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SCOPE OF WORK

ENQUIRY NO: CTT0000025238

DESCRIPTION: EMERGENCY PROVISION FOR ENGINEERING, PROCUREMENT AND CONSTRUCTION (EPC) FOR THE CONDENSATE EXPORT LINE REPAIRS

1. BACKGROUND

The Condensate export pipeline 99-EC-99001-404 nominal bore 200mm (8”) developed leaks, first on the aboveground section at the Condensate Receiving Unit (91km mark) and later leaked underground at the 85.676km mark measured from the FA Platform. Both leaks are downstream of the insulating joints. The overall length of the pipeline is 91km. The line serves as a conduit for condensate from the FA Platform to the GTL Refinery in Mossel Bay. There are no isolation valves between the damaged / leaking sections of the line from the FA Platform to the GTL Refinery.

The line’s integrity is assessed by “In-line pigging inspection” using an intelligent pig. RBI inspection frequency is scheduled for every 72 months. The last in-line inspection (ILI) was conducted in June 2020. Prior to the 2020, previous

inspection reports indicated little to no internal corrosion defects. However, the 2020 inspection report showed a significant increase in internal corrosion, with the worst effected corroded area of 47% wall loss.

In-line inspection of the pipeline is planned between April & June of 2023 to determine the extent of defects previously reported in the June 2020 pigging exercise. It is likely that the scope of repair (length of pipeline to be replaced) may grow from the planned pigging exercise. In line with the June 2020 inspection result, it is estimated that 24 meters (4 x 6m lengths) of 8" new pipe is required.

PetroSA is looking for a suitably qualified engineering company to safely isolate the leaks using a Stopple & Hot Tapping Technology to bypass and to repair the damaged sections of the 8" import condensate pipeline. For both the damaged sections, the insulation joints must be replaced. Tenders to include in their offer the procurement and installation of new insulation joints.

2. INTRODUCTION

The Engineering, Procurement and Construction (EPC) Supplier will bear the single point of responsibility to conduct engineering design, procurement of all equipment and materials, fabrication, and construction/installation in carrying out the repair on the 8" condensate export gas pipeline. All engineering work and procurement specifications shall be finalized in consultation with PetroSA.

3. SCOPE OF WORK DIVISION

The work scope for the overall project may be divided according to the listing below:

Table 1: Work Scope division

Defect location Work Scope	85.676km mark (Nautilus Estate – below ground)	91km mark (GTL-Refinery – above ground)
Work Scope 1 (Priority 1)	Hot Tap, line stops and bypass line installation.	
Work Scope 2 (Priority 2)	Replace defective piping spools and Replace Insulation Joint. Remove bypass line and line stops.	Hot Tap and line stops. Replace defective piping spools and Replace Insulation Joint. Remove line stops.

Refer to Attachment 1 & 2 for the respective locations of the defective areas on the pipeline.

Suppliers must tender for both work scope divisions and shall supply cost and schedule breakdown for each defect location and work scope division in order of priority as indicated on the table above.

NOTE: The Hot tap, stopple, and bypass line installation at the 85.676km mark (Nautilus Estate) is a priority to PetroSA relative to the leak at the GTL-Refinery.

4. DETAILED SCOPE OF WORK

The Supplier shall provide the following but not limited:

- 4.1. Develop scope of work for the execution of the project.
- 4.2. Develop procedures for executing the scope of work. To include engineering procedures, procurement procedures, safe making procedures, welding procedures, cutting procedures, isolation procedures, etc.
- 4.3. Develop method statements for the execution of the task.
- 4.4. Perform qualitative risk assessment with PetroSA Teams for identified procedures and method statements.
- 4.5. Present the execution strategy to PetroSA, including personnel independent of the Project as part of a peer review process.
- 4.6. Be part of stakeholder engagement and consultation where required.
- 4.7. Provide the following services:
 - a. Engineering Design
 - b. Prepare a detailed project execution plan (procurement, fabrication & Installation)
 - c. Supply the construction material
 - d. Expediting
 - e. Documentation & records.
 - f. Construction planning
 - g. Health, safety, and environmental management system
 - h. Project quality guidelines/quality assurance plan
- 4.8. Project Schedule and Cost
 - a. The Supplier shall prepare a cost & schedule for each work scope division as listed on Table 1.
 - b. Costing and scheduling shall be provided for all items to be procured and service contracts, i.e. for material, equipment, construction and installation of the works.
 - c. The Project cost & schedule will form the base for project monitoring and control during the implementation phase.
 - d. The Project cost & schedule shall be broken down as in Table 1 above.

- e. The project schedule shall be based on project kick-off meeting after purchase order award.

The Supplier shall undertake all necessary management, progress monitoring and reporting to ensure the successful delivery of the work.

- 4.9. Procure all the required material of construction and services required based on the engineering outcome.
- 4.10. The Supplier shall submit the technical documentation, including detailed procedures, calculations and drawings required for the work performance.
- 4.11. Ensure PetroSA numbers are placed onto documentation for ease of transfer into PetroSA SAP DMS.
- 4.12. Ensure that work performed at PetroSA's site are within the general safety management systems.
- 4.13. Provide the following prior the execution of the service:
 - a. A copy of Supplier's signed corporate safety policy.
 - b. Supplier's accident statistics for the last five (5) years, including those of Supplier's affiliates.
 - c. Description of any regular or special training programs implemented.
 - d. Outline of any initiatives taken or planned to promote health and safety.
 - e. Environmental Management Plan.
 - f. Project Risk Register.
 - g. Task Risk Assessment.

The above documentation are required prior execution of the scope of work from the successful tender.

- 4.14. Provide Personal Protective Equipment for all personnel entering high risk areas and construction sites which comprises safety overall (long sleeve), Safety Hat, Safety shoes, Safety glasses, etc., as per PetroSA safety procedures.
- 4.15. Preparation of job safety plan for site activities and ensuring execution as per safety plans.
- 4.16. Conduct regular safety meetings. Safety Mission Statement (MIS) shall be provided to PetroSA.

A qualified safety officer shall provide safety supervision during shop and field construction.
- 4.17. Prepare Quality Assurance Procedures/Quality Control Plan (QAP/QCP) and submit them to PetroSA for review and /or acceptance.
 - a. The QAP/QCP shall, at a minimum, describe all activities, their control points, and controlling documents or procedures, including the Supplier's quality activity and the required result. The format of the quality assurance plan shall be as per Supplier's standard form.

- b. It is the responsibility of the Supplier to manage and ensure that its Sub-Contractors meet the deliverable as per the QAP/QCP.

Table 2 below summarises the responsibility for the specification and procurement management of materials and services:

Item	Description	Responsibility
1	Piping components (piping, bends, flanges, tees, stud bolts, nuts and gaskets).	Supplier
2	2 x Insulation joints	Supplier
3	Equipment and personnel to perform hot tapping, excluding pigging services.	Supplier
4	Excavation & backfilling	Supplier
5	In-line inspection (pigging)	PetroSA
6	Sandblasting & painting services	PetroSA
7	Rigging Services	PetroSA
8	Inspection Services (AIA only)	PetroSA
9	Scaffolding Services	PetroSA
10	Safe Making for hot work & confined space entry	PetroSA
11	Disposal of contaminated soil and site rehabilitation	PetroSA

Supplier to state all other service requirements, utilities (nitrogen, etc.) and assumptions not indicated in the table above.

5. REFERENCE DOCUMENTS

The following standards and procedures will be the reference document used in the execution of the scope of work:

- 5.1 Design Code – ASME B31.8.
- 5.2 Piping Material Specification – API 5L X65 (line class 404).
- 5.3 South Africa Pressure Equipment Regulations (PER published Nov 2017).
- 5.4 South Africa National Standard (SANS) 347:2019 (Edition 3).
- 5.5 All designs to be approved by a Registered Design Engineer (Piping) in compliance to the Engineering Council of South Africa requirements and the applicable Mutual Exemptions Agreements (MEA) such as the Washington Accord and the Engineers Mobility Forum (EMF) initiatives and any other MEAs, such as those with UKs Institution of Civil Engineers (ICE) and the institute of Engineers Ireland.
- 5.6 API Hot Tapping Practices in the Petroleum and Petrochemical Industries: API Recommended practice 2201 Fifth edition. July 2003 – Reaffirmed, March 2020.
- 5.7 ISM/PR/MET/001: Hot tapping on equipment containing dangerous or flammable products (PetroSA procedure).

6. GENERAL PRINCIPLES

- 6.1 All work to be performed at PetroSA sites shall comply with the PetroSA's general safety management and the Health Safety Environment Philosophy.
- 6.2 Where applicable, Supplier to indicate which Scope of the Project will be subcontracted and provide name/s of the Sub-Contractors.
- 6.3 Where applicable, tenderers are expected to source suitable skills locally (South African context), and in Mossel Bay and surroundings.
- 6.4 Upon project completion, the Supplier shall rehabilitate the work areas, do housekeeping; and cause all Sub-Contractors to do the same.

7. CONDENSATE EXPORT LINE DESIGN AND OPERATING CONDITIONS

The design and operating conditions of the 8" condensate export line are indicated on the table below as per design code: **IP6/ANSI B31.8 & API-RP-14E**

	Pressure	Temperature
Design	128 barg	-29 °C to 93.3 °C
Operating	70.8 barg	20°C / 24°C

8. PROJECT STAFFING







Supplier shall provide details of the structure of its Project team indicating discipline leads and their experience for design, engineering, management, planning, site supervision, etc. The structure shall include personnel names, showing their roles in the project and reporting positions. The details should be of the team proposed for this Project.

Detailed curriculum vitae (CV) shall be provided for the Project Manager; Engineering Team and for all Principal / Lead Engineers or Supervisors for respective disciplines (piping, civil, etc.). Relevant information to the project scope requirements must be displayed on each personnel CV. For each personnel CV submitted, the following must be stated:

- a. Personnel Profile
- b. Employment History
- c. Roles
- d. Experience / Competency
- e. Qualifications.

9. ATTACHMENTS

Attachment number	Description	Attachment
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1	85.676km mark defect location (Nautilus estate)	 30420-04-PL-007.pdf
2	Recommended Repair for the 91km mark defect location (GTL-Refinery gas & condensate receiving units)	 99 EC 99001 EC RR.pdf
3	Monolithic Insulation joint data sheet (similar for both locations)	 Monolithic joint original data sheet.i
4	Seamless pipe 8" 9.52mm Carbon Steel API 5L (line class 404)	 Piping Material Master.pdf
5	Condensate export line: Onshore section	 30420-04-PL-001.pdf
6	Hot Tap Procedure (PetroSA procedure as reference)	 ISM-PR-MET-001-Hot Tapping.pdf

10. CHANGES TO THE SCOPE OF SERVICES

The scope of the Services shall be subject to changes by additions, deletions or revisions thereto by PetroSA. The Supplier shall be advised of any such changes by written notification from PetroSA describing the change. The Supplier shall promptly perform and strictly comply with each such change when so instructed by PetroSA. Any extra services resulting from such changes will be charged at the Supplier's normal or agreed rates.

11. ENQUIRIES

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