

**Transnet Pipelines**an Operating Division **TRANSNET SOC LTD**

[Registration Number 1990/000900/30]

REQUEST FOR PROPOSAL (RFP)

FOR THE: DESIGN, SUPPLY, INSTALLATION (EPC CONTRACTOR) AND PROVIDE PLANNED MAINTENANCE FOR A LIMITED PERIOD FOR THE VAPOUR RECOVERY UNIT SYSTEM AT THE TPL TARLTON PETROLEUM PRODUCTS HANDLING AND BULK STORAGE FACILITY

RFP NUMBER	: TPL/2024/07/0005/70943/RFP
ISSUE DATE	: 16 April 2025
COMPULSORY BRIEFING	: 25 April 2025
CLOSING DATE	: 16 May 2025
CLOSING TIME	: 15h00pm
TENDER VALIDITY PERIOD	: 12 weeks from closing date

Eligibility:

- **CIDB Grading of 8ME or higher**
- **Attendance of compulsory briefing session to be held at Tarlton**

Depot:

Cnr Rustenburg/Ventersdorp (R24/N14), Tarlton, 1749 (-26.07937652, 27.64046629)



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- C4 Site information

T1.1 TENDER NOTICE AND INVITATION TO TENDER

SECTION 1: NOTICE TO TENDERERS

1. INVITATION TO TENDER

Responses to this Tender [hereinafter referred to as a **Tender**] are requested from persons, companies, close corporations or enterprises [hereinafter referred to as a Tenderer].

DESCRIPTION	DESIGN, SUPPLY, INSTALLATION (EPC CONTRACTOR) AND PROVIDE PLANNED MAINTENANCE FOR A LIMITED PERIOD FOR THE VAPOUR RECOVERY UNIT SYSTEM AT THE TPL TARLTON PETROLEUM PRODUCTS HANDLING AND BULK STORAGE FACILITY
TENDER DOWNLOADING	This Tender may be downloaded directly from the National Treasury eTender Publication Portal at www.etenders.gov.za and the Transnet website at https://transnetetenders.azurewebsites.net (please use Google Chrome to access Transnet link) FREE OF CHARGE.

COMPULSORY TENDER CLARIFICATION MEETING	<p>A Compulsory Tender Clarification Meeting will be conducted at Transnet Pipelines Tarlton Depot on the 25th April 2025, at 11:00am [11 O'clock] for a period of \pm 4 (four) hours. [Tenderers to provide own transportation and accommodation].</p> <p>The Compulsory Tender Clarification Meeting will start punctually and information will not be repeated for the benefit of Tenderers arriving late.</p> <p>A Site visit/walk will take place, tenderers are to note:</p> <ul style="list-style-type: none"> Tenderers are required to wear overalls, safety boots, hard hats, high visibility vests, long sleeved shirt Tenderers without the recommended PPE will not be allowed on the site walk. Tenderers and their employees, visitors, clients and customers entering Transnet Offices, Depots, Workshops and Stores will have to undergo breathalyser testing. All forms of firearms are prohibited on Transnet properties and premises. The relevant persons attending the meeting must ensure that their identity documents, passports or drivers licences are on them for inspection at the access control gates. <p>Certificate of Attendance in the form set out in the Returnable Schedule T2.2-02 hereto must be completed and submitted with your</p>
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	<p>Tender as proof of attendance is required for a compulsory site meeting and/or tender briefing.</p> <p>Tenderers are required to bring this Returnable Schedule T2.2-02 to the Compulsory Tender Clarification Meeting to be signed by the Employer's Representative.</p> <p>Tenderers failing to attend the compulsory tender briefing will be disqualified.</p> <p>For any clarifications or queries, kindly send them through to Mbalenhle.bhengu@transnet.net. The communication deadline for queries or clarifications is 6th May 2025.</p>
CLOSING DATE	<p>15:00pm on (2025/05/16)</p> <p>Tenderers must ensure that tenders are uploaded timeously onto the system. If a tender is late, it will not be accepted for consideration.</p>

2. TENDER SUBMISSION

Transnet has implemented a new electronic tender submission system, the e-Tender Submission Portal, in line with the overall Transnet digitalization strategy where suppliers can view advertised tenders, register their information, log their intent to respond to bids and upload their bid proposals/responses on to the system.

a) The Transnet e-Tender Submission Portal can be accessed as follows:

Log on to the Transnet eTenders management platform website (<https://transnetetenders.azurewebsites.net>);

- Click on "ADVERTISED TENDERS" to view advertised tenders;
- Click on "SIGN IN/REGISTER – for bidder to register their information (must fill in all mandatory information);
- Click on "SIGN IN/REGISTER" - to sign in if already registered;
- Toggle (click to switch) the "Log an Intent" button to submit a bid;
- Submit bid documents by uploading them into the system against each tender selected.
- **Tenderers are required to ensure that electronic bid submissions are done at least a day before the closing date to prevent issues which they may encounter due to their internet speed, bandwidth or the size of the number of uploads they are submitting. Transnet will not be held liable for any challenges experienced by bidders as a result of the technical challenges. Please do not**



wait for the last hour to submit. A Tenderer can upload 30mb per upload and multiple uploads are permitted.

- b) Each company must register its profile using its company details and use the corresponding registered profile to log an intent to bid as well as submitting any bid.
- c) Transnet will not accept a bid or will disqualify a bidder who submits a bid in the Transnet e-tender submission through another bidders'/Company's profile. In other words, each bidder must register the intent to bid and submit its bid through its own profile under the same company name that will eventually bid for the tender. No company shall submit a bid on behalf of another company regardless of the company being a subsidiary or holding company.
- d) In case of a Joint Venture, any of the parties/companies to the Joint Venture may use its registered profile to submit a bid on behalf of the Joint Venture.
- e) The tender offers to this tender will be opened as soon as possible after the closing date and time. Transnet shall not, at the opening of tenders, disclose to any other company any confidential details pertaining to the Tender Offers / information received, i.e. pricing, delivery, etc. The names and locations of the Tenderers will be divulged to other Tenderers upon request.
- f) Submissions must not contain documents relating to any Tender other than that shown on the submission.

3. CONFIDENTIALITY

All information related to this RFP is to be treated with strict confidentiality. In this regard Tenderers are required to certify that they have acquainted themselves with the Non-Disclosure Agreement. All information related to a subsequent contract, both during and after completion thereof, will be treated with strict confidence. Should the need however arise to divulge any information gleaned from provision of the Works, which is either directly or indirectly related to Transnet's business, written approval to divulge such information must be obtained from Transnet.

4. DISCLAIMERS

Tenderers are hereby advised that Transnet is not committed to any course of action as a result of its issuance of this Tender and/or its receipt of a tender offer. In particular, please note that Transnet reserves the right to:

- 4.1. Award the business to the highest scoring Tenderer/s unless objective criteria justify the award to another tenderer.



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- 4.2. Not necessarily accept the lowest priced tender or an alternative Tender;
 - 4.3. Go to the open market if the quoted rates (for award of work) are deemed unreasonable;
 - 4.4. Should the Tenderers be awarded business on strength of information furnished by the Tenderer, which after conclusion of the contract is proved to have been incorrect, Transnet reserves the right to terminate the contract;
 - 4.5. Request audited financial statements or other documentation for the purposes of a due diligence exercise;
 - 4.6. Not accept any changes or purported changes by the Tenderer to the tender rates after the closing date;
 - 4.7. Verify any information supplied by a Tenderer by submitting a tender, the Tenderer/s hereby irrevocably grant the necessary consent to the Transnet to do so;
 - 4.8. Conduct the evaluation process in parallel. The evaluation of Tenderers at any given stage must therefore not be interpreted to mean that Tenderers have necessarily passed any previous stage(s);
 - 4.9. Unless otherwise expressly stated, each tender lodged in response to the invitation to tender shall be deemed to be an offer by the Tenderer. The Employer has the right in its sole and unfettered discretion not to accept any offer.
 - 4.10. Not be held liable if tenderers do not provide the correct contact details during the clarification session and do not receive the latest information regarding this RFP with the possible consequence of being disadvantaged or disqualified as a result thereof.
 - 4.11. Transnet reserves the right to exclude any Tenderers from the tender process who has been convicted of a serious breach of law during the preceding 5 [five] years including but not limited to breaches of the Competition Act 89 of 1998, as amended. Tenderers are required to indicate in tender returnable on T2.2-23, [**Breach of Law**] whether or not they have been found guilty of a serious breach of law during the past 5 [five] years.
 - 4.12. Transnet reserves the right to perform a risk analysis on the preferred tenderer to ascertain if any of the following might present an unacceptable commercial risk to the employer:
 - *unduly high or unduly low tendered rates or amounts in the tender offer;*
 - *contract data of contract provided by the tenderer; or*
 - *the contents of the tender returnables which are to be included in the contract.*



5. Transnet will not reimburse any Tenderer for any preparatory costs or other work performed in connection with this Tender, whether or not the Tenderer is awarded a contract.

6. NATIONAL TREASURY'S CENTRAL SUPPLIER DATABASE

Tenderers are required to self-register on National Treasury's Central Supplier Database (CSD) which has been established to centrally administer supplier information for all organs of state and facilitate the verification of certain key supplier information. The CSD can be accessed at <https://secure.csd.gov.za/>. Tenderer are required to provide the following to Transnet in order to enable it to verify information on the CSD:

Supplier Number..... and Unique registration reference number.....(**Tender Data**)

**Transnet urges its clients, suppliers and the general public
to report any fraud or corruption to
TIP-OFFS ANONYMOUS: 0800 003 056 OR Transnet@tip-offs.com**



T1.2 TENDER DATA

The conditions of tender are the Standard Conditions of Tender as contained in Annexure C of the CIDB Standard for Uniformity in Engineering and Construction Works Contracts. The Standard for Uniformity in Construction Procurement was first published in Board Notice 62 of 2004 in Government Gazette No 26427 of 9 June 2004. It was subsequently amended in Board Notice 67 of 2005 in Government Gazette No 28127 of 14 October 2005, Board Notice 93 of 2006 in Government Gazette No 29138 of 18 August 2006, Board Notice No 9 of 2008 in Government Gazette No 31823 of 30 January 2009, Board Notice 86 of 2010 in Government Gazette No 33239 of 28 May 2010, Board Notice 136 of 2015 in Government Gazette 38960 of 10 July 2015 and Board Notice 423 of 2019 in Government Gazette No 42622 of 8 August 2019.

This edition incorporates the amendments made in Board Notice 423 of 2019 in Government Gazette 42622 of 8 August 2019. (see www.cidb.org.za).

The Standard Conditions of Tender make several references to Tender data for detail that apply specifically to this tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the Standard Conditions of Tender.

Each item of data given below is cross-referenced in the left-hand column to the clause in the Standard Conditions of Tender to which it mainly applies.

Clause	Data
C.1.1 The <i>Employer</i> is	Transnet SOC Ltd (Reg No. 1990/000900/30)
C.1.2 The tender documents issued by the <i>Employer</i> comprise:	
Part T: The Tender	
Part T1: Tendering procedures	T1.1 Tender notice and invitation to tender T1.2 Tender data
Part T2 : Returnable documents	T2.1 List of returnable documents T2.2 Returnable schedules
Part C: The contract	
Part C1: Agreements and contract data	C1.1 Form of offer and acceptance C1.2 Contract data (Part 1 & 2) C1.3 Form of Securities
Part C2: Pricing data	C2.1 Pricing instructions C2.2 Activity Schedule
Part C3: Scope of work	C3 Works Information



	Part C4: Site information	C4 Site Information
C.1.4	The Employer's agent is:	Strategic Sourcing Specialist
	Name:	Mbalenhle maBhengu Petersen
	Address:	202 Anton Lembede Street, Durban, 4000
	E – mail	Mbalenhle.bhengu@transnet.net
C.2.1	Only those tenderers who satisfy the following eligibility criteria are eligible to submit tenders:	
	1. Step One - Eligibility with regards to attendance at the compulsory clarification meeting: An authorised representative of the tendering entity or a representative of a tendering entity that intends to form a Joint Venture (JV) must attend the compulsory clarification meeting in terms C2.7	
	2. Step Two - Eligibility in terms of the Construction Industry Development Board:	
	a) Only those tenderers who are registered with the CIDB, or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations, designation of 8ME or higher class of construction work, are eligible to have their tenders evaluated.	
	b) Joint Venture (JV) Joint ventures are eligible to submit tenders subject to the following: <ol style="list-style-type: none"> every member of the joint venture is registered with the CIDB; the lead partner has a contractor grading designation of not lower than one level below the required class of construction works under consideration and possesses the required recognition status; and the combined Contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a Contractor grading designation determined in accordance with the sum tendered for a 8ME or higher class of construction work or a value determined in accordance with Regulation 25(1B) or 25(7A) of the Construction Industry Development Regulations The tenderer shall provide a certified copy of its signed joint venture agreement	



Any tenderer that fails to meet the stipulated eligibility criteria will be regarded as an unacceptable tender.

3. Step Three - Functionality:

Only those tenderers who obtain the minimum qualifying score for functionality will be evaluated further in terms of price and the applicable preference point system. The minimum qualifying score for functionality is **70** points.

The evaluation criteria for measuring functionality and the points for each criteria and, if any, each sub-criterion are as stated in C.3.11 below.

Any tenderer that fails to meet the stipulated pre-qualifying criteria will be regarded as an unacceptable tender.

C.2.7 The arrangements for a compulsory clarification meeting are as stated in the Tender Notice and Invitation to Tender. **Tenderers must complete and sign the attendance register.** Addenda will be issued to and tenders will only be received from those tendering entities including those entities that intends forming a joint venture appearing on the attendance register.

Tenderers are also **required to bring their RFP document to the briefing session and have their returnable document T2.2-02 certificate of attendance** signed off by the Employer's authorised representative.

C.2.12 No alternative tender offers will be considered.

C.2.13.3 Each tender offer shall be in the **English Language**.

C.2.13.5 The *Employer's* details and identification details that are to be shown on each tender offer are as follows:

Identification details:

The tender documents must be uploaded with:

- Name of Tenderer: **(insert company name)**
- Contact person and details: **(insert details)**
- The Tender Number:
- The Tender Description

Documents must be marked for the attention of:

Employer's Agent:

C.2.13.9 Telephonic, telegraphic, facsimile or e-mailed tender offers will not be accepted.

C.2.15 The closing time for submission of tender offers is:

Time: **15:00pm** on the **16th May 2025**



Location: The Transnet e-Tender Submission Portal:
(<https://transnetetenders.azurewebsites.net>);

NO LATE TENDERS WILL BE ACCEPTED

C.2.16 The tender offer validity period is **12 weeks** after the closing date. Tenderers are to note that they may be requested to extend the validity period of their tender, on the same terms and conditions, if Transnet's internal evaluation and governance approval processes has not been finalised within the validity period.

C.2.23 The tenderer is required to submit with his tender:

1. A valid Tax Clearance Certificate issued by the South African Revenue Services.
Tenderers also to provide Transnet with a TCS PIN to verify Tenderers compliance status.
2. A **valid B-BBEE Certificate** from a Verification Agency accredited by the South African Accreditation System [**SANAS**], or a **sworn affidavit** confirming annual turnover and level of black ownership in case of all EMEs and QSEs with 51% black ownership or more together with the tender;
3. A valid CIDB certificate in the correct designated grading;
4. Proof of registration on the Central Supplier Database;
5. Letter of Good Standing with the Workmen's compensation fund by the tendering entity or separate Letters of Good Standing from all members of a newly constituted JV.

Note: Refer to Section T2.1 for List of Returnable Documents

C3.11 The minimum number of evaluation points for functionality is: **70**

The procedure for the evaluation of responsive tenders is Functionality, Price and Preference:

Only those tenderers who attain the minimum number of evaluation points for Functionality will be eligible for further evaluation, failure to meet the minimum threshold will result in the tender being disqualified and removed from any further consideration.

Functionality Criteria

The functionality criteria and maximum score in respect of each of the criteria are as follows:

Functionality criteria	Sub-criteria	Sub-criteria points	Maximum number of points
T2.2-03 Management & CV's – Design Engineering Phase	Key Personnel Experience for Engineering Scope of Work	10	20
	Key Persons' Professional Qualification (Engineering Scope of Work)	10	
	Minimum of 15 required to progress further in the evaluation		
Functionality criteria	Sub-criteria	Sub-criteria points	Maximum number of points
T2.2-04 Management & CV's – Construction Phase	Key Persons' Experience (Installation Scope of Work)	10	20
	Key Persons's Qualification (Installation Scope of Work)	10	
T2.2-05 Previous experience			40
T2.2-06 Method Statement			10
T2.2-07 Programme			10
Maximum possible score for Functionality			100
Minimum score required to progress to next stage of evaluation			70

Functionality shall be scored independently by not less than 3 (three) evaluators and averaged in accordance with the following schedules:

- T2.2-03 Management & CV's – Design Engineering Phase
- T2.2-04 Management & CV's – Construction Phase
- T2.2-05 Previous experience
- T2.2-06 Method Statement
- T2.2-07 Programme



Each evaluation criteria will be assessed in terms of scores of 0, 20, 40, 60, 80 or 100.

The scores of each of the evaluators will be averaged, weighted and then totalled to obtain the final score for functionality, unless scored collectively. (See CIDB Inform Practice Note #9).

Note: Any tender not complying with the above-mentioned requirements, will be regarded as non-responsive and will therefore not be considered for further evaluation. This note must be read in conjunction with Clause C.2.1.

C.3.11. Only tenders that achieve the minimum qualifying score for functionality will be evaluated further in accordance with the 90/10 preference points systems as described in Preferential Procurement Regulations.

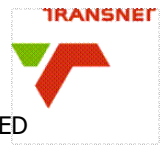
90 where the financial value of one or more responsive tenders received have a value equal to or above R50 million, inclusive of all applicable taxes.

Up to 100 minus W_1 tender evaluation points will be awarded to tenderers who complete the preferencing schedule and who are found to be eligible for the preference claimed. **Should the BBBEE rating not be provided, tenderers with no verification will score zero points for preferencing.**

Note: Transnet reserves the right to carry out an independent audit of the tenderers scorecard components at any stage from the date of close of the tenders until completion of the contract.

C.3.13 Tender offers will only be accepted if:

1. The tenderer or any of its directors/shareholders is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector;
2. The tenderer does not appear on Transnet's list for restricted tenderers and National Treasury's list of Tender Defaulters;
3. The tenderer has fully and properly completed the Compulsory Enterprise Questionnaire and there are no conflicts of interest which may impact on the tenderer's ability to perform the contract in the best interests of the Employer or potentially compromise the tender process and persons in the employ of the state.



4. Transnet reserves the right to award the tender to the tenderer who scores the highest number of points overall, unless there are **objective criteria** which will justify the award of the tender to another tenderer. Objective criteria include but are not limited to the outcome of a due diligence exercise to be conducted. The due diligence exercise may take the following factors into account inter alia;

the tenderer:

- a) is not under restrictions, or has principals who are under restrictions, preventing participating in the employer's procurement,
- b) can, as necessary and in relation to the proposed contract, demonstrate that he or she possesses the professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and reputation, expertise and the personnel, to perform the contract,
- c) has the legal capacity to enter into the contract,
- d) is not insolvent, in receivership, under Business Rescue as provided for in chapter 6 of the Companies Act, 2008, bankrupt or being wound up, has his affairs administered by a court or a judicial officer, has suspended his business activities, or is subject to legal proceedings in respect of any of the foregoing,
- e) complies with the legal requirements, if any, stated in the tender data and
- f) is able, in the option of the employer to perform the contract free of conflicts of interest.

C.3.17 The number of paper copies of the signed contract to be provided by the Employer is 1 (one).

T2.1 List of Returnable Documents

2.1.1 These schedules are required for pre-qualification and eligibility purposes:

- T2.2-01 **Step 1: Eligibility Criteria Schedule** - CIDB Registration
- T2.2-02 **Step 2: Eligibility Criteria Schedule** - Certificate of attendance at Compulsory Tender Clarification Meeting

2.1.2 Step 3: these schedules will be utilised for evaluation purposes:

- T2.2-03-A **Evaluation Schedule:** Management & CV's – Design Engineering Phase – Work experience
- T2.2-03-B **Evaluation Schedule:** Management & CV's – Design Engineering Phase – Qualifications
- T2.2-04-A **Evaluation Schedule:** Management & CV's – Construction Phase – Work experience
- T2.2-04-B **Evaluation Schedule:** Management & CV's – Construction Phase - Qualifications
- T2.2-05 **Evaluation Schedule:** Company's Previous experience
- T2.2-06 **Evaluation Schedule:** Method Statement
- T2.2-07 **Evaluation Schedule:** Programme
- T2.2-15 Annexure G Compulsory Enterprise Questionnaire and Valid proof of Respondent's compliance to Specific Goals evidence (Preference Claim Form) requirements stipulated in SBD 6.1
- T2.2-15B Local Production and Content Criteria Schedule

2.1.3 Returnable Schedules:

General:

- T2.2-08 Authority to submit tender
- T2.2-09 Record of addenda to tender documents
- T2.2-10 Letter of Good Standing
- T2.2-11 Risk Elements
- T2.2-12 Availability of equipment and other resources
- T2.2-13 Schedule of proposed Subcontractors
- T2.2-14 Site Establishment requirements
- T2.2-16 NIPP National Industrial Participation Programme
- T2.2-18 Agreement in terms of Protection of Personal Information Act, 4 of 2013 ("POPIA")
- T2.2-19 Domestic Prominent Influential Persons (DPIP) Or Foreign Prominent Public Officials (FPPO) declaration

Agreement and Commitment by Tenderer:

- T2.2-20 Non-Disclosure Agreement
- T2.2-21 RFP Declaration Form
- T2.2-22 RFP – Breach of Law
- T2.2-23 Certificate of Acquaintance with Tender Document
- T2.2-24 Service Provider Integrity Pact
- T2.2-25 Supplier Code of Conduct

1.3.2 Bonds/Guarantees/Financial/Insurance:

- T2.2-26 Insurance provided by the Contractor
- T2.2-27 Form of Intent to provide a Performance Guarantee
- T2.2-28 Three (3) years audited financial statements

1.3.3 Transnet Vendor Registration Form:

- T2.2-17 Transnet Vendor Registration Form

2.2 C1.1 Offer portion of Form of Offer & Acceptance

2.3 C1.2 Contract Data

2.4 C1.3 Forms of Securities

2.5 C2.1 Pricing Instructions (Activity Schedule)

2.6 C2.2 Activity Schedule

2.7 C3 Scope of Work

2.8 C4 Site Information

T2.2-01: Eligibility Criteria Schedule - CIDB Grading Designation

Note to tenderers:

Tenderers are to indicate their CIDB Grading by filling in the table below. **Attach a copy of the CIDB Grading Designation or evidence of being capable of being so registered.**

CRS Number	Status	Grading	Expiry Date

1. Only those tenderers who are registered with the CIDB, or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations, for a **8ME or higher** class of construction work, are eligible to have their tenders evaluated.

2. Joint Venture (JV)

Joint ventures are eligible to submit tenders subject to the following:

1. every member of the joint venture is registered with the CIDB;
2. the lead partner has a contractor grading designation of not lower than one level one level below the required grading designation in the class of construction works under consideration and possesses the required recognition status; and
3. the combined Contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a Contractor grading designation determined in accordance with the sum tendered for a **8ME or higher** class of construction work or a value determined in accordance with Regulation 25(1B) or 25(7A) of the Construction Industry Development Regulations
4. the Contractor shall provide the employer with a certified copy of its signed joint venture agreement;
5. and in the event that the joint venture is an 'Incorporated Joint Venture' the Memorandum of Incorporation to be provided within 4 (four) weeks of the Contract Date.

T2.2-02: Eligibility Criteria Schedule:

Certificate of Attendance at Tender Clarification Meeting

This is to certify that

(Company Name)

Represented
by:

(Name and
Surname)

Was represented at the compulsory tender clarification meeting

Held at:		
On (date)		Starting time:

Particulars of person(s) attending the meeting:

Name

Signature

Capacity

Attendance of the above company at the meeting was confirmed:

Name

Signature

**For and on Behalf of the
Employers Agent.**

Date

T2.2-03-A: Evaluation Schedule - Management & CV's of Key Personnel – Design Phase – Personnel experience

Tenderers shall ensure that all the information submitted for the Key Persons shall match the data submitted in the various Curriculum Vitae, Qualification and Professional Registration Certificates submitted.

Tenderers are to ensure that all copies of technical returnables are clear and legible.

Copies deemed not to be clearly legible will not be accepted as evidence and will not be considered.

List of Key Persons identified to the above disciplines for the **DESIGN PHASE**:

No.	Key Persons	Name and Surname	CV attached (Yes/No)
1	Project Manager		
2	Process or Control and Instrumentation Engineer		
3	Mechanical Engineer		
4	Electrical Engineer		
5	Structural or Civil Engineer		



Project Manager

Determine if the Project Manager has the necessary relevant experience working as a **"Project Manager"** in a petrochemical or process facility. Documentary proof to be provided.

Weighting: Project Manager			2
Number of years of relevant experience			
	Weighting		
Number of years of relevant experience as a Project Manager in a petrochemical or process facility.	0%	Less than 2 years' experience as a Project Manager on petrochemical or process facility.	0
	20%	2 years and more but less than 3 years of relevant experience as a Project Manager on petrochemical or process facility.	0.4
	40%	3 years and more but less than 4 years of relevant experience as a Project Manager on petrochemical or process facility.	0.8
	60%	4 to less than 5 years of relevant experience as a Project Manager on petrochemical or process facility.	1.2
	80%	5 to less than 6 years of relevant experience as a Project Manager on petrochemical or process facility.	1.6
	100%	6 or more years of relevant experience as a Project Manager on petrochemical or process facility.	2

Notes:

1. *Key Resource* to complete form for each individual project
2. If additional space is required, the bidder allowed to attach any additional information in similar format.

Name of the Company or Client Worked for which was being carried out for			
Description of the Project			
Year of Execution & Contract Duration			
Was this on a Process/Petrochemical Installation?	Yes	No	
References			
Contact Person(s) Name			
Working Telephone Number			
Working e-mail address			
Detailed Description of <i>Key Resource</i> Roles and Responsibilities:			



Name of the Company or Client Worked for which was being carried out for				
Description of the Project				
Year of Execution & Contract Duration				
Was this on a Process/Petrochemical Installation?	Yes		No	
References				
Contact Person(s) Name				
Working Telephone Number				
Working e-mail address				
Detailed Description of <i>Key Resource</i> Roles and Responsibilities:				

Name of the Company or Client Worked for which was being carried out for				
Description of the Project				
Year of Execution & Contract Duration				
Was this on a Process/Petrochemical Installation?	Yes		No	
References				
Contact Person(s) Name				
Working Telephone Number				
Working e-mail address				
Detailed Description of <i>Key Resource</i> Roles and Responsibilities:				

Process or Control and Instrumentation Engineer Experience

Determine if the engineer has relevant experience working as a "Process or Control and Instrumentation Engineer" in design and installation in a process or petrochemical facility. Documentary proof is required.

Score Weighting: Process or Control and Instrumentation Engineer			1
Number of years relevant experience			
	Weighting		
Number of years relevant experience as a Process or Control and Instrumentation Engineer in the design and installation projects in petrochemical or process facility.	0%	Less than 2 years of relevant experience as a Process or Control and Instrumentation in design and installation projects in petrochemical or process facility.	0
	20%	2 to less than 3 years of relevant experience as a Process or Control and Instrumentation Engineer in the design and installation projects in a petrochemical or installation facility.	0.2
	40%	3 to less than 4 years of relevant experience as a Process or Control and Instrumentation Engineer on the design and installation projects in a petrochemical or process facility.	0.4
	60%	4 to less than 5 years of relevant experience as a Process or Control and Instrumentation Engineer in design and installation projects in a petrochemical or process facility.	0.6
	80%	5 to less than 6 years of relevant experience as a Process or Control and Instrumentation Engineer in design and installation projects in a petrochemical or process facility.	0.8
	100%	6 or more years of relevant experience as a Process or Control and Instrumentation Engineer in design and installation projects in a petrochemical or process facility.	1

Notes:

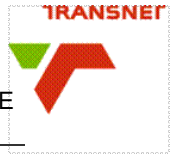
1. *Key Resource* to complete form for each individual project
2. If additional space is required, the bidder allowed to attach any additional information in similar format.

Name of the Company or Client Worked for which was being carried out for			
Description of the Project			
Year of Execution & Contract Duration			
Was this in electrical infrastructure in a Process or Petrochemical Installation?	Yes		No
References			
Contact Person(s) Name			
Working Telephone Number			
Working e-mail address			
Detailed Description of <i>Key Resource</i> Roles and Responsibilities:			



Name of the Company or Client Worked for which was being carried out for				
Description of the Project				
Year of Execution & Contract Duration				
Was this in electrical infrastructure in a Process or Petrochemical Installation?	Yes		No	
References				
Contact Person(s) Name				
Working Telephone Number				
Working e-mail address				
Detailed Description of <i>Key Resource</i> Roles and Responsibilities:				

Name of the Company or Client Worked for which was being carried out for				
Description of the Project				
Year of Execution & Contract Duration				
Was this in electrical infrastructure in a Process or Petrochemical Installation?	Yes		No	
References				
Contact Person(s) Name				
Working Telephone Number				
Working e-mail address				
Detailed Description of <i>Key Resource</i> Roles and Responsibilities:				



Mechanical Engineer

Determine if the engineer has relevant experience working as a "Mechanical Engineer" in VRU systems design and installation in a petrochemical facility or process facility. Documentary proof is required.

Score Weighting: Mechanical Engineer			3
Number of years relevant experience			
	Weighting		
Number of years relevant experience as a Mechanical Engineer in the design and installation projects of VRU systems in petrochemical or process facility.	0%	Less than 2 years of relevant experience as a Mechanical Engineer in design and installation projects of VRU Systems in a petrochemical or process facility.	0
	20%	2 to less than 3 years' of relevant experience as a Mechanical Engineer in the design and installation projects of VRU Systems in a petrochemical or process facility.	0.6
	40%	3 to less than 4 years of relevant experience as a Mechanical Engineer in the design and installation projects of VRU System in a petrochemical or process facility.	1.2
	60%	4 to less than 5 years of relevant experience as a Mechanical Engineer in the design and installation projects of VRU Systems in a petrochemical or process facility.	1.8
	80%	5 to less than 6 years of relevant experience as a Mechanical Engineer in the design and installation projects of VRU Systems in a petrochemical or process facility.	2.4
	100%	6 or more years' of relevant experience as a Mechanical Engineer in the design and installation projects of VRU Systems in a petrochemical facility.	3

Notes:

1. Key Resource to complete form for each individual project
2. If additional space is required, the bidder allowed to attach any additional information in similar format.

Name of the Company or Client Worked for which was being carried out for				
Description of the Project				
Year of Execution & Contract Duration				
Was this for VRU System in a Process or Petrochemical Installation?	Yes		No	
References				
Contact Person(s) Name				
Working Telephone Number				
Working e-mail address				
Detailed Description of <i>Key Resource</i> Roles and Responsibilities:				



Name of the Company or Client Worked for which was being carried out for				
Description of the Project				
Year of Execution & Contract Duration				
Was this for VRU System in a Process or Petrochemical Installation?	Yes		No	
References				
Contact Person(s) Name				
Working Telephone Number				
Working e-mail address				
Detailed Description of <i>Key Resource</i> Roles and Responsibilities:				

Name of the Company or Client Worked for which was being carried out for				
Description of the Project				
Year of Execution & Contract Duration				
Was this for VRU System in a Process or Petrochemical Installation?	Yes		No	
References				
Contact Person(s) Name				
Working Telephone Number				
Working e-mail address				
Detailed Description of <i>Key Resource</i> Roles and Responsibilities:				

Electrical Engineer

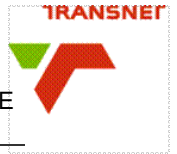
Determine if the engineer has relevant experience working as an "Electrical Engineer" in design and installation projects in a process or petrochemical facility. Documentary proof is required.

Score Weighting: Electrical Engineer			2
Number of years relevant experience			
	Weighting		
Number of years relevant experience as an Electrical Engineer in the design and installation projects in a petrochemical or process facility.	0%	Less than 2 years of relevant experience as an Electrical Engineer in design and installation projects of electrical infrastructure in a petrochemical or process facility.	0
	20%	2 to less than 3 years of relevant experience as an Electrical Engineer in design and installation projects of electrical infrastructure in a petrochemical or process facility.	0.4
	40%	3 to less than 4 years of relevant experience as an Electrical Engineer in design and installation projects of electrical infrastructure in a petrochemical or process facility.	0.8
	60%	4 to less than 5 years of relevant experience as an Electrical Engineer in design and installation projects of electrical infrastructure in a petrochemical or process facility.	1.2
	80%	5 to less than 6 years of relevant experience as an Electrical Engineer in design and installation projects of electrical infrastructure in a petrochemical or process facility.	1.6
	100%	6 or more years of relevant experience as an Electrical Engineer in design and installation projects of electrical infrastructure in a petrochemical or process facility.	2

Notes:

3. *Key Resource* to complete form for each individual project
4. If additional space is required, the bidder allowed to attach any additional information in similar format.

Name of the Company or Client Worked for which was being carried out for			
Description of the Project			
Year of Execution & Contract Duration			
Was this in electrical infrastructure in a Process or Petrochemical Installation?	Yes		No
References			
Contact Person(s) Name			
Working Telephone Number			
Working e-mail address			
Detailed Description of <i>Key Resource</i> Roles and Responsibilities:			



Name of the Company or Client Worked for which was being carried out for				
Description of the Project				
Year of Execution & Contract Duration				
Was this in electrical infrastructure in a Process or Petrochemical Installation?	Yes		No	
References				
Contact Person(s) Name				
Working Telephone Number				
Working e-mail address				
Detailed Description of <i>Key Resource</i> Roles and Responsibilities:				

Name of the Company or Client Worked for which was being carried out for				
Description of the Project				
Year of Execution & Contract Duration				
Was this in electrical infrastructure in a Process or Petrochemical Installation?	Yes		No	
References				
Contact Person(s) Name				
Working Telephone Number				
Working e-mail address				
Detailed Description of <i>Key Resource</i> Roles and Responsibilities:				



Structural or Civil Engineer

Determine if the engineer has relevant experience working as a "Civil or Structural Engineer" in the design and construction of buildings, civils and structures projects. Documentary proof is required.

Score Weighting: Structural or Civil Engineer			2
Number of years relevant experience			
	Weighting		
Number of years of relevant experience as a Civil or Structural Engineer in the design and construction of buildings, civils and structures.	0%	Less than 2 years of relevant experience as a Civil or Structural Engineer in the design and construction of buildings, civils and structures.	0
	20%	2 to less than 3 years of relevant experience as a Civil or Structural Engineer in the design and construction of buildings, civils and structures.	0.4
	40%	3 to less than 4 years of relevant experience as a Civil or Structural Engineer in the design and construction of buildings, civils and structures.	0.8
	60%	4 to less than 5 years of relevant experience as a Civil or Structural Engineer in the design and construction of buildings, civils and structures.	1.2
	80%	5 to less than 6 years of relevant experience as a Civil or Structural Engineer in the design and construction of buildings, civils and structures.	1.6
	100%	6 or more years of relevant experience as a Civil or Structural Engineer in the design and construction of buildings, civils and structures.	2

Notes:

1. *Key Resource* to complete form for each individual project
2. If additional space is required, the bidder allowed to attach any additional information in similar format.

Name of the Company or Client Worked for which was being carried out for				
Description of the Project				
Year of Execution & Contract Duration				
Was this in electrical infrastructure in a Process or Petrochemical Installation?	Yes		No	
References				
Contact Person(s) Name				
Working Telephone Number				
Working e-mail address				
Detailed Description of <i>Key Resource</i> Roles and Responsibilities:				



Name of the Company or Client Worked for which was being carried out for				
Description of the Project				
Year of Execution & Contract Duration				
Was this in electrical infrastructure in a Process or Petrochemical Installation?	Yes		No	
References				
Contact Person(s) Name				
Working Telephone Number				
Working e-mail address				
Detailed Description of Key Resource Roles and Responsibilities:				

Name of the Company or Client Worked for which was being carried out for				
Description of the Project				
Year of Execution & Contract Duration				
Was this in electrical infrastructure in a Process or Petrochemical Installation?	Yes		No	
References				
Contact Person(s) Name				
Working Telephone Number				
Working e-mail address				
Detailed Description of Key Resource Roles and Responsibilities:				

**T2.2-03-B KEY PERSONS' PROFESSIONAL QUALIFICATION (ENGINEERING SCOPE OF WORK)**

List of Key Persons assigned to the above disciplines for the **DESIGN PHASE**:

The persons to be evaluated for qualifications are to be the same people evaluated for experience above.

No.	Key Persons	Name and Surname	Qualification attached (Yes/No)
1	Project Manager		
2	Process or Control and Instrument Engineer		
3	Mechanical Engineer		
4	Electrical Engineer		
5	Civil or Structural Engineer		

Project Manager

Determine if the Manager has the necessary qualification working as a "Project Manager" in the design and installation project in a petrochemical or process facility.

Score Weighting: Project Manager			2
Type of qualification			
	Weighting		
Qualifications required to work as a Project Manager in the design and installation project in petrochemical or process facility.	0%	Does not possess the minimum requirement of Bachelor of Technology (B. Tech) in engineering or no proof of registration/qualification	0
	60%	Has a B. Tech in any of the engineering disciplines.	1.2
	80%	Has a B.Sc. in Engineering or Bachelor of Engineering (B. Eng) qualification in any of the engineering discipline	1.6
	100%	Professionally registered as a PrCPM - Professional Construction Project Manager (Issued by SACPCMP) or a PMP - Project Management Professional (Issued by PMI)	2

Notes:

1. The *Contractor* shall submit certified copies of certificates for required qualifications for respective disciplines.
2. Certification of documents by the Commissioner of Oaths must not be older than six months.
3. The Contractor that fails to meet the above stipulated registration requirements will be given a score of zero (0).

Qualifications Information Schedule	
1. Name	
2. ID Number	
3. Nationality	
4. Profession:	
5. Education/Qualifications	
6. Date Obtained	
7. Issuing Institution	
8. Date Obtained	

Process or Control and Instrumentation Engineer

Determine if the Engineer has the necessary qualification to work as a "Process or Control and Instrumentation Engineer" in design and installation project in the petrochemical or process facility.

Documentary proof is required.

Score Weighting: Process or Control and Instrumentation Engineer			1
Type of qualification			
Qualifications required to work as a Process or Control and Instrumentation Engineer in the design and installation project in a petrochemical or process facility	0%	Does not possess the minimum requirement of Instrumentation or Electrical qualification or no proof of qualification submitted.	0
	60%	Possesses a B. Tech in Instrumentation or Electrical Engineering	0.6
	80%	Possesses a B.Sc. degree or B. Eng in Instrumentation or Electrical engineering.	0.8
	100%	Possesses a BSc. Degree or B. Eng in Instrumentation or Electrical engineering and is a registered Professional Engineer with ECSA.	1

Notes:

1. The *Contractor* shall submit certified copies of certificates for required qualifications for respective disciplines.
2. Certification of documents by the Commissioner of Oaths must not be older that six months.
3. The Contractor that fails to meet the above stipulated registration requirements will be given a score of zero (0).

Qualifications Information Schedule	
1. Name	
2. ID Number	
3. Nationality	
4. Profession:	
5. Education/Qualifications	
6. Date Obtained	
7. Issuing Institution	
8. Date Obtained	



Mechanical Engineer

Determine if the Engineer has the necessary qualification working as a "Mechanical Engineer" in design and installation of a VRU System in the TPL petrochemical facility. Documentary proof is required.

Notes:

1. The Contractor shall submit certified copies of certificates for required qualifications for respective disciplines.
2. Certification of documents by the Commissioner of Oaths must not be older than six months.
3. The Contractor that fails to meet the above stipulated registration requirements will be given a score of zero (0).

Score Weighting: Mechanical Engineer			3
Type of qualification			
	Weighting		
Qualifications required to work as a Mechanical Engineer in the TPL VRU System design and installation project.	0%	Does not possess the minimum requirement of a B. Tech in Mechanical Engineering or no proof of registration or qualification.	0
	60%	Possesses a B. Tech in Mechanical Engineering	1.8
	80%	Possesses a B.Sc. Degree or B. Eng in Mechanical Engineering.	2.4
	100%	Possesses a BSc. Degree or B. Eng in Mechanical Engineering and is a registered Professional Engineer with ECSA.	3

Qualifications Information Schedule	
1. Name	
2. ID Number	
3. Nationality	
4. Profession:	
5. Education/Qualifications	
6. Date Obtained	
7. Issuing Institution	
8. Date Obtained	

Electrical Engineer

Determine if the Engineer has the necessary qualification to work as an "Electrical Engineer" in design and installation project in petrochemical or process facility. Documentary proof is required.

Score Weighting: Electrical Engineer			2
Type of qualification			
	Weighting		
Qualifications required to work as an Electrical Engineer in the design and installation project in a petrochemical or process facility.	0%	Does not possess the minimum requirement of a B. Tech in Electrical Engineering or no proof of registration or qualification.	0
	60%	Possesses a B. Tech in Electrical Engineering.	1.2
	80%	Possesses a B.Sc. Degree or B. Eng in Electrical Engineering.	1.6
	100%	Possesses a BSc. Degree or B. Eng in Electrical Engineering and is a registered Professional Engineer with ECSA.	2

Notes:

1. The *Contractor* shall submit certified copies of certificates for required qualifications for respective disciplines.
2. Certification of documents by the Commissioner of Oaths must not be older that six months.
3. The Contractor that fails to meet the above stipulated registration requirements will be given a score of zero (0).

Qualifications Information Schedule	
1. Name	
2. ID Number	
3. Nationality	
4. Profession:	
5. Education/Qualifications	
6. Date Obtained	
7. Issuing Institution	
8. Date Obtained	

Civil and Structural Engineer

Determine if the engineer has qualification to work as a "Civil and Structural Engineer" in design and construction in building structures and heavy steel structures projects. Documentary proof is required.

Score Weighting: Lead Civil and Structural Engineer			2
Type of qualification			
	Weighting		
Qualifications required to work as a Civil or Structural Engineer in installation project in a petrochemical or process facility.	0%	Does not possess the minimum requirement of a B. Tech in Civil or Structural Engineering or no proof of registration or qualification.	0
	60%	Possesses a B. Tech in Civil or Structural Engineering.	1.2
	80%	Possesses a B. Tech in Civil or Structural Engineering.	1.6
	100%	Possesses a BSc. Degree or B. Eng in Civil or Structural Engineering and is a registered Professional Engineer with ECSA. Possesses a B.Sc. Degree or B. Eng in Electrical Engineering.	2

Notes:

1. The *Contractor* shall submit certified copies of certificates for required qualifications for respective disciplines.
2. Certification of documents by the Commissioner of Oaths must not be older that six months.
3. The Contractor that fails to meet the above stipulated registration requirements will be given a score of zero (0).

Qualifications Information Schedule	
1. Name	
2. ID Number	
3. Nationality	
4. Profession:	
5. Education/Qualifications	
6. Date Obtained	
7. Issuing Institution	
8. Date Obtained	

T2.2-04-A: Evaluation Schedule - Management & CV's of Key Personnel – Construction Phase – Personnel Experience

The tender must be able to demonstrate that the project personnel have sufficient knowledge, experience and experience to provide the required services.

KEY PERSONS' EXPERIENCE (CONSTRUCTION SCOPE OF WORK)

Curriculum Vitae, proof of qualifications in the respective discipline or trade certificate and proof of registration with applicable professional bodies shall be provided for the following critical personnel:

List of Key Persons assigned to the above disciplines for the **CONSTRUCTION PHASE**:

No.	Key Persons	Name and Surname	CV attached (Yes/No)
1	Construction Manager		
2	Safety, Health and Environmental Officer		

Construction Manager

Determine if the Construction Manager has the necessary relevant experience working as a "Construction Manager" in a Construction project in a petrochemical or process facility. Documentary proof to be provided.

Score Weighting: Construction Manager			7
Number of years relevant experience			
	Weighting		
Number of years of relevant experience as a Construction Manager in an installation project in a petrochemical or process facility	0%	Less than 2 years experience as a Construction Manager in a petrochemical or process facility	0.0
	20%	2 years and more but less than 3 years experience as a Construction Manager in a petrochemical or process facility	1.4
	40%	3 years and more but less than 4 years experience as a Construction Manager in a petrochemical or process facility	2.8
	60%	4 to less than 5 years experience as a Construction Manager in a petrochemical or process facility	4.2
	80%	5 to less than 6 years experience as a Construction Manager in a petrochemical or process facility	5.6
	100%	6 or more years' experience as a Construction Manager in a petrochemical or process facility.	7

Notes:

1. *Key Resource* to complete form for each individual project
2. If additional space is required, the bidder allowed to attach any additional information in similar format.

Name of the Company or Client Worked for which was being carried out for			
Description of the Project			
Year of Execution & Contract Duration			
Was this on a Process/Petrochemical Construction?	Yes		No
References			
Contact Person(s) Name			
Working Telephone Number			
Working e-mail address			
Detailed Description of Key Resource Roles and Responsibilities:			

TRANSNET PIPELINES

TENDER NUMBER: TPL/2024/07/0005/70943/RFP

DESCRIPTION OF THE WORKS: DESIGN, SUPPLY, INSTALLATION (EPC CONTRACTOR) AND PROVIDE PLANNED MAINTENANCE FOR A LIMITED PERIOD FOR THE VAPOUR RECOVERY UNIT SYSTEM AT THE TPL TARLTON PETROLEUM PRODUCTS HANDLING AND BULK STORAGE FACILITY

Name of the Company or Client Worked for which was being carried out for				
Description of the Project				
Year of Execution & Contract Duration				
Was this on a Process/Petrochemical Construction?	Yes		No	
References				
Contact Person(s) Name				
Working Telephone Number				
Working e-mail address				
Detailed Description of <i>Key Resource</i> Roles and Responsibilities:				

Name of the Company or Client Worked for which was being carried out for				
Description of the Project				
Year of Execution & Contract Duration				
Was this on a Process/Petrochemical Construction?	Yes		No	
References				
Contact Person(s) Name				
Working Telephone Number				
Working e-mail address				
Detailed Description of <i>Key Resource</i> Roles and Responsibilities:				

Name of the Company or Client Worked for which was being carried out for				
Description of the Project				
Year of Execution & Contract Duration				
Was this on a Process/Petrochemical Construction?	Yes		No	
References				
Contact Person(s) Name				
Working Telephone Number				
Working e-mail address				
Detailed Description of <i>Key Resource</i> Roles and Responsibilities:				

Health & Safety Officer

Determine if the Officer has relevant experience working as a "Safety, Health and Environmental Officer" in a construction project in a process or petrochemical facility. Documentary proof is required. Documentary proof is required.

Score Weighting: Safety, Health and Environmental Officer			3
Number of years relevant experience			
	Weighting		
Number of years relevant experience required working as Health and Safety Supervisor in a construction project in a petrochemical or process facility.	0%	Less than 1 years' experience as a Safety, Health & Environmental Officer in a petrochemical or process construction.	0
	20%	1 to less than 2 years' experience as a Safety, Health & Environmental Officer in a petrochemical or process construction.	0.6
	40%	2 to less than 3 years' experience as a Safety, Health & Environmental Officer in a petrochemical or process construction.	1.2
	60%	3 to less than 4 years' experience as a Safety, Health & Environmental Officer in a petrochemical or process construction.	1.8
	80%	4 to less than 5 years' experience as a Safety, Health & Environmental Officer in a petrochemical or process construction.	2.4
	100%	5 or more years' experience as a Safety, Health & Environmental Officer in a petrochemical or process construction.	3

Notes:

1. Key Resource to complete form for each individual project
2. If additional space is required, the bidder allowed to attach any additional information in similar format.

Name of the Company or Client Worked for which was being carried out for			
Description of the Project			
Year of Execution & Contract Duration			
Was this on a Process/Petrochemical Construction?	Yes	No	
References			
Contact Person(s) Name			
Working Telephone Number			
Working e-mail address			
Detailed Description of Key Resource Roles and Responsibilities:			

TRANSNET PIPELINES

TENDER NUMBER: TPL/2024/07/0005/70943/RFP

DESCRIPTION OF THE WORKS: DESIGN, SUPPLY, INSTALLATION (EPC CONTRACTOR) AND PROVIDE PLANNED MAINTENANCE FOR A LIMITED PERIOD FOR THE VAPOUR RECOVERY UNIT SYSTEM AT THE TPL TARLTON PETROLEUM PRODUCTS HANDLING AND BULK STORAGE FACILITY

Name of the Company or Client Worked for which was being carried out for				
Description of the Project				
Year of Execution & Contract Duration				
Was this on a Process/Petrochemical Construction?	Yes		No	
References				
Contact Person(s) Name				
Working Telephone Number				
Working e-mail address				
Detailed Description of Key Resource Roles and Responsibilities:				

Name of the Company or Client Worked for which was being carried out for				
Description of the Project				
Year of Execution & Contract Duration				
Was this on a Process/Petrochemical Construction?	Yes		No	
References				
Contact Person(s) Name				
Working Telephone Number				
Working e-mail address				
Detailed Description of Key Resource Roles and Responsibilities:				

T2.2-04-B: Evaluation Schedule - Management & CV's of Key Personnel – Construction Phase – Personnel Qualifications

1. KEY PERSONS'S QUALIFICATION (CONSTRUCTION SCOPE OF WORK)

1.1. Curriculum Vitae, proof of qualifications and proof of registration with applicable professional bodies shall be provided for the following critical personnel:

- Construction Manager
- Safety, Health & Environmental Officer

1.2. To attain the indicated scores, all requirements set forth under the various scoring categories must be attained.

1.3. It is accepted that the services of the resources will be required upon commencement of the services. Should the proposed candidates not be available at the required time, the CVs as submitted will serve as benchmarks defining the minimum requirements for any replacement candidates put forward by the Respondent. Persons with lesser qualifications and levels of experience than shown in the CVs as submitted will not be accepted and may result in disqualification.

No.	Key Persons	Name and Surname	CV attached (Yes/No)
1	Construction Manager		
2	Safety, Health & Environmental Officer		

Construction Manager

Determine if the Construction Manager has the necessary qualification to work as a "Construction Manager" in the construction project in a petrochemical or process facility. Documentary proof is required.

Weighting: Construction Manager			7
	Weighting		
Determine if the Manager has the necessary qualification to work as a "Construction Manager" in construction project in a petrochemical or process facility.	0%	Does not have the minimum requirement of a relevant government recognized trade certificate or no proof of registration or qualification.	0
	40%	Has any trade discipline Artisan qualification with relevant trade test certificate.	2.8
	60%	Has a B Tech in any engineering discipline	4.2
	80%	Has a B.Sc. / B Eng in any engineering discipline	5.6
	100%	Professionally registered as a PrCM - Professional Construction Manager (Issued by SACPCMP)	7

Notes:

1. The Contractor shall submit certified copies of certificates for required qualifications for respective disciplines.
2. Certification of documents by the Commissioner of Oaths must not be older that six months.
3. The Contractor that fails to meet the above stipulated registration requirements will be given a score of zero (0).

Qualifications Information Schedule	
1. Name	
2. ID Number	
3. Nationality	
4. Profession:	
5. Education/Qualifications	
6. Date Obtained	
7. Issuing Institution	
8. Date Obtained	

Health & Safety Officer

Determine if the Officer has the necessary qualification to work as a "Safety, Health & Environmental Officer" in a construction project in a petrochemical or process facility. Documentary proof is required.

Weighting: Safety, Health & Environmental Officer			3
	Weighting		
Determine if the Officer has the necessary qualification to work as a "Health and Safety Officer" in an installation project in a petrochemical or process facility.	0%	Does not have the minimum requirement of a health and safety accredited certificate or no proof of registration or qualification.	0
	40%	Possesses a certificate in Health and Safety or Safety or Environmental from an accredited institution	1.2
	60%	Possess Bachelor of Technology qualification in Health & Safety or Safety or Environmental from an accredited institution	1.8
	80%	Possess a Bachelor's Degree in Health & Safety or Safety or Environmental from an accredited institution.	2.4
	100%	Possess Bachelor's Degree in Health & Safety or Safety or Environmental from an accredited institution and Construction Health and Safety – CHS certification (Issued by SACPCMP).	3

Notes:

1. The Contractor shall submit certified copies of certificates for required qualifications for respective disciplines.
2. Certification of documents by the Commissioner of Oaths must not be older than six months.
3. The Contractor that fails to meet the above stipulated registration requirements will be given a score of zero (0).

Qualifications Information Schedule	
1. Name	
2. ID Number	
3. Nationality	
4. Profession	
5. Education/Qualifications	
6. Date obtained	
7. Issuing Institution	
8. Date Obtained	

T2.2-05: Evaluation Schedule: Previous Experience

Number of Completed Projects

Required to determine if respondents can demonstrate having experience in the Design, Construction and Installation of VRU Systems in a petrochemical and process facilities. Respondents shall supply a sufficiently detailed list of projects successfully completed in accordance with the requirements below. Documentary proof is required.

Score Weighting			40
Number of Installed VRUs			
	Weighting		
Required to determine if respondents can demonstrate having experience in the Design, Construction and Installation of VRU Systems in a petrochemical and process facilities.	0%	The respondent did not meet the minimum requirement of having installed 2 VRU Systems in a process or petrochemical facility.	0
	20%	The respondent has installed 3 VRU Systems in a process or petrochemical facility.	8
	40%	The respondent has installed 4 VRU Systems in a process or petrochemical facility.	16
	60%	The respondent has installed 5 VRU Systems in a process or petrochemical facility.	24
	80%	The respondent has installed 6 VRU Systems in a process or petrochemical facility.	32
	100%	The respondent has installed 7 or more VRU Systems in a process or petrochemical facility.	40



No	Project Name	Project Category (Related Projects Only)	Scope	Client	Client Contact Details	Client Contract Number	Project Start & Completion Dates
EG	VRU Project at Tarlton	Installation of the VRU System at Tarlton	Involved with the engineering, procurement and construction of the VRU System multi-disciplinary project. The design and construction process involved the following (detailed writeup)	Transnet Pipelines	Mr. Donovan Trump +27 360 000	Pyp1459/112/01	01/03/2021 to 31/03/2022
1							
2							
3							
4							
5							

T2.2-06: Evaluation Schedule: Method Statement

The tenderer shall indicate in logical sequence the method of approach in executing key and safety critical work packages (including but not limited) the following to satisfy project objectives.

1. Method of execution of the design phase up to the acceptance of the designs by the Employer
2. Method of ensuring compliance to the requirements of the Construction Regulations 2014
3. Method of implementing quality assurance during execution
4. Method of execution of the scope of work for all trade disciplines
5. Method of procuring key equipment and materials including the procurement of the vendor packaged VRU skid.
6. Procedure for inspection, testing, commissioning and handover.

Score Weighting			10
Execution Method Statement			
The bidder must indicate in a coordinated and logical manner indicate the requirements and timing of the elements listed above in ensuring that the scope of work is executed in an efficient and integrated manner in ensuring that the objectives of the project are achieved in a safe, cost and time effective manner.	0%	The method statement included less than the minimum 2 elements required	0
	20%	The Respondent has in logical sequenced manner covered 2 elements.	2
	40%	The method statement has in logical sequenced manner included 3 elements.	4
	60%	The method statement has in logical sequenced manner included 4 elements	6
	80%	The method statement included has in logical sequenced manner included 5 elements	8
	100%	The method statement included has in logical sequenced manner included all the listed elements (1,2,3,4,5,6) thereby demonstrating a very good understanding and the interpretation of the scope of work.	10

T2.2-07: Evaluation Schedule: Programme

The Respondent shall provide a key tasks and durations for all trade disciplines work packages and must aligned with the scope of work and method statement objectives. Tasks must have a sequential and parallel logic taking into consideration work fronts, work packages and trade disciplines. In preparing the following element (but not limited to) are to be considered and shown. The programme is to distinctively show all design phase activities and construction phase activities taking the following into consideration:

1. Design phase and construction phase milestones must have a finish to start dependency.
2. All engineering disciplines activities and trades are to be shown and should align with the scope of work objectives and method statement.
3. The critical path is to be clearly identified and should allow a 10%-time risk allowance and a provision for a terminal float is to be made and indicated.
4. Tasks are to be logically sequenced and properly coordinated in accordance with the trade disciplines and the scope of work requirements.
5. Tasks or group of tasks that are logically sequenced (have start to finish dependency) and are grouped according to work fronts, work packages and trade disciplines are not scheduled unnecessary in the baseline critical path if they can be executed in parallel to the tasks in the critical path.
6. Logically sequence shall mean in the way of an illustration that the installation of the building roof cannot commence until the building foundations, thereafter the walls have been constructed)
7. Programme to make schedule provisions for a minimum period of 3 months for the employer to cleaning and making safe the product tank to be converted for VRU process tanks from date of notification by the Contractor.
8. The return date for the tank for Transnet Pipelines operation requirements is to be treated as a key date.
Note: Logically sequence shall mean in the way of an illustration that the installation of the building roof cannot commence until the building foundations, thereafter the walls have been constructed)
9. The following information is required as a minimum on a programme submitted for evaluation:
 - 9.1. Level 4 detail Programme, correctly structured as per Works Information.
 - 9.2. Adequately showing the full Scope of Work including appropriate sequence of works and programme logic.
 - 9.3. Realistic durations backed with anticipated production rates and Equipment required.
Earliest date achievable for the Completion of the whole of the works and any Sectional Completion dates, if required and all milestones to be clearly shown.

- 9.5. Includes duration of all preliminary works required prior to mobilizing on Site including documentation preparation (starting from contract award date) and all approval periods by the client.
- 9.6. Includes anticipated Site mobilization date.
- 9.7. Includes Contractor's Subcontractors duration on Site.
- 9.8. Includes all resources required to execute the project.
- 9.9. An indication must be given of where the project float is.
- 9.10. No negative or positive lags must be used in the development of the schedule.
10. A narrative supporting document is a requirement clearly outlining the process followed in developing the schedule in a form of a basis of schedule.
11. Schedule should be developed on preferably Primavera P6 but MS Project can also be accepted should Primavera not be an available software for the tenderer.

Score Weighting: Programme			10
	Weighting		
List of requirements to be included in the schedule.	0%	The schedules address less than the minimum requirement of 4 listed requirements including item number 11.	0
	20%	The schedule included at least 4 listed requirements including item number 11.	2
	40%	The schedule included at least 5 listed requirements including item number 11.	4
	60%	The schedule included at least 6 listed requirements including item number 11.	6
	80%	The schedule included at least 7 to 10 listed requirements including 11	8
	100%	The schedule included all 11 listed requirements.	10



T2.2-08: Authority to submit a Tender

Indicate the status of the tenderer by ticking the appropriate box hereunder. The tenderer must complete the certificate set out below for his category of organisation or alternatively attach a certified copy of a company / organisation document which provides the same information for the relevant category as requested here.

A - COMPANY	B - PARTNERSHIP	C - JOINT VENTURE	D - SOLE PROPRIETOR

A. Certificate for Company

I, _____ chairperson of the board of directors _____
 _____, hereby confirm that by resolution of the
 board taken on _____ (date), Mr/Ms _____,
 acting in the capacity of _____, was authorised to sign all
 documents in connection with this tender offer and any contract resulting from it on behalf of
 the company.

Signed

Date

Name

Position

Chairman of the Board of Directors



B. Certificate for Partnership

We, the undersigned, being the **key partners** in the business trading as _____

_____ hereby authorise Mr/Ms _____

acting in the capacity of _____, to sign all documents in connection with the tender offer for Contract _____ and any contract resulting from it on our behalf.

Name	Address	Signature	Date

NOTE: This certificate is to be completed and signed by the full number of Partners necessary to commit the Partnership. Attach additional pages if more space is required.



C. Certificate for Joint Venture

We, the undersigned, are submitting this tender offer in Joint Venture and hereby authorise

Mr/Ms _____, an authorised signatory of the company

_____, acting in the capacity of lead

partner, to sign all documents in connection with the tender offer for Contract _____

_____ and any contract resulting from it on our behalf.

This authorisation is evidenced by the attached power of attorney signed by legally authorised signatories of all the partners to the Joint Venture.

Furthermore we attach to this Schedule a copy of the joint venture agreement which incorporates a statement that all partners are liable jointly and severally for the execution of the contract and that the lead partner is authorised to incur liabilities, receive instructions and payments and be responsible for the entire execution of the contract for and on behalf of any and all the partners.

Name of firm	Address	Authorising signature, name (in caps) and capacity



D. Certificate for Sole Proprietor

I, _____, hereby confirm that I am the sole owner of the
business trading as _____.

Signed

Date

Name

Position

Sole Proprietor



T2.2-09: Record of Addenda to Tender Documents

This schedule as submitted confirms that the following communications received from the *Employer* before the submission of this tender offer, amending the tender documents, have been taken into account in this specific tender offer:

	Date	Title or Details
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

T2.2-10 Letter/s of Good Standing with the Workmen's Compensation Fund

Attached to this schedule is the Letter/s of Good Standing.

- 1.
- 2.
- 3.
- 4.

Name of Company/Members of Joint Venture:

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There is a vertical margin line on the left side, creating a narrow left margin. The paper appears to be from a notebook or a standard ruled sheet of paper.

Part T2: Returnable Schedules
T2.2-11: Risk Elements

T2.2-13: Schedule of Proposed Subcontractors

The tenderer is required to provide details of all the sub-contractors that will be utilised in the execution of the *works*.

Note to tenderers:

Tenderer to note that after award, any deviations from this list of proposed sub-contractors will be subject to acceptance by the *Project Manager* in terms of the Conditions of Contract.

Provide information of the Sub-contractors below:

Name of Proposed Subcontractor			Address		Nature of work		Amount of Worked	Percentage of work	
% Black Owned	EME	QSE	Youth	Women	Disabilities		Rural/ Underdeveloped areas/ Townships		Military Veterans
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

Name of Proposed Subcontractor			Address		Nature of work		Amount of Worked	Percentage of work	
% Black Owned	EME	QSE	Youth	Women	Disabilities		Rural/ Underdeveloped areas/ Townships		Military Veterans
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

Name of Proposed Subcontractor			Address		Nature of work		Amount of Worked	Percentage of work	
% Black Owned	EME	QSE	Youth	Women	Disabilities	Rural/ Underdeveloped areas/ Townships		Military Veterans	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	

Name of Proposed Subcontractor			Address		Nature of work		Amount of Worked	Percentage of work	
% Black Owned	EME	QSE	Youth	Women	Disabilities		Rural/ Underdeveloped areas/ Townships		Military Veterans
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

T2.2-15: ANNEX G Compulsory Enterprise Questionnaire

The following particulars hereunder must be furnished.

In the case of a Joint Venture, separate enterprise questionnaires in respect of each partner/member must be completed and submitted.

Section 1: Name of enterprise: _____

Section 2: VAT registration number, if any: _____

Section 3: CIDB registration number, if any: _____

Section 4: CSD number: _____

Section 5: Particulars of sole proprietors and partners in partnerships

Name	Identity number	Personal income tax number

* Complete only if sole proprietor or partnership and attach separate page if more than 3 partners

Section 6: Particulars of companies and close corporations

Company registration number _____

Close corporation number _____

Tax reference number: _____

Section 7: The attached SBD4 must be completed for each tender and be attached as a tender requirement.

Section 8: The attached SBD 6 must be completed for each tender and be attached as a requirement.

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise:

- i) authorizes the Employer to obtain a tax clearance certificate from the South African Revenue Services that my / our tax matters are in order;
- ii) confirms that the neither the name of the enterprise or the name of any partner, manager, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears on the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004;
- iii) confirms that no partner, member, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears, has within the last five years been convicted of fraud or corruption;
- iv) confirms that I / we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other relationship with any of the tenderers or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest; and
- v) confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

Signed	_____	Date	_____
Name	_____	Position	_____
Enterprise name	_____		

SBD 6.1

PREFERENCE POINTS CLAIM FORM

This preference form must form part of all bids invited. It contains general information and serves as a claim for preference points for Broad-Based Black Economic Empowerment [B-BBEE] Status Level of Contribution.

Transnet will award preference points to companies who provide valid proof of their B-BBEE status using either the latest version of the generic Codes of Good Practice or Sector Specific Codes (if applicable).

1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to all bids:

- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and
- the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).

1.2 The value of this bid is estimated to exceed R50 000 000 (all applicable taxes included) and therefore the 90/10 preference point system shall be applicable. Despite the stipulated preference point system, Transnet shall use the lowest acceptable bid to determine the applicable preference point system in a situation where all received acceptable bids are received outside the stated preference point system.

1.3 Preference points for this bid shall be awarded for:

- (a) Price; and
- (b) TPPP Specific Goals.

1.4 The maximum points for this bid are allocated as follows:

	POINTS
PRICE	90
TPPP Specific Goals	10
Total points for Price and Specific Goals must not exceed	100

1.5 Failure on the part of a bidder to submit proof of TPPP Specific Goals together with the bid will be interpreted to mean that preference points for TPPP Specific Goals are not claimed.

1.6 The purchaser reserves the right to require of a bidder, either before a bid is adjudicated

or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the purchaser.

2. DEFINITIONS

- (a) **"all applicable taxes"** includes value-added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies;
- (b) **"B-BBEE"** means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;
- (c) **"B-BBEE status level of contributor"** means the B-BBEE status received by a measured entity based on its overall performance using the relevant scorecard contained in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;
- (d) **"bid"** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the supply/provision of services, works or goods, through price quotations, advertised competitive bidding processes or proposals;
- (e) **"Broad-Based Black Economic Empowerment Act"** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);
- (f) **"EME"** means an Exempted Micro Enterprise as defines by Codes of Good Practice under section 9 (1) of the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);
- (g) **"functionality"** means the ability of a bidder to provide goods or services in accordance with specification as set out in the bid documents
- (h) **"Price"** includes all applicable taxes less all unconditional discounts.
- (i) **"Proof of B-BBEE Status Level of Contributor"**
 - i) the B-BBEE status level certificate issued by an authorised body or person;
 - ii) a sworn affidavit as prescribed by the B-BBEE Codes of Good Practice; or
 - iii) any other requirement prescribed in terms of the B-BBEE Act.
- (j) **"QSE"** means a Qualifying Small EEnterprise as defines by Codes of Good Practice under section 9 (1) of the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);
- (k) **"rand value"** means the total estimated value of a contract in South African currency, calculated at the time of bid invitations, and includes all applicable taxes and excise duties.

3. POINTS AWARDED FOR PRICE

3.1 THE 90/10 PREFERENCE POINT SYSTEMS

A maximum of 90 points is allocated for price on the following basis:
90/10

$$P_s = 90 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$$

Where

P_s = Points scored for comparative price of bid under consideration

P_t = Comparative price of bid under consideration

P_{\min} = Comparative price of lowest acceptable bid

4. POINTS AWARDED FOR TPPP SPECIFIC GOALS

- 4.1 preference points must be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

	Number of points (90/10 system)
B-BBEE Status Level of Contributor 1 or 2	5
Local Content	5
Non-compliant contributor / Level 3 to 8	0

- 4.2 The table below indicates the required proof of B-BBEE status depending on the category of enterprises:

Enterprise	B-BBEE Certificate & Sworn Affidavit
Large	Certificate issued by SANAS accredited verification agency
QSE	Certificate issued by SANAS accredited verification agency Sworn Affidavit signed by the authorised QSE representative and attested by a Commissioner of Oaths confirming annual turnover and black ownership (only black-owned QSEs - 51% to 100% Black owned) [Sworn affidavits must substantially comply with the format that can be obtained on the DTI's website at www.dti.gov.za/economic_empowerment/bee_codes.jsp .]
EME¹	Sworn Affidavit signed by the authorised EME representative and attested by a Commissioner of Oaths confirming annual turnover and black ownership Certificate issued by CIPC (formerly CIPRO) confirming annual turnover and black ownership Certificate issued by SANAS accredited verification agency only if the EME is being measured on the QSE scorecard

- 4.3 A trust, consortium or joint venture (including unincorporated consortia and joint ventures) must submit a consolidated B-BBEE Status Level verification certificate for every separate bid.

4.4 Tertiary Institutions and Public Entities will be required to submit their B-BBEE status level certificates in terms of the specialized scorecard contained in the B-BBEE Codes of Good Practice.

4.5 Bidders are to note that the rules pertaining to B-BBEE verification and other B-BBEE requirements may be changed from time to time by regulatory bodies such as National Treasury or the DTI. It is the Bidder's responsibility to ensure that his/her bid complies fully with all B-BBEE requirements at the time of the submission of the bid.

5. BID DECLARATION

5.1 Bidders who claim points in respect of B-BBEE Status Level of Contribution must complete the following:

6. TPPP SPECIFIC GOALS CLAIMED IN TERMS OF PARAGRAPHS 1.4 AND 6.1

6.1 B-BBEE Status Level of Contribution: = (maximum of 5 points)
Local Content: = (Maximum of 5 points)

(Points claimed in respect of paragraph 6.1 must be in accordance with the table reflected in paragraph 4.1 and must be substantiated by relevant proof of B-BBEE status level of contributor.

7. SUB-CONTRACTING

7.1 Will any portion of the contract be sub-contracted?

(*Tick applicable box*)

YES		NO	
-----	--	----	--

7.1.1 If yes, indicate:

- i) What percentage of the contract will be subcontracted.....%
- ii) The name of the sub-contractor.....
- iii) The B-BBEE status level of the sub-contractor.....
- iv) Whether the sub-contractor is an EME or QSE.

(*Tick applicable box*)

YES		NO	
-----	--	----	--



8. DECLARATION WITH REGARD TO COMPANY/FIRM

8.1 Name of company/firm:.....

8.2 VAT registration number:.....

8.3 Company registration number:.....

8.4 TYPE OF COMPANY/ FIRM

- ☐ Partnership/Joint Venture / Consortium
- ☐ One person business/sole propriety
- ☐ Close corporation
- ☐ Company
- ☐ (Pty) Limited

[TICK APPLICABLE BOX]

8.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

.....

8.6 COMPANY CLASSIFICATION

- ☐ Manufacturer
- ☐ Supplier
- ☐ Professional Supplier/Service provider
- ☐ Other Suppliers/Service providers, e.g. transporter, etc.

[TICK APPLICABLE BOX]

8.7 Total number of years the company/firm has been in business:.....

8.8 I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BBE status level of contribution indicated in paragraphs 1.4 and 6.1 of the foregoing certificate, qualifies the company/ firm for the preference(s) shown and I / we acknowledge that:

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraph 1.4 and 6.1, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;
- iv) If a bidder submitted false information regarding its B-BBEE status level of contributor, which will affect or has affected the evaluation of a bid, or where a bidder has failed to declare any subcontracting arrangements or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have
 - (a) disqualify the person from the bidding process;

- (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
- (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
- (d) if the successful bidder subcontracted a portion of the bid to another person without disclosing it, Transnet reserves the right to penalise the bidder up to 10 percent of the value of the contract;
- (e) recommend that the bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted by the National Treasury from obtaining business from any organ of state for a period not exceeding 10 years, after the audi alteram partem (hear the other side) rule has been applied; and
- (f) forward the matter for criminal prosecution.

WITNESSES

- 1.
- 2.

.....

SIGNATURE(S) OF BIDDERS(S)

DATE:

SBD 4: BIDDER'S DISCLOSURE

1. PURPOSE OF THE FORM

Any person (natural or juristic) may make an offer or offers in terms of this invitation to bid. In line with the principles of transparency, accountability, impartiality, and ethics as enshrined in the Constitution of the Republic of South Africa and further expressed in various pieces of legislation, it is required for the bidder to make this declaration in respect of the details required hereunder.

Where a person/s are listed in the Register for Tender Defaulters and / or the List of Restricted Suppliers, that person will automatically be disqualified from the bid process.

2. Bidder's declaration

2.1 Is the bidder, or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest² in the enterprise, employed by the state? **YES/NO**

2.1.1 If so, furnish particulars of the names, individual identity numbers, and, if applicable, state employee numbers of sole proprietor/ directors / trustees / shareholders / members/ partners or any person having a controlling interest in the enterprise, in table below.

Full Name	Identity Number	Name of institution	State

2.2 Do you, or any person connected with the bidder, have a relationship with any person who is employed by the procuring institution? **YES/NO**

2.2.1 If so, furnish particulars:

.....
.....

2.3 Does the bidder or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest in the enterprise have any interest in any other related enterprise whether or not they are bidding for this contract?

YES/NO

2.3.1 If so, furnish particulars:

.....
.....

3 DECLARATION

I, the undersigned, (name)..... in submitting the accompanying bid, do hereby make the following statements that I certify to be true and complete in every respect:

² the power, by one person or a group of persons holding the majority of the equity of an enterprise, alternatively, the person/s having the deciding vote or power to influence or to direct the course and decisions of the enterprise.



- 3.1 I have read and I understand the contents of this disclosure;
- 3.2 I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;
- 3.3 The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium³ will not be construed as collusive bidding.
- 3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.
- 3.4 The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.
- 3.5 There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.
- 3.6 I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

I CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 1, 2 and 3 ABOVE IS CORRECT.

I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF PARAGRAPH 6 OF PFMA SCM INSTRUCTION 03 OF 2021/22 ON PREVENTING AND COMBATING ABUSE IN THE SUPPLY CHAIN MANAGEMENT SYSTEM SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....
Signature

.....
Date

.....
Position

.....
Name of bidder

³ Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

T2.2-15B DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS

This Standard Bidding Document (SBD) must form part of all bids invited. It contains general information and serves as a declaration form for local content (local production and local content are used interchangeably).

Before completing this declaration, bidders must study the South African Bureau of Standards (SABS) approved technical specification number SATS 1286:2011 (Edition 1) and the Guidance on the Calculation of Local Content together with the Local Content Declaration Templates [Annex C (Local Content Declaration: Summary Schedule), D (Imported Content Declaration: Supporting Schedule to Annex C) and E (Local Content Declaration: Supporting Schedule to Annex C)].

1. General Conditions

- 1.1. A person awarded a contract in relation to a designated sector, may not sub-contract in such a manner that the local production and content of the overall value of the contract is reduced to below the stipulated minimum threshold.
- 1.2. The local content (LC) expressed as a percentage of the bid price must be calculated in accordance with the SABS approved technical specification number SATS 1286: 2011 as follows:

$$LC = [1 - x / y] * 100$$

Where:

x is the imported content in Rands.

y is the bid price in Rand excluding value added tax (VAT).

Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by South African Reserve Bank (SARB) at 12:00 on the date of advertisement of the bid as indicated in paragraph 4.1 below.

The SABS approved technical specification number SATS 1286:2011 is accessible on http://www.thedti.gov.za/industrial_development/ip.jsp at no cost.

- 1.6 A tenderer will only score points for local content if they have –
 - (a) Committed to meeting the stipulated local content threshold/s as stipulated in paragraph 3 below; and
 - (b) Fully populated annexure C for each of the items listed in paragraph 3 below.

2. Definitions

- 2.1. **"Bid"** includes written price quotations, advertised competitive bids or proposals.

2.2. **"Bid price"** price offered by the bidder, excluding value added tax (VAT);

2.3. **"Contract"** means the agreement that results from the acceptance of a bid by an organ of state;

2.4. **"Designated sector"** means a sector, sub-sector or industry that has been designated by the Department of Trade and Industry in line with national development and industrial policies for local production, where only locally produced services, works or goods or locally manufactured goods meet the stipulated minimum threshold for local production and content;

2.5. **"Duly sign"** means a Declaration Certificate for Local Content that has been signed by the Chief Financial Officer or other legally responsible person nominated in writing by the Chief Executive, or senior member / person with management responsibility (close corporation, partnership or individual).

2.6. **"Imported content"** means that portion of the bid price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or its subcontractors) and which costs are inclusive of the costs abroad (this includes labour or intellectual property costs), plus freight and other direct importation costs, such as landing costs, dock duties, import duty, sales duty or other similar tax or duty at the South African port of entry;

2.7. **"Local content"** means that portion of the bid price, which is not included in the imported content, provided that local manufacture does take place;

2.8. **"Stipulated minimum threshold"** means that portion of local production and content as determined by the Department of Trade and Industry; and

2.9. **"Sub-contract"** means the primary contractor's assigning, leasing, making out work to, or employing another person to support such primary contractor in the execution of part of a project in terms of the contract.

3. **The stipulated minimum threshold(s) for local production and content (refer to Annex A of SATS 1286:2011) for this bid is/are as follows:**

<u>Description of services, works or goods</u>	<u>Stipulated minimum threshold.</u>
• Cement	100%
• Steel products and Construction Components	100%
• Valve Products and Actuators	70%
• Electric Cables and products	90%

4. Does any portion of the services, works or goods offered have any imported content?

(*Tick applicable box*)

YES

NO

- 4.1 If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.5 of the general conditions must be the rate(s) published by SARB for the specific currency at 12:00 on the date of advertisement of the bid.

The relevant rates of exchange information is accessible on www.reservebank.co.za.

Indicate the rate(s) of exchange against the appropriate currency in the table below (refer to Annex A of SATS 1286:2011):

Currency	Rates of exchange
US Dollar	
Pound Sterling	
Euro	
Yen	
Other	

NB: Bidders must submit proof of the SARB rate (s) of exchange used.

**LOCAL CONTENT DECLARATION
(REFER TO ANNEX B OF SATS 1286:2011)**

LOCAL CONTENT DECLARATION BY CHIEF FINANCIAL OFFICER OR OTHER LEGALLY RESPONSIBLE PERSON NOMINATED IN WRITING BY THE CHIEF EXECUTIVE OR SENIOR MEMBER/PERSON WITH MANAGEMENT RESPONSIBILITY (CLOSE CORPORATION, PARTNERSHIP OR INDIVIDUAL)

IN RESPECT OF BID NO.

ISSUED BY: (Procurement Authority / Name of Institution):

NB

1 The obligation to complete, duly sign and submit this declaration cannot be transferred to an external authorized representative, auditor or any other third party acting on behalf of the bidder.

2 Guidance on the Calculation of Local Content together with Local Content Declaration Templates (Annex C, D and E) is accessible on <http://www.thdti.gov.za/industrial-development/ip.jsp>. Bidders should first complete Declaration D. After completing Declaration D, bidders should complete Declaration E and then consolidate the information on Declaration C. **Declaration C should be submitted with the bid documentation at the closing date and time of the bid in order to substantiate the declaration made in paragraph (c) below.** Declarations D and E should be kept by the bidders for verification purposes for a period of at least 5 years. The successful bidder is required to continuously update Declarations C, D and E with the actual values for the duration of the contract.

I, the undersigned, (full names),
do hereby declare, in my capacity as
of(name of
bidder entity), the following:

(a) The facts contained herein are within my own personal knowledge.

(b) I have satisfied myself that:

- (i) the goods/services/works to be delivered in terms of the above-specified bid comply with the minimum local content requirements as specified in the bid, and as measured in terms of SATS 1286:2011; and
- (ii) the declaration templates have been audited and certified to be correct.

(c) The local content percentage (%) indicated below has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E which has been consolidated in Declaration C:

Price of the Designated commodity (Ex VAT) Cement Steel products and Construction Components Valve Products and Actuators Electric Cables and products	R
Imported content (x), as calculated in terms of SATS 1286:2011	R
Stipulated minimum threshold for local content (paragraph 3 above)	
Local content %, as calculated in terms of SATS 1286:2011	

If the bid is for more than one product, the local content percentages for each product contained in Declaration C shall be used instead of the table above. The local content percentages for each product has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E.

(d) I accept that the Procurement Authority / Institution has the right to request that the local content be verified in terms of the requirements of SATS 1286:2011.

(e) I understand that the awarding of the bid is dependent on the accuracy of the information furnished in this application. I also understand that the submission of incorrect data, or data that are not verifiable as described in SATS 1286:2011, may result in the Procurement Authority / Institution imposing any or all of the remedies as provided for in Regulation 13 of

Transnet Pipelines

Tender Number: TPL/2024/07/0005/70943/RFP

Description of the Works: DESIGN, SUPPLY, INSTALLATION (EPC CONTRACTOR) AND PROVIDE PLANNED MAINTENANCE FOR A LIMITED PERIOD FOR THE VAPOUR RECOVERY UNIT SYSTEM AT THE TPL TARLTON PETROLEUM PRODUCTS HANDLING AND BULK STORAGE FACILITY



the Preferential Procurement Regulations, 2011 promulgated under the Preferential Policy Framework Act (PPPFA), 2000 (Act No. 5 of 2000).

SIGNATURE: _____

DATE: _____

WITNESS No. 1 _____

DATE: _____

WITNESS No. 2 _____

DATE: _____

Annex C

Local Content Declaration - Summary Schedule

(C1) **Tender No.** TPL/2024/07/0005/70943/RFP

(C2) **Tender description:** DESIGN, SUPPLY, INSTALLATION (EPC CONTRACTOR) AND PROVIDE PLANNED MAINTENANCE FOR A LIMITED PERIOD FOR THE VAPOUR RECOVERY UNIT SYSTEM AT THE TPL TARLTON PETROLEUM PRODUCTS HANDLING AND BULK STORAGE FACILITY

(C3) **Designated product(s)** Cement, Steel products and Construction components, Valves and Actuators and Electric cables and products

(C4) **Tender Authority:** Transnet Pipelines

(C5) **Tendering Entity name:**

(C6) **Tender Exchange Rate:** Pula EU GBP

(C7) **Specified local content %**

Note: VAT to be excluded from all calculations

Calculation of local content								Tender summary			
Tender item no's	List of items	Tender price - each (excl VAT)	Exempted imported value	Tender value- net of exempted imported content	Imported value	Local value	Local content % (per item)	Commo dity Qty	Total Commodity value	Total exempted imported content	Total Imported content
(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C14)	(C15)	(C16)	(C17)	(C18)	(C19)
1	CEMENT										
2	STEEL AND CONSTRUCTION COMPONENTS										
3	VALVES AND ACTUATORS										
4	ELECTRIC CABLES AND PRODUCTS										
5											
6											

(C20) Total tender value

Signature of tenderer from Annex B

(C21) Total Exempt imported content

(C22) Total Tender value net of exempt imported content

(C23) Total Imported content

(C24) Total local content

(C25) Average local content % of tender

Date: _____

Annex D

Imported Content Declaration - Supporting Schedule to Annex C

(D1)

Tender No.

TPL/2024/07/0005/70943/RFP

(D2)

Tender description:

DESIGN, SUPPLY, INSTALLATION (EPC CONTRACTOR) AND PROVIDE PLANNED MAINTENANCE FOR A LIMITED PERIOD FOR THE VAPOUR RECOVERY UNIT SYSTEM AT THE TPL TARLTON PETROLEUM PRODUCTS HANDLING AND BULK STORAGE FACILITY

(D3)

Designated Products:

Cement, Steel products and Construction components, Valves and Actuators and Electric cables and products

(D4)

Tender Authority:

Transnet Pipelines

(D5)

Tendering Entity name:

(D6)

Tender Exchange Rate:

Pula

EU

GBP

Note: VAT to be excluded from all calculations

A. Exempted imported content

				Calculation of imported content						Summary	
Tender item no's	Description of imported content	Local supplier	Overseas Supplier	Foreign currency value as per Commercial Invoice	Tender Exchange Rate	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT	Tender Qty	Exempted imported value
(D7)	(D8)	(D9)	(D10)	(D11)	(D12)	(D13)	(D14)	(D15)	(D16)	(D17)	(D18)
(D19) Total exempt imported value										R 0	

This total must correspond with Annex C - C 21

B. Imported directly by the Tenderer

				Calculation of imported content						Summary	
Tender item no's	Description of imported content	Unit of measure	Overseas Supplier	Foreign currency value as per Commercial Invoice	Tender Rate of Exchange	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT	Tender Qty	Total imported value
(D20)	(D21)	(D22)	(D23)	(D24)	(D25)	(D26)	(D27)	(D28)	(D29)	(D30)	(D31)

(D32) Total imported value by tenderer R 0

C. Imported by a 3rd party and supplied to the Tenderer

Calculation of imported content										Summary	
Description of imported content	Unit of measure	Local supplier	Overseas Supplier	Foreign currency value as per Commercial Invoice	Tender Rate of Exchange	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT	Quantity imported	Total imported value
(D33)	(D34)	(D35)	(D36)	(D37)	(D38)	(D39)	(D40)	(D41)	(D42)	(D43)	(D44)
(D45) Total imported value by 3rd party											R 0

D. Other foreign currency payments

Calculation of foreign currency payments					Summary of payments	
Type of payment	Local supplier making the payment	Overseas beneficiary	Foreign currency value paid	Tender Rate of Exchange	Local value of payments	
(D46)	(D47)	(D48)	(D49)	(D50)	(D51)	
(D52) Total of foreign currency payments declared by tenderer and/or 3rd party						

Signature of tenderer from Annex B

Date:

(D53) Total of imported content & foreign currency payments - (D32), (D45) & (D52) above

This total must correspond with
Annex C - C 23

Local Content Declaration - Supporting Schedule to Annex C

Note: VAT to be excluded from all calculations

(E9) TotalRaw Materials (Goods, Services and Works)

R 0R 0R 0R 0

This total must correspond with Annex C - C24

Date: _____

T2.2-16: SBD 5**THE NATIONAL INDUSTRIAL PARTICIPATION PROGRAMME****INTRODUCTION**

The National Industrial Participation Programme (NIPP), which is applicable to all government procurement contracts that have an imported content, became effective on the 1 September 1996. The NIP policy and guidelines were fully endorsed by Cabinet on 30 April 1997. In terms of the Cabinet decision, all state and parastatal purchases / lease contracts (for goods, works and services) entered into after this date, are subject to the NIPP requirements. NIPP is obligatory and therefore must be complied with. The Industrial Participation Secretariat (IPS) of the Department of Trade and Industry (DTI) is charged with the responsibility of administering the programme.

1. PILLARS OF THE PROGRAMME

- 1.1 The NIPP obligation is benchmarked on the imported content of the contract. Any contract having an imported content equal to or exceeding US\$5 million or other currency equivalent to US\$5 million will have a NIP obligation. This threshold of US\$5 million can be reached as follows:
 - (a) Any single contract with imported content exceeding US\$5 million.
 - or
 - (b) Multiple contracts for the same goods, works or services each with imported content exceeding US\$3 million awarded to one seller over a 2 year period which in total exceeds US\$5 million.
 - or
 - (c) A contract with a renewable option clause, where should the option be exercised the total value of the imported content will exceed US\$5 million.
 - or
 - (d) Multiple suppliers of the same goods, works or services under the same contract, where the value of the imported content of each allocation is equal to or exceeds US\$ 3 million worth of goods, works or services to the same government institution, which in total over a two (2) year period exceeds US\$5 million.
- 1.2 The NIP obligation applicable to suppliers in respect of sub-paragraphs 1.1 (a) to 1.1 (c) above will amount to 30% of the imported content whilst suppliers in respect of paragraph 1.1 (d) shall incur 30% of the total NIPP obligation on a *pro-rata* basis.
- 1.3 To satisfy the NIPP obligation, the DTI would negotiate and conclude agreements such as investments, joint ventures, sub-contracting, licensee production, export promotion, sourcing arrangements and research and development (R&D) with partners or suppliers.
- 1.4 A period of seven years has been identified as the time frame within which to discharge the obligation.

2. REQUIREMENTS OF THE DEPARTMENT OF TRADE AND INDUSTRY

- 2.1 In order to ensure effective implementation of the programme, successful bidders (contractors) are required to, immediately after the award of a contract that is in excess of **R10 million** (ten million Rands), submit details of such a contract to the DTI for reporting purposes.
- 2.2 The purpose for reporting details of contracts in excess of the amount of R10 million (ten million Rands) is to cater for multiple contracts for the same goods, works or services; renewable contracts and multiple suppliers for the same goods, works or services under the same contract as provided for in paragraphs 1.1.(b) to 1.1. (d) above.

3. BID SUBMISSION AND CONTRACT REPORTING REQUIREMENTS OF BIDDERS AND SUCCESSFUL BIDDERS (CONTRACTORS)

- 3.1 Bidders are required to sign and submit this Standard Bidding Document (SBD 5) together with their bid documentation at the closing date and time of the bid.
- 3.2 In order to accommodate multiple contracts for the same goods, works or services; renewable contracts and multiple suppliers for the same goods, works or services under the same contract as indicated in sub-paragraphs 1.1 (b) to 1.1 (d) above and to enable the DTI in determining the NIPP obligation, successful bidders (contractors) are required, immediately after being officially notified about any successful bid with a value in excess of R10 million (ten million Rands), to contact and furnish the DTI with the following information:
 - Bid number;
 - Description of the goods or services;
 - Date on which the contract was awarded;
 - Name, address and contact details of the contractor;
 - Value of the contract; and
 - Imported content of the contract, if possible.
- 3.3 The information required in paragraph 3.2 above must be sent to the Department of Trade and Industry, Private Bag X 84, Pretoria, 0001 for the attention of Mr Elias Malapane within five (5) working days after award of the contract. Mr Malapane may be contacted on telephone (012) 394 1401, facsimile (012) 394 2401 or e-mail at Elias@thedti.gov.za for further details about the programme.

4. PROCESS TO SATISFY THE NIPP OBLIGATION

- 4.1 Once the successful tenderer (Contractor) has made contact with and furnished the DTI with the information required, the following steps will be followed:
 - a. the Contractor and the DTI will determine the NIPP obligation;
 - b. the Contractor and the DTI will sign the NIPP obligation agreement;

DESCRIPTION OF THE WORKS: DESIGN, SUPPLY, INSTALLATION (EPC CONTRACTOR) AND PROVIDE PLANNED MAINTENANCE FOR A LIMITED PERIOD FOR THE VAPOUR RECOVERY UNIT SYSTEM AT THE TPL TARLTON PETROLEUM PRODUCTS HANDLING AND BULK STORAGE FACILITY



- c. the Contractor will submit a performance guarantee to the DTI;
- d. the Contractor will submit a business concept for consideration and approval by the DTI;
- e. upon approval of the business concept by the DTI, the Contractor will submit detailed business plans outlining the business concepts;
- f. the Contractor will implement the business plans; and
- g. the Contractor will submit bi-annual progress reports on approved plans to the DTI.

4.2 The NIPP obligation agreement is between the DTI and the successful bidder (contractor) and, therefore, does not involve the Employer.

Bid number	Closing date:
Name of bidder.....	
Postal address	
Signature.....	Name (in print).....
Date.....	

T2.2-17 SUPPLIER DECLARATION FORM

Transnet Vendor Management has received a request to load / change your company details onto the Transnet vendor master database. Please return the completed Supplier Declaration Form (SDF) together with the required supporting documents as per Appendix A to the Transnet Official who is intending to procure your company's services / products, to enable us to process this request. Please only submit the documentation relevant to your request.

Please Note: all organisations, institutions and individuals who wish to provide goods and/or services to organs of the State must be registered on the National Treasury's Central Supplier Database (CSD). This needs to be done via their portal at <https://secure.csd.gov.za/> **before applying to Transnet.**

General Terms and Conditions:

Please Note: Failure to submit the relevant documentation will delay the vendor creation / change process.

Where applicable, the respective Transnet Operating Division processing your application may request further or additional information from your company.

The Service Provider warrants that the details of its bank account ("the nominated account") provided herein, are correct and acknowledges that payments due to the Supplier will be made into the nominated account. If details of the nominated account should change, the Service Provider must notify Transnet in writing of such change, failing which any payments made by Transnet into the nominated account will constitute a full discharge of the indebtedness of Transnet to the Supplier in respect of the payment so made. Transnet will incur no liability for any payments made to the incorrect account or any costs associated therewith. In such an event, the Service Provider indemnifies and holds Transnet harmless in respect of any payments made to an incorrect bank account and will, on demand, pay Transnet any costs associated herewith.

Transnet expects its suppliers to timeously renew their Tax Clearance and B-BBEE certificates (Large Enterprises and QSEs less than 51% black owned) as well as sworn affidavits in the case of EMEs and QSEs with more than 51% black ownership as per Appendices C and D.

In addition, please take note of the following very important information:

1. If your annual turnover is R10 million or less, then in terms of the DTI Generic Codes of Good Practice, you are classified as an Exempted Micro Enterprise (EME). If your company is classified as an EME, please include in your submission a sworn affidavit confirming your company's most recent annual turnover is less than R10 million and percentage of black ownership and black female ownership in the company (Appendix C) OR B-BBEE certificate issued by a verification agency accredited by SANAS in terms of the EME scorecard should you feel you will be able to attain a better B-BBEE score. It is only in this context that an EME may submit a B-BBEE verification certificate. These EME sworn affidavits must be accepted by the . Government introduced this mechanism specifically to reduce the cost of doing business and regulatory burden for these entities and the template for the sworn affidavit is available at no cost on the website www.thedti.gov.za or EME certificates at CIPC from www.cipc.co.za.

The B-BBEE Commission said "that only time an EME can be verified by a SANAS accredited verification professional is when it wishes to maximise its B-BBEE points and move to a higher B-BBEE recognition level, and that must be done use the QSE Scorecard".

2. If your annual turnover is between R10 million and R50 million, then in terms of the DTI codes, you are classified as a Qualifying Small Enterprise (QSE). A QSE which is at least 51% black owned, is required to submit a sworn affidavit confirming their annual total revenue of between R10 million and R50 million and level of black ownership (Appendix D). QSE that does not qualify for 51% of black ownership, are required to submit a B-BBEE verification certificate issued by a verification agency accredited by SANAS their QSEs are required to submit a B-BBEE verification certificate issued by a verification agency accredited by SANAS.

Please Note: B-BBEE certificate and detailed scorecard should be obtained from an accredited rating agency (e.g. SANAS Member).

3. If your annual turnover exceeds R50 million, then in terms of the DTI codes, you are classified as a Large Enterprise. Large Enterprises are required to submit a B-BBEE level verification certificate issued by a verification agency accredited by SANAS.

Please Note: B-BBEE certificate and detailed scorecard should be obtained from an accredited rating agency (e.g. SANAS Member).

4. The supplier to furnish proof to the procurement department as required in the Fourth Schedule of the Income Tax Act. 58 of 1962 whether a supplier of service is to be classified as an "employee", "personal service provider" or "labour broker". Failure to do so will result in the supplier being subject to employee's tax.

5. No payments can be made to a vendor until the vendor has been registered / updated, and no vendor can be registered / updated until the vendor application form, together with its supporting documentation, has been received and processed. No payments can be made to a vendor until the vendor has met / comply with the procurement requirements.

6. It is in line with PPPFA Regulations, only valid B-BBEE status level certificate issued by an unauthorised body or person OR a sworn affidavit as prescribed by the B-BBEE Codes of Good Practice, OR any other requirement prescribed in terms of the Broad- Based Black Economic Empowerment Act.

7. The B-BBEE Commission advises entities and organs of state to reject B-BBEE certificates that have been issues by verification agencies or professionals who are not accredited by South African National Accreditation Systems ("SANAS) as such B-BBEE certificates are invalid for lack of authority and mandate to issue them. A list of SANAS Accredited agencies is available on the SANAS website at www.sanas.co.za.

8. Presenting banking details. Please note: Banks have decided to enable the customers and provide the ability for customers to generate Account Confirmation/Bank Account letters via their online platform; this is a digital approach to the authentication of banking details.

SUPPLIER DECLARATION FORM

Supplier Declaration Form

Important Notice: all organisations, institutions and individuals who wish to provide goods and/or services to organs of the State must be registered on the National Treasury Central Supplier Database (CSD). This needs to be done via their portal at <https://secure.csd.gov.za/> **before applying to Transnet.**

CSD Number (MAAA xxxxxx):

Company Trading Name						
Company Registered Name						
Company Registration No Or ID No If a Sole Proprietor						
Company Income Tax Number						
Form of Entity	CC	Trust	Pty Ltd	Limited	Partnership	Sole Proprietor
	Non-profit (NPO's or NPC)	Personal Liability Co	State Owned Co	National Govt	Provincial Govt	Local Govt
	Educational Institution	Specialised Profession	Financial Institution	Joint Venture	Foreign International	Foreign Branch Office

Did your company previously operate under another name?					Yes	No
If YES state the previous details below:						
Trading Name						
Registered Name						
Company Registration No Or ID No If a Sole Proprietor						
Form of Entity	CC	Trust	Pty Ltd	Limited	Partnership	Sole Proprietor
	Non-profit (NPO's or NPC)	Personal Liability Co	State Owned Co	National Govt	Provincial Govt	Local Govt
	Educational Institution	Specialised Profession	Financial Institution	Joint Venture	Foreign International	Foreign Branch Office

Your Current Company's VAT Registration Status	
VAT Registration Number	
If Exempted from VAT registration , state reason and submit proof from SARS in confirming the exemption status	

If your business entity is not VAT Registered, please submit a current original sworn affidavit (see example in Appendix I). Your Non VAT Registration must be confirmed annually.

Company Banking Details	Bank Name	
Universal Branch Code	Bank Account Number	

Company Physical Address		Code	
Company Postal Address		Code	
Company Telephone number			
Company Fax Number			
Company E-Mail Address			
Company Website Address			

Company Contact Person Name	
Designation	
Telephone	
Email	

Is your company a Labour Broker?	Yes	No
Main Product / Service Supplied e.g. Stationery / Consulting / Labour etc.		
How many personnel does the business employ?	Full Time	Part Time
Please Note: Should your business employ more than 2 full time employees who are not connected persons as defined in the Income Tax Act, please submit a sworn affidavit, as per Appendix II.		

Most recent Financial Year's Annual Turnover	<R10Million EME	>R10Million <R50Million QSE	>R50Million Large Enterprise
--	---------------------------	--	--

Does your company have a valid proof of B-BBEE status?										Yes		No	
Please indicate your Broad Based BEE status (Level 1 to 9)				1	2	3	4	5	6	7	8	9	
Majority Race of Ownership													
% Black Ownership		% Black Women Ownership		% Black Disabled person(s) Ownership				% Black Youth Ownership					
% Black Unemployed		% Black People Living in Rural Areas		% Black Military Veterans									
Please Note: Please provide proof of B-BBEE status as per Appendix C and D:													

- Large Enterprise and QSEs with less than 51% black ownership need to obtain a B-BBEE certificate and detailed scorecard from an accredited rating agency;
- EMEs and QSEs with at least 51% black ownership may provide an affidavit using the templates provided in Appendix C and D respectively;
- Black Disabled person(s) ownership will only be accepted if accompanied with a certified letter signed by a physician on the physician's letterhead confirming the disability;
- A certified South African identification document will be required for all Black Youth Ownership.

Supplier Development Information Required	
EMPOWERING SUPPLIER An Empowering Supplier is a B-BBEE compliant Entity which complies with at least three criteria if it is a large Entity, or one criterion if it is a Qualifying Small Enterprise ("QSE"), as detailed in Statement 400 of the New Codes. In terms of the requirements of an Empowering Supplier, numerous companies found it challenging to meet the target of 25% transformation of raw materials or beneficiation including local manufacturing, particularly so, if these companies imported goods or products from offshore. The matter was further compounded by the requirement for 25% of Cost of Sales, excluding labour cost and depreciation, to be procured from local producers or suppliers.	YES <input type="radio"/> NO <input type="radio"/>
FIRST TIME SUPPLIER A supplier that we haven't as yet Traded within Transnet and will be registered via our database for the 1 st time.	YES <input type="radio"/> NO <input type="radio"/>
SUPPLIER DEVELOPMENT PLAN Supplier Development Plan is a plan that when we as Transnet award a supplier a long term contract depending on the complexity of the Transaction. We will negotiate supplier development obligations that they must meet throughout the contract duration. e.g. we might request that they (create jobs or do skills development or encourage procurement from designated groups. (BWO, BYO & BDO etc.).	YES <input type="radio"/> NO <input type="radio"/>
DEVELOPMENT PLAN DOCUMENT Agreed plan that will be crafted with the supplier in regards to their development (It could be for ED OR SD in terms of their developmental needs they may require with the company.	YES <input type="radio"/> NO <input type="radio"/> *If Yes- Attach supporting documents
ENTERPRISE DEVELOPMENT BENEFICIARY	YES <input type="radio"/> NO <input type="radio"/>

Transnet Pipelines

TENDER NUMBER: TPL/2024/07/0005/70943/RFP

DESCRIPTION OF THE WORKS: DESIGN, SUPPLY, INSTALLATION (EPC CONTRACTOR) AND PROVIDE PLANNED MAINTENANCE FOR A LIMITED PERIOD FOR THE VAPOUR RECOVERY UNIT SYSTEM AT THE TPL TARLTON PETROLEUM PRODUCTS HANDLING AND BULK STORAGE FACILITY

A supplier that is not as yet in our value chain that we are assisting in their developmental area.	
SUPPLIER DEVELOPMENT BENEFICIARY A supplier that we are already doing business with or transacting with and we are also assisting them assisting them in their developmental area e.g. (They might require training or financial assistance etc.)	YES <input type="radio"/> NO <input type="radio"/>
GRADUATION FROM ED TO SD BENEFICIARY When a supplier that we assisted with as an ED beneficiary then gets awarded a business and we start Transacting with.	YES <input type="radio"/> NO <input type="radio"/>
ENTERPRISE DEVELOPMENT RECIPIENT A supplier that isn't in our value chain as yet but we have assisted them with an ED intervention	YES <input type="radio"/> NO <input type="radio"/>

By signing below, I hereby verify that I am duly authorised to sign for and on behalf of firm / organisation and that all information contained herein and attached herewith are true and correct			
Name and Surname		Designation	
Signature		Date	

APPENDIX B

Affidavit or Solemn Declaration as to VAT registration status

Affidavit or Solemn Declaration

I, _____ solemnly swear/declare
that _____ is not a registered VAT
vendor and is not required to register as a VAT vendor because the combined value of taxable supplies
made by the provider in any 12 month period has not exceeded or is not expected to exceed R1million
threshold, as required in terms of the Value Added Tax Act.

Signature: _____

Designation: _____

Date: _____

Commissioner of Oaths

Thus signed and sworn to before me at _____ on this the _____
day of _____ 20_____,

the Deponent having knowledge that he/she knows and understands the contents of this Affidavit,
and that he/she has no objection to taking the prescribed oath, which he/she regards binding on
his/her conscience and that the allegations herein contained are all true and correct.

Commissioner of Oaths

APPENDIX C**SWORN AFFIDAVIT – B-BBEE QUALIFYING SMALL ENTERPRISE – GENERAL**

I, the undersigned,

Full name & Surname	
Identity number	

Hereby declare under oath as follows:

1. The contents of this statement are to the best of my knowledge a true reflection of the facts.

2. I am a Member / Director / Owner of the following enterprise and am duly authorised to act on its behalf:

Enterprise Name:	
Trading Name (If Applicable):	
Registration Number:	
Enterprise Physical Address:	
Type of Entity (CC, (Pty) Ltd, Sole Prop etc.):	
Nature of Business:	
Definition of "Black People"	<p>As per the Broad-Based Black Economic Empowerment Act 53 of 2003 as Amended by Act No 46 of 2013 "Black People" is a generic term which means Africans, Coloureds and Indians –</p> <p>(a) who are citizens of the Republic of South Africa by birth or descent; or</p> <p>(b) who became citizens of the Republic of South Africa by naturalisation-</p> <p>i. before 27 April 1994; or</p> <p>ii. on or after 27 April 1994 and who would have been entitled to acquire citizenship by naturalization prior to that date;"</p>

Definition of "Black Designated Groups"	<p>Black Designated Groups means:</p> <ul style="list-style-type: none"> (a) unemployed black people not attending and not required by law to attend an educational institution and not awaiting admission to an educational institution; (b) Black people who are youth as defined in the National Youth Commission Act of 1996; (c) Black people who are persons with disabilities as defined in the Code of Good Practice on employment of people with disabilities issued under the Employment Equity Act; (d) Black people living in rural and under developed areas; (e) Black military veterans who qualifies to be called a military veteran in terms of the Military Veterans Act 18 of 2011;"
--	--

3. I hereby declare under Oath that:

- The Enterprise is _____% Black Owned as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- The Enterprise is _____% Black Female Owned as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- The Enterprise is _____% Black Designated Group Owned as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- Black Designated Group Owned % Breakdown as per the definition stated above:
- Black Youth % = _____%
- Black Disabled % = _____%
- Black Unemployed % = _____%
- Black People living in Rural areas % = _____%
- Black Military Veterans % = _____%
- Based on the Financial Statements/Management Accounts and other information available on

the latest financial year-end of _____, the annual Total Revenue was
between

R10,000,000.00 (Ten Million Rands) and R50,000,000.00 (Fifty Million Rands),

- Please confirm on the table below the B-BBEE level contributor, **by ticking the applicable box.**

100% Black Owned	Level One (135% B-BBEE procurement recognition level)	
At Least 51% black owned	Level Two (125% B-BBEE procurement recognition level)	

4. I know and understand the contents of this affidavit and I have no objection to take the prescribed oath and consider the oath binding on my conscience and on the owners of the enterprise which I represent in this matter.

5. The sworn affidavit will be valid for a period of 12 months from the date signed by commissioner.

Deponent Signature

.....

Date

.....

Commissioner of Oaths

Signature & stamp

APPENDIX D**SWORN AFFIDAVIT – B-BBEE EXEMPTED MICRO ENTERPRISE – GENERAL**

I, the undersigned,

Full name & Surname	
Identity number	

Hereby declare under oath as follows:

1. The contents of this statement are to the best of my knowledge a true reflection of the facts.
2. I am a Member / Director / Owner of the following enterprise and am duly authorised to act on its behalf:

Enterprise Name:	
Trading Name (If Applicable):	
Registration Number:	
Enterprise Physical Address:	
Type of Entity (CC, (Pty) Ltd, Sole Prop etc.):	
Nature of Business:	

Definition of "Black People"	<p>As per the Broad-Based Black Economic Empowerment Act 53 of 2003 as Amended by Act No 46 of 2013 "Black People" is a generic term which means Africans, Coloureds and Indians –</p> <p>(a) who are citizens of the Republic of South Africa by birth or descent;</p> <p>or</p> <p>(b) who became citizens of the Republic of South Africa by naturalisation-</p> <p>i. before 27 April 1994; or</p> <p>ii. on or after 27 April 1994 and who would have been entitled to acquire citizenship by naturalization prior to that date;"</p>
Definition of "Black Designated Groups"	<p>"Black Designated Groups means:</p> <p>(a) unemployed black people not attending and not required by law to attend an educational institution and not awaiting admission to an educational institution;</p> <p>(b) Black people who are youth as defined in the National Youth Commission Act of 1996;</p> <p>(c) Black people who are persons with disabilities as defined in the Code of Good Practice on employment of people with disabilities issued under the Employment Equity Act;</p> <p>(d) Black people living in rural and under developed areas;</p> <p>(e) Black military veterans who qualifies to be called a military veteran in terms of the Military Veterans Act 18 of 2011;"</p>

3. I hereby declare under Oath that:

- The Enterprise is _____% Black Owned as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- The Enterprise is _____% Black Female Owned as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- The Enterprise is _____% Black Designated Group Owned as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,

- Black Designated Group Owned % Breakdown as per the definition stated above:
- Black Youth % = _____%
- Black Disabled % = _____%
- Black Unemployed % = _____%
- Black People living in Rural areas % = _____%
- Black Military Veterans % = _____%
- Based on the Financial Statements/Management Accounts and other information available on the latest financial year-end of _____, the annual Total Revenue was R10,000,000.00 (Ten Million Rands) or less
- Please Confirm on the below table the B-BBEE Level Contributor, **by ticking the applicable box.**

100% Black Owned	Level One (135% B-BBEE procurement recognition)	
At least 51% Black Owned	Level Two (125% B-BBEE procurement recognition level)	
Less than 51% Black Owned	Level Four (100% B-BBEE procurement recognition level)	

4. I know and understand the contents of this affidavit and I have no objection to take the prescribed oath and consider the oath binding on my conscience and on the Owners of the Enterprise which I represent in this matter.

5. The sworn affidavit will be valid for a period of 12 months from the date signed by commissioner.

Deponent Signature

.....

Date

.....

Commissioner of Oaths

Signature & stamp

VENDOR REGISTRATION DOCUMENTS CHECKLIST

Please note that you will have to provide the first two documents on the list (highlighted in red) and the rest will be provided by the supplier:

	Yes	No
1. Complete the "Supplier Declaration Form" (SDF) (commissioned). See attachment.		
2. Complete the "Supplier Code of Conduct" (SCC). See attachment.		
3. Copy of cancelled cheque OR letter from the bank verifying banking details (with bank stamp not older than 3 Months & sign by Bank Teller).		
4. Certified (Not Older than 3 Months) copy of Identity document of Shareholders/Directors/Members (where applicable).		
5. Certified copy of certificate of incorporation, CM29 / CM9 (name change).		
6. Certified copy of share Certificates of Shareholders, CK1 / CK2 (if CC).		
7. A letter with the company's letterhead confirming both Physical and Postal address.		
8. Original or certified copy of SARS Tax Clearance certificate and Vat registration certificate.		
9. BBBEE certificate and detailed scorecard from a SANAS Accredited Verification Agency and/or Sworn Certified Affidavit.		
10. Central Supplier Database (CSD) Summary Registration Report.		



T2.2-18 Agreement in terms of Protection of Personal Information Act, 4 of 2013 ("POPIA")

1. PREAMBLE AND INTRODUCTION

- 1.1. The rights and obligation of the Parties in terms of the Protection of Personal Information Act, 4 of 2013 ("POPIA") are included as forming part of the terms and conditions of this contract.

2. PROTECTION OF PERSONAL INFORMATION

- 2.1. The following terms shall bear the same meaning as contemplated in Section 1 of the Protection of Person information act, No. of 2013" (POPIA"):
- consent; data subject; electronic communication; information officer; operator; person; personal information; processing; record; Regulator; responsible party; special information; as well as any terms derived from these terms.
- 2.2. The Operator will process all information by the Transnet in terms of the requirements contemplated in Section 4(1) of the POPIA:
- Accountability; Processing limitation; Purpose specification; Further processing limitation; Information quality; Openness; Security safeguards and Data subject participation.
- 2.3. The Parties acknowledge and agree that, in relation to personal information of Transnet and the information of a third party that will be processed pursuant to this Agreement, the Operator is (..... insert name of Tenderer/Contractor) hereinafter Operator and the Data subject is "Transnet". Operator will process personal information only with the knowledge and authorisation of Transnet and will treat personal information and the information of a third party which comes to its knowledge as confidential and will not disclose it, unless so required by law or subject to the exceptions contained in the POPIA.
- 2.4. Transnet reserves all the rights afforded to it by the POPIA in the processing of any of its information as contained in this Agreement and the Operator is required to comply with all prescripts as detailed in the POPIA relating to all information concerning Transnet.
- 2.5. In terms of this Agreement, the Operator acknowledges that it will obtain and have access to personal information of Transnet and the information of a third party and agrees that it shall only process the information disclosed by Transnet in terms of this Agreement and only for the purposes as detailed in this Agreement and in accordance with any applicable law.
- 2.6. Should there be a need for the Operator to process the personal information and the information of a third party in a way that is not agreed to in this Agreement, the Operator must request consent from Transnet to the processing of its personal information or and the information of a third party in a manner other than that it was collected for, which consent cannot be unreasonably withheld.



- 2.7. Furthermore, the Operator will not otherwise modify, amend or alter any personal information and the information of a third party submitted by Transnet or disclose or permit the disclosure of any personal information and the information of a third party to any third party without prior written consent from Transnet.
- 2.8. The Operator shall, at all times, ensure compliance with any applicable laws put in place and maintain sufficient measures, policies and systems to manage and secure against all forms of risks to any information that may be shared or accessed pursuant to the services offered to Transnet in terms of this Agreement (physically, through a computer or any other form of electronic communication).
- 2.9. The Operator shall notify Transnet in writing of any unauthorised access to personal information and the information of a third party , cybercrimes or suspected cybercrimes, in its knowledge and report such crimes or suspected crimes to the relevant authorities in accordance with applicable laws, after becoming aware of such crimes or suspected crime. The Operator must inform Transnet of the breach as soon as it has occurred to allow Transnet to take all necessary remedial steps to mitigate the extent of the loss or compromise of personal information and the information of a third party and to restore the integrity of the affected personal information as quickly as is possible.
- 2.10. Transnet may, in writing, request the Operator to confirm and/or make available any personal information and the information of a third party in its possession in relation to Transnet and if such personal information has been accessed by third parties and the identity thereof in terms of the POPIA.
- 2.11. Transnet may further request that the Operator correct, delete, destroy, withdraw consent or object to the processing of any personal information and the information of a third party relating to the Transnet or a third party in the Operator's s possession in terms of the provision of the POPIA and utilizing Form 2 of the POPIA Regulations .
- 2.12. In signing this addendum that is in terms of the POPIA, the Operator hereby agrees that it has adequate measures in place to provide protection of the personal information and the information of a third party given to it by Transnet in line with the 8 conditions of the POPIA and that it will provide to Transnet satisfactory evidence of these measures whenever called upon to do so by Transnet.

The Operator is required to provide confirmation that all measures in terms of the POPIA are in place when processing personal information and the information of a third party received from Transnet:

YES	
-----	--

NO	
----	--



2.13. Further, the Operator acknowledges that it will be held liable by Transnet should it fail to process personal information in line with the requirements of the POPIA. The Operator will be subject to any civil or criminal action, administrative fines or other penalty or loss that may arise as a result of the processing of any personal information that Transnet submitted to it.

2.14. Should a Tenderer have any complaints or objections to processing of its personal information, by Transnet, the Tenderer can submit a complaint to the Information Regulator on <https://www.justice.gov.za/infoereg/>, click on contact us, click on complaints.IR@justice.gov.za

3. **SOLE AGREEMENT**

3.1. The Agreement, constitute the sole agreement between the parties relating to the subject matter referred to in paragraph 1.1 of this and no amendment/variation/change shall be of any force and effect unless reduced to writing and signed by or on behalf of both parties.

Signed at _____ on this _____ day of _____ 2021

Name: _____

Title: _____

Signature: _____

.....

(Operator)

Authorised signatory for and on behalf of who warrants that he/she is duly authorised to sign this Agreement.

AS WITNESSES:

1. Name: _____ Signature: _____

2. Name: _____ Signature: _____

T2.2-19 DOMESTIC PROMINENT INFLUENTIAL PERSONS (DPIP) OR FOREIGN PROMINENT PUBLIC OFFICIALS (FPPO)

Transnet is free to procure the services of any person within or outside the Republic of South Africa in accordance with applicable legislation. Transnet shall not conduct or conclude business transactions, with any Respondents without having:

- Considered relevant governance protocols;
- Determined the DPIP or FPPO status of that counterparty; and
- Conducted a risk assessment and due diligence to assess the potential risks that may be posed by the business relationship.

As per the Transnet Domestic Prominent Influential Persons (DPIP) and Foreign Prominent Public Officials (FPPO) and Related Individuals Policy available on Transnet website <https://www.transnet.net/search/pages/results.aspx?k=FPIDP#k=DPIP>, Respondents are required to disclose any commercial relationship with a DPIP or FPPO (as defined in the Policy) by completing the following section:

The below form contains personal information as defined in the Protection of Personal Information Act, 2013 (the "Act"). By completing the form, the signatory consents to the processing of her/his personal information in accordance with the requirements of the Act. Consent cannot unreasonably be withheld.						
Is the Respondent (Complete with a "Yes" or "No")						
A	DPIP/FPPO		Closely Related to a DPIP/FPPO		Closely Associated to a DPIP/FPPO	
List all known business interests, in which a DPIP/FPPO may have a direct/indirect interest or significant participation or involvement.						
No	Name of Entity / Business	Role in the Entity / Business (Nature of interest/ Participation)	Shareholding %	Registration Number	Status (Mark the applicable option with an X)	
					Active	Non-Active
1						
2						
3						
4						
5						

Respondents declaring a commercial relationship with a DPIP or FPPO are to note that Transnet is required to annually publish on its website a list of all business contracts entered into with DPIP or FPPO. This list will include successful Respondents, if applicable.



SIGNED at _____ on this _____ day of _____ 20____

SIGNATURE OF WITNESSES

ADDRESS OF WITNESSES

1 _____

Name _____

2 _____

Name _____

SIGNATURE OF RESPONDENT'S AUTHORISED REPRESENTATIVE: _____

NAME: _____

DESIGNATION: _____



T2.2-20 NON-DISCLOSURE AGREEMENT

Note to tenderers: This Non-Disclosure Agreement is to be completed and signed by an authorised signatory:

THIS AGREEMENT is made effective as of day of 20..... by and between:

TRANSNET SOC LTD

(Registration No. 1990/000900/30), a company incorporated and existing under the laws of South Africa, having its principal place of business at Transnet Corporate Centre 138 Eloff Street, Braamfontein, Johannesburg 2000

and

.....

(Registration No.), a private company incorporated and existing under the laws of South Africa having its principal place of business at

.....

.....

WHEREAS

Transnet and the Company wish to exchange Information [as defined below] and it is envisaged that each party may from time to time receive Information relating to the other in respect thereof. In consideration of each party making available to the other such Information, the parties jointly agree that any dealings between them shall be subject to the terms and conditions of this Agreement which themselves will be subject to the parameters of the Tender Document.

IT IS HEREBY AGREED

1. INTERPRETATION

In this Agreement:

- 1.1 **Agents** mean directors, officers, employees, agents, professional advisers, contractors or sub-contractors, or any Group member;
- 1.2 **Bid or Bid Document** (hereinafter Tender) means Transnet's Request for Proposal [**RFP**] as the case may be;
- 1.3 **Confidential Information** means any information or other data relating to one party [the **Disclosing Party**] and/or the business carried on or proposed or intended to be carried on by that party and which is made available for the purposes of the Bid to the other party [the

Receiving Party] or its Agents by the Disclosing Party or its Agents or recorded in agreed minutes following oral disclosure and any other information otherwise made available by the Disclosing Party or its Agents to the Receiving Party or its Agents, whether before, on or after the date of this Agreement, and whether in writing or otherwise, including any information, analysis or specifications derived from, containing or reflecting such information but excluding information which:

- 1.3.1 is publicly available at the time of its disclosure or becomes publicly available [other than as a result of disclosure by the Receiving Party or any of its Agents contrary to the terms of this Agreement]; or
- 1.3.2 was lawfully in the possession of the Receiving Party or its Agents [as can be demonstrated by its written records or other reasonable evidence] free of any restriction as to its use or disclosure prior to its being so disclosed; or
- 1.3.3 following such disclosure, becomes available to the Receiving Party or its Agents [as can be demonstrated by its written records or other reasonable evidence] from a source other than the Disclosing Party or its Agents, which source is not bound by any duty of confidentiality owed, directly or indirectly, to the Disclosing Party in relation to such information;
- 1.4 **Group** means any subsidiary, any holding company and any subsidiary of any holding company of either party; and
- 1.5 **Information** means all information in whatever form including, without limitation, any information relating to systems, operations, plans, intentions, market opportunities, know-how, trade secrets and business affairs whether in writing, conveyed orally or by machine-readable medium.

2. CONFIDENTIAL INFORMATION

- 2.1 All Confidential Information given by one party to this Agreement [the **Disclosing Party**] to the other party [the **Receiving Party**] will be treated by the Receiving Party as secret and confidential and will not, without the Disclosing Party's written consent, directly or indirectly communicate or disclose [whether in writing or orally or in any other manner] Confidential Information to any other person other than in accordance with the terms of this Agreement.
- 2.2 The Receiving Party will only use the Confidential Information for the sole purpose of technical and commercial discussions between the parties in relation to the Tender or for the subsequent performance of any contract between the parties in relation to the Tender.
- 2.3 Notwithstanding clause 2.1 above, the Receiving Party may disclose Confidential Information:
 - 2.3.1 to those of its Agents who strictly need to know the Confidential Information for the sole purpose set out in clause 2.2 above, provided that the Receiving Party shall ensure that

such Agents are made aware prior to the disclosure of any part of the Confidential Information that the same is confidential and that they owe a duty of confidence to the Disclosing Party. The Receiving Party shall at all times remain liable for any actions of such Agents that would constitute a breach of this Agreement; or

- 2.3.2 to the extent required by law or the rules of any applicable regulatory authority, subject to clause 2.4 below.

In the event that the Receiving Party is required to disclose any Confidential Information in accordance with clause 2.3.2 above, it shall promptly notify the Disclosing Party and cooperate with the Disclosing Party regarding the form, nature, content and purpose of such disclosure or any action which the Disclosing Party may reasonably take to challenge the validity of such requirement.

- 2.4 In the event that any Confidential Information shall be copied, disclosed or used otherwise than as permitted under this Agreement then, upon becoming aware of the same, without prejudice to any rights or remedies of the Disclosing Party, the Receiving Party shall as soon as practicable notify the Disclosing Party of such event and if requested take such steps [including the institution of legal proceedings] as shall be necessary to remedy [if capable of remedy] the default and/or to prevent further unauthorised copying, disclosure or use.

- 2.5 All Confidential Information shall remain the property of the Disclosing Party and its disclosure shall not confer on the Receiving Party any rights, including intellectual property rights over the Confidential Information whatsoever, beyond those contained in this Agreement.

3. RECORDS AND RETURN OF INFORMATION

- 3.1 The Receiving Party agrees to ensure proper and secure storage of all Information and any copies thereof.
- 3.2 The Receiving Party shall keep a written record, to be supplied to the Disclosing Party upon request, of the Confidential Information provided and any copies made thereof and, so far as is reasonably practicable, of the location of such Confidential Information and any copies thereof.
- 3.3 The Company shall, within 7 [seven] days of receipt of a written demand from Transnet:
- 3.3.1 return all written Confidential Information [including all copies]; and
- 3.3.2 expunge or destroy any Confidential Information from any computer, word processor or other device whatsoever into which it was copied, read or programmed by the Company or on its behalf.
- 3.4 The Company shall on request supply a certificate signed by a director as to its full compliance with the requirements of clause 3.3.2 above.

4. ANNOUNCEMENTS

- 4.1 Neither party will make or permit to be made any announcement or disclosure of its prospective interest in the Tender without the prior written consent of the other party.
- 4.2 Neither party shall make use of the other party's name or any information acquired through its dealings with the other party for publicity or marketing purposes without the prior written consent of the other party.

5. DURATION

The obligations of each party and its Agents under this Agreement shall survive the termination of any discussions or negotiations between the parties regarding the Tender and continue thereafter for a period of 5 [five] years.

6. PRINCIPAL

Each party confirms that it is acting as principal and not as nominee, agent or broker for any other person and that it will be responsible for any costs incurred by it or its advisers in considering or pursuing the Tender and in complying with the terms of this Agreement.

7. ADEQUACY OF DAMAGES

Nothing contained in this Agreement shall be construed as prohibiting the Disclosing Party from pursuing any other remedies available to it, either at law or in equity, for any such threatened or actual breach of this Agreement, including specific performance, recovery of damages or otherwise.

8. PRIVACY AND DATA PROTECTION

- 8.1 The Receiving Party undertakes to comply with South Africa's general privacy protection in terms Section 14 of the Bill of Rights in connection with this Tender and shall procure that its personnel shall observe the provisions of such Act [as applicable] or any amendments and re-enactments thereof and any regulations made pursuant thereto.
- 8.2 The Receiving Party warrants that it and its Agents have the appropriate technical and organisational measures in place against unauthorised or unlawful processing of data relating to the Tender and against accidental loss or destruction of, or damage to such data held or processed by them.

9. GENERAL

- 9.1 Neither party may assign the benefit of this Agreement, or any interest hereunder, except with the prior written consent of the other, save that Transnet may assign this Agreement at any time to any member of the Transnet Group.
- 9.2 No failure or delay in exercising any right, power or privilege under this Agreement will operate as a waiver of it, nor will any single or partial exercise of it preclude any further exercise or the exercise of any right, power or privilege under this Agreement or otherwise.



- 9.3 The provisions of this Agreement shall be severable in the event that any of its provisions are held by a court of competent jurisdiction or other applicable authority to be invalid, void or otherwise unenforceable, and the remaining provisions shall remain enforceable to the fullest extent permitted by law.
- 9.4 This Agreement may only be modified by a written agreement duly signed by persons authorised on behalf of each party.
- 9.5 Nothing in this Agreement shall constitute the creation of a partnership, joint venture or agency between the parties.
- 9.6 This Agreement will be governed by and construed in accordance with South African law and the parties irrevocably submit to the exclusive jurisdiction of the South African courts.

Signed		Date	
Name	_____	Position	_____
Tenderer	_____		



T2.2-21: RFP DECLARATION FORM

NAME OF COMPANY: _____

We _____ do hereby certify that:

1. Transnet has supplied and we have received appropriate tender offers to any/all questions (as applicable) which were submitted by ourselves for tender clarification purposes;
2. we have received all information we deemed necessary for the completion of this Tender;
3. at no stage have we received additional information relating to the subject matter of this tender from Transnet sources, other than information formally received from the designated Transnet contact(s) as nominated in the tender documents;
4. we are satisfied, insofar as our company is concerned, that the processes and procedures adopted by Transnet in issuing this tender and the requirements requested from tenderers in responding to this tender have been conducted in a fair and transparent manner; and
5. furthermore, we acknowledge that a direct relationship exists between a family member and/or an owner / member / director / partner / shareholder (unlisted companies) of our company and an employee or board member of the Transnet Group as indicated below:

[Respondent to indicate if this section is not applicable]

FULL NAME OF OWNER/MEMBER/DIRECTOR/

PARTNER/SHAREHOLDER:

ADDRESS:

Indicate nature of relationship with Transnet:

[Failure to furnish complete and accurate information in this regard may lead to the disqualification of your response and may preclude a Respondent from doing future business with Transnet]

We declare, to the extent that we are aware or become aware of any relationship between ourselves and Transnet (other than any existing and appropriate business relationship with Transnet) which could unfairly advantage our company in the forthcoming adjudication process, we shall notify Transnet immediately in writing of such circumstances.



6. We accept that any dispute pertaining to this tender will be resolved through the Ombudsman process and will be subject to the Terms of Reference of the Ombudsman. The Ombudsman process must first be exhausted before judicial review of a decision is sought. (Refer "Important Notice to respondents" below).
7. We further accept that Transnet reserves the right to reverse a tender award or decision based on the recommendations of the Ombudsman without having to follow a formal court process to have such award or decision set aside.
8. We have acquainted ourselves and agree with the content of T2.2-25 "Service Provider Integrity Pact".

For and on behalf of duly authorised thereto
Name:
Signature:
Date:

IMPORTANT NOTICE TO TENDERERS

- Transnet has appointed a Procurement Ombudsman to investigate any material complaint in respect of tenders exceeding R5,000,000.00 (five million S.A. Rand) in value. Should a Tenderer have any material concern regarding an tender process which meets this value threshold, a complaint may be lodged with Transnet's Procurement Ombudsman for further investigation.
- It is incumbent on the Tenderer to familiarise himself/herself with the Terms of Reference for the Transnet Procurement Ombudsman, details of which are available for review at Transnet's website www.transnet.net.
- An official complaint form may be downloaded from this website and submitted, together with any supporting documentation, within the prescribed period, to procurement.ombud@transnet.net
- For transactions below the R5,000,000.00 (five million S.A. Rand) threshold, a complaint may be lodged with the Chief Procurement Officer of the relevant Transnet Operating Division.



-
- All Tenderers should note that a complaint must be made in good faith. If a complaint is made in bad faith, Transnet reserves the right to place such a tenderer on its List of Excluded Bidders.



T2.2-22: REQUEST FOR PROPOSAL – BREACH OF LAW

NAME OF COMPANY: _____

I / We _____ do hereby certify that ***I/we have/have not been*** found guilty during the preceding 5 (five) years of a serious breach of law, including but not limited to a breach of the Competition Act, 89 of 1998, by a court of law, tribunal or other administrative body. The type of breach that the Tenderer is required to disclose excludes relatively minor offences or misdemeanours, e.g. traffic offences.

Where found guilty of such a serious breach, please disclose:

NATURE OF BREACH:

DATE OF BREACH:

Furthermore, I/we acknowledge that Transnet SOC Ltd reserves the right to exclude any Tenderer from the tendering process, should that person or company have been found guilty of a serious breach of law, tribunal or regulatory obligation.

Signed on this _____ day of _____ 20____

SIGNATURE OF TENDER

T2.2-23 Certificate of Acquaintance with Tender Documents

NAME OF TENDERING ENTITY:

1. By signing this certificate I/we acknowledge that I/we have made myself/ourselves thoroughly familiar with, and agree with all the conditions governing this RFP. This includes those terms and conditions of the Contract, the Supplier Integrity Pact, Non-Disclosure Agreement etc. contained in any printed form stated to form part of the documents thereof, but not limited to those listed in this clause.
2. I/we furthermore agree that Transnet SOC Ltd shall recognise no claim from me/us for relief based on an allegation that I/we overlooked any tender/contract condition or failed to take it into account for the purpose of calculating my/our offered prices or otherwise.
3. I/we understand that the accompanying Tender will be disqualified if this Certificate is found not to be true and complete in every respect.
4. For the purposes of this Certificate and the accompanying Tender, I/we understand that the word "competitor" shall include any individual or organisation, other than the Tenderer, whether or not affiliated with the Tenderer, who:
 - a) has been requested to submit a Tender in response to this Tender invitation;
 - b) could potentially submit a Tender in response to this Tender invitation, based on their qualifications, abilities or experience; and
 - c) provides the same Services as the Tenderer and/or is in the same line of business as the Tenderer
5. The Tenderer has arrived at the accompanying Tender independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium will not be construed as collusive Tendering.
6. In particular, without limiting the generality of paragraph 5 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
 - a) prices;



-
- b) geographical area where Services will be rendered [market allocation]
 - c) methods, factors or formulas used to calculate prices;
 - d) the intention or decision to submit or not to submit, a Tender;
 - e) the submission of a tender which does not meet the specifications and conditions of the tender; or
 - f) Tendering with the intention not winning the tender.
7. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the Services to which this tender relates.
8. The terms of the accompanying tender have not been, and will not be, disclosed by the Tenderer, directly or indirectly, to any competitor, prior to the date and time of the official tender opening or of the awarding of the contract.
9. I/We am/are aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to tenders and contracts, tenders that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and/or may be reported to the National Prosecuting Authority [NPA] for criminal investigation. In addition, Tenderers that submit suspicious tenders may be restricted from conducting business with the public sector for a period not exceeding 10 [ten] years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

Signed on this _____ day of _____ 20____

SIGNATURE OF TENDERER



T2.2-24 Service Provider Integrity Pact

Important Note: All potential tenderers must read this document and certify in the RFP Declaration Form that that have acquainted themselves with, and agree with the content.

The contract with the successful tenderer will automatically incorporate this Integrity Pact and shall be deemed as part of the final concluded contract.

INTEGRITY PACT

Between

TRANSNET SOC LTD

Registration Number: 1990/000900/30

("Transnet")

and

The Contractor (hereinafter referred to as the "Tenderer/Service Providers/Contractor")



PREAMBLE

Transnet values full compliance with all relevant laws and regulations, ethical standards and the principles of economical use of resources, fairness and transparency in its relations with its Tenderers/Service Providers/Contractors.

In order to achieve these goals, Transnet and the Tenderer/Service Provider/Contractor hereby enter into this agreement hereinafter referred to as the "Integrity Pact" which will form part of the Tenderer's/Service Provider's/Contractor's application for registration with Transnet as a vendor.

The general purpose of this Integrity Pact is to agree on avoiding all forms of dishonesty, fraud and corruption by following a system that is fair, transparent and free from any undue influence prior to, during and subsequent to the currency of any procurement and/or reverse logistics event and any further contract to be entered into between the Parties, relating to such event.

All Tenderers/Service Providers/Contractor's will be required to sign and comply with undertakings contained in this Integrity Pact, should they want to be registered as a Transnet vendor.

1 OBJECTIVES

- 1.1 Transnet and the Tenderer/Service Provider/Contractor agree to enter into this Integrity Pact, to avoid all forms of dishonesty, fraud and corruption including practices that are anti-competitive in nature, negotiations made in bad faith and under-pricing by following a system that is fair, transparent and free from any influence/unprejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to:
 - a) Enable Transnet to obtain the desired contract at a reasonable and competitive price in conformity to the defined specifications of the works, goods and services; and
 - b) Enable Tenderers/Service Providers/Contractors to abstain from bribing or participating in any corrupt practice in order to secure the contract.

2 COMMITMENTS OF TRANSNET

Transnet commits to take all measures necessary to prevent dishonesty, fraud and corruption and to observe the following principles:

- 2.1 Transnet hereby undertakes that no employee of Transnet connected directly or indirectly with the sourcing event and ensuing contract, will demand, take a promise for or accept directly or through intermediaries any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the Tenderer, either for themselves or for any person, organisation or third party related to the contract in exchange for an advantage in the tendering



process, Tender evaluation, contracting or implementation process related to any contract.

- 2.2 Transnet will, during the registration and tendering process treat all Tenderers/ Service Providers/Contractor with equity, transparency and fairness. Transnet will in particular, before and during the registration process, provide to all Tenderers/ Service Providers/Contractors the same information and will not provide to any Tenderers/Service Providers/Contractors confidential/additional information through which the Tenderers/Service Providers/Contractors could obtain an advantage in relation to any tendering process.
- 2.3 Transnet further confirms that its employees will not favour any prospective Tenderers/Service Providers/Contractors in any form that could afford an undue advantage to a particular Tenderer during the tendering stage, and will further treat all Tenderers/Service Providers/Contractors participating in the tendering process in a fair manner.
- 2.4 Transnet will exclude from the tender process such employees who have any personal interest in the Tenderers/Service Providers/Contractors participating in the tendering process.

3 OBLIGATIONS OF THE TENDERER / SERVICE PROVIDER

- 3.1 Transnet has a '**Zero Gifts**' Policy. No employee is allowed to accept gifts, favours or benefits.
 - a) Transnet officials and employees **shall not** solicit, give or accept, or from agreeing to solicit, give, accept or receive directly or indirectly, any gift, gratuity, favour, entertainment, loan, or anything of monetary value, from any person or juridical entities in the course of official duties or in connection with any operation being managed by, or any transaction which may be affected by the functions of their office.
 - b) Transnet officials and employees **shall not** solicit or accept gifts of any kind, from vendors, suppliers, customers, potential employees, potential vendors, and suppliers, or any other individual or organisation irrespective of the value.
 - c) Under **no circumstances** should gifts, business courtesies or hospitality packages be accepted from or given to prospective suppliers participating in a tender process at the respective employee's Operating Division, regardless of retail value.
 - d) Gratuities, bribes or kickbacks of any kind must never be solicited, accepted or offered, either directly or indirectly. This includes money, loans, equity, special privileges, personal favours, benefit or services. Such favours will be considered to constitute corruption.



- 3.2 The Tenderer/Service Provider/Contractor commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its Tender or during any ensuing contract stage in order to secure the contract or in furtherance to secure it and in particular the Tenderer/Service Provider/Contractor commits to the following:
- a) The Tenderer/Service Provider/Contractor will not, directly or through any other person or firm, offer, promise or give to Transnet or to any of Transnet's employees involved in the tendering process or to any third person any material or other benefit or payment, in order to obtain in exchange an advantage during the tendering process; and
 - b) The Tenderer/Service Provider/Contractor will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any employee of Transnet, connected directly or indirectly with the tendering process, or to any person, organisation or third party related to the contract in exchange for any advantage in the tendering, evaluation, contracting and implementation of the contract.
- 3.3 The Tenderer/Service Provider/Contractor will not collude with other parties interested in the contract to preclude a competitive Tender price, impair the transparency, fairness and progress of the tendering process, Tender evaluation, contracting and implementation of the contract. The Tenderer / Service Provider further commits itself to delivering against all agreed upon conditions as stipulated within the contract.
- 3.4 The Tenderer/Service Provider/Contractor will not enter into any illegal or dishonest agreement or understanding, whether formal or informal with other Tenderers/Service Providers/Contractors. This applies in particular to certifications, submissions or non-submission of documents or actions that are restrictive or to introduce cartels into the tendering process.
- 3.5 The Tenderer/Service Provider/Contractor will not commit any criminal offence under the relevant anti-corruption laws of South Africa or any other country. Furthermore, the Tenderer/Service Provider/Contractor will not use for illegitimate purposes or for restrictive purposes or personal gain, or pass on to others, any information provided by Transnet as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- 3.6 A Tenderer/Service Provider/Contractor of foreign origin shall disclose the name and address of its agents or representatives in South Africa, if any, involved directly or indirectly in the registration or tendering process. Similarly, the Tenderer / Service Provider / Contractor of South African nationality shall furnish



the name and address of the foreign principals, if any, involved directly or indirectly in the registration or tendering process.

- 3.7 The Tenderer/Service Provider/Contractor will not misrepresent facts or furnish false or forged documents or information in order to influence the tendering process to the advantage of the Tenderer/Service Provider/Contractor or detriment of Transnet or other competitors.
- 3.8 Transnet may require the Tenderer/Service Provider/Contractor to furnish Transnet with a copy of its code of conduct. Such code of conduct must address the compliance programme for the implementation of the code of conduct and reject the use of bribes and other dishonest and unethical conduct.
- 3.9 The Tenderer/Service Provider/Contractor will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- 3.10 The Tenderer/Service Provider/Contractor confirms that they will uphold the ten principles of the United Nations Global Compact (UNGC) in the fields of Human Rights, Labour, Anti-Corruption and the Environment when undertaking business with Transnet as follows:
- a) Human Rights
- Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and
 - Principle 2: make sure that they are not complicit in human rights abuses.
- b) Labour
- Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
 - Principle 4: the elimination of all forms of forced and compulsory labour;
 - Principle 5: the effective abolition of child labour; and
 - Principle 6: the elimination of discrimination in respect of employment and occupation.
- c) Environment
- Principle 7: Businesses should support a precautionary approach to environmental challenges;
 - Principle 8: undertake initiatives to promote greater environmental responsibility; and



- Principle 9: encourage the development and diffusion of environmentally friendly technologies.

d) Anti-Corruption

- Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.

4 INDEPENDENT TENDERING

4.1 For the purposes of that Certificate in relation to any submitted Tender, the Tenderer declares to fully understand that the word "competitor" shall include any individual or organisation, other than the Tenderer, whether or not affiliated with the Tenderer, who:

- a) has been requested to submit a Tender in response to this Tender invitation;
- b) could potentially submit a Tender in response to this Tender invitation, based on their qualifications, abilities or experience; and
- c) provides the same Goods and Services as the Tenderer and/or is in the same line of business as the Tenderer.

4.2 The Tenderer has arrived at his submitted Tender independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium will not be construed as collusive tendering.

4.3 In particular, without limiting the generality of paragraph 5 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:

- a) prices;
- b) geographical area where Goods or Services will be rendered [market allocation];
- c) methods, factors or formulas used to calculate prices;
- d) the intention or decision to submit or not to submit, a Tender;
- e) the submission of a Tender which does not meet the specifications and conditions of the RFP; or
- f) tendering with the intention of not winning the Tender.

4.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the Goods or Services to which his/her tender relates.



- 4.5 The terms of the Tender as submitted have not been, and will not be, disclosed by the Tenderer, directly or indirectly, to any competitor, prior to the date and time of the official Tender opening or of the awarding of the contract.
- 4.6 Tenderers are aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to Tenders and contracts, Tenders that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and/or may be reported to the National Prosecuting Authority [**NPA**] for criminal investigation and/or may be restricted from conducting business with the public sector for a period not exceeding 10 [ten] years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.
- 4.7 Should the Tenderer find any terms or conditions stipulated in any of the relevant documents quoted in the Tender unacceptable, it should indicate which conditions are unacceptable and offer alternatives by written submission on its company letterhead, attached to its submitted Tender. Any such submission shall be subject to review by Transnet's Legal Counsel who shall determine whether the proposed alternative(s) are acceptable or otherwise, as the case may be.

5 DISQUALIFICATION FROM TENDERING PROCESS

- 5.1 If the Tenderer/Service Provider/Contractor has committed a transgression through a violation of section 3 of this Integrity Pact or in any other form such as to put its reliability or credibility as a Tenderer/Service Provider/Contractor into question, Transnet may reject the Tenderer's / Service Provider's / Contractor's application from the registration or tendering process and remove the Tenderer/Service Provider/Contractor from its database, if already registered.
- 5.2 If the Tenderer/Service Provider/Contractor has committed a transgression through a violation of section 3, or any material violation, such as to put its reliability or credibility into question. Transnet may after following due procedures and at its own discretion also exclude the Tenderer/Service Provider /Contractor from future tendering processes. The imposition and duration of the exclusion will be determined by the severity of the transgression. The severity will be determined by the circumstances of the case, which will include amongst others the number of transgressions, the position of the transgressors within the company hierarchy of the Tenderer/Service Provider/Contractor and the amount of the damage. The exclusion will be imposed for up to a maximum of 10 (ten) years. However, Transnet reserves the right to impose a longer period of exclusion, depending on the gravity of the misconduct.



- 5.3 If the Tenderer/Service Provider/Contractor can prove that it has restored the damage caused by it and has installed a suitable corruption prevention system, or taken other remedial measures as the circumstances of the case may require, Transnet may at its own discretion revoke the exclusion or suspend the imposed penalty.

6 TRANSNET'S LIST OF EXCLUDED TENDERERS (BLACKLIST)

- 6.1 The process of restriction is used to exclude a company/person from conducting future business with Transnet and other organs of state for a specified period. No Tender shall be awarded to a Tenderer whose name (or any of its members, directors, partners or trustees) appear on the Register of Tender Defaulters kept by National Treasury, or who have been placed on National Treasury's List of Restricted Suppliers. Transnet reserves the right to withdraw an award, or cancel a contract concluded with a Tenderer should it be established, at any time, that a tenderer has been restricted with National Treasury by another government institution.
- 6.2 All the stipulations on Transnet's restriction process as laid down in Transnet's Supply Chain Policy and Procurement Procedures Manual (CPM included) are included herein by way of reference. Below follows a condensed summary of this restriction procedure.
- 6.3 On completion of the restriction procedure, Transnet will submit the restricted entity's details (including the identity number of the individuals and registration number of the entity) to National Treasury for placement on National Treasury's Database of Restricted Suppliers for the specified period of exclusion. National Treasury will make the final decision on whether to restrict an entity from doing business with any organ of state for a period not exceeding 10 years and place the entity concerned on the Database of Restricted Suppliers published on its official website.
- 6.4 The decision to restrict is based on one of the grounds for restriction. The standard of proof to commence the restriction process is whether a "*prima facie*" (i.e. on the face of it) case has been established.
- 6.5 Depending on the seriousness of the misconduct and the strategic importance of the Goods/Services, in addition to restricting a company/person from future business, Transnet may decide to terminate some or all existing contracts with the company/person as well.
- 6.6 A Service Provider or Contractor to Transnet may not subcontract any portion of the contract to a blacklisted company.



- 6.7 Grounds for blacklisting include: If any person/Enterprise which has submitted a Tender, concluded a contract, or, in the capacity of agent or subcontractor, has been associated with such Tender or contract:
- a) Has, in bad faith, withdrawn such Tender after the advertised closing date and time for the receipt of Tenders;
 - b) has, after being notified of the acceptance of his Tender, failed or refused to sign a contract when called upon to do so in terms of any condition forming part of the Tender documents;
 - c) has carried out any contract resulting from such Tender in an unsatisfactory manner or has breached any condition of the contract;
 - d) has offered, promised or given a bribe in relation to the obtaining or execution of the contract;
 - e) has acted in a fraudulent or improper manner or in bad faith towards Transnet or any Government Department or towards any public body, Enterprise or person;
 - f) has made any incorrect statement in a certificate or other communication with regard to the Local Content of his Goods or his B-BBEE status and is unable to prove to the satisfaction of Transnet that:
 - (i) he made the statement in good faith honestly believing it to be correct; and
 - (ii) before making such statement he took all reasonable steps to satisfy himself of its correctness;
 - g) caused Transnet damage, or to incur costs in order to meet the contractor's requirements and which could not be recovered from the contractor;
 - h) has litigated against Transnet in bad faith.
- 6.8 Grounds for blacklisting include a company/person recorded as being a company or person prohibited from doing business with the public sector on National Treasury's database of Restricted Service Providers or Register of Tender Defaulters.
- 6.9 Companies associated with the person/s guilty of misconduct (i.e. entities owned, controlled or managed by such persons), any companies subsequently formed by the person(s) guilty of the misconduct and/or an existing company where such person(s) acquires a controlling stake may be considered for



blacklisting. The decision to extend the blacklist to associated companies will be at the sole discretion of Transnet.

7 PREVIOUS TRANSGRESSIONS

- 7.1 The Tenderer/Service Provider/Contractor hereby declares that no previous transgressions resulting in a serious breach of any law, including but not limited to, corruption, fraud, theft, extortion and contraventions of the Competition Act 89 of 1998, which occurred in the last 5 (five) years with any other public sector undertaking, government department or private sector company that could justify its exclusion from its registration on the Tenderer's/Service Provider's/Contractor's database or any tendering process.
- 7.2 If it is found to be that the Tenderer/Service Provider/Contractor made an incorrect statement on this subject, the Tenderer/Service Provider/Contractor can be rejected from the registration process or removed from the Tenderer/Service Provider/Contractor database, if already registered, for such reason (refer to the Breach of Law Returnable Form contained in the document.)

8 SANCTIONS FOR VIOLATIONS

- 8.1 Transnet shall also take all or any one of the following actions, wherever required to:
- a) Immediately exclude the Tenderer/Service Provider/Contractor from the tendering process or call off the pre-contract negotiations without giving any compensation to the Tenderer/Service Provider/Contractor. However, the proceedings with the other Tenderer/Service Provider/Contractor may continue;
 - b) Immediately cancel the contract, if already awarded or signed, without giving any compensation to the Tenderer/Service Provider/Contractor;
 - c) Recover all sums already paid by Transnet;
 - d) Encash the advance bank guarantee and performance bond or warranty bond, if furnished by the Tenderer/Service Provider/Contractor, in order to recover the payments, already made by Transnet, along with interest;
 - e) Cancel all or any other contracts with the Tenderer/Service Provider/Contractor; and
 - f) Exclude the Tenderer/Service Provider/Contractor from entering into any Tender with Transnet in future.

9 CONFLICTS OF INTEREST

- 9.1 A conflict of interest includes, inter alia, a situation in which:
- a) A Transnet employee has a personal financial interest in a tendering / supplying entity; and
 - b) A Transnet employee has private interests or personal considerations or has an affiliation or a relationship which affects, or may affect, or may be perceived to



affect his / her judgment in action in the best interest of Transnet, or could affect the employee's motivations for acting in a particular manner, or which could result in, or be perceived as favouritism or nepotism.

9.2 A Transnet employee uses his / her position, or privileges or information obtained while acting in the capacity as an employee for:

- a) Private gain or advancement; or
- b) The expectation of private gain, or advancement, or any other advantage accruing to the employee must be declared in a prescribed form.

Thus, conflicts of interest of any Tender committee member or any person involved in the sourcing process must be declared in a prescribed form.

9.3 If a Tenderer/Service Provider/Contractor has or becomes aware of a conflict of interest i.e. a family, business and / or social relationship between its owner(s)/ member(s)/director(s)/partner(s)/shareholder(s) and a Transnet employee/ member of Transnet's Board of Directors in respect of a Tender which will be considered for the Tender process, the Tenderer/Service Provider/ Contractor:

- a) must disclose the interest and its general nature, in the Request for Proposal ("RFX") declaration form; or
- b) must notify Transnet immediately in writing once the circumstances has arisen.

9.4 The Tenderer/Service Provider/Contractor shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any committee member or any person involved in the sourcing process, where this is done, Transnet shall be entitled forthwith to rescind the contract and all other contracts with the Tenderer/Service Provider/Contractor.

10 DISPUTE RESOLUTION

10.1 Transnet recognises that trust and good faith are pivotal to its relationship with its Tenderer / Service Provider / Contractor. When a dispute arises between Transnet and its Tenderer / Service Provider / Contractor, the parties should use their best endeavours to resolve the dispute in an amicable manner, whenever possible. Litigation in bad faith negates the principles of trust and good faith on which commercial relationships are based. Accordingly, following a blacklisting process as mentioned in paragraph 6 above, Transnet will not do business with a company that litigates against it in bad faith or is involved in any action that reflects bad faith on its part. Litigation in bad faith includes, but is not limited to the following instances:

- a) **Vexatious proceedings:** these are frivolous proceedings which have been instituted without proper grounds;
- b) **Perjury:** where a Tenderer / Service Provider / Contractor make a false statement either in giving evidence or on an affidavit;



- c) **Scurrilous allegations:** where a Tenderer / Service Provider / Contractor makes allegations regarding a senior Transnet employee which are without proper foundation, scandalous, abusive or defamatory; and
- d) **Abuse of court process:** when a Tenderer / Service Provider / Contractor abuses the court process in order to gain a competitive advantage during a Tender process.

11 GENERAL

- 11.1 This Integrity Pact is governed by and interpreted in accordance with the laws of the Republic of South Africa.
- 11.2 The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the law relating to any civil or criminal proceedings.
- 11.3 The validity of this Integrity Pact shall cover all the tendering processes and will be valid for an indefinite period unless cancelled by either Party.
- 11.4 Should one or several provisions of this Integrity Pact turn out to be invalid the remainder of this Integrity Pact remains valid.
- 11.5 Should a Tenderer/Service Provider/Contractor be confronted with dishonest, fraudulent or corruptive behaviour of one or more Transnet employees, Transnet expects its Tenderer/Service Provider/Contractor to report this behaviour directly to a senior Transnet official/employee or alternatively by using Transnet's "Tip-Off Anonymous" hotline number 0800 003 056, whereby your confidentiality is guaranteed.

The Parties hereby declare that each of them has read and understood the clauses of this Integrity Pact and shall abide by it. To the best of the Parties' knowledge and belief, the information provided in this Integrity Pact is true and correct.

I duly authorised by the tendering entity, hereby certify that the tendering entity are **fully acquainted** with the contents of the Integrity Pact and further **agree to abide by it** in full.

Signature

Date

T2.2-25 : Supplier Code of Conduct

Transnet SOC Limited aims to achieve the best value for money when buying or selling goods and obtaining services. This however must be done in an open and fair manner that supports and drives a competitive economy. Underpinning our process are several acts and policies that any supplier dealing with Transnet must understand and support. These are:

- The Transnet Procurement Policy – A guide for Tenderers.
- Section 217 of the Constitution - the five pillars of Public PSCM (Procurement and Supply Chain Management): fair, equitable, transparent, competitive and cost effective;
- The Public Finance Management Act (PFMA);
- The Broad Based Black Economic Empowerment Act (BBBEE)
- The Prevention and Combating of Corrupt Activities Act (PRECCA); and
- The Construction Industry Development Board Act (CIDB Act).

This code of conduct has been included in this contract to formally appraise Transnet Suppliers of Transnet's expectations regarding behaviour and conduct of its Suppliers.

Prohibition of Bribes, Kickbacks, Unlawful Payments, and Other Corrupt Practices

Transnet is in the process of transforming itself into a self-sustaining State Owned Enterprise, actively competing in the logistics industry. Our aim is to become a world class, profitable, logistics organisation. As such, our transformation is focused on adopting a performance culture and to adopt behaviours that will enable this transformation.

1. Transnet SOC Limited will not participate in corrupt practices. Therefore, it expects its suppliers to act in a similar manner.

- Transnet and its employees will follow the laws of this country and keep accurate business records that reflect actual transactions with, and payments to, our suppliers.
- Employees must not accept or request money or anything of value, directly or indirectly, from suppliers.
- Employees may not receive anything that is calculated to:
 - Illegally influence their judgement or conduct or to ensure the desired outcome of a sourcing activity;



-
- Win or retain business or to influence any act or decision of any person involved in sourcing decisions; or

- Gain an improper advantage.

- There may be times when a supplier is confronted with fraudulent or corrupt behaviour of Transnet employees. We expect our Suppliers to use our “Tip-offs Anonymous” Hot line to report these acts. (0800 003 056).

2. *Transnet SOC Limited is firmly committed to the ideas of free and competitive enterprise.*

- Suppliers are expected to comply with all applicable laws and regulations regarding fair competition and antitrust practices.
- Transnet does not engage with non-value adding agents or representatives solely for the purpose of increasing BBBEE spend (fronting).

3. *Transnet’s relationship with suppliers requires us to clearly define requirements, to exchange information and share mutual benefits.*

- Generally, suppliers have their own business standards and regulations. Although Transnet cannot control the actions of our suppliers, we will not tolerate any illegal activities. These include, but are not limited to:
 - Misrepresentation of their product (origin of manufacture, specifications, intellectual property rights, etc);
 - Collusion;
 - Failure to disclose accurate information required during the sourcing activity (ownership, financial situation, BBBEE status, etc.);
 - Corrupt activities listed above; and
 - Harassment, intimidation or other aggressive actions towards Transnet employees.
- Suppliers must be evaluated and approved before any materials, components, products or services are purchased from them. Rigorous due diligence is conducted and the supplier is expected to participate in an honest and straight forward manner.
- Suppliers must record and report facts accurately, honestly and objectively. Financial records must be accurate in all material respects.



Conflicts of Interest

A conflict of interest arises when personal interests or activities influence (or appear to influence) the ability to act in the best interests of Transnet SOC Limited.

- Doing business with family members.
- Having a financial interest in another company in our industry

Where possible, contracts will be negotiated to include the above in the terms of such contracts. To the extent such terms are not included in contractual obligations and any of the above code is breached, then Transnet reserves its right to review doing business with these suppliers.

I, _____ of _____
(insert name of Director or as per Authority Resolution from Board of Directors) *(insert name of Company)*

hereby acknowledge having read, understood and agree to the terms and conditions set out in the "Transnet Supplier Code of Conduct."

Signed this on day _____ at _____

 Signature

T2.2-26: Insurance provided by the *Contractor*

Clause 84.1 in NEC3 Engineering & Construction Contract (June 2005)(amended June 2006 and April 2013) requires that the *Contractor* provides the insurance stated in the insurance table except any insurance which the *Employer* is to provide as stated in the Contract Data.

Please provide the following details for insurance which the *Contractor* is still to provide. Notwithstanding this information all costs related to insurance are deemed included in the tenderer's rates and prices.

Insurance against (See clause 84.1 of the ECC)	Name of Insurance Company	Cover	Premium
Motor Vehicle Liability Insurance comprising (as a minimum) "Balance of Third Party" Risks including Passenger and Unauthorised Passenger Liability indemnity with a minimum indemnity limit of R5 000 000			
Where the contract requires that the design of any part of the works shall be provided by the Contractor, the Contractor shall satisfy the Employer that professional indemnity insurance cover in connection therewith has been affected			
Where the contract involves manufacture, and/or fabrication of Plant & Materials, components or other goods to be incorporated into the works at premises other than the site, the Contractor shall satisfy the Employer that such plant & materials, components or other goods for incorporation in the works are adequately insured during manufacture and/or fabrication and transportation to the site.			
Should the Employer have an insurable interest in such items during manufacture of fabrication, such interest shall not be noted by endorsement to the Contractor's policies of insurance as well as those of any subcontractor			



T2.2-27: Form of Intent to Provide a Performance Guarantee

It is hereby agreed by the Tenderer that a Performance Guarantee drafted **exactly** as provided in the tender documents will be provided by the Guarantor named below, which is a **bank or insurer registered in South Africa**:

Name of Guarantor

(Bank/Insurer)

Address

The Performance Guarantee shall be provided within **2 (Two)** weeks after the Contract Date defined in the contract unless otherwise agreed to by the parties.

Signed

Name

Capacity

On behalf of (name of
tenderer)

Date

Confirmed by Guarantor's Authorised Representative

Signature(s)

Name (print)

Capacity

On behalf of Guarantor
(Bank/insurer)

Date



T2.2-28: Three (3) years audited financial statements

Attached to this schedule is the last three (3) years audited financial statements of the single tenderer/members of the Joint Venture.

NAME OF COMPANY/IES and INDEX OF ATTACHMENTS:

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C1.1: Form of Offer & Acceptance

Offer

The *Employer*, identified in the Acceptance signature block, has solicited offers to enter into a contract for the procurement of:

DESIGN, SUPPLY, INSTALLATION (EPC CONTRACTOR) AND PROVIDE PLANNED MAINTENANCE FOR A LIMITED PERIOD FOR THE VAPOUR RECOVERY UNIT SYSTEM AT THE TPL TARLTON PETROLEUM PRODUCTS HANDLING AND BULK STORAGE FACILITY

The tenderer, identified in the Offer signature block, has examined the documents listed in the Tender Data and addenda thereto as listed in the Returnable Schedules, and by submitting this Offer has accepted the Conditions of Tender

By the representative of the tenderer, deemed to be duly authorised, signing this part of this Form of Offer and Acceptance the tenderer offers to perform all of the obligations and liabilities of the *Contractor* under the contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the *conditions of contract* identified in the Contract Data.

The offered total of the Prices exclusive of VAT is	R
Value Added Tax @ 15% is	R
The offered total of the Prices inclusive of VAT is	R
(in words)	

This Offer may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document including the Schedule of Deviations (if any) to the tenderer before the end of the period of validity stated in the Tender Data, or other period as agreed, whereupon the tenderer becomes the party named as the *Contractor* in the *conditions of contract* identified in the Contract Data.

Signature(s)

Name(s)

Capacity

**For the
Contractor:**

(Insert name and address of organisation)

Name &
signature of
witness

Date

Tenderer's CIDB registration number:

**Acceptance**

By signing this part of this Form of Offer and Acceptance, the *Employer* identified below accepts the tenderer's Offer. In consideration thereof, the *Employer* shall pay the *Contractor* the amount due in accordance with the *conditions of contract* identified in the Contract Data. Acceptance of the tenderer's Offer shall form an agreement between the *Employer* and the tenderer upon the terms and conditions contained in this agreement and in the contract that is the subject of this agreement.

The terms of the contract, are contained in:

Part C1	Agreements and Contract Data, (which includes this Form of Offer and Acceptance)
Part C2	Pricing Data
Part C3	Works Information
Part C4	Site Information

and drawings and documents (or parts thereof), which may be incorporated by reference into the above listed Parts.

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Returnable Schedules as well as any changes to the terms of the Offer agreed by the tenderer and the Employer during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Form of Offer and Acceptance. No amendments to or deviations from said documents are valid unless contained in this Schedule.

The tenderer shall within two weeks of receiving a completed copy of this agreement, including the Schedule of Deviations (if any), contact the Employer's agent (whose details are given in the Contract Data) to arrange the delivery of any securities, bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the *conditions of contract* identified in the Contract Data at, or just after, the date this agreement comes into effect. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this agreement.

Notwithstanding anything contained herein, this agreement comes into effect on the date when the tenderer receives one fully completed original copy of this document, including the Schedule of Deviations (if any).

Transnet Pipelines**Tender Number:** TPL/2024/07/0005/70943/RFP**Description of the Works:** DESIGN, SUPPLY, INSTALLATION (EPC CONTRACTOR) AND PROVIDE PLANNED MAINTENANCE FOR A LIMITED PERIOD FOR THE VAPOUR RECOVERY UNIT SYSTEM AT THE TPL TARLTON PETROLEUM PRODUCTS HANDLING AND BULK STORAGE FACILITY

Unless the tenderer (now *Contractor*) within five working days of the date of such receipt notifies the Employer in writing of any reason why he cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the Parties.

Signature(s)

Name(s)

Capacity

**for the
Employer**

Transnet SOC Ltd

*(Insert name and address of organisation)*Name &
signature of
witness

Date

Transnet Pipelines**Tender Number:** TPL/2024/07/0005/70943/RFP**Description of the Works:** DESIGN, SUPPLY, INSTALLATION (EPC CONTRACTOR) AND PROVIDE PLANNED MAINTENANCE FOR A LIMITED PERIOD FOR THE VAPOUR RECOVERY UNIT SYSTEM AT THE TPL TARLTON PETROLEUM PRODUCTS HANDLING AND BULK STORAGE FACILITY**Schedule of Deviations**

Note:

1. To be completed by the Employer prior to award of contract. This part of the Offer & Acceptance would not be required if the contract has been developed by negotiation between the Parties and is not the result of a process of competitive tendering.
2. The extent of deviations from the tender documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender.
3. A tenderer's covering letter must not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid be the subject of agreement reached during the process of Offer and Acceptance, the outcome of such agreement shall be recorded here and the final draft of the contract documents shall be revised to incorporate the effect of it.

No.	Subject	Details
1		
2		
3		
4		
5		

By the duly authorised representatives signing this Schedule of Deviations below, the Employer and the tenderer agree to and accept this Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Tender Schedules, as well as any confirmation, clarification or changes to the terms of the Offer agreed by the tenderer and the Employer during this process of Offer and Acceptance.

It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the tender documents and the receipt by the tenderer of a completed signed copy of this Form shall have any meaning or effect in the contract between the parties arising from this Agreement.

	For the Contractor:	For the Employer
Signature	_____	_____
Name	_____	_____
Capacity	_____	_____
On behalf of	<i>(Insert name and address of organisation)</i>	Transnet SOC Ltd
Name & signature of witness	_____	_____
Date	_____	_____



C1.2 Contract Data

Part one - Data provided by the *Employer*

Clause	Statement	Data
1	General	
	The <i>conditions of contract</i> are the core clauses and the clauses for main Option	
		A: Priced contract with activity schedule
	dispute resolution Option	W1: Dispute resolution procedure
	and secondary Options	
		X1: Price adjustment for inflation
		X2: Changes in the law
		X5: Sectional Completion
		X7: Delay damages
		X13: Performance Bond
		X16: Retention
		X18: Limitation of liability
		Z: Additional conditions of contract



-
- Z1: Obligations in respect of the CSDG goals**
 - Z2: Additional clause relating to Performance Bonds and/or Guarantees**
 - Z3: Additional clauses relating to Joint Venture**
 - Z4: Additional obligations in respect of Termination**
 - Z5: Right Reserved by the Employer to Conduct Vetting through SSA**
 - Z6: Additional Clause Relating to Collusion in the Construction Industry**
 - Z7: Protection of Personal Information Act**
 - Z8: Contract Hedging**
 - Z9: Local Production and Content Obligations in Respect of Specific Goals**

of the NEC3 Engineering and Construction Contract June 2005 (amended June 2006 and April 2013)

10.1 The *Employer* is: **Transnet SOC Ltd
(Registration No. 1990/000900/30)**

Address Registered address:
**Transnet Corporate Centre
138 Eloff Street
Braamfontein
Johannesburg
2000**

Having elected its Contractual Address for the purposes of this contract as: **Transnet Pipelines
202 Anton Lembede Street
Durban, South Africa
4001**

10.1 The *Project Manager* is: (Name) **TBC**

Address **Transnet Pipelines
202 Anton Lembede Street
Durban, South Africa
4001**

Tel **TBC**



	e-mail	TBC	
10.1	The <i>Supervisor</i> is: (Name)	TBC	
	Address	Transnet Pipelines 202 Anton Lembede Street Durban, South Africa 4001	
	Tel No.	TBC	
	e-mail	TBC	
11.2(13)	The <i>works</i> are	Design, supply and installation (EPC Contractor) and provide planned maintenance for a limited period for the vapour recovery unit system at TPL Tarlton Petroleum Products Handling and Bulk Storage Facility.	
11.2(14)	The following matters will be included in the Risk Register	1. Community Unrest 2. Local Business Forums interruptions 3. Unknown underground services 4. Availability of TPL equipment for construction purposes (e.g. Tanks)	
11.2(15)	The <i>boundaries of the site</i> are	As stated in Part C4.1."Description of the Site and it surroundings"	
11.2(16)	The Site Information is in	Part C4	
11.2(19)	The Works Information is in	Part C3	
12.2	The <i>law of the contract</i> is the law of	the Republic of South Africa subject to the jurisdiction of the Courts of South Africa.	
13.1	The <i>language of this contract</i> is	English	
13.3	The <i>period for reply</i> is	2 weeks	
2	The <i>Contractor's main responsibilities</i>	No additional data is required for this section of the <i>conditions of contract</i> .	
3	Time		
11.2(3)	The <i>completion date</i> for the whole of the <i>works</i> is	24 November 2028	
30.1	The <i>access dates</i> are	Part of the Site	Date



		1 Whole of the Site	2 days after safety file approval
		2 Access to tanks	3 months prior to access being required
31.1	The <i>Contractor</i> is to submit a first programme for acceptance within	2 weeks of the Contract Date.	
31.2	The <i>starting date</i> is	12 June 2025	
32.2	The <i>Contractor</i> submits revised programmes at intervals no longer than	4 weeks.	
4	Testing and Defects		
42.2	The <i>defects date</i> is	52 (fifty-two) weeks after Completion of Section 1 (Testing, commissioning and takeover of VRU)	
43.2	The <i>defect correction period</i> is	2 weeks	
5	Payment		
50.1	The <i>assessment interval</i> is monthly on the	15th (fifteenth) day of each successive month	
51.1	The <i>currency of this contract</i> is the	South African Rand.	
51.2	The period within which payments are made is	Payment will be affected on or before the last day of the month following the month during which a valid Tax Invoice and Statement were received.	
51.4	The <i>interest rate</i> is	the prime lending rate of Rand Merchant Bank of South Africa.	
6	Compensation events		
60.1(13)	The <i>weather measurements</i> to be recorded for each calendar month are,	the cumulative rainfall (mm)	



the number of days with rainfall more than 10 mm

The place where weather is to be recorded (on the Site) is: **Contractor Site Camp at Tarlton Depot**

The *weather data* are the records of past *weather measurements* for each calendar month which were recorded at: **The closest weather station to the site under execution**

and which are available from: **South African Weather Service 012 367 6023 or info3@weathersa.co.za.**

7	Title	No additional data is required for this section of the <i>conditions of contract</i>.
8	Risks and insurance	
80.1	These are additional <i>Employer's</i> risks	None
84.1	The <i>Employer</i> provides these insurances from the Insurance Table	
	1 Insurance against:	Loss of or damage to the <i>works</i>, Plant and Materials is as stated in the Insurance policy for Contract Works/ Public Liability.
	Cover / indemnity:	to the extent as stated in the insurance policy for Contract Works / Public Liability
	The deductibles are:	as stated in the insurance policy for Contract Works / Public Liability
	2 Insurance against:	Loss of or damage to property (except the <i>works</i>, Plant and Materials & Equipment) and liability for bodily injury to or death of a person (not an employee of the <i>Contractor</i>) arising out of or in connection with the performance of the Contract as stated in the insurance policy for Contract Works / Public Liability



	Cover / indemnity	Is to the extent as stated in the insurance policy for Contract Works / Public Liability
	The deductibles are	as stated in the insurance policy for Contract Works / Public Liability
3	Insurance against:	Loss of or damage to Equipment (Temporary Works only) as stated in the insurance policy for contract Works and Public Liability
	Cover / indemnity	Is to the extent as stated in the insurance policy for Contract Works / Public Liability
	The deductibles are:	As stated in the insurance policy for Contract Works / Public Liability
4	Insurance against:	Contract Works SASRIA insurance subject to the terms, exceptions and conditions of the SASRIA coupon
	Cover / indemnity	Cover / indemnity is to the extent provided by the SASRIA coupon
	The deductibles are	The deductibles are, in respect of each and every theft claim, 0,1% of the contract value subject to a minimum of R2,500 and a maximum of R25,000.
84.1	The minimum limit of indemnity for insurance in respect of death of or bodily injury to employees of the <i>Contractor</i> arising out of and in the course of their employment in connection with this contract for any one event is	The <i>Contractor</i> must comply at a minimum with the provisions of the Compensation for Occupational Injuries and Diseases Act No. 130 of 1993 as amended.
	The <i>Contractor</i> provides these additional Insurances	1 Where the contract requires that the design of any part of the <i>works</i> shall be provided by the <i>Contractor</i> the <i>Contractor</i> shall satisfy the <i>Employer</i> that professional indemnity insurance cover in connection therewith has been affected



-
- 2 Where the contract involves manufacture, and/or fabrication of Plant & Materials, components or other goods to be incorporated into the *works* at premises other than the site, the *Contractor* shall satisfy the *Employer* that such plant & materials, components or other goods for incorporation in the *works* are adequately insured during manufacture and/or fabrication and transportation to the site.**
 - 3 Should the *Employer* have an insurable interest in such items during manufacture, and/or fabrication, such interest shall be noted by endorsement to the *Contractor's* policies of insurance as well as those of any sub-contractor**
 - 4 Motor Vehicle Liability Insurance comprising (as a minimum) "Balance of Third Party" Risks including Passenger and Unauthorised Passenger Liability indemnity with a minimum indemnity limit of R 5 000 000/R 10 000 000.**
 - 5 The insurance coverage referred to in 1, 2, 3, and 4 above shall be obtained from an insurer(s) in terms of an insurance policy approved by the *Employer*. The *Contractor* shall arrange with the insurer to submit to the *Project Manager* the original and the duplicate original of the policy or policies of insurance and the receipts for payment of current premiums, together with a certificate from the insurer or insurance broker concerned, confirming that the policy or policies provide the full coverage as required. The original policy will be returned to the *Contractor*.**
-



84.2	The minimum limit of indemnity for insurance in respect of loss of or damage to property (except the works, Plant, Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the <i>Contractor</i>) caused by activity in connection with this contract for any one event is	Whatever the <i>Contractor</i> requires in addition to the amount of insurance taken out by the <i>Employer</i> for the same risk.
84.2	The insurance against loss of or damage to the works, Plant and Materials as stated in the insurance policy for contract works and public liability selected from:	Principal Controlled Insurance policy for Contract
9	Termination	There is no additional Contract Data required for this section of the <i>conditions of contract</i>.
10	Data for main Option clause	
A	Priced contract with Activity Schedule	No additional data is required for this Option.
11	Data for Option W1	
W1.1	The <i>Adjudicator</i> is	Both parties will agree as and when a dispute arises. If the parties cannot reach an agreement on the <i>Adjudicator</i>, the Chairman of the Association of Arbitrators will appoint an <i>Adjudicator</i>.
W1.2(3)	The <i>Adjudicator nominating body</i> is: If no <i>Adjudicator nominating body</i> is entered, it is:	The Chairman of the Association of Arbitrators (Southern Africa) the Association of Arbitrators (Southern Africa)
W1.4(2)	The <i>tribunal</i> is:	Arbitration
W1.4(5)	The <i>arbitration procedure</i> is	The Rules for the Conduct of Arbitrations of the Association of Arbitrators (Southern Africa)



The place where arbitration is to be held is **Durban, KwaZulu Natal, South Africa**

The person or organisation who will choose an arbitrator **The Chairman of the Association of Arbitrators (Southern Africa)**

- if the Parties cannot agree a choice or
- if the arbitration procedure does not state who selects an arbitrator, is

12 Data for secondary Option clauses

X1 Price adjustment for inflation

X1.1(a) The *base date* for indices is **February 2025**

X1.1(c) The proportions used to calculate the Price Adjustment Factor are:

Pro-portion	linked to index for	Index prepared by
0.10	Labour (People)	The Consumer Price Index (CPI) for "All Items" in Table 1 (Consumer price indices for the total country) of the Statistical Release P0141 "Consumer Price Index - Additional Tables" published by Statistics South Africa.



0.10	Plant (Equipment)	The "Plant and Equipment" index in Table 4 (Mining and construction plant and equipment price index) of the Statistical Release P0151.1 "Construction Materials Price Indices" published by Statistics South Africa.
0.10	Material (Civil)	The "Civil Engineering Material - Total" index in Table 6 (Civil engineering material price indices) of the Statistical Release P0151.1 "Construction Materials Price Indices" published by Statistics South Africa.



0.09	Material (Electrical)	The "Electrical Engineering" index in Table 5 (Mechanical and Electrical Engineering Input Price Indices) of the Statistical Release P0151.1 "Construction Materials Price Indices" published by Statistics South Africa.
0.45	Material (Mechanical)	The "Mechanical Engineering" index in Table 5 (Mechanical and Electrical Engineering Input Price Indices) of the Statistical Release P0151.1 "Construction Materials Price Indices" published by Statistics South Africa.

		0.01	Fuel	The “Diesel” index in Table 1 (PPI for final manufactured goods) of the Statistical Release P0142.1 “Producer Price Index” published by Statistics South Africa.	
		1.00			
		0.15	Non-adjustable		
X2	Changes in the law	No additional data is required for this Option			
X5	Sectional Completion				
X5.1	The completion date for each section of the works is	Section	Description	Completion date	
		Section 1	Testing, commissioning and handover of VRU	25 November 2026	
			Remainder of the works (Maintenance)	24 November 2028	
X5 & X7					
Sectional Completion and delay damages used together					
X7.1	Delay damages for late Completion of the sections of the <i>works</i> are:	Section	Description	Amount per day	
X5.1		Section 1	Testing, commissioning and handover of VRU	R 30 000.00	
			Remainder of the <i>works</i> (Maintenance)	R 15 000.00	
X13	Performance bond				
X13.1	The amount of the performance bond is	5% of the total of the Prices (excluding V.A.T.)			



X16	Retention	
X16.1	The retention free amount is	Nil
	The retention percentage is	10% on all payments certified.
X18	Limitation of liability	
X18.1	The <i>Contractor's</i> liability to the <i>Employer</i> for indirect or consequential loss is limited to:	To be proven at the time
X18.2	For any one event, the <i>Contractor's</i> liability to the <i>Employer</i> for loss of or damage to the <i>Employer's</i> property is limited to:	The deductible of the relevant insurance policy
X18.3	The <i>Contractor's</i> liability for Defects due to his design which are not listed on the Defects Certificate is limited to:	The cost of correcting the Defect
X18.4	The <i>Contractor's</i> total liability to the <i>Employer</i> for all matters arising under or in connection with this contract, other than excluded matters, is limited to:	The Total of the Prices
X18.5	The <i>end of liability date</i> is	5 years after Completion of the whole of the works
Z	<i>Additional conditions of contract are:</i>	





Z1.6

The employer has the right to withhold payment in respect of the main offer, should the contractor default on the implementation of achieving the CSDG goals. In such an instance the value of the payment withheld, shall be no less than the value of the CSDG requirement where non-performance has occurred.

Z1.6

The Employer has the right to terminate the contract should the Contractor default on the CSDG condition of tender.

Z2

Additional clause relating to Performance Bonds and/or Guarantees

Z2.1

The Performance Guarantee under X13 above shall be an irrevocable, on-demand performance guarantee, to be issued exactly in the form of the Pro Forma documents provided for this purpose under C1.3 (Forms of Securities), in favour of the *Employer* by a financial institution reasonably acceptable to the *Employer*.

Z3 Additional clauses relating to Joint Venture

Z3.1

Insert the additional core clause 27.5

27.5. In the instance that the *Contractor* is a joint venture, the *Contractor* shall provide the *Employer* with a certified copy of its signed joint venture agreement, and in the instance that the joint venture is an 'Incorporated Joint Venture,' the Memorandum of Incorporation, within 4 (four) weeks of the Contract Date.

The Joint Venture agreement shall contain but not be limited to the following:

- **A brief description of the Contract and the Deliverables;**
- **The name, physical address, communications addresses and domicilium citandi et executandi of each of the constituents and of the Joint Venture;**
- **The constituent's interests;**
- **A schedule of the insurance policies, sureties, indemnities and guarantees which must be taken out by the Joint Venture and by the individual constituents;**
- **Details of an internal dispute resolution procedure;**
- **Written confirmation by all of the constituents:**
 - i. **of their joint and several liabilities to the *Employer* to Provide the Works;**
 - ii. **identification of the lead partner in the joint venture confirming the authority of the lead partner to bind the joint venture through the *Contractor's* representative;**



iii. Identification of the roles and responsibilities of the constituents to provide the Works.

• Financial requirements for the Joint Venture:

iv. the working capital requirements for the Joint Venture and the extent to which and manner whereby this will be provided and/or guaranteed by the constituents from time to time;

v. the names of the auditors and others, if any, who will provide auditing and accounting services to the Joint Venture.

Z3.2

Insert additional core clause 27.6

27.6. The *Contractor* shall not alter its composition or legal status of the Joint Venture without the prior approval of the *Employer*.

Z4 Additional obligations in respect of Termination

Z4.1

The following will be included under core clause 91.1:

In the second main bullet, after the word 'partnership' add 'joint venture whether incorporate or otherwise (including any constituent of the joint venture)' and

Under the second main bullet, insert the following additional bullets after the last sub-bullet:

- commenced business rescue proceedings (R22)
- repudiated this Contract (R23)



Z4.2	Termination Table	<p>The following will be included under core clause 90.2 Termination Table as follows:</p> <p>Amend "A reason other than R1 – R21" to "A reason other than R1 – R23"</p>
Z4.3		Amend "R1 – R15 or R18" to "R1 – R15, R18, R22 or R23."
Z5	Right Reserved by the Employer to Conduct Vetting through SSA	
Z5.1		<p>The <i>Employer</i> reserves the right to conduct vetting through State Security Agency (SSA) for security clearances of any <i>Contractor</i> who has access to National Key Points for the following without limitations:</p> <ol style="list-style-type: none"> 1. Confidential – this clearance is based on any information which may be used by malicious, opposing or hostile elements to harm the objectives and functions of an organ of state. 2. Secret – clearance is based on any information which may be used by malicious, opposing or hostile elements to disrupt the objectives and functions of an organ of state. 3. Top Secret – this clearance is based on information which may be used by malicious, opposing or hostile elements to neutralise the objectives and functions of an organ of state.



Z6 Additional Clause Relating to Collusion in the Construction Industry

Z6.1 The contract award is made without prejudice to any rights the *Employer* may have to take appropriate action later with regard to any declared tender rigging including blacklisting.

Z7 Protection of Personal Information Act

Z7.1 The *Employer* and the *Contractor* are required to process information obtained for the duration of the Agreement in a manner that is aligned to the Protection of Personal Information Act.

Z8 Contract Hedging

Z8.1 *Contractor* to provide a Commercial Bank quotation for the cost of forward cover pertaining to this contract within 14 days of contract award. The quotation is to be submitted to Transnet Group Treasury for approval. The accepted quotation shall be implemented as a Compensation Event.

**Z9 Local Production and Content
Obligations in Respect of
Specific Goals**

- Z9.1** In terms of Local Production and Content (SBD 6.2), Annexure A and Annexure C of the Returnable Schedule T2.2-18: Declaration Certificate of Local Production and Content, the *Contractor* has undertaken to fulfil its obligations of the Local Production and Content for the following designated sectors: 1. Cement; 2. Steel Products and components for construction; 3. Valves Products and Actuators; and 4. Electric Cables and Products.
- Z9.2** The *Contractor* is required to note that the Employer, the Department of Trade and Industry [DTI] and/or the body appointed by the DTI as the verification authority for local content may conduct compliance audits with regard to the Local Production and Content requirements.
- Z9.3** The Contractor is required to continuously update Declarations C, D and E of the Local Production and Content Declaration commitments with the actual local content values for the duration of the contract. The Contractor shall report to the Employer on a monthly basis during the term of the Contract, the amounts spend on Local Production and Content for the designated sectors for the duration of the contract.
- Z9.4** The *Contractor* must refer to Schedule A attached to the Returnable Schedule T2.2-18: Declaration Certificate of Local Production and Content concerning non-compliance penalties applicable to Local Production and Content.
-

Transnet Pipelines:

Contract Number: TPL/2024/07/0005/70943/RFP

Description of the Works: DESIGN, SUPPLY, INSTALLATION (EPC CONTRACTOR) AND PROVIDE PLANNED MAINTENANCE FOR A LIMITED PERIOD FOR THE VAPOUR RECOVERY UNIT SYSTEM AT THE TPL TARLTON PETROLEUM PRODUCTS HANDLING AND BULK STORAGE FACILITY



Z9.5

Breach of Local Production and Content commitments provides the *Employer* cause to terminate the contract.

C1.2 Contract Data

Part two - Data provided by the *Contractor*

The tendering *Contractor* is advised to read both the NEC3 Engineering and Construction Contract - June 2005 (with amendments June 2006 and April 2013) and the relevant parts of its Guidance Notes (ECC3-GN) in order to understand the implications of this Data which the tenderer is required to complete. An example of the completed Data is provided on pages 156 to 158 of the ECC3 Guidance Notes.

Completion of the data in full, according to Options chosen, is essential to create a complete contract.

Clause	Statement	Data
10.1	The <i>Contractor</i> is (Name):	
	Address	
	Tel No.	
	Fax No.	
11.2(8)	The <i>direct fee percentage</i> is	%
	The <i>subcontracted fee percentage</i> is	%
11.2(18)	The <i>working areas</i> are the Site and	
24.1	The <i>Contractor's</i> key persons are:	
	1 Name:	
	Job:	
	Responsibilities:	
	Qualifications:	
	Experience:	
	2 Name:	
	Job	
	Responsibilities:	
	Qualifications:	
	Experience:	

		CV's (and further key persons data including CVs) are appended to Tender Schedule entitled .		
11.2(14)	The following matters will be included in the Risk Register			
31.1	The programme identified in the Contract Data is			
A	Priced contract with activity schedule			
11.2(20)	The <i>activity schedule</i> is in			
11.2(30)	The tendered total of the Prices is	(in figures) (in words), excluding VAT		
	Data for Schedules of Cost Components	<i>Note "SCC" means Schedule of Cost Components starting on page 60 of ECC, and "SSCC" means Shorter Schedule of Cost Components starting on page 63 of ECC.</i>		
A	Priced contract with activity schedule	Data for the Shorter Schedule of Cost Components		
41 in SSCC	The percentage for people overheads is:	%		
21 in SSCC	The published list of Equipment is the last edition of the list published by			
	The percentage for adjustment for Equipment in the published list is	%		
22 in SSCC	The rates of other Equipment are:	Equipment	Size or capacity	Rate
61 in SSCC	The hourly rates for Defined Cost of design outside the Working Areas are	Category of employee		Hourly rate

Transnet Pipelines:

Contract Number: TPL/2024/07/0005/70943/RFP

Description of the Works: DESIGN, SUPPLY, INSTALLATION (EPC CONTRACTOR) AND PROVIDE PLANNED MAINTENANCE FOR A LIMITED PERIOD FOR THE VAPOUR RECOVERY UNIT SYSTEM AT THE TPL TARLTON PETROLEUM PRODUCTS HANDLING AND BULK STORAGE FACILITY



62 SSCC	in	The percentage for design overheads is	%
63 SSCC	in	The categories of design employees whose travelling expenses to and from the Working Areas are included in Defined Cost are:	

C1.3 Forms of Securities

Pro forma Performance Guarantee

For use with the NEC3 Engineering & Construction Contract - June 2005 (with amendments June 2006 and April 2013)

The *conditions of contract* stated in the Contract Data Part 1 include the following Secondary Option:

Option X13: Performance bond

The pro forma document for this Guarantee is provided here for convenience but is to be treated as part of the *Works Information*.

The organisation providing the Guarantee does so by copying the pro forma document onto its letterhead without any change to the text or format and completing the required details. The completed document is then given to the *Employer* within the time stated in the contract.

The Performance Bond needs to be issued by an institution that are reasonably acceptable to the *Employer*.

Transnet may choose to not to accept an Issuer. Should the issuer not being accepted, the performance bond needs to be replaced by an issuer that are acceptable to Transnet. Issuers need to be verified for acceptance by Transnet before a performance bond is issued.



Pro-forma Performance Bond (for use with Option X13)

(to be reproduced exactly as shown below on the letterhead of the Surety)

Transnet SOC Ltd
C/o Transnet Pipelines
Transnet Corporate Centre
138 Eloff Street
Braamfontein
Johannesburg
2000

Date:

Dear Sirs,

Performance Bond for Contract No.

With reference to the above numbered contract made or to be made between

Transnet SOC Limited, Registration No. 1990/000900/30 (the *Employer*) and

{Insert registered name and address of the Contractor} (the *Contractor*), for

{Insert details of the works from the Contract Data} (the *works*).

I/We the undersigned

on behalf of the
Guarantor

of physical address

and duly authorised thereto do hereby bind ourselves as Guarantor and co-principal debtors in solidum for the due and faithful performance of all the terms and conditions of the Contract by the *Contractor* and for all losses, damages and expenses that may be suffered or incurred by the *Employer* as a result of non-performance of the Contract by the *Contractor*, subject to the following conditions:

1. The terms *Employer*, *Contractor*, *Project Manager*, *works* and Completion Certificate have the meaning as assigned to them by the *conditions of contract* stated in the Contract Data for the aforesaid Contract.
2. We renounce all benefits from the legal exceptions "Benefit of Excussion and Division", "No value received" and all other exceptions which might or could be pleaded against the validity of this bond, with the meaning and effect of which exceptions we declare ourselves to be fully acquainted.
3. The *Employer* has the absolute right to arrange his affairs with the *Contractor* in any manner which the *Employer* deems fit and without being advised thereof the Guarantor shall not have the right to claim his release on account of any conduct alleged to be prejudicial to the Guarantor. Without derogating from the foregoing compromise, extension of the construction period, indulgence, release or variation of the *Contractor's* obligation shall not affect the validity of this performance bond.

4. This bond will lapse on the earlier of
 - the date that the Guarantor receives a notice from the *Project Manager* stating that the Completion Certificate for the whole of the *works* has been issued, that all amounts due from the *Contractor* as certified in terms of the contract have been received by the *Employer* and that the *Contractor* has fulfilled all his obligations under the Contract, or
 - the date that the Surety issues a replacement Performance Bond for such lesser or higher amount as may be required by the *Project Manager*.
5. Always provided that this bond will not lapse in the event the Guarantor is notified by the *Project Manager*, (before the dates above), of the *Employer's* intention to institute claims and the particulars thereof, in which event this bond shall remain in force until all such claims are paid and settled.
6. The amount of the bond shall be payable to the *Employer* upon the *Employer's* demand and no later than 7 days following the submission to the Guarantor of a certificate signed by the *Project Manager* stating the amount of the *Employer's* losses, damages and expenses incurred as a result of the non-performance aforesaid. The signed certificate shall be deemed to be conclusive proof of the extent of the *Employer's* loss, damage and expense.
7. Our total liability hereunder shall not exceed the sum of:
(say) _____
R _____
8. This Performance Bond is neither negotiable nor transferable and is governed by the laws of the Republic of South Africa, subject to the jurisdiction of the courts of the Republic of South Africa

Signed at _____ on this _____ day of _____ 201__

Signature(s)	
Name(s) (printed)	
Position in Guarantor company	
Signature of Witness(s)	
Name(s) (printed)	



PART 2: PRICING DATA

Document reference	Title	No of pages
C2.1	Pricing instructions: Option A	2
C2.2	Activity Schedule	2



C2.1 Pricing Instructions: Option A

1. The conditions of contract

1.1. How the contract prices work and assesses it for progress payments

Clause 11 in NEC3 Engineering and Construction Contract, June 2005, (with amendments June 2006 and April 2013) (ECC) Option A states:

Identified and defined terms 11

- 11.2 (20) The Activity Schedule is the *activity schedule* unless later changed in accordance with this contract.
- (22) Defined Cost is the cost of the components in the Shorter Schedule of Cost Components whether work is subcontracted or not excluding the cost of preparing quotations for compensation events.
- (27) The Price for Work Done to Date is the total of the Prices for
- each group of completed activities and
 - each completed activity which is not in a group
- A completed activity is one which is without Defects which would either delay or be covered by immediately following work.
- (30) The Prices are the lump sums for each of the activities on the Activity Schedule unless later changed in accordance with this contract.

1.2. Measurement and Payment

- 1.2.1 The Activity Schedule provides the basis of all valuations of the Price for Work Done to Date, payments in price adjustments for inflation and general progress monitoring.
- 1.2.2 The amount due at each assessment date is based on **completed activities** as indicated on the Activity Schedule.
- 1.2.3 The Activity Schedule work breakdown structure provided by the *Contractor* is based on the Activity Schedule provided by the *Employer*. The activities listed by the *Employer* are the minimum activities acceptable and identify the specific activities which are required to achieve Completion. The activity schedule work breakdown structure is compiled to the satisfaction of the *Project Manager* with any additions and/or amendments deemed necessary.
- 1.2.4 The *Contractor's* detailed Activity Schedule summates back to the Activity Schedule provided by the *Employer* and is in sufficient detail to monitor completion of activities related to the Accepted Programme in order that payment of completed activities may be assessed.
- 1.2.5 The short descriptions in the Activity Schedule are for identification purposes only. All work described in the Works Information is deemed included in the activities.



- 1.2.6 The Activity Schedule is integrated with the Prices, Accepted Programme and where required the forecast rate of payment schedule.
- 1.2.7 Activities in multiple currencies are separately identified on both the Activity Schedule and the Accepted Programme for each currency.
- 1.2.8 The tendered total of the prices as stated in the Contract Data is obtained from the Activity Schedule summary. The tendered total of the prices includes for all direct and indirect costs, overheads, profits, risks, liabilities and obligations relative to the Contract.



C2.2 Activity Schedule

The Tenderer details his Activity Schedule below or makes reference to his Activity Schedule and attaches it to this schedule.

TRANSNET PIPELINES			TRANSNET pipelines
TENDER NUMBER: TPL/2024/07/0005/70943/RFP			
DESCRIPTION OF THE WORKS: DESIGN, SUPPLY, INSTALLATION (EPC CONTRACTOR) AND PROVIDE PLANNED MAINTENANCE FOR A LIMITED PERIOD FOR THE VAPOUR RECOVERY UNIT SYSTEM AT THE TPL TARLTON PETROLEUM PRODUCTS HANDLING AND BULK STORAGE FACILITY			
		ACTIVITY SCHEDULE	
ACTIVITY NUMBER	SCOPE REF CLAUSE	ACTIVITY DESCRIPTION	ACTIVITY AMOUNT
		Section One	
		Professional Services Scope of Work	
1.1		Professional Engineering Services during Design	
1.1.1	Clause 4; 5; 6; 7;12; 13; 14; 16	Mechanical Engineering Design Accepted by the Client	R
1.1.2	Clause 4; 5; 6; 7;12; 13; 14; 16	Electrical Engineering Design Accepted by the Client	R
1.1.3	Clause 4; 5; 6; 7;12; 13; 14; 17	Civil Engineering Design Accepted by the Client	R
1.1.4	Clause 4; 5; 6; 7;12; 13; 14; 18	Structural Engineering Design Accepted by the Client	R
1.1.5	Clause 4; 5; 6; 7;12; 13; 14; 19	Control and Instrumentation Design Accepted by the Client	R
1.1.6	Clause 4; 5; 6; 7;12; 13; 14; 20	Fire Engineering Design Accepted by the Client	R
1.1.7	Clause 5; 8; 10; 11; 16	Project Health and Safety Specification and Baseline Risk Assessment	R
		Sub Total (A)	R
1.2		Professional Engineering Services during Execution	
1.2.1	Clause 4; 5; 6; 7; 8; 12; 13; 14; 16; 18;	Engineering During Construction	R
1.2.2	Clause 6; 7; 14; 16; 18; 20	Commissioning	R
1.2.3	Clause 16.4 to 16.9	Close Out	R
		Sub Total (B)	R
		Section Two	
2		Construction Scope of Work- Measurements will be carried out in accordance with the approved Designs	
2.1		Health Safety and Environmental	
2.1.1	Clause 5; 8; 10; 11; 16	Safety, Health and Environment Compliance File	R
2.1.2	Clause 8; 9; 10;11; 20	Works Permit	R
2.1.3	Clause 5; 6; 7; 8; 10; 16; 20	SHE Monitoring - Two reports per month	R
2.1.4	Clause 5; 6; 12; 18; 20	Quality Management Monitoring Four Reports per month	R
		Sub Total (C)	R
2.2		Temporary Services	
2.2.1	Clause 8; 9; 11; 14; 16; 20	Site Establishment including provision of temporary services, etc. for the entire duration of the Construction Work	R
2.2.2	Clause 5; 10; 19; 20	Provision of Fire Standby for Fire Protection over the construction period	R
2.2.3	Clause 8; 9; 11; 14; 16; 20	Site De Establishment	R
		Sub Total (D)	R
		New VRU Skid Installation	
2.3.1	Clause 5; 8; 16; 17; 18; 19; 20; 22	Civil Works Installation	R
2.3.2	Clause 5; 8; 16; 17; 18; 19; 20; 22	Structural Works Installation	R
2.3.3	Clause 5; 8;16; 17; 18; 19; 20; 22	Mechanical Works Installation	R
2.3.4	Clause 5; 8;16; 17; 18; 19; 20; 22	Electrical Works Installation	R
2.3.5	Clause 5; 8;16; 17; 18; 19; 20; 22	Control & Instrumentaion Works Installation	R
2.3.6	Clause 5; 8;16; 17; 18; 19; 20; 22	Fire Protection Installation	R
2.3.7	Clause 5; 8;16; 17; 18; 19; 20; 22	Supply of VRU Skid Unit, Factory Acceptance Tests, and Delivery to Site	R
2.3.8	Clause 5; 8;16; 17; 18; 19; 20; 22	Connect and Integrate VRU Unit	R
		Sub Total (E)	R
		Existing Control Room Installlation	
2.4.1	Clause 5; 8; 16; 17; 18; 19; 20; 22	Civil Works Installation	R
2.4.2	Clause 5; 8; 16; 17; 18; 19; 20; 22	Structural Works Installation	R
2.4.3	Clause 5; 8;16; 17; 18; 19; 20; 22	Mechanical Works Installation	R
2.4.4	Clause 5; 8;16; 17; 18; 19; 20; 22	Electrical Works Installation including any FAT's, supply and installation of all equipment	R
2.4.5	Clause 5; 8;16; 17; 18; 19; 20; 22	Control & Instrumentaion Works Installation including any FAT's, supply and installation of all equipment	R
2.4.6	Clause 5; 8;16; 17; 18; 19; 20; 22	Communication Systems Installation Including Cabling and Integration	R

2.4.7	Clause 5; 8;16; 17; 18; 19; 20; 22	Fire Protection Installation including intergration into existing Fire Protection System	R
		Sub Total (F)	R
		New Local Control Room	
2.5.1	Clause 5; 8; 16; 17; 18; 19; 20; 22	Civil Works Installation	R
2.5.2	Clause 5; 8; 16; 17; 18; 19; 20; 22	Structural Works Installation	R
2.5.3	Clause 5; 8;16; 17; 18; 19; 20; 22	Mechanical Works Installation	R
2.5.4	Clause 5; 8;16; 17; 18; 19; 20; 22	Electrical Works Installation	R
2.5.5	Clause 5; 8;16; 17; 18; 19; 20; 22	Control & Instrumentaion Works Installation	R
2.5.6	Clause 5; 8;16; 17; 18; 19; 20; 22	Communication System Including Cabling and Integration into existing Control System	R
2.5.7	Clause 5; 8;16; 17; 18; 19; 20; 22	Fire Protection Installation including intergration into existing Fire Protection System	R
		Sub Total (G)	R
		Rail Loading Facility Installation	
2.6.1	Clause 5; 8; 16; 17; 18; 19; 20; 22	Civil Works Installation	R
2.6.2	Clause 5; 8; 16; 17; 18; 19; 20; 22	Structural Works installation	R
2.6.3	Clause 5; 8;16; 17; 18; 19; 20; 22	Mechanical Works Installation	R
2.6.4	Clause 5; 8;16; 17; 18; 19; 20; 22	Electrical Works Installation	R
2.6.5	Clause 5; 8;16; 17; 18; 19; 20; 22	Control & Instrumentaion Works Installation	R
2.6.6	Clause 5; 8;16; 17; 18; 19; 20; 22	Communication System including cabling and Integration into existing Control System	R
2.6.7	Clause 5; 8;16; 17; 18; 19; 20; 22	Fire Protection Installation including intergration into existing Fire Protection System	R
		Sub Total (H)	R
		Road Loading Facility Installation	
2.7.1	Clause 5; 8; 16; 17; 18; 19; 20; 22	Civil Works Installation	R
2.7.2	Clause 5; 8;16; 17; 18; 19; 20; 22	Structural Works installation	R
2.7.3	Clause 5; 8;16; 17; 18; 19; 20; 22	Mechanical Works Installation	R
2.7.4	Clause 5; 8;16; 17; 18; 19; 20; 22	Electrical Works Installation	R
2.7.5	Clause 5; 8;16; 17; 18; 19; 20; 22	Control & Instrumentaion Works Installation	R
2.7.6	Clause 5; 8;16; 17; 18; 19; 20; 22	Communication System including cabling and Integration into existing Control System	R
2.7.7	Clause 5; 8;16; 17; 18; 19; 20; 22	Fire Protection Installation including intergration into existing Fire Protection System	R
		Sub Total (I)	R
		Adsorbant / Absorbant Supply Tank 'Tie In' Installation	
2.8.1	Clause 5; 8; 16; 17; 18; 19; 20; 22	Civil Works Installation	R
2.8.2	Clause 5; 8; 16; 17; 18; 19; 20; 22	Structural Works installation	R
2.8.3	Clause 5; 8;16; 17; 18; 19; 20; 22	Mechanical Works Installation	R
2.8.4	Clause 5; 8;16; 17; 18; 19; 20; 22	Electrical Works Installation	R
2.8.5	Clause 5; 8;16; 17; 18; 19; 20; 22	Control & Instrumentaion Works Installation	R
2.8.6	Clause 5; 8;16; 17; 18; 19; 20; 22	Communication System including cabling and Integration into existing Control System	R
	Clause 5; 8;16; 17; 18; 19; 20; 22	Fire Protection Installation including intergration into existing Fire Protection System	R
		Sub Total (J)	R
		Reticulation Works Between Rail Loading Facility and Adsorbant / Absorbant Tank	
2.9.1	Clause 5; 8; 16; 17; 18; 19; 20; 22	Civil Reticulation Works	R
2.9.2	Clause 5; 8; 16; 17; 18; 19; 20; 22	Mechanical Reticulation Works	R
2.9.3	Clause 5; 8;16; 17; 18; 19; 20; 22	Electrical Reticulation Works	R
2.9.4	Clause 5; 8;16; 17; 18; 19; 20; 22	Electronic Control and Instrumentation Reticulation Works	R
2.9.5	Clause 5; 8;16; 17; 18; 19; 20; 22	Communication System Reticulation Works	R
2.9.6	Clause 5; 8;16; 17; 18; 19; 20; 22	Fire Protection Reticulation Works	R
		Sub Total (K)	R
		Reticulation Works Between Road Loading Facility and Adsorbant / Absorbant Tank	
2.10.1	Clause 5; 8; 16; 17; 18; 19; 20; 22	Civil Reticulation Works	R
2.10.2	Clause 5; 8; 16; 17; 18; 19; 20; 22	Mechanical Reticulation Works	R
2.10.3	Clause 5; 8;16; 17; 18; 19; 20; 22	Electrical Reticulation Works	R
2.10.4	Clause 5; 8;16; 17; 18; 19; 20; 22	Electronic Control and Instrumentation Reticulation Works	R
2.10.5	Clause 5; 8;16; 17; 18; 19; 20; 22	Communication System Reticulation Works	R

2.10.6	Clause 5; 8; 16; 17; 18; 19; 20; 26	Fire Protection Reticulation Works	R
		Sub Total (L)	R
		Reticulation Works Between VRU Skid and Adsorbant / Absorbant Tank	
2.11.1	Clause 5; 8; 16; 17; 18; 19; 20; 22	Civil Reticulation Works	R
2.11.2	Clause 5; 8; 16; 17; 18; 19; 20; 22	Mechanical Reticulation Works	R
2.11.3	Clause 5; 8; 16; 17; 18; 19; 20; 22	Electrical Reticulation Works	R
2.11.4	Clause 5; 8; 16; 17; 18; 19; 20; 22	Electronic Control and Instrumentation Reticulation Works	R
2.11.5	Clause 5; 8; 16; 17; 18; 19; 20; 22	Communication System Reticulation Works	R
2.11.6	Clause 5; 8; 16; 17; 18; 19; 20; 22	Fire Protection Reticulation Works	R
		Sub Total (M)	R
		Reticulation Works Between Control Room and VRU Skid	
2.12.1	Clause 5; 8; 16; 17; 18; 19; 20; 22	Civil Reticulation Works	R
2.12.2	Clause 5; 8; 16; 17; 18; 19; 20; 22	Mechanical Reticulation Works	R
2.12.3	Clause 5; 8; 16; 17; 18; 19; 20; 22	Electrical Reticulation Works	R
2.12.4	Clause 5; 8; 16; 17; 18; 19; 20; 22	Electronic Control Reticulation Works	R
2.12.5	Clause 5; 8; 16; 17; 18; 19; 20; 22	Fire Protection Reticulation Works	R
		Sub Total (N)	R
		Reticulation Works Between Control Room and and Adsorbant / Absorbant Tank	
2.13.1	Clause 5; 8; 16; 17; 18; 19; 20; 22	Civil Reticulation Works	R
2.13.2	Clause 5; 8; 16; 17; 18; 19; 20; 22	Mechanical Reticulation Works	R
2.13.3	Clause 5; 8; 16; 17; 18; 19; 20; 22	Electrical Reticulation Works	R
2.13.4	Clause 5; 8; 16; 17; 18; 19; 20; 22	Electronic Control Reticulation Works	R
2.13.5	Clause 5; 8; 16; 17; 18; 19; 20; 22	Fire Protection Reticulation Works	R
		Sub Total (O)	R
3		Commisioning, Testing and Handover	
3.1	Clause 5; 18; 20	Cold and Hot Commissioning	R
3.2	Clause 5; 18; 20	Certificates of Compliance	R
3.3	Clause 5; 16 ; 18 ; 20	Manuals; Data Sheets and Maintenance Schedules	R
		Sub Total (P)	R
4		Training (including training material for current and future use)	
4.1	Clause 15; 19 ; 20	Five Operator Personel	R
4.2	Clause 15; 19 ; 20	Five Maintenance Personnel	R
		Sub Total (Q)	R
5		Spares and Maintenance	
5.1	Clause 5 ; 18; 20; 21	Maintenance and Spares Over for a Period of 2 years of operations	R
		Sub Total (R)	R
		Total Value of Activity Schedule (A)+(B)+(C)+(D)+(E)+(F)+(G)+(H)+(I)+(J)+(K)+(L)+(M)+(N)+(O)+(P)+(Q)+(R)	R
		Add 0,25% for CSDG Goal as per Clause Z15,7	R
		TOTAL CARRIED TO OFFER EXCLUDING VAT	R
		<i>Notes:</i>	
1.		The schedule of activities listed above is provided as guide for some of the elements that the Employer would have preferred to have indicated. The Contractor has the discretion to change, add or delete any items as he sees it fit in order to ensure that the final schedule is accordance with the requirements of the contract to enable the execution of the project to meet the requirements of the contract.	
2.		At the discretion of the Employer at the contracting stage the Employer and the Contractor may renegotiate the structure of the contractor to facilitate the accepted construction methodology.	
3.		Any reference to clauses in scope of work has made above for ease of reference only. The pricing of activity schedule is to be priced in the context of the entire scope of work documents under part C3 and all annexures hereto and no claim will be entertained for variations with regards to pricing exclusions for clauses that have not been considered in compiling the offer submitted	

PART C3.: WORKS INFORMATION

Document reference	Title: DESIGN, SUPPLY, INSTALLATION (EPC <i>Contractor</i>) AND PROVIDE PLANNED MAINTENANCE FOR A LIMITED PERIOD FOR THE VAPOUR RECOVERY UNIT SYSTEM AT THE TPL TARLTON PETROLEUM PRODUCTS HANDLING AND BULK STORAGE FACILITY.	No of pages
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C3 EMPLOYER'S WORKS INFORMATION

1 LIST OF TERMS AND ABBREVIATIONS

Terms and /or abbreviations used in this *Works* Information are defined as follows:

API	–	American Petroleum Institute
ASME	–	American Society of Mechanical Engineers
ASTM	–	American Society for Testing & Materials
BOQ	–	Bill of Quantities or Schedule of Quantities Engineer
EPC	–	Engineering, Procurement and Construction
ESD	–	Emergency Shut Down System
HMI	–	Human Machine Interface
HSSE	–	Health, Safety, Security and Environment
HVAC	–	Heating, Ventilation and Air Conditioning
ISO	–	International Organization for standardization Purchaser
MCC	–	Motor Control Center
OHSA	–	Occupational Safety and Health Administration
PLC	–	Programmable Logic Controller
QA	–	Quality Assurance
QC	–	Quality Control
SABS	–	South African Bureau of Standards (subsequently renamed SANS)
SANS	–	South African National Standards
Site	–	The area of the <i>Works</i>
Supplier	–	The successful tenderer
TPL SPEC	–	Transnet Pipelines Specifications
ULP	–	Unleaded Petrol
VRU	–	Vapor Recovery Unit
<i>Works</i>	–	Refers to the full scope of supply and services.

2 DESCRIPTION OF THE WORKS

2.1 Executive Overview

Transnet Pipelines (TPL) owns and operates a petroleum bulk tank storage and distribution facility at Tarlton depot located near the intersection of the N14 and the R24, west of Krugersdorp, Gauteng, South Africa. Tarlton Depot receives fuel products via a pipeline



network. Tarlton Depot owns and operates a total of 17 storage tanks at the depot with a design storage capacity of 44 152 cubic meters. These tanks allow for a limited storage period to facilitate the efficient handling of petroleum products prior to transfer to road or rail tankers. The facility as part of depot operations infrastructure has product rail loading and road tanker loading/ offloading gantry. South Africa is regulated by Government Notice 893 Listed Activities which may have a significant detrimental effect on the environment (hereafter referred to as the Listed Activities), published under the National Environmental Management: Air Quality Act (Act 39 of 2004). Organizations undertaking activities listed in this Government Notice must apply for an Atmospheric Emissions License (AEL). The purpose of these regulations is to reduce the volume of pollutant emissions that are released into the atmosphere by various industries.

Tarlton Depot was issued the AEL which is valid until 03 February 2026. Tarlton Depot activities trigger Subcategory 2.4 of the Listed Activities: Storage and Handling of Petroleum Products (all permanent immobile liquid Storage facilities at a single site with a combined storage capacity of greater-than 1000 cubic meters). One of the requirements of this subcategory is that all loading installations with a throughput of greater than 50 000 cubic meters per annum of products with a vapour pressure greater than 14 kPa, must be fitted with vapour recovery / destruction units (VRU). The Tarlton depot currently operates both rail and road loading facilities and each of the loading facilities independently exceed the 50 000 cubic meters per annum threshold with a vapour pressure greater than 14kPa. It is therefore necessary to install VRUs at the Tarlton rail and road product loading/offloading gantries in order to ensure legal compliance with the listed activities, and also thereby reducing negative impacts on air quality.

Tarlton Depot proposes to install a Hydrocarbon VRU System (s) at the Tarlton rail loading and road loading/offloading gantry in order to ensure legal compliance with the listed activities, and also thereby reducing negative impacts on air quality..

It is a mandatory legislative and licensing requirement that this type of operation should have a Vapor Recovery System installed to trap and reduce emissions of hydrocarbon vapors into the atmosphere which are commonly known as Green House Gases (GHS).

A VRU System is to be installed to capture hydrocarbon vapour lease to the environment during the petroleum product rail wagon and tanker loading operations process.

The *Works* that the EPC (Engineering, Procurement and Construction) *Contractor* is to perform involves the design, supply and installation of a VRU system with its auxiliary

capable of fully meeting all the design basis requirements.

must meet the applicable ASME design code requirements.

3 Interpretation and terminology

Term	Definition
"Engineering, Procurement & Construction"	shall mean a contracting strategy whereby the main contractor is responsible for the engineering, procurement and construction scope of work of the project
"Project"	shall mean any aspect of the assignment, management and administration for the Work, for example: site investigation, design, supervision, construction, etc.
"Project Implementation Plan" (PIP)	shall mean the collection of documents which collectively define, describe, and encompass the EPC Contractor proposed systems, methods, procedures, processes, sequencing of activities and how these combine to deliver the contractor's scope of work. It forms part of the Project Execution Plan (PEP) to be developed by the Consultant.
"Project Execution Plan" (PEP)	shall mean the EPC Contractor comprehensive suite of fully integrated and fully functioning plans, systems and procedures for the Project to be developed by the Consultant
"Monthly Progress Report"	shall mean the detailed management report to be considered at the monthly meeting.
"Approved Inspection Authority"	shall mean an Inspection Authority approved by the Chief Inspector with respect to any particular service.
"Engineering Council of South Africa"	shall mean a statutory body established in terms of the Engineering Profession Act, 46 of 2000 (EPA)
"Engineering, Procurement and Construction"	shall mean a contracting strategy whereby a contractor is appointed for a fixed contract value to carry out the engineering, procurement, and construction scope of <i>works</i> (Turnkey)
"Client"	shall mean any person for whom construction work is being performed for as per CR 2024.
"Construction Regulations 2024"	shall mean Construction Industry Regulations, published by Government Notice No. R.692 in June 2004.
"Plant"	shall mean the complete mechanical, electrical and functioning element of the <i>Works</i> .
"Scope of Work"	shall mean the description of the <i>works</i> set out in the Contractor's tender documents.
"Master Programme"	shall mean the activity time plan designed and implemented by the Contractor covering all activities and tasks, including labor and other economic resourcing, which together constitute the entire scope of <i>works</i> under the Project.

"Monthly Progress Report" shall mean the detailed management report to be considered at the monthly meeting.

"Contractor" shall mean the Contractor(s) appointed by the Employer and responsible for carrying out all physical *works* relating to the Project. The Contractor(s) may include, but are not limited to *works* Contractors, advance *works* Contractors, specialist fit-out Contractors etc.

"Applicable Codes & Standards" shall mean the engineering codes and standards identified by the Employer, Consultant and any other authorized parties as being relevant and applicable to the Project, and which shall be used by the EPC Contractor, third parties to achieve a uniformity of approach throughout the Project.

"The Employer" shall mean TPL, an operating division of Transnet

"Owner's Team" shall be the Transnet appointed personnel to assist the *Employer's Agent* with the execution of the project.

"National Key Point" shall mean any place or area which has under National Key Points Act, 1980 has been declared a National Key Point.

4 Employers Objectives

The *Employer's* objectives are that on completion of the project this facility should have hydrocarbon vapor capturing facility that:

- 4.1 keeps the emissions to the environment of the hydrocarbon vapors within legal allowable limit.
- 4.2 must meet the applicable ASME design code requirements.

5 SCOPE OF THE WORKS

5.1 General

- 5.1.1 The *works* include the design, procurement, fabrication, manufacture, factory testing, storage, delivery to TPL Tarlton site, off-loading, erection, installation, site testing, cold and hot commissioning, project management, quality control of the *works* to ensure a fully functional "ACTIVATED CARBON ADSORPTION SYSTEM WITH VACUUM PUMP" vapour recovery system, hereafter referred to as the VRU system and its auxiliary equipment for efficient and satisfactory operation as a whole. The system shall be a complete operating unit including all required auxiliary equipment for efficient and satisfactory operations as a whole.
- 5.1.2 It is not the intent of the *Employer* to specify each activity and every piece of plant, items, or features required, nevertheless all such plant, and activities are required for the required performance and operation of the system.
- 5.1.3 The *works* is to include the following but not limited to:
- 1) This project is to be treated as a turnkey project.
 - 2) Pipeline designing, supply & laying as per ASME 31.3 for the carrying of Vapours from the rail loading gantry and road loading/ offloading gantry to the inlet of the vapor recovery system skid.
 - 3) Undertake design baseline risk assessment
 - 4) Pipeline designing, supply & laying as per ASME 31.3 for the circulating adsorber from the two proposed adsorber tanks to and from the adsorber column including connection to the existing tank nozzles.
 - 5) Provide civil and structure *works* required for the entire vapour recovery system including the design and construction of structures, foundations, concrete bunds, pipe supports, drainage system, access platforms and step overs.
 - 6) Confirm suitability of the two identified adsorber tanks and connection of the Vapour Recovery piping and ancillary equipment required to the tanks.
 - 7) Design, supply and install all required fixed and rotary like equipment, valves pumps, blowers, compressors required for full and proper functioning of the system.
 - 8) Design, supply and install all instrumentation, PLC based automation system, HMI system and data network and its integration to TPL's depot control system

including provision of all types of cables, electrical panels, MCC and any other materials etc. needed to commission the unit satisfactorily.

- 9) Design and construct the HVAC system for the local control room building.
- 10) Design and install a suitable foam-based fire protection system for the VRU system and integrate the fire system to the existing main depot premix and deluge fire system.
- 11) Provide quality control and produce fortnightly quality report for the duration of the project.
- 12) Provide health and safety requirements, conduct health and safety audits and produce audit reports for the duration of the project.
- 13) Conduct full commissioning, testing and handover of the VRU integrated system and the following documents are to be produced as part of the commissioning process:
 - a) Cold & Hot Commissioning Certificate
 - b) Certificate of Completion
 - c) Manuals/
- 14) Supply special tools and tackles for operation and maintenance of the VRU and all the costs for these tools and tackles are to be included in the lump sum price and a list is to be furnished with the offer.
- 15) Provide planned maintenance spares and consumables for two years to limit system down time thereby ensuring that the system is always available for depot operational requirements.
- 16) The maintenance spares referred to in paragraph (15) above are to be procured by the *Contractor* after taking into consideration lead times and the maintenance schedule.
- 17) Payment by the *Employer* for spares is to be made upon use or installation in accordance with the submitted maintenance schedule or maintenance task(s).
- 18) The Contractor is to factor these requirements in its tender pricing.
- 19) Maintenance is not to be regarded as the same as correcting a defect that arose within the defect period of fifty-two (52) weeks due to defective work or equipment.
- 20) The *Contractor* is to quote for planned maintenance contract for a period of two (2) years which will commence after the VRU system has been fully

commissioned and accepted by the *Employer*.

21) The Contractor as part of his offer is required to provide a maintenance plan and schedule clearly indicating at a minimum the following elements:

- 1) The list of equipment to be maintained.
- 2) The list of any special tools required for maintenance.
- 3) The reason for maintenance on the identified equipment
- 4) The frequency of maintenance of the identified equipment.

○

22) The items mentioned below are also to be included in the *Works Information* of the *Contractor*:

- a) Process Design and Detailed Engineering Design.
- b) Procurement of equipment and materials.
- c) Preparation and submission of documentation for design review and acceptance by the Employer.
- d) Fabrication and assembly of the unit on site.
- e) Erection, testing and commissioning of the VRU system.
- f) Performance Guarantee Tests of the complete system on site.
- g) Training for the Employer's operating and maintenance personnel at site during installation, testing and commissioning.

5.1.4 The *Employer* expects as a minimum subject to depot throughput the supply of one

(1) skid mounted Activated Carbon Adsorption Vapour Recovery Unit, complete with, but not limited to the following:

- a) Flameproof blowers required to extract hydrocarbon vapours.
- b) Two carbon bed adsorber vessels
- c) Dry vacuum pump with electric drive
- d) Adsorbent pumps with electric drive
- e) Adsorber column with separator
- f) Stack Analyzer for measuring the stack emission level.
- g) Flame arrestors to prevent propagation of flame to the loading gantries with an under-pressure protection.
- h) Pneumatic piping and equipment like compressors
- i) The VRU system is to be provided a cumulative read out of the recovered product.
- j) All couplings and features required for the number of loading point to connect/couple the VRU system during operation.

**Note:**

The final configuration and composition of these features is the responsibility of the *Contractor* who has the sole responsibility of designing and installing a system capable of operating efficiently and satisfactory in line with the requirements of the EPC contract.

5.2 Mechanical Piping

The following work to be carried out by the *Contractor* is to be included but not be limited to the following: -

MECHANICAL, PIPING:

Erection of all rotating & Static equipment, alignment, related structural, grouting/fixing, insulation, testing, trial-run & commissioning.

5.2.1 The equipment includes:

- 1) Process & Utility Pumps and compressors
- 2) Valves and actuators
- 3) Operating platform
- 4) All supporting / operating platform structural etc.

5.2.2 Process & Utility Piping Work includes:

- 1) Vapor piping
- 2) Drainage piping
- 3) Adsorbent piping
- 4) Compressed air piping
- 5) Manifold piping including drains.
- 6) All Pump connections and drain lines.
- 7) Supply and Installation of all field instruments e.g pressure gauges, compound gauges, Thermal Safety Valves etc.
- 8) Installation of all valves including equipment drain valves.
- 9) Installation of all Strainers.
- 10) Fabrication, erection of structural steel work for platforms in the identified VRU locations and routing area and other applicable operating areas.
- 11) Erection of all product pumps along with gearbox & motors and compressors.
- 12) Supply & Installation of piping and insulation material for piping etc.
- 13) Testing of the system.
- 14) Supply & application of Painting of the system.

15) Start up and trial run & commissioning on completion.

5.3 Basic Technical Requirements

5.3.1 Intent of specification:

The intention of this specification is to cover the minimum technical requirements for the execution of the *works* for the project defined in the tender.

5.3.2 Applicable International, National and *Employer* standards, codes and specification

- a) Code for Petroleum Refinery Piping -ANSI B 31.3
- b) Code of Procedure for Manual Metal Arc Welding of Mild Steel -Relevant Std.
- c) Welder Qualification-ASME Sec. IX
- d) Standard for Welding pipes and Related Facilities – ASTM 94, E142 & API Code 1104
- e) All applicable TPL Specifications listed in the schedules as Annexure H
- f) All other applicable International and National standards for the design, manufacturing and installation of the Activated Carbon Adsorption Vapor Recovery System.

Note: All codes referred to shall be the latest editions.

5.4 Technical Specifications for Piping

5.4.1 Prefabrication

- a) The *Contractor* is required to fabricate all pipe work in conformity with the requirements of *Employer* accepted designs drawings and specifications. Where specific details of fabrication are not indicated on the drawings or not specified herein, fabrication and erection is to be carried out in accordance with the code for Petroleum Refinery Piping ANSI B 31.3 latest edition.
- b) The *Contractor* is responsible for working to the exact dimensions as shown in the 'accepted' (include accepted) drawings irrespective of individual tolerances permissible. Where errors and/or omissions occur on the drawings, it is the *Contractor's* responsibility to notify the Employer prior to fabrication or erection.
- c) Prefabricated pieces are to have an identification number and *Contractor* is required to mark the same on the drawings.

5.4.2 Alignment

- a) The pipes to be joined by welding are to be aligned correctly with the existing



tolerances on diameters, wall thickness and out of roundness. The same alignment is to be preserved during welding. For the internal misalignment due to difference in wall thickness of the matching components exceeding 1/16", the component with the higher wall thickness is to be internally machined ground, so that the adjoining surfaces are approximately flush.

- b) All flange facing are to be true and perpendicular to the axis of the pipe to which they are attached. Flange bolt holes are to straddle the normal center lines unless different orientation is shown in drawing to match the equipment connections etc.

5.4.3 Pipe Joints

- a) The relevant piping class attached to each line specifies the type of pipe joints to be adopted in construction in all piping systems. Jointing for lines sizes are to be accomplished by butt welding connections.

5.4.4 Cleaning of Piping

- a) On completion of fabrication, all pipes and fittings are to be cleaned inside and outside by suitable means (mechanical cleaning tool, wire brush etc.) before erection to ensure that assembly is free from all loose foreign materials such as scale, sand, weld spatter particles, cutting chips, etc.
- b) All field fabricated piping are also be cleaned at the conclusion of the fabrication. All burrs, welding icicles and weld spatter are to be removed by suitable means (Mechanical tools, wire brush, etc.).
- c) Cleaning requirements for special services, if any, are to be as specified in the piping material specification.
- d) Performance of Welds
- e) All welding is to be performed in accordance with the applicable welding specifications.

5.4.5 Erection

- a) The intent of prefabrication at the shop is to accelerate progress of pipe work and to minimize work in the field. Extent of field welds to be decided at the site by the *Contractor*. The shop fabricated pieces are to be largest practicable size limited for easy transportation to site.
Contractor is required to prepare isometric drawings from the layout/General Arrangement Drawings.
- b) All piping are to be routed and located as shown in piping drawing keeping in view



the piping specifications. No deviations from the arrangement shown are to be permitted without the written consent of the *Employer*.

- c) Location and design of pipe supports shown in arrangement drawings/support drawings should be strictly adhered to. Pipe supports i.e. restraints, such as guides, stops, anchors must be made in such a manner that they will not contribute to the over stressing of a line, while protecting a weaker or more sensitive component, e.g. pump, compressor, tank nozzles etc.
- d) While fitting up mating flanges care is to be exercised to properly align the pipes and to check the flanges for trueness, so that faces of the flanges can be pulled up together without inducing any stresses at the pipes and equipment nozzles.
- e) Flanged connections to all equipment are to be made in such a way as not to induce any stresses due to misalignment, excessive gap etc. The final tightening to be redone when the equipment are aligned completely. Slopes specified for various lines in the drawings are to be maintained by the *Contractor*.
- f) Vents and drains will be shown in the arrangement drawings of each line and these are intended during hydrostatic test for releasing the trapped air and draining out the test fluid after testing. Valved vents and drains are also shown wherever required.
- g) After the piping is erected in final position, it is to be cleaned, tested for tightness and kept dry.

5.4.6 Valves

- a) The valve spindle positions will be shown in the drawings and the *Contractor* is required to follow them. In no case valves are to be installed with the stem below the horizontal.
- b) Globe valve, check valve etc. are to be installed in the correct sequence and direction as shown in piping drawings.
- c) In case the direction of flow is not given on the valve body, the *Contractor* to check them and punch the correct direction thereon prior to their installation.

5.4.7 Supports, Guides & Anchors

Correct installation of supports near all equipment is mandatory.

The following points are to be checked, after installation:

- a) Restraints installed correctly.
- b) Clearance as per support drawings.

c) Insulation

d) No support shoe/cradle are to be off set unless shown specifically in the drawings.

All spring supports are to be checked for the range of movement and adjusted, if necessary, to obtain correct positioning in the cold condition.

5.4.8 Bolts and Nuts

During the erection of the piping the *Contractor* is to provide proper number and size of bolts and nuts as per drawings and specifications.

5.4.9 Assembly

5.4.9.1 The assembly of various piping components is to be carried out so that the completely erected piping conforms to the requirements of the specification as well as the arrangement and details shown in approved construction drawings.

5.4.9.2 All flanged joints are to be so fitted that the gasket contact faces bear uniformly on the gasket and then made up with relatively uniform bolt stress.

5.4.9.3 Tightening of bolts in flanged joints are to be done in such a sequence that the gaskets are to be properly compressed in accordance with the design principles applicable to the types of gaskets used.

5.4.9.4 All bolts are to extend completely through their nuts, but not more than 15 mm.

5.5 Pipe Sleeves

5.5.1 Pipe sleeves are to be provided for pipelines passing through foundations, walls, floors, roofs, etc. They are to be of sufficient size to permit the passage of flanges or fittings assembled with the line.

5.5.2 Sleeves in floors or roofs are to be set sufficiently above the floor or roof to prevent drainage through them.

5.5.3 Generally, sleeves are to be indicated on the drawings, but unless specifically shown as omitted, they are to be installed.

5.5.4 Cleaning and Priming

(i) The pipe to be coated is to be cleaned absolutely free from rust, scale and other foreign matters, as well as from oil, grease etc. by an approved chemical or mechanical method.

(ii) The cleaned surfaces are to be given a coat of smooth, even firm coating of a quick drying pipeline primer to provide bond between the coating and

metal surface. The primer is to be allowed to dry hard before coating; the minimum and maximum periods of time which may elapse between priming and coating to be indicated by the *Contractor*. The work is to be carried out in a clean, dry atmosphere, preferably inside a building.

5.6 Pressure Testing of Erected Piping System

5.6.1 Scope

This specification covers the minimum requirements of site hydrostatic and pneumatic testing of erected VRU piping systems.

5.6.2 General

Pressure tests in accordance with piping codes, where they specifically apply, to be carried out at site except where otherwise requested by *Employer*.

5.6.3 Test Preparation

5.6.3.1 Until pressure testing is complete, piping joints (including flanges, threaded or welded) are to be left unpainted and un-insulated and underground joints are to be exposed.

5.6.3.2 All restrictions which interfere with filling, venting or draining, such as orifice plates, valves etc. are not be installed until testing is complete.

5.6.3.3 A line supported by springs or counterweights are to be supported temporarily, if necessary, sufficient to sustain the load of the line filled with the test liquid.

5.6.3.4 When conditions require a test pressure to be maintained for a period of time, during which the testing medium in the system might be subject to thermal expansion, provision to be made for the relief of excess pressure.

5.6.3.5 On completion of a hydrostatic test in cold weather, or under conditions where remaining moisture may react with the contents of the system when starting operations, it is important that the system be thoroughly drained of water and if necessary dried, to avoid damage.

5.6.4 Flushing before Testing

5.6.4.1 On completion of erection of a pipeline and before it is pressure tested, is to be flushed through with water unless specified otherwise.

5.6.4.2 Flushing to be done by proper pressure, preferably with pump, using a standard fire hose. This will assure full bore flushing which is essential to clean full pipe bore with sufficient velocity to flush clean. Flushing is to be continued

until the water runs clean from the pipeline.

5.6.4.3 Instruments and other special equipment e.g. Relief Valves, are to be removed and spool pieces inserted before flushing. After flushing and pressure testing has taken place, the instrument and other special equipment are to be refitted and subjected only to normal working pressure to test the joints.

5.6.4.4 All on-line valves, unless of full-way type, i.e. gate, ball or parallel slide, are to be examined after flushing to ensure that the internals and sealing are free from trapped rust or welded slag. The service is then ready for pressure testing in accordance with this specification.

5.6.4.5 Flushing and Testing Fluid

a) Water used for flushing and hydrostatic testing are to be of commercial purity.

b) After testing, pipes are to be drained and dried thoroughly.

5.6.4.6 Test Pressure and Records

a) The actual test pressures are to be determined in accordance with the relevant piping code and piping specification.

b) No test pressure is to exceed a value which will produce in the pipe wall a stress exceeding 90% of the yield stress for the materials. The test pressure as determined by the piping code is to be reduced when this condition exists.

c) Test records as required by the codes and piping specification are to be made and are to be subject to *Employer's* approval.

5.6.4.7 Hydrostatic Testing

a) Gauges used for testing are to be tested for accuracy and then installed as close as possible to the low point of the piping system.

b) All vents and other connections which can serve as vents are to be opened during filling so that all air is vented before applying test pressure. Vents are to be located at the high points of the system.

c) Piping which connects to, or is continuous with, lines installed by others, are to be isolated from these lines by test blanks. If it is necessary to include portions of such lines in the test, the *Employer* to be consulted to determine conditions of the test.

d) The following equipment is not to be subjected to the piping test pressure:

i) Pumps and compressors.

- ii) Control Valves, safety valves and filters.
- iii) Any equipment which does not have a specified test pressure.
- e) All safety valves are to be tested prior to insertion in the line to ensure correct spring settings.
- f) Indicating pressure gauges mounted locally may be tested with the lines, provided the test pressure is not in excess of their scale ranges.
- g) Control Valves are to be taken out of the pipeline before hydro testing of the pipeline.

5.6.5 Testing Procedure

5.6.5.1 The pipeline or section thereof under testing are to be slowly filled and the test pressure, measured at the lowest point of elevation, to be applied by means of pump. The duration of each pressure test is not to be less than one hour, and to be as per the relevant standards and procedure. During the test period no drop in pressure in case of hydraulic tests and maximum of 1 percent pressure drop in case of pneumatic tests after temperature corrections.

5.6.5.2 While a line is under pressure all visible leaks are to be prevented by tightening where possible. Other type of defective joints are to be cut and replaced. Any cracked or defective pipe, fittings, valve etc. are to be removed and replaced by the *Contractor* with sound material and the tests are to be repeated until the results are satisfactory. Defective welds are to be repaired by removing the defective piece of pipe which caused the leak and re welding.

5.6.5.3 The *Contractor* is to furnish the pumps, barrels, tanks, bulk heads, blanks, connections, test gauges and all other equipment necessary for pressure testing. Compressed air to be arranged by the *Contractor* from portable air compressors unless otherwise indicated by the *Employer*. The *Contractor* is to furnish, install and dismantle all temporary lines to the system under test.

5.6.5.4 Radiographic tests are to be carried out for all welded joints as per relevant standards and as per the Mandatory Regulations. Radiographic tests are to meet the requirements of relevant ISO/ASTM codes or equivalent. *Contractor's* scope of work to include the certified interpretation of the radiographic films by recognized agency.

5.6.5.5 The *Contractor* to conduct all tests and keep proper records of all tests. Values of line pressure and temperature as well as ambient conditions are to be taken at



each „reading“. The interval between the successive readings are to be 30 minutes unless otherwise agreed. Tested pressure gauges, temperature indicators etc. to be used in duplicate for tests. All such gauges will be calibrated and approval of by the AIA will be obtained prior to conducting the tests.

6 MANAGEMENT AND START UP

6.1 Management Meetings

- 6.1.1 Meetings will be held monthly between the *Employer* and the *Contractor* (and any other co-opted members and representatives) on periods determined by the two parties. All meetings will be physical on-site meetings.
- 6.1.2 The *Contractor* is represented at each meeting by the appropriate members of the staff.
- 6.1.3 The venue for these meetings will be agreed upon between the *Employer* and the *Contractor*.
- 6.1.4 The *Project Manager* to be responsible for the compilation and distribution of the minutes of meetings.
- 6.1.5 Any action of the *Employer*, *Supervisor*, *Contractor* and *Adjudicator* implied in the minutes of the meetings with contractual implications is to be confirmed by a separate communication in accordance with the provisions of the NEC 3.
- 6.1.6 The *Contractor* is to report the overall progress of the *Works* and as a minimum requirement, the following is to be addressed:
 - a) *Contractor's* current activity progress and planned finish dates.
 - b) *Contractors* to report on all items listed in the NEC core Clause, 31.
 - c) Health, Safety and Quality Management.
 - d) The progress of any other relevant activities.
 - e) To discuss any technical or commercial issues.
 - f) Problem areas or concerns.
 - g) Interface matters with the *Employer*.
 - h) Regular meetings of a general nature both for design and construction phases may be convened and chaired by the *Contractor* as follows:

Table 6-1: Meetings Schedule During Design Phase



Transnet Pipelines

Tender Number: TPL/2024/07/0005/70943/RFP

Description of the *Works*: DESIGN, SUPPLY, INSTALLATION (EPC *Contractor*) AND PROVISION OF PLANNED MAINTENANCE FOR A LIMITED PERIOD FOR THE VAPOUR RECOVERY UNIT SYSTEM AT THE TPL TARLTON PETROLEUM PRODUCTS HANDLING AND BULK STORAGE FACILITY.

Title and purpose	Approximate time & interval	Location	Attendance by:
<i>Works Information</i> Confirmation	Once	Tarlton Depot	TPL Employer, Contractor, Supervisor, and Others as determined by the parties.
30% 3D Model Review	To be determined by the outcome of the review sessions	Tarlton Depot	TPL Employer, Contractor, Supervisor, Planners and Others as determined by the parties.
60% 3D Model Review	To be determined by the outcome of the review sessions	Tarlton Depot	TPL Employer, Contractor, Supervisor, Safety Officers and Others as determined by the parties.
90% 3D Model Review	To be determined by the outcome of the review sessions	Tarlton Depot	TPL Employer, Contractor, Supervisor, Quantity Surveyors and Others as determined by the Parties
Final Designs Acceptance	To be determined by the outcome of the review sessions	Tarlton Depot	TPL Employer, Contractor, Supervisor, Safety Officers, and Others as determined by the parties.

Table 6-2: Meetings Schedule During Construction

Title and purpose	Approximate time & interval	Location	Attendance by:
Overall contract progress and feedback (from contract start date to contract completion)	Monthly	At the TPL Tarlton Depot	Employer, Contractor, Supervisor, and Others as determined by the parties.
Planning Meetings (including integration meetings with Others)	Fortnightly	At the TPL Tarlton Depot	Employer, Contractor, Supervisor, Planners and Others as determined by the parties.



Title and purpose	Approximate time & interval	Location	Attendance by:
Safety Meetings	Fortnightly	At the TPL Tarlton Depot	Employer, Contractor, Supervisor, Safety Officers and Others as determined by the parties.
Payment Assessment Meeting	Monthly	At the TPL Tarlton Depot	Employer, Contractor, Supervisor, Quantity Surveyors and Others as determined by the Parties
Quality and Engineering Meeting	Fortnightly	At the TPL Tarlton Depot	Employer, Contractor, Supervisor Safety Officers and Others as determined by the parties.

6.2 All meetings are recorded using minutes or a register prepared and circulated by the *Project Manager*, such minutes or register is not used for the purpose of confirming actions or instructions under the contract as these are to be done separately by the person identified in the conditions of contract to carry out such actions or instructions.

6.3 The schedules are a mere proposal by the *Employer*, the *Contractor* at his discretions can determine any other meeting requirements like the title, purpose and time intervals in cost effective and efficient manner while ensuring the intent and objectives of the project are achieved.

6.4 Costs of all meeting are to be priced into the activity schedule cost elements as part of the project overheads costs.

7 DOCUMENTATION CONTROL

7.1 Document identification

- The *Contractor* is required to submit documentation as per the Document Submission Schedule agreed upon between the *Employer* and the *Contractor*.
- The *Employer's* and the *Contractor's* Representatives will agree on the respective document systems.
- The revisions and changes to the above schedules and document system must be

discussed and agreed upon by all parties.

7.2 Documents Submission

- a) In undertaking the *works* all documentation requirements for the *works* shall be dealt with in accordance with document DOC-STD-0001 – Rev03 (*Contractor* Documentation Submittal Requirements). The control, maintenance and handling of these documents and drawings, using a suitable document control system, remain the sole responsibility of the *Consultant*.
- b) All *Contractor* correspondence is issued through document control. All hardcopy communication will be delivered to the *Employer* via the Document Controller.
- c) Electronic communication can be transmitted to TPLDocControl@transnet.net, and relevant Document Controller copied in.
- d) The *Contractor* shall apply “wet signatures” to the original documentation before scanning the single sided, signed original prior to formal submission to the *Project Manager*.
- e) The *Contractor's* documentation shall be issued to the *Project Manager* under cover of the *Consultant's* Transmittal Note indicating all Contract references (i.e., Project No, Contract No, etc.) as well as the *Consultant's* Project Document Number, Revision Number, Title and chronological listing of transmitted documentation.
- f) All project documents must be submitted to the delegated *Employer's* Representative with transmittal notes according to a Project Documents and Records Management System.
- g) To portray a consistent image, it is important that all documents used within the project follow the same standards of layout, style and formatting as described in the system above.
- h) All *Contractors* are required to submit documents as electronic and hard copies and must be delivered to the *Employer* with a transmittal note.

7.3 Drawings Format and Layout

- a) The creation, issuing and control of all Engineering Drawings will be in accordance to the latest revision of the *Employer's* format as described in the *Employers* Specifications
- b) Drawings issued to the *Employer* will be a minimum of two electronic copies in both the native and pdf version. If required, the necessary signatures shall be appended to the pdf version.

- c) All *Contractors* including sub-*Contractors* are required to submit electronic drawings in both the native format, and scanned drawings in pdf format.

8 HEALTH & SAFETY AND RISK MANAGEMENT

8.1 General

- 8.1.1 In carrying out all obligations to the *Employer* in terms of this contract, which obligations include, amongst others, providing the *Works*, using Plant, Materials and Equipment; and whilst at the site for any reason, the *Contractor* is the "*Employer*" in terms of the Occupational Health and Safety Act, No. 85 of 1993, in respect of its activities and in relation to its employees, clients, subcontractor/s and mandataries.
- 8.1.2 The *Contractor* does not consider itself under the supervision or management of the *Employer* with regards to compliance with the Safety Health and Environmental requirements.
- 8.1.3 The *Contractor* is responsible for the supervision of its employees, agents, Subcontractors and mandataries and takes full responsibility and accountability for ensuring that they are competent, aware of the Safety Health and Environmental requirements, whilst executing the *works* in accordance with the Safety Health and Environmental requirements.
- 8.1.4 The *Contractor* ensures compliance with the following safety documents/regulations:
- 1) The provisions of the Occupational Health and Safety Act, No. 85 of 1993 and all applicable regulations (as amended), binding in terms thereof.
 - 2) The latest versions of standards, procedures, specifications, rules, systems of work and requirements of the *Employer*, copies of which will be provided to the *Contractor* on request.
 - 3) The Health and Safety Plan prepared by the *Contractor* in accordance with the *Employer's* Contractor Health and Safety Specification Guidelines document number TRN-IMS-GRP-GDL-014.3 and Construction Regulations 2014 Regulation 7 (1) (a)
- 8.1.5 The *Contractor* ensures that its employees, agents, Subcontractor's, and mandataries comply with the provisions of the Occupational Health and Safety Act, No. 85 of 1993, and all applicable regulations binding in terms thereof as well as the *Employer's* Contractor Health and Safety Specification Guidelines document number TRN-IMS-GRP-GDL-014.3 whilst making use of plant, materials and equipment and whilst at the Site for any reason whatsoever.



8.1.6 The *Contractor* hereby indemnifies the *Employer* and holds the *Employer* harmless in respect of any losses , damages, claims, demands, liabilities, penalties or expenses that may be made against the *Employer* and/or suffered or incurred by the *Employer* (as the case may be) as a result of, any failure of the *Contractor*, its employees, agents, Subcontractor's and mandataries to comply with their obligations, and/or the failure of the *Employer* to procure the compliance by the *Contractor* , its employees, agents, Subcontractor's and/or mandataries with their responsibilities and/or obligations in terms of or arising from the Occupational Health and Safety Act, No. 85 of 1993.

8.2 Mandatory Agreements

8.2.1 The *Contractor* Confirms that:

- a) In terms of sections 37(1) and 37(2) of the OHSA, the *Employer* is relieved of any and all its responsibilities and liabilities pertaining to the activities performed by the *Contractor* (and its employees, agents, Subcontractor's and mandataries) relating to the *works*; the use of plant, materials and equipment; and whilst at the Site for whatsoever reason.
- b) The *Contractor* confirms that, in terms of the Construction Regulations 2004, Regulation 6, it is hereby mandated as the designer and must perform all duties required of a designer.
- c) The *Contractor* confirms that he has been provided with sufficient information regarding the health and safety arrangements applicable to the *works*; the use of Plant, Materials and Equipment, as well as at the Site.

8.2.2 In addition, the *Contractor* ensures that:

- a) Prior to the *Contractor* commencing with any operations/ activities relating to the *works* and/or prior to gaining access to the Site, the *Contractor* concludes a written mandatory agreement with the *Employer* in terms of section 37(2) of the OHSA and 5(1)(k) under the construction regulations. The aforementioned agreement constitutes a record of the written arrangements and procedures between the *Contractor* and *Employer* regarding health and safety.
- b) As far as is reasonably practicable, the safety and absence of risks to health in connection with the production, processing, use, handling, storage or transport of articles or substances is maintained.
- c) As far as is reasonably practicable, all hazards pertaining to the health and safety of persons and harm to the environment that are attached to any work which is



performed, any article or substance which is produced, processed, used, handled, stored or transported and any plant or machinery which is used in its business, is clearly identified and, as far as is reasonably practicable, further establishes what precautionary measures should be taken with respect to such work, article, substance, plant and machinery in order to protect the health and safety of persons and or harm to the environment, and provides the necessary means to apply such precautionary measures.

- d) Such information, instructions, training and supervision as may be necessary to ensure, as far as is reasonably practicable, the health and safety at work of its employees, agents, Subcontractor's and mandataries is provided.
- e) As far as is reasonably practicable, no employee, agent, Subcontractor and mandatory performs any work or produces, processes, uses, handles, stores or transports any article or substance or operates any Plant or machinery, unless the precautionary measures contemplated or any other precautionary measures which may be prescribed have been taken.
- f) Such measures as may be necessary in the interest of health and safety and the environment are enforced.
- g) Work is performed and that plant, materials or equipment is used under the direct supervision of a person trained to understand the hazards associated with it and who has the authority to ensure that precautionary measures required by the *Employer* are implemented.
- h) All employees are informed of the scope of their authority as contemplated in OHSA.

8.3 Health and Safety Obligations

In addition to the mandatory agreements, the *Contractor*:

1. Ensures that all statutory appointments (as required in terms of the Occupational Health and Safety Act, No. 85 of 1993 and all applicable regulations binding in terms thereof, as amended) and other appointments required in terms of the *Employer's* Contractor Health and Safety Specification Guidelines document number TRN-IMS-GRP-GDL-014.3 are in place and that all appointees are cognizant of their duties and responsibilities in terms of such appointments.
2. Ensures that such appointees execute their duties and responsibilities as required by such an appointment.



3. Ensures that all personnel brought by itself onto site (including employees of *Contractors* and Subcontractors) are suitably qualified and trained for the performance of the task, duties, and functions, which will be allocated to them.
4. Immediately reports any occupational or other injuries, near miss events, property damage, environmental related incidents as well as any potential threat to the health and safety of individuals at the *works* or on the site, as soon as he becomes aware thereof, to the *Employer*.
5. Complies with the *Employer's* Occurrence and Non-Conformance Management Procedure (TRN-IMS-GRP-PROC-013) relating to the reporting and investigation of incidents.
6. Conducts a risk assessment regarding the utilization of PPE and thereafter ensure that Personal Protective Equipment (PPE) of good quality is issued (at its own cost) to its employees, agents, *Contractors*, Subcontractors, and mandataries prior to such individuals accessing the site.
7. All people requiring access and/or performs work in the primary areas (Operational Areas) of the site require the following PPE
 - a) Dromex DW – D59 FA, 100% cotton, flame retardant and acid resistant SABS approved contisuit with long sleeves. Material meeting the requirements of SANS 434, antistatic properties EN 1149 with silver reflective strips (50mm in width) on each sleeve around upper arm and each leg, meeting the requirements for EN471.
 - b) Safety footwear with steel toe protection, antistatic, slip resistant , hydrocarbon resistant and leather material.
 - c) Hard hat with chin straps meeting requirements of SANS 1397:2003.
8. Notwithstanding the overall responsibility of the *Contractor* to ensure compliance with the provisions of the Occupational Health and Safety Act, No. 85 of 1993 and all applicable regulations (as amended), the regulations binding in terms thereof and the Safety Health and Environmental requirements, the *Contractor* ensures, amongst others:
 - a) Ensures that all statutory appointments (as required in terms of the OHSA and regulations binding in terms thereof) and other appointments required in terms of the SHE Requirements, are in place and that all appointees are cognizant of their duties and responsibilities in terms of such appointments.
 - b) Must ensure that such appointees execute their duties and responsibilities as



required by such an appointment.

- c) Ensures that all personnel brought by itself onto Site (including employees of *Contractors* and *Subcontractors*) are suitably qualified and trained for the performance of the task, duties and functions, which will be allocated to them.
- d) Must immediately report to the *Employer* any occupational injuries, near miss events, property damage, environmental related incidents as well as any potential threat to the health and safety of individuals at the *works* or on the Site, as soon as it becomes aware thereof.
- e) Conduct a risk assessment regarding the utilization of PPE and thereafter ensure that PPE of good quality is issued (at its own cost) to its employees, agents, *Contractors*, *Subcontractors* and mandataries prior to such individuals accessing the Site.

8.4 Access to Transnet Pipelines Construction Site

8.4.1 The *Contractor* shall at all times comply with Safety, Health and Environmental requirements prescribed by the relevant legislation as well as the *Employer's Contractor* Health and Safety Specification Guidelines document number TRN-IMS-GRP-GDL-014.3 as they may apply to the scope of services. The Health and Safety File requirements includes but is not limited to, the following:

- 1) Letter of Good Standing from the Workman's Compensation Commissioner (where applicable) must have dol stamp,
- 2) Proof of Public Liability Insurance,
- 3) Scope of Work under contract,
- 4) List of contacts and their telephone numbers,
- 5) Health and Safety Policy
- 6) SHE management Plan,
- 7) Legal Register,
- 8) Organizational Chart for the project
- 9) Appointment Letters (appointment of the contracting company, and appointments for all persons with health and safety related responsibilities),
- 10) Notifications to the relevant authorities that construction work is in progress,
- 11) Baseline and Task-Based Risk Assessments,
- 12) Health and Safety Objectives, and associated Improvement Action Plans,



- 13) Safe Work Procedures, Work Instructions and Work Method Statements
 - 14) Planned task Observations,
 - 15) Fall Protection Plan (for work at heights)
 - 16) A dossier (Equipment Profile) for each fuel-driven vehicle or machine
 - 17) Inspection Registers, Forms and Checklists (e.g. For portable electrical tools, ladders, safety harness, light vehicles, mobile equipment, lifting equipment and lifting tackles, first aid boxes, fire extinguishers, etc.,
 - 18) PPE Issue Registers,
 - 19) Material Safety Data Sheets
 - 20) Emergency Response Procedures.
 - 21) Incident Records,
 - 22) A dossier (Employee Profile) for each employee containing:
 - a) A copy of Employee's Identity Document or Passport
 - b) Certificate of Fitness (Pre-Employment Medical Examination),
 - c) Proof of Induction Training
 - d) Other Training Records
 - e) Copies of Qualification Certificates and/or Certificate of Competency, and
 - f) Copies of Licenses
 - 23) Meeting Minutes
 - 24) HEALTH AND SAFETY Performance Reports
 - 25) Copies of Inspection and Audit Reports
 - 26) Daily Safe Task Instruction (DSTI's) and Toolbox Talks
 - 27) Signed Section 37(2) Mandatory Agreement
- 8.4.2 The *Contractor* shall comply with the provisions of the Occupational Health and Safety Act, 85 of 1993 and relevant regulations as amended.
- 8.4.3 The service provider performs duties of the *Employer* and is in every respect responsible for compliance with the provisions of the act.
- 8.4.4 The service provider will be responsible for the safety, health and environmental rules that Employer may require to be implemented.
- 8.4.5 The *Contractor* shall ensure that no employees, agents , subcontractors, mandataries here as well working on his/her behalf are allowed to enter any *Employer's* site, unless that employee or person has undergone safety, health and



environmental induction pertaining to the hazards prevalent to the site at the time of entry.

- 8.4.6 The Contractor shall ensure that all employees working on site have valid medical certificates of fitness specific to the scope of work to be performed and issued by an occupational health practitioner. Before establishing or entering any Employer's site, the contractor shall submit a Contractor Compliance File (as per *Contractor* Management Procedure 014 or Health and Safety File as per Construction Regulations 2014. review and approval by the Employer. The submission requirements will be aligned to the scope of services of the *Contractor*.
- 8.4.7 The Health and Safety File should contain the following as a minimum for appointed *Contractor* that will not be carrying out any physical *works*.
- 8.4.8 The following documents are required for Contractor employees for induction in *Employer's* site:
 - a) Certified copies of IDs not older than three months.
 - b) Valid work permits for foreign national.
 - c) SAPS Police Clearance
 - d) Proof of competency
- 8.4.9 The *Contractor's* Health and Safety File requirements for a *Contractor* responsible for carrying out physical work include but not limited to the following:
 - a) Letter of good standing from the Workman's Compensation Commissioner (where applicable) and must have a department of labor stamp
 - b) Proof of Public Liability Insurance
 - c) Scope of Work under the contract
 - d) List of contacts and their telephone numbers
 - e) Health and Safety Policy
 - f) Legal Register
 - g) Organizational Chart for the project
 - h) Valid Letter of Good Standing with the Compensation Fund
 - i) Signed 37(2) mandatory agreement between *Contractor* and Employer
 - j) Method Statement and/or safe operating procedures

8.5 *Contractor's* Health and Safety Plan

The *Contractor* shall, prior to commencement of the *works*, provide a sufficiently documented and coherent site-specific health and safety plan, which must be approved



by the *Employer* prior to commencement of the *works*. This plan must be reviewed and updated as the *works* progress.

The plan must cover all activities that will be carried out on the project Site, from mobilization and set-up through to rehabilitation and decommissioning. The plan must demonstrate the *Contractor's* commitment to health and safety and must, as a minimum, include the following:

- a) A copy of the *Contractor's* health and safety policy and objectives, in terms of Section 7 of the OHSA.
- b) Procedures covering hazard identification and risk assessments.
- c) Applicable legal and other requirements, including measures to ensure compliance with these requirements.
- d) Measures to ensure that Health and Safety File is accessible to relevant personnel.
- e) Assignment of specific health and safety responsibilities to individuals in accordance with legal or project requirements, including the appointment of the Construction Manager, health and safety officers, supervisors, health and safety representatives and first aiders.
- f) Training and awareness systems to ensure that each employee is suitably trained and competent, including procedures for identifying training needs and providing the necessary training.
- g) Communication, participation, and consultation arrangements covering health and safety, safety observations, coaching, toolbox talks, daily safe task instructions, project health and safety meetings and notice boards.
- h) Project-specific documentation required for the effective management of health and safety on the project, including processes for the control of these documents.
- i) Processes and procedures for maintaining safe work procedures, for effectively managing health and safety risks, particularly critical risks associated with working at heights, confined spaces, mobile equipment and light vehicles, lifting operations, hazardous chemical substances, grinding, cutting, welding, radiation and the like.
- j) Public safety.
- k) Emergency preparedness and response procedures.
- l) Management of change to ensure that health and safety risks are considered before changes are implemented.
- m) *Sub-Contractor* alignment procedures for the assessment of *Sub-Contractors* and



suppliers regarding health and safety requirements and performance before contracts or purchase orders are awarded.

- n) Measuring and monitoring plans, including a plan for the measuring and monitoring of employee exposure to hazardous substances or agents (e.g. noise, dust, etc.) in order to determine the effectiveness of control measures.
- o) Incident reporting and investigation procedures, describing the protocols to be followed with regard to incident reporting, recording, investigation and analysis.
- p) Non-conformance and action management procedures concerning the management of corrective actions.
- q) Performance assessment and auditing procedures concerning health and safety performance reporting, monthly internal audits to assess compliance with the project health and safety requirements, daily site health and safety inspections and management review processes to assess the effectiveness of health and safety management efforts.
- r) The *Contractor* shall also ensure that all *Subcontractors* are aware of and have the resources required for implementation of the health and safety plans.

8.6 Site Supervision

- 1) The *Contractor* shall appoint in writing a responsible person on Site to whom the *Employer* may refer in connection with the *works*.
- 2) The *Contractor* must in writing appoint one full-time competent person as the Construction Manager with the duty of managing all the construction work on a single site, including the duty of ensuring occupational health and safety compliance.
- 3) All *works* is supervised throughout by enough qualified and competent appointed representatives of the *Contractor*, who have experience in the type of work specified (OHSA- Construction Reg. 8 (1) and 8 (2.))
- 4) The Construction Manager in his/her absence from site may appoint Assistant Construction Manager and Construction Supervisors. No *works* may commence and or continue without Supervisory Appointees present on site. The *Contractor's* Site Supervisors must be equipped with a intrinsically safe mobile telephones and two-way radios so that communication throughout the Contract can be maintained at all times.
- 5) The *Contractor's* Site Supervisor shall provide a list of names and contact telephone numbers of all *Contractor's* and *Sub-Contractor's* contact persons on Site. This list shall be updated as a new *Contractor* or *Sub-Contractor* employee commences on Site.



- 6) The *Contractor's* Site Supervisor shall keep a record of all employees, including date of induction, relevant skills, and licenses, and be able to produce this list at the request of the Supervisor.
- 7) The Site Safety Representative shall be notified of any new starter with evidence of induction, as per the site Induction Application Pack prior to commencement of the *works*.

8.7 *Contractor's* Safety, Health and Environmental Officer

The *Contractor* shall appoint a full-time Safety, Health and Environmental (SHE) Officer for the duration of the Contract, who shall be registered with the SACPCMP (The South African Council for Project Construction Management Professions).

If more than 100 employees are deployed on the Site, directly or through *Sub-Contractors*, at least two full-time Health and Safety Officers must be appointed, with an additional Health and Safety Officer appointed for every 100 additional employees thereafter.

The Health and Safety Officer must be on Site when the *works* commence at the start of the day and must remain on site until all activities for that day (including the activities of *Sub-Contractor*) have been completed. A Health and Safety Officer must be present during all shifts. If *works* are carried out over more than one shift per day, the *Contractor* shall make provision for an additional Health and Safety Officer.

The *Contractor's* Health and Safety Officer shall be responsible for:

- a) Reviewing all applicable legal and project health and safety requirements and providing guidance to the *Contractor* and *Sub-Contractor* personnel, to assist them in always maintaining compliance.
- b) Assisting with the implementation of effective hazard identification and risk management processes for all work to be carried out by the *Contractor*.
- c) Participating in the baseline risk assessment for the *Contractor's* scope of work (prior to Site establishment) and ensuring that identified control measures are implemented.
- d) Participating in all task-based risk assessments conducted for the *works* to be carried out by the *Contractor* and ensuring that identified control measures are implemented.
- e) Conducting health and safety induction training for all *Contractor* and *Sub-Contractor* personnel.
- f) Compiling and maintaining all health and safety related documents and records required of the *Contractor*.
- g) Communicating relevant health and safety information to the *Contractor's* and Sub-



Contractor's personnel (e.g., incidents and lessons learnt, leading practices, hazards, risks and control measures, etc.).

- h) Carrying out safety observations and coaching (once per day).
- i) Evaluating the daily safe task instructions (DSTI's) conducted by the *Contractor's* appointed supervisors and attending at least one DSTI each day.
- j) Attending monthly health and safety meetings.
- k) Assisting with the implementation of the *Contractor's* Health and Safety Management Plan and associated Safe Work Procedures.
- l) Carrying out planned task observations on an ad hoc basis.
- m) Assisting with the implementation, testing and maintenance of an effective emergency response plan for all *Contractor* and Sub-*Contractor* activities.
- 8) Responding to workplace incidents (as appropriate).
- n) Participating in incident investigations.
- o) Maintaining accurate health and safety statistics (for the *Contractor* and all sub-*Contractors*), and compiling health and safety performance reports as required.
- p) Auditing the health and safety management system and workplace activities of the *Contractor* and each sub-*Contractor* monthly to assess compliance with the project health and safety requirements.
- q) Tracking and reporting on the implementation of corrective actions (arising from incident investigations, audits, inspections, etc.).

8.8 Performance Measurement and Reporting

a) Health and Safety File

The *Contractor* shall open and keep on site a health and safety file, to include all documentation required in terms of the OHSA and the Construction Regulations. This file must be available for inspection by the *Employer*, the *Employer* or government inspectors. This file must be handed to the *Employer* upon completion of the *works*.

b) Health and Safety Statistics

The *Contractor* and each of its *Sub-Contractors* shall complete and submit health and safety statistics to the *Employer* before mid-day on the Friday of each week. The *Contractor* shall submit monthly health and safety statistics before mid-day on the last day of each month to the *Employer*.

c) Safety Management Records

The *Contractor* shall submit to the *Employer* for acceptance a schedule of the specific



health and safety records to be maintained for the Contract. As a minimum, such records shall meet the requirements of the applicable legislation. Copies shall be provided to the *Employer* as and when requested.

d) Safety Audit by the *Employer*

The *Employer* has the right to conduct at any time audits and inspections covering the implementation of the Health and Safety Management Plan, ongoing operations, equipment, emergency procedures and the like. The *Contractor* shall fully cooperate with the *Employer's* audits and inspections. Such audits and inspections shall not relieve the *Contractor* from conducting separate audits and reviews of their own health and safety performance.

Where such audits or inspections reveal deficiencies in the *Contractor's* procedures, drills, training or equipment, or non-conformances with the *Contractor's* accepted Health and Safety Management Plan, which are of a minor nature, the *Contractor* shall investigate the cause of the nonconformance and initiate corrective and preventive action to rectify any deficiencies as soon as practicable.

e) Daily Safe Task Instructions (DSTI's)

DSTI's shall be conducted by the *Contractor's* appointed supervisors before the start of each shift, which shall be attended by the *Contractor's* Health and Safety Officer. Attendance records and brief notes shall be kept for auditing and record purposes.

f) Fortnightly Safety Meetings

The *Contractor* shall conduct weekly safety meetings with his employees to foster safety awareness. Copies of minutes and action items arising from such toolbox meetings shall be made available for review by the *Employer*. Such meetings shall, as a minimum, address the following:

- 1) Accident or safety incidents.
- 2) Hazardous conditions.
- 3) Hazardous materials and substances.
- 4) Work procedures.
- 5) Protective clothing and equipment.
- 6) Housekeeping.
- 7) General safety topics.
- 8) Job or work look-ahead issues.
- 9) Safety statistics.

10) Significant Safety Occurrences (SSO).

8.9 The fortnightly meetings shall be attended by the *Contractor's* Construction Manager and Health and Safety Officer as well as the *Employer* or the *Employer's* nominated representative.

8.10 Fortnightly Safety Meetings

The *Contractor* shall conduct at least one formal safety meeting per month and shall maintain appropriate records of attendance and meeting content. Such meetings may be attended by the *Employer*. Records of such meetings shall be compiled by the *Contractor* and made available to the *Employer*.

8.11 Job Safety Analysis

The *Contractor* shall complete a Job Safety Analysis prior to carrying out any activity on site.

8.12 Roles and Responsibilities

a) Construction Manager

- 1) The roles and responsibilities of the Construction Manager include but not limited to the following:
- 2) Implement the safety management plan and systems.
- 3) Monitor compliance to the established safety management plan and systems.
- 4) Ensure risks are maintained at an acceptable level.
- 5) Ensure construction management team are competent in executing the work assigned to them.
- 6) Provide planning, organization, leadership and control.
- 7) Provide specific technical competencies for critical work.
- 8) Provide adequate supervision and control on each shift.
- 9) Regular monitoring and assessment.
- 10) Workplace Inspections.
- 11) Ensure compliance to all applicable health and safety regulatory requirements.

b) Site Personnel Responsibility

The Health and Safety Management Plan shall describe the responsibilities of each member of the *Contractor's* team, including site supervisors and workers, to ensure sure that high priority is given towards safety and health matters.

The *Contractor* and sub-Contractor's workforce shall at all stages be kept aware of safety related matters, to include supervision, safety notice boards, toolbox meetings

and daily pre-start meetings.

9 SECURITY

- 9.1 The Tarlton site is identified and classified as a National Key Point in terms of the National Key Point Act of 1980 (as amended) and is to be red in conjunction with CRITICAL INFRASTRUCTURE Protection Act 8 of 2019 (as amended). All requirements (such as security clearance for all workers) must be adhered to.
- 9.2 All *Contractor* personnel working on site for an extended period are to undergo a security clearance by the State Security Agency (SSA).
- 9.3 All *Contractor* visitors to site are to produce valid identity documents before they can be allowed access to site.
- 9.4 The Employer is responsible for facilitating the security clearance process; the following information is required:
 - a) Company Profile
 - b) Certified copies of Identity Documents (ID) of all employees who will be working on site.
- 9.5 The *Contractor* to note that the security clearance process will take approximately two (2) months from the date of submission by the Employer to the SSA.
- 9.6 The Contractor is therefore required to submit to the Employer the required documents at least two (2) months before the date of submission by the Employer to the SSA.
 - 9.6.1 ID Copies of Directors
 - 9.6.2 CIPC (Companies and Intellectual Property Commission) registration certificate
 - 9.6.3 SARS Tax Clearance of Company
 - 9.6.4 Company Profile
 - 9.6.5 Certified ID copies of all employees who will be coming to site and their responsibilities.

10 FIRE PROTECTION

- 10.1 The *Contractor* complies with the requirements of the *Employer's* Safety Health and Environmental Specification pertaining to fire protection during construction. The *Contractor* ensures that adequate firefighting apparatus is provided at all his Work Sites, and that his staff are trained in the use of this apparatus.
- 10.2 Precautions are taken to prevent any occurrence of fires or explosions while carrying out any work near flammable gas and liquid systems.

10.3 Any tampering with the *Employer's* Fire Equipment is strictly forbidden. All exit doors, fire escape routes, walkways, stairways and stair landings are kept free of obstruction, and not be used for work or storage at any time. Firefighting equipment remains accessible at all times.

10.4 The TPL Tarlton depot contains bulk storage tanks and involves the handling of highly flammable petrochemical products and poses an increased fire risk. Therefore, all *works* within the depot is controlled by TPL operations under strict permit conditions.

10.5 The permit conditions as a minimum, for hot *works* requires that the *Contractor* provides a fire watch or fire standby.

10.6 *Contractor* to include the costs for the fire standby under item 3 in the activity schedule.

11 ENVIRONMENTAL MANAGEMENT

11.1 General

11.1.1 All *works* shall be conducted in accordance with the principles of the National Environmental Management Act, 1998 (Act. 107 of 1998). It is also the responsibility of the *Contractor* to comply and be familiar with all other national governmental, provincial, municipal and local laws, ordinances, regulations, by-laws and acts of parliament, licenses, approvals and permits relating to the environment which are applicable.

11.1.2 The *Employer* or *Employer's* Environmental department may stop the *works* whenever violations are observed in breach of the Environmental Management Plan (EMP), Environmental Impact Assessment (EIA), water discharge requirements, environmental laws or regulations. The costs or delays of any such *works* stoppage, reparation and resultant standby time will be for the *Contractor's* account. Failure or refusal by the *Contractor* to correct the observed violation may result in the termination of the Contract.

11.2 Method Statements

11.2.1 The *Contractor* shall submit a Health and Safety File to the *Employer* prior to commencement of any work on Site. Site access certificates will not be granted until the Health and Safety File has been approved by the *Employer*.

11.2.2 The *Contractor* shall, as required by the EMP and before construction activities commence provide environmental method statements for approval by the *Employer's* *Environmental department*. These shall include, but are not limited to, the following:

- 1) Establishment of a construction lay down area.



- 2) Hazardous and non-hazardous solid waste management.
- 3) Storm water management.
- 4) Management of hydrocarbon spills.
- 5) Diesel tanks and refueling procedures.
- 6) Noise and vibration control.
- 7) Environmental awareness training.
- 8) Emergency procedures for environmental incidents.

11.2.3 The *Contractor* shall identify further activities which may have a potentially adverse impact on the environment and require specific method statements. The *Contractor* shall furthermore define in writing how each of the impacts will be prevented or managed. Method Statements shall be prepared in accordance with the requirements set out in the EMP.

11.2.4 Method statements shall be submitted to the *Employer's* Environmental department at least 14 days prior to the proposed commencement of the activity.

11.2.5 Once method statements and/or procedures are approved by the *Employer* it is the *Contractor's* responsibility to make their staff and *Sub-Contractors* aware of the requirements thereof.

11.2.6 The *Contractor* shall appoint a suitably qualified and experienced, Environmental Officer (EO).

11.2.7 The *Contractor's* EO shall act as the competent person responsible for environmental compliance. The duties of the EO shall include, but are not limited to the following:

- 1) Weekly, and monthly inspections of the site and all working areas as required.
- 2) Monitor compliance with the EMP and approved method statements.
- 3) Reporting of environmental incidents to the *Employer*.
- 4) Attendance at meetings, toolbox talks and induction programmes.
- 5) Litter control and ensuring the *Contractor* clears litter from the site and working areas.
- 6) Ensuring that environmental signage and barriers are correctly placed.
- 7) The Environmental Officer submits weekly and monthly reports to the *Employer* on compliance with the EMP and other Health and Safety File compliance requirements.

11.3 Training

11.3.1 All of the *Contractor's* employees shall receive environmental induction training, to

ensure that they are aware of their responsibilities and are competent to carry out their work in an environmentally acceptable manner.

11.3.2 Workers shall receive further weekly toolbox talks to be presented by the *Contractor's* EO and covering specific environmental topics that are relevant to their activities. These toolbox talks shall be supplemented by site-wide environmental awareness campaigns by the *Contractor* to promote sensitivity to and understanding of environmental management issues.

11.3.3 Training must cover general environmentally responsible conduct, storage and handling of chemicals and potentially hazardous substances, waste management and prevention of pollution of natural resources.

11.3.4 The *Contractor* shall lead all environmental training program.

11.3.5 Records of all training shall be kept and will form part of the monthly environmental audits on Site.

11.3.6 *Sub-Contractors* shall be compelled through their Contract conditions to follow all requirements of the EMP and method statements. The necessary training to their workforce shall be provided by the *Contractor* to ensure that the requirements of the EMP are met and maintained on site.

11.4 Incident Reporting

11.4.1 The *Contractor* shall immediately notify the *Employer* of any environmental incidents on Site. The *Contractor* shall be responsible for investigating all environmental incidents, instituting the required remedial measures, and issuing of close-out reports. All costs associated with the prevention, control, cleaning and remediation of any environmental incidents, spills or releases resulting from the *Contractor's* activities shall be to for the *Contractor's* own account.

11.4.2 The *Contractor* shall maintain a register of all environmental incidents.

11.4.3 Close-out reports shall be submitted to the *Employer* and Employer's Environmental department within 14 days of occurrence of the incident. Case-specific extensions may be considered at the sole discretion of the *Employer*.

11.5 Waste Management

11.5.1 The *Contractor* is responsible for the collection and removal of all waste generated from the Site as a result of Site activities. The *Contractor* shall be familiar with the waste management requirements as outlined in the EMP.

11.5.2 The *Contractor* shall ensure that all waste is removed to appropriate licensed waste

management facilities. Proof of such licensing shall be obtained and kept on file, for review by the *Employer* or the *Employer's* Environmental department.

11.5.3A waste manifest shall be retained for record purposes for each load of waste disposed. The classification of waste will determine the methods for handling and disposal of the material.

11.5.4The *Contractor* shall implement the following waste management measures:

1. Minimize waste in accordance with a waste management hierarchy.
2. Categorize waste in line with the National Waste Information Regulations.
3. Segregate waste to facilitate reuse and to ensure that recyclable waste is handled in an appropriate manner.
4. Appoint an approved waste services *Contractor*, licensed to collect waste within the magisterial district that Tarlton delivery depot is located and to transport, recycle and dispose of such waste at a licensed waste disposal facility.
5. Keep a 100% record of all waste generated and disposed at the waste disposal facility, to include a waste manifest system covering all waste streams.
6. Should any asbestos materials be found on site during excavations, the *Contractor* shall be responsible for the handling and transportation of this material from point of source to the disposal site in accordance with relevant legislation. A Compensation Event may be issued to the *Contractor* in such instances.

11.6Hazardous Substances

11.6.1The *Contractor* shall observe all applicable legislation, including specific requirements of the EMP relating to the handling, storage and transportation of hazardous substances as defined in the Hazardous Substances Act (Act No. 15 of 1973), the Occupational Health and Safety Act (No. 85 of 1993), applicable SABS, SANS and international standards, the EMP, SES and the local Bylaws.

11.6.2The *Contractor* shall, as a minimum, comply with the following requirements:

- 1) Storage and use of hazardous materials shall be strictly controlled to prevent environmental contamination, in accordance also with the materials safety data sheets (MSDS's).
- 2) Hazardous material shall be stored in a lockable area with a sealed floor.
- 3) Storage facilities shall be regularly inspected for leaks and corrosion.
- 4) Accidental spillage of any fuel or hazardous substances shall be cleaned up

immediately using the most appropriate methodologies, equipment and material.

- 5) The *Contractor* shall develop a spill response plan for the event of any spills of fuel, oils, solvents, paints or other hazardous materials. The plan shall describe measures to be taken to remove contaminated soils and materials from site to achieve complete removal of contamination.
- 6) The spills response plans shall include a procedure to distinguish between spills which can be cleaned up by the *Contractor* and those that require specialist input.
- 7) Site staff shall undergo detailed spill response training.
- 8) No vehicles or machines shall be serviced or refueled on site except at designated servicing or refueling locations.

11.7 Noise Monitoring

11.7.1 The *Contractor* shall comply with SANS 10103:2008, Road Traffic Act (Act 29 of 1989), South African Bureau of Standards recommended code of practice, SABS Code 0103:1983 and the Project EMP.

11.7.2 When so instructed by the *Employer*, the *Contractor* shall implement and maintain a noise monitoring procedure.

11.7.3 Management of Ablution Facilities

11.7.4 The *Contractor* shall comply with the National Environmental Management Waste Act (Act 59 of 2008), the EMP and the SES.

11.7.5 The *Contractor* shall provide sufficient ablution facilities in compliance with all relevant health and safety standards and codes. A sufficient number of toilets shall be provided to accommodate the number of personnel working in any given area.

11.8 Dust Management

Where applicable, the *Contractor* shall be responsible for managing dust generated because of his activities.

11.9 Rehabilitation

11.9.1 The *Contractor* shall be responsible for reinstatement and rehabilitating all areas to the satisfaction of the *Employer*. A Rehabilitation Plan shall be submitted to the *Employer* for approval prior to the commencement of such activities.

11.9.2 The *Contractor* shall clear and clean the Site and working areas and ensure that equipment is removed from the Site and working areas. All *works* areas shall be reinstated and rehabilitated in accordance with the Project EMP. An Environmental Closure Certificate shall be compiled by the *Contractor* for sign-off by the *Employer*

upon the completion of project activities.

11.10 Special Considerations

- a) The *Contractor* shall always comply with Environmental Requirements prescribed by law as they may apply to construction activities. 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 *Consultant* performs duties of the *Employer*, and is in every respect responsible for compliance with the provisions of the Acts. The *Contractor* will be responsible for environmental rules that TPL may require to be implemented and shall comply with the Employer's *Contractor* Management Procedure (TRN-IMS-GRP-PROC-014). The *Contractor* is required to compile and submit a Health and Safety File to the Employer, that will include, but not limited to EMP that is specific to the service/ project. The EMP is project specific and addresses the projects potential environmental impacts and their mitigation measures. Site access and commencement of execution of the scope of work will be subject to the review and approval of the SHE Compliance File.
- b) The *Contractor* shall perform all activities within the site and working areas having due regard to the environment and to environmental management practices as more particularly described within the aforesaid Project scope. The *Contractor* to implement sound waste management practices as defined in the EMP. All waste generated by the *Contractor* on site to be disposed by the *Contractor* at the permitted landfill site. The above requirements shall be applicable to the main *Contractor* , its *Contractors* and suppliers. All personnel will be required to attend the environmental induction prior to commencement with their activities.

12 QUALITY ASSURANCE REQUIREMENTS

12.1 General

- 12.1.1 The *Contractor* complies with the *Employer's* quality and technical requirements.
- 12.1.2 The *Contractor* submits a Quality Management Plan (QMP) as a returnable schedule and uses it for all phases of the contract.
- 12.1.3 The *Employer* may at his sole discretion carry out an audit on the *Contractor*, the *Contractor's* suppliers and *Subcontractors* to determine compliance to the QMP.

12.2 Quality Management documents requirements

12.2.1 The *Contractor* will supply the *Employer* with a QCP which will detail the *Contractor's* organization, quality assurance and quality control procedures specific to this contract.

12.2.2 The *Contractor* supplies the *Employer* with a QCP for review and acceptance.

12.2.3 The *Contractor* supplies the *Employer* with a detailed project organogram showing the quality personnel to be used on the Contract.

12.3 Quality Responsibility

12.3.1 The *Contractor* is accountable for the quality of the output and liable for any failures.

12.3.2 The *Contractor* is responsible for defining the level of intervention of QA/QC or inspections. These are to be aligned to the *Employer's* and AIA requirements.

12.3.3 The *Contractor* is responsible for defining the level of intervention of QA/QC or inspections to be imposed on his *Sub-Contractor*, suppliers and sub-suppliers and must ensure that these are in line with the *Employer's* and AIA requirements.

12.3.4 The intervention requirements for the contract take into consideration the criticality of the activity, plant and material.

12.3.5 The interventions points include all witness, hold, verification, and review points required by the *Employer* or *Employer* appointed AIA. The *Contractor's* failure to allow for the intervention points in the planning of the *works* will constitute a non-conformance.

12.4 Inspections

12.4.1 The *Contractor* is responsible for the inspection of all the work that is performed, and the *Employer* only verifies that the *works* is conducted as per the Contract.

12.4.2 The *Contractor* conducts all inspections in accordance with the accepted QCP.

12.4.3 The *Contractor* drafts a QCP which shows each activity from the *Works* Information and submits to the *Employer* for acceptance.

12.4.4 Where an inspection has been abandoned, the *Contractor* is liable for the cost incurred, including re-inspection cost to the *Employer* and the *Employer* appointed AIA.

12.4.5 The *Contractor* provides suitably qualified personnel to conduct on-and-offsite inspections.

12.4.6 The *Contractor* ensures that all *works* are inspected and approved before the *Employer* is invited for verification.



12.4.7 The *Contractor* provides a minimum of 3 working days' notice for local inspections.

The notice shall contain copies of the *Contractor's* inspection reports.

12.4.8 Damages as a result of the *Contractor's* failure to comply with the inspection notice periods will be borne by the and no compensation event will arise out of this.

12.5 Preservation, shipping and transportation

12.5.1 The *Contractor* is responsible for ensuring that all products are preserved in an appropriate manner.

12.5.2 The *Employer* may choose to witness the packaging, loading and offloading of the products depending on their criticality, this will be indicated in the intervention points on the QCP document.

12.5.3 The *Contractor* also ensures that all storage requirements for products are properly implemented to preserve the products against adverse conditions, deterioration, damages, etc.

12.5.4 The *Employer* may request to inspect the stored products at any given point during the storage period of the product and / or plant and / or material.

12.6 Data Pack

12.6.1 QA\QC Data Book

The *Contractor* shall build and maintain a quality data book which shall as a minimum have the following sections:

- 1) Final Acceptance, Hand-over forms and Punch Lists
- 2) Approved Quality Control Plans
- 3) Drawings
- 4) General Arrangement Drawings
- 5) Equipment catalogues, drawings, instruction and installation manuals as well as suppliers acceptance certificates
- 6) As built drawings
- 7) Concrete cube test results,
- 8) Concrete mix design,
- 9) Material certificates
- 10) Electrical certificates of compliance, where applicable
- 11) Commissioning Reports
- 12) Weld Maps indicated on Isometric Drawings
- 13) NDE/NDT reports
- 14) Material identification Maps shown on Isometric Drawings
- 15) Pressure Test Certificates for pipes, valves, vessels and equipment (layouts and pressure gauge calibration certificates)
- 16) Welding register
- 17) Radiographic and Surveillance Reports
- 18) Material Certificates (pipes, fittings, valves, gauges, welding consumables, etc.)
- 19) Pressure Test Certificates
- 20) Calibration Certificates (instruments, gauges, meters, etc.)
- 21) Corrosion Protection Inspection Certificates
- 22) Welding Procedure Specification (WPS)
- 23) Procedure Qualification Records (PQR)
- 24) Welder's Qualification Records (WQR)
- 25) Welders Coding Certificates
- 26) Pipe wrapping holiday test results.
- 27) Equipment catalogues, drawings, instruction and installation manuals as well as



suppliers' acceptance certificates

28) Paint/galvanising thickness tests

29) The data book shall be compiled in a hard cover (2 sets) file suitably indexed as well as an electronic copy (pdf) on disk.

12.6.2 Quality Control Procedures

12.6.2.1 A detailed Quality Control Plan (QCP) is to be submitted, before any work may commence, for approval of hold, witness, and inspection, points. The quality plan shall be tailored to comply with the *Employer's* specific requirements.

The Quality Control Plans shall as a minimum have the following activities:

- a) Documentation
- b) Fabrication Drawing Approval
- c) Approve QCP
- d) Material test certificates (civil *works*)
- e) Material Identification
- f) Material ID Map
- g) Welding Procedure Approval
- h) Welders Certificate Approval
- i) Weld Map Approval
- j) Dimensional Check Radiography
- k) Magnetic Particle Inspection
- l) Pressure Test
- m) Corrosion Protection
- n) Wrapping of pipes
- o) Cable test certificates
- p) Final Inspection

12.6.2.2 The *Contractor* shall transfer the material trace (heat) number onto all pieces of the pipeline using permanent markings. No high stress stamps shall be used.

12.6.2.3 The *Contractor* shall ensure that all his *Sub-Contractors* have obtained a copy of this specification.

12.6.2.4 The *Contractor* shall accept full responsibility for the quality of his work and of materials used, irrespective of any quality surveillance that may be

carried out by the *Employer* representative.

- 12.6.2.5 The *Employer* representative may, at his discretion, require a Quality Audit of the *Contractor* or any of the *Sub-Contractors* to ensure that he has the capabilities, resources and quality control facilities to carry out the work to ensure compliance with this specification.
- 12.6.2.6 The *Contractor* shall have available the latest issue of each of the manufacturer's data sheets for the items / materials to be used, all Specifications and Codes of Practice relevant to the work to be carried out, including a copy of this specification, all of which shall be available to the *Contractor* quality controller
- 12.6.2.7 The *Contractor* shall:
 - (a) maintain Quality Control records in accordance with the Quality Plan during execution of the contract. Such records shall be available to the *Employer* representative at each Quality Surveillance visit.
 - (b) carry out such tests as are required to ensure compliance with the specification.
- 12.6.2.8 Quality Control Reports shall be updated regularly and a copy of all relevant reports shall accompany all payment certificates. No payments will be authorized by the Engineer unless a copy of an approval report has been received by him. The Engineer may withhold payment until a final report has been issued, giving approval to the components after installation on site and repair of damage to coating.
- 12.6.2.9 Proper and adequate quality control records shall be maintained by the *Contractor* for all stages of the work.
- 12.6.2.10 These records shall be available for inspection by the Engineer or his representative at the time of Quality Surveillance. Incomplete, inaccurate or inadequate records shall be regarded as non-compliance with the specification, and the cost of surveillance will be back charged to the *Contractor*.
- 12.6.2.11 No variation from specification or change of *Sub-Contractor* or materials to be used from those stated in the tender documents, will be permitted without written approval of the Employer representative.

12.6.2.12 Products equivalent to those specified may be submitted for approval and adequate information shall be supplied by the *Contractor* to *Employer* representative in order to assess the claim of equivalence from the *Contractor*.

12.6.2.13 Approval of alternative equipment or material shall valid only on a written instruction from the Employer Representative.

13 PROGRAMMING

13.1 Programming Constraints

- 1) The *Contractor* submits a single integrated programme that incorporates all the work to be performed including that of his *Sub-Contractor's*.
- 2) The interfaces between *Sub-Contractor's* as well as the interfaces between *Sub-Contractors* and the *Contractor* are clearly identified on the programme.
- 3) The interface with the *Employer* is clearly identified on the programme.
- 4) Project key dates as defined in the NEC 3 Contract Data by *Employer*, are to be incorporated into the programme.

13.2 Computerized Planning

- 1) The *Employer* does not intend duplicating the *Contractor's* planning and scheduling; however, portions or high-level extractions of the Accepted Programme will be used in the *Employer's* internal master project programme for project control purposes.
- 2) The *Contractor* submits updated programmes in Primavera as an XER file and a PDF file or Microsoft Project at any other time as required by the *Employer*. The updated XER file shows the logic and all filters and layouts used in the programme.
- 3) Planning and Scheduling Levels
- 4) The schedule layout takes into account the approved WBS, reflecting the manner the *works* are to be performed as per the *Contractor's* Method Statement and how activities are to be summarized, reported and monitored.
- 5) The following levels of programme are to be used for this project for integrated project control:
 - a) Management programme (Level 1)
 - b) Project programme (Level 2)
 - c) Control programme (Level 3 – Sub-system level)
 - d) Discipline specialty programme (Level 4)

13.3 Planning Programme

- a) The *Contractor* develops a contract programme which will include a bar chart conforming with the project master programme dates included and sufficient detail to indicate the *Contractor's* intention for executing the *works*. This programme covers major items relating to design, procurement, manufacture, delivery, erection, start-up and commissioning. The critical path is clearly shown.
- b) Key milestones, access dates, interface dates and commissioning key dates are clearly identified in the contract programme, including access dates and release of items that involve the *Employer* or others.
- c) The programme makes provision for site related preparation such as safety file approval, site establishment, safety induction and medical clearance of all the *Contractor's* staff that will be working on site.
- d) The *Contractor* should in the programme make a time allowance of 14 working days for the safety file approval by the *Employer*.

13.4 Design Programme

- a) The design programme contains a full list of documents and drawings, their submission dates and duration for review by the *Employer* as agreed with the *Contractor*. The programme also illustrates the sequence of work for the project and the submission of drawings, design reviews including model reviews, release of product tanks, studies and reports.
- b) The design programme meets the requirements of the *Contractor* and others engaged on the project. The *Contractor* is required to submit the programme for review and acceptance by the *Employer*.

13.5 Procurement and Manufacturing Programme

- a) The *Contractor* is required to submit a procurement and manufacturing programme for review by the *Employer* which identifies as a minimum:
 - 1) Details of orders and target dates for placing subcontracts.
 - 2) Any detailed design required within the manufacturing period.
 - 3) Long-lead delivery items.
- b) Hold-points and witness-points for inspection and tests for acceptance and release.
- c) This programme is in sufficient detail to enable the work to be adequately tracked and progressed.

13.6 Construction Programme

- a) The *Contractor* is required to submit a construction programme that is resource loaded for review by the *Employer*. This programme includes the following criteria:



- 1) Full details of all civil/mechanical/electrical/C&I *works*. (engineering disciplines scope of *works*)
 - 2) Identify when and what services are required for commissioning purposes.
 - 3) Identify key dates for return of key operating facilities like product tanks released for construction purposes.
- b) This programme meets the requirements of the *Contractor* and others engaged on the project.
- 13.7 Commissioning Programme
- a) During the progress of the *works*, the *Contractor* develops a detailed commissioning programme with sufficient detail to enable the work to be adequately progressed and tracked to meet the commissioning key dates.
 - b) The commissioning programme is detailed to sub-system level and is fully integrated with the Construction Programme.

14 CONTRACTOR'S MANAGEMENT, SUPERVISION AND KEY PEOPLE

- 14.1 The *Contractor* provides the following key persons as a minimum for the Engineering Design phase scope of work:
- a) Project Manager
 - b) Mechanical Engineer
 - c) Electrical Engineer
 - d) Civil Engineer
 - e) Structural Engineer
 - f) Control and Instrumentation Engineer
- 14.2 The *Contractor* provides the following key persons with the CVs as a minimum for the construction phase of the scope of work:
- 1) Construction Manager.
 - 2) Mechanical Supervisor
 - 3) Electrical Supervisor
 - 4) Civil & Structure Supervisor
 - 5) Health & Safety Officer
- 14.3 The key resources list above is a list from the Technical Returnable for the resources to be evaluated during the technical evaluation process to determine their experience and qualifications to execute the design and construction phases of the project.

15 TRAINING WORKSHOPS AND TECHNOLOGY TRANSFER

- 15.1 The *Contractor* shall provide training to the *Employer* staff on the VRU system regarding

its operation and maintenance. The *Contractor* provides training material in a format and quality that can be used for future training requirements by *the employer*.

16 ENGINEERING SCOPE AND THE *CONTRACTOR'S* DESIGN

16.1 *Employer's* Design

- 1) There shall be no designs provided by the *Employer*.
- 2) The following technical documents attached as Annexure B, Annexure C, Annexure D are included to supplement the *works* information and its use and relevance are at the discretion and risk of the *Contractor*
- 3) These documents are some of the deliverables under a separate contract by a separate services provider for the same project, the project which was cancelled by the *Employer* and are issued as supplementary information and its content is not binding to the *Employer*.

16.2 *Employer's* Design Specifications Codes and Standards

- a) All design *works* is to be conducted in strict adherence to the *Employers* design specifications that details the standards and codes for the various engineering disciplines and is contained in Annexure A.
- b) Although not bound in nor issued with this document, the following standardized design codes and standards shall form part of the contract document:

ASME VIII	Rules for Construction of Pressure Vessels
ASME IX	Qualification Standard for Welding and Brazing Procedures, Welders, Brazers, and Welding and Brazing Operators
ASME B16.34	Valves Flanged, Threaded and Welding End ASME B16.5 - Pipe Flanges and Flange Fittings
ASME B31.3	Process Piping
ASME B46.1	Surface Texture, Surface Roughness, Waviness and Lay
ASME B73.1	Specification for Horizontal End Suction Centrifugal Pumps for Chemical Process
API 6D	Specification for Pipeline Valves
API 610	Centrifugal Pumps for Petroleum, Petrochemical & Natural Gas Industries
API 674	Positive Displacement Pumps - Reciprocating
API 675	Positive Displacement Pumps - Controlled Volume for Petroleum, Chemical, and Gas Industry Services



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API 676	Positive Displacement Pumps - Rotary
API 681	Liquid Ring Vacuum Pumps and Compressors for Petroleum, Chemical, and Gas Industry Services
API 682	Shaft Sealing Systems for Centrifugal & Rotary Pumps API 686 RP -Machinery Installation and Installation Design
API RP 1004	Bottom Loading and Vapor Recovery for MC-306 & DOT-406 Tank Motor Vehicles
AWS D1.1	Structural Welding Code — Steel
ISO 3661	End-suction centrifugal pumps -- Baseplate and installation dimensions
ISO 5199	Technical specifications for centrifugal pumps - Class II
ISO 8573-1	Compressed Air
ISO 8501	Preparation of Steel Substrates
ISO 13709	Centrifugal pumps for petroleum, petrochemical and natural gas industries
ISO 16852	Flame arresters -- Performance requirements, test methods and limits for use
ISO 21049	Pumps -- Shaft sealing systems for centrifugal and rotary pumps
SANS 31	Metallic products - Types of inspection documents
SANS 32	Internal and/or external protective coatings for steel tubes — Specification for hot dip galvanized coatings applied in automatic plants.
SANS 121	Hot dip galvanized coatings on fabricated iron and steel articles - Specifications and test methods
SANS 347	Categorization and conformity assessment criteria for all pressure equipment
SABS 763	Hot dip (galvanized) zinc coatings
SABS 1200 A	General
SABS 1200 AB	Engineers Office
SABS 1200 C	Site Clearance
SABS 1200 DA	Earthworks (Small Works)
SABS 1200 DB	Earthworks (Pipe Trenches)
SABS 1200 DK	Gabions and Pitching
SABS 1200 DM	Earthworks (Road, Subgrade)
SABS 1200 G	Concrete (Structural)
SABS 1200 GE	Structural Precast Concrete
SANS 1200 H	Structural steelwork
SANS 1200 HC	Corrosion protection of structural steelwork
SABS 1200 L	Medium Pressure Pipelines

SABS 1200 LB	Bedding (Pipes)
SABS 1200 LC	Cable Ducts
SABS 1200 LD	Sewers
SANS 1518	Transport of dangerous goods — Design, construction, testing, approval and maintenance of road vehicles and portable tanks
SANS 1700	Fasteners
SANS 1929	Ambient air quality - Limits for common pollutants
SANS 2001-DP2	Medium pressure pipelines
SANS 10100	The structural use of concrete
SANS 10102	Selection of pipes for buried pipelines
SANS 10142-1	The wiring of premises, Part 1: Low Voltage Installations
SANS 10162	The structural use of steel
SANS 10400	The application of the National Building Regulations
SANS 10684	Fasteners - Hot dip galvanized coatings
SANS 14713	Protection against corrosion of iron and steel in structures - Zinc and aluminum coatings

- c) The *Employer* has Engineering standards within which the *Contractor's* design is to adhere to. Any non-adherence to the *Employers* standards is to be brought to the *Employer's* attention for a decision on a way forward.
- d) Annexure A contains the list of applicable TPL Standards that is to be adhered to for all design *works*.

16.3 Parts of the *Works* that the *Contractor* is to Design

The *Contractor* is responsible for all aspects and stages of the design of the Vapor Recovery System.

16.4 *Contractor's* design in basic engineering

16.4.1 General requirements

- 1) Basic engineering is defined as being all activities to clearly identify the *Contractor's* scope of *works* for the VRU system design.
- 2) As a minimum, basic engineering consists of the following activities:
 - a) High Level Engineering Philosophies & Concepts – during which the rules, philosophies and concepts followed in the various engineering and design activities are clearly defined, clarified and accepted.
 - b) Depot investigation work – during which the *Contractor* conducts his Depot



investigation work.

- c) Scope definition – during which detailed scope definition and clarifications are performed.
- 3) All engineering activities are executed by the *Contractor* in active co-operation with the *Employer*.
- 4) The engineering activities are phased to suit the Accepted Programme.

16.4.2 High level engineering philosophies & concepts

As a minimum, during the basic design activity, the *Contractor* develops and clarifies the documents defined as required for the Basic Design.

16.4.3 Depot investigation work

- 1) The scope of the Depot investigation work includes, but is not limited to site verification of the scope of work as defined in the project brief.
- 2) During the Depot investigation work, the *Contractor* takes responsibility for collecting all process/depot data and information to enable the *Contractor's* design to be completed.

16.4.4 Interfaces to 3rd party systems

Where the *Contractor's* system interfaces to the *Employer's* systems, the *Contractor* co-ordinates and designs the interface to ensure the overall design is complete and well-engineered.

16.4.5 *Contractor* requirements in basic engineering

- 1) The *Contractor* confirms, prior to basic design freeze, that all configurations are standard according to the best practices, and that no individual Transnet Pipelines specific configurations or customizations have been implemented without proper technical clarification and evaluation.
- 2) The *Contractor* identifies and makes proposals to the *Employer* for any new technologies, control concepts, software applications and other solutions that could improve the overall VRU system and reduce cost of ownership both in the short and long term.

16.4.6 *Contractor's* design in detail engineering

14.4.1.1 General requirements

- a) Detailed engineering is defined as being all activities required to translate the *Contractor's* scope of *works*, as defined at basic design freeze, into fully functional system(s).

- b) As a minimum, detailed engineering consists of the development, technical clarification and acceptance of the documents defined as being required for the Detailed engineering design freeze.
- c) Detailed engineering of the interfaces within the *works* and the interfaces to other systems, forms part of the *works*.
- d) Before implementation, detailed engineering designs will need to be completed by the *Contractor* and accepted by the *Employer*.
- e) As part of the design review processes, a 3D Models (30%,60%,90%) are to be progressively developed and presented at each stage for comment and acceptance by the *Employer*.

16.4.7 Hazardous Locations

- a) Equipment is to be chosen according to SANS 10108 Hazardous area classifications.
- b) It is the *Contractor's* responsibility to re-classify areas, should the need arise or if the VRU system installation impacts on the area classifications.
- c) All hazardous location installations shall be issued with a CoC.

16.4.8 Additional Services

In addition to the supply of the *works*, the following additional services will be required from the *Contractor* :

- a) To design, select equipment, installation and fully integrate the new VRU fire system into the existing TPL fire system through connection to the deluge valve:
- b) Project management, including management of safety, preparation of schedules, plans and progress reporting.
- c) Commissioning and certification activities once the equipment has been installed on site, which is required to produce all necessary certification for submitting to the Local Authority.
- d) Engineering and detail design of the equipment and associated items.
- e) Procurement, manufacture, fabrication, shop assembly, inspection and shop testing of all equipment and associated items.
- f) Painting, protective coating and corrosion protection of all supplied equipment items including the supply of touch-up paint.
- g) Signage, labelling and equipment nameplates (including block diagrams and instructions for the supplied system).
- h) Special tools and equipment that might be required for assembly, installation, and

erection of the equipment.

- i) All sealants, fasteners, gaskets and other necessities for the making of piping, mechanical and structural connections to the equipment being supplied.
- j) Packing and marking for shipment to site.
- k) Loading of all equipment onto transport at the *Contractor's works*.
- l) Drawings, documentation, manuals and data for the operations and maintenance of the installed VRU system.
- m) Quality assurance and quality control in accordance with the procedures and standards for quality assurance.

16.5 Procedure for Submission and Acceptance of *Contractor's* Design

16.5.1 Design Review Procedure

- 1) The Contractor is the Design Authority and is responsible for all design processes and procedures and coordination of design reviews with the *Employer*:
- 2) The design process should undergo but not limited to the following stages:
 - a) *Employer* design basis confirmation,
 - b) Basic Engineering,
 - c) FEED Engineering,
 - d) Detailed Design,
 - e) Acceptance Testing Review.
- 3) The *Contractor*, who is fully responsible for carrying out the designs, submits, on a continuous basis, all design documentation package in line with stage of the design process.
- 4) The *Employer* will review and acceptance the designs, this should not be construed as accepting the design responsibly.
- 5) The *Contractor* will still be responsible in ensuring that the design meets the design intent.
- 6) The *Employer* is to review and accept pre identified documentation. The *Contractor* is not relieved from his obligations or responsibilities after the *Employer* has reviewed and accepted any of the documentation.

16.5.2 3D Model Development and Reviews

As part of the design development and design review process the *Contractor* is required to undertake the 30% Model Review, 60% Model Review and 90% Model Review together with the *Employer's* engineering personnel. The design review packages at various stages are



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required to have the following documents presented at the design review session but not limited to:

- 1) Process
 - a) Process Design Basis
 - b) Process Flow Diagrams (PFD's)
 - c) Process Equipment List
 - d) Piping & Instrumentation Drawings (P&IDs)
 - e) 3D Models (30%,60%,90% design progress)
 - f) Process Description
 - g) Operating Manuals
 - h) Equipment & Instrument Data Sheets
 - i) Packaged VRU duty specifications
- 2) Mechanical
 - a) Equipment Specifications
 - b) Equipment Data Sheets
 - c) Block Flow Diagram (PFD)
 - d) Piping Material Classes Specifications
 - e) Piping Stress Analysis
 - f) Piping Isometric Drawings
- 3) Instrumentation & Control
 - a) Instrument Data Sheets
 - b) Instrument List
 - c) Control System Specifications
 - d) Cable Schedule
 - e) Loop Diagrams
 - f) Instrument Hook up Drawings
- 4) Electrical
 - a) Single Line Diagram
 - b) Equipment General Specifications
 - c) Equipment Data Sheets
 - d) Standard Drawings
 - e) Cable Schedule
 - f) Cable Routing Drawings

5) Civil

- a) Earth Work Drawings
- b) Underground Network Drawings
- c) Civil & Structural Design Basis & Criteria
- d) Design Specifications
- e) Design Drawings
- f) Drainage Network Design
- g) Concrete and Steel drawings and technical information
- h) Building Design and Drawings
- i) Operating, Maintenance Platforms Designs and Drawings
- j) Pipe Supports Designs and Drawings
- k) Drainage System Designs and Drawings

6) Fire System

- a) Fire System Design Basis
- b) Fire System Equipment Data Sheets
- c) Fire System Operating Philosophy
- d) Fire System Design and Drawings

16.5.3 Process for Submission of Documents

The *Contractor* submits all documents according to the agreed and accepted procedure. The process for the submission of documents is described below:

- 1) The *Contractor* submits the documents/drawings to the *Employer*.
- 2) The *Employer's* Document Controller registers the documents.
- 3) The *Employer's* Document Controller will supply the documents/drawings to all relevant parties within the *Employer's* project team.
- 4) The *Employer's* team reviews the documents/drawings and will submit all comments to the *Contractor* for consideration.
- 5) If the Employer finds major deficiencies in the submitted documents/drawings, the *Contractor* revises the documents/drawings and resubmits to the Employer.
- 6) The *Employer* reviews the documents/drawings and if no major deficiencies are found, the *Contractor* organizes a Design Review session.
- 7) The *Employer* and the *Contractor* conduct a Design Review.
- 8) If any fundamental errors were found in the designs or further actions are required, the *Contractor* records all concerns raised and revises the designs.



- 9) The *Contractor* organizes a Design Review session once all designs were revised according to the concerns raised by the *Employer*.
- 10) If no fundamental errors were found in the designs during the Design Review session, the *Contractor* compiles the Design Review minutes or report and submits it to the *Employer*.
- 11) The *Employer's* Document Controller registers the report.
- 12) The *Employer's* team reviews the *Contractor's* report/minutes. If the report/minutes are not acceptable, the *Contractor* revises the report/minutes and resubmits to the *Employer*.
- 13) The *Employer* will accept the *Contractor's* design once the report/minutes are accepted by the *Employer's* team.

16.5.4 Payment for Design Phase

- 1) Payment for design engineering disciplines during the design phase will only be approved once the design phase technical package has been full completed and accepted by the *Employer*.
- 2) No payment incomplete staged milestones will be entertained.

16.5.5 Time Required for Acceptance of Designs

- 1) The *Employer* will return one copy of the drawing marked "Accepted"; "Accepted with comments" or "Rejected", as may be appropriate.
- 2) The notations "Accepted" and "Accepted as Noted" authorize the *Contractor* to proceed with the manufacture of the VRU or proceed with installations process covered by such drawings subject to the corrections, if any, indicated thereon.
- 3) Where prints or drawings have been "Not Accepted" the *Contractor* makes the necessary revisions on the drawings and submit further copies for acceptance in the same procedure as for the original submission of drawings.
- 4) Every revision shows by number, date and subject in the revision block on the drawing.
- 5) The *Contractor* is to allow for 10 working days for review of documentation by the *Employer*.

16.6 Use of Contractor's design

- 16.6.1 The *Contractor* hereby grants to the *Employer*, with effect from the Contract Date or in the case of documents or other matter not yet in existence, with the effect from the creation thereof (and notwithstanding the Completion or abandonment of the *works* or termination of this Agreement) an irrevocable, royalty-free, non-exclusive and perpetual license to use those of the *Contractor's* documents and other matter supplied to the *Employer* under this contract, for any purpose whatsoever connected with the *works*,



including for the purpose of maintenance, operation, construction, retrofit, refurbishment, upgrade, repair or demolition of the *works* or any parts thereof. The *Contractor* hereby shall procure that each *Sub-Contractor* shall execute all and any documents or other matter and take any other actions as may be required in order to give effect to this license.

- 16.6.2 The *Employer* uses the *Contractor's* Copyright Documents and all intellectual property rights relating thereto for the sole purpose of all its needs at the TPL Tarlton Depot, which includes any *Employer* processes and procedures pertaining to use, maintenance, operation, construction, retrofit, refurbishment, upgrade, repair or demolition of the *works*.
- 16.6.3 The *Employer* may copy and submit, without restriction, all documentation to others employed or contracted by the *Employer* who have duly signed a confidentiality agreement with the *Employer*.
- 16.6.4 The *Contractor* may not use any Copyright Documents (and the copyright therein and all intellectual property rights relating thereto), which are owned by the *Employer* and/or others and provided to the *Contractor*, for any other purpose than to Provide the *works*.
- 16.6.5 At Completion of the whole of the *works*, or earlier termination, the *Contractor* returns to the *Employer* all such documentation provided to him by the *Employer* and/or Others.

16.7 Design of Equipment

The *Contractor* provides the design for all temporary *works* and plant.

16.7.1 Materials Required to be Included in the *works*

The *Contractor* supplies and delivers all, plant and materials, design drawings, labor, tools, scaffolding, consumables, storage facilities and accommodation and anything deemed necessary to provide the *works*.

- 1) All measuring and calibration equipment used by the *Contractor* to Provide the *works* are provided with a SANAS (South African National Accreditation System) Calibration Laboratory test certificate.
- 2) The *Contractor* supplies all special or dedicated test equipment for testing, commissioning, fault finding and maintenance of individual modules, sub-assemblies and the functional groups as part of the requisite criteria for Completion of the section of the *works*.
- 3) The *Contractor* furthermore, describes the operation and use of the equipment in the relevant operating, maintenance and training manuals.



- 4) The *Contractor* supplies all special or dedicated test equipment to the *Employer*, as part of the requisite criteria for Completion of the section of the *works*.
- 5) The *Contractor* supplies all special tools and Equipment required for the engineering and to provide the *works*. All Equipment other than normal hand tools, measuring and test Equipment are considered special tools.

16.8 As-built Drawings, Operating Manuals and Maintenance Schedules

16.8.1 All documentation, including reports, manuals, etc. is in the English language and are to be supplied to the *Employer*.

16.8.2 Documentation required by standards referenced within this *works* is also to be supplied by the *Contractor*.

16.8.3 Drawing Requirements

- 1) The *Contractor* supplies reproducible drawings according to TPL specifications.
- 2) The *Employer* supplies the proposed drawing numbering system.
- 3) The *Contractor* may assign his own drawing number as required to meet his document control system requirements.

16.8.4 Drawings

The *Contractor* as a minimum provides the following As-built drawings for all engineering disciplines but not limited to the following:

- 1) The positions of all control, indicating and power supply equipment.
- 2) The positions of all fire manual call points, fire detectors and fire alarm devices and the cable routes between each item.
- 3) A loop drawing showing all devices connected to each panel.
- 4) The positions of all equipment that may require routine attention or replacement (e.g., short circuit isolators).
- 5) The type, sizes and actual routes of cables.
- 6) A wiring diagram of the panel.
- 7) Enclosure cross-section, full height or schematic diagram.
- 8) General Arrangement Drawings.
- 9) Detailed Drawings (inclusive of isometrics).
- 10) Update current P&ID's.
- 11) Schematic drawings (showing the following as a minimum);
 - a) Device terminal numbers, terminal block numbers and terminal numbers.
 - b) All control and protection switches.



c) Power supply connections.

d) Wiring diagrams.

12) Single line diagrams

16.9 Operating and Maintenance Manual

16.9.1 The *Contractor* provides operating and maintenance manuals, as well as an Operating Technical Specification for the VRU system.

16.9.2 Technical manuals include all technical data as well as the technical data and leaflets of each individual component used or provided. Where generic manuals are provided, an addendum is provided indicating the applicable project specific components.

16.9.3 Manuals are of a good quality and cover the following as a minimum:

- a) Technical descriptions of the equipment and component parts
- b) General arrangement drawings
- c) Installation instructions with drawings or pictures
- d) Operating and maintenance instructions for all components
- e) Detailed parts lists (accompanied by exploded view type drawings clearly detailing the part and uniquely identifying it)
- f) Spare part ordering instructions
- g) Any special instructions pertaining to storage of spare parts or their shelf life is included in the maintenance manual. All drawings requested for component location, dismantling and re- assembly for maintenance are included in the maintenance manual. All special tools required for operating and maintenance of the equipment are presented in a form of a schedule in the operating and maintenance manual, respectively. The content of the training manual is based on the content of the technical, operating and maintenance manuals.

h) The *Contractor* provides 3 hard copies and an electronic copy.

16.9.4 The manuals will enable staff to operate and understand the equipment and systems and to utilize the equipment to its full extent.

16.9.5 This manual provides:

- a) Certificates for design, installation and commissioning of the system
- b) A download and print out of all devices on the system from all panels
- c) Details of the equipment provided and its configuration
- d) All manufacturers handbooks having reference to the equipment

16.9.6 Furthermore, the *Contractor* also ensures that these manuals, etc., are so prepared that in



the opinion of the *Employer* a competent and qualified technician can trace any fault, identify any defective component, and replace it with the correct spare and follow, without difficulty, the exact function of every component. To this end, care must be exercised to correlate the test with the circuit diagrams, to relate the diagrams one with another and to provide a simple method of diagnosis and test to be used wherever breakdowns occur.

16.9.7 Design Philosophies

The *Contractor* supplies system operating and control philosophies.

16.9.8 Procedures

- a) The procedures are provided by the original equipment manufacturer detailing descriptions of operating and the maintenance work. The procedure covers the requirements for maintenance of the plant over the design life.
- b) Engineering, maintenance and operating procedures are developed by the *Contractor* and accepted by the *Employer*.
- c) Engineering procedures should allow engineering staff to do configurations to the system, to the database and to the HMI.
- d) Procedures have to be step-by-step and detailed.

16.9.9 Maintenance Schedule

- a) The *Contractor* submits a detailed maintenance plan that defines the extent and frequency of maintenance and inspection. The plan also details the replacement parts required and at what interval they are replaced during the period.
- b) The *Contractor* provides a maintenance strategy for the life expectancy of the new system with a summary schedule.
- c) The *Contractor* provides the life expectancy of the equipment.
- d) The *Contractor* lists maintenance spares (with detailed specifications) for the life expectancy of the equipment

17 PROCUREMENT

17.1 Subcontracting

17.1.1 Preferred *Sub-Contractors*

- a) The *Contractor* makes use of any supplier for sourcing of services, equipment, tools and material that the *Contractor* will use to execute the *works* and will comply with the SANS and or the *Employer's* specifications.
- b) The Engineering sub consultant hereafter referred to as the Engineering *Sub-Contractor* will be evaluated as part of the main *Contractor* functional

evaluation process in line with the requirements of the technical returnables.

- c) The evaluation of the Engineering *Sub-Contractor* is to determine its capacity, knowledge and experience to undertake the VRU system design *Scope of Work*

17.1.2 *Sub-Contractor* Documentation, and Assessment of *Sub-Contractor* Tenders

- a) The *Contractor* submits the proposed contract data for each subcontracting work package for acceptance to the *Employer*.
- b) The *Contractor* prepares subcontracting documentation in accordance with a transparent tendering procedure and NEC contract.
- c) The *Contractor* must inform the *Employer's* representative when intending to subcontract some of the *works* within the contract scope.
- d) The *Contractor* is required to contact or employ qualified and suitable Subcontractors.

18 QUALITY

- 18.1 All Plant and Materials shall be new unless approved by the *Employer*. All New Plant and Materials will be free from defects. No Reconditioned Plant and/or Materials are regarded as new under any circumstances.
- 18.2 It is the responsibility of the *Contractor* to ascertain the condition of any used Plant or materials, transport to site, corrosion protection, as well as any spares compatibility issues that may present itself during the course of the project.
- 18.3 The *Contractor* will not use Plant or Materials which are generally recognized as being unsuitable or otherwise to be avoided for the purpose for which they are intended.
- 18.4 Only components of high reliability will be utilized, with a proven operating history, to enable the Plant to achieve required reliability and availability. Plant and Material design, engineering and manufacture will align with the best modern practice so as to ensure the efficiency and reliability of the *works* and the strength and suitability of the various parts for the *works*.
- 18.5 Plant and Materials shall withstand ambient conditions and the variations of temperature arising under the working conditions without distortion, deterioration or undue strains in any part.
- 18.6 All parts are made accurately, and where practicable, to standard gauges so as to facilitate replacement and maintenance. Like parts are to be interchangeable.
- 18.7 No repair of defective Plant and/or Materials will be permitted without the *Employer's* approval and any such repair, if approved, will be carried out to the satisfaction of the

Employer.

- 18.8 The *Contractor* ensures that coordinated and formally documented management system is in place for the assurance of quality as specified in ISO 9001, Quality management Systems – Requirements.
- 18.9 The *Employer* or his representative is free to specify hold and witness points during the installation and on site testing stages of the project. The *Contractor* issues preliminary notification of such hold and witness points by ten working days advance notice to the TPL *Employer*, and confirms such hold and witness points at least seven days prior to the activity.
- 18.10 Typical holding points for key plant are listed below and are not limited to:
 - a) Design Reviews
 - b) FAT
 - c) SAT
 - d) Delivery to Site
 - e) Erection
 - f) Commissioning
- 18.11 In addition to maintaining appropriate inspection and test records to substantiate conformance to requirements, the following records are safely stored for a minimum period of seven years following the final completion of the *works*:
 - a) Construction, layout and component approvals
 - b) Routine test certificates
 - c) Construction drawings and approvals
- 18.12 After this period, the *Contractor* offers these records to the *Employer* (in writing) and obtains a disposal instruction.
- 18.13 As contained in the Quality section of this document, documentation regarding quality procedures is submitted within thirty days of Contract Award. The *Employer* will review and comment on the acceptability of these documents in a time frame as per the requirements of the contract for contractual correspondence. If controlled copies of these documents have been submitted to the *Employer*, then the controlled copy numbers may be quoted in the submission.
- 18.14 Plant & Materials provided or "Free Issued" by the *Employer*
None.
- 18.15 *Contractor's* Labeling and Packaging of Plant & Materials

- (1) During transportation, packaging is done in such a way that damage is prevented. Components that are transported separately are marked accordingly and are easily identifiable.
- (2) The *Contractor* supplies the labelling for the Plant that forms part of the *works*. The *Contractor* provides labels for the Plant according to TPL label specification. The *Contractor* makes use of the descriptions provided by the *Employer*.
- (3) The labels are affixed in such a way that they are easily legible and not obstructed by the wiring or by other components.
- (4) Clamping methods applied to the labels ensures that removal of the labels requires force. The *Employer* will approve the proposed method of clamping prior to use.
- (5) The *Contractor* supplies the *Employer*, for verification and acceptance purposes, with a label list showing the text only. The *Employer* will approve the positioning and designation of labels.

18.16 Spares and Consumables

- 1) The *Contractor* provides recommended Critical and Normal Running spares lists, including costs.
- 2) The *Employer* is responsible for purchasing of recommended spares as per the spares list provided.
- 3) The *Contractor* is responsible for ensuring that consignment spares are available in time of need.

18.17 Tests and Inspections before Delivery

- (1) The *Employer* is required to carry out quality inspections at his discretion.
- (2) All inspections and testing is to be performed in accordance with the Quality Control Plan (QCP) developed by the *Contractor* as detailed in the Quality Section of this document.

18.18 Factory Acceptance and Testing (FAT)

- (1) The *Contractor* supplies a detailed procedure that is used for Factory Acceptance Testing (FAT) to be accepted by the *Employer*.
- (2) The manufacturer provides the testing facilities, adequate power supplies and equipment and suitably qualified staff.
- (3) The following tests and checks are conducted by the *Contractor* as a minimum:
 - a) Visual inspections to verify the mechanical and/or physical integrity of the VRU as well as specifications of the major and/or active components.



- b) The *Contractor* verifies that all equipment is correct, verification that components installed are correct and verification that all labels are done correctly.
- c) This inspection entails a thorough check to ensure complete compliance with specifications.
- d) Verification that the assembly is built according to the *Employer's* requirements.
- (4) No VRU will be released for dispatch without the AS MANUFACTURED documentation and drawings accompanying them.

18.19 FAT Procedure

As a minimum, the proposed FAT procedure identifies the following:

- (1) Major test activities.
- (2) A comprehensive list and description of the individual tests to be performed.
- (3) How the tests are to be prepared and conducted.
- (4) Test dates and durations.
- (5) Checklists - how the test results will be documented.
- (6) Acceptance Criteria.
- (7) How the identified discrepancies will be processed.

18.20 FAT Report & FAT Completion

A Final FAT Report is prepared by the *Contractor* that includes the following as a minimum:

Test procedures used during FAT.

- (1) Detailed test results.
- (2) Discrepancies identified during the tests.
- (3) Resolution of the discrepancies.
- (4) Retests conducted and results thereof.
- (5) FAT certificate.
- (6) The *Contractor* submits the final FAT Report to the *Employer* for acceptance.
- (7) FAT Completion is achieved upon acceptance of the final FAT Report by the *Employer*.

18.21 Site Acceptance Test (SAT)

- (1) The SAT is carried out before VRU commissioning commences to ensure:
 - a) Correct performance of the control equipment.
 - b) Safety of VRU and personnel.
 - c) Compliance to the *Works Information*.

- (2) As a minimum, the SAT testing and inspection activities provided by the *Contractor* consists of:
- The *Contractor* prepares a detailed test procedure for the SAT.
 - The proposed test procedure, together with test dates, is prepared by the *Contractor* and submitted to the *Employer* for acceptance.
 - The final test procedure is prepared by the *Contractor* and submitted to the *Employer* for acceptance at least 10 working days prior to the scheduled test date.
- (3) A Final SAT Report is prepared by the *Contractor* that includes the following as a minimum:
- Test procedures used during SAT.
 - Detailed Test results.
 - Discrepancies identified during the tests.
 - Resolution of the discrepancies.
 - SAT certificate.
- (4) The *Contractor* is allowed to rectify the fault and retest for the full duration on condition that the *Employer* finds the fault to be minor.
- (5) Major faults such as determined by the *Employer* may lead to the termination of the SAT.
- (6) The *Contractor* rectifies the fault and re-starts the SAT after proving the compliance and performance of the rectified piece of equipment by carrying out the appropriate diagnostic tests.
- (7) When all tests are successful, witnessed by the Employer the final SAT Report is accepted by the *Employer*, the system is classified as 'ready for use'. The control system is then deemed ready for cold commissioning (functional testing).

19 WARRANTY

The *Contractor* to provide warranty that the installation will work on site and equipment supplied is provided with a mechanical warranty and the VRU with a process warranty equal to 24 months after commissioning and VRU system acceptance by the *Employer*.

20 CONSTRUCTION

20.1 Temporary *Works*, Site Services and Construction Constraints

20.1.1 *Employer's* Site Entry and Security Control, Permits, and Site Regulations

a) Access to Site

- Access to the site is controlled and it is governed by the terms and

conditions lay down by the *Employer's* Tarlton Site Depot Manager. The proposed site will be shown to the *Contractor* during the site visit or clarification meeting by the *Employer*.

- 2) The *Contractor* is required to obtain "Gate Removal Permit(s)" from the *Employer* before materials and equipment can be removed from site.
 - 3) Access to Depot equipment like tanks is not always immediate. Areas that require special permits to work will have to be incorporated into the project plan well in advance.
- b) Permit to Work Procedure
- 1) All work on Site is to follow the *Employers* permit to work procedure that is detailed in Annexure F.
 - 2) The permit conditions, for hot *Works* requires that the *Contractor* assign a fire watch or fire standby to mitigate the fire risk associated with the *Works* and is also detailed in the *Employers permit* to work system.
 - 3) The *Contractor* allocates staff to be trained and authorized as responsible persons according to *Employer's* Depot Safety Regulations.
- c) People Restrictions on Site; Hours of Work, Conduct and Records
- (1) The TPL Tarlton depot is a 24-7 operation delivery depot, but due to restrictions on permit supervision, the working hours for *Works* at the Site be planned for a 5-day (Monday to Friday) working week with the working hours from 07:00 to 17:00.
 - (2) Restrictions and hours of work may apply at certain parts of the depot due to operations activities. The *Contractor* keeps records of his people on Site, including those of his Subcontractors which the *Employer* or *Supervisor* have access to at any time.
- d) Cooperating with and Obtaining Acceptance of Others
- 1) While there are currently no *Contractors* that are planned to be working on Site other than for the *Works* under this contract, other *Contractors* may be working in the same area as the work of this contract. In this regard, the *Contractor* co-ordinates his work with the *Employer* to maintain harmonious working conditions on Site.
 - 2) During the progress of the *Works* the *Contractor* provides access to others who also execute work in the same area, on an as and when required

basis.

- 3) The *Contractor* makes his own assessment of the problems and difficulties which may be encountered for providing access to and interfacing with others (this includes access difficulties experienced during construction or commissioning phase).

20.2 Publicity and Progress Photographs

- (1) The taking of photographs at the Depot including the *Works* is restricted and subject to the approval by the *Employer*.
- (2) For the purpose of the Progress Reporting Requirements, the *Employer* may prohibit the taking of such photographs and/or require that all such photographs be taken after authorization by the *Employer*.

20.3 *Contractor's* Equipment

- (1) The *Contractor* provides all Equipment that is required to complete the *Works*.
- (2) The *Contractor's* Equipment does not impair the operation or access to the plant.
- (3) The *Contractor* provides all Equipment to be used for the unloading and storage of materials and any temporary or expendable materials required for the storage of plant and materials.

20.4 Equipment Provided by the *Employer*

No equipment is provided by the *Employer* for the execution of the *Works*.

20.5 Site Services and Facilities

20.5.1 Site Yard

- (1) It is required, for the proper co-ordination and execution of the *Works* that the *Contractor* has an office on site for the duration of the contract.
- (2) A demarcated area on Site will be made available to the *Contractor* for his yard within the depot boundary. The proposed site will be shown to the *Contractor* during site meeting or clarification meeting. The yard is a raw site and will be used by the *Contractor* for the establishment of his offices, workshop and stores and not for fabrication purposes.
- (3) Security and access to the *Contractor's* Site yard is the responsibility of the *Contractor*.
- (4) The *Contractor's* yard is subject to periodic inspection by the *Employer*/delegated person.
- (5) The location of the nearest sewer manhole, power distribution point, portable water

connection storm water channel and road access point is indicated by the *Employer*.

The *Contractor* is responsible for connection to the closest point of supply.

20.5.2 Supply of Electricity and Lighting

- (1) The *Employer* is to provide to the *Contractor* an Electricity point from which the *Contractor* uses to electrify his Site yard. A CoC for the Site yard is to be provided by the *Contractor* for the *Employer's* approval.
- (2) The *Employer* does not guarantee continuity of supply and the *Contractor* makes his own provision for standby equipment such as generators to maintain continuity of Work.
- (3) The *Contractor* at his own expense provides temporary local lighting in accordance with the requirements of the OHS Act as amended. The *Employer* provides no local lighting.
- (4) All construction lighting within the Site yard and plant is the responsibility of the *Contractor*.

20.6 Water

- (1) Water will be made available on request free of charge from water points on site.
- (2) The *Contractor* supplies at his own cost all the necessary connections, fittings, piping work, temporary plumbing and pumps necessary to lead water from the *Employer's* points of supply to the various points where it is required.
- (3) The *Contractor* is responsible for maintaining this equipment and for removing it at Completion of the whole of the *Works*.
- (4) The *Employer* does not guarantee continuity of supply and the *Contractor* makes his own provision for standby supplies to maintain continuity of work.
- (5) Claims of any nature relating to discontinuity of water supply are not considered.

20.7 Roads

- (1) Main access roads within the Depot are surfaced and complete and may be used by the *Contractor* with the necessary care. The *Employer* maintains the Site roads, described above, to a fair condition. Any costs incurred by the *Employer* from damage caused to underground services, structures, etc. as a result of the *Contractor* not using the prescribed routes is recovered from the *Contractor*.
- (2) The *Contractor* provides temporary access points from the prescribed routes and roads to the points where the *Contractor* is required to perform work, having first obtained permission in writing from the *Employer*.

20.8 Facilities Provided by the *Contractor*

20.8.1 *Contractor's* Yard, Offices, Workshops and Stores

- (1) It is required, for the proper co-ordination and execution of the *Works* that the *Contractor* has an office on Site for the duration of the contract.
- (2) The *Contractor* complies with the environmental policy given under the Environmental section of this document.
- (3) The *Contractor* provides, erects and maintains for his own use adequate size office accommodation and stores together with such drainage, lighting, heating, and hot and cold water services as may be required.
- (4) The *Contractor* dismantles and clears the yard of all such temporary structures and associated foundations and infrastructure at the direction of the Supervisor on Completion of the whole of the *Works*. No such dismantling and clearance work is carried out without prior acceptance from the Supervisor.
- (5) Any electrical Equipment, or appliances, used by the *Contractor* conforms to the applicable OHS Act safety standards and is maintained in a safe and proper working condition. The *Employer* has the right to stop the *Contractor's* use of any electrical Equipment, or appliance, which, in the opinion of *Employer*, does not conform to the foregoing. Inspection of equipment/appliance will be done as required by OSH Act.
- (6) Any special tools and equipment to be used on site for the execution of the *Works* is the responsibility of the *Contractor*.

20.8.2 *Existing* Premises, Inspection of Adjoining Properties and Checking Work of others

Where applicable, the *Contractor* is required to inspect the work of Others to which he is required to interface. The *Contractor* identifies all interfaces with Others. The *Contractor* submits an interface plan to the *Employer* to ensure no delay on his part.

20.9 Survey Control and Setting out of the *Works*.

- (1) The *Employer* designates the working area boundary limits and assigns for the *Contractor's* use access roads, storage areas, existing facilities areas, and construction areas. The *Contractor* does not trespass in or on areas not designated for his Work.
- (2) The *Contractor* is responsible for keeping *Contractor's* personnel out of areas not

designated for *Contractor's* use, except, in the case of isolated work located within such areas for which the *Contractor* is authorized to do so.

20.10 Excavations, Core Drilling and Associated Water Control

- (1) The *Contractor* will require an excavation permit from the *Employer* before any excavation can be done or undertaken.
- (2) Only hand excavations will be allowed in the manifold area and where Equipment is required for excavation, a risk assessment is to be conducted by the *Contractor*, upon which the *Employer* will assess and approve the excavation.
- (3) All drilling, including core drilling, is the responsibility of the *Contractor*.

20.11 Underground Services, Other Existing Services, Cable and Pipe Trenches and Covers

- (1) All known services will be brought to the attention of the *Contractor* by the *Employer*. Should the *Contractor* encounter any other services in the work area, he will immediately bring them to the attention of the *Employer's* site representative who will issue instruction as to what actions are to be taken.
- (2) The protection of all pipes, gauges and Plant is of extreme importance. Should any damage take place which is due to the *Contractor* negligence, another *Contractor* will be brought onto site to effect repairs. All costs will be to the account of the *Contractor* who caused damage.

20.12 Fire Watch (Fire Standby)

- (1) During the installation, it is anticipated that there will be times that there will be no active fire detection during the installation. This will pose a risk of damage should a fire arise. It is for this reason that the *Contractor* must have a fire watch or fire standby to mitigate the risk mentioned above.
- (2) Fire watch personnel are not to perform any other duty. Patrols of the affected areas are to be done every half an hour.
- (3) Fire watch personnel should become familiar with the different areas of the Site and should know the procedure of how to inform *Employers* personnel should a fire condition arise.

20.13 Barricading

- (1) Access to danger zones is restricted using handrail type guards of at least 1,2 meters high and able to block access to the danger zone.
- (2) Symbolic safety signs depicting 'Danger' and 'No entry' are attached to the guards. This includes access during the taking of X-rays. Danger tapes are not allowed to be

used as barricades.

20.14 Housekeeping

- (1) The Site is cleaned daily.
- (2) All construction materials such as electrical cables and hoses are routed so as not to cross over floors and walkways.
- (3) All Equipment is packed neatly without interference to access.
- (4) All excess scaffolding material is removed from Site after the scaffolding has been erected.
- (5) The *Contractor* is responsible for their removal to the designated scrap area, nominated by the *Employer*, on a daily basis and cart of site to manage the accumulation of scrap at the *Employers* discretion.

20.15 Control of Noise, Dust, Water and Waste

- (1) The *Contractor* maintains a high standard of cleanliness during the conduct of his activities at the Depot. This includes areas allocated for storage of materials, site offices etc. to the satisfaction of the *Employer*. The *Contractor* keeps these areas clean and free from accumulation of waste materials and refuse regardless of the source.
- (2) The *Contractor* ensures during sweeping and dusting, that a minimum amount of dust is liberated into the atmosphere. Cleaning by vacuum cleaners is preferred and the use of compressed air for cleaning is prohibited.
- (3) The *Contractor* is responsible for the prompt removal of all waste to a designated disposal area. The disposal area will be on or in the vicinity of the Depot and be indicated by the *Employer*.
- (4) Bins and containers are emptied and waste removed to the designated area at least once a week. All the waste removed to the designated area at least once a week. All the temporary storage areas for bins and containers are kept tidy and not constitute a nuisance to others. The *Contractor* takes all required steps to avoid spillage of waste alongside the bins and containers during removal and disposal thereof.
- (5) All waste that cannot be contained in either a bin or container is placed on a temporary waste site which the *Employer* identifies. The waste is removed as soon as possible but, in any event, at least once a week. No burning of waste is allowed at the Power Station.

- (6) Hazardous waste is dealt with in accordance with the safety, health and/or environmental requirements of the *Works* and the *Contractor* is solely responsible for the proper disposal thereof.

20.16 Completion, Testing, Commissioning and Correction of Defects

20.16.1 Work to be Done by the Completion Date

- (1) On or before the Completion Date the *Contractor* shall have done everything required to provide the *Works*.
- (2) The *Employer* cannot certify Completion until all the work has been done and is also free of Defects which would have, in his opinion, prevented the *Employer* from using the *Works* and Others from doing their work.
- (3) Acceptance of the "As-built" documentation is a pre-requisite for Completion of the *Works*.

20.16.2 Use of the *Works* Before Completion has been Certified

The *Employer* uses the *Works* required for operational purposes, like product tanks made available for construction purposes without taking over the responsibility or regarded as partial completion, before commissioning of the system as a unit.

20.16.3 Test Equipment

Test equipment is to be provided that will allow the *Employer's* personnel to commission, maintain, and operate the system.

20.16.4 Removal and disposal

- (1) All existing material and equipment that is no longer form part of the VRU System or operations infrastructure after identification by the *Employer* for other use is to be stored on site in a placed identified by the *Employer*.
- (2) All components identified by the *Employer* for disposal are required to be removed from site and disposed off by the *Contractor*.
- (3) The *Contractor* makes good any areas that require fixing, painting, finishing etc. that have been affected by the removal of old equipment.

20.16.5 Cold Commissioning

Following pre-commissioning, the system runs in order to demonstrate that the *Works* is complete in all respects. This includes the following:

- (1) Loop check activities.
- (2) Final inspection of the *Works* by commissioning personnel.

(3) Inspection of electrical power connections.

(4) Check calibration of all instrumentation.

20.16.6 Hot Commissioning

The purpose of hot commissioning is to demonstrate the performance of the *Works*. A commissioning team that includes the *Contractor* and the *Employer* is responsible for hot commissioning which includes the following:

(1) Check system integrity.

(2) Check the calibration and rectify where necessary all system instrumentation.

(3) Verification of sequence controls and interlocks.

(4) Check all process flows.

(5) Complete all remedial work for acceptance by *Employer*.

(6) Training of operating staff.

20.16.7 Trial operation

(1) Before taking over of the VRU system, a trial operation is carried out for a period of 7 consecutive days. This trial operation is repeated should any problem occur within the 7 day period.

(2) Before hand-over or take-over of the *Works*, the *Contractor* provides a backup of software on all system so that in the event of a failure, the VRU operating system can be quickly recovered. A procedure for the reloading of software and for the recovery of the VRU system are to also be provided.

(3) It is the *Contractor's* responsibility to ensure that the system is configured in the most suitable manner. The basis of commissioning is to ensure the system operates as required by the end user.

20.16.8 Certification

(1) The *Contractor* provides to the *Employer* with the VRU certificate of performance, a complete set of instructions, calculations and drawings for the installed system.

(2) The *Contractor* provides to the user as part of the VRU system documentation the following certificates:

a) A design certificate.

b) An installation certificate.

c) A commissioning certificate.

- (3) Once the Employer has determined that the Contractor has fulfilled its contractual obligations a completion certificate will be issued.

20.16.9 Verification

- (1) An Independent Inspection Authority (AIA) will be appointed by the *Employer* at his cost to witness and sign off all safety critical activities undertaken by the *Contractor* including applicable quality related documentation.
- (2) The appointed AIA are to be informed of the need to witness activities at hold points for sign-off.
- (3) The maximum response time for the AIA after receiving notification from the contractor is twenty (24) hours.
- (4) All costs of aborted AIA notified inspection resulting from action or inaction by the *Contractor* are to be borne by the *Contractor*.

20.16.10 Access Given by the *Employer* for Correction of Defects

The Employer arranges for the Contractor access to and use of a part of the *Works* which has been taken over if needed to correct a Defect.

20.17 Training and Technology Transfer

20.17.1 General requirements

- a) The *Contractor* provides training on the equipment and systems included as part of the *Works* to the various categories of the *Employer's* technical and operational staff for the duration of the *Works*.
 - (1) All training provided by the *Contractor* is customized for the VRU system and is directly applicable to the actual equipment and software supplied for the *Works*.
 - (2) Training is focused on the VRU systems' architecture, configuration, layout, equipment, software, HMI and design that the *Contractor* provides for the *Works*.
 - (3) Generalized training based on the *Contractor's* generic control system architecture, HMI and design philosophies is not acceptable.
 - (4) Training material are provided by the *Contractor* for evaluation by the *Employer* before the training commences.
 - (5) The *Contractor* provides training on the VRU system included as part of the *Works* to the various categories of the *Employer's* technical and

operations staff (operators, maintenance and engineering personnel).

- (6) Training provided by the *Contractor* is directly applicable to the actual VRU system supplied for the *Works*. Generalized training based on similar VRU systems is not acceptable.

Table 16-1: Technical and Operations staff to be addressed in Training Proposal

Department	Number of Personnel
Operators	5
Maintenance	5

- (7) The training schedule is to be incorporated in the Accepted Programme.

- (8) Practical hands-on training for each individual trainee forms an integral part of each of the following courses.

20.17.2 Training of Maintenance Personnel

The *Employer's* Maintenance and Engineering personnel will be trained in all components and functions of the VRU Method of maintenance, fault finding, correction, routine maintenance. Training will include familiarization with documentation (maintenance plan, procedures etc.).

20.17.3 Training of Operators

The *Employer's* Operators will be trained and declared competent on the new system. This will include familiarization with documentation as well as operator interface familiarization e.g., operational functions, alarms etc.

20.17.4 Training Documentation

- (1) The *Contractor* provides all course material including manuals. The course material is in English and includes all third-party documentation.
- (2) A copy of the training documentation is supplied for each trainee with an additional 3 master sets for the *Employer's* training department.
- (3) The training dates are included and shown in the Accepted Programme.
- (4) Training manuals are continuously updated by the *Contractor* up to the date of issue of the Defects Certificate for the whole of the *Works*.

20.17.5 Training, Maintenance and Operating Manual

The *Contractor* provides the manuals prior to delivery of the Plant to the Site.

21 OPERATING AND MAINTENANCE

Maintenance Requirements

- (1) First line and day-to-day maintenance activities such as corrective and preventative maintenance activities are to be performed through the services of a *Contractor* for the contracted period.
- (2) The cost of maintenance contract are to be priced in the activity schedule

22 LIST OF DRAWINGS

22.1 Drawings issued by the *Employer*

- (1) The list of drawings issued by the *Employer* at or before the Contract Date and which apply to this contract can be found within Annexure H–TPL Internal Technical Specifications
- (2) Some drawings may contain both *Works Information* and Site Information.

23 ANNEXURES:

ANNEXURE A:	TPL VRU SPECIFICATION
ANNEXURE B:	ORIGINAL K&T VRU SPEC PROPOSAL
ANNEXURE C:	ORIGINAL K&T P&IDS PROPOSAL
ANNEXURE D:	DEPOT PLOT PLAN & VRU PROPOSED FACILITY BY K&T
ANNEXURE E	DEPOT AERIAL PHOTO
ANNEXURE F:	TPL WORK PERMIT SAMPLE
ANNEXURE G:	DESIGN BASELINE RISK ASSESMENT
ANNEXURE H:	TPL INTERNAL SPECIFICATION SCHEDULE



ANNEXURE A

TRANSNET PIPELINES

TARLTON DEPOT

VAPOUR RECOVERY UNIT (VRU)

TECHNICAL SPECIFICATIONS

Document Title	Transnet Pipelines Tarlton Depot – Vapour Recovery Unit (VRU) Technical Specifications
Project Reference	H0/1281 – EPC SOW
File Name	TPL Tarlton Depot – (VRU) Technical Specifications
Prepared by	

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Acronyms, Abbreviations and Definitions

Table 1 Terminology

Abbreviation	Meaning given to the abbreviation
AFC	Approved for Construction
AFD	Approved for Design
AIA	Authorized Inspection Authority
ANSI	American National Standard Institute
API	American Petroleum Institute
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing Materials
AWS	American Welding Society
BOM	Bill of Materials
CAD	Computer Aided Drawing
COC	Certificate of Compliance
DB	Distribution Board
DGN	Design Drawing / CAD file format supported by MicroStation
EPC	Engineering, Procurement and Construction
EPCM	Engineering, Procurement and Construction Management
ESD	Emergency Shutdown
HAZCON	Hazardous Construction Study
HAZOP	Hazard and Operability Study
HSSE	Health, Safety, Security and Environment
ISO	International Organization for Standardization
OHS ACT	Occupational Health and Safety Act, Act Number 85 of 1993 as amended
SABS	South African Bureau of Standards
SASS	South African Bureau of Standards (subsequently renamed SANS)
SANS	South African National Standards
TPL	Transnet Pipelines
VRU	Vapor Recovery Unit
Works	Refers to the full scope of supply and services

Legal Requirements Regarding Designs

All associated equipment shall comply with the following relevant South African Acts and Regulations, and they shall apply in the order of precedence as listed below:

All the designs and installations must also comply with the standards, regulations, and design codes below.

Reference Documents

Regulations

Item	Document Number	Description
1.	OSH ACT 85 of 1993	South African National Occupational Health and Safety Act 85 of 1993

Standards

Table 2 List of South African and International Codes used in the development of this document

Item	Document Number	Description
1.	API 510	Pressure Vessel Inspection Code
2.	API 570	Inspection, Repair, alteration, and Rerating of In-Service Piping Systems
3.	API RP 574	Inspection Practices for Piping system Components
4.	API 650	Tank Inspection, Repair, Alteration and Reconstruction Code
5.	ANSI/NB-23	National Board Inspection Code
6.	ASME VIII	Rules for Construction of Pressure Vessels
7.	ASME B16.34	Valves Flanged, Threaded and Welding End
8.	ASME B16.5	Flanges and Flange Fittings
9.	ASME B31.3	Pipe Process Piping
10.	ASME B46.1	Surface Texture, Surface Roughness, Waviness and Lay
11.	ASME B73.1	Specification for Horizontal End Suction Centrifugal Pumps for Chemical Process
12.	ASME IX	Qualification Standard for Welding and Brazing Procedures, Welders, Braziers, and Welding and Brazing Operators
13.	API 6D	Specification for Pipeline Valves
14.	API 610	Centrifugal Pumps for Petroleum, Petrochemical & Natural Gas Industries
15.	API 674	Positive Displacement Pumps – Reciprocating
16.	API 675	Positive Displacement Pumps – Controlled Volume for Petroleum, Chemical, and Gas Industry Services
17.	API 676	Positive Displacement Pumps – Rotary
18.	API 681	Liquid Ring Vacuum Pumps and Compressors for Petroleum, Chemical, and Gas Industry Services
19.	API 682	Shaft Sealing Systems for Centrifugal & Rotary Pumps
20.	API 686 RP	Machinery Installation and Installation Design
21.	API RP 1004	Bottom Loading and Vapor Recovery for MC-306 & DOT-406 Tank Motor Vehicles

22.	AWS D1.1	Structural Welding Code — Steel
23.	ISO 3661	End-suction centrifugal pumps – Baseplate and installation dimensions
24.	ISO 5199	Technical specifications for centrifugal pumps – Class II
25.	ISO 8573-1	Compressed Air
26.	ISO 8501	Preparation of Steel Substrates
27.	ISO 13709	Centrifugal pumps for petroleum, petrochemical and natural gas industries
28.	ISO 16852	Flame arresters – Performance requirements, test methods and limits for use
29.	ISO 21049	Pumps – Shaft sealing systems for centrifugal and rotary pumps
30.	SANS 31	Metallic products – Types of inspection documents
31.	SANS 32	Internal and/or external protective coatings for steel tubes — Specification for hot dip galvanized coatings applied in automatic plants
32.	SANS 121	Hot dip galvanized coatings on fabricated iron and steel articles – Specifications and test methods
33.	SANS 10198	The selection, handling, and installation of electric power cables of rating not exceeding 33 kV Part.
34.	SANS 10108	The classification of hazardous locations and the selection of electrical apparatus for use in such locations.
35.	SANS 10114-1	Interior lighting.
36.	SANS10142-1&2	Code of practice for the wiring of premises.
37.	SANS 1019, 2014	Standard voltages, currents, and insulation levels for electricity supply.
38.	SANS 1507	Electric cables with extruded solid dielectric insulation for fixed installations (300/500 to 1900/3300 V) for low voltage (LV) power cables.
39.	SANS 1339	Electric cables – cross-linked polyethylene (XLPE) insulated cables for rated voltages 3,8/6,6 kV to 19/33 kV for medium voltage (MV) XLPE power cables.
40.	SANS 10400	The application of the National Building Regulations.
41.	SANS 1200HC	Corrosion Protection of Steelwork.
42.	SANS 347	Categorization and conformity assessment criteria for all pressure equipment
43.	SANS 0089	The petroleum industry Part 1, Part 2, and Part 3: Storage and distribution of petroleum products
44.	SANS 10227	Criteria for Operation of Inspection Authorities Performing Inspections in Terms of Pressure Equipment Regulations
45.	SANS 17020	Conformity Assessment – Requirements for the Operation of Various Types of bodies Performing Inspection,
46.	SANS 17021	Conformity Assessment – Requirements for bodies Providing Audit and Certification of Management Systems,
47.	SANS 10112	National Norms and Standards for Domestic Water and Sanitation Services
48.	SANS 10400 – T	Fire protection
49.	SANS 10400 – W	Fire Installations
50.	SANS 10131 – Part 1	Storage and distribution of petroleum products in above-ground bulk installations
51.	SANS 10086-3	The installation, inspection, and maintenance of equipment used in explosive atmospheres Part3 : repair and overhaul of equipment
52.	SANS 10089 – Part 2	Electrical and other installations in the distribution marketing sector

53.	SANS 10089 – Part 3	The installation, modification, and decommissioning of underground storage tanks, pumps/dispensers and pipework at service stations and consumer installations.
54.	SANS 10089	The petroleum industry Part 1, Part 2, and Part 3: Storage and distribution of petroleum products.
55.	SANS 10108	The classification of hazardous locations and the selection of equipment for use in such locations.
56.	SANS 10131	Above Ground storage tanks for petroleum products
57.	SANS 1518	Transport of dangerous goods — Design, construction, testing, approval and maintenance of road vehicles and portable tanks
58.	SANS 1700	Fasteners
59.	SANS 1929	Ambient air quality – Limits for common pollutants
60.	SANS 2001-DP2	Medium pressure pipelines
61.	SANS 10102	Selection of pipes for buried pipelines
62.	SANS 10684	Fasteners – Hot dip galvanized coatings
63.	SANS 14713	Protection against corrosion of iron and steel in structures – Zinc and Aluminium coatings
64.	SANS 60079-0	Explosive Atmospheres – Part 0: Equipment – General Requirements
65.	SABS 763	Hot dip (galvanized) zinc coatings
66.	SABS 1200 A	General
67.	SABS 1200 AB	Engineers Office
68.	SABS 1200 C	Site Clearance
69.	SABS 1200 DA	Earthworks (Small Works)
70.	SABS 1200 DB	Earthworks (Pipe Trenches)
71.	SABS 1200 DK	Gabions and Pitching
72.	SABS 1200 DM	Earthworks (Road, Subgrade)
73.	SABS 1200 G	Concrete (Structural)
74.	SABS 1200 GE	Structural Precast Concrete
75.	SABS 1200 LB	Bedding (Pipes) SABS 1200 L Medium Pressure Pipelines
76.	SABS 1200 LC	Cable Ducts SABS 1200 LD -Sewers
77.	SABS ARP 0108	Regulatory Requirements for Explosion Protected apparatus
78.	The S.A. National Building Regulations and Building Standards Act. (Act 103 of 1977)	

TPL Specifications

Item	Document Number	Description
1.	2684358-U-AOO-ME-SP-009	Specification for Corrosion Protection
2.	PL 2/A	General Specification – Steel Valves for Petroleum Product Service
3.	PL 203/B	Thermal Relief Valve
4.	PL 204/E	Specification, Ball Valve for Petroleum Product Service
5.	PL 219/C	Specification Gearbox for Quarter Turn Valves

6.	PL 221	Specification Globe Valves, 2 inch and below for Petroleum Product Service
7.	PL 223A	Specification Check Valve, Flanged, Regular, Swing, For use in Manifolds for Petroleum Product Service
8.	PL 401/D	Specification for line pipe
9.	PL 631	Specification for Low Voltage Switchgear and Distribution Boards
10.	PL 666	Electrical Design Criteria
11.	PL 711	Specification for Equipment Cabinets to House Electronic Equipment
12.	PL 727	Cabling, Racking, Trenching & Earthing Installation Codes of Practice
13.	PL 835	The Minimum Structural Requirements for Walkways, Platforms and Stairways
14.	TPL-TECH-I-POL-001	Metering Policy
15.	TPL-TECH-I-POL-002	Control System Policy
16.	TPL-TECH-I-POL-003	Instrumentation Policy
17.	PL703	Process Control Network Standard
18.	PL 723	Automation Standard
19.	PL711	Cabinets
20.	PL 727	Cabling, Racking, Trenching and Earthing
21.	PCE	Framework for Minimum Controls for Security
22.	6AV2124-0UC02-0AX1	Simatic HMI Datasheet
23.	6ES7317-2EK14-0AB0	Simatic S7-300 CPU Datasheet
24.	6ES7322-1BH01-0AA0	Simatic S7-300 DO Datasheet
25.	6ES7332-5HD01-0AB0	Simatic S7-300 DI Datasheet
26.	6ES7307-1BA01-0AA0	Simatic S7-300 Power Supply Datasheet
27.	6ES7331-7KF02-0AB0	Simatic S7-300 AI Datasheet
28.	17514-SK-01	Scope Drawing
29.	17514-SK-02	Proposed Layout
30.	Piping Material Specifications – Rev.01 August 2013	
31.	TPL Drawing standards TPL-TECH-DO-STD-001 (PL100) TPL-TECH-DO-STD-002 (PL101) TPL-TECH-DO-STD-003 (PL102) TPL-TECH-DO-STD-004 (PL103)	

Other Relevant Specifications

Table 3 Other Relevant Specifications

Item	Document Number	Description
1.	TPD-002-DBSPEC	The Local Municipal by-laws and any special requirements of the Supply Activities of the area or district concerned.

1. INTRODUCTION

Transnet Pipelines owns and operates the Tarlton petroleum products handling, distribution and bulk storage depot. This facility as part of its operations infrastructure has product rail and road tanker loading operations. It is a mandatory legislative requirement that this type of operation must have a Vapor Recovery System (s) installed to control volatile organic compounds emissions into the atmosphere, commonly known as Green House Gases (GHS)

2. THE PURPOSE OF THIS DOCUMENT

This document is intended to provide minimum requirements to be met for material, equipment and workmanship by the Engineering, Procurement and Construction (CONTRACTOR) while providing the design, engineering, supply, manufacture, procurement of materials and components, assembly at shop, painting, testing at manufacture's works, packaging and supply of Vapour Recovery Unit including supply of all commissioning spares and commissioning scope of work for the provision of the Vapor Recovery System.

3. OVERVIEW OF THE VRU SYSTEM WORKS

The contract comprises but not limited to, inter alia, the following items:

- 3.1.** Vapor Recovery System shall comply to emission norms of the Environment Air Quality Act 39 of 2004 and the Atmospheric Emission License (AEL) for Tarlton Transnet Pipelines depot.
- 3.2.** The system will be "ACTIVATED CARBON ADSORPTION SYSTEM WITH VACUUM PUMPS".
- 3.3.** Refer to attached layout plan of the Tarlton Depot indicating the areas demarcated for the VRU unit and the vapour, absorbent and condensate pipe routing and auxiliary equipment required for a full functioning Vapour Recovery Unit.

4. THE TECHNICAL SCOPE OF WORK FOR THE CONTRACTOR INCLUDES BUT NOT LIMITED TO THE FOLLOWING:

- 4.1.** Design, Engineering, Supply, Manufacture, Fabrication, Installation, Testing, Commissioning and after Sales Support of a Complete Vapour Recovery System at Tarlton Depot including but not limited to VRU skids, HVAC for MCC building, Firefighting, Arms for Road and Rail Gantry, Flame Arrestors, Process and Utility Piping and Connections to the Nozzles, Pumps, Blowers, Pressure Relief Valves, Vacuum Break Valves, Actuated Ball Valves, Storm Water and Oil Spillage Drains, Platforms, Pressure Vessels, Knock Out Pots, Basket Strainers, Electrical, Instrumentation, Software, Civil, Structural, Mechanical, Earthing, Cathodic Protection, Coating, Spares and all interface with TPL existing infrastructure including after Sales Support.
- 4.2.** Design, Supply and install Bottom Loading Arms & Bottom Vapor recovery Arms with API RP1004 and SANS 1518.
- 4.3.** Supply, fabrication / welding / testing / installation /commissioning and Design, supply, installation etc. of bottom vapour recovery arms
- 4.4.** Pipeline designing, Supply & Laying as per ASME.B 31.3 for carrying Vapours from Tank Truck Gantry and Rail Tank till inlet of Vapor Recovery System.
- 4.5.** Design, supply material and equipment and install for circulation for Adsorber Column from Proposed Tanks and sending back of recovered condensate to the identified tanks.

- 4.6.** Design, Supply and install equipment and material for interconnecting piping.
- 4.7.** Supply and Install ACTIVATED CARBON ADSORB ION VAPOR RECOVERY SYSTEM WITH VACCUM PUMP (s) with all the instrumentation, automation etc. including the metering unit for inlet and outlet of absorber. In all scope includes collection of vapours through Bottom Vapour recovery arm and Bottom vapour recovery arm from tank and rail loading areas and recover the condensate after passing collected vapours through vapour recovery system and discharge the clean air through vent as per scope.
- 4.8.** Design and construct civil works required for the vapour recovery system including structures, foundation for bunded areas and the construction of the power supply room according to applicable codes and standards.
- 4.9.** Provision of electrical COC's, loop certificates, IA certificates for explosion protected equipment (ATEX) and all other regulatory and statutory compliance certificates as applicable to the electrical and instrumentation installation, especially as regards the area classification/ zoning equipment.
- 4.10.** The Contractor is responsible for all the blind flanges, fittings, bolts, nuts and gaskets required for the shop hydrostatic test of the VRU.
- 4.11.** The contractor shall supply all supports (temporary or permanent) required during shop hydrostatic testing and transport to the site.
- 4.12.** The contractor shall supply all other materials and equipment required by and in accordance with the contract including all materials generally described as "consumables" with the exception of the ULP for commissioning.
- 4.13.** Special Tools and tackles for operation
- 4.14.** Commissioning spares for the Vapour Recovery System and consumable spares for 06 months operation as per instrumentation specification. (to be included in lump sum price). Bidder to furnish the list of commissioning spares along with offer.
- 4.15.** Mandatory spares as per Instrumentation specification (to be included in lump sum price).
- 4.16.** Operation and Maintenance Spares, for two year's smooth and trouble-free operation of offered VRU system. Bidder shall furnish an itemized price list along with offer. Bidder shall specify / include the operation and maintenance spares required for the offered centrifugal pump (s) & vacuum pump (s) in the two years operation and maintenance spares list.
- 4.17.** All remedial works to be signed by an ECSA registered Professional Engineer.
- 4.18.** All method statements, designs, drawings, and maintenance plans to be provided in native and hard signed copy. Documentation to be complete, accurate, and includes all necessary details for operation and maintenance. (P&ID and other existing affected documentation to be updated).
- 4.19.** The remedial methodology to ensure there is minimum disruption to the operations of Transnet Pipelines.

5. THE SCOPE OF THE TRANSNET PIPELINES APPROVED INDEPENDENT INSPECTION AUTHORITY (AIA) IS AS FOLLOWS:

- 5.1.** Vetting of Quality Assurance Plan & Inspection Test Plan prepared by the contractor.
- 5.2.** Vetting of system acceptance criterion & testing procedure to comply emission norms & other requirements.
- 5.3.** Verification and approval of each material as per approved datasheets.

- 5.4.** Verification of manufacturer test certificate for 100% accuracy and repeatability.
- 5.5.** All pipeline joints within skid to be tested for their welding quality, hydro test pressure as specified in the code for the particular size adopted in design.
- 5.6.** All pipeline joints at site to be hydro tested / pneumatic tested for pressure as specified in code for design size of pipeline.

6. VRU FOAM BASED FIRE PROTECTION SCOPE

- 6.1.** The Tarlton site have a fixed fire protection system with pressurized water ring main, premix ring main, hydrant ring main with corresponding branch lines to various nozzles. The most credible event for the fire system is at the tank combinations. The contractor is required to design, construct and commission a new deluge/ sprinkler fire protection system using SS 316L stainless Steel Piping to protect the Vapor Recovery unit infrastructure and shall be connected to;
 - The foam premix system on site
 - The additive spray system.
- 6.2.** The fire protection system shall be integrated into the main control system for the Tarlton depot
- 6.3.** Fire protection zone to be integrated into the existing fire protection system for Tarlton terminal, relevant existing documents to be updated accordingly with new schematics and updating of all emergency plans and training etc.
- 6.4.** Fire protection to tie in on the existing fuel and additive dosing system at Tarlton tanker loading. The current pipework is stainless steel schedule as per current TPL fire system piping specification. The first responder and main Fire control panel will have to change from Tanker loading to VRU/tanker loading. The first responder panels are located in the security office, Tarlton control room and IRP control room. The main fire control panel (FCP) are located at the main pump house with the inclusion of a first responder's panel.
- 6.5.** 2 x 9kg fire extinguishers with signage to be provided.
- 6.6.** The sprinkler system shall meet the requirements of:
 - SANS 10089-1
 - NFPA 15
 - NFPA 11
- 6.7.** The Supplier shall match the existing fire equipment on site.
- 6.8.** Handheld fire extinguishers shall be provided outside and inside the VRU building.

7. FLAME AND DETONATION ARRESTORS

- 7.1.** The pressure drop across flame / detonation arrestors, including an allowance for fouling, shall be considered in the design of the VRU.
- 7.2.** Flame / detonation arrestors shall be supplied, designed, manufactured and tested as per the requirements of EN ISO 16852.
- 7.3.** Flame / detonation arrestors shall be chosen and installed as per the manufacturer's instructions.
- 7.4.** Pressure retaining materials for flame and detonation arrestors shall be selected from ASME Section II.
- 7.5.** All flame and detonation arrestors shall be installed in the vertical.
- 7.6.** All flame and detonation arrestors shall be isolatable from the main header to allow for maintenance.
- 7.7.** All flame and detonation arrestors shall have pressure gauges fitted before and after the arrestors. The pressure gauges shall be isolatable.

8. DESIGN REVIEW PROCEDURE

The *Contractor* is responsible for the Designs and conducting all the design review gates with Transnet Pipelines. The *Contractor* is responsible for conducting the following design reviews:

- 1) Basic Design Review Gate
- 2) Detail Design Review Gate
- 3) Integrated Design Review
- 4) Construction Completion Review
- 5) Acceptance Testing Review

8.1. Hold Points

- 12.1.1 Datasheets to be accepted by TPL
- 12.1.2 All specifications need to be adhered to TPL standards
- 12.1.3 P&ID/Design, Fire systems and drawing review – Incl. Mechanical, Civil, Electrical, Piping etc.
- 12.1.4 HAZOP study

8.2. Design philosophy to be updated to include the VRU P&ID

8.3. Site layout drawings to be updated

8.4. Hazardous Installation Risk Assessment (which is different from a HAZOP)

8.5. Undertake complete HAZOP workshop for all designed elements and prepare HAZOP Report

8.6. Complete Fire Risk Assessment report

8.7. Operational Readiness Plan of the VRU.

8.8. The interfacing and integration of the VRU with TPL's systems

8.9. The provision of the prescribed manuals and quality control documentation - Including the interface with the existing SCADA system for the aspects which will be integrated to the existing control system.

8.10. As Built Drawings

8.11. Engineering Documentation Requirements

Documentation			
Equipment Specifications	Set	1	English
P&I Diagram	Set	1	English
Datasheets	Set	1	English
Wiring diagrams	Set	1	Autocad / English
Cable lists	Set	1	Autocad / English
General arrangement drawings	Set	1	Autocad / English
Foundation drawing (footprint)	Set	1	Autocad / English
Operation instructions	Set	1	English Set
Maintenance instructions	Set	1	English
Manufacturers Data Book and QC files	Set	1	English
All drawings AUTOCAD		1	AUTOCAD 2010

9. NAME PLATES

All components (vessels, valves, pumps, electrical components, etc.) shall be provided with a substantial information plate, manufactured of stainless steel, securely fastened with stainless steel screws in a readily visible position, and clearly and indelibly marked with the following details:

- Manufacturer's name, type and serial number
- Contact number of local supplier
- Year of manufacture
- Rated duty
- Pressure rating

Letters and figures for both nameplates shall be engraved, or embossed, NOT STAMPED, and Black Etched after engraving.

10. CATHODIC PROTECTION

The depot has installed the impressed current cathodic protection (CP). It is required where the contractor as part of its scope of work needs to connect two dissimilar or material and where the underground piping is connected to the existing TPL infrastructure in accordance with the attached TPL Specification.

11. DEPOT EQUIPMENT CONFIGURATION

The depot for the purposes of the VRU system project has the following associated infrastructure

11.1. The vapor recovery system will be connecting from the following two loading areas and Road Loading Area

#	Item Description	Quantity
1	Number of bays currently in use	4
2	Number of bays for future use	5
3	Total number of arms per bay currently in use	3
4	Total number of arms per bay for future use	4
5	Total number of arms currently in use (1x3)	12
6	Total number of arms for future use (5x4)	20

11.1.1. Rail Loading Area

#	Item Description	Quantity
1	Number of bays currently in use	7
2	Number of bays for future use	8
3	Total number of arms per bay currently in use	2
4	Total number of arms per bay for future use	4
5	Total number of arms currently in use (1x3)	14
6	Total number of arms for future use (5x4)	32

11.2. Depot Loading Profile

Based on the current depot diesel and petrol products loading profile at rail and road loading areas the following loading maximum throughputs are to be considered for the VRU design:

Item Description	Accumulative Volume (m ³)
Maximum 24-hour throughput	6,000
Maximum 4-hour throughput	2,800
Maximum 1 hour throughput	700
Maximum 15-minute throughput	360

Note: The maximum instantaneous throughput rate is 1,440m³/h

11.2.1. The above figures were determined based on the depot operating hours from 07H00 to 22H00 for the road gantry and on a day shift for rail from Monday to Friday for both loading areas.

11.3. Absorbent Supply Tank Parameters

The absorbent supply tank to the absorber column and the condensate from the absorber columns are from two tanks and the two tanks are made available for redundancy provision.

Item Description	Tank # 1	Tank # 2
TPL Assigned Tank Number	Tank T3	Tank T4

Stored Product	TBA	TBA
Diameter (m)	5.0	6.8
Height (m)	6.0	7.0
Capacity (m ³)	118	254

Notes

1. The supplier is required to advise Transnet Pipelines about the absorber flowrate and pressure from the absorber tank to the VRU and visa versa.
2. The design of the VRU must cater for the presence of 10 vol% ethanol and MTBE (Methyl tert-Butyl Ether) in ULP grade products and 10 vol% FAME (Fatty Acid Methyl Ester) in diesel grade product.

12. DEPOT PLOT PLAN

The attached Depot Plot Plan (Annexure 1) indicate the rail loading area, road truck loading area, and the VRU unit proposed location area and are marked on the drawing. The information is provided for use by the contractor in designing the vapor collection lines from the tanker and rail loading areas.

The two tanks marked T3 & T4 and on the plot plan to be used for:

Liquid-vapour separator to be installed on the vapour recovery header (size to be confirmed by Supplier) upstream of the VRU.

Supplier to supply all VRU instrumentation and controls including but not limited to those specified.

Pressure vacuum valves are to be installed on the vapour recovery headers at both the road loading gantry and the rail loading gantry. Vacuum / pressure set points shall be confirmed by the Supplier.

Supplier to supply all equipment and auxiliaries to make vapour recovery by carbon adsorption possible. Equipment and auxiliaries are not limited to those specified in this specification.

All vapour blowers, if necessary due to the length of the pipeline and the pressure requirements.

13. REGULATORY EMISSION REQUIRMENTS

The NATIONAL ENVIRONMENT MANAGEMENT AIR QUALITY ACT 2004 of 22 November 2014 of the Department of Environmental Affairs emissions limits clause which the Tarlton depot needs to comply with states "*LIST OF ACTIVITIES WHICH RESULT IN ATMOSPHERIC EMISSIONS WHICH HAVE OR MAY HAVE A SIGNIFICANT DETRIMENTAL EFFECT ON THE ENVIRONMENT, INCLUDING HEALTH, SOCIAL CONDITIONS, ECONOMIC CONDITIONS, ECOLOGICAL CONDITIONS OR CULTURAL HERITAGE*". The act stipulates the maximum hydrocarbon emissions level which triggers the mandatory installation of emissions controls mechanisms inter alia the installation of the VRU as follows:

13.1. < 40 g / Nm³ VOC's ex methane (1 hour average)

13.2. < 5 mg/Nm³ (Benzene only – 1 hour average)

13.3. The VRU output shall meet the requirements of SANS 1929 Ambient air quality — Limits for common pollutants.

13.4. The VRU's collection efficiency shall be at least 95%.

13.5. Emission limit required: 40,000mg/Nm³.

14. AREA CLIMATE CONDITIONS

- Maximum temperature: 45°C
Average temperature: 20°C
Minimum temperature: -10°C
Altitude: 1580m
- Basic wind speed: As per SANS 10160-3 (28m/s) – To be confirmed by the Supplier's designer
Maximum rainfall: 200mm in 24 hours
- Average annual rainfall: 760mm
Climate: Subtropical

15. DEPOT AREA & PRODUCT CLASSIFICATION

The Tarlton site is a petroleum storage, bulk storage and distribution site with the following classification.

- Gas group IIA
- Flammable liquid class I
Temperature
- Classification T3 Zone 1

16. PARAMETERS TO BE ADVISED BY THE CONTRACTOR

16.1. The CONTRACTOR shall advise the following in the tender:

- a) Required absorbent supply flow rate and pressure.
- b) The recovered product expected

17. VRU OPERATING AVAILABILITY

17.1. The VRU shall have an operational availability of at least 99% following commissioning.

18. NOISE REQUIREMENTS FOR THE VRU

18.1. Noise level shall be less than:

1. 85 dB at 1m from each piece of individual equipment
2. 70 dB at the boundary of the spill containment

19. DELIVERY

19.1. The goods shall be loaded and transported on suitable transport. All items shall be secured on the transport vehicle to avoid damage to the pipe and fittings and their coatings. Goods shall not be allowed to rest directly against each other.

19.2. Goods shall be supplied with plastic end caps on all openings. 121

19.3. Goods shall be supplied in sealed wooden containers with plastic linings. A plastic lining shall be wrapped around each individual item. Flange faces and mating surfaces shall be

protected during transport and handling. The goods shall be secured to the wooden container to prevent movement.

19.4. All goods shall be firmly secured by suitable padded lashings to prevent movement and damage in transit. The containers and goods shall not be dropped, bumped or subjected to shock or rough handling and any goods damaged during transport or handling may be rejected by the Engineer.

19.5. The CONTRACTOR shall make allowance for and comply with all the TPL's Health Safety Security and Environmental (HSSE) requirements at the delivery point.

19.6. The CONTRACTOR shall allow for off-loading.

20. STORAGE

20.1. The CONTRACTOR shall allow for the storage of the goods at the CONTRACTOR's premises for a period of up to 6 months in their offer.

20.2. Storage of the goods shall be:

- 1) Undercover.
- 2) On dunnage, made of inert material, at least 150mm above ground level.
- 3) All openings shall be sealed.

20.3. The goods shall be stored in an area away from regular vehicle movements and contamination by incompatible materials.

21. INSTALLATION

21.1. The CONTRACTOR shall be responsible for the installation of the VRU, including all piping, instrumentation and electrical connections.

22. COMMISSIONING

22.1. The CONTRACTOR shall have full responsibility for the commissioning of the VRU. The TPL shall supply the ULP for the commissioning.

22.2. The Supplier will ensure that all systems are working to design and within specification prior to handover. This will include:

- Ensuring that the ESD system is fully functional.
- Ensuring that the firefighting system is fully functional.
- Ensuring that the bund drainage system is fully functional.
- Ensuring that all the vapour connections are fully functional
- Ensuring that the VRU control system is fully functional
- Ensuring that the VRU PLC to TPL control system is fully functional
- Ensuring that the VRU is performing in accordance with the design parameters
- Ensuring that the VRU is performing in accordance with the emissions requirements
- Ensuring that the VRU availability requirements are met
- Ensuring that all applicable contractual performance criteria are met and documented as such

23. RESPONSIBILITY AND PERIOD OF GUARANTEE

23.1. After the commissioning, the guarantee period will be deemed to have started and will continue for a period of 24 months. The responsibility of the CONTRACTOR concerning supplied equipment is in no way alleviated by the commissioning.

23.2. The CONTRACTOR shall make good, free of all charges, any defects arising during this Period of Guarantee, including the replacement of all defective parts and their installation and re-commissioning. This guarantee shall apply to all defects arising during proper use of the plant, due to faulty design or maintenance instructions, inferior materials or poor workmanship.

- 23.3.** Defects that do prevent the unit from meeting its performance parameters shall be rectified within twenty-four (48) hours within the defect period
- 23.4.** Minor defects that do not prevent the unit from meeting its performance parameters shall be rectified within five (5) working days.
- 23.5.** Maintenance by the TPL's personnel during the Period of Guarantee shall be limited to cleaning and necessary lubrication only as instructed by the CONTRACTOR. All other maintenance or adjustments shall be carried out by the CONTRACTOR.
- 23.6.** Should any component part of any main or ancillary equipment fail to perform in accordance with its intended function during the Period of Guarantee, the Engineer shall have the right to reject the component part and order its replacement with a more reliable part at the CONTRACTOR's expense. The replacement part shall be guaranteed for a further twelve months or to the end of the Period of Guarantee, whichever is the later.
- 23.7.** After the period of 24 months the final commissioning and handover will take place.
- 23.8.** The procedure as described above for the initial commissioning will be repeated and no deterioration in the performance and efficiency of the VRU must be noted.
- 23.9.** Test results shall be included in the Operating and Maintenance Manual.
- 23.10.** If either party insists on a recalibration of any item of equipment, then the cost of the recalibration shall be borne by that party if it is found that the instrument did not require recalibration.

24. REJECTIONS

24.1. TPL reserves the right to reject any component or the entire VRU, at the time of the Works test, the Acceptance Test on Site or after, during the Period of Maintenance in the following cases:

- Less than 99% availability of the VRU following commissioning
- Failure of any component which prohibits the functioning of the VRU
- Any sign of failure of the pressure vessels.
- Any sign of excessive vibration.
- Any deviation from these specifications not agreed previously in writing.

24.2. The Engineer reserves the right to reject any part of the equipment if the above-mentioned corrections are not forthcoming. Rejection implies the recovery, by the TPL, of all monies paid to the CONTRACTOR who shall remove, at his own expense, all the plant supplied by him when ordered to do so.

25. CONSTRUCTION DEFECTS

A defects register will be compiled per site. All defects will be listed and the Supplier will be given time to remedy the defects prior to commencement of the next step.

This will be updated as a minimum at every progress meeting.

The Supplier's construction manager will continuously monitor and address his own internal defects list.

26. HANDOVER

Once a commissioning report and inspection has been completed the Engineer will verify the commissioning and ensure that the system is ready for handover to the Purchaser, this will include all the necessary support documentation.

27. ACCEPTANCE

Once the Purchaser's designated representation has verified the handover process, he/she will take acceptance of the system together with all the necessary support documentation. This process will include training of onsite staff in the operation of the VRU. At this stage the guarantee period will commence, and the site close out process will commence.

28. SERVICE PLAN

The continued reliable operation of the VRU is critical to the operation of the facility. It is also recognized that the TPL's personnel may not have the correct facilities or specialized skills to maintain the VRU in "as-new" condition. The CONTRACTOR is to propose a service agreement for a period of not less than 60 months from commissioning of the VRU. This shall be evaluated separately to the supply contract but shall be considered of high importance in terms of assessing the future reliability of the VRU installation.

29. BATTERY LIMITS

29.1. Request service provider to provide details (As part of the deliverables for the contractor)

29.2. Detail what's currently available – interface in the existing LV panels

30. PRODUCT DATA SHEET (Specification)

PRODUCT SPECIFICATIONS/MATERIAL DATA SHEET

The schedule below is the material data sheet indicating the chemical composition for the petroleum products being handled whose vapor is required to be processed.

Refined Product				
Ultra-low Sulphur Diesel				
1.0	Product Specification	Units	Value	Reference
	S	ppm wt	≤50	ASTM D2622 / D5453
	H ₂ O	% vol	<0.05	ASTM D95 / D4377
	Bio-Diesel	% vol	≤ 5	
	Ash content	% wt	≤ 0.01	ASTM D482
	Total contamination	ppm wt	≤ 24	Note 1
	Colour			
	Viscosity (40°C - 10°C)	mm ² /s	2.89 – 5.91 Note 2	ASTM D445
	Density @ 20°C	kg/m ³	817.5	ASTM D4052
	Design density	kg/m ³	858	
	Lubricity @ 60°C		<460	ISO 12156-1
	Flash Point	°C	>55	ASTM D93
	Distillation Temp (90% vol frac)	°C	<362	ASTM D86
	Cetane Number		>45	ASTM D613
	Copper strip corrosion (3h @100°C)		1	ASTM D130
	RVP (Reid Vapour Pressure)	kPa	≤ 0.1 Note 3	ASTM D613
Remarks: Above given figures as per SANS 342: 2006				
Note1: Ex-refinery requirement				
Note2: Taken from FEED Package				
Note 3: As per SAPREF and ENGEN MSDS @ 40°C				

Refined Product				
Low Sulphur Diesel				
1.0	Product Specification	Units	Value	Reference
	S	ppm wt	500 ± 1	ASTM D2622 / D5453
	H ₂ O	% vol	<0.05	ASTM D95 / D4377
	Bio-Diesel	% vol	≤ 5	
	Ash content	% wt	≤ 0.01	ASTM D482
	Total contamination	ppm wt	≤ 24	Note 1
	Colour			
	Viscosity (40°C - 10°C)	mm ² /s	2.89 – 5.91 Note 2	ASTM D445
	Density @ 20°C	kg/m ³	817.5 Note 2	ASTM D4052
	Design density	kg/m ³	858 Note 2	
	Lubricity @ 60°C		<460	ISO 12156-1
	Flash Point	°C	>55	ASTM D93
	Distillation Temp (90% vol frac)	°C	<362	ASTM D86
	Cetane Number		>45	ASTM D613
	Copper strip corrosion (3h @100°C)		1	ASTM D130
	RVP (Reid Vapour Pressure)	kPa	≤ 0.1 Note 3	ASTM D613
Remarks: Above given figures as per SANS 342: 2006				
Note 1: Ex-refinery requirement				
Note 2: Taken from NMPP FEED Package				
Note 3: As per SAPREF and ENGEN MSDS @ 40°C				

Refined Product				
93 Unleaded Petrol (metal free)				
1.0	Product Specification	Units	Value	Reference
	RON number		93	ASTM D2699 or IP 4237
	Pb	mg/l	< 13	ASTM D3341
	S	ppm wt	< 500	ASTM D5453
	H ₂ O	% vol		
	Aromatics content	% vol	< 50	ASTM D5443
	Benzene content	% vol	< 5	ASTM D5443
	Colour			
	Viscosity (20°C - 1°C)	mm ² /s	0.622 – 0.724 Note 1	ASTM D445
	Density @ 20°C	kg/m ³	724.3 Note 1	ASTM D1298 / D4052
	Design Density	kg/m ³	724.3 Note 1	
	Flash Point	°C	-20	Sasol MSDS
	Distillation Temp (10% vol frac)	°C	<65	ASTM D86
	Distillation Temp (50% vol frac)	°C	<77 - 115	ASTM D86
	Distillation Temp (90% vol frac)	°C	<185	ASTM D86
	Final boiling point	°C	<215	ASTM D86
	Reid Vapour Pressure	kPa	45 - 75	ASTM 323
	Copper strip corrosion (3h @50°C)		class 1	ASTM D130
Remarks: Above given figures as per SANS 1598: 2006				
Note1: Taken from NMPP FEED Package				

Refined Product				
95 Unleaded Petrol (metal free)				
1.0	Product Specification	Units	Value	Reference
	RON number		95	ASTM D2699 or IP 4237
	Pb	mg/l	< 13	ASTM D3341
	S	ppm wt	< 500	ASTM D5453
	H ₂ O	% vol		
	Aromatics content	% vol	< 50	ASTM D5443
	Benzene content	% vol	< 5	ASTM D5443
	Colour			
	Viscosity (20°C - 1°C)	mm ² /s	0.649 – 0.748 Note1	ASTM D445
	Density @ 20°C	kg/m ³	738.2 Note 1	ASTM D1298 / D4052
	Design Density	kg/m ³	738.2 Note 1	
	Flash Point	°C	-20	Sasol MSDS
	Distillation Temp (10% vol frac)	°C	<65	ASTM D86
	Distillation Temp (50% vol frac)	°C	<77 - 115	ASTM D86
	Distillation Temp (90% vol frac)	°C	<185	ASTM D86
	Final boiling point	°C	<215	ASTM D86
	Reid Vapour Pressure	kPa	45 - 75	ASTM 323
	Copper strip corrosion (3h @50°C)		class 1	ASTM D130
Remarks: Above given figures as per SANS 1598: 2006				
Note1: Taken from NMPP FEED Package				

Refined Product				
JET				
1.0	Product Specification	Units	Value	Reference
	Total acidity	mg KOH/g	< 0.015	IP 354/ASTM D 3242
	S	% mass	< 0.2	IP336
	H ₂ O	% vol	no free water at ambient	
	Aromatics content	% vol	< 25	IP 156/ASTM D 1319
	Colour		clear, bright, visually free from solids	
	Freezing Point	°C	-47	IP 16/ASTM D 2386
	Viscosity (40 - 10°C)	mm ² /s	1.328 – 2.111 Note1	ASTM D445
	Density @ 20°C	kg/m ³	796 Note1	ASTM D1298 / D4052
	Design Density	kg/m ³	796 Note 1	
	Flash Point	°C	>38	
	Distillation Temp (10% vol frac)	°C	max 205	ASTM D86
	Distillation Temp (50% vol frac)	°C		ASTM D86
	Distillation Temp (90% vol frac)	°C		ASTM D86
	Final boiling point	°C	<300	ASTM D86
	Reid Vapour Pressure	kPa	≤ 0.1 Note 2	ASTM D613
	Copper strip corrosion (3h @50°C)		class 1	ASTM D130
Remarks: Above given figures as MIL-T-83133D: 1992				
Note1: Taken from NMPP FEED Package				
Note 2: As per SAPREF and ENGEN MSDS @ 40°C				

31. VRU SYSTEM PERFORMANCE CRITERIA

The installed VRU System is required to meet the following performance requirements.

- 31.1.** The VRU system shall meet the requirements of API RP104 and SANS 1518.
- 31.2.** Must meet all the requirements of SANS 1929 Ambient air quality – Limits for Common Pollutants
- 31.3.** Must have a minimum vapor collection efficiency of 95%
- 31.4.** Must have a downtime of not less than 99%

32. RAIL AND ROAD TANKER PARAMETERS

- 32.1.** The maximum back pressure of the entire vapour recovery system shall not exceed 5.5kPa
- 32.2.** Maximum design pressure of a tanker is approximately 55 mbar(g) (gauge pressure)
- 32.3.** Operating pressure of the header at road loading gantry is a maximum of 5 bar (g) (gauge pressure) upstream of air eliminator.
- 32.4.** The operating pressure of the road loading arm is 1 bar(g) (gauge pressure)

33. PARTICULAR TECHNICAL AND PROJECT SPECIFICATIONS

The Standard Specifications provide, in certain clauses, for a choice to be specified in the Construction Specifications between alternative materials or methods of construction and for additional requirements to be specified to suit a particular contract. Details of such alternatives or additional requirements applicable to this Contract are contained in this part of the Specifications. It also contains some additional specifications required for this particular contract.

34. QA/QC DATA PACK

The Contractor shall build and maintain a quality data book which must first be approved by the AIA and shall as a minimum have the following sections:

- 1) Final Acceptance, Hand-over forms and Punch Lists
- 2) Approved Quality Control Plans
- 3) Drawings
- 4) General Arrangement Drawings
- 5) Equipment catalogues, drawings, instruction and installation manuals as well as suppliers acceptance certificates
- 6) As built drawings
- 7) Concrete cube test results,
- 8) Concrete mix design,
- 9) Material certificates (civil layer works etc.),
- 10) Electrical certificates of compliance, where applicable
- 11) Commissioning Reports
- 12) Weld Maps indicated on Isometric Drawings
- 13) NDE/NDT reports
- 14) Material identification Maps shown on Isometric Drawings
- 15) Pressure Test Certificates for pipes, valves, vessels and equipment (layouts

- and pressuregauge calibration certificates)
- 16) Welding register
- 17) Radiographic and Surveillance Reports
- 18) Material Certificates (pipes, fittings, valves, gauges, welding consumables, etc.)
- 19) Pressure Test Certificates
- 20) Calibration Certificates (instruments, gauges, meters, etc.)
- 21) Corrosion Protection Inspection Certificates
- 22) Welding Procedure Specification (WPS)
- 23) Procedure Qualification Records (PQR)
- 24) Welder's Qualification Records (WQR)
- 25) Welders Coding Certificates
- 26) Pipe wrapping holiday test results
- 27) Equipment catalogues, drawings, instruction and installation manuals as well as suppliers acceptance certificates
- 28) Paint / galvanizing thickness tests
- 29) The data book shall be compiled in a hard cover (2 sets) file suitably indexed as well as an electronic copy (pdf) on disk.

35. INSPECTION AND TESTING

The following Tests shall be conducted prior to dispatch of the VRU from the supplier's works.

35.1. Inspection by the Supplier

The minimum inspection to be carried out by the Supplier shall be that which is necessary to ensure compliance with all clauses of this Specification, since he will be held responsible for noncompliance in any respect and shall be required to repair any defect to the satisfaction of the Engineer.

35.2. Inspection by the Engineer

The Engineer or his designated representative has the right to inspect any item covered in the Contract at any time.

Inspection by the engineer shall not relieve the supplier of any of his obligations under this contract.

35.3. Third Party Inspectors

TPL reserves the right to appoint third party inspectors as they see fit. The Supplier is required to assist and co-operate with the third party inspectors, including the provision of documents, testing, witnessing and scheduling.

The Supplier shall ensure that the quality and standard of the works are such that the third party inspectors may approve the works.

35.4. Factory Acceptance Tests

Factory acceptance tests shall be arranged by the Supplier for all applicable items. The Supplier

shall allow for the Purchaser, Engineer and Third Part Inspectors to witness as required. A schedule of items subject to factory acceptance tests shall be submitted by the Supplier at tender stage.

35.5.Performance Tests

Performance tests and certificates in full accordance with the applicable design code shall be provided for all applicable components prior to delivery to site.

35.6.Hydrostatic Pressure Tests

All pieces of equipment subject to water, oil or air pressure shall be tested at a pressure not less than one and one half times the design pressure (maximum shut-off head + maximum allowable suction head). Each piece shall withstand the hydrostatic test pressure without exhibiting signs of sweating, undue deformation and stressing, or defect of any kind.

Hydrostatic testing shall be witnessed by an Approved Inspection Authority (AIA).

Hydrostatic testing shall be done with blank flanges bolted on the flanges of the piece. The use of tie-bolts or other forms of restraint applied across the blank flanges to restrain the bodies from deflecting under the applied test pressure will not be permitted.

The hydrostatic test pressure shall be maintained for a period of the greater of:

- the applicable health and safety standard (design code);
- or four hours.

35.7.Inspection of Coatings

Tests shall include measurement of the following:

Final coating thickness; pinhole detection; paint bonding tests: Paint film to substrate bond-tests shall also be executed.

36. DATA SHEETS

The contractor is required to provide data sheets as part of the design review process at the appropriate gates.

APPENDIX: B



TRANSNET PIPELINES

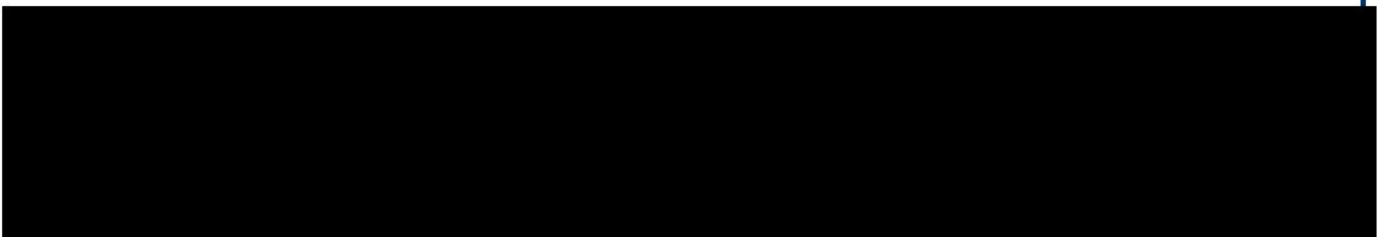
TARLTON DEPOT

VAPOUR RECOVERY UNIT SPECIFICATION

AUGUST 2018



REVISION B



(i)



Details of this report

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Document Title	Tarlton Depot – Vapour Recovery Unit Specification
Prepared by	

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A	5 April 2018	Issued for review
B	29 August 2018	Updated as per TPL comments

TRANSNET PIPELINES – TARLTON DEPOT

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Appendices

- A. Piping Material Specifications – Rev.01 August 2013
- B. Specification for Corrosion Protection 2684358-U-AOO-ME-SP-009
- C. PL 2/A General Specification - Steel Valves For Petroleum Product Service - May 2012
- D. PL 203/B Thermal Relief Valve – May 2015
- E. PL 204/E Specification, Ball Valve for Petroleum Product Service - March 2013
- F. PL 219/C Specification Gearbox for Quarter Turn Valves - April 2014
- G. PL 221 Specification Globe Valves, 2 inch and below for Petroleum Product Service - January 2014
- H. PL 223A Specification Check Valve, Flanged, Regular, Swing, For use in Manifolds for Petroleum Product Service - November 2016
- I. PL 401/D Specification for line pipe - March 2015
- J. TPL Electrical Standards
 - a. PL 631 Specification For Low Voltage Switchgear And Distribution Boards Rev. 009
 - b. PL 666 Electrical Design Criteria Rev.001
 - c. PL 711 Specification For Equipment Cabinets To House Electronic Equipment Rev. 010
 - d. PL 727 Cabling, Racking, Trenching & Earthing Installation Codes Of Practice Rev. 011
- K. TPL Instrumentation Standards
 - a. TPL-TECH-I-POL-001 Rev 03 (Metering Policy)
 - b. TPL-TECH-I-POL-002 Rev 03 (Control System Policy)
 - c. TPL-TECH-I-POL-003 Rev 03 (Instrumentation Policy)
 - d. PL703 Rev 02 (Process Control Network Standard)

- e. PL723 Rev 03 (Automation Standard)
- f. PL711 Rev 10 (Cabinets)
- g. PL727 Rev 11 (Cabling, Racking, Trenching and Earthing)
- h. PCE - Framework for Minimum Controls for Security Rev 02
- i. 6AV2124-0UC02-0AX1 (Simatic HMI Datasheet)
- j. 6ES7317-2EK14-0AB0 (Simatic S7-300 CPU Datasheet)
- k. 6ES7322-1BH01-0AA0 (Simatic S7-300 DO Datasheet)
- l. 6ES7332-5HD01-0AB0 (Simatic S7-300 DI Datasheet)
- m. 6ES7307-1BA01-0AA0 (Simatic S7-300 Power Supply Datasheet)
- n. 6ES7331-7KF02-0AB0 (Simatic S7-300 AI Datasheet)

Note: Datasheets will be provided by TPL upon request once vendor selects the required instrumentation.

- L. PL 835 The Minimum Structural Requirements For Walkways, Platforms And Stairways - March 2014
- M. 17514-SK-01 RevB Scope Drawing
- N. 17514-SK-02 RevA Proposed Layout
- O. TPL Drawing standards
 - a. TPL-TECH-DO-STD-001 (PL100)
 - b. TPL-TECH-DO-STD-002 (PL101)
 - c. TPL-TECH-DO-STD-003 (PL102)
 - d. TPL-TECH-DO-STD-004 (PL103)

1. INTRODUCTION

This document covers the requirements for the design, supply, installation, commissioning and integration of one (1) Vapour Recovery Unit (VRU).

2. DEFINITIONS

ASME –	American Society of Mechanical Engineers
ASTM –	American Society for Testing & Materials and its successor ASTM International
API –	American Petroleum Institute
BOQ -	Bill of Quantities or Schedule of Quantities
Engineer –	Kantey & Templer or their representative
ESD –	Emergency Shut Down system
HSSE –	Health, Safety, Security and Environment
HVAC –	Heating, Ventilation and Air Conditioning
ISO –	International Organization for Standardization
Purchaser –	Transnet Pipelines
Supplier –	The successful tenderer
SABS -	South African Bureau of Standards (subsequently renamed SANS)
SANS –	South African National Standards
Site –	The area of the Works
SOQ –	Schedule of Quantities or Bill of Quantities
TPL –	Transnet Pipelines
ULP –	Unleaded Petrol
VRU –	Vapour Recovery Unit
Works –	Refers to the full scope of supply and services

3. REFERENCE STANDARDS

Although not bound in nor issued with this document, the following standardised specifications shall form part of the contract document:

ASME VIII -	Rules for Construction of Pressure Vessels
ASME IX -	Qualification Standard for Welding and Brazing Procedures, Welders, Brazers, and Welding and Brazing Operators
ASME B16.34 -	Valves Flanged, Threaded and Welding End
ASME B16.5 -	Pipe Flanges and Flange Fittings
ASME B31.3 -	Process Piping
ASME B46.1 -	Surface Texture, Surface Roughness, Waviness and Lay
ASME B73.1 -	Specification for Horizontal End Suction Centrifugal Pumps for Chemical Process
API 6D -	Specification for Pipeline Valves
API 610 -	Centrifugal Pumps for Petroleum, Petrochemical & Natural Gas Industries
API 674 -	Positive Displacement Pumps - Reciprocating
API 675 -	Positive Displacement Pumps - Controlled Volume for Petroleum, Chemical, and Gas Industry Services
API 676 -	Positive Displacement Pumps - Rotary
API 681 -	Liquid Ring Vacuum Pumps and Compressors for Petroleum, Chemical, and Gas Industry Services
API 682 -	Shaft Sealing Systems for Centrifugal & Rotary Pumps
API 686 RP -	Machinery Installation and Installation Design
API RP 1004 -	Bottom Loading and Vapor Recovery for MC-306 & DOT-406 Tank Motor Vehicles
AWS D1.1 -	Structural Welding Code — Steel
ISO 3661 -	End-suction centrifugal pumps -- Baseplate and installation dimensions
ISO 5199 -	Technical specifications for centrifugal pumps -- Class II
ISO 8573-1 -	Compressed Air
ISO 8501 -	Preparation of Steel Substrates
ISO 13709 -	Centrifugal pumps for petroleum, petrochemical and natural gas industries
ISO 16852 -	Flame arresters -- Performance requirements, test methods and limits for use
ISO 21049 -	Pumps -- Shaft sealing systems for centrifugal and rotary pumps

SANS 31 -	Metallic products - Types of inspection documents
SANS 32 -	Internal and/or external protective coatings for steel tubes — Specification for hot dip galvanized coatings applied in automatic plants
SANS 121 -	Hot dip galvanized coatings on fabricated iron and steel articles - Specifications and test methods
SANS 347 -	Categorization and conformity assessment criteria for all pressure equipment
SABS 763 -	Hot dip (galvanized) zinc coatings
SABS 1200 A -	General
SABS 1200 AB -	Engineers Office
SABS 1200 C -	Site Clearance
SABS 1200 DA -	Earthworks (Small Works)
SABS 1200 DB -	Earthworks (Pipe Trenches)
SABS 1200 DK -	Gabions and Pitching
SABS 1200 DM -	Earthworks (Road, Subgrade)
SABS 1200 G -	Concrete (Structural)
SABS 1200 GE -	Structural Precast Concrete
SANS 1200 H -	Structural steelwork
SANS 1200 HC -	Corrosion protection of structural steelwork
SABS 1200 L -	Medium Pressure Pipelines
SABS 1200 LB -	Bedding (Pipes)
SABS 1200 LC -	Cable Ducts
SABS 1200 LD -	Sewers
SANS 1518 -	Transport of dangerous goods — Design, construction, testing, approval and maintenance of road vehicles and portable tanks
SANS 1700 -	Fasteners
SANS 1929 -	Ambient air quality - Limits for common pollutants
SANS 2001-DP2 -	Medium pressure pipelines
SANS 10100 -	The structural use of concrete
SANS 10102 -	Selection of pipes for buried pipelines
SANS 10142-1 -	The wiring of premises, Part 1: Low Voltage Installations
SANS 10162 -	The structural use of steel
SANS 10400 -	The application of the National Building Regulations
SANS 10684 -	Fasteners - Hot dip galvanized coatings
SANS 14713 -	Protection against corrosion of iron and steel in structures - Zinc and aluminium coatings

4. INTENT OF SPECIFICATIONS

The specifications are intended to delineate standards and practices which will lead to the production of an efficient, durable and cost effective facility that will meet all the requirements for which it is intended and which will confirm to all statutory requirements and norms in the industry. All specification clauses shall be read and deemed to apply to the items described which are to be priced accordingly.

In all dealings, the supplier shall have the best interests of the end user in mind and shall act accordingly, offering advice and opinions where necessary. The workmanship shall be of the highest quality throughout.

The Engineer shall have the sole right to determine the quality of the materials and workmanship and technical ability of the supplier. Anything which may, in the opinion of the Engineer, be inferior to that specified for the work will be condemned. All condemned material and workmanship must be replaced or rectified, as the case may be, at no cost to the Purchaser. The replacement or rectification shall be to the satisfaction of the Engineer.

5. DIVISION OF RESPONSIBILITIES

The Supplier is responsible for the design, supply, installation, commissioning and integration of the scope of works. This includes:

- 1) Regulatory compliance
- 2) HSSE compliance
- 3) The suitability and functionality of all the items provided

- 4) The warranty / guarantee of all the items provided
- 5) Supplying of all design documentation, including drawings and specifications, to the Engineer for review
- 6) the integration of the scope of works into the TPL depot
- 7) all necessary regulatory and professional approvals, this includes but is not limited to PrEng, Architectural and Responsible Person signoff
- 8) Quality control and assurance
- 9) Training
- 10) Documentation, including Approved For Construction (AFC) drawings, as-built drawings and manuals
- 11) Providing and keeping to the schedule
- 12) Budgetary control
- 13) Attending all project meetings
- 14) Assisting the Engineer, Purchaser and any third party appointments by the Purchaser

The Engineer is responsible for:

- 1) Reviewing the Suppliers documentation – this does not remove any responsibility from the Supplier
- 2) Monitoring the Supplier's quality – this does not remove any responsibility from the Supplier
- 3) Monitoring the works and reporting on progress to the Purchaser
- 4) Facilitating project meetings

The Purchaser is responsible for:

- 1) Providing fair and reasonable access
- 2) Remunerating the Supplier as per the procurement specification elsewhere in the tender document

6. DESCRIPTION OF SITE AND ACCESS

The area over which the Works are to be constructed lies within:

- 1) TPL's Tarlton Depot. The depot is located near the intersection of the N14 and the R24, west of Krugersdorp, Gauteng, South Africa. The GPS co-ordinates of the site are 26°04'42.04" S 27°38'24.19" E.

The site is classified as a National Key Point in terms of the National Key Point Act of 1980 (as amended). All requirements (such as police clearance for all workers) must be adhered to.

The site is situated in the Highveld, at an altitude of approximately 1580m above mean sea level.

Access to the site is controlled, and permits for entry must be arranged prior to arrival. The tenderer must understand that daily work permits must be applied for timeously and that no extras will be entertained for delays in obtaining permits should there have been insufficient notification. Personnel and equipment movement on the site will be limited to the construction area and its specific access road, unless there is a valid project specific reason to move outside this area.

Inductions will be required for all personnel working on site. These inductions are held on particular days and the Supplier must make arrangements with the Purchaser to carry out the inductions at their convenience. Additional project specific inductions will be required, and the tenderer must make similar arrangements for all personnel to undergo this induction.

7. HEALTH, SAFETY, SECURITY AND ENVIRONMENT

The following HSSE requirements will be applied and strictly enforced:

- 1) All South African and local legislation
- 2) Construction regulations
- 3) Municipal by-laws
- 4) Transnet and TPL HSSE Specifications

Transnet and TPL HSSE specifications are available elsewhere in the tender document or upon request.

TPL reserves the right to appoint third parties to monitor and manage HSSE on their behalf.

8. SCOPE OF SPECIFICATION

The scope of this specification includes the design, construction, delivery, installation, commissioning and interface of a vapour recovery unit:

- a) The VRU shall be inclusive of all the components required for the functioning of the VRU, inter alia:
 1. VRU skid
 2. Civil works – VRU bund, pipe supports, drainage, access platforms, step overs and MCC building
 3. HVAC for the MCC building
 4. Vapour recovery arms at the road gantry
 5. Vapour recovery arms at the rail gantry, including ULP loading arms
 6. Flame arrestors
 7. Vapour piping, and equipment, to the VRU from the road gantry and the rail gantry
 8. Blower units and pumps as may be necessary
 9. Pressure relief and vacuum break valves
 10. Absorbent piping, and equipment, from the VRU to and from the designated ULP storage tanks
 11. The connection nozzles on the ULP storage tanks
 12. Firefighting
 13. Control system, including PLC, HMI and data connection to TPL's depot control system
 14. Motor Control Centre (MCC)
 15. All field and non-field wiring (earthing, power and control), including the main electrical power supply (incl. all necessary modifications of existing switchgear to supply the VRU and associated panels with electrical power).
 16. Pneumatic piping, including equipment
- b) The delivery to site of the VRU.
- c) The installation on site of the VRU.
- d) The inspection and commissioning of the final installation and approval thereof to provide a guarantee on the VRU.
- e) The interfacing and integration of the VRU with TPL's systems
- f) The provision of the prescribed manuals and quality control documentation.
- g) Training of operation and maintenance staff
- h) Warranty of the facility for a period not less than 24 months.

The VRU shall be capable of operating continuously or intermittently upon demand, against the performance requirements specified.

9. VRU REQUIREMENTS

The VRU shall be of proven design in a similar environment with similar process requirements. Where applicable, the design shall include any installation / maintenance lifting lugs. The documentation shall show the lifting method to be adopted when more than two lifting lugs are used simultaneously.

The allowable stresses for pressure containing and non-pressure containing components shall be as per the requirements of the applicable design Codes.

The VRU framework shall be fitted with sufficient earthing bosses to allow for earthing.

The VRU shall be supplied with all necessary equipment, control systems and electrical infrastructure to provide a solution that will require minimal assembly on site. The VRU shall tie-in to existing facilities.

The VRU shall be of the carbon adsorption type.

The VRU shall provide a cumulative readout of the product recovered.

The VRU shall be equipped with a field mounted traffic light system to indicate operation and the operational state of the VRU.

The VRU shall be equipped with field mounted ESD stops at the VRU, the road gantry, the rail gantry, the pumps and the blower locations.

The Supplier shall provide an ergonomic design, whereby consideration shall be given to items such as accessibility of equipment and instruments, maintainability, equipment spacing, escape routes, headroom, etc.

The hazardous area classification of the VRU skid shall be provided by the Supplier for approval by the Purchaser for inclusion in the overall hazardous area classifications by the Purchaser.

The VRU shall capture all emissions and shall comply with the emission limits as specified by the National Environmental Management: Air Quality Act.

The Supplier shall note that all process equipment materials shall be compatible with up to 10% volume ethanol and MTBE in ULP products and 10% volume FAME in diesel grade products.

The Supplier shall advise the Purchaser of the maximum (recovered ULP vapour) injection rate.

Detonation flame arrestor to be installed on the vapour recovery header (size to be confirmed by supplier) at the VRU and elsewhere.

Vapour recovery loading arms at both the road and rail gantry, including one flame arrestor per arm. The road gantry vapour recovery arms shall be capable of connecting to both truck rear mounted connections and truck centre mounted connections. Road loading is bottom loading. Multiple road loading arms shall be in operation simultaneously.

Rail loading is top loading. The rail loading arms shall seal against the rail car manhole and shall be equipped with overfill protection. Multiple rail loading arms shall be in operation simultaneously.

Loading arm/hose stacking/storing facilities for when the arms are not in use. The stacking storing facilities shall be equipped with hose couplers that are equipped with sensors to check that the couplers are connected. The sensors shall be wired back to the VRU control system.

One liquid-vapour separator at each loading arm (both road and rail), including a drain valve, protected sight glass and an electronic product detector. The product detector shall be connected to the VRU control system.

Liquid-vapour separator to be installed on the vapour recovery header (size to be confirmed by Supplier) upstream of the VRU.

All pumps required for effective operation of the VRU including absorbent supply pumps, absorbent return pump and vacuum pumps, to be supplied and installed. Where applicable the each pump shall be equipped with a John Crane single, cartridge mechanical seal.

Supplier to supply all VRU instrumentation and controls including but not limited to those specified.

Pressure vacuum valves are to be installed on the vapour recovery headers at both the road loading gantry and the rail loading gantry. Vacuum / pressure set points shall be confirmed by the Supplier.

Supplier to supply all equipment and auxiliaries to make vapour recovery by carbon adsorption possible. Equipment and auxiliaries are not limited to those specified in this specification.

All vapour blowers, if necessary due to the length of the pipeline and the pressure requirements.

Quality control and quality assurance of all of the above, including the required number of paper and soft copies of the quality data book.

Training and operating manuals for the entire facility. Onsite training, including documentation in electronic and paper format, for twelve (12) operators and nine (9) maintenance staff.

As-built drawings of the entire facility in PDF and Autocad 2016 (or later) DWG format shall be supplied. This includes updated TPL drawings where applicable. All drawings shall be done as per the TPL drawing standards.

9.1. **Scope of Supply**

All items shown inside the battery limits of drawing 17514-SK-01 are mandatory.

The Supplier scope of supply shall include, but shall not necessarily be limited to the following:

- The design, manufacture and supply of one skid (framework) mounted (as applicable) VRU.
- All related civil works, including the VRU substation building, the VRU skid bund, pipe supports, blower bunds, pumps bunds, spill containment and access platforms.
- The design, manufacture and supply of all required vessels, rotating equipment, interconnecting piping, tubing, cabling etc. forming part of the VRU up to and including the battery limits.
- The design, procurement and supply of all valves, instrumentation and auxiliary equipment mounted on the skid frame as required for the full operation of the VRU.
- The design, procurement and supply of all auxiliary equipment mounted upstream of the skid frame as required for full and complete operation of the VRU. This shall include:
 - The flame arrestors upstream of the vapour recovery header pipe.
 - The condensate collection pot and detonation arrestor downstream of the header pipe but upstream of the VRU.
 - Pressure/Vacuum valves on the vapour recovery headers
- Supply of all necessary materials for the adsorption process (e.g. carbon fill, column packing, etc.)
- Firefighting for the VRU and buildings
- Blowers and pumps as required
- Rail loading arms, complete with overfill protection
- Vapour recovery arms in the road gantry
- Knock-out pots
- Flame arrestors
- Basket strainers, valves and other pipeline equipment
- Actuated ball valves as indicated – same manufacturer as TPL currently use on site
- Utilities for the VRU
- Installation of any switches, ESD buttons, junction boxes and interconnecting cabling for safety related functions on the skid frameworks.
- Installation of any switches, junction boxes and interconnecting cabling for non-safety related functions on the skid frameworks.
- Provision of electrical COC's (Certificate of Compliance), Loop certificates, IA certificates for explosion protected equipment and all other regulatory and statutory compliance certificates as applicable to the electrical and instrumentation installation, especially as regards the area classification / zoning of the equipment
- Identification and tagging of all related equipment within the battery limits, in accordance with TPL standards
- Any special tools required.
- Commissioning spare parts.
- The Supplier shall supply all blind flanges, fittings, bolts, nuts and gaskets required for the shop hydrostatic test of the VRU.

- The Supplier shall supply all supports (temporary or permanent) required during shop hydrostatic testing and transport to site.
- The Supplier shall supply all other materials and equipment required by and in accordance with the contract including all materials generally described as “consumables” with the exception of the ULP for commissioning.

9.2. **Scope of Services and Responsibilities**

The Supplier shall include and fulfil the following Services as a minimum; however they shall not be limited to the following:

- The submission of all documentation that is to be reviewed and commented upon.
- Alterations to the documents as per the comments received.
- All legal, municipal and other approvals.
- Quality Assurance and Control (QA/QC) to ensure compliance with statutory requirements, requirements in this functional specification, quality of materials, quality of workmanship, quality of the documentation and timely delivery of the equipment according to the agreed schedule. The Inspection and QC documentation as specified on the “Quality and Certification Requirements” form part of this requisition.
- Project management of all the work performed by the Supplier as well as the work performed by his sub-Suppliers, including preparation and expediting of the Quality Plan, engineering documentation and management required for the interface between equipment.
- Appointment of the overseas Authorised Inspection Authority (or Notified Body) to conduct all necessary Third Party inspections.
- All meetings, planning and reporting for the duration of the work.
- The Supplier shall make provision for attendance at Technical and Progress meetings. These may include Technical, Safety and Progress Reviews. For overseas based Suppliers, the meetings will be held via tele-conference or video-conference.
- A functional acceptance test (FAT) on the assembled skid shall be carried out at the Supplier’s works to demonstrate that all equipment functions correctly and in accordance with the specification listed within this document.
- Supervision during erection and commissioning (indicate time required for erection and commissioning as part of the tender).
- Service rates for maintenance (indicate time required for maintenance). The Supplier shall provide the name of the local maintenance representative (if applicable) with the tender.
- As per the Purchaser’s requirement, the maintenance plan for the Vapour Recovery Unit (VRU) shall include the investigation of:
 - a) Changeable spare parts at VRU supplier’s premises
 - b) Response times for maintenance and breakdown purposes
 - c) A preventative maintenance plan
- Provision of on-site training for Purchaser personnel (twelve (12) operators and nine (9) maintenance staff). The Supplier shall also advise of the training facilities required, as well as the anticipated duration of training as part of the tender. This includes the provision of training materials in both soft copy and hard copy formats.
- Provision of a HAZOP report on the VRU skid with confirmation that all HAZOP recommendations have been closed.
- A HAZOP meeting for the integration of the VRU skid into the TPL depot, including provision of a HAZOP facilitator. The HAZOP facilitator shall be subject to approval by the Engineer and the Purchaser
- Multiple design review meetings – see the Project Controls section of this document
- Project meetings and progress reporting
- The Supplier shall supply the best schedule and pricing estimate. The Supplier shall take cognisance of and include the impact of any holidays that will affect the schedule dates in the schedule estimate.

- The Supplier shall be responsible for the AIA / Third Party costs associated with certifying any material to SANS 31 (EN 10204) Type 3.1.
- The Supplier shall verify that the equipment has been supplied as detailed in this specification, including the specification's appendices and other referenced document.
- The Supplier shall be responsible for material and equipment supplied by sub-Suppliers.
- The Supplier shall be responsible for ensuring that all applicable information and documentation is passed on to sub-Suppliers.
- Compliance with Standards, Codes and Specifications does not relieve the Supplier nor sub-Suppliers from the responsibility of furnishing equipment, materials and accessories of proper design and construction and fully suitable for all specified duties, operating conditions and performance guarantees.
- The Supplier shall be responsible for expediting and inspection of the equipment.
- The Supplier shall be responsible for all formal approvals for equipment drawings and applicable documentation
- All Supplier employees and/or representatives who are going to supervise the commissioning of the equipment on the Site shall first complete a safety induction at the Site. Safety induction shall be arranged in advance.

10. DETAILS TO BE INCLUDED IN THE TENDER DOCUMENT

For the purposes of this contract all units shall be in accordance with the SI system, no other units shall be accepted. All performance data and drawings shall be in SI units.

The following technical documentation (*) shall be supplied with the tender:

- a) A P&ID of the proposed VRU
- b) A layout plan of the VRU is to be provided with the returned tender. This shall clearly indicate the following Overall dimensions, including any dismantling length, and the position of battery limit connections including flanges, their size and flange drilling.
- c) A site layout – this may be a redlined version of the site layout drawing submitted with the tender
- d) A flow diagram and layout plan of the firefighting system
- e) A proposed layout of the VRU electrical building, including the size and location of the electrical panels and main cable routes
- f) The type, make and model number of all pumps.
- g) The type, make and model number of all valves.
- h) The type, make and model number of all flame arrestors and vents.
- i) The type, make and model number of the driver for electrically driven pumps.
- j) The type, make and model number of all electrical components.
- k) The type, make and model number of the control system (PLC, etc.).
- l) The type, make and model number of all instruments.
- m) The type, make and model number of the proposed couplings, if applicable.
- n) The type and model number as well as materials of construction of the proposed mechanical seal, if applicable. Only John Crane mechanical seals shall be used.
- o) A single line wiring diagram, clearly showing the battery limits of supply
- p) The requirements for any recommended ancillaries not included in the tender.
- q) The anticipated delivery period from date of order.
- r) Any deviations from the Specification in the Tender Document.
- s) A proposed schedule (level 3), including long lead items
- t) A list of similar VRU's installed in South Africa with their location
- u) The CV's of all senior staff
- v) The CV's and location of all service personnel in South Africa
- w) An organogram of the design team and installation team
- x) A list of the origin of all the major equipment
- y) A proposed spares list with costs

(*) – This list is not exclusive and does not alleviate the other documentation requested elsewhere in the tender.

11. OPERATING BASIS

The Vapour Recovery Unit will be supplied with absorbent (ULP) from a ULP storage tank (otherwise known as the absorbent supply tank). The make up to this tank will be a batch process outside the scope of the VRU supplier.

An absorbent supply pump (by the Supplier) will supply absorbent (ULP) from the absorbent supply tank to the absorber column (as per normal carbon adsorption VRU technology).

The absorbent return pump (by the Supplier) will transfer the recovered ULP and absorbent to the absorbent supply tank.

The ULP recovery rate of the VRU system shall be advised by the Supplier. The Supplier shall confirm that their VRU will function acceptably with the current installation and shall confirm the supply rate of absorbent to maintain the optimum efficiency of the VRU.

The VRU shall be able to operate independently of the site control system, with the exception of the site wide ESD system and the level of the absorbent supply tank.

12. PROCESS PARAMETERS

Vapour sources: Road tankers and rail cars

The design of the VRU must cater for 10 vol% ethanol and MTBE in ULP grade products and 10 vol% FAME in diesel grade products.

The Supplier is to note that the vapour header from the road gantry shall be supplied with gasoline and diesel vapours. Multiple grades of ULP shall be handled on site.

Absorbent supply tank parameters:

Fluid: ULP (currently ULP93)
 Diameter: 18m
 Height: 15m
 Capacity: 3200m³
 Maximum inflow from the VRU: Supplier to advise
 Maximum outflow from the VRU: Supplier to advise
 Uninsulated steel

Road loading gantry parameters:

No. of bays: 4 (future 5)
 No. of arms per bay: 3 (future 4)
 Total no. of arms: 12 (future 20)
 Maximum flow per arm: 2,400ℓ/minute

Rail loading gantry parameters:

No. of bays: 7 (future 8)
 No. of ULP arms: 2 (future 4)
 Maximum flow per arm: 2,400ℓ/minute

VRU vapour supply:

Maximum 24 hour throughput: 6,000m³
 Maximum 4 hour throughput: 2,800m³
 Maximum 1 hour throughput: 700m³
 Maximum 15 minute throughput: 360m³
 Maximum instantaneous throughput: 1,440m³/h

Capacity specified is inclusive of gasoline and diesel.

The road gantry currently operates Monday to Friday, from 0700 to 2200. The rail gantry operates on a day shift from Monday to Friday.

12.1. **Design Criteria**

The VRU system shall meet the requirements of API RP1004 and SANS 1518.

The maximum back pressure of the entire vapour recovery system shall not exceed 5.5 kPa.

Maximum design pressure of a tanker is approximately 55 mbar(g).

Operating pressure of the header at road loading gantry is a maximum of 5 bar(g) upstream of the air eliminator.

The operating pressure of the road loading arm is 1 bar(g).

12.2. **Parameters to be advised by the Supplier**

The Supplier shall advise the following in the tender:

- 1) Required absorbent supply flow rate and pressure.
- 2) The recovered product expected

12.3. **Emission Requirements**

Emission limits as per Department of Environmental Affairs "LIST OF ACTIVITIES WHICH RESULT IN ATMOSPHERIC EMISSIONS WHICH HAVE OR MAY HAVE A SIGNIFICANT DETRIMENTAL EFFECT ON THE ENVIRONMENT, INCLUDING HEALTH, SOCIAL CONDITIONS, ECONOMIC CONDITIONS, ECOLOGICAL CONDITIONS OR CULTURAL HERITAGE" – NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT, 2004. Dated 22 November 2013.

Design Hydrocarbon Emission Control Requirement:

- < 40 g / Nm³ VOC's ex methane (1 hour average)
- < 5 mg/Nm³ (Benzene only – 1 hour average)

The VRU output shall meet the requirements of SANS 1929 Ambient air quality — Limits for common pollutants.

The VRU's collection efficiency shall be at least 95%.

12.4. **VRU Operating Availability**

The VRU shall have an operational availability of at least 99% following commissioning.

12.5. **Noise Requirements**

Noise level shall be less than:

- 1) 85dB at 1m from each piece of individual equipment
- 2) 70dB at the boundary of the spill containment.

13. **SITE CONDITIONS**

13.1. **Climate**

Maximum temperature: 45°C

Average temperature: 20°C

Minimum temperature: -10°C

Altitude: 1580m

Basic wind speed: As per SANS 10160-3 (28m/s) – To be confirmed by the Supplier's designer

Maximum rainfall: 200mm in 24 hours

Average annual rainfall: 760mm

Climate: Subtropical

Emission limit required: 40,000mg/Nm³

13.2. **Electrical**

Power Supply – 400V, 3 phase, 50Hz

Lights – 230V, 1Ø, 50Hz

Control system – 24V DC

Area Classification

Gas group IIA

Flammable liquid class I

Temperature classification T3

Zone 1

13.3. **Pneumatics**

Pressure 6 bar(g)

Supplier to indicate quality specification and capacity required

14. **PIPING & VESSELS**

Vessels, valves, and piping shall meet the attached specifications.

The piping shall be designed to ASME B31.3 and shall be in accordance with the TPL specification attached. All piping shall be flanged and the minimum pressure rating shall be 150lb. Thermal relief shall be provided as required.

The line class shall be A.

The Supplier shall be responsible for meeting the requirements of SANS347.

All pressure containing piping and vessels shall be approved by a Professional Engineer.

Stress analysis shall be done of all piping.

Isometrics shall be provided for all piping.

General Arrangement and Detail drawings shall be provided for all piping and vessels.

No piping connections shall be made outside of spill containment areas.

All piping shall be sloped to drain points.

All vapour piping shall slope to low point drains. All low point drains shall have spill containment.

Process valves within the Vapour Recovery unit to be pneumatically actuated. Compressed air will be provided for the actuation of all pneumatic valves.

15. **PUMPS**

Pumps shall meet the attached pump specification.

16. **FIRE SYSTEM**

The Supplier shall include a firefighting system for the VRU.

A fixed sprinkler system using 316L stainless steel piping shall be provided for the VRU skid. The system must connect to:

1. The foam premix system on site.
2. The additive spray system

The system must have an isolation gate valve and an electrically opened and closed deluge valve. Activation shall be manual via push buttons. The Supplier shall allow for four push buttons.

The sprinkler system shall meet the requirements of:

1. SANS 10089-1
2. NFPA 15
3. NFPA 11

The Supplier shall match the existing fire equipment on site.

Hand held fire extinguishers shall be provided outside and inside the VRU building.

17. FLAME AND DETONATION ARRESTORS

- The pressure drop across flame / detonation arrestors, including an allowance for fouling, shall be considered in the design of the VRU.
- Flame / detonation arrestors shall be supplied, designed, manufactured and tested as per the requirements of EN ISO 16852.
- Flame / detonation arrestors shall be chosen and installed as per the manufacturer's instructions.
- Pressure retaining materials for flame and detonation arrestors shall be selected from ASME Section II.
- All flame and detonation arrestors shall be installed in the vertical.
- All flame and detonation arrestors shall be isolatable from the main header to allow for maintenance.
- All flame and detonation arrestors shall have pressure gauges fitted before and after the arrestors. The pressure gauges shall be isolatable.

18. CABLES AND WIRING

Cables and wiring shall meet the attached specifications.

19. CIVIL WORKS

19.1. VRU Substation Building

An electrical building will be needed close to the VRU. The following will be required from this building:

4. Load bearing brick walls should be facebrick on the outside. Colour to be same as other facebrick buildings on the site.
5. Inside of the walls should be plastered and painted. Colour to be agreed with the client.
6. Roof to be reinforced concrete, with upstands, waterproofing and adequate insulation for HVAC.
7. Access to the roof with fall arrest or handrails for future maintenance will be required, if HVAC equipment is placed on the roof.
8. Foundations shall be designed according to the recommendations of a geotechnical report of the soils in the area.
9. Cable trenches will be required with a sump to drain liquid from should there be any.
10. Supports for the equipment over the trenches shall be design and supply as well as hot dipped galvanised.
11. All penetrations shall be sealed and be waterproof.
12. Doors shall be weather proof, waterproof, 2 hour fire rated and should be large enough to move equipment through.

13. Roof drainage is clean water which do not need to go through the effluent system. This can be designed to seep into the exiting soils, however any erosion or damage to foundation material and soils should be prevented.

19.2. **Foundations and Bunding**

The VRU foundation, bunds, spill containments, plinths and anchor bolts shall be designed and provided by the Supplier. These shall be manufactured of steel reinforced concrete with a maximum panel size of 3m by 3m, unless the designer can prove that he placed sufficient reinforcement in a bigger panel to prevent any cracking. Wall and joint seals shall be hydrocarbon resistance, 2 hour fire rated and shall be accepted by the client Engineer.

Foundations shall be designed according to the recommendations of a geotechnical report of the soils in the area.

Reinforced concrete shall be a minimum strength of 30 MPa. Cover to reinforcement in the concrete to be 75mm for foundations and 50mm elsewhere.

The VRU bund and any new spill containment shall have an impermeable layer of plastic, at least 1mm thick, beneath the concrete. Joins in the plastic shall be welded.

The bunds and spill containments shall have an isolatable drain equipped with a knife gate valve. The drain shall connect to the existing drainage system on site. This connection shall be done with a concrete pipe or wrapped steel pipe. A flame arrester will be required.

All bund wall penetrations shall be:

- 1) Minimised wherever possible
- 2) Equipped with puddle flanges.
- 3) Product pipe bund wall penetrations shall follow the Buncefield detail

19.3. **Base Plate and Support Construction**

- All welding of structural steel shall be carried out in accordance with the AWS's Structural Code D1.1-2010 for steel.
- For critical structures the structural engineer shall note on the design drawings the location of critical welded joints where testing by Non-Destructive Examination (NDE) is required.
- Shop connections normally shall be welded using welding electrodes with a weld metal electrode classification of E70XX and a normal tensile strength of 480 MPa.
- Field connections, except for slip-critical connections, normally shall be M20 diameter, high strength Grade 8.8 bolts using bearing type connections, with threads included in the shear planes. These bolts shall be tightened in accordance with SABS 1200 H: Structural Steelwork, clause 5.3.5.1.
- All bolts and holding down bolts to be hot dipped galvanised.
- For bolted moment connections and those in direct tension, high strength bolts in bearing with threads included in the shear planes shall be used.
- For connections subjected to vibration, fatigue, or significant load reversal and for crane supports and oversized holes, slip critical connections according to SANS 10094 shall be used. Unless a larger diameter is necessary for design, M20 diameter Grade 8.8 bolts shall be used for the connections.
- For secondary or lightly loaded members such as girts, stairs, ladders, and handrails, M16 diameter Grade 8.8 bolts may be used.
- Bolts of different grades shall not be used on the same structure.
- Holding down bolts should be designed from Class 4.8 bolts.
- Connections that are not detailed or otherwise noted on the design drawings shall be shop welded and field bolted as typically shown in the SAICE's South African Steel Construction Handbook. Minimum angle leg and plate thickness shall be 6mm and 8mm respectively, and minimum weld size shall be 6mm.

- In general, joint detailing shall not introduce any eccentricity in the joint, unless specifically designed for by the structural engineer and shall be in accordance with the SAISC's Southern African Structural Steelwork Detailing Manual. By definition, eccentricity occurs when the centroids of the sections connecting at the joint do not meet at a single point.
- Gusset plates shall be 10mm minimum thickness.
- The minimum thickness of any part of any hot rolled structural element shall be 6mm (Cold rolled purlins and girts are excluded from this requirement). Applications for exceptions to this requirement, particularly in the case of I-beams will be considered by the client and accepted if properly justified (e.g. unacceptably high increase in mass / cost).
- Structural steel detailing shall be in accordance with the SAISC publications.
- Holes through flooring 150mm and larger shall be banded and indicated on the drawings. Holes of 100mm and less can be cut and banded on the Site.
- Holes through flooring shall be such that there is a gap of 25mm all round the object passing through the floor. In the case of pipes, it shall be 50mm greater than the diameter of the pipe or flange, depending on the coupling system utilized.
- Provide 15mm diameter drain holes in floor plates every 1,5m², except in spill areas. They should be located at low spots and drilled after erection. Drill holes shall be rust proofed.
- All structural steel shall be hot dip galvanised.

Materials

- Structural Steel – EN 10025-2-S355JR
- High Strength Friction Grip Bolts - SABS 1282, Grade 8.8S
- High Strength Precision Bolts - SABS 1700, Grade 8.8.
- High Strength Precision Nuts - SABS 1700, Grade 6.
- Ordinary and holding down Bolts - SABS 1700, Grade 4.8.
- Unfinished Nuts - SABS 1700, Grade 4.
- Pipe handrail - Commercial Grade to SABS 0162.
- Welding Electrodes - AWS D1.1, E480XX (E70XX).
- Steel Grating - Commercial Grade to SABS 0162.
- Steel Floor Plate - Commercial Grade to SABS 0162.

20. REQUIREMENTS FOR ELECTRIC MOTORS

Low Voltage motors shall be supplied in accordance with the attached data sheets. Electric motors supplied shall be IEC types. Only WEG, ABB, Actom or Siemens motors shall be used.

20.1. Design

All electric motors shall be rated for a Zone 1 installation with suitable product and temperature class to suite the installation location.

Design features aimed at marginally improving motor efficiency at the possible expense of reliability will not be accepted. The motor shall be selected for maximum reliability of both the motor and associated switchgear.

20.2. General Design

Unless otherwise approved, AC motors shall have squirrel-cage rotors and be suitable for direct on-line starting and operation on a three phase supply.

Motor temperatures shall not be permitted to rise higher than the limits specified for the insulating class of the windings, thereby assuring an operating safety margin (note the SANS / IEC requirements for tripping motor on high temperature is using variable speed drives).

Individual stator conductor turn-to-turn insulation shall be not less than varnish coating on the wire over which mica or glass tape shall be wound.

Motors having attained full load temperature shall be capable of making four starts within the hour, two of which may occur at a minimum interval of five minutes.

20.3. **Starting Requirements**

Unless otherwise approved by the Engineer, the starting current shall be limited to 6 times the normal full load current. Particular attention shall be paid to the design of two-pole motors, if applicable, to ensure that they comply with modern practice in regard to noise and vibration levels.

The motor starting torque shall be at least 10% in excess of the maximum torque required during the starting period up to 100% speed.

20.4. **Rotation Direction**

The correct direction of rotation of any unidirectional motor shall be indicated in a permanent manner on the frame.

20.5. **Bearings**

For the purpose of maintenance, end-shield mounted bearings are preferred.

Suitable seals for bearings shall be provided to prevent ingress of water/dirt into bearing lubricant and windings.

Unless otherwise approved in writing, motor bearings shall be designed so as to allow the motor to run up to 40 000 hours at full speed in either direction.

21. CONTROL AND INSTRUMENTATION

21.1. **Control Panel and Instruments**

The Supplier shall have the responsibility to supply the control panel, if required to do so by the contract (i.e. a package unit). The control panel and instruments shall be rated for the applicable zone.

21.2. **Control System and Narrative**

The Supplier shall have full responsibility for the control system and the control narrative.

Control system outputs / inputs to the depot control system shall be hard-wired potential free contacts and shall include the following:

Outputs to the Depot Control System:

- VRU on
- VRU ready
- Regeneration in progress
- VRU warning
- VRU fault
- Absorbent required

Inputs to the VRU from the Depot Control System:

- Site wide ESD
- Absorbent available

21.3. **VRU Status Screen**

A wide screen TV/monitor (minimum 50" in size), showing the status of the VRU, shall be installed in the depot control room. The VRU alarms shall be shown on the screen.

22. **NAME PLATES**

All components (vessels, valves, pumps, electrical components, etc.) shall be provided with a substantial information plate, manufactured of stainless steel, securely fastened with stainless steel screws in a readily visible position, and clearly and indelibly marked with the following details:

- Manufacturers name, type and serial number
- Contact number of local supplier
- Year of manufacture
- Rated duty
- Pressure rating

Letters and figures for both nameplates shall be engraved, or embossed, NOT STAMPED, and Black Etched after engraving.

23. **CORROSION PROTECTION**

Corrosion protection shall be as per the attached TPL corrosion specification.

The supplier is to note that the VRU is to be installed in an industrial and marine corrosive environment, and that all materials that are susceptible to corrosion are to be suitably coated prior to delivery to site.

Unless explicitly otherwise specified (e.g. for some kinds of fasteners) all surfaces of plant and equipment shall be coated, excluding corrosion resistant parts such as stainless steel shafts, and galvanised base plates.

Labels and components where painting would adversely affect the operation or legibility shall not be painted.

The purpose of the painting shall be to not only prevent corrosion but also to provide an appealing finish. To this end careful preparation must be under taken to ensure that a smooth blemish free finish is obtained.

23.1. **Surface Preparation for All Coatings**

Welds shall be smooth and free from undercuts, protrusions and sharp edges that may protrude through the coating. Weld spatter, slag and loose scale shall be removed and sharp edges ground to a radius.

Deposits of oil, bitumen, coal tar or other contaminants shall be removed by scraping and final wiping with a rag soaked in white spirit.

Blast cleaning shall be carried to achieve a finish of S.A. 2½ in accordance with ISO 8501-1.

Copper tubing and sections of pump and motor shafting exposed to air shall be thoroughly cleaned to a bright finish and covered with an oil resistant lacquer.

All surfaces of equipment normally exposed to air shall be coated with an approved epoxy coat and re-coat able polyurethane finish.

Each coating shall be uniform, smooth and glossy. The application shall be free of all tears, runs, sags, wrinkling, bubbles, blisters, pimples, spikes, orange peel, pinholes, holidays or dust particles.

Flange faces shall be treated on the machined surface with a film thickness not greater than 90 microns.

23.2. **Protection**

The Supplier is to note that he is responsible to deliver the painted VRU to site in an undamaged condition. He shall take all necessary precautions to ensure that the protective coatings are not damaged.

In order to protect internal coatings pen ends are to be completely blanked off by sturdy plastic blank flanges or plugs and are to be clearly marked:

"DO NOT REMOVE UNTIL FINAL INSTALLATION"

Plastic sheeting alone will not be acceptable.

Items will be inspected on arrival and unloading at the plant and any repairs necessary shall be at the cost of the Supplier. Such repairs shall comply with all requirements of this Specification.

24. **INSPECTION AND TESTING**

The following Tests shall be conducted prior to dispatch of the VRU from the supplier's works.

24.1. **Inspection by the Supplier**

The minimum inspection to be carried out by the Supplier shall be that which is necessary to ensure compliance with all clauses of this Specification, since he will be held responsible for non-compliance in any respect and shall be required to repair any defect to the satisfaction of the Engineer.

24.2. **Inspection by the Engineer**

The Engineer or his designated representative has the right to inspect any item covered in the Contract at any time.

Inspection by the engineer shall not relieve the supplier of any of his obligations under this contract.

24.3. **Third Party Inspectors**

TPL reserves the right to appoint third party inspectors as they see fit. The Supplier is required to assist and co-operate with the third party inspectors, including the provision of documents, testing, witnessing and scheduling.

The Supplier shall ensure that the quality and standard of the works are such that the third party inspectors may approve the works.

24.4. **Factory Acceptance Tests**

Factory acceptance tests shall be arranged by the Supplier for all applicable items. The Supplier shall allow for the Purchaser, Engineer and Third Part Inspectors to witness as required.

A schedule of items subject to factory acceptance tests shall be submitted by the Supplier at tender stage.

24.5. **Performance Tests**

Performance tests and certificates in full accordance with the applicable design code shall be provided for all applicable components prior to delivery to site.

24.6. **Hydrostatic Pressure Tests**

All pieces of equipment subject to water, oil or air pressure shall be tested at a pressure not less than one and one half times the design pressure (maximum shut-off head + maximum allowable suction head). Each piece shall withstand the hydrostatic test pressure without exhibiting signs of sweating, undue deformation and stressing, or defect of any kind.

Hydrostatic testing shall be witnessed by an Approved Inspection Authority (AIA).

Hydrostatic testing shall be done with blank flanges bolted on the flanges of the piece. The use of tie-bolts or other forms of restraint applied across the blank flanges to restrain the bodies from deflecting under the applied test pressure will not be permitted.

The hydrostatic test pressure shall be maintained for a period of the greater of:
the applicable health and safety standard (design code);
or one hour.

24.7. **Inspection of Coatings**

Tests shall include measurement of the following:

Final coating thickness; pinhole detection; paint bonding tests: Paint film to substrate bond-tests shall also be executed.

25. **QUALITY CONTROL AND ASSURANCE**

The Supplier shall be fully responsible for Quality Control and Assurance, including but not limited the performance requirements.

The Supplier shall provide a Quality Control Plan (QCP) for the both design and installation. On the QCP the Supplier shall indicate their internal quality controls and intervention points on the QCP.

The Purchaser, Engineer and Third Party Inspectors shall:

- 1) Alter the Supplier's intervention points as they see fit
- 2) Insert hold, witness, surveillance and review points on the QCP for the Purchaser, Engineer and Third Party Inspectors

26. **DRAWING APPROVAL PROCESS**

TPL's drawing approval process shall be followed.

27. **BUILDING AND OTHER APPROVALS**

The Supplier shall be responsible for all municipal, legal and other approvals required. This includes all the drawings and professional signoff.

As the site is a National Key Point, the submission process differs from the standard procedure. TPL shall assist the Supplier with the submissions due to this variation.

28. TRANSNET PROCUREMENT

The Supplier shall meet the requirements of Transnet's procurement requirements. Specific attention is brought to the requirements for local content of various items including valves and cables.

29. DOCUMENTATION

Paper copies and soft copies of the operating and maintenance manuals shall be provided at the time of delivery of the VRU.

Paper copies and soft copies of the quality data book shall be provided prior to commissioning of the VRU. Post commissioning documents shall be entered in the quality data pack after commissioning.

The final documentation shall cover the following:

- Technical specification (including performance data and curves)
- Drawings in DWG and PDF format
- Specification schedules
- Exploded drawings of each component and parts list, including materials of construction.
- Quality plans, Material certification (Heat treatment records, etc.)
- Commissioning records and test sheets. – Delivered within 1 week of commissioning.

The system of units for all documentation shall be the international metric system. (SI)

30. DELIVERY

The goods shall be loaded and transported on suitable transport. All items shall be secured on the transport vehicle to avoid damage to the pipe and fittings and their coatings. Goods shall not be allowed to rest directly against each other.

Goods shall be supplied with plastic end caps on all openings.

Goods shall be supplied in sealed wooden containers with plastic linings. A plastic lining shall be wrapped around each individual item. Flange faces and mating surfaces shall be protected during transport and handling. The goods shall be secured to the wooden container to prevent movement.

All goods shall be firmly secured by suitable padded lashings to prevent movement and damage in transit. The containers and goods shall not be dropped, bumped or subjected to shock or rough handling and any goods damaged during transport or handling may be rejected by the Engineer.

The Supplier shall make allowance for and comply with all the Purchaser's Health Safety Security and Environmental (HSSE) requirements at the delivery point.

The Supplier shall allow for off-loading.

31. STORAGE

The Supplier shall allow for the storage of the goods at the Supplier's premises for a period of up to 6 months in their offer.

Storage of the goods shall be:

- 1) Undercover.
- 2) On dunnage, made of inert material, at least 150mm above ground level.
- 3) All openings shall be sealed.

The goods shall be stored in an area away from regular vehicle movements and contamination by incompatible materials.

32. INSTALLATION

The Supplier shall be responsible for the installation of the VRU, including all piping, instrumentation and electrical connections.

33. COMMISSIONING

The Supplier shall have full responsibility for the commissioning of the VRU.

The Purchaser shall supply ULP for the commissioning.

34. RESPONSIBILITY AND PERIOD OF GUARANTEE

After the commissioning, the guarantee period will be deemed to have started and will continue for a period of 24 months. The responsibility of the Supplier concerning his equipment is in no way alleviated by the Commissioning.

The Supplier shall make good, free of all charges, any defects arising during this Period of Guarantee, including the replacement of all defective parts and their installation and re-commissioning. This guarantee shall apply to all defects arising during proper use of the plant, due to faulty design or maintenance instructions, inferior materials or poor workmanship.

The Supplier shall assess all defects that arise within forty-eight (48) hours.

Defects that do prevent the unit from meeting its performance parameters shall be rectified within forty-eight (48) hours.

Minor defects that do not prevent the unit from meeting its performance parameters shall be rectified within forty-two (42) working days.

Maintenance by the Purchaser's personnel during the Period of Guarantee shall be limited to cleaning and necessary lubrication only as instructed by the Supplier. All other maintenance or adjustments shall be carried out by the Supplier.

Should any component part of any main or ancillary equipment fail to perform in accordance with its intended function during the Period of Guarantee, the Engineer shall have the right to reject the component part and order its replacement with a more reliable part at the Suppliers expense. The replacement part shall be guaranteed for a further twelve months or to the end of the Period of Guarantee, whichever is the later.

After the period of 24 months, a final commissioning and handover will take place.

The procedure as described above for the initial commissioning will be repeated and no deterioration in the performance and efficiency of the VRU must be noted.

Test results shall be included in the Operating and Maintenance Manual.

If either party insists on a recalibration of any item of equipment, then the cost of the recalibration shall be borne by that party if it is found that the instrument did not require recalibration.

35. REJECTIONS

The Engineer reserves the right to reject any component or the entire VRU, at the time of the Works test, the Acceptance Test on Site or after, during the Period of Maintenance in the following cases:

- Less than 99% availability of the VRU following commissioning
- Failure of any component which prohibits the functioning of the VRU
- Any sign of failure of the pressure vessels.
- Any sign of excessive vibration.
- Any deviation from these specifications not agreed previously in writing.

The Engineer reserves the right to reject any part of the equipment if the above mentioned corrections are not forthcoming. Rejection implies the recovery, by the Purchaser, of all monies paid to the Supplier who shall remove, at his own expense, all the plant supplied by him when ordered to do so.

36. SERVICE PLAN

The continued reliable operation of the VRU is critical to the operation of the facility. It is also recognised that the Purchaser's personnel may not have the correct facilities or specialised skills to maintain the VRU in "as-new" condition. The Supplier is to propose a service agreement for a period of not less than 60 months from commissioning of the VRU. This shall be evaluated separately to the supply contract, but shall be considered of high importance in terms of assessing the future reliability of the VRU installation.

37. PROJECT CONTROLS

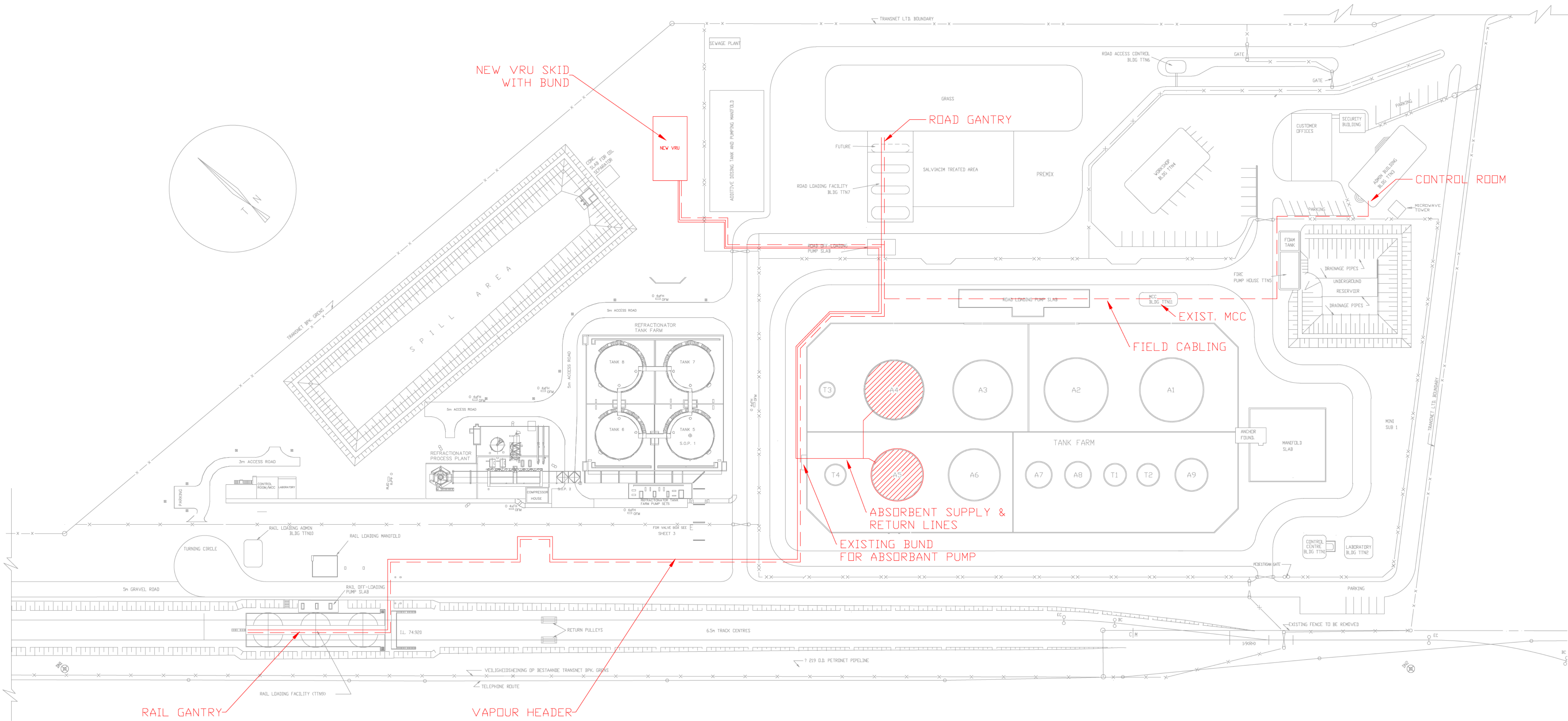
The project will be run using a comprehensive TPL project management system. The Supplier will need to:

- 1) Report fortnightly on progress on an agreed template
- 2) Attend four design review meetings – allow for one full day for each meeting. These meetings shall be held at TPL Head Office in Durban.
- 3) Attend two gate review meetings – allow for one full day for each meeting. These meetings shall be held at TPL Head Office in Durban.
- 4) Convene and facilitate a HAZOP meeting on site
- 5) Convene and facilitate a Hazards of Construction meeting on site
- 6) Convene fortnightly project meetings during construction on site
- 7) Convene weekly schedule tracking and updating meetings during construction on site

The Supplier shall take minutes of all the meetings and issue them within 3 days of the meetings, except for the meetings in items 6 & 7 which shall be issued on the same day as the meeting.

Documents shall be submitted to the Purchaser for review and comment at applicable stages. Three weeks shall be allowed for the Purchaser to respond to all documents.

APPENDIX: D



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OF KANTLEY & TEMPLER.

REFERENCE DRAWING

NOTES:
1.

A	ISSUED FOR TENDER	EP	RT	03.04.18
REV	DESCRIPTION	DR	APP	DATE
DESIGNED	EP			
DRAWN	EP			
PROJECT ENG.	RT			
APPROVED	RT			



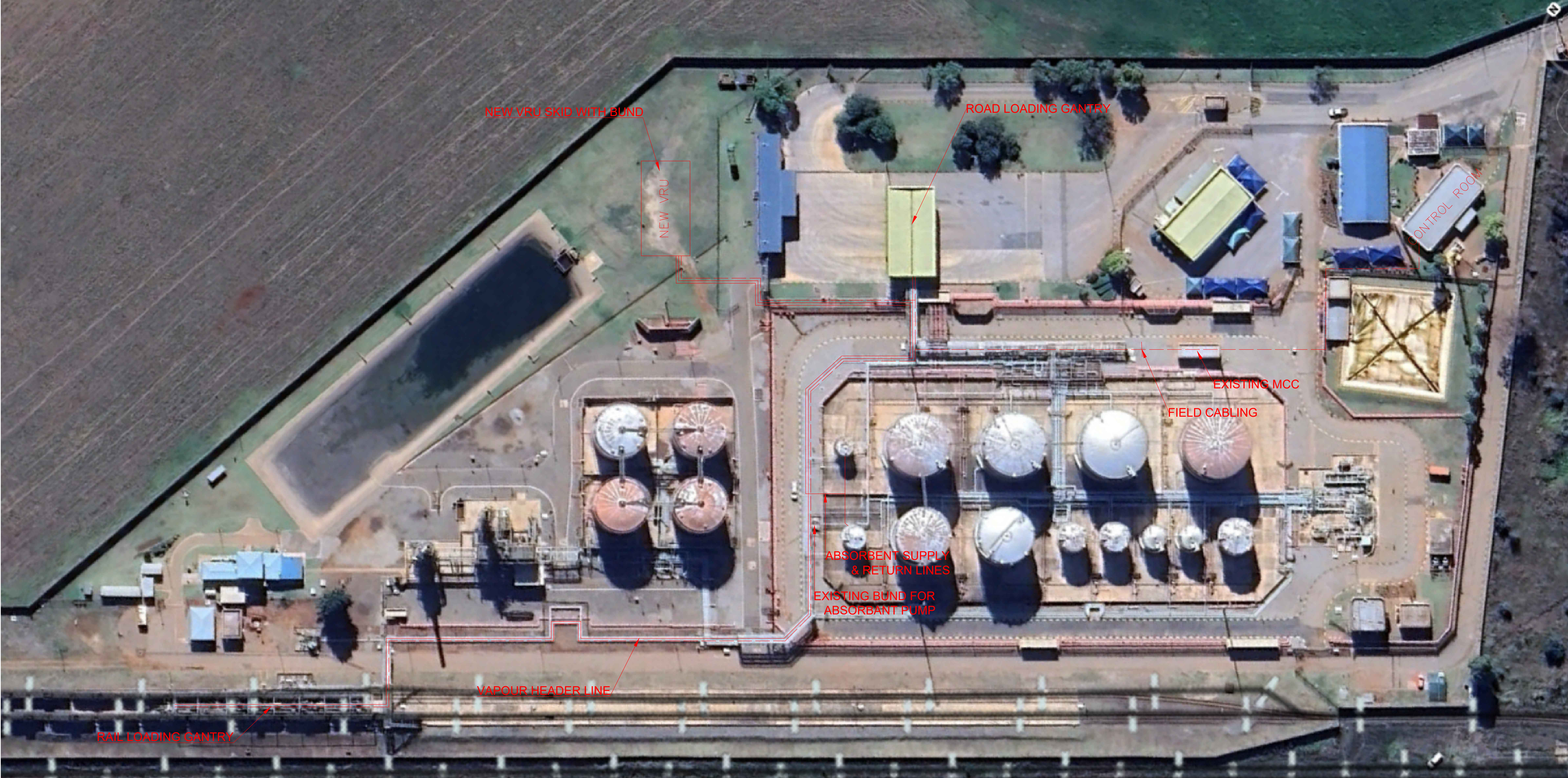
CLIENT APPROVAL	INITIALS	SIGN	DATE

CLIENT
TPL

PROJECT
TPL TARLTON
VRU PROJECT

TITLE
PROPOSED LAYOUT

SCALE : NTS
DRAWING No. 17514-SK02
REV A




LEGEND:

———— VAPOUR HEADER LINE

----- FIELD CABLING

ANNEXURE: E

APPROVAL				REVISIONS					
DISCIPLINE	NAME	SIGN	DATE	REV	BY	DATE	DESCRIPTION	CHK	APP
ELECTRICAL									
MECHANICAL									
MC&I									
PROCESS									
CIVIL									
FIRE									



TRANSNET
pipelines

TARLTON RRU PROJECT
VRU Project

PROJECT NAME TARLTON VRU PROJECT			
DRAWN	S.C	REF.	—
TRACED	CAD	DATE	12-03-2024
CHECKED		APPROVED	
SCALE	N.T.S.		
DRAWING No.			
PL :			



TRANSNER

pipelines

TRANSNET - PIPELINES
HOTWORK, COLD WORK AND CONFINED SPACE-ENTRY PERMITS

MCC REFERENCE

No. 44904

PUMP STATION / DELIVERY DEPOT / WORKSHOP

AREA $\bar{I}_1 - \bar{I}_4$ BROAD DOUT BANG

ISSUED TO: K.S. Menezes SAP No. _____

DESCRIPTION OF WORK TO BE DONE

CHARAN ME PANTIALO

FROM: Date: 2021/10/22 Time: 06057 TO: Date: 2021/10/22 Time: 16445-

1. PRECAUTIONS TAKEN BEFORE PERMIT ISSUED

	YES	NO
PRESSURE RELEASED	N/t	
VENT/DRAIN VALVE OPEN	N/t	
ALL OTHER VALVES CLOSED	N/t	
NECESSARY VALVES TAGGED OR LOCKED	N/t	
EQUIPMENT DRAINED	N/t	
PURGED WITH AIR/WATER/NITROGEN	N/t	
FRESH AIR CIRCULATING IN AREA AROUND INSIDE	o	
COMPULSORY GAS TESTS	o	
AREA AROUND INSIDE EQUIPMENT FREE FROM DANGEROUS MATERIALS (LIQUIDS & SOLIDS)	y	
SEWER PROTECTED: FOAM/BAGS/FUSHED	N/t	
EQUIPMENT ISOLATED IN SUB STATION	N/t	
STOP/START SWITCH LOCKED	N/t	
PIPELINES BLANKED OFF	N/t	
BONDING	N/t	
SIGNATURE OF ELECTRICIAN		o
SIGNATURE OF OPERATOR		o

OTHER PRECAUTIONS TAKEN

NEEDS MUST BE INSPIRED BY
THEY TO ENJOY LIFE
IN ORDER, CHANGING OF
CONDITIONS TO MAKE
THEIR ISSUES OF LIFE
THEIR ISSUES OF LIFE
NOT ALLOWED ON

2. PRECAUTIONS TO BE TAKEN WHILST WORK IS IN PROGRESS

YES	NO
	<i>no</i>
	<i>ny</i>
	<i>ny</i>
	<i>ny</i>
	<i>ny</i>
<i>yy</i>	
<i>yy</i>	
	<i>no</i>
	<i>ny</i>
<i>7</i>	

OTHER PROTECTIVE CLOTHING TO BE WORN

प्रतिमोक्ष अनुष्ठान / उपरान्त मस्त
अपराध / उपरान्त मस्त

OTHER PRECAUTIONS: Anti-HIV, TB, HIV, Syphilis

POLICIES, INSTRUCTIONS & APPROVALS
& PROCEDURES FOR MANAGING
HOUSEKEEPING & MAINTENANCE
DISPOSAL OF WASTE
CONFORM WITH COUNTY AND STATE
& ALL HEALTH & SAFETY

4. GAS TESTS

[illegible]

5. SIGNATURES

I PERSONALLY CERTIFY THAT THE EQUIPMENT ON WHICH WORK IS TO BE DONE HAS BEEN EXAMINED AND MADE SAFE AS STATED HEREIN. WORK MAY PROCEED UNDER THE CONDITIONS AS STATED HEREIN.

SIGNATURE OF AUTHORISED PERMIT ISSUER

PRINT FULL NAMES

I ACCEPT AND HAVE CHECKED THE CONDITIONS STATED ON THIS PERMIT. I CERTIFY THAT ALL MEN/WOMEN WORKING ON THE JOB WILL BE FULLY INFORMED BY ME, BEFORE WORK COMMENCES, OF THE CONDITIONS AND PRECAUTIONS TO BE TAKEN WHEN THEIR WORK IS IN PROGRESS.

SIGNATURE OF AUTHORIZED RECEIVER

PRINT FULL NAMES

6. WITHDRAWAL / CANCELLATION

IF CONDITIONS SHOULD CHANGE THE OPERATIONS DEPARTMENT WILL INFORM YOU AND WITHDRAW THE PERMIT.
IF NECESSARY THEY WILL CANCEL THIS PERMIT AND ISSUE A NEW ONE WHEN WORK RECOMMENCES

PERMIT WITHDRAWN/CANCELLED AT

FOR THE FOLLOWING REASONS:

BY: SIGNATURE

PRINTED NAME...

8. COMPLETION OF WORK

I CERTIFY THAT THE WORK AUTHORISED ABOVE IS COMPLETE. ALL TOOLS, EQUIPMENT AND PEOPLE HAVE BEEN WITHDRAWN FROM THE AREA LEFT IN A SAFE STATE OF ORDER. I HAVE PERSONALLY CHECKED THE WORK AREA AFTER WORK FINISHED AND THE PLANT / WORK AREA HAS BEEN RETURNED TO OPERATIONAL READINESS.

WORK COMPLETED AND PERMIT RETURNED ON:

TIME

SIGNATURE OF AUTHORISED PERMIT ISSUER

PRINTED NAME

DATE APPOINTED: 02/03/2014

090576

BASELINE DESIGN RISK ASSESMENT FOR TARLTON VRU PROJECT

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
(A) EXCAVATION • Pit Excavation upto 3.0m	➤ Falling into pit	➤ Personal injury	➤ Provide guard rails/ barricade with warning signal ➤ Provide at least two entries/ exits. ➤ Provide escape ladders.
	➤ Earth Collapse	➤ Suffocation/ Breathlessness ➤ Buried	➤ Provide suitable size of shoring and strutting, if required. ➤ Keep soil heaps away from the edge equivalent to 1.5m or depth of pit whichever is more. ➤ Don't allow vehicles to operate too close to excavated areas. Maintain at least 2m distance from edge of cut. ➤ Maintain sufficient angle of repose. Provide slope not less than 1:1 and suitable bench of 0.5m width at every 1.5m depth of excavation in all soils except hard rock. ➤ Battering/benching the sides.
	➤ Contact with buried electric cables ➤ Gas/Oil Pipelines	➤ 'Electrocution ➤ Explosion	➤ Obtain permission from competent authorities, prior to excavation, if required. ➤ Locate the position of buried utilities by referring to plant drawings. ➤ Start digging manually to locate the exact position of buried utilities and thereafter use mechanical means.
• Pit Excavation beyond 3.0m	➤ Same as above plus ➤ Flooding due to excessive rain /underground water	➤ Can cause drowning situation	➤ Prevent ingress of water ➤ Provide ring buoys ➤ Identify and provide suitable size dewatering pump or wellpoint system
	➤ Digging in the vicinity of existing Building/ Structure	➤ Building/Structure may collapse ➤ Loss of health & wealth	➤ Obtain prior approval of excavation method from local authorities. ➤ Use under-pining method ➤ Construct retaining wall side by side.
	➤ Movement of vehicles/ equipment close to the edge of cut.	➤ May cause cave-in or slides. ➤ Persons may get buried.	➤ 'Barricade the excavated area with proper lighting arrangements. ➤ Maintain at least 2m distance from edge of cut ➤ Strengthen shoring and strutting
Narrow deep excavations for pipelines, etc.	➤ Same as above plus ➤ Frequent cave-in or slides	➤ May cause severe injuries or prove fatal	➤ Battering/benching of sides ➤ Provide escape ladders
	➤ Flooding due to Hydrotesting	➤ May arise drowning situation	➤ Same as above plus ➤ Bail out accumulated water ➤ Maintain adequate ventilation.
Rock excavation by blasting	➤ Improper handling of explosives	➤ May prove fatal	➤ Ensure proper storage, handling & carrying of explosives by trained personnel. ➤ Comply with the applicable explosive acts & rules.
	➤ Uncontrolled explosion	➤ May cause severe injuries or prove fatal	➤ Allow only authorized persons to perform blasting operations. ➤ Smoking and open flames are to be strictly prohibited
	➤ Scattering of stone pieces in atmosphere	➤ Can hurt people	➤ Use PPE like goggles, face mask, helmets etc.

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
Rock excavation by blasting	➤ 'Entrapping of persons/ animals.	➤ May cause severe injuries or prove fatal	➤ Barricade the area with red flags and blow siren before blasting.
	➤ Misfire	➤ May explode suddenly	➤ Do not return to site for at least 20 minutes or unlessannounced safe by designated person.
Piling Work	➤ Failure of pile-driving equipment	➤ Can hurt people	➤ Inspect Piling rigs and pulley blocks before the beginning of each shift.
	➤ Noise pollution	➤ Can cause deafness and psychological imbalance.	➤ Use personal protective equipment like ear plugs, muffs, etc.
	➤ Extruding rods/casing	➤ Can hurt people	➤ Barricade the area and install sign boards ➤ Provide first-aid
	➤ Working in the vicinity of 'Live- Electricity'	➤ Can cause electrocution/ asphyxiation	➤ Keep sufficient distance from Live- Electricity as per IS code. ➤ Shut off the supply, if possible ➤ Provide artificial/rescue breathing to the injured
(B) CONCRETING	➤ Air pollution by cement	➤ May affect Respiratory System	➤ Wear respirators or cover mouth and nose with wet cloth.
	➤ Handling of ingredients	➤ Hands may get injured	➤ Use gloves & other PPE.
	➤ Protruding reinforcement rods	➤ Feet may get injured	➤ Use Safety shoes ➤ Provide platform above reinforcement for movement of workers
	➤ Earthing of electrical mixers, vibrators, etc. not done.	➤ Can cause electrocution/ asphyxiation	➤ Ensure earthing of equipment and proper functioning ofelectrical circuit before commencement of work.
	➤ Falling of materials from height	➤ 'Persons may get injured	➤ Use hard hats ➤ Remove surplus material immediately from work place. ➤ Ensure lighting arrangements during night hours
	➤ Continuous pouring by same gang	➤ Cause tiredness of workers and may lead to accident.	➤ 'Insist on shift pattern ➤ Provide adequate rest to workers between subsequent pours.
	➤ Revolving of concrete mixer/ vibrators	➤ 'Parts of body or clothes may get entrapped.	➤ Allow only mixers with hopper ➤ Provide safety cages around moving motors ➤ Ensure proper mechanical locking of vibrator
• Super-structure	➤ Same as above plus ➤ Deflection in props or shuttering material	➤ Shuttering/props may collapse and prove fatal	➤ Avoid excessive stacking on shuttering material ➤ Check the design and strength of shuttering material before commencement of work ➤ Rectify immediately the deflection noted during
	➤ Passage to work place	➤ Un-properly tied and designed props/planks may collapse	➤ Ensure the stability and strength of passage before commencement of work. ➤ Do not overload and stand under the passage.

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
(C) REINFORCEMENT	➤ Curtailment and binding of rods	➤ Persons may get injured	➤ Use PPE like gloves, shoes, helmets, etc. ➤ Avoid usage of shift tools
	➤ Carrying of rods for short distances/at heights	➤ Workers may get injured their hands and shoulders.	➤ Provide suitable pads on shoulders and use safety gloves ➤ Tie up rods in easily liftable bundles ➤ Ensure proper staging.
	➤ Checking of clear distance/ cover with hands	➤ Rods may cut or injure the fingers	➤ Use measuring devices like tape, measuring rods, etc.
	➤ Hitting projected rods and standing on cantilever rods.	➤ Persons may get injured and fell down	➤ 'Use safety shoes and avoid standing unnecessarily on cantilever rods ➤ Avoid wearing of loose clothes
	➤ Falling of material from height	➤ May prove fatal	➤ Use helmets ➤ Provide safety nets
	➤ Transportation of rods by trucks/ trailers	➤ Protruded rods may hit the persons	➤ Use red flags/lights at the ends ➤ Do not protrude the rods in front of or by the side of driver's cabin. ➤ Do not extend the rods 1/3 rd of deck length or 1.5m whichever is less
(D) WELDING AND GAS CUTTING	➤ Welding radiates invisible ultraviolet and infrared rays	➤ Radiation can damage eyes and skin.	➤ Use specified shielding devices and other PPE of correct specifications. ➤ Avoid thoriated tungsten electrodes for GTAW
	➤ Improper placement of oxygen and acetylene cylinders	➤ Explosion may occur	➤ Move out any leaking cylinder ➤ Keep cylinders in vertical position ➤ Use trolley for transportation of cylinders and chain them ➤ Use flash back arrestors
	➤ Leakage/ cuts in hoses	➤ May cause fire	➤ Purge regulators immediately and then turn off ➤ Never use grease or oil on oxygen line connections and copper fittings on acetylene lines ➤ Inspect regularly gas carrying hoses ➤ Use the current for which the cable is designed ➤ Always use red hose for acetylene & other fuel gases and black for oxygen
	➤ Opening-up of cylinder	➤ Cylinder may burst	➤ Always stand back from the regulator while opening the cylinder ➤ Turn valve slowly to avoid bursting ➤ Cover the lug terminals to prevent short circuiting
	➤ Welding of tanks, container or pipes storing flammable liquids	➤ Explosion may occur	➤ Empty them before welding ➤ Never attach the ground cable to tanks, container or pipe storing flammable liquids ➤ Never use LPG for gas cutting

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
(E) RADIO-GRAPHY	➤ Ionizing radiation	➤ Radiations may react with the skin and can cause cancer, skin irritation, dermatitis, etc.	<ul style="list-style-type: none"> ➤ Ensure Safety regulations as per BARC before commencement of job. ➤ Cordon off the area and install Radiation warning symbols ➤ Restrict the entry of unauthorized persons ➤ Wear appropriate PPE and film badges issued by BARC
	➤ Transportation and Storage of Radiography source	➤ Same as above	<ul style="list-style-type: none"> ➤ Never touch or handle radiography source with hands ➤ Store radiography source inside a pit in an exclusive isolated storage room with lock and key arrangement. The pit should be approved by BARC. ➤ Radiography source should never be carried either in passenger bus or in a passenger compartment of trains. ➤ BARC have to be informed before source movement. ➤ Permission from Director General of Civil Aviation is required for booking radio isotopes with airlines.
	➤ Loss of Radio isotope	➤ Same as above	<ul style="list-style-type: none"> ➤ Try to locate with the help of Survey Meter. ➤ Inform BARC
(F) ELECTRICAL INSTALLATION AND USAGE	➤ Short circuiting	➤ Can cause Electrocution or Fire	<ul style="list-style-type: none"> ➤ Use rubberized hand gloves and other PPE ➤ Don't lay wires under carpets, mats or doorways. ➤ Allow only licensed electricians to perform on electrical facilities ➤ Use one socket for one appliance ➤ Ensure usage of only fully insulated wires or cables ➤ Don't place bare wire ends in a socket ➤ Ensure earthing of machineries and equipment ➤ Do not use damaged cords and avoid temporary connections ➤ Use spark-proof/flame proof type field distribution boxes.
	➤	➤	<ul style="list-style-type: none"> ➤ Do not allow open/bare connections ➤ Provide all connections through ELCB ➤ Protect electrical cables/equipment's from water and naked flames ➤ Check all connections before energizing
	➤ Overloading of Electrical System	➤ Bursting of system can occur which leads to fire	<ul style="list-style-type: none"> ➤ Display voltage and current ratings prominently with 'Danger' signs. ➤ Ensure approved cable size, voltage grade and type ➤ Switch off the electrical utilities when not in use ➤ Do not allow unauthorized connections. ➤ Ensure proper grid wise distribution of Power
	➤ Improper laying of overhead and underground transmission lines/cables	➤ Can cause electrocution and prove fatal	<ul style="list-style-type: none"> ➤ Do not lay unarmoured cable directly on ground, wall, roof of trees ➤ Maintain at least 3 m distance from HT cables ➤ All temporary cables should be laid at least 750 mm below ground on 100 mm fine sand overlying by brick soling ➤ Provide proper sleeves at crossings/ intersections ➤ Provide cable route markers indicating the type and depth of cables at intervals not exceeding 30m and at the diversions/termination

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
(G) FIRE PREVENTION AND PROTECTION	➤ Small fires can become big ones and may spread to the surrounding areas	➤ Cause burn injuries and may prove fatal	<ul style="list-style-type: none"> ➤ In case a fire breaks out, press fire alarm system and shout "Fire, Fire" ➤ Keep buckets full of sand & water/ fire extinguishing equipment near hazardous locations ➤ Confine smoking to 'Smoking Zones' only. ➤ 'Train people for using specific type of firefighting equipment under different classes of fire ➤ Keep fire doors/shutters, passages and exit doors unobstructed ➤ Maintain good housekeeping and first-aid boxes ➤ Don't obstruct access to Fire extinguishers. ➤ Do not use elevators for evacuation during fire. ➤ Maintain lightning arrestors for elevated structures
	➤ Improper selection of Fire extinguisher	➤ It may not extinguish the fire	<ul style="list-style-type: none"> ➤ Ensure usage of correct fire extinguisher meant for the specified fire ➤ Do not attempt to extinguish Oil and electric fires with water. Use foam cylinders/CO₂/sand or earth
	➤ Improper storage of highly inflammable substances	➤ Same as above	<ul style="list-style-type: none"> ➤ Maintain safe distance of flammable substances from source of ignition ➤ Restrict the distribution of flammable materials to only min. necessary amount ➤ Construct specifically designed fuel storage facilities ➤ Keep chemicals in cool and dry place away from heat. Ensure adequate ventilation ➤ Before welding operation, remove or shield the flammable material properly ➤ Store flammable materials in stable racks, correctly labeled. ➤ 'Wipe off the spills immediately
	➤ Short circuiting of electrical system	<ul style="list-style-type: none"> ➤ Same as above ➤ Can cause Electrocution 	<ul style="list-style-type: none"> ➤ Don't lay wires under carpets, mats or door ways ➤ Use one socket for one appliance. ➤ Use only fully insulated wires or cables ➤ Do not allow open/bare connections ➤ Provide all connections through ELCB ➤ Ensure earthing of machineries and equipment
(H) VEHICULAR MOVEMENT	➤ Crossing the Speed Limits (Rash driving)	➤ Personal injury	<ul style="list-style-type: none"> ➤ Obey speed limits and traffic rules strictly ➤ Always expect the unexpected and be a defensive driver ➤ Use seat belts/helmets ➤ Blow horn at intersections and during overtaking operations. ➤ Maintain the vehicle in good condition ➤ Do not overtake on curves, bridges and slopes
	➤ Adverse weather condition	➤ Same as Above	<ul style="list-style-type: none"> ➤ Read the road ahead and ride to the left ➤ Keep the wind screen and lights clean ➤ Do not turn at speed. ➤ Recognize the hazard, understand the defense and act correctly in time.
	➤ Consuming alcohol before and during the driving operation	➤ Same as above	<ul style="list-style-type: none"> ➤ Alcohol and driving do not mix well. Either chose alcohol or driving. ➤ If you have a choice between hitting a fixed object or an on-coming vehicle, hit the fixed object ➤ Quit the steering at once and become a passenger. Otherwise take sufficient rest and then drive. ➤ Do not force the driver to drive fast and round the clock. ➤ Do not day dream while driving

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
	➤ Falling objects/ Mechanical failure	➤ May prove fatal	<ul style="list-style-type: none"> ➤ Ensure effective braking system, adequate visibility for the drives, reverse warning alarm.. ➤ Proper maintenance of the vehicle as per manufacturer instructions
(I) PROOF TESTING (HYDROSTATIC / PNEUMATIC TESTING)	<ul style="list-style-type: none"> ➤ Bursting of piping ➤ Collapse of tanks ➤ Tanks flying off 	➤ May cause injury and prove fatal	<ul style="list-style-type: none"> ➤ Prepare test procedure & obtain L/owner's approval ➤ Provide separate gauge for pressurizing pump and piping/equipment ➤ Check the calibration status of all pressure gauges, dead weight testers and temperature recorders ➤ Take dial readings at suitable defined intervals and ensure most of them fall between 40-60% of the gauge scale range ➤ Provide safety relief valve (set at pressure slightly higher than test pressure) while testing with air/nitrogen ➤ Ensure necessary precautions, stepwise increase in pressure, tightening of bolts/nuts, grouting, etc. before and during testing ➤ Keep the vents open before opening any valve while draining out of water used for hydrotesting of tanks. ➤ Pneumatic testing involves the hazard of released energy stored in compressed gas. Specific care must therefore be taken to minimize the chance of brittle failure during a pneumatic leak test. Test temperature is important in this regard and must be considered when the designer chooses the material of construction. A pressure relief device shall be provided, having a set pressure not higher than the test pressure plus the lesser of 345 KPa (50 psi) or 10% of the test pressure. The gas used as test fluid, if not air, shall be nonflammable and nontoxic.
(J) WORKING AT HEIGHTS	➤ Person can fall down	➤ May sustain severe injuries or prove fatal	<ul style="list-style-type: none"> ➤ Provide guard rails/barricade at the work place ➤ Use PPE like safety belts, full body harness, life line, helmets, safety shoes, etc. ➤ Obtain a permit before starting the work at height above 3 meters ➤ Fall arrest systems like safety nets, etc. must be installed ➤ Provide adequate working space (min. 0.6 m) ➤ Tie/weld working platform with fixed support ➤ Use roof top walk ladder while working on a slopping roofs ➤ Avoid movement on beams
		➤ 'May hit the scrap/material stacked at the ground or in between	<ul style="list-style-type: none"> ➤ Keep the work place neat and clean ➤ Remove the scrap immediately
	➤ Material can fall down	➤ May hit the workers working at lower levels and prove fatal	<ul style="list-style-type: none"> ➤ Same as above plus ➤ Do not throw or drop materials or equipment from height. ➤ All tools to be carried in a tool-kit Bag or on working uniform ➤ Remove scrap from the planks ➤ Ensure wearing of helmet by the workers at low level

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
(K) CONFINED SPACES	➤ Suffocation/ drowning	➤ Unconsciousness, death	<ul style="list-style-type: none"> ➤ Use respiratory devices, if reqd. ➤ Avoid overcrowding inside a confined space ➤ Provide Exhaust fans for ventilation ➤ Do not wear loose clothes, neck ties, etc.
			<ul style="list-style-type: none"> ➤ Check for presence of hydrocarbons, O₂ level ➤ Obtain work permit before entering a confined space ➤ Ensure that the connected piping of the equipment which is to be opened is pressure free, fluid has been drained, vents are open and piping is positively isolated by a blind flange
	➤ Presence of foul smell and toxic substances	➤ Inhalation can pose threat to life	<ul style="list-style-type: none"> ➤ Same as above plus ➤ Check for hydrocarbon and Aromatic compounds before entering a confined space ➤ Depute one person outside the confined space for continuous monitoring and for extending help in case of an emergency
	➤ Ignition/ flame can cause fire	➤ Person may sustain burn injuries or explosion may occur	<ul style="list-style-type: none"> ➤ Keep fire extinguishers at a hand distance r ➤ Remove surplus material and scrap immediately ➤ Do not smoke inside a confined space ➤ Do not allow gas cylinders inside a confined space ➤ Use low voltage (24V) lamps for lighting ➤ Use tools with air motors or electric tools with max. voltage of 24V ➤ Remove all equipment at the end of the day
(L) HANDLING AND LIFTING EQUIPMENTS	➤ Failure of load lifting and moving equipment	➤ Can cause accident and prove fatal	<ul style="list-style-type: none"> ➤ Avoid standing under the lifted load and within the operating radius of cranes ➤ Check periodically oil, brakes, gears, horns and tyre pressure of all moving machinery ➤ Check quality, size and condition of all chain pulley blocks, slings, U-clamps, D-shackles, wire ropes, etc. ➤ Allow crane to move only on hard, firm and leveled ground ➤ Allow lifting slings as short as possible and check gunny packing at the friction points ➤ Do not allow crane to tilt its boom while moving ➤ Install Safe Load Indicator
	➤ Overloading of lifting equipment	➤ Same as above	<ul style="list-style-type: none"> ➤ Safe lifting capacity of derricks and winches written on them shall be got verified ➤ The max. safe working load shall be marked on all lifting equipment ➤ Check the weight of columns and other heavy items painted on them and accordingly decide about the crane capacity, boom and angle of erection ➤ Allow only trained operators and riggers during crane operation.
	➤ Overhead electrical wires	➤ Can cause electrocution and fire	<ul style="list-style-type: none"> ➤ Do not allow boom or other parts of crane to come within 3m reach of overhead HT cables ➤ Hook and load being lifted shall preferably remain in full visibility of crane operators.

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
(M) SCAFFOLDING, FORMWORK AND LADDERS	➤ Person can fall down	➤ Person may sustain severe injuries and prove fatal	<ul style="list-style-type: none"> ➤ Provide guard rails for working at height ➤ Face ladder while climbing and use both hands. ➤ Ladders shall extend about 1m above landing for easy access and tying up purpose ➤ Do not place ladders against movable objects and maintain base at 1/4 unit of the working length of the ladder ➤ Suspended scaffolds shall not be less than 500 mm wide and tied properly with ropes ➤ No loose planks shall be allowed ➤ Use PPE, like helmets, safety shoes, etc.
	➤ Failure of scaffolding material	➤ Same as above	<ul style="list-style-type: none"> ➤ Inspect visually all scaffolding materials for stability and anchoring with permanent structures. ➤ Design scaffolding for max. load carrying capacity. ➤ Scaffolding planks shall not be less than 50X250 mm full thickness lumber or equivalent. These shall be cleated or secured and must extend over the end supports by at least 150mm and not more than 300mm ➤ Don't overload the scaffolds ➤ Do not splice short ladders to make a longer one. Vertical ladders shall not exceed 6m.
	➤ Material can fall down	➤ Persons working at lower level gets injured	<ul style="list-style-type: none"> ➤ Remove excess material and scrap immediately ➤ Carry the tools in a tool-kit bag only ➤ Provide safety nets
(N) STRUCTURAL WORKS	➤ Personal negligence and danger of fall	➤ Can cause injury or casualty	<ul style="list-style-type: none"> ➤ Do not take rest inside rooms built for welding machines or electrical distribution system. ➤ Avoid walking on beams at height ➤ Wear helmet with chin strap and safety belts when working at height ➤ Use hand gloves and goggles during grinding operations ➤ Cover or mark the sharp and projected edges ➤ Do not stand within the operating radius of cranes
	➤ Lifting/slipping of material	➤ Same as above	<ul style="list-style-type: none"> ➤ Do not stand under the lifted load ➤ Stack properly all the materials. Avoid slippage during handling ➤ Control longer pieces lifted up by cranes from both ends ➤ Remove loose materials from height ➤ Ensure tightening of all nuts & bolts
(O) PIPELINE WORKS	➤ Erection/lowering failure	➤ Can cause injury	<ul style="list-style-type: none"> ➤ Do not stand under the lifted load ➤ Do not allow any person to come within the radii of the sideboom handling pipes ➤ Check the load carrying capacity of the lifting tools & tackles ➤ Use safe Load Indicators ➤ Use appropriate PPEs
	➤ Other	➤ Same as above	<ul style="list-style-type: none"> ➤ Wear gum boots in marshy areas ➤ Allow only one person to perform signaling operations while lowering of pipes ➤ Provide night caps on pipes ➤ Provide end covers on pipes for stoppage of pigs while testing/ cleaning operations

1. Technical Specifications.

1.1. Equipment Specifications

File Name	Title	Rev #
PL 631	Specification For Low Voltage Switchgear and Distribution Boards	009
PL666	Electrical Design Criteria	001
PL 711	Specification for Equipment Cabinets to House Electronic Equipment	010
PL 727	Cabling, Racking, Trenching & Earthing Installation Codes of Practice	011
TECH-ELECT-PROC-011	Bonding Procedure When Breaking the Continuity of Any Pipe – Networks or Lines	0
20150707 - Diesel Tank Specification – TPL25	TPL25 – Fire Protection System – Diesel Tank Specification	A
TPL – TECH – STD - 001	Technical Fire Protection Design Standard	02
TPL 420	Piping Material Specification	01
20150707 - Water Tanks Specification - TPL25	TPL25 – Fire Protection System – Water Tank Specification	A
20150707- Foam Concentrate Tanks Specification - TPL25	TPL25 – Fire Protection System – Foam Concentrate Tank Specification	A
Fire Pump Tender Specification_Rev A - TPL25	TPL25 – Technical Specification – Fire Pump	A
Foam Concentrate Circ Pump Specification_Rev A - TPL25	TPL25 – Technical Specification – Foam Circulation Pump	A
Foam Dosing Pump Specification_Rev A - TPL25	TPL25 – Technical Specification – Foam Dosing Pump	A
Jockey Pump Specification_Rev A - TPL25	TPL25 – Technical Specification – Jockey Pump	A
Ball Valve Specifications_Rev A - TPL25	TPL25 – Technical Specification – Ball Valves	A
Butterfly Valve Specifications_Rev A - TPL25	TPL25 – Technical Specification – Butterfly Valves	A
Control Valve Specifications_Rev A - TPL25	TPL25 – Technical Specification – Control Valves	A
Level Control Valve Specifications_Rev A - TPL25	TPL25 – Technical Specification – Level Control Valves	A
Gate Valve Specifications_Rev A - TPL25	TPL25 – Technical Specification – Gate Valves	A
Foam Sprayer Technical Specification_Rev A - TPL25	TPL25 – Technical Specification – Foam Sprayer	A

Fixed Monitor Technical Specification_Rev A- TPL25	TPL25 – Technical Specification – Fixed Monitor	A
Oscillating Monitor Tech Spec_Rev A - TPL25	TPL25 – Technical Specification – Oscillating Monitor	A
Low Level Pourer Technical Specification_Rev A - TPL25	TPL25 – Technical Specification – Low Level Pourer	A
Tank Pourer Technical Specification_Rev A - TPL25	TPL25 – Technical Specification – Tank Pourer	A
Water Sprayer Technical Specification_Rev A - TPL25	TPL25 – Technical Specification – Water Sprayer	A
INSULATING FLANGE GASKET	INSULATING FLANGE GASKET	
PL 835	Specification for the minimum structural requirements for walkways, platforms and stairways	June 2001
PL 407	Specification for Painting of manifold piping and ancillary equipment	April 1991
PL 804/A	General Welding Specification	June 2002
PL SK No. 2139	General Structural Standards for walkways, stairways and platforms.	98-09-03
S414	Specification for Earthworks	1985
S420	Specification for Concrete Work	1997
	Standard Document For Petronet Depot Upgrades - Introduction	000
	Standard Document For Petronet Depot Upgrades - Part 1: Buildings	000
	Standard Document For Petronet Depot Upgrades - Part 2: Fire Systems	000
	Standard Document For Petronet Depot Upgrades - Part 3: Pollution Control	000
	Standard Document For Petronet Depot Upgrades - Part 4: Services	000
	Standard Document For Petronet Depot Upgrades - Part 5: General	000
TPL-TECH-F-STD-001	Standard for Non-Percolating Synthetic Lay-Flat Fire Hose	0
TPL-TECH-F-STD-002	Standard for Fire System Valve Numbering System	0
TPL-TECH-M-SPEC-877	Colour Coding of Pipelines and Equipment	0
E7/1	Specification for works on, over, under or adjacent to Railway lines and near high voltage equipment	July 1998

1.2. TPL, Mech, Structural & Civil Standards

ITEM #	DESCRIPTION
1	TPL-TECH-F-STD-001 - STANDARD FOR NON-PERCOATING SYNTHETIC LAYFLAT FIRE HOSE
2	TPL-TECH-F-STD-002 - STANDARD FOR FIRE SYSTEM VALVE NUMBERING SYSTEM
3	PL407 - SPECIFICATION FOR PAINTING OF MANIFOLD PIPING AND ANCILLARY EQUIPMENT
4	PL 804/A - GENERAL WELDING SPECIFICATION
5	PL SK 2139 - GENERAL STRUCTURAL STANDARDS FOR WALKWAYS, STAIRWAYS AND PLATFORMS
6	PL 835 - SPECIFICATION FOR THE MINIMUM STRUCTURAL REQUIREMENTS FOR WALKWAYS, PLATFORMS AND STAIRWAYS
7	PL838/A - APPLICATION OF A CORROSION PROTECTION LINING TO THE INTERIOR SURFACES OF STEEL TANKS, OR PART THEREOF, USED FOR STORAGE OF PETROLEUM PRODUCT
8	TPL-TECH-M-SPEC-877 - COLOUR CODING OF PIPELINES AND EQUIPMENT
9	E7/1 - SPECIFICATION FOR WORKS ON, OVER, UNDER OR ADJACENT TO RAILWAY LINES AND NEAR HIGH VOLTAGE EQUIPMENT
10	INSULATING FLANGE GASKET
11	S414 - SPECIFICATION FOR EARTHWORKS
12	S420 - SPECIFICATION FOR CONCRETE WORK
13	STANDARD DOCUMENT FOR PETRONET DEPOT UPGRADES - INTRODUCTION
14	STANDARD DOCUMENT FOR PETRONET DEPOT UPGRADES - PART 1_BUILDINGS
15	STANDARD DOCUMENT FOR PETRONET DEPOT UPGRADES - PART 2_FIRE SYSTEMS
16	STANDARD DOCUMENT FOR PETRONET DEPOT UPGRADESPART 3: POLLUTION CONTROL
17	STANDARD DOCUMENT FOR PETRONET DEPOT UPGRADES - PART 4_SERVICES
18	STANDARD DOCUMENT FOR PETRONET DEPOT UPGRADES - PART 5_GENERAL



Transnet Pipelines

Tender Number: TPL/2024/07/0005/70943/RFP

Description of the *Works*: DESIGN, SUPPLY, INSTALLATION (EPC *Contractor*) AND PROVISION OF PLANNED MAINTENANCE FOR A LIMITED PERIOD FOR THE VAPOUR RECOVERY UNIT SYSTEM AT THE TPL TARLTON PETROLEUM PRODUCTS HANDLING AND BULK STORAGE FACILITY.

Part C4: Site Information

1. DESCRIPTION OF THE SITE AND ITS SURROUNDINGS

1.1. Conditions for use of Information

The information contained in this document is intended as an indication of the conditions likely to be encountered. All drawings, opinions, interpretations and suggested working methods given in this volume must be regarded as a guide. The results are given in good faith, but no warranty is given that the information is representative of the entire depot conditions and no responsibility will be accepted for any consequence arising from actual conditions being different from those indicated in this document.

1.2. General Description

The Tarlton Depot is located near the intersection of the N14 and the R24, west of Krugersdorp, Gauteng, South Africa. The GPS co-ordinates of the site are 26°04'42.04" S 27°38'24.19" E.

The Depot is part of the Transnet Pipelines infrastructure and is used for bulk storage, handling, and distribution of petroleum products through rail and road tankers to the surrounding areas and some cross border countries like Botswana.



Figure 1: Aerial View of the Tarlton Depot Facilities



Figure 2: Satellite Image Showing the Location of Tarlton Depot

1.3. National Key Point

- 1.3.1. The Tarlton site is identified and declared as critical infrastructure in terms of the CRITICAL INFRASTRUCTURE Protection Act 8 of 2019 (as amended). All requirements (such as security clearance for all workers) must be adhered to.
- 1.3.2. All contract personnel working on site for an extended period are to undergo a security clearance by the State Security Agency (SSA).
- 1.3.3. All contractor visitors to site are to produce valid identity documents before they can be allowed access to site.
- 1.3.4. The Employer is responsible for facilitating the security clearance process; the following information is required:
 - a) Company Profile
 - b) Certified copies of Identity Documents (ID) of all employees who will be working on site.
- 1.3.5. The *Contractor* to note that the security clearance process will take approximately one (1)

to two (2) months from the date of submission by the Employer to the SSA.

1.3.6. The bidder is therefore required to submit to the Employer the required documents at least two (2) months before the date of submission by the Employer to the SSA.

1.3.7. ID Copies of Directors

1.3.8. CIPC (Companies and Intellectual Property Commission) registration certificate

1.3.9. SARS Tax Clearance of Company

1.3.10. Company Profile

1.3.11. Certified ID copies of all employees who will be coming to site and their responsibilities.

2. EXISTING BUILDINGS AND STRUCTURES

2.1. Existing Structures

The Key facilities available to this site although not limited to are the following:

- 1) Petroleum products bulk storage tanks
- 2) Rail and Tanker loading areas
- 3) Product Dedicated Manifolds (headers)
- 4) Product Additive Dosing Facility
- 5) Product Fractionator Plant
- 6) Truck Staging Area
- 7) Various buildings

This site is mainly used for the loading of rail and road loading. A truck staging area is used to temporally park tankers before being processed to gain entry into the depot. Entrance to the depot is through this highly trafficked gate which is manned by Transnet Pipelines Personnel.

2.2. Hidden Services

- a) The area has numerous buried services that may not have been located or accurately recorded.
- b) Known services are indicated in the general arrangement drawings attached as Annexure AA.

3. LANDOWNER

Transnet is the registered landowner of the site.

4. GEOTECHNICAL INFORMATION

4.1. General Description of Soil Profiles

4.1.1. Through out the period since the depot was built various upgrades have taken place like the following:

- a. Construction of the additive dosing unit
- b. Construction of the product re-fractionator
- c. Construction of the new fire system

4.1.2. During the period of construction of these facilities the soil conditions exhibited good load bearing properties, however the *Contractor* at his discretion will determine as part of the design planning obligations if extensive geotechnical surveys are to be carried out.

4.2. Site Investigations

4.2.1. Attached as Annexure BB is Hydrogeological and Contaminated Land Report commissioned in March 2014 by Transnet Pipelines.

4.2.2. The objective of the report was to determine the extent, nature and possible sources of soil and ground water contamination (refer to paragraph 2 of the Scope of Work)

4.2.3. The *Contractor* after studying the report at his discretion will decide if there is a further need to conduct a scope of work focused geotechnical study.

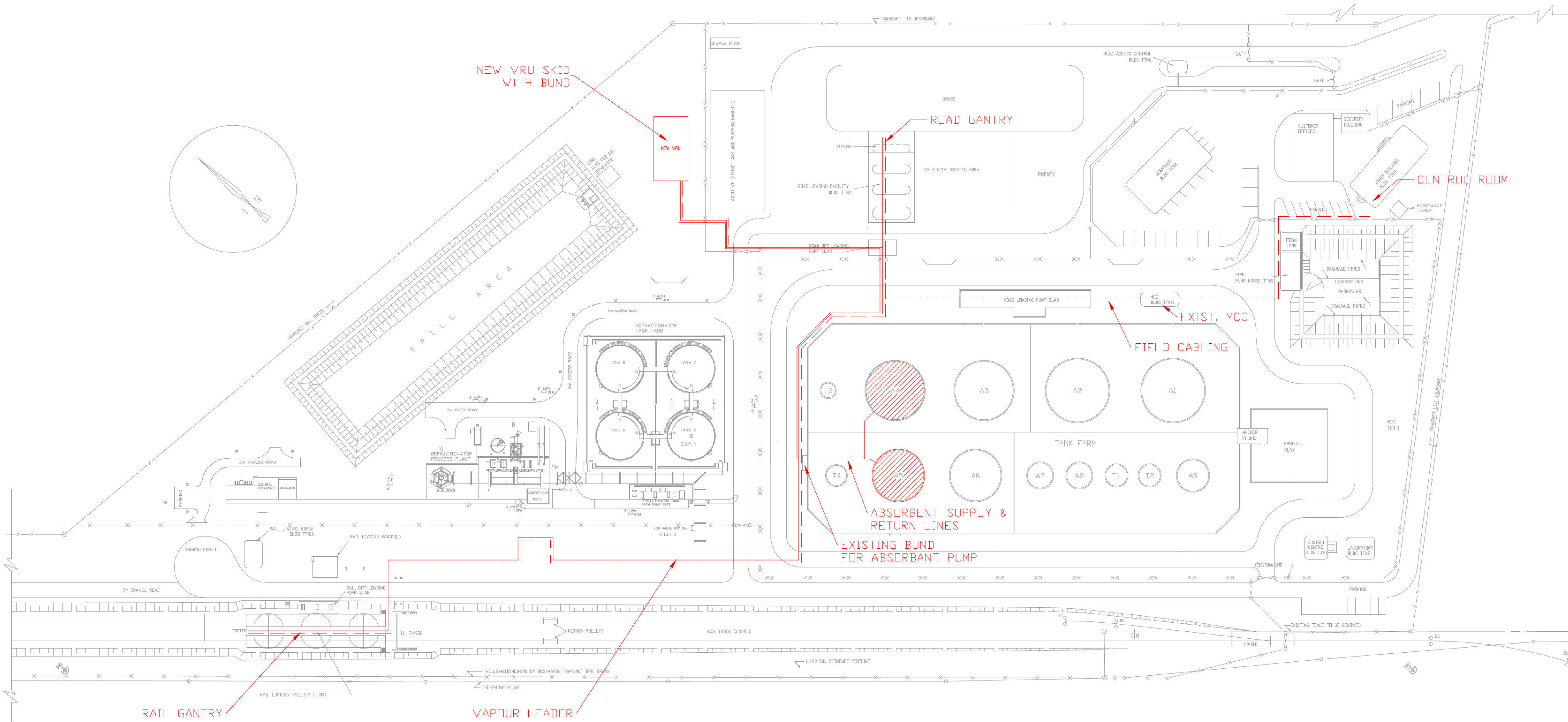
5. EXISTING SERVICES

- 5.1. The information pertaining to the existing services is limited to a survey and some as-built drawings of the layout of services included in the site information.
- 5.2. The information is provided in good faith and the *Employer* does not guarantee its accuracy.
- 5.3. The site, due to its type of operations has vast number of underground services which might not be accurately reflected on the underground services drawings.
- 5.4. No excavations by heavy equipment is allowed unless express permission is granted by the Employer designated representative
- 5.5. The *Contractor* is required to hand prove for presence of underground services before any excavations for construction purposes can take place.
- 5.6. It is a requirement that in safety and operational critical areas proving of the existence of these services is to be carried out.
- 5.7. During construction these areas will be identified by the *Project Manager* and work will only be authorized by the *Project Manager* through the permit to work authorization process.

6. LIST OF ANNEXURES

Annexure AA	General Arrangement Drawings
Annexure BB	<i>Hydrogeological and Soil Contamination Report</i>

Annexure AA



REFERENCE DRAWING

NOTES:
1.

A	ISSUED FOR TENDER	EP	RT	03.04.18
REV	DESCRIPTION	DR	APP	DATE
DESIGNED	EP			
DRAWN	EP			
PROJECT ENG.	RT			
APPROVED	RT			

CLIENT LOGO

TRANSNET

pipelines

CLIENT APPROVAL	INITIALS	SIGN	DATE
CLIENT			
TPL			
PROJECT			
TPL TARLTON VRU PROJECT			
TITLE			
PROPOSED LAYOUT			

SCALE : NTS

DRAWING No. 17514-SK02

REV A

(1) 1 A1 SHEET

ANNEXURE BB

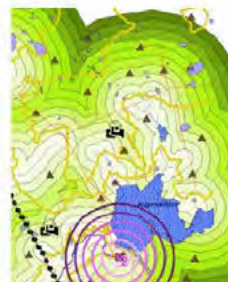
Transnet Pipelines Hydrogeological & Contaminated Land Assessment

Tarlton - Report

Version - 1

10 March 2014

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Transnet Pipelines Hydrogeological & Contaminated Land Assessment

Tarlton - Report
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March 2014

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LEGAL NOTICE



EXECUTIVE SUMMARY

Introduction

██████████ was contracted by Transnet Pipelines to undertake a contaminated land assessment at current operational facilities (depots) where crude oil, petrol and diesel are stored and transported from. The facilities are located in Kwa-Zulu Natal, Gauteng, Free State, Mpumalanga and North West Provinces. The project includes the following depots and pump stations: Durban, TM1, PS1, Hillcrest, PS3, Howick, PS5, Ladysmith, Newcastle, Bethlehem, Kroonstad, Sasolburg, Coalbrook, Klerksdorp, Secunda, Witbank, Airport, Waltloo, Jameson Park, TM2, Alrode, Tarlton, Rustenburg, Langlaagte and Kendal.

The ultimate objective of the project is to establish the extent, nature and possible sources of soil and groundwater contamination in order to determine the possible impacts on human health and the receiving environment using a risk assessment based on the source-pathway-receptor principles. The ██████ risk assessment procedure conforms to the requirements of South African National Authorities and remediation/mitigation measures will be recommended and developed where necessary.

This report details the results and findings of the contaminated land investigation conducted at the Tarlton site according to contract number PYP/W1/6/21/1232.

The operational facility (delivery station) is located near the town of Tarlton, in the Gauteng Province. The site is situated within an agricultural area located on the corner of Rustenburg and Ventersdorp Road. Major infrastructure consists of a spill basin, water storage dam, canal, gantry, rail gantry, refinery plant, workshop, main office building, above ground storage tank area, three separators and a manifold.

Environmental Setting

The topography of the area surrounding the site slopes in a north easterly direction according to the 1:50 000 topographical map. The groundwater flow direction for the site is in a general north easterly direction across the site.

The site is underlain by the Malmani Subgroup of the Chuniespoort Group that forms part of the Transvaal Supergroup. The Subgroup consists of dolomite, chert and remnants of chert breccias of the Rooihogte Formation.

According to the South African Aquifer System Management classification (Parsons, 1995), the aquifer underlying the site is considered to be a major aquifer system. The formation is highly permeable and productive and is therefore rendered to be able to support large

abstractions for public supply and other purposes. Water quality has also been classified as good and sustains large abstraction.

Site Walkover & Housekeeping Observations

The general site conditions are indicative of good housekeeping with minor visual staining near the railway tracks. Good structural integrity and housekeeping were observed within the tank-farms, manifolds and spill basins.

Receptor Survey

A hydrocensus was carried out within a 1km buffer around located the site. Several boreholes were visited within this 1km radius. The majority of these boreholes are for the irrigation of agricultural land and domestic water supply. The water levels within the boreholes ranged between 40 and 100 metres below ground level.

Soil Auger Vapour Survey

Four soil augering localities were drilled and profiled on site up to a depth of 2.8 metres. None of these augering localities indicated any contamination and were therefore not sampled.

Baseline Surface Water Quality Assessment

Surface water samples were collected from the Spill Basin (SB1), Storm Water Canal (SWC-1 and SWC-2) and the Sewage Discharge Area (SDA) (bacteria only) on site.

According to the results, BTEXN and MTBE were undetected in all surface water samples. TAME was detected in SB1, SWC-1 and SWC-2, however these concentrations are considered low.

Significantly high concentrations of Heterotrophic plate count, Coliforms, Faecal Coliforms and Escherichia Coli were detected within the SDA and SWC-1. According to the Mills & Otten results of February 2013, elevated bacteria concentrations were also present within these sample. This should be continually monitored as it indicates the treatment facility is not functioning optimally.

Baseline Groundwater Water Quality Assessment

Groundwater samples were collected from monitoring wells PS1, PD1, PD2, PD4, PD5 and PD6 as well as the production borehole BH1.

Majority of the constituents were undetected in the monitoring wells sampled. A low MTBE concentration of 8µg/l was detected in the shallow borehole PS-1. This indicates similar

results to the previous monitoring conducted in February 2013. TAME was also detected in PS-1 with a concentration of 196µg/l which is lower than the concentration detected in February 2013 of 257µg/l. The TAME concentration of 17µg/l in PD-4 indicated a slight decrease in concentrations compared to the 33µg/l detected in February 2013. Monitoring well PD-5 was previously recorded as dry during the February 2013 sampling event. Only TAME was recorded with a concentration of 24µg/l, which was undetected in the February 2012 sampling event.

Calcium concentrations exceeded the DWA drinking water quality guideline for monitoring well PD-1. Monitoring wells PD-1, PS-1, PD-4 and PD-5 indicated manganese concentrations which were non-compliant with the DWA and SANS drinking water quality guidelines.

Aquifer Vulnerability and Risks to Groundwater

Elevated bacteria concentrations in surface water samples collected from the Sewage Discharge Area (SDA) and Storm Water Channel area (SWC-1) were present.

The vulnerability of the aquifer was assessed using the previous borehole logging data which indicated the presence of a clay layer separating the dolomitic aquifer from the potential contamination source at surface, which reduces the risk indicating there is minimal risk with the presence of the confining layers.

Recommendations

It is recommended that groundwater and surface water monitoring is continued on a quarterly basis according to the ROD issued. Additionally, soil monitoring will be conducted on a bi-annual basis for the first year after which it will be reviewed and amended accordingly.

It is also recommended that the two additional boreholes are drilled to intersect the perched water level in order to determine whether contamination is present within the perched aquifer, based on the TAME detected in the shallow borehole, PS1. These boreholes should be drilled to an approximate depth of 40 metres.

GLOSSARY

Aquifer - Geological formation which has structures or textures that hold water or permit appreciable water movement through them.

BTEXN - Volatile organic compound present in petroleum derivatives. Refers to benzene, toluene, ethylbenzene, xylene and naphthalene compounds.

Contaminant - Means a substance that is in, or on land that has the potential to cause an impact to human health or the environment.

Contaminated - Means the presence in or under any land, site, buildings or structures of a substance or micro-organism above the concentration that is normally present in or under that land, which substance or micro-organism directly or indirectly affects or may affect the quality of soil or the environment adversely.

Dyke - A linear igneous intrusive rock unit that cuts across the host rock and usually consists of dolerite.

Environmental Risk: The chance/probability that human health or the environment will suffer harm as a result of the presence of environmental hazards.

Fuel Tank Area: Areas where the fuel tanks and associated infrastructure are located on the site.

Hazardous Material: Any material that, because of its quantity, concentration, or physical or chemical characteristics, may pose a real hazard to human health or the environment.

Methyl tertiary butyl ether (MTBE) - Ether manufactured by reacting methanol and isobutylene. It is used as an oxygenate to increase the octane number in gasoline.

Naphthalene - Aromatic hydrocarbon, smallest of the PAHs (2 rings).

Pathway - Means the route or means that controls the release and migration of a contaminant to environmental media, for instance soil to water or soil to air.

Photo Ioniser Detector (PID) - Portable vapour and gas detector that detects a variety of organic compounds

Primary Contaminant Sources - Hazardous materials that may have a significant impact (due to the large volumes and concentrations) on the environment in the event of a spillage

Receptor - Means a person or organism exposed to contamination.

Remediation - means the interim or permanent elimination through mitigation or abatement of toxic or biohazard contaminants that pose human health consequences or threats to the environment

Risk Assessment - A study to determine risks posed by the site if no cleanup action was taken and what cleanup levels need to be established to be protective of human health and the environment.

Risk Management - The process of making decisions about whether an environmental risk is high enough to present a significant public health concern and about the appropriate means for controlling the risk. Risk management considers political, social, economic and engineering information in addition to risk information to evaluate and select alternative regulatory and non-regulatory responses to a potential health hazard.

Secondary Contaminant Sources - Hazardous materials that may impact on the environment on a smaller scale (small volumes and lower concentrations) in the event of a release or spill.

Soil Screening Value 1 - Means soil quality values that are protective of both human health and eco-toxicological risk for multi-exposure pathways, inclusive of contaminant migration to the water resource.

Soil Screening Value 2 - Means soil quality values that are protective of risk to human health in the absence of a water resource.

Tertiary-amyl methyl ether (TAME) - An ether used as an oxygenate to gasoline.

Total petroleum hydrocarbons (TPH) - Defined as the measurable amount of petroleum-based hydrocarbon in an environmental media.

ACRONYMS

AH - Auger Hole

AST - Aboveground Storage Tank

BH - Borehole

BTEXN - Benzene, Toluene, Ethylbenzene, Xylenes and Naphthalene

DIV - Dutch Intervention Value

DO - Dissolved Oxygen

DTV - Dutch Target Value

DWA - Department of Water Affairs

EC - Electrical Conductivity

ERA - Environmental Risk Assessment

NGA - National Groundwater Archive

KL - Kilolitre

LRP - Lead Replacement Petrol

MAMSL - Metres above mean sea level

MBGL - meters below ground level

MNA - Monitored Natural Attenuation

MTBE - Methyl tertiary butyl ether

MW - Monitoring Well

NEMWA - National Environmental Management Waste Act

NGA - National Groundwater Archive

ORP - Oxidation Reduction Potential

PID - Photo Ioniser Detector

PPM - Parts per million

PVC - Polyvinyl Chloride

RBCA - Risk-Based Corrective Action

RBSL - Risk Based Screening Level

ROD - Record of Decision

SANAS - South African National Accreditation System

SANS - South African National Standard

SWL - Static Water Level

SSV - Soil Screening Value

SVS - Soil Vapour Survey

TAME - Tertiary-amyl methyl ether

TDS - Total Dissolved Solids

ULP - Unleaded Petrol

UST - Underground Storage Tank

WGS - World Geodetic System

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1 INTRODUCTION

██████████ was contracted by Transnet Pipelines to undertake a hydrogeological and contaminated land assessment at current operational facilities (depots) where crude oil, petrol and diesel are stored and transported from. The facilities are located in Kwa-Zulu Natal, Gauteng, Free State, Mpumalanga and North West. The project includes the following depots and pump stations: Durban, TM1, PS1, Hillcrest, PS3, Howick, PS5, Ladysmith, Newcastle, Bethlehem, Kroonstad, Sasolburg, Coalbrook, Klerksdorp, Secunda, Witbank, Airport, Waltloo, Jameson Park, TM2, Alrode, Tarlton, Rustenburg, Langlaagte and Kendal.

The ultimate objective of the project is to establish the extent, nature and possible sources of soil and groundwater contamination as well as determination of possible impact on human health and the receiving environment using a risk assessment based on the source-pathway-receptor concept. The risk assessment will conform to the requirements of National Authorities and remediation/mitigation measures will be recommended and developed where necessary.

This report details the results and findings of the contaminated land investigation conducted at the Tarlton site according to contract number PYP/W1/6/21/1232.

2 SCOPE OF WORK

The scope of work for the hydrogeological and contaminated land investigation is defined below:

- Conducting the site assessments (includes site walkover);
- Initial data review of previous studies and reports;
- Desktop review of all data available including topographical, geological and hydrogeological data;
- Inspection for visible spillages on site;
- Conduct a 1 km neighbouring hydrocensus;
- Conduct a shallow soil vapour survey in areas where historical spills may have occurred;
- Conduct a soil vapour survey by augering into the soil up to a maximum depth of 3 metres collecting vapour measurements at 0.5 metre intervals;
- Purge all monitoring wells prior to groundwater sampling;
- Determine groundwater recharge rates;
- Collect soil and groundwater samples in order to determine the type, extent and significance of the hydrocarbon contamination;
- Obtain field parameters from existing and new monitoring wells on site;

- Measure for free phase within monitoring boreholes on site, if present;
- Obtain water level measurements within monitoring wells;
- Photo-ionisation-detector (PID) readings will be collected in the monitoring wells on site;
- Undertake a risk assessment for the site based on the source-pathway-receptor principle;
- Provide recommendations on remediation of sites where necessary;
- Advise on where waste management licences will be required;
- Reporting of all desktop research, fieldwork results and laboratory results;
- Risk assessment and compilation of a site-specific risk assessment report detailing the findings of the investigation including proposed remediation/mitigation measures.

3 METHODOLOGY

3.1 Initial Site Inspection & Data Review

An initial site inspection was undertaken to obtain information about the current status of the site, which included fuel storage and reticulation infrastructure, site layout and drainage, adjacent property land use and identifying possible sampling locations.

All topographical, geological and information, available from the public domain and Transnet Pipelines, was accumulated.

Public domain data included:

- Google satellite images;
- 1: 50 000 Topographical Maps;
- 1: 250 000 Geological Maps;
- Hydrogeological Maps;
- Groundwater Databases, NGA (National Groundwater Archive).

Site specific data will include:

- Previous consultant reports for the sites (including site characterisation, monitoring and remediation reports);
- Any other data made available by Transnet Pipelines.

3.2 Site Investigation

Subsequent to completion of the data review and initial site visit, the site investigation was undertaken. This included the following:

3.2.1 *Hydrocensus and Receptor Survey*

A detailed hydrocensus was conducted within a 1km radius of the site to identify the presence and use of existing groundwater boreholes. Well depths were determined and static water levels were recorded. The wells were checked with an interface probe for the presence of free phase hydrocarbon. If free phase hydrocarbon was encountered, visual evidence was recorded in the form of a photograph and the thickness was recorded. The pH, temperature and electrical conductivity were recorded in all monitoring wells. PID measurements were obtained from each of the monitoring wells.

3.2.2 *Soil Vapour Survey*

A soil vapour survey utilising a hand-held photo-ionisation-detector (PID) was carried out in a grid pattern across the site to identify the extent of any shallow subsoil contamination. If readings recorded on site indicated that contamination was present then the soil vapour survey was expanded off site to allow for plume delineation.

Based on the outcome of the soil vapour survey results, auger holes were drilled utilising a Johnson hand auger/manual auger (depending on soil conditions). The auger holes were profiled and seepage zones and olfactory evidence of contamination were recorded. Soil vapour readings were recorded during the auger process. The soil was logged at intervals of 0.5 meters where PID measurements were also recorded up to a maximum depth of 3 meters below ground level or refusal.

The soil vapour survey was conducted in a “GRID” to determine if the pollution is localised to one specific area or spread over a larger area. Soil horizons screened were sampled at the horizon with the highest PID reading, if no PID readings are recorded then no sample was taken. A detailed soil profile logged by a Hydrogeologist is included in the report.

3.2.3 *Surface water Sampling and Analysis*

Surface water samples were taken at the sewage treatment plant, storm water canal (on- and off site areas) and the spill basin. The water and infrastructure containing water was visually inspected. Surface water vapour screening was conducted utilising a hand-held photo-ionisation-detector (PID) and oil-in-soil test kits was carried out at the storm water

canal areas and the spill basin. The pH, temperature, electrical conductivity, dissolved oxygen and oxidation reduction potential were also measured.

Surface water samples were collected by utilising a polyethylene bailer. All sampling equipment undergoes strict QA/QC procedures according to the guidance of the Framework for the Management of Contaminated Land (Department of Environmental Affairs, May 2010).

Surface water samples were taken according the QA/QC procedures and transported to UIS Organic Laboratory and UIS Analytical, SANAS accredited laboratories. The following parameters were analysed for:

- BTEXN Compounds;
- MTBE;
- TAME;
- Cations, anions, selected metals and bacteriological analysis.

Bacteriological water samples were collected from the sewage discharge area as well as the storm water channel to detect any bacteria, Coliforms, Faecal Coliforms and Escherichia Coli within the surface water.

3.2.4 Groundwater Sampling and Analyses

Any existing monitoring wells on site were inspected. The static water levels and total depth were recorded in all monitoring wells. If free phase hydrocarbon was encountered, the thickness was recorded and photographs were documented in a photographic log. The pH, temperature, electrical conductivity, dissolved oxygen and oxidation reduction potential was also measured.

Groundwater samples were collected after purging the wells. Each monitoring well was sampled utilising a polyethylene bailer. All sampling equipment undergoes strict QA/QC procedures according to the guidance of the Framework for the Management of Contaminated Land (Department of Environmental Affairs, May 2010).

The following parameters were analysed for:

- BTEXN Compounds;
- MTBE;
- TAME;
- Cations, anions and selected metals.

4 SITE DESCRIPTION

The operational facility, Transnet Tarlton (delivery station) is located near the town of Tarlton, in the Gauteng Province. This falls under the jurisdiction of the Mogale City Local Municipality, South Africa.

The site is situated within an agricultural area located on the corner of Rustenburg and Ventersdorp Road.

Infrastructure at the facility comprises of the following:

- Water storage dam;
- Underground reservoir;
- Stormwater canal;
- Workshop;
- Main office building;
- Control room;
- Mini sub-station;
- Laboratory;
- Security building.

The site infrastructure that could pose a risk of contamination and that is listed as potential primary sources consists of the following:

- Spill basin;
- Road Loading Facility Building/Gantry;
- Rail gantry;
- Process/Refinery plant;
- Above ground storage tank area;
- Three separators;
- Tank Manifold;
- Refinery Manifold.

Table 4-1: Inventory of Storage Tanks on Site

Tank Number	Tank size (kl)	Product Stored
A1	6000	Diesel
A2	6000	Diesel
A3	5200	Unleaded petrol
A4	5200	Unleaded petrol
A5	3500	Unleaded petrol
A6	3500	Lead replacement petrol
A7	460	Lead replacement petrol
A8	460	Lead replacement petrol
A9	896	Lead replacement petrol
T1	280	Intermixture of diesel and petrol
T2	278	Intermixture of diesel and petrol
T3	150	Intermixture of diesel and petrol
T4	250	Diesel
T5	3170	Petrol
T6	3170	Diesel
T7	3170	Intermixture of diesel and petrol
T8	3170	Intermixture of diesel and petrol

The site is divided into two sections, namely the refinery/process plant and the pipeline area. Refer to Figure 7-1 for the location of the infrastructure on the site.

Seventeen storage tanks are located within the two tank-farms (refer to Table 4-1). Each tank is fully bunded and fitted with a concrete floor surface and drainage system. Construction of the new bund walls were concluded late last year. No staining was observed in any of the bunded areas as well as good structural integrity.

A large spill basin is found in the northern section of the site. The spill basin has been functional for three years after it was initially made up of a clay lined structure. The site's main separator is located at the base of and to the east of the spill basin. There are also two other separators located on site. One situated in the eastern corner of the site, adjacent to the truck parking and the other adjacent to the refinery plant.

A fire fighting water storage pond is located just west of the main office building. The structure is only temporary and is to be replaced in the near future by a water reservoir. Photographs of the infrastructure and site conditions are presented in Appendix A.

A storm water canal runs from a north-westerly to a south-easterly direction across the site. The water decants into an offsite storm water canal. Refer to Appendix A for the photographic logs.

4.1 Site History

An interview was conducted with depot manager, [REDACTED] on the 6th of February 2014 prior to the site walkover. According to the depot manager a surface spillage occurred in 2012. The spill occurred when the chamber containing the product within the site's main separator (adjacent to the spill basin) was pumped out into the storm water canal. This was the result of a staff member leaving the pump unattended when draining the separator. The product decanted into the soil trench area, contaminating a large extent of the trench. Spill tech was assigned to excavate, remove and dispose all contaminated soil.

4.2 Previous Investigations

A Groundwater Monitoring Plan was implemented by [REDACTED] according to the ROD requirements as issued by the Department of Agriculture, Conservation and Environment dated the 31st January 2007. [REDACTED] conducted the sampling and monitoring of soil, surface and groundwater at the Tarlton depot between 2011 and 2013 on the following dates:

- June 2010;
- Jan 2011;
- April 2011;
- July 2011;
- October 2011;
- July 2012;
- Feb 2013.

Based on the available data, quarterly monitoring was conducted at the site. The water monitoring program included sampling of all monitoring wells on site, production boreholes, the spill basin, storm water canal and sewage treatment plant.

The following was concluded in the report referenced as follows: Quarterly surface and groundwater quality monitoring Report (revised) for the Transnet Tarlton depot - (July 2013):

Surface Water Sampling:

- **Sewage discharge area:** The sample was analyzed for BTEXN compounds, biological parameters and metals. Only biological parameters were deemed elevated and above the SANS drinking water standards.
- **Storm water canal 1:** None of the BTEXN compounds were recorded in the sample whilst all biological parameters exceeded the SANS drinking water limit. All metal constituents including calcium, potassium, manganese, sodium and chloride were recorded in the sample but were compliant with both TWQR(1): Target Water Quality Range for Domestic Use and TWQR(2): Target Water Quality Range for Irrigation risk based screening levels.
- **Separator Discharge Area:** BTEX, TAME and MTBE compounds have increased from July 2012 to February 2013. Benzene concentrations were non-compliant with RBSL2 and RBSL3 during the latest sampling run.

Chemical analysis indicated non-compliant concentrations of aluminum, calcium, iron, potassium and manganese in previous analysis, although concentrations have decreased from July 2011 to February 2013. The latest report indicated that concentrations of aluminum, iron, manganese and lead were all below the detectable limits whilst calcium, potassium, magnesium, sodium, fluoride and chloride were all detected but were compliant with the standards.

Groundwater Sampling Results:

- **Monitoring Well PS-1:** Benzene decreased slightly over time, while toluene, ethylbenzene, xylenes and naphthalene were undetected. MTBE and TAME compounds have slightly increased over time; unfortunately no risk based screening parameters were used. Concentrations of benzene have progressively decreased over time and now fall within the allowable detection limit. It was believed that these trace amounts originated from the previous unlined spill basin.

Elevated non-compliant concentrations of aluminum, iron, manganese and fluoride were recorded in previous reports. Some fluctuations occurred throughout the years although concentrations were relatively constant over time. The concentration of manganese was above the allowable limit.

- **Monitoring Well PS2:** The monitoring well is dry; no water samples were obtained.

- **Monitoring Well PD1:** None of the BTEXN compounds were detected in monitoring well PD1 since the monitoring program was initiated. Potassium and chloride have decreased in concentration over time. Aluminum has slightly increased in concentration since the monitoring program was initiated. The remaining metal concentrations remained constant over time with minor fluctuations. Although calcium concentrations have progressively been declining over time, the concentrations still exceeded the SANS Drinking Water Guideline.
- **Monitoring well PD2:** Benzene, ethylbenzene, xylenes and TAME compounds were not detected during sampling conducted in Feb 2013. Iron and lead concentrations were undetected from Apr 2009 to Feb 2013. Minor fluctuations occurred over time, although concentrations remained relatively constant with a slight increase of aluminum from July 2012. Calcium and magnesium have been non-compliant since the first sample run whilst manganese was non-compliant from October 2011 to February 2013.
- **Monitoring Well PD4:** No BTEXN compounds were detected in PD4 since the monitoring program was initiated. MTBE was detected during Jan 2011 and Jul 2011, although concentrations decreased. TAME was detected during the entire monitoring program, although no standards were available for comparison. The concentrations of sodium and chloride have increased over time. Calcium, magnesium and manganese have all been non-compliant throughout the entire monitoring program.
- **Monitoring Well PD5:** No water could be obtained from the monitoring well during previous studies.
- **Monitoring Well PD-6:** All BTEXN compounds were undetected in PD6 during the Jun 2010 sampling run. Some fluctuations occurred during sampling, although metal concentrations remained relatively constant. Sodium has increased in concentration over time. Fluoride, lead and manganese concentrations were not detected over time. Elevated non-compliant concentrations of calcium have been recorded throughout the monitoring program whilst magnesium indicated non-compliance in April 2011 and October 2011.
- **Water Supply Borehole BH-1:** None of the BTEXN, MTBE or TAME compounds were detected during the monitoring program. Aluminum, iron, manganese, lead and fluoride concentrations were undetected since the initiation of the monitoring program. Elevated non-compliant concentrations of calcium have been recorded since the initiation of the monitoring program. Some fluctuations occurred over time although concentrations remained relatively constant.
- **Soil samples:** Soil samples have been taken on a quarterly basis along with the surface and groundwater samples. None of the soil samples ever confirmed the presence soil contamination except for ethylbenzene, xylene and naphthalene which

were recorded in October 2011 in a sample taken near the railway area. All three parameters indicated non-compliance.

5 WASTE MANAGEMENT LICENCE

New Waste Regulations came into force on the 29th November 2013. These Regulations repealed the Waste Management Activities Regulations (Government Notice 718 in Government Gazette 32368 of 3 July 2009) and published new waste management activities - GNR 921 of 29 November 2013: List of Waste Management Activities (hereinafter referred to as the “New Waste Management Activities”).

The listed activities are divided into Category A, Category B and Category C activities. A person, who wishes to commence, undertake or conduct an activity listed under Category A, must conduct a basic assessment process, which is set out in the environmental impact assessment regulations in terms of NEMA, as part of a waste management license application. However, a person who wishes to commence, undertake or conduct a Category B activity, must conduct an environmental impact assessment process, which is set out in terms of the same regulations, as part of a waste management license application. The New Waste Management Activities introduced a new Category, i.e. Category C. In terms of Category C, a person who wishes to commence, undertake or conduct a waste management activity listed in Category C, must comply with the relevant requirements or standards determined by the Minister; i.e.:

- Norms and Standards for the Storage of Waste, 2013;
- Standards for Extraction, Flaring or Recovery of Landfill Gas, 2013; or
- Standards for Scrapping or Recovery of Motor Vehicles, 2013.

The remediation of contaminated land is a listed waste management activity which requires a Basic Assessment and Waste Management Licence.

However, Regulation 9(1) of the Waste Classification and Management Regulations states that a motivation can be submitted to the Minister (DEA) to list a specific waste management activity as an activity that does not require a waste management licence.

6 ENVIRONMENTAL SETTING

6.1 Topography

The topography of the area surrounding the site slopes in a north easterly direction (refer to Figure 6-1) according to the observations on site as well as the 1:50 000 topographical map (2627BA). The groundwater flow direction for the site is in a general north easterly direction across the site.

6.2 Hydrology

Surface water features were identified within a 1km radius from the site according to the 1:50 000 topographical map as well as the latest Google Earth Imagery (refer to Figure 6-1) which are tabulated below in Table 6-1.

Table 6-1: Hydrological Features in Close Proximity to the Site

Hydrological feature	Distance	Comment
Perennial Rietspruit	350 m	East of site, flows in a north easterly direction.
Dam	750m	South east of site.

The dam located 750m south east of the site is said to be used for irrigational purposes.

6.3 Geology and Hydrogeology

The site is underlain by the Malmani Subgroup of the Chuniespoort Group forming part of the Transvaal Supergroup. The Subgroup consists of dolomite, chert and remnants of chert-breccias of the Rooihogte Formation (refer to Figure 6-2).

An evaluation of the geological map sheet West Rand 2626, 1:250 000 (Council for Geoscience, 1986) revealed the presence of an undifferentiated linear feature with a strike direction from south-east to north-west that cross-cuts the site. This feature may act as a preferential flow path to groundwater flow.

According to the South African Aquifer System Management classification (Parsons, 1995), the aquifer underlying the site is considered to be a major aquifer system. The formation is highly permeable and productive and is therefore rendered to be able to support large abstractions for public supply and other purposes. Water quality has also been classified as good and sustains large abstraction.

Three NGA (National Groundwater Archive) boreholes have been mapped within a 1km radius of the site, however no details other than the location of the boreholes were available (refer to Figure 6-1).

FIGURE 6-1: LOCALITY MAP

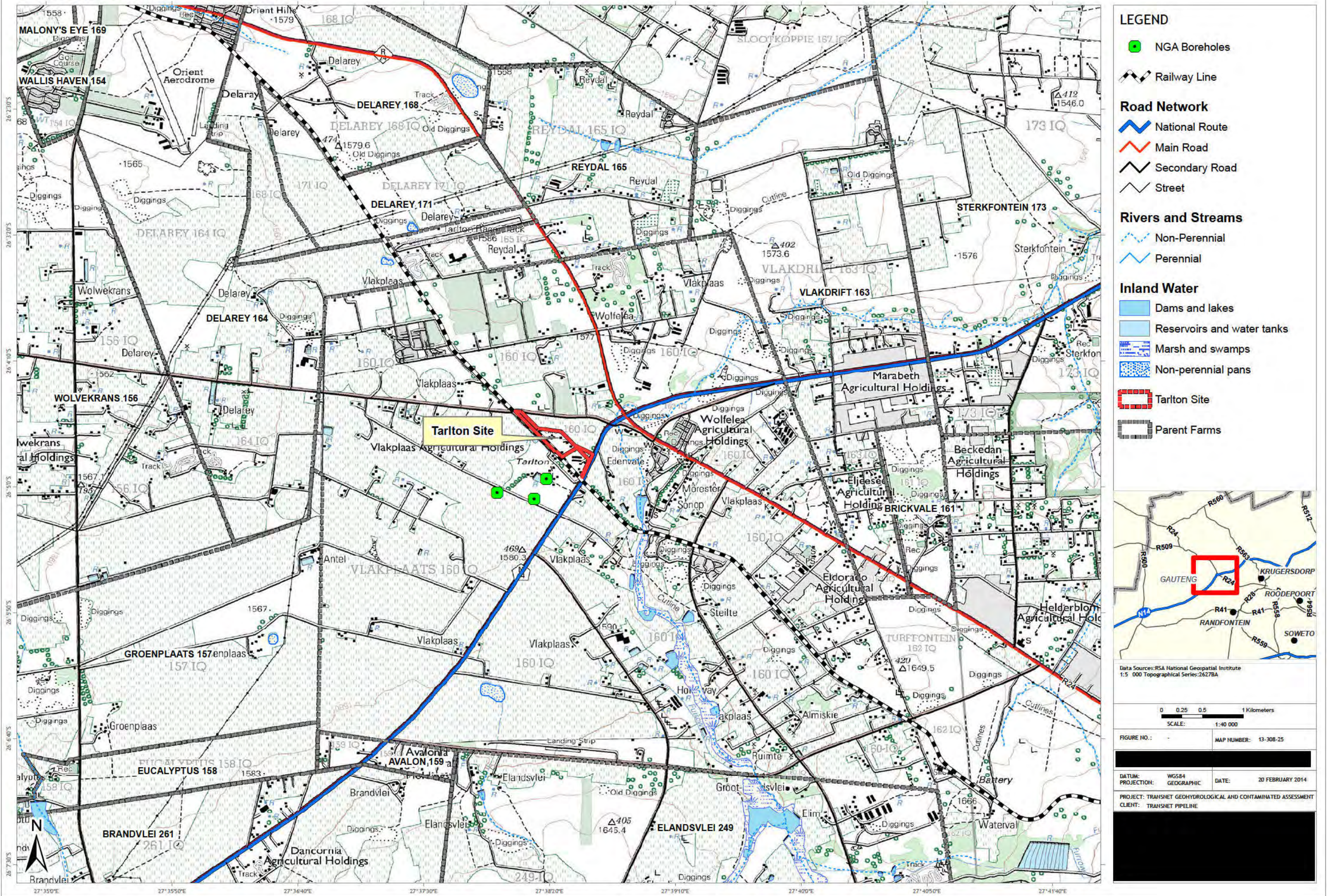
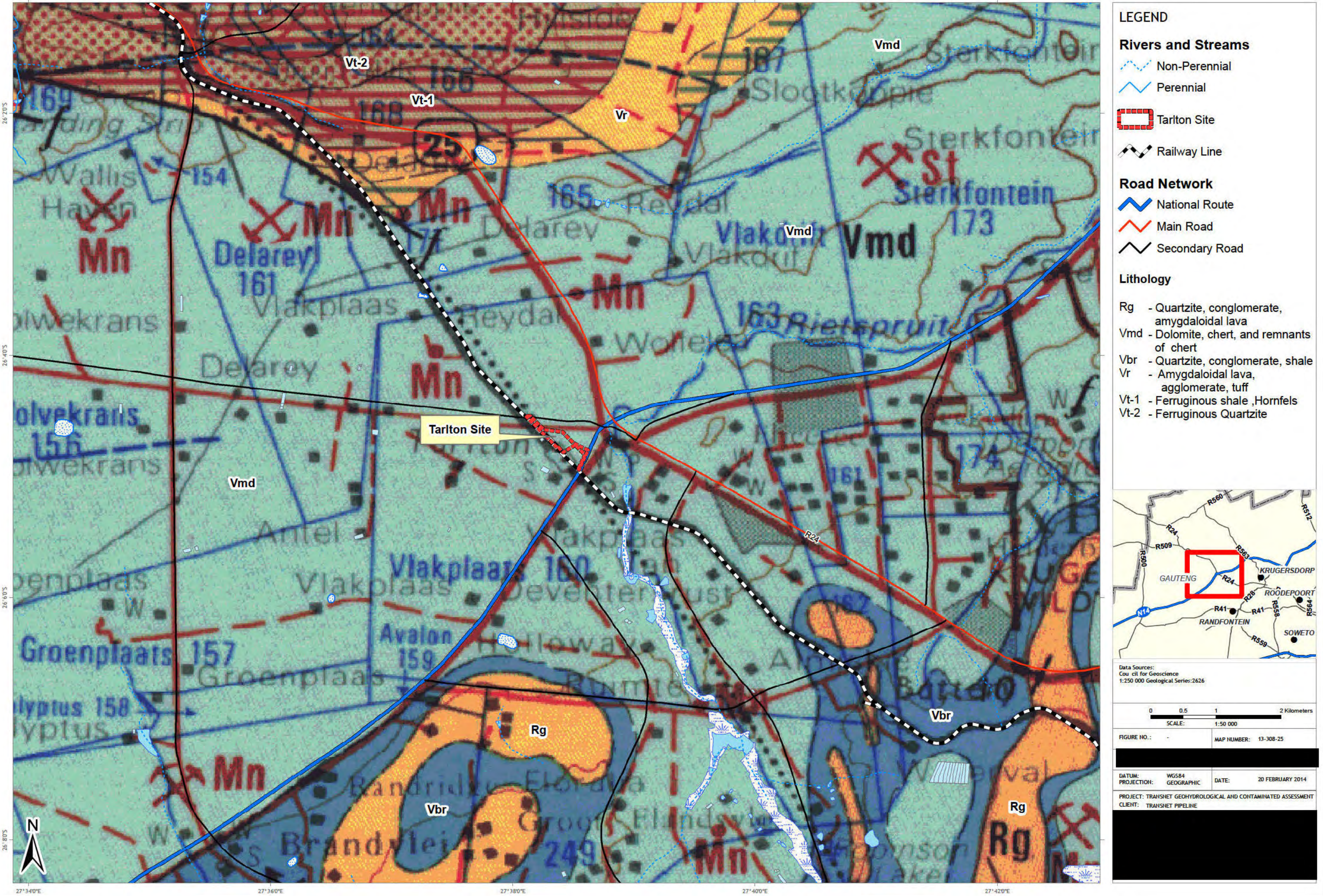


FIGURE 6-2: GEOLOGY



7 DETAILED SITE INVESTIGATION

A contaminated land investigation was conducted at the Transnet Tarlton site from the 6th to the 11th February 2014. This investigation entailed a neighbouring land survey, site walkover, and soil vapour survey as well as groundwater and surface water sample collection.

7.1 Neighbouring Land Survey

A neighbouring land survey was conducted for the site in order to prepare a list of adjacent land use as detailed in Table 7-1 below which is shown on Figure 7-1. Majority of the site is surrounded by agricultural land, however according to previous work GCS has conducted in the area, a new depot has been proposed adjacent to the Tarlton site, in a south easterly direction. It is anticipated 40 million m³ of product will be stored at this depot.

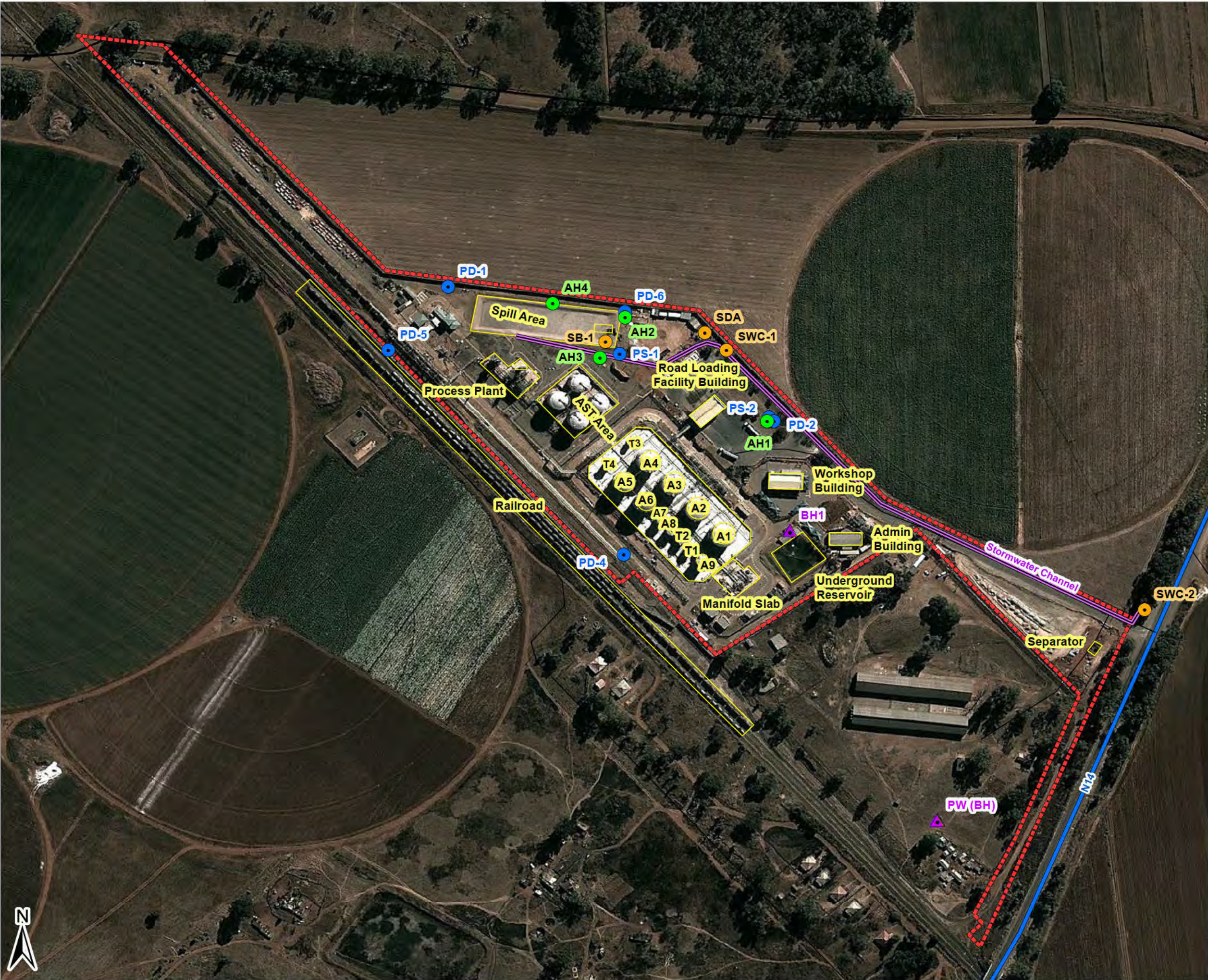
Table 7-1: Neighbouring Land Use

Locality with regards to site	Land Use
North	Agricultural land
South	Residential and agricultural
East	Agricultural land/proposed new depot
West	Agricultural land

7.2 Site Reconnaissance and Housekeeping Observations

The site walkover was carried out in order to locate any visible contamination or contamination sources within the footprint of the site. The general site conditions are indicative of good housekeeping, however staining was evident in the vicinity of the railway gantry (refer to Appendix A for photographs of the site conditions). During the site walkover, visual inspection and PID readings were recorded at numerous locations as illustrated in Figure 7-1.

FIGURE 7-1: SITE LAYOUT MAP



LEGEND

- Site Water Supply
- Monitoring Boreholes
- Soil Auger
- Surface Water Samples
- Storm Water Canal

Rivers and Streams

- Non-Perennial
- Perennial

Road Network

- National Route
- Main Road
- Secondary Road
- Street

Infrastructure

Tarlton Site



Data Sources:
Go le Earth™ mapping service: 2014
Imagery Date: 14-07-2013

0 25 50 100 Meters
SCALE: 1:3 300

FIGURE NO.:	MAP NUMBER: 13-308-24
DATUM: WGS84	DATE: 20 FEBRUARY 2014
PROJECTION: GEOGRAPHIC	

7.3 Hydrocensus

A hydrocensus was conducted from as part of the investigation. The boreholes visited were based on a 1km buffer around the site. During the visit, details including water use type, volumes, water levels and co-ordinates were obtained. The results of the hydrocensus are listed in Table 7-2. The positions of the hydrocensus boreholes on site are indicated on Figure 7-2.

The boreholes are mostly used for domestic purposes as well as other purposes including poultry farming. The water levels within the boreholes ranged between 40 and 100 metres below ground level. The site is located within an agricultural area of Tarlton with large amounts of groundwater abstraction for irrigation purposes.

Table 7-2 Hydrocensus Boreholes

Name	Hydrocensus well ID	Coordinates (WGS 84, Geographic)		Depth	Water level (mbgl)	Pump type	Abstraction	Use
		S	E					
Ethana Boerdery	EB BH1	26.07450	27.64462	88	70	Submersible	40000L/day	Drinking, irrigation
	EB BH2	26.06993	27.63779	96	80	Submersible	Unused winter, summer 40000L/day	Irrigation only
PW (BH)	PW (BH)	26.08131	27.64214	150	100	Submersible	Unknown	Drinking, Transnet
Residence	RP 160	26.06975	27.63856	120	84	Submersible	20000L/week, 10000L/month pumped to dam	Irrigation, domestic
Linber Kennels	LK	26.07433	27.63160	100	Unknown	Submersible	3000L/day	Domestic, dogs & cats
Fernanades Farms	FF BH1	26.08520	27.64588	120	63	Submersible	75% of max yield daily	Domestic, irrigation
	FF BH2	26.08481	27.64690	130	64	Submersible	75% of max yield daily	Domestic, irrigation
Newprop 202 cc	NP 202cc	26.07752	27.64826	80	40	Submersible	15000L per day	Domestic, drinking

FIGURE 7-2: TARLTON HYDROCENSUS BOREHOLES



7.4 Soil Vapour Survey

7.4.1 Soil Augering

As part of the soil survey, soil augering was conducted at various upgradient and downgradient areas surrounding the spill basin. The PID measurements consisted of soil vapour logs which were taken at 0.5 meter intervals. Screening intervals were recorded up to an ideal depth of 3 meters below ground level pending on geological conditions (refusal on solid bedrock or infrastructure). The soil characteristics obtained during augering have been compiled in Appendix B.

The soil was screened for volatile vapours at interval depths as specified in Table 7-3 below. The soil PID measurements were taken by means sampling the in-situ profile and placing the soil sample in a zip-locking bag which was sealed and left in the sun for a few minutes. The nozzle of the Mini Rae 3000 was inserted in the bag and readings were recorded. The localities of the auger hole positions are presented in Figure 7-1.

Table 7-3: Auger Hole Details

Auger Hole ID	Coordinates (WGS 84, Geographic)		Depth (mbgl)	Comments
	S	E		
AH1	-26.078127	27.640706	2.8	Located north of the gantry
AH2	-26.077279	27.639545	2.8	Located east of the site
AH3	-26.077608	27.639339	2.8	Located south of the site
AH4	-26.077164	27.638954	2.8	Located north of the site

(mbgl) meters below ground level

Four soil augering locations were identified during the site walkover. Soil samples were collected at interval depths during screening as specified in Table 7-4 below in order to obtain PID readings. Auger hole AH1 was located north of the gantry in close proximity to monitoring wells PS2 and PD2. Soil auger AH2 was located east of the spill basin, AH3 and AH4 were located south of the spill basin. All localities were augered up to maximum depth of 2.8m.

Table 7-4: PID Measurements (ppm) recorded during soil augering

Depth (m)	AH1	AH2	AH3	AH4
0.5m	180.5	3.4	5.3	31.8
1m	19.5	3.1	19.3	13.9
1.5m	0	-	12.3	10.7
2m	-	-	59.4	6.6
2.5m	-	-	338.7	7.8

* Exceeding 100ppm

Low PID screening levels were recorded for most of the auger holes, with readings ranging from 3.1ppm to 338.7ppm. No soil samples were collected from the auger holes due to low PID readings. According to the ROD (dated 31st August 2007), a hydrocarbon soil contamination assessment must be conducted on a bi-annual basis at designated points in close proximity to the monitoring wells. If no contamination is observed from the bi-annual assessment for two consecutive periods, then the frequency of the hydrocarbon soil contamination assessment may be reduced to one hydrocarbon soil contamination assessment per annum. The soil monitoring for this site has been scheduled for August 2014.

7.4.2 Shallow Soil Vapour Survey

A shallow soil vapour survey was conducted on the 10th February 2014. The soil vapour survey was conducted in a 1445m² area with 36 points located in a 5m interval grid next to the spill basin area as indicated in Figure 7-3. PID values ranged from 0.6ppm to 2.8ppm as tabulated in Table 7-5.

Table 7-5: Shallow Soil Vapour Survey Readings

ID	PID (ppm)	ID	PID (ppm)	ID	PID (ppm)	ID	PID (ppm)
SVS 1	2.2	SVS 10	1.4	SVS 19	1.5	SVS 29	2.2
SVS 2	2.6	SVS 11	1.1	SVS 20	1.6	SVS 30	1
SVS 3	1	SVS 12	0.8	SVS 21	1.5	SVS 31	1
SVS 4	1.1	SVS 13	1.4	SVS 23	1.1	SVS 32	1
SVS 5	1.1	SVS 14	1.2	SVS 24	1.1	SVS 33	1
SVS 6	1	SVS 15	1	SVS 25	1	SVS 34	0.7
SVS 7	2.3	SVS 16	2	SVS 26	2.8	SVS 35	0.6
SVS 8	2.2	SVS 17	2.2	SVS 27	2.4	SVS 36	0.6
SVS 9	2.4	SVS 18	2	SVS 28	2.5		

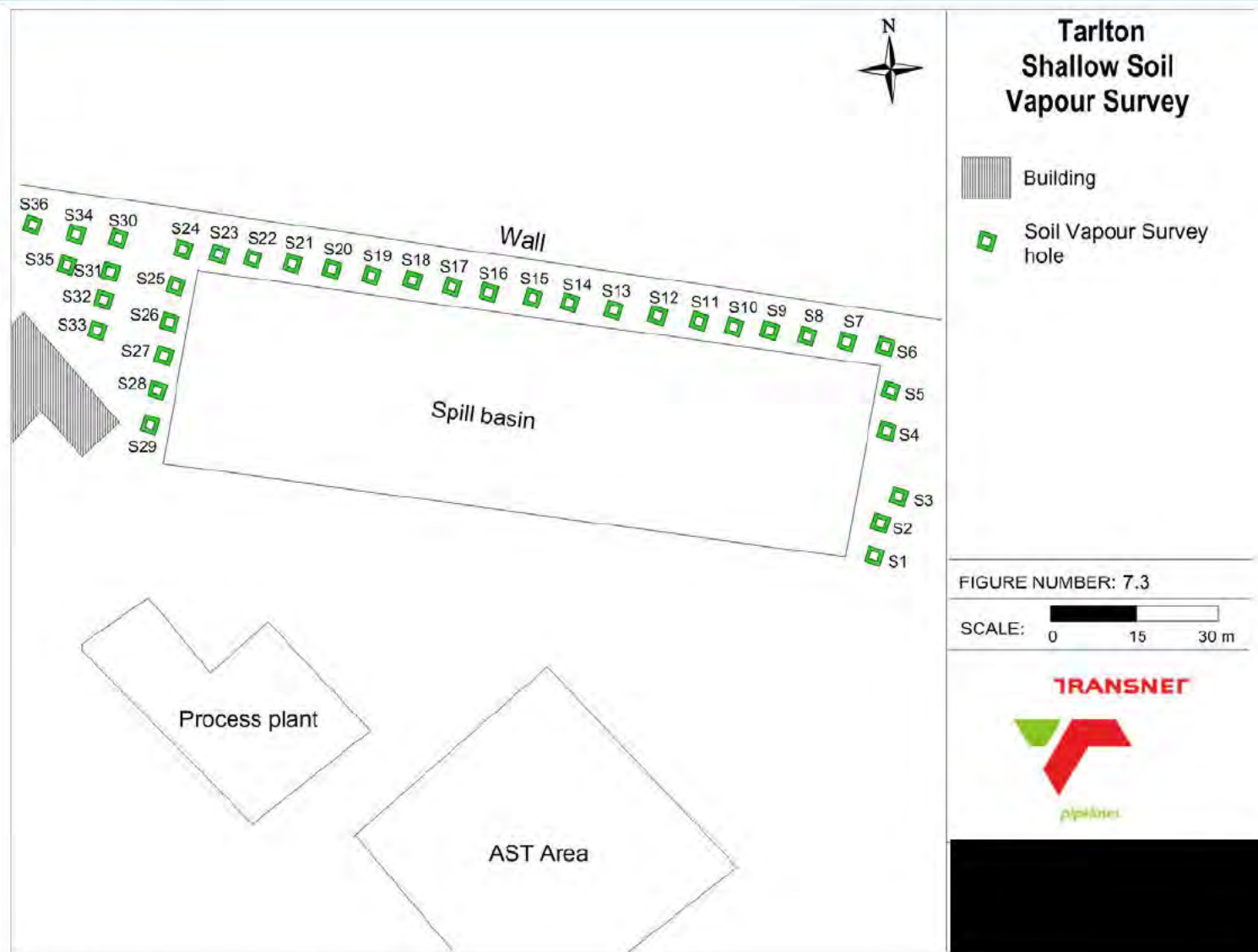


Figure 7-3 Shallow Soil Vapour Survey Map

7.5 Surface Water Investigation

The sampling of surface water is an additional constituent of the monitoring plan. Surface water was collected from the spill basin area (SB), Sewage Discharge Area (SDA) (bacteria only) and the Storm Water Canal (SWC) on site.

Table 7-6: Surface Water Details

Monitoring Well ID	Coordinates (WGS 84. Geographic)		Comments
	S	E	
SB-1	-26.077459°	27.639373°	Sampled
SDA	-26.077394°	27.640192°	Only Whirl-Pak sample taken
SWC-1	-26.077545°	27.640372°	Water and Whirl-Pak sample taken
SWC-2	-26.079667°	27.643790°	Sampled

The sampling and analysis of basic field parameters of surface water were conducted on the 11th of February 2014. All samples were labelled and kept cool prior to analysis for Benzene, Toluene, Ethylbenzene, Xylene and Naphthalene (BTEXN), TAME, MTBE, selected anions, cations and metals. Samples SDA and SWC-1 were analysed for bacteriological compounds and chemical parameters.

The field parameters for the surface water was measured on site are presented in Table 7-7. This includes pH, EC (Electrical Conductivity), temperature, PID measurements, Oxidation Reduction Potential (ORP).

Table 7-7: Surface Water Field Parameters

Name	pH	PID (ppm)	EC (mS/m)	TDS (mg/l)	Temp (°C)	ORP (mV)
SB-1	8.79	2.6	25.8	177	28.4	148
SWC-1	8.63	9.2	20.4	248	29.3	63
SWD-2	8.23	1.7	63.9	434	32.6	160

The pH measurements were all close to neutral and ranged from 8.23 to 8.79. The EC values ranged from 20.4 to 63.9mS/m. Surface water temperature varied between 28.4°C and 32.6°C.

PID screening levels were all below 100ppm, with readings ranging between 1.7ppm and 9.2ppm.

7.6 Groundwater Investigation

In total, seven monitoring wells and one production borehole (BH1) were located on site during the site walkover. PS-1 and PS-2 are two shallow monitoring wells drilled up to a depth of 30m. Monitoring wells PD-1 to PD-5 are deeper boreholes drilled into the dolomite on site with the depths ranging from 98m to 101m. The production borehole is located at PW (BH) and the sample was collected from the tap at the location labelled BH1 on Figure 7-1.

Prior to purging, all monitoring wells were dipped using an interface meter to determine if free phase product was present. The static water level, depth and free phase were measured for each well. All the deep monitoring wells are drilled up to a depth of roughly 100m and intersect the major dolomite aquifer system, while the PS monitoring wells were only drilled up to a depth of 30m. Static groundwater levels ranged between 28.85 and 83 meters below ground level (mbgl) as detailed in Table 7-8 below.

No free phase or hydrocarbon odours were observed in any of the monitoring wells. PID screening levels were low and considered negligible, with readings ranging between 1.7ppm and 19ppm. Monitoring well PD3 was covered beneath brick paving approximately eight months ago, therefore rendering it inaccessible. Each well was visually inspected for integrity and general housekeeping.

Table 7-8: Monitoring Well Details

Monitoring Well ID	Coordinates (WGS 84. Geographic)		Depth (mbgl)	Collar height (m)	SWL (mbgl)	Reading (ppm)
	S	E				
PS1	-26.077575	27.639503	30	0.58	28.85	12.2
PS2	-26.078092	27.640722	30	0.6	Dry	-
PD1	-26.077028	27.638099	100	0.6	81.5	1.7
PD2	-26.078125	27.640760	101	0.53	82	2.3
PS3	-26.079656	27.642789	Inaccessible			
PD4	-26.079215	27.639535	98	0.3	82.7	12.5
PD5	-26.077542	27.637611	100	0.3	83	19
PD6	-26.077231	27.639545	100	0.3	81	5.1
BH1	-26.079017°	27.640886°	-	-	-	-
PW (BH)	-26.081386°	27.642087°	-	-	-	-

*Water sample collected
(mbgl) meters below ground level

The sampling of monitoring wells and the pH, EC, and temperature measurements were conducted on the 11th of February 2014. All samples were labelled and kept cool prior to

analysis for Benzene, Toluene, Ethylbenzene, Xylene and Naphthalene (BTEXN), TAME, MTBE, selected anions, cations and metals.

The field parameters for the monitoring wells as measured on site are shown in Table 7-9. This includes pH, EC (Electrical Conductivity), TDS (Total Dissolved Solids), temperature, and ORP (Oxidation Reduction Potential).

Table 7-9: Groundwater Field Parameters

Name	pH	EC (mS/m)	TDS (mg/l)	Temp (°C)	ORP (mV)
PD1	7.42	49.1	316	24.2	189
PS1	6.47	18.71	140	26.6	164
PD2	7.18	65.7	454	24.8	114
PD4	7.18	91.3	631	29.6	71
PD5	7.18	49.8	347	27.1	132
PD6	7.41	51.7	357	25.6	165
PW(BH)	7.65	60.4	291	23.8	-

The pH measurements were all close to neutral and ranged from 6.47 to 7.65. The EC values ranged from 18.71 to 91.3mS/m. Groundwater temperature varied between 23.8°C and 29.6°C.

8 CONFIRMATIVE SAMPLING AND ANALYSES

8.1 Surface Water Analysis

Surface water samples were collected from the Spill Basin (SB1), Storm Water Canal (SWC-1 and SWC-2) and the Sewage Discharge Area (SDA) (bacteria only) on site and were transported to UIS Analytical and UIS Organics laboratories located in Pretoria. The laboratory certificate of analyses is included in Appendix C. The results for the surface water results have been tabulated in Table 8-1.

Table 8-1: Surface Water Laboratory Results - Organics

Determinant (µg/l)	SB1	SWC1	SWC2
BTEXN			
Benzene	<1	<1	<1
Toluene	<10	<10	<10
Ethylbenzene	<2	<2	<2
m+p-Xylene	<2	<2	<2
o-Xylene	<2	<2	<2
1,3,5 Trimethyl benzene	<2	<2	<2
1,2,4 Trimethyl benzene	<2	<2	<2
Polycyclic Aromatic Hydrocarbons, PAH			
Naphthalene	<2	<2	<2
Volatile Organic Hydrocarbons, VOH			
MTBE	<5	<5	<5
TAME	30	28	14

8.1.1 BTEXN, MTBE & TAME

According to the results, BTEXN and MTBE were undetected in all surface water samples. TAME was detected in SB1, SWC-1 and SWC-2, however these concentrations are considered low. Previously, in February 2013, the TAME concentration in SB1 was 13µg/l which has increased to 30µg/l. No TAME standards are available for comparison.

Table 8-2 below, tabulates the laboratory results for the chemical parameters analysed for each surface water sample collected. According to the results, majority of the constituents indicated compliance with the drinking water standards. Manganese indicated concentrations which marginally exceeded the SANS drinking water standard for sample SWC1.

Significantly high concentrations of Heterotrophic plate count, Coliforms, Faecal Coliforms and Escherichia Coli were detected within the SDA and SWC-1. According to the Mills & Otten results of February 2013, elevated bacteria concentrations were also present within the sample. This should be continually monitored as it indicates the treatment facility is not functioning optimally.

Table 8-2: Surface Water Chemical Analysis

Parameter	DWA Drinking Water	SANS 241-1 (2011)	SB-1	SDA	SWC-1	SWC-2
pH at 25°C	6-9	5 - 9.7	8.56	-	8.08	8.82
pH Temperature (°C)	NS	NS	22.9	-	22.9	23
Total Conductivity (mS/m)	<70	170	13.8	-	13.6	11.7
Total Conductivity Temp (°C)	NS	NS	25	-	25	25
TDS by EC * 6.5 [mg/l]	NS	NS	89.7	-	88.4	76.1
TDS by EC * 7 [mg/l]	NS	NS	96.6	-	95.2	81.9
Suspended Solids [mg/l]	NS	NS	<20	<20	<20	<20
P Alkalinity. [mg/l CaCO ₃]	NS	NS	2.4	<0.6	<0.6	3.7
M Alkalinity. [mg/l CaCO ₃]	NS	NS	55	<3.5	52.3	47.1
Fluoride, F	1	1.5	0.163	<0.1	0.201	<0.1
Chloride, Cl	<100	<300	4.16	<0.25	5.2	2.9
Nitrite as NO ₂	NS	NS	<0.2	<0.2	<0.2	<0.2
Nitrite as NO ₃	NS	NS	<0.3	<0.3	<0.3	<0.3
Nitrate NO ₃ as N	<6	11	<0.3	<0.3	<0.3	<0.3
Phosphate, PO ₄	NS	NS	<0.8	<0.8	<0.8	<0.8
Sulfate, SO ₄	<200	500	14	<0.3	13.3	12.4
Aluminium, Al	NS	0.3	<0.05	<0.05	<0.05	<0.05
Calcium, Ca	<32	NS	2.19	<0.05	19.2	3.09
Iron, Fe	<0.1	0.3	<0.05	<0.05	0.08	<0.05
Potassium, K	<50	NS	1.96	<0.05	15.3	2.55
Magnesium, Mg	<30	NS	0.35	<0.05	4.62	0.49
Manganese, Mn	<0.05	0.5	<0.05	<0.05	0.06	<0.05
Sodium, Na	<100	200	1.98	<0.05	15.9	2.09
Lead, Pb	<0.01	0.001	<0.001	<0.05	0.001	0.001
Sum of Cations [me/l]	NS	NS	0.28	-	1.98	0.35
Sum of Anions [me/l]	NS	NS	1.33	-	1.31	1.13
Ion Balance [%]	NS	NS	-65.8	-	20.4	-52.4
Heterotrophic plate count [Colonies/1ml]	100	<1000	-	>3000	>3000	-
Coliforms [Colonies/100ml]	5	<10	-	>3000	4400	-

Faecal Coliforms [Colonies/100ml]	0	ND	-	>3000	400	-
Escherichia Coli [Colonies/100ml]	NS	ND	-	>3000	0	-
Values in red indicate concentration exceeding the more stringent standard						
Values in green indicate concentration exceeding the less stringent standard						

8.2 Groundwater Analysis

Groundwater samples were collected from monitoring wells PS1, PD1, PD2, PD4, PD5 and PD6 as well as the production borehole BH1 and were transported to UIS Analytical and UIS Organics laboratories located in Pretoria. The laboratory results are presented in Appendix C.

The results obtained from the laboratory were compared against the RBCA (Risk-Based Corrective Action) Tier 1 Exposure Scenario for each complete or potentially complete exposure pathway and compared to the appropriate representative contaminant concentrations.

The term Risk-Based Corrective Action (RBCA) refers to a consistent, methodical decision-making process used to assess actual or likely human and/or environmental risk of exposure to a chemical release and determine appropriate remedial actions in response to such releases. Petroleum releases vary considerably in their potential risk based on a number of variables, including, but not limited to, the type of petroleum product, amount of released product, duration of the release, extent of the release, site geology/hydrogeology, number and type of exposure pathways and location of human receptors relative to the source.

The laboratory results obtained for groundwater for BTEXN, MTBE and TAME are presented in Table 8-3 for the monitoring wells which were sampled.

These results were compared against the Aquatic Water Quality standard adapted from the Department of Environmental Affairs, May 2010 (Framework for the Management of Contaminated Land. Government Printer. Republic of South Africa). However, where published values were not available, values were obtained from United Kingdom Environmental Quality Standards for Salmonoid (2010); British Columbia Aquatic Guidelines (2006) and National Oceanic and Atmospheric Administration (2008).

Table 8-3: Groundwater Laboratory Results - Organics

Determinant (µg/l)	Aquatic Water Quality	BH1	PD1	PS1	PD2	PD4	PD5	PD6
BTEXN								
Benzene	30 ⁱⁱ	<1	<1	5	<1	<1	<1	<1
Toluene	50 ⁱⁱ	<10	<10	<10	<10	<10	<10	<10
Ethyl Benzene	200 ⁱ	<2	<10	<10	<10	<10	<10	<10
m,p-Xylene	-	<2	<2	<2	<2	<2	<2	<2
o - Xylene	-	<2	<2	<2	<2	<2	<2	<2
1,3,5 Trimethyl Benzene	-	<2	<2	<2	<2	<2	<2	<2
1,2,4 Trimethyl Benzene	-	<2	<2	<2	<2	<2	<2	<2
Polycyclic Aromatic Hydrocarbons, PAH								
Naphthalene	1.1 ⁱⁱⁱ	<2	<2	<2	<2	<2	<2	<2
Volatile Organic Hydrocarbons (VOC's)								
MTBE	3400 ⁱ	<5	<5	8	<5	<5	<5	<5
TAME	-	<5	<5	196	<5	17	24	<5

- Not Specified

ⁱ BC Aquatics, 2006

ⁱⁱ UK EQS Salmonid, Current

ⁱⁱⁱ NOAA, 2008

8.2.1 BTEXN, MTBE & TAME

Majority of the constituents were undetected in the monitoring wells sampled. A low MTBE concentration of 8µg/l was detected in the shallow borehole PS-1. This indicates similar results to the previous monitoring conducted in February 2013. TAME was also detected in PS-1 with a concentration of 196µg/l which is lower than the concentration detected in February 2013 of 257µg/l. The TAME concentration of 17µg/l in PD-4 indicated a slight decrease in concentrations compared to the 33µg/l detected in February 2013. Monitoring well PD-5 was previously recorded as dry during the February 2013 sampling event. Only TAME was recorded with a concentration of 24µg/l, which was undetected in the February 2012 sampling event.

8.2.2 Groundwater Ingestion - RBCA

According to the constituents analyzed for as tabulated in Table 8-3, benzene was non-compliant with the RBCA Tier 1 Risk Based Screening Level (RBSL) for groundwater ingestion for sample PS-1. The remainder of the compounds which were detected were compliant (refer to Appendix D).

8.2.3 Groundwater Volatilization to Air Inhalation

Benzene readily volatilises from surface soil given its high vapour pressure and high air-water partition coefficient. Vapour release and inhalation is thus the most important exposure pathway for benzene and benzene is listed as a Hazardous Air Pollutant.

All constituents analysed were compliant with the RBCA Tier 1 Risk Based Screening Level (RBSL) for the indoor and outdoor air inhalation exposure pathways.

8.2.4 Anions, Cations and Metal Results

Table 8-4 below, tabulates the results for the anions, cations and selected metals for each groundwater sample collected. The analysis was kept consistent according to the groundwater monitoring plans conducted by Mills & Otten. According to the results, calcium indicated concentrations which exceeded the DWA drinking water quality guideline for monitoring well PD-1. Monitoring wells PD-1, PS-1, PD-4 and PD-5 indicated manganese concentrations which were non-compliant with the DWA and SANS drinking water quality guidelines.

Table 8-4: Groundwater Chemical Analysis

Parameter	DWA Drinking Water	SANS 241-1 (2011)	BH1	PD-1	PS-1	PD-2	PD-4	PD-5	PD-6
pH at 25°C	6-9	5 - 9.7	8.01	7.57	6.44	7.47	7.45	7.56	7.6
pH Temperature (°C)	NS	NS	22.9	21.1	21.4	21.7	22	22.1	23
Total Conductivity (mS/m)	<70	170	40.6	33.3	11	46.5	51.8	63	59.9
Total Conductivity Temp (°C)	NS	NS	25	25	25	25	25	25	25
TDS by EC * 6.5 [mg/l]	NS	NS	264	216	71.5	302	337	<0	389
TDS by EC * 7 [mg/l]	NS	NS	284	233	77	326	363	<0	419
Suspended Solids [mg/l]	NS	NS	<20	26.5	<20	<20	55	3070	2840
P Alkalinity. [mg/l CaCO ₃]	NS	NS	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
M Alkalinity. [mg/l CaCO ₃]	NS	NS	132	195	60.8	250	270	444	363
Fluoride, F	1	1.5	<0.1	<0.1	<0.1	0.182	<0.1	<0.1	0.22
Chloride, Cl	<100	<300	36.4	1.29	0.7	12.3	16.3	37.6	13.5
Nitrite as NO ₂	NS	NS	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrite as NO ₃	NS	NS	16.1	3.51	<0.3	<0.3	<0.3	60.7	52.6
Nitrate NO ₃ as N	<6	11	3.64	0.79	<0.3	<0.3	<0.3	<0.3	5.1
Phosphate, PO ₄	NS	NS	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Sulfate, SO ₄	<200	500	35.9	4.59	4.3	15.7	22.1	26.8	83.8
Aluminium, Al	NS	0.3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Calcium, Ca	<32	NS	17.1	43.3	7.18	13.3	15.7	29.7	26.9
Iron, Fe	<0.1	0.3	<0.05	<0.05	0.67	<0.05	<0.05	<0.05	<0.05
Potassium, K	<50	NS	1.33	1.45	2.86	0.88	1.18	3.69	1.77
Magnesium, Mg	<30	NS	11.1	26.5	7.04	9	13.7	23.4	11.9
Manganese, Mn	<0.05	0.5	<0.05	<0.05	2.37	<0.05	0.21	0.21	<0.05

Sodium, Na	<100	200	15.5	3.89	6.13	2.93	5.33	21.4	6.51
Lead, Pb	<0.01	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Sum of Cations [me/l]	NS	NS	2.48	4.05	1.39	3.7	4.52	<0	5.53
Sum of Anions [me/l]	NS	NS	4.24	3.44	1.13	4.85	5.21	<0	8.13
Ion Balance [%]	NS	NS	-26.3	8.21	10.4	-13.5	-7.08	<-100	-19.1
Values in red indicate concentration exceeding the more stringent standard									
Values in green indicate concentration exceeding the less stringent standard									

9 AQUIFER VULNERABILITY AND RISKS TO GROUNDWATER

Aquifer vulnerability is the likelihood of an aquifer being negatively affected contamination as a result of human activities at the ground surface. The aquifer vulnerability is based on the estimated travel time for water to move from the soil from surface to the water table. As the water moves through the soil, natural processes reduce the concentration of many contaminants.

The vulnerability depends on the type of aquifer and depth of water table. Vulnerability is high for fractured aquifers and other permeable environments such as sandy or gravel soils due to the high flow rates and less time and distances available for filtration, die-off and adsorption processes to occur. Proper management of groundwater and control of hazardous activities on vulnerable aquifers is essential for the protection and the sustainability of the groundwater resource. A proactive approach to protect the groundwater resources from pollution is encouraged, as it may be very difficult and costly to treat the groundwater once it has been contaminated, particularly in terms of inorganic contaminants. Five broad classes of aquifer vulnerability are defined as tabulated in Table 9-1 below.

Table 9-1: Vulnerability of Groundwater Aquifer due to Hydrogeological Conditions
Vulnerability Class

Vulnerability Class	Measurements	Definition
Extreme (usually highly fractured rock and/or high ground water table)	High risk and short distance (< 2m) to water table	Vulnerable to most pollutants with relatively rapid impact from most contamination disposed of at or close to the surface
High (usually gravely or fractured rock, and/or high water table)	High risk and medium distance (2-5m) to water table	Vulnerable to many pollutants except those highly absorbed, filtered and/or readily transformed
Medium (usually fine sand, deep loam soils with semi-solid rock and average water table (>10m))	Low risk and medium to long distances to water table	Vulnerable to inorganic pollutants but with negligible risk of organic or microbiological contaminants
Low (usually clay or loam soils with semi-solid rock and deep water table (>20m))	Minimal and low risk and long to very long distance to water table	Only vulnerable to the most persistent pollutants in the very long term
Negligible (usually dense clay and/or solid impervious rock with deep water table)	Minimal risk with confining layers	Confining beds present with no significant infiltration from surface areas above aquifer

Based on the data obtained from the JMA Groundwater Risk Assessment Report (2006), the site is underlain by the following:

- Light brown to red silty/clayey Sand: 0 m to 3 m
- Red sandy Clay: 4 m to 6 m
- Khaki to olive brown Clay: 7 m to 13 m
- Residual Karoo and Dolomite Debris: 4 m to 25 m
- Residual Dolomite solution Debris: 26 m to 50 m
- Fresh, fractured, Dolomite with solution cavities: 51 m to 100 m

Based on this data, the clay layer separating the dolomitic aquifer from the source on surface which minimises the risk as indicated in Table 9-1 and the vulnerability class is classified as negligible. The site and aquifer data was used in order to produce a conceptual model which is presented in Figure 9-1. The borehole logging data was obtained from the JMA Tarlton Depot Tier 1 Ground Water Risk Assessment.

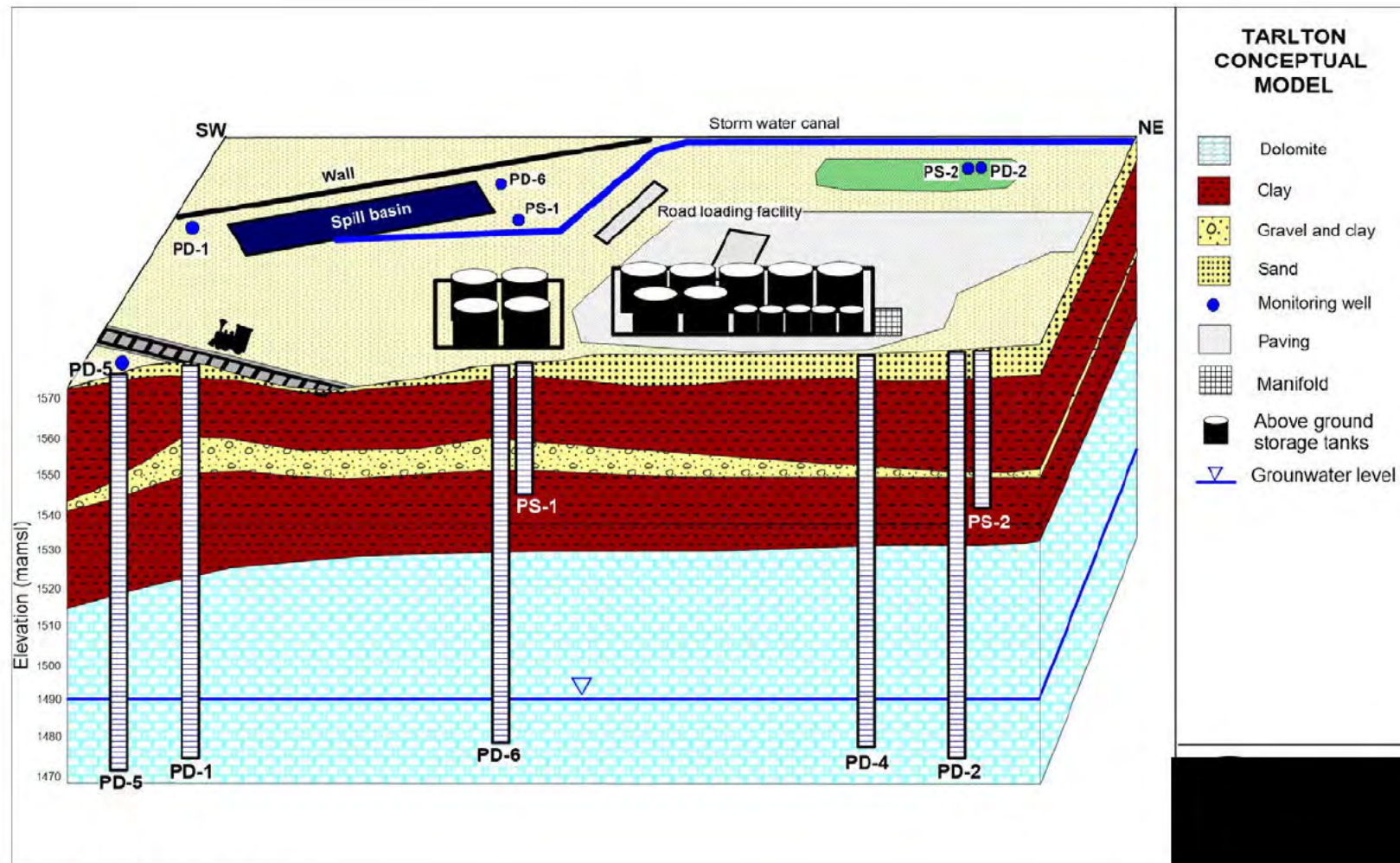


Figure 9-1: Conceptual Model

10 CONCLUSIONS

Following the site investigation conducted at the Transnet Tarlton delivery station, situated in the Gauteng Province, the following may be concluded:

- The general site conditions are indicative of good housekeeping, however staining was evident in the vicinity of the railway gantry;
- Low organic vapours were detected during the soil augering with readings ranging from 3.1ppm to 338.7ppm;
- Low organic vapours were detected in the shallow soil vapour survey with readings ranging from 0.6ppm to 2.8ppm;
- Surface water samples were collected from the spill basin, storm water channel, sewage discharge area;
- Seven monitoring wells and one production borehole was identified on site, although PS2 was dry;
- The laboratory analysis for surface water on site confirmed the presence of manganese, bacteria, coliforms, faecal coliforms and Escherichia Coli which were non-compliant with the standards;
- The laboratory analysis for groundwater on site confirmed the presence of benzene, TAME, calcium and manganese concentrations that were non-compliant with the standards;
- The water level as measured at 28mbgl in the shallow borehole;
- The main aquifer host rock zone is the fractured bedrock dolomite with solution cavities which are present from approximately 50m below surface and with a water level depth of approximately 83mbgl in the deeper boreholes.

Recommendations

It is recommended that groundwater and surface water monitoring is continued on a quarterly basis according to the ROD issued. Additionally, soil monitoring will be conducted on a bi-annual basis for the first year after which it will be reviewed and amended accordingly.

It is also recommended that the two additional boreholes are drilled to intersect the perched water level in order to determine whether contamination is present within the perched aquifer based on the TAME detected in the shallow borehole, PS1. These boreholes should be drilled to an approximate depth of 40 metres.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]

[REDACTED]

[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]

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APPENDIX A - PHOTOGRAPHIC RECORD

APPENDIX B - SOIL AUGER LOGS

SOIL LOG: AUGERING			
Auger Hole No:	AH1	Co-ordinates S	-26.078127
Client:	Transnet	Co-ordinates E	27.640706
Project:	Contaminated Land	Logged by (Name):	
Site name:	Tarlton	Date completed:	6/2/2014
Depth of soil sample:			
GEOLOGY: (lithology: colour; grain size, clay content, weathering)			
Depth:	Description	VOC depth (m)	VOC (ppm)
GL - 1.5	Red, medium-grained moist sandy soil	0.5	180.5
1.5	Red, medium-grained dry sandy soil	1	19.5
		1.5	0

SOIL LOG: AUGERING			
Auger Hole No:	AH2	Co-ordinates S	-26.077279
Client:	Transnet	Co-ordinates E	27.639545
Project:	Contaminated Land	Logged by (Name):	
Site name:	Tarlton	Date completed:	6/2/2014
Depth of soil sample:			
GEOLOGY: (lithology: colour; grain size, clay content, weathering)			
Depth:	Description	VOC depth (m)	VOC (ppm)
GL - 0.15	Light coloured, moist, non-cohesive, coarse-grained sandy soil	0.5	3.4
0.15 - 0.5	Red, non-cohesive, slightly moist, medium-grained sandy soil	1	3.1
0.5 - 2.5	Red, non-cohesive, dry, medium-grained sandy soil		

SOIL LOG: AUGERING			
Auger Hole No:	AH3	Co-ordinates S	-26.077608
Client:	Transnet	Co-ordinates E	27.639339
Project:	13-308	Logged by (Name):	
Site name:	Tarlton	Date completed:	6/2/2014
Depth of soil sample:			
GEOLOGY: (lithology: colour; grain size, clay content, weathering)			
Depth:	Description	VOC depth (m)	VOC (ppm)
GL - 0.2	Compacted red non-cohesive, slightly moist, medium grained sandy soil	0.5	5.3
0.2 - 2.5	Red non-cohesive slightly moist, medium-grained sandy soil	1	19.3
		1.5	12.3
		2	59.4
		2.5	338.7

SOIL LOG: AUGERING			
Auger Hole No:	AH4	Co-ordinates S	-26.077164
Client:	Transnet	Co-ordinates E	27.638954
Project:	13-308	Logged by (Name):	
Site name:	Tarlton	Date completed:	6/2/2014
Depth of soil sample:			
GEOLOGY: (lithology: colour; grain size, clay content, weathering)			
Depth:	Description	VOC depth (m)	VOC (ppm)
GL - 1.5	Red non-cohesive, slightly moist soil	0.5	31.8
1.5 - 2	Red sandy non-cohesive, dry soil	1	13.9
2 - 2.5	Red, medium-grained gravel (rounded)	1.5	10.7
		2	6.6
		2.5	7.8

APPENDIX C - LABORATORY CHEMISTRY

APPENDIX D - RBCA RISK BASED SCREENING LEVELS