PART C3: SERVICE INFORMATION

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Section 2: Technical

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1 Background

1.1 Transnet Pipelines makes use of Prover loop facilities to accurately establish meter factors to be used in the metering of product. This is crucial for ensuring that flow meters provide precise measurements during product custody transfer. TPL has fourteen pump station with 20 prover loop facilities within the metering manifold. These provers are used either at delivery or intake pump stations. This precision is essential for financial transactions and regulatory compliance.

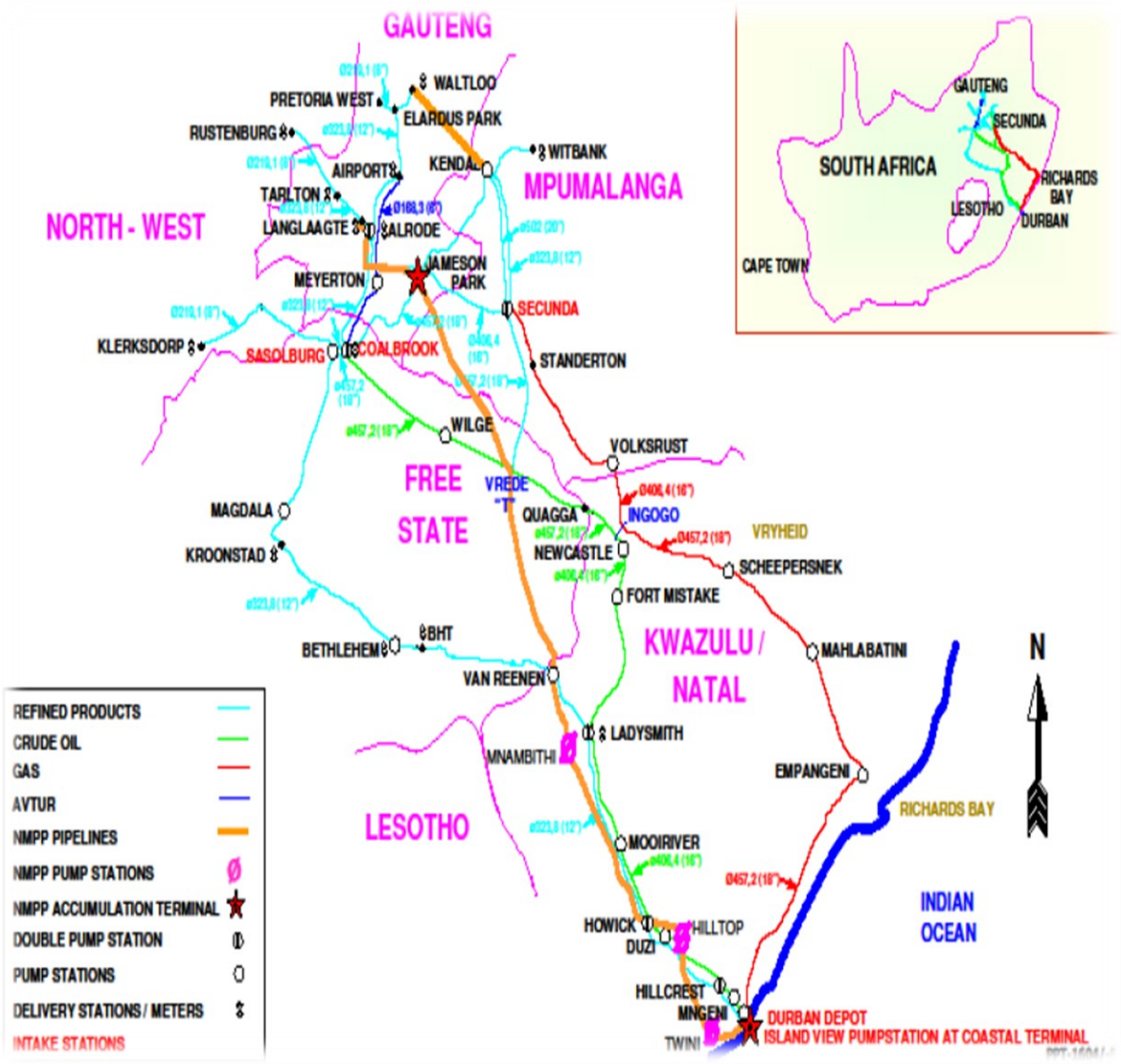

Figure 1: Map of Transnet Pipelines Network

1.2 Transnet Pipelines makes use of the American Petroleum Institute guidelines (API) and Legal Metrology act, 2014 to ensure a fair trade with customers and therefore it requires that each prover be calibrated every two years to confirm its accuracy.

It is imperative that the meters, provers, and associated equipment must be calibrated by a calibration entity accredited by SANAS.

Transnet Pipelines requires a contract on an "As and When" basis to cover the prover calibration required by delivery and intake stations.

2 Abbreviations

Abbreviation	Meaning
TPL	Transnet Pipelines
MC&I	Metering, Control, and Instrumentation
SANAS	South African National Accreditation System
SANS	South African National Standards
NRCS	National Regulator for Compulsory Specifications
OIML	International Organization of Legal Metrology
SCO	Senior Coordinating Officer
CV	Curriculum Vitae
SLA	Service Level Agreement
API	American Petroleum Institute
ISO	International Organization for Standardization
MPMS	Manual of Petroleum Measurement Standards
PPE	Personal Protective Equipment
PFMA	Public Finance Management Act

3 Applicable Regulations and Standards

Reference Title	Document Number	Rev
The Occupational Health and Safety Act of South Africa	Act 85 of 1993	1993
API - Manual of Petroleum Measurement Standards – Chapter 4 - Proving Systems	API MPMS 4	3rd Ed
API - Manual of Petroleum Measurement Standards – Chapter 5 - Metering	API MPMS 5	3rd Ed
API - Manual of Petroleum Measurement Standards – Chapter 11 - Physical Properties Data (Volume Correction Factors)	API MPMS 11	3rd Ed
API - Manual of Petroleum Measurement Standards – Chapter 12 - Calculation of Petroleum Quantities	API MPMS 12	3rd Ed
Custody Metering System User Requirements Specification (Integrated)	TPL-TECH-I-M-SPEC-011B	04

4 Scope Overview

4.1 The scope of this contract includes the periodic, as well as ad-hoc (as-required), calibration of provers used at the *Employer* 's delivery and intake pump stations. The calibration will be in accordance with the Water Draw Calibration method in line with industry standards and best practices as listed in Section 7 below.

4.2 A calibration certificate, as well as a calibration report, should be issued to the *Employer* once the prover calibration is completed.

4.3 A final calibration report should be issued to the *Employer* providing the detail required as stated in MPMS determining the standard reference volume of the equipment being tested including the noted field data.

5 Current Installation

The table below lists the 20 functional provers which are grouped by station. The frequency of periodic calibration for each prover is every 2 years. The provers are listed in the table below:

Table 5.1: List of Provers

Station Name	Station Code	Address	Prover Description
Airport	APT	90 Springbok Rd, Bartlett AH, Boksburg	10" BI DIRECTIONAL PROVER LOOP
Alrode	ALR	35 Garfield Street, Alrode, 1451	24" BI DIRECTIONAL PROVER LOOP
Coalbrook	CBK	Jan Haak Ave, Industrial Zone 2, Sasolburg	10" BI DIRECTIONAL PROVER LOOP
			24" BI DIRECTIONAL PROVER LOOP
Durban	DNR	Abadan Rd, Bayhead, Durban	24" BI DIRECTIONAL PROVER LOOP
Klerksdorp	KRP	Mahogany Avenue, Klerksdorp, 2575	14" BI DIRECTIONAL PROVER LOOP
Langlaagte	LLA	46 Main Reef Rd, Industria, 2093	18" BI DIRECTIONAL PROVER LOOP
Rustenburg	RTR	4 Escom Street, 0299	10" BI DIRECTIONAL PROVER LOOP
Sasolburg	SBG	Cnr Henry & Bergius Road, Sasolburg, 1947	16" BI DIRECTIONAL PROVER LOOP
			16" BI DIRECTIONAL PROVER LOOP
Secunda	SEC	R546, Evander, Secunda	24" BI DIRECTIONAL PROVER LOOP
			24" BI DIRECTIONAL PROVER LOOP

Tarlton	TLR	Cnr Rustenburg & Ventersdorp Rd, Talrton, 1739	16" BI DIRECTIONAL PROVER LOOP
Waltloo	WAO	174 Alwyn Street, Watloo, 0184	18" BI DIRECTIONAL PROVER LOOP
Witbank	WIR	9 Schoonland Dr, Ferrobank, Witbank, 1035	16" BI DIRECTIONAL PROVER LOOP
Island View	IVW	Lot 5, Taiwan Road, Bayhead, Durban, 4045	24" BI DIRECTIONAL PROVER LOOP
			24" BI DIRECTIONAL PROVER LOOP
			24" BI DIRECTIONAL PROVER LOOP
Jamerson Park	JMP	Cnr R42 & Poortjie Road, Heidelburg, 1441	24" BI DIRECTIONAL PROVER LOOP
			24" BI DIRECTIONAL PROVER LOOP

6 Detailed Scope of Service

6.1 At the beginning of each Contract Year, the *Employer* will share a schedule of Provers which are to be calibrated throughout that year, including the due date for each calibration.

6.2 In cases where a prover calibration request is made outside the planned yearly schedule, the *Contractor* shall confirm receipt of the request via email to the *Employer* within forty-eight (48) hours.

6.3 The *Contractor* shall:

6.3.1 Share an execution plan for the scheduled Prover, two (2) weeks before the planned execution date, accepted by the *Employer*.

6.3.2 Receive a preparatory form from the *Employer*, signed by Mechanical, Electrical, and Operations Departments. The Preparatory form will confirm that the Internal Works, have been completed before the *Contractor* mobilizes to site.

6.3.3 Ensure they are capacitated with the sphere tools, sphere pump and spare sphere valves which will be used for the calibration.

6.3.4 Seal the Prover detector switches, prior to leaving the job site after calibration.

6.3.5 Perform the Calibration work in accordance with a procedure(s) in alignment with the water draw method and the procedure must be available for scrutiny on request by the *Employer* for the prover calibration.

6.3.6 Perform Calibration work that complies with specifications under section 7. All work will be carried out in accordance with the current API MPMS.

6.3.7 Ensure that the calibration is traceable to the South African National Standards by virtue of the primary test measure certification issued by NRCS.

6.3.8 Commence with the calibration works on site within 1 Month of the request.

6.4 The *Employer* shall:

6.4.1 Test the four-way valve for leaks. Mechanical, Operations, Electrical and MC&I.

6.4.2 Ensure the actuator limits are set correctly to achieve a positive seal on the valve.

6.4.3 Ensure that all isolation valves and drain valves are leak free.

6.4.4 Drain, isolate/blank off the prover.

6.4.5 Test that all the volume switches are fully functional.

6.4.6 Ensure Spare detector switches are available on-site during calibration.

6.4.7 Provide 380/400 VAC connection point to connect to the *Contractor* 's pump and electronic equipment.

6.4.8 Ensure that a spare sphere of the correct size, material and of good condition is available on site.

6.4.9 Ensure that spare prover door seals are available on site.

6.4.10 Ensure that clean water supply is readily available to first flush and clean the prover and then for the prover calibration process.

6.5 **Access to the TPL station:**

6.5.1 The *Contractor* shall supply the certified ID copies and any other requested documents, for the access request.
6.5.2 Alcohol Breathalyzer testing will be conducted at the entry of each site.
6.5.3 The *Contractor* shall complete an induction by TPL for every site visited.
6.5.4 A work permit shall be opened before commencing any work.
6.5.5 A risk assessment shall be conducted daily before commencement of work.
6.5.6 Transnet Pipelines reserves the right to cancel or change an authorized work permit at any time, even during the period of such work permit.
6.5.7 Only Diesel-powered vehicles are permitted to enter the Depot yard.

7 Specification

7.1 The NRCS requires that all loop provers used as measurement standards be calibrated according to the requirements of SANS 1698 by calibration facilities accredited by SANAS for this type of calibration (accreditation with ISO/IEC 17025:2017).
7.2 Calibration is to be carried out by qualified technicians as shown under section 8.
7.3 All calibration tool(s), as well as temperature and pressure measuring devices, used by the *Contractor* shall have valid, traceable certificates to SANAS. These certificates should be available for inspection on request by the *Employer.*
7.4 All calculations are to be referenced against API MPMS chapter 12.2.3 (Water draw method).
7.5 The calibration should align with industry standards including:
7.5.1 OIML – International Organization of Legal Metrology - Document 36
7.5.2 API MPMS Chapter 4,5,11 & 12
7.5.3 SANS 10378
7.5.4 SANS 1698
7.5.5 ISO 7278-2 - Pipe prover design, calibration, and operation
7.5.6 Occupational Health and Safety Act 85 of 1993

7.6 The calibration certificate should include the minimum of the following detail:
7.6.1 Certificate Number.
7.6.2 Date and place of Calibration and Date of Issue of certificate.
7.6.3 Responsible Technicians who carried out the calibration and the *Contractor*'s engineering manager.
7.6.4 Detector serial/tag Numbers.
7.6.5 Company stamp and signature.
7.6.6 Calibrated Result and the previous calibrated volume.

8 Key Resource Requirements

8.1 The following roles have been identified as key resources for the contract:
8.1.1 Senior Calibration Technician
8.1.2 Calibration Technician

8.2 The *Contractor* shall:
8.2.1 submit CVs, detailing experience and qualifications of each key resource.

8.3 The Senior Calibration Technician shall have:
8.3.1 Industrial prover calibration experience.
8.3.2 Petroleum pipeline experience in calibration.
8.3.3 Trade/Legal Metrology Verification Certificate.
8.3.4 Electronics/Instrumentation qualification.

8.4 The Calibration Technician shall have:
8.4.1 Electronics/Instrumentation qualification.

9 Plant and Equipment

9.1 The *Contractor* shall be responsible for his\her own arrangements with regards to the transport and required tools to execute the work.
9.2 The *Contractor* shall share a list of the equipment they intend to use.
9.3 The *Contractor* shall ensure that they capacitate themselves with:
9.3.1 Fiberglass open tank acting as reservoir for water.
9.3.2 Small water pump.
9.3.3 SANAS Certified measures.
9.3.4 Solenoid valve for water control.
9.3.5 Control box to connect the solenoid valve to the detector switches.
9.3.6 Required hoses and fittings to connect onto the Prover.
9.3.7 SANAS Certified digital thermometers and pressure gauges.

10 Health and Safety Requirements

10.1 Health and Safety Standard

The awarded *Contractor* shall comply with the requirements of the Occupational Health and Safety Act 85 of 1993 and its promulgated Regulations, as amended. In this role, the *Contractor* assumes the duties of the *Employer* and is fully responsible for compliance with the act. The *Contractor* shall comply with the following Transnet procedures: Transnet *Contractor* Management Procedure (TIMS-GRP-PROC-014) and Transnet *Contractor* Health and Safety Specification Guideline (TRN-IMS-GRP-GDL-014.3), as applicable to the scope of services. and any laws applicable in the terms of Health and Safety.

10.2 *Contractor*'s General Requirements for Health and Safety

The *Contractor* is solely responsible for carrying out the work under the Contract having the highest regard for the health and safety of its employees, Transnet's employees, and persons at or in the vicinity of the Site, the Works, temporary work, materials, the property of third parties and any purpose relating to the *Contractor* carrying out its obligations under this Contract. Adequate provisions must be made available for health and safety of which general requirements are as follows:

I. The *Contractor* is required to develop and implement a Health and Safety Plan in accordance with the *Contractor* Health and Safety Specification Guideline (TRN-IMS-GRP-GDL)
II. This plan must encompass all sites where work will be conducted. If different teams are deployed, each site must have its own site-specific Health, Safety, and Environment (HSE) Plan.
III. The *Contractor* shall ensure that all incidents are reported to the relevant Transnet Pipelines Depot Manager and investigated by the *Contractor* in conjunction with the client's safety representative. Occurrences shall be reported immediately or before the end of the shift followed by a written report within 24 hours.
IV. The *Contractor* shall ensure that a competent Supervisor is appointed for the project. Constant supervision is required on site during execution of works. Relevant trainings to be conducted for Supervisory staff i.e.: Any relevant Supervisory course, Incident Investigation, Legal Liability and HIRA (Hazard Identification and Risk Assessments).
V. The *Contractor* is required to supply employees with protective clothing and equipment in accordance with section 8 of API 2015/16 and the Occupational Health and Safety Act 85 of 1993 (OHSA). The personal protective equipment shall be appropriate for the potential hazard. This shall include but not limited to flame retardant overalls, gloves, safety shoes, respirator, face shield and goggles. The *Contractor* shall conform to the Transnet Pipelines Standard Operating Procedure for Personal Protective Equipment (009-TPL-OPS-SHEQ-2096).
VI. Where equipment which is not intrinsically safe is utilized during the water drawn method, gas monitoring with a gas tester is a requirement.
VII. Plant, equipment, materials, and waste must be stored safely and must not interfere with the daily operations of the facilities.
VIII. The *Contractor* must obtain prior approval from the MC&I representative for the placement and positioning of all plant, equipment, materials, and waste.
IX. The service provider is also responsible for adhering to any safety, health, and environmental rules that TPL may require. They must ensure that no employees or persons working on their behalf are permitted to enter any remediation site unless they have undergone the necessary safety, health, and environmental induction relevant to the site's current hazards.
X. Prior to commencing operations or accessing any Transnet site, the Principal *Contractor* must submit a Safety, Health, and Environmental Compliance file for review and approval by Transnet Pipelines. The submission requirements will be aligned with the *Contractor*'s scope of services.
XI. Below are the ***Contractor* compliance File Requirements (Minimum Requirements):**
    a. A valid Letter of Good Standing with the Workman's Compensation.
    b. Proof of relevant insurances to carry out work.
    c. *Contractor* Health & Safety Plan correlating with Transnet *Contractor* Management Procedure (TRN-IMS-GRP-PROC-014) submitted and approved.
    d. Copies of TPL & *Contractor*'s health, Safety & Environmental Policies
    e. Mandatory agreement as per section 37.2 of the OSHACT. Act 85 of 1993 and CR 5.1(K)
    f. Legal appointments as per the Occupational Health and Safety Act
    g. Risk Assessments, Method statements and Safe Working Procedures
    h. Employee Induction packs shall include the following documents:
    i. Employee scope of work.
    j. Proof of site-specific induction (*Contractor*).
    k. Copy of ID Document.
    l. Abbreviated CV for the management and Legal appointees.

m. Valid entry medical certificate of fitness done by an Occupational Health Practitioner aligned with job roles and responsibilities (e.g., work at height, in confined spaces etc.).
n. Project Specific Risk Assessment indicating the full scope of work and risk profile.
o. Project specific Organogram of reporting structure including contact details.
p. Copy of nominated responsible person to conduct inspections and proof of their competency.
q. Copy of equipment registers to be used with copy of each item's inspection checklist.
r. The Service Provider shall furnish the client with Periodic medicals every twelve months, as well as the Exit Medicals done by an Occupational Health Practitioner at the end of the contract.

11 Environmental Requirements

11.1 Environmental Compliance

The *Contractor* shall at all times comply with Environmental Requirements prescribed by law as they may apply to the services/ project. The Service Provider shall comply with the provisions of the National Environmental Management Act 107 of 1998, National Water Act 36 of 1998, National Environmental Management: Waste Act 59 of 2008 and any other applicable environmental legislation. The Service Provider perform duties of the *Employer* and is in every respect responsible for compliance with the provisions of the Acts. The Service Provider will be responsible for environmental rules that TPL may require to be implemented and shall comply with the Transnet *Contractor* Management Procedure (TRN-IMS-GRP-PROC-014). The Service Provider is required to compile and submit a SHE Compliance File to TPL, that will include, but not limited to Environmental Management Plan that is specific to the service/ project. Site access and commencement of execution of the scope of work will be subject to the review and approval of the SHE Compliance File.

The *Contractor* is responsible for housekeeping, including waste handling and removal, at the sites during project execution. The sites must be maintained in compliance with health and safety specifications.