

Document Title:

SCOPE OF WORK

Project Title:

Request for a Cathodic Protection Specialist.

REVISION: 03

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1. List of Abbreviations

CE	Compensation Event
CP	Cathodic Protection
IEC	International Electro technical Commission
MPP	Multi Product Pipeline
NEC	New Engineering Contract
NERSA	National Energy Regulator of South Africa
PL	Pipeline
SABS	South African Bureau of Standards
SANS	South African National Standards
TPL	Transnet Pipelines

2. Introduction

Transnet Pipelines (TPL) is the largest multi-product operator in Southern Africa, transporting hydrocarbons and methane-rich gas through a network of 3 800 km of petroleum and gas pipeline infrastructure. The pipeline network runs across 5 different provinces in South Africa (KwaZulu-Natal, Free State, Gauteng, North West and Mpumalanga) ensuring security of supply to the inland market. Along the pipeline are pump stations located on route and block valve chambers used to allow sections to be isolated during leaks, testing for leaks, etc.

The pipeline network consists of different pipelines of different dimensions and travelling on various routes. Pipeline depth is 1 meter below ground on average and sometimes according to terrain 1.5 meters with soil erosion also a factor. The pipeline also crosses many main rivers along the route to achieve the millions of volumes of product litres pumped through on an hourly basis.

Transnet Pipelines operates in a regulated environment and is regulated by the National Energy Regulator of South Africa (NERSA) and governed by the Petroleum Pipelines Act, No 60 of 2003 and the Gas Act, No 48 of 2001. Almost all critical areas of the Pipeline business require regulatory sanction through the issuing of licences. The Pipeline is classified as an Essential Infrastructure, in terms of the Criminal matters amendment Act (Act 18 of 2015). The pipelines are designed and maintained as per ASME B31.4 & 8.

3. Background

TPL has embarked on a MPP24 Cathodic Protection Optimisation Project, which aims to maintain and optimise the CP system on PL1 through PL4. A consultant has been appointed for Specialist Engineering Services for the Optimisation of the MPP Cathodic Protection, based on the NEC3 Professional Services Contract (Option G: Term Service). At this point, TPL is procuring a service provider who will execute the installation works on site.

4. Purpose

The purpose of this document is to outline the scope of work that must be undertaken by the CP Specialist who is required to form part of the owner's team for the MPP24 Cathodic Protection Optimisation Project.

5. Notes to Tenders

- 5.1 It will be advantageous for the CP Specialist to be based in Durban.
- 5.2 The CP Specialist will be required to travel from time to time and will be expected to use his or her own transport when required. Travelling to the servitude requires an off-road vehicle. Accommodation and travels will be paid at proven cost as indicated in Clause 50.3 of the Contract data.
- 5.3 The pricing for services must account for overhead costs, and the use of own laptop and cellular phone, and all their related costs (airtime, data, etc.).
- 5.4 Activities described in this scope of work form part of an on-going project. The CP Specialist will be required to respond to all queries, method statements, early warnings, and communications within a week to ensure that the CP Consultants and CP Contractors appointed as part of the MPP24" CP Optimisation Project are not delayed in their tasks.
- 5.5 Office and ablution facilities are to be arranged and provided by the TPL whenever the CP Specialist is expected to report to TPL facilities. There will be no other facilities or equipment provided by the employer other than these.
- 5.6 Activities described in this scope of work form part of an on-going project, as such, bidders are advised that if they are currently associated with the project, they will not be considered for the contract, nor will they be considered for any future contracts linked to this project.

6. Occupational Health and Safety Requirements

- 6.1 AS part of commitment to safety, the CP Specialist must comply with OHS Act 85 of 1993, the Construction Regulations and any other occupational health and safety regulations as amended. The CP Specialist is required to conform to the Transnet Contractor Management Procedure (TRN-IMS-PROC-014 Rev 02) as attached in Annexure C.
- 6.2 The SHE Compliance File is required once the CP Specialist has been appointed. Site access will only be granted once the SHE Compliance File has been reviewed and approved by Transnet Pipelines. The CP Specialist will be subjected to the Transnet Pipelines permit-to-work process related to the on-site risks identified as well as changing conditions. The successful bidder will be subjected to compulsory TPL Inductions which can take 1 to 2 hours. These inductions are to be conducted at a location determined by TPL.
- 6.3 The appointed CP Specialist is to be screened prior to accessing and executing the scope of services at the TPL sites. The following documentation will be requested from the Contractor:
- Company Tax clearance
 - CIPRO Registration
 - CK Number of the company
 - Copies of ID of directors
 - Fingerprint of company directors (use SAP 91) to be found at local SAPS.
 - Copies of ID of employees who will be working on site.
 - Fingerprints of employees who will be on site (use SAP 91) to be found at local SAPS.
- 6.4 The appointed Contractor must note that once the requested documents are submitted, SSA will take +/- two weeks to complete the screening.
- 6.5 The appointed Contractor shall be required to provide the following as part of the safety file:
- 6.5.1 Site Specific Organogram of reporting structure. This document must provide all persons appointed in terms of OHS Act No. 85 of 1993 including contact details. (rev, date, approval)
- 6.6 Insurance Cover
- Proof of good standing with the compensation fund or with a licensed compensation insurer (Letter of Good Standing).
 - Proof of public liability insurance cover

6.7 Management Plans

- Health and Safety Plan specific to the project based on the scope of work and client SHEQ specification.
- Approved Contractor Health and Safety Policy
- PPE Policy and most recent issue register

6.8 Induction application forms, with the following attachments:

- Employee dossier with applicable documentation.
- Certified copies of IDs not older than three months.
- Work permits for foreign nationals.
- SAPS Police clearance certificate (SAPS 365).
- Valid certificate of medical fitness issued by Occupational Health Practitioner, medical fitness test to be done on entry and exit of the contract.
- Proof of competence.

6.9 Risk Assessments: Safe Operating Procedures

- Project specific risk assessment indicating the full scope of work – Task based risk assessments.
- Method statement / safe work procedure for the task to be performed.
- Safe work procedures

6.10 Signed copy of mandatory agreement provided in terms of section 37(2) of OHS Act.

6.11 Training records and competency certificates

- Relevant training certificates of personnel involved in the project.
- Copies of training certificates certified within three months.
- Training matrix (Management, supervisors, and employees)

6.12 Incident /Accident Management Procedure including reporting, recording and investigation of incidents and accidents with a register of reportable injuries to the Provincial Director.

6.13 Copy of the OHS act and its Regulations, COID Act Regulations

6.14 Everyone working in a TPL facility will be required to wear the following PPE:

- Dromex DW – D59 FA, 100% cotton, flame retardant and Acid resistant SABS approved conti suit with long sleeves. Materials meeting the requirements of SANS 434, antistatic properties EN 1149 with silver reflective strip (50mm in width) on each sleeve around upper arm and each leg, meeting the requirements for EN471.
- Safety footwear with steel toe protection, anti-static, slip resistant, hydrocarbon resistant and leather material.

- Hard hat with chin straps meeting requirements of SANS 1397:2003

7. Environmental Requirements

The appointed CP Specialist must familiarize themselves with Transnet Minimum Requirements for Construction Environmental Management document (009-TCC-CLO-SUS-11385) as attached in Annexure D. All excavation work in wetland areas will require method statements prior to commencement with work.

All construction work shall comply with the statutes that prohibit pollution of any kind. These statutes are enacted in the following legislation.

- The National Environmental Management Act, 107/1998
- The Environmental Conservation Act, 73/1989; and
- The National Water Act, 36/1998

8. Description of the works

8.1 Activities

The CP Specialist is required to form part of TPL's Owners team for the MPP24 CP Optimisation Project. The CP Specialist is required to help TPL manage the appointed CP Consultants and Contractors by executing the following activities:

- 8.1.1 Review and respond to recommendations from the CP system hand-over data for PL1, PL2, PL3, and PL4.
- 8.1.2 Review and respond to recommendations from baseline data captured from KP 419 to KP 555.
- 8.1.3 Review and respond to recommendations from baseline data captured from KP 0 to KP 20.
- 8.1.4 Assisting TPL with managing the consultants for the coordination of testing and commissioning the Bermuda triangle & Kusile crossbond installation by reviewing and responding to all pre-work documentation and post-work recommendations.
- 8.1.5 Review and approve recommendations for Test & Commission: (PL4: KP73 NDU & KP75 FDU installation)
- 8.1.6 Assist TPL with managing the consultant through the following tasks by reviewing and responding to pre-work documentation and post-work recommendations:
 - Implement coupon direct current density measurements to support management of current supplied to MPP pipeline.
 - Developing a detailed CP procedure

- Developing a detailed AC Mitigation Procedure
 - Assess the validity of using combined CIPS/DCVG surveys to assess coating defects and the validation of current density management methodologies implemented on the MPP.
 - Investigate the use of ER probes to determine corrosion rate and other variables in real time and the use of suitable monitoring algorithms to manage TRU, NDU and crossbonds to foreign pipelines.
 - Continue evaluation and assessment of suitable earthing system to reduce High Negative potentials on PL1 as per Reignite's NMPP Status Report.
- 8.1.7 Review and respond to the technical report(s) and recommendations for interference testing at all non-TPL crossbonds for PL1, PL2, PL3, and PL4.
- 8.1.8 Review pre-work documentation(s) and review and respond to post-work recommendations for the investigation and Rationalisation of TRUs and Groundbeds for PL1, PL2, PL3 and PL4.
- 8.1.9 Review hand-over reports for the project.
- 8.1.10 Reviewing and responding to early warnings.
- 8.1.11 Review and respond to technical queries.
- 8.1.12 Reviewing Compensation Events.
- 8.1.13 Attending meetings on behalf of TPL.
- 8.1.14 Reviewing and approving method statements for the installation works as per the installation schedule attached in Annexure F.
- 8.1.15 Reviewing and approving quality control plans for the installation works as per the installation schedule attached in Annexure F.
- 8.1.16 Supervision of the installation works on site.
- 8.1.17 Reviewing Programmes for both the CP Consultants, and the CP Contractors.

8.2 The services that are required may involve:

- Solving complex and/or detailed problems to ensure that the pipeline network is protected against electrolytic corrosion by means of Cathodic Protection at all times and is therefore available for operations.
- Executing investigations, where the solution or the root cause is often unique, and the trail of evidence is often hidden or obscured by others.

- Solving complex technical CP defects, failures, and problems which in most instances require intensive investigation so that solutions are found within short time spans and must always be cost-effective using knowledge and experience.
- Communicating with contractors, consultants and suppliers and have to be able to negotiate issues and resolve differences and then motivate these decisions to TPL.
- Preparation and review of technical requirements, specifications, a section of contract documents and the issue of tender documents for purchase and construction purposes.
- Adjudication of tenders with recommendations to the Tender Board.
- Managing contractors, accepting, commissioning, and signing off works.
- Execution and/or reviewing investigations, considering alternatives, and recommending proposals for implementation.
- The scope of services will be detailed in the Task Order issued by the Employer.

8.3 General Scope of Professional Services Required

The CP specialist shall be an integrated member of the multidisciplinary professional team, and his areas of responsibility shall be, among others, to achieve the following key deliverables on the Programme and the respective Task Orders:

- Report to the Project Manager with respect to the Task Order.
 - Consult, advise, direct, and interface with all members of the team with regards to CP expertise. Review and provide professional input to the detailed CP scope of works.
 - Review, familiarise, and understand the requirements of the MPP CP Optimisation project.
 - Prepare and/or review reports, presentations, and scope of work documentation for the MPP CP Optimisation project.
 - Meet with stakeholders and provide appropriate information to the team.
 - Prepare or review calculations and computer simulations on CP elements.
 - Prepare estimates at various stages of the project at the expected levels of accuracy.
 - Prepare reports at the various stages of the project for the team and other relevant stakeholders.
 - Review detail designs on all CP elements of the project.
 - Undertake and be available for reviews at various stages of the project.
 - Review Bills of Quantities and equipment lists where required.
 - Assist with the tendering process, selection, and appointment of contractors as applicable.
- (All Transnet Tender procedures and policies shall be applicable and adhered to at all times.)

- Assist the TPL's procurement department with the evaluation of tenders and the preparation of tender evaluation reports.
- Administer the construction contract on site.
- Assist in ensuring the appointed contractor(s) works according to the statutory and safety regulations, as well as provide the compulsory safety work plan for the execution of the construction works.
- Chair and/or assist with site meetings and prepare and submit project site meeting minutes.
- Attend all site meetings, project meetings and design coordination meetings.
- Assist the Project Manager and Contract Manager in assessing the monthly payment certificates.
- Monitor the integrity of technical, quality, and performance aspects during construction and commissioning up to the final handover stage.
- Assess commissioning, pre-commissioning, and handover reports.
- Assess ASBUILT documentation and maintenance manuals where required.
- Be proactive with the closing and handover of the CP works to the CP Manager.
- Any other reasonable work required to successfully deliver the project on time, on budget, and at the accepted quality.
- The CP Specialist shall adhere to all Transnet Project Management and documentation control procedures.
- Ensure all drawings are as per Transnet Pipelines' drawing standards, if required.
- Hand over all documentation, including drawings in native files where applicable.

8.4 Technical requirements

The CP Specialist in the provision of services shall observe all relevant statutes, by-laws and associated regulations, applicable standards published by the South African Bureau of Standards, the International Organization for Standardisation or learned societies and standards of professional conduct, and "best practice", as laid down, or recommended, by their respective professional associations, if any.

8.5 Ownership of Data, Designs and Documents

The Parties shall agree that copyright in the data, design and documents shall, after payments by the Employer of the services to the Contractor, lie with the Employer subject to the Employer's indemnification against any claim from any party that may arise as a result of the Employer's use of such a document due to the CP Specialists infringement of copyright.

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9. Reference Documentation

The CP Specialist will be expected to familiarize themselves with all CP Standards, project specifications, drawings, TPL documents and project reports. Tenders should account for the reading of these documents in their cost.

Standards:

Title	Standard
Code of Practice for Wiring of premises and incorporated standards	SANS 10142
The Installation and Maintenance of Electrical Equipment used in Explosive Atmospheres	SANS 10086-1
Protection against lightning	SANS 10313
Mitigation of Alternating Current and Lightning Effects of Metallic Structures and Corrosion Control Systems	NACE SP0177
Alternating current Corrosion on Cathodically Protected Pipelines: Risk Assessment, Mitigation and Monitoring.	NACE SP21424-2018
Technical report on the Application and Interpretation of Data from External Coupons Used in the evaluation of Cathodically protected metallic structures	35201 NACE Publication
Control of External Corrosion on Underground or Submerged Metallic Piping Systems	NACE SP0169
The Use of Coupons for Cathodic Protection Monitoring Applications	NACE SP0104
Conditions of Contract	NEC3
Petroleum, Petrochemical, and natural gas industries – Cathodic Protection of pipeline systems – Part 1 On-land Pipelines	ISO 15589-1 2015
Corrosion of Metals and Alloys – Determination of AC Corrosion – Protection Criterion.	ISO 18086-2020
Assessment of the effectiveness of cathodic protection based on coupon measurement	ISO 22426-2020(E)

Refer to Annexure A for drawings and specifications related to the project.

Project Reports (To be issued to the appointed *Contractor*)

- Test Commission (PL4 KP73 NDU KP75 FDU installation)
- Application Of Coupons and Current Densities For MPP CP Monitoring
- MPP TM02 IF Positions for Issue
- Investigate The Use of ER Probes to Determine Corrosion Rate – Initial Report
- Preliminary Welding Procedure
- Investigations (PL1 & PL2 High Negative Potentials)
- PL1, PL2, PL3 & PL4 Vandalism Strategy Report

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- Test Commission (PL4 - Uncontrolled Positive Excursions KP20)
 - Design An Overvoltage Bypass Circuit.

10. Quality Control

The CP Specialist will be helping TPL manage the site work executed by the contractor. The CP Specialist must ensure that the work conducted by both the CP Consultants and the CP Contractor meets the requirements.

11. List of Annexures

Annexure A: Drawings and Specifications

Annexure B: Technical reports

Annexure C: Health and Safety Requirements

Annexure D: Environmental Requirements

Annexure E: TPL QCP Sample

Annexure F: Work Schedules