIRONMENT (SHE)

- Full compliance with:
  - OHS Act
  - Site-specific safety requirements
- Contractor shall provide:
  - Approved safety file
  - Risk assessments (HIRA)
  - Method statements
- Special consideration:
  - Marine environment
  - Working on elevated pipeline
  - Residual pressure risks

8. DELIVERABLES

The contractor shall provide:

- Repair methodology document
- Engineering drawings (Issued for Construction)
- WPS/PQR documentation
- NDT reports
- Inspection reports
- AIA certification
- Final completion report

9. CONTRACTOR REQUIREMENTS

The contractor must demonstrate:

- Proven experience in:
  - Pipeline repairs
  - Live-line or water-filled pipeline work
- Access to:
  - Qualified welders
  - NDT personnel
  - Pr. Eng (minimum 10 years relevant experience)
- Valid certifications:
  - ISO 9001 (preferred)
  - Safety compliance

10. CIDB Grading

- CIDB 2ME or higher

11. EXCLUSIONS

- Internal pipeline repairs
- Draining of pipeline