



GUJARAT ENERGY



GUJARAT ENERGY

TECHNICAL SCOPE OF WORK

THIRD PARTY INSPECTION AGENCY FOR QUALITY ASSURANCE OF SERVICES REQUIRED PE-PNG ACTIVITY AND STEEL PROJECT BELOW 5 KM

Document No: GEL/TS/PE-PNG/SERVICES/TPIA/SOW

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1. INTRODUCTION

Gujarat Energy Limited (Erstwhile Gujarat Gas Limited) is India's largest City Gas Distribution Company with its presence in the state of Gujarat, Rajasthan, Madhya Pradesh, Haryana, Punjab, Maharashtra and Union Territory of Dadra & Nagar Haveli. GEL is committed to develop eco-friendly infrastructure and transportation fuel for public service in its operating areas as awarded by PNGRB from time to time.

To ensure quality compliance during Steel pipeline laying, PE pipeline laying / Domestic – Commercial – Industrial connection installations and CNG Station development as per the tender document / PNGRB Guidelines, GEL intends to deploy reputed and experienced independent third-party inspection agency (TPIA) for quality assurance of all the activities carried out by the contractor under the supervision of GEL Representative/ Engineer In charge and Contractor bought out materials / items.

The agency shall directly work under the control of GEL– Engineer In charge and prepare necessary reports and provide inputs during execution of job at site and simultaneously shall generate and forward the information to GEL with action taken / to be taken report accordingly.

2. DEFINITIONS

Definitions of the terms used in. this bid document, {unless the context otherwise requires), shall have the same meaning as respectively assigned hereunder: -

- 2.1. **"Client"/ "Owner"** shall mean the mean GUJARAT ENERGY LTD / GEL, who has invited quote for the job to execute the project.
- 2.2. **"Bidder"** designates the individual or legal entity which has made a proposal, a tender or a bid with the aim of concluding a Contract with the Owner.
- 2.3. **"Contractor"** shall mean the person or persons, firm or company, who as a successful Bidder has agreed to carry out the job as mentioned herein to Owner and includes its legal representative(s), its successors(s) and assign(s).
- 2.4. **"Vendor"** shall mean the person(s), firm, company, organization from whom Client/ Contractor procures materials.
- 2.5. **"TPIA"** shall mean Third Party Inspection Agency
- 2.6. **"Contract"** shall mean the agreement and all other documents between the Owner and the Vendor for providing the services mentioned herein
- 2.7. **"Drawing"** shall mean and include Engineering drawings, sketches showing plans, sections and elevations in relation to the Contract together with modifications and/or revisions thereto.
- 2.8. **"Engineer-in-Charge"** (EIC) shall mean the person designated from time to time by Owner and shall include those who are expressly authorized by him to act for and on his behalf for operation of this contract.
- 2.9. **"GEL Project sites/Facility"** shall mean the projects construction sites of GEL for CNG/LNG or PNG projects including activities involved for office construction works.
- 2.10. **"PNGRB"** shall mean Petroleum and Natural Gas Regulatory Board



3. PE-PNG AND STEEL PIPELINE PROJECT SITE INSPECTION

A. STEEL PIPELINE CONSTRUCTION

Depending upon nature of the particular Service and requirements of Owner, Third Party Agency shall be required to perform the Services of inspection of steel pipeline construction activity at various locations and Site mention in clause no.3 , Project Area & Location

Third party agency shall deliver the inspection services for subject project. The scope broadly defines the quality control of site activities and certification of pipeline as per Tender specification and code requirements to fulfill the norms of Petroleum and Natural Gas Regulatory Board (PNGRB, India). The scope also covers the inspection, checking, certification and review of materials as per the standards in the tender and National / International standards. Scope also covers following:

- a. Review of contract / tender document
- b. Review of all construction procedure.
- c. 100% Review of NDT / Destructive test by qualified ISNT / ASNT Level – 2 Inspector.
- d. Review of C.P. Design & Installation. Qualified engineer is to review the design of C.P. System. (NACE Course shall be preferred with experience in CP for about 5 years)
- e. Review of all test certificates for material on site as per Tender specification OR approved QAP for other bought out materials and purchase specifications.
- f. 100% visual inspection of all packaged items including Metering Skids, Heating Skids, Fire suppression systems supplied by EPC Contractor/Vendor in mechanical category.
- g. Witnessing of all site activities (pipeline laying) including Electrical, CP, Civil work, Instrumentation, SCADA & Telecom, Civil work at CNG station.
- h. Certification of pipeline as per Tender specification & applicable codes (Procedure for certification to be given by TPI along with their offer.)
- i. Inspection at vendor shop if required by GEL may be considered.
- j. Review of all data sheet, drawing, and inspection report as build drawing to be carried out by TPI. (As build drawing should be certified after due verification of cross references at site.)
- k. Measurement verification of executed work.
- l. Approval of QAP / ITP for all site related activities
- m. Witnessing the pipeline gauging and Hydro test for 100 % length and review of caliper pigging report.
- n. Witnessing of pre-commissioning & commissioning of pipeline including checking adequacy of commissioning procedures & checklist and witnessing the pneumatic test and leak test at high pressure.
- o. Certification of pipeline with respect to quality specifications of Tender and National / International standards.
- p. Certification of operational acceptance tests performed by the EPC contractor



B. PE PIPELINE AND PNG CONNECTIONS

- TPI shall carry out inspection of PE laying activities as per below:
 - a. Excavation, PE Pipe laying and Backfilling.
 - b. Manual boring tools verification during execution as per approved specification of GEL.
 - c. Electrofusion Jointing.
 - d. Service Regulator Installation.
 - e. Valve Chamber Installation.
 - f. Testing of PE pipeline network.
 - g. Route marker Installation.
 - h. Commissioning of PE pipeline network.
 - i. Verification of As-built drawing.
 - j. Measurement verification of executed work.
 - k. Report preparation.

C. TPI shall carry out inspection of PNG installation activities as per below:

- a. Route Selection.
- b. G.I. Pipe cutting and threading.
- c. G.I. Pipe installations.
- d. Installation of 1" to 2" NB steel tubing in basement by welding method, testing and commissioning.
- e. Main Isolation Valve, Meter, Regulator and Appliance valve installations.
- f. Pneumatic testing of connection.
- g. Ground connection work.
- h. Burner conversion
- i. Certification of Customer Meter Job card.
- j. Measurement verification of executed work.
- k. Report preparation.
- l. In case of Island kitchen- Check installation of SS tube & fittings as per its installation scope
- m. Ensuring of all electrical equipment being used at sites are with provision of ELCB or RCCB and are properly insulated i.e. drilling machine, electrofusion machine
- n. TPI shall carry out inspection on PE-PNG O&M related activities as required by GA.
- o. TPIA scope includes all activities pertaining to PE-PNG Projects which includes Island kitchen, Welded riser, Welded Basement and any other inspection activities required by GEL EIC time to time.



E. DOCUMENTATION DELIVERABLES

The following documents are to be submitted to Owner (in hardcopy and softcopy):

- a. Pipeline Acceptance Certificate
- b. Summarize report on approval obtained against non-conformity/deviations if any.
- c. Summarize record of reviewed bought out items with details of supplier, invoice No., reference test certificate etc.
- d. Approval of all documents as stated above
- e. Quality report on every fortnight along with photographs & analysis
- f. Commissioning report of complete pipeline
- g. Close out report / Project Closure

4. MATERIAL INSPECTION OF CONTRACTOR PROCURED MATERIALS AT CONTRACTOR PREMISES:

A. Methodology for Inspection of Contractor scope materials:

The TPI shall follow the below mentioned methodology for carrying out Inspection of Contractor scope materials. Prevailing scope of contractor supplied materials is mentioned in this document however it may vary / revised time to time as per business requirements at different regions.

- a. Ensuring inspection of items supplied by PE / PNG contractors at their premises/stores is carried out, prior to installation at site.
- b. Arranging relevant "IS codes" and standards copy for their inspectors.
- c. TPIA has to provide the require measuring instruments to their surveyor. i.e., Vernier Caliper, Micrometer, Ring Gauge, Plug Gauge etc.
- d. Verifying whether the material is procured from GEL approved vendor.
- e. Ensuring that material is procured by contractors is in line with GEL approved guidelines /policy for Bought out items.
- f. Carrying out physical inspection of material and review test certificates provided by manufacturer for each item as per the approved QAP of relevant tender document. Record for the same to be maintained for each inspection as per the approved format of GEL.
- g. If the material does not comply with quality standards mentioned in GEL policy for bought-out items, same shall be rejected by the TPI and shall ensure that rejected materials are not used at any of site. Necessary records for such rejection shall be maintained and reported to Engineer In charge.
- h. Ensuring segregation of the inspected and non-inspected material at the contractor stores with necessary tagging.
- i. Scope of TPIA covers mobilization of TPI's at various locations of GEL as per site requirements for inspection of work as per the tender specifications and approved QAP of GEL
- j. GEL implements the Steel Construction, PE laying work and PNG installation work through qualified contractors, wherein the long lead materials are supplied by GEL as free issue materials,



while other materials are to be procured and installed by Contractors as per the technical specification and approved vendor list issued by the GEL.

B. Free issue materials and contractors procured materials.

This may change as per tender scope of work, however tentatively following materials may fall under the subject category. Material scope may change as per business requirement

a. Free Issue Materials – Steel Construction activities

- Steel pipes
- Valves (2" and above) and Insulating Joint

b. Contractor Scope Materials – Steel Construction activities

- Valves below 2"
- MS CS Fittings
- Hardware
- Casing Pipes

c. Free Issue Materials – PE laying activities

- PE pipes (32mm and above)
- PE Ball valves
- Service Regulators

d. Contractor Scope Materials – PE laying activities

- PE Electro fusion Fittings
- Warning Mats
- Route / Line markers
- Precast RCC Chamber for PE valve installation
- 20mm Dia. PE pipes
- PE – GI Transition fittings
- FRP cover for installation of PE ball valve

e. Free Issue Materials –PNG installation activities

- Domestic/Commercial/Industrial Meter
- Domestic/Commercial/Industrial Regulator
- Domestic/Commercial/Industrial Meter canopy
- Steel reinforced rubber hose
- IMS



f. Contractor Scope Materials –PNG installation activities

- PNG main isolation valves and Appliance valves.
- Anaconda (Flexible SS hose)
- Powder coated GI pipes
- Powder coated GI fittings
- Meter / Regulator adaptor
- Suraksha Hose clamps
- PTFE Tape
- Powder coated MS Pipe Clamp with Screw
- Nozzle for burner conversion
- Sleeve
- 20mm Dia. PE pipes
- PE – GI Transition fittings
- RCC Guard
- GI Nipple
- FRP sleeper
- Blind adapters
- Steel-GI Transition Fittings (Butt Welded)
- SS tube, fittings, consumables for Island Kitchen

5. GENERAL SCOPE OF WORK

- a. The agency shall submit details of its organization structure along with the un-priced bid. In case of award of an order, the bidder shall submit bio data of inspectors mentioning minimum eligibility and qualification criteria as per the tender document or specified by PNGRB authorized accreditation agency. The qualification criterion for inspectors if any released by PNGRB authorized accreditation agency overrules the GEL qualification criterion. These candidates will be deployed on site only after successful interview by Engineer – In charge. GEL reserves the right to reject any of the candidates even after interview/selection.
- b. TPIA should have proper authenticated email address and have an official mobile number for instant communication with GEL persons.
- c. All inspectors deployed at site shall have proper authenticated email address and have Smartphone with an official mobile number including adequate voice & data Pack for instant communication with GEL persons.
- d. The agency shall depute inspectors at site within 14 days of notification by Engineer In charge.



- e. If work is held up due to unavoidable circumstances then GEL shall inform the agency 14 days in advance for de-mobilizing the inspector from GEL sites.
- f. In case of Poor performance, unethical behavior, major/frequent non-compliances and any other similar reasons, GEL has right to remove any inspector. And replacement of the removed inspector shall be mobilized at site after successful interview by Engineer In charge within 14 days by the agency.
- g. The agency has to provide unique identity cards to all the inspectors at site and provide the duplicate copy to GEL for records. Before deputation at site, all the inspectors shall undergo site training for a week for getting conversant with execution procedures/format of site.
- h. The agency will provide required PPE's i.e. crash helmet in case of two-wheeler, safety helmet, safety shoes, reflective jacket and uniform to all the inspectors working at site.
- i. The agency needs to conduct safety training program for all the inspectors on quarterly basis and forward record to GEL on quarterly basis.
- j. CPAR shall be carried out as per GEL Procedure for contractor performance evaluation.
- k. Third party Inspection Agency has deputed one coordinator for each GA / GAs to co-ordinate with GEL Engineer In charge and all inspectors working under that GA or GAs for quality execution at site. Also, he is responsible for frequent training to TPI's for their competency enhancement and knowledge up gradation. Payment for Geographical area coordinator will be paid by GEL based on certification of attendance by the EIC concerned. No extra payments will be paid for Geographical area coordinator other than the man day charges.
- l. Agency to provide behavioral (interaction with customer/ authorities/ third parties etc.) & technical (specific to work) training to all deployed manpower periodically to ensure that respective manpower is technically competitive & well aware of tender specifications, SOR and PNGRB T4S.
- m. TPIA shall take full responsibility for work carried out with all safety standards at site. The agency's performance shall be measured with respect to safety followed at site.
- n. Payment Basis
 - ONE MANDAY = 8 WORKING HOURS (excluding lunch time)
 - The Man Day rate include expenses like conveyance, smart communication device (Mobile) with internet connection, PPEs, transportation (Bike/ Car) transmittals etc. as required for satisfactory execution of work and should also be inclusive of applicable taxes & duties
 - If the working duration is less than 8 hours in a day, payment shall be made on pro-rata for the actual number of hours logged.
 - Extra working beyond 8 working hours (excluding lunch hours) in a day shall be paid on pro- rata for the actual number of hours (To be converted in to man days) logged duly certified by GEL EIC.
 - The agency shall ensure sufficient deployment of requisite number of manpower services for 365 days a year including keeping provision for additional inspectors as a reliever. All inspectors shall be provided a day off on weekly basis and arrange reliever who in turn shall carry out the inspection for the day.
 - No payment shall be made for the hours spend in travelling for reaching at GEL site / GEL office / Attendance barcode locations in start of the day and after close of the business hours / close of the site.



- No payment of travelling expenses shall be paid for travelling to GEL office / location for training, meeting etc.
 - No. of Man-days as mentioned in Schedule of Rates are tentative and may vary depending upon the requirement. These SOR quantities shall be considered for evaluation of bids. However, the requirement may be on regular basis or as and when required or as directed by Engineer-in-charge/ designated personnel of GEL.
- o. For PE/PNG work, the Coordinator has to compile & submit following reports to Engineer In charge every month for each site they are working.
- Monthly report on execution.
 - Daily Witness Report.
 - PE Testing / Commissioning and PNG conversion records.
 - Non-conformities raised by each of the TPIs during the month along with status of NCs.
 - Compliance report.
 - Report of inspection on contractor bought out items
 - Any other quality report demanded by Engineer In charge.
 - Invoice with time sheets duly certified by Engineer In charge.
 - All inspectors deployed at site shall have their own conveyance (Minimum two-wheeler) for mobility between different sites allotted to them.
 - Weekly off for TPI's has to be on staggered basis instead of Sunday / Holidays as per the site requirement.
 - Coordinator has to ensure leave and working hours of individual as well as ensure the statutory compliance.
- p. All inspectors deployed at site shall have 3.0-meter measuring tape, GO / NOGO gauges for thread quality check by TPA for witnessing / inspection of site activity.
- q. All inspectors deployed at site shall take written approval of leave from Engineer In charge in advance except sick leave. However, agency shall empanel & employ additional inspectors for replacement in case of non-availability of inspectors, based on criticality of work, TPA shall deploy reliever if asked by GEL before granting such leaves.
- r. All TPIA shall be trained for the FIRST AID and the cost of the same is to be borne by the TPIA. Document provided by the training provider shall be submitted by the TPIA to GEL EIC. If GEL arranges external training for FIRST AID then training cost will be recovered from monthly invoice.
- s. All Inspectors shall identify Risks, Hazards and Near miss during inspection and report to GEL with necessary proofs.

6. IMPLEMENTATION OF DIGITIZATION INITIATIVES

- OWNER has implemented and will implement various initiatives towards automation and digitization of the activities and processes with an aim of having high efficiency work, to reduce manual efforts, to improve communication and collaboration. Accordingly, CONTRACTOR shall implement the same including but not limited to digital attendance reporting, online documentation and transaction



monitoring, online document review and approval, online data uploading and updating, online material management etc. with no additional cost to OWNER. Time to time, CONTRACTOR shall ensure the required resources like smart phones, computers, internet connectivity etc. to implement the app based/web-based process including training of the manpower for the same.

- OWNER has initiated QR code based online Pay-Attendance-Leave Management (PALM) System in order to capture attendance of man power hired by Contractors, where applicable. The online attendance data will be integrated with the pay and leave module to get manpower billing and pay-remuneration process done without any manual intervention. CONTRACTOR shall be responsible to ensure compliance to any such attendance, pay & leave system.
- OWNER has implemented Vendor Invoice Submission Application (VISA) for office automation, digitization and transparency in processing of vendor invoices. CONTRACTOR shall upload the invoices and other specified supporting documents on VISA before submitting physical set of Invoice & documents along with covering letter generated from application to respective GEL Offices. Additional reports/documents (not specified on VISA portal), may be directly submitted to concerned GEL- Contract Owner / EIC as per requirements. The onus of selecting relevant name of GEL Contract Owner & GEL GA/Office (where physical invoice is to be submitted by vendor) is on the CONTRACTOR for timely processing of invoices and for further certification / payment.
- The agency will provide required PPE's i.e. crash helmet in case of two-wheeler, safety helmet, safety shoes, reflective jacket and uniform to all the inspectors working at site.
- TPIA shall take full responsibility for work carried out with all safety standards at site. The agency's performance shall be measured with respect to safety followed at site

7. QUALIFICATION & EXPERIENCE OF THE PERSONNEL

Sr. No.	Services	Qualification	Experience
1	Steel Project work	Diploma / Degree in Engineering (Mechanical/ Civil / Production)	<ul style="list-style-type: none">• Minimum 5 years for Diploma Holders or 3 years for degree holders experience in hydrocarbon pipeline projects• ASNT Level – II in RT, UT, LPT& MPT.• Vendor inspection at shop/mill premises shall not be considered as a pipeline experience for site.
2	PE-PNG Work	Diploma / Degree in Engineering (Mechanical / Civil / Production)	<ul style="list-style-type: none">• Minimum 5 years for Diploma Holders or 2 years for degree holders. Experience in similar field mainly in pipelines and shall be conversant with latest codes, standards, specifications and procedures including safety norms.• Vendor inspection at shop/mill premises shall not be considered as a pipeline experience for site.



3	GA Coordinator	Diploma / Degree in Engineering (Mechanical / Civil / Production)	<ul style="list-style-type: none">• Minimum 5 years for Diploma Holders or 2 years for degree holders. Experience in similar field mainly in pipelines and shall be conversant with latest codes, standards, specifications and procedures including safety norms.• Vendor inspection at shop/mill premises shall not be considered as a pipeline experience for site.
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8. NUMBER OF PERSONNEL REQUIREMENT:

Steel, PE Pipelines and PNG connections are to be laid / installations are an ongoing activity and the quantum of work varies as per the project requirement. This may increase or decrease on regular basis or as and when required or as directed by Engineer In charge and may vary according to target of the company. Number of TPIA engineers to be mutually decided during Kick off meeting and can be changed as per clause of mobilization. However, tentative requirement is mentioned in SOR Document.

9. PENALTY MATRIX:

SN	Parameter	Service Level Agreement	Penalty
1	Initial Mobilization:	Penalty against delay in Mobilization of manpower: Due to delay in Mobilization of manpower/ Equipment/ Tools & tackles: Within 14 days from the date of award of Contract	0.5% of the basic contract value per week on prorated basis (when delay is less than week period, it shall be calculated per day basis), up to maximum of 2% of the basic contract value will be deducted from EMD/Bank Guarantee submitted by the BIDDER or from the RA bills submitted subsequent to start of the work or outstanding from payment within GEL.
2	Incident reported at GEL work site	LTI (Loss Time injury)	Rs. 20,000 per incident
3	Compliance to GEL HSE Requirement	<ul style="list-style-type: none">• Use of PPE (As applicable)• Availability of ID card (Within 15 days after Joining)• Availability of tools, tackles, equipment for inspection.• Availability of Vehicles with TPI• Non-compliance - Safety Training Card (STC) & First Aid Training• Non-compliance - Health Check-up of TPI Personnel	Actions to be initiated against observations of non-compliance at GEL site: <ul style="list-style-type: none">• For first instance, warning letter to be issued for non-compliance of each particular parameter mentioned in Service Level Agreement.• If no actions observed after issuing warning letter,



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			Rs. 1000 penalty for each instances to be imposed for that particular Service Level Agreement
4	Compliance to GEL Quality Requirements	<ul style="list-style-type: none">Non-compliance observed /identified after certification /Commissioning.Work allowed without Permit to work/ Work Authorization (Where PTW is applicable)Work allowed without intimation to GELNon - Availability on Site as per scope defined	Rs. 2000 per instances Repetitive instances (5 or more) of such quality non-compliance will be deemed to be non-fulfillment of contractual obligations, based on which, OWNER reserves the right to initiate appropriate actions such as, but not limited to, forfeiture of Bank Guarantee, termination of the contract etc.
5	Mobilisation of TPI as and when required by GA team	Within 14 days of notification by Engineer In charge	Rs. 1000 / Day delay Repetitive instances (5 or more) of non-mobilization of TPI Engineers will be deemed to be non-fulfillment of contractual obligations, based on which, OWNER reserves the right to initiate appropriate actions such as, but not limited to, forfeiture of Bank Guarantee, termination of the contract etc.
6	Un-planned/Un- authorised demobilisation	Demobilization of manpower without intimation & permission of EIC	Rs. 5000 per instance per TPI

Special Note:

- Penalty No 1 and 2: These penalties are applicable as mentioned in penalty matrix individually and capping is already provided for these penalties separately.
- Penalty No 3 onwards: Cumulative penalty from penalty no 3 onwards shall be limited to 25% of the monthly basic invoice amount.
- LTI (Loss time Injury)**

A disabling Occupational Injury which results from a work-related activity or from a single instantaneous exposure in the work environment and that results in a person being unfit for work beyond the day of the incident. Where the injured party returns to work on the following day but subsequently has to take time off as a result of the injury this shall count as a Lost Time Injury.

10. PROJECT MIS TIME SCHEDULE

Following tentative time schedule should be follow for site monitoring and reporting.



Sr. No.	Description	Monitoring Frequency	Reporting Frequency
1	Project Monitoring	Daily	Daily
2	Site Supervision (Fulltime)	Daily	Daily
3	Material inspection (On site)	On receipt at site	Monthly
4	MoM	On occurrence	Monthly/Quarterly
5	Project Inspection Report.	Daily	
6	Daily progress report	Daily	-
7	Weekly Progress reports	Weekly	-
8	Monthly Progress reports	Monthly	Monthly
9	Deviation Forms (If any)	On need basis	On need basis
10	Project review meeting	Weekly	Monthly
11	Project Milestone status	Fortnightly	Monthly
12	Material Stoke & consumption Report	Daily	Monthly
13	Certify measurement sheet and Invoices	Within 1 week	-
14	Final bill and project closeout	Within 2 weeks	-
15	Project closeout documentation	2 weeks after final handover	-

This is the tentative timeline of project activates supervision for project progress monitoring and to maintain quality of work. GEL reserves all rights to demand any report as per their need and site engineer / consultant is bound to furnish the same.

11. INTERPRETATION OF TENDER TERMS

In case of any inconsistency, ambiguity, or dispute concerning the interpretation or scope of the tender terms, the clarification or interpretation issued by the Client shall be deemed authoritative and shall be final and binding on all parties.