

**Invitation for Expression of Interest (EOI)**

**For**

**EOI FOR EMPANELMENT OF VENDOR FOR SUPPLY OF PE 100 PIPE  
ACROSS GGL**

**REF. NO. GGL/EOI/2024-25/006**

**EOI Published on 16<sup>th</sup> August, 2024**

**Response Submission by 10<sup>th</sup> September, 2024**

**Response to the EOI shall be submitted at the following address**

**Kind Attention: VP- Materials  
Gujarat Gas Limited  
Office No. 4 & 5, Gr. Floor,  
IT Tower-2, Infocity, Gandhinagar - 382009 Gujarat**

**EOI CONTENTS:**

- A. Invitation for Expression of Interest (EOI)**
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- C. Bidder Qualification Criteria (BQC) Provided as Annexure-A**
- D. Technical Specification- Provided as Annexure-B**

## **A. INVITATION FOR EXPRESSION OF INTEREST (EOI)**

Gujarat Gas Limited (GGL) intends to empanel interested & capable suppliers for ***“Supply of various sizes of PE 100 Pipes across GGL locations”***

Experienced and capable suppliers are requested to submit their Expression of Interest for empanelment with GGL for this requirement, within the stipulated timelines, in line with the requirements detailed in this document.

The Bidder Qualification Criteria (BQC) based upon which the bidders shall be evaluated are listed in Section C of this document. The Expression of Interest (EOI) should be accompanied by all the necessary documents as mentioned in Section C.

Contractors already qualified / working with GGL for subject category or any similar/ associated activities are **NOT AUTOMATICALLY QUALIFIED** for this EOI.

**All interested suppliers MUST respond to this EOI, after which the evaluation process will be followed in line with the criteria defined in this document.**

**Bidders qualified under this process will be empaneled for a period of 2 (Two) years from the date of empanelment for issuance of Tender/RFQ.**

GGL reserves the right not to issue the enquiry/tender subsequent to the EOI evaluation and/or modify the process without assigning any reason whatsoever.

This notice does not in any manner impose any legal obligations on GGL or confer any rights on any other party in respect of the contents herein. Any contractual obligations or rights shall always be subject to a final and binding written contract executed between GGL and the party claiming such contractual obligations or rights.

GGL has the sole discretion to accept or reject any of the submissions without assigning any reasons. Responses submitted through Agents / Intermediaries will not be considered.

## **B. INSTRUCTIONS TO BIDDERS**

1. The onus of providing all necessary company/ experience related information, in appropriate manner and medium, as prescribed in this document, and so as to demonstrate the competency of the Bidder and to allow proper evaluation, will rest entirely on the Bidder. The Bidder shall ensure submission of complete & comprehensive information/documentation in the ***first instance itself***. There is no obligation on part of GGL to seek any additional/missing details not submitted in the first instance.
2. If the Qualification documents are submitted in company's name, a '**Power of Attorney**', in favour of the person who is authorized to sign the qualification documents on behalf of the company, must accompany the qualification documents.
3. All information has to be typed or hand written legibly. All pages of the qualification documents have to be signed by the Bidder's authorized personnel (**as given in point 2 above**). All corrections, erasures or overwriting, therein, have to be signed by the Bidder's authorized personnel.
4. The description of scope of work mentioned in the title is indicative only and the detailed scope of work will be provided to the qualified bidders, if & when requirement arises.
5. The decision of GGL for selection or rejection of the bidders shall be final and binding to all without assigning any reason whatsoever.

6. Bidder is required to furnish the complete and correct information and/or documents required for evaluation, as specified in EOI. If the information and/or documents forming basis of evaluation is found to be false/forged/Fake/incorrect and /or concealment of facts to deceive selection process, the same shall be considered adequate ground for rejection and appropriate action will be taken as per the OWNER's prevailing ACTIONS TO BE TAKEN AGAINST VENDORS/ CONTRACTORS FOR DEFAULTS IN TENDER/CONTRACT TERMS, DISCHARGE OF CONTRACTUAL OBLIGATIONS, CORRUPT/FRAUDULENT / COLLUSIVE /COERCIVE PRACTICES.
7. Even though meeting the qualification criteria, any Bidder may be disqualified if the Bidder:
  - a) Has made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements; and/or
  - b) Has past record of poor performance at GGL/ other clients, such as abandoning the works, not properly completing the contract, statutory non-compliances, inordinate delays in completion, litigation history, or financial failures etc.; and/or
  - c) Has indulged in inducement of any GGL official and/or their consulting engineer and other advisors in any manner whatsoever
8. As part of the qualification process, GGL, at its sole discretion, may also visit Bidder's works/project sites and/or any Bidder's premises to assess level of Quality, Safety, and bidder's ability to plan, mobilize and deploy resources.
9. The Bidder is expected to examine carefully all instructions & formats in the documentation. Failure to comply with the documentation requirements of EOI document shall be at the Bidder's own risk and may result in disqualification of the Bidder.
10. The EOI documentation and all correspondence, incidental to and concerning the same, shall be in English language. For supporting documents and printed literature submitted in any other language, an equivalent English translation shall also be submitted. Responsibility for correctness in translation shall lie with the Bidder. In case of any conflict, for the purpose of interpretation of the bid, the English translation shall govern.
11. In case of any queries or details/clarity required, write to us on [Shalika.narayan@gujaratgas.com](mailto:Shalika.narayan@gujaratgas.com) (Phone: +91 79 26737536) and [Jignesh.Desai@@gujaratgas.com](mailto:Jignesh.Desai@@gujaratgas.com) (Phone: +91 79 26737545).

### **C. Bidder Qualification Criteria (BQC)- Annexure-A**

**Documents shall be submitted in line with BQC requirement only.**

The expression of interest along with all required supporting documents as listed above should be sent to below mentioned address captioned with EOI Reference no. within stipulated EOI submission date:

**VP- Materials  
Gujarat Gas Limited.  
Office No. 4 & 5, Gr. Floor,  
IT Tower-2, Infocity,  
Gandhinagar - 382009 Gujarat**

All supporting document as mentioned above shall be in English language only. In case of the certificates / documents are in a language other than English, translated documents of the same, duly attested by a third party agency.

### **D. Technical Specification- Attached Separately as Annexure-B**

**BIDDER INFORMATION FORM**

To  
GUJARAT GAS LIMITED,  
Office No. 4 & 5, Gr. Floor,  
IT Tower-2, Infocity,  
Gandhinagar - 382009 Gujarat

1. Name of Firm/Company (As per PAN) \_\_\_\_\_
  
2. Type of Firm/Company :  PROPRIETORSHIP FIRM     PARTNERSHIP FIRM  
(Tick One)                       INDIAN COMPANY                       FOREIGN COMPANY  
    PRIVATE LIMITED
  
3. PAN linked with **AADHAAR** (It is mandatory, in case registered firm is "**PROPRIETORSHIP FIRM**")  
   :  YES (Attach screen shot of Income Tax E-filing Portal)  
   :  NO
  
4. Mirco/Small/Medium Scale :  YES (Copy of relevant certificate to be attached)  
   :  NO
  
5. GST Registered Address \_\_\_\_\_  
(Intended Place of Supply of Material/Service to GGL)
  
6. GST Registration No. (GSTIN) : \_\_\_\_\_ - Corresponding to the Address mentioned in Sr.  
No. 3 above (Copy of GST Registration Certificate to be attached)
  
7. GST Registration Type : Registered / Registered-Composition  
**Note: GST Registration is mandatory for supplying any Material and/or Service to GGL.**
  
8. Address of Registered Office \_\_\_\_\_  
(As per Certificate of Incorporation, Partnership Deed etc.)
  
9. PAN No. \_\_\_\_\_ (**Copy of PAN Card to be attached**)
  
10. Name of Contact Person with designation \_\_\_\_\_
  
11. Telephone Number \_\_\_\_\_  
(Country Code)    (Area Code)    (Telephone Number)
  
12. Mobile Number \_\_\_\_\_
  
13. E-mail address \_\_\_\_\_
  
14. Website \_\_\_\_\_

Note: Electronic Fund Transfer Mandate Form should be submitted as per attached format along with original cancelled cheque.

\_\_\_\_\_  
(SEAL AND SIGNATURE OF BIDDER)

## DECLARATION OF OTHER CRITERIA

(on BIDDER Letter head)

To,  
GUJARAT GAS LIMITED,  
Office No. 4 & 5, Gr. Floor,  
IT Tower-2, Infocity,  
Gandhinagar - 382009 Gujarat

Dear Sir,

With reference to Gujarat Gas Limited EOI Ref. No. **GGL/EOI/2024-25/006** and as per the Bidder Qualification Criteria (BQC)/ Bidder Evaluation Criteria (BEC):

1. I/We understand that a Bidder who submits or participates in more than one bid, directly or indirectly, will result in disqualification of all the proposals, in which the Bidder has participated. Hence, I/We hereby undertake & declare that we have submitted single bid against the above referred e-Tender. Further, I/we declare that none of our proprietor /partner(s) is/are same proprietor/ common Partner(s) in/with any of the bidders participating in the tender.
2. I/We are NOT debarred or blacklisted or put on holiday by (a) Gujarat Gas Limited, or (b) any of the GSPC Group Companies, as on the bid submission date.
3. I/We hereby confirm that **(Bidder shall tick/select any one of the options below - as applicable)**

There is/are no on-going and/or Past Litigation(s)/Arbitration(s) process with, either (a) Gujarat Gas Limited, or, (b) any of the GSPC Group Companies.

There is/are on-going and/or Past Litigation/Arbitration process with, either (a) Gujarat Gas Limited, or, (b) any of the GSPC Group Companies, details of which are attached herein *(Bidder to attach/upload list of such Past as well as on-going Litigation/Arbitration Proceedings, which includes the case no., date & year of filing litigation, the litigating parties, the subject matter of litigation, order(s) passed in litigation, present status of litigation, and the value of claim, if any)*

GGL may evaluate the details of such litigation / arbitration proceedings and may at its sole discretions disqualify such bidder who is indulging in frivolous litigation/arbitration OR having history of initiating litigations/arbitrations, against GGL or GSPC Group Companies; and proceed with the bidding process. Further, the bidder shall provide any additional details/clarifications as may be require by GGL in this regard in time bound manner.

4. We will meet qualification criteria on its own. (e.g. qualification through Joint Venture/ Consortium/ MoU etc. are not allowed.)

*Note: With respect to point nos. 1, 2 and 3, if the aforementioned undertaking or any part thereof is found false/incorrect/inaccurate OR occurrence of any of the above-mentioned disqualifying events contemplated at point nos. 1, 2 and 3, during empanelment period/award period, shall make the concerned bidder liable for disqualification for tenders/contract award, at the sole discretion of GGL.*

For the purpose of this Declaration, Litigation/Arbitration' shall mean any suit, litigation, arbitration, judicial or quasi-judicial proceeding initiated by/against the Bidder involving GGL and/or any of the GSPC Group Companies before any Court/ Forum/ Tribunal/ Authority/ Regulator/ Arbitrator as on the date of submission of bid.

**RTGS / NEFT / IFT - Electronic Fund Transfer Mandate Form**  
(Mandate for receiving payments through RTGS / NEFT  
**From GUJARAT GAS LIMITED)**

|   |   |  |
|---|---|--|
| 1 | Vendor Name                                       |  |
| 2 | Vendor Code                                       |  |
| 3 | Permanent Account Number (PAN)                    |  |
| 4 | Particulars of Bank Account                       |  |
|   | A. Bank Name                                      |  |
|   | B. Branch   |  |
|   | C. Branch Code                                    |  |
|   | D. Address  |  |
|   | E. City Name                                      |  |
|   | F. Telephone No                                   |  |
|   | G. RTGS / NEFT IFSC Code                          |  |
|   | H. 9 digit MICR code appearing on the cheque book |  |
|   | I. Type of Account                                |  |
|   | J. Account No.                                    |  |
| 5 | Vendor's e-mail id                                |  |
| 6 | Reason for change in bank account                 |  |

(Mandatorily enclose physical cancelled cheque).

We hereby declare that if the transaction is delayed or done in other bank account because of incomplete or incorrect information, we would not hold the company responsible. We agree that the payment made by GGL in either the existing bank account or new bank account shall be deemed as effective and due discharge of its liabilities owed to us to the extent of the amount paid.

We further represent and confirm that the aforementioned bank change is neither inconsistent with nor contrary to nor in breach of any order/judgment/direction by any court/tribunal or any authority so appointed by the court/tribunal and any applicable law, rules and regulations . In case of any claim, action or proceedings that may be initiated against GGL on account of the aforementioned bank change, we undertake to indemnify and keep GGL harmless and indemnified against the said claims, action and proceedings for all the times and on full indemnity basis. .

In addition to the above, the undersigned represent and warrant that he/she is duly authorized by the aforementioned Company/Partnership Firm (as the case may be) to request GGL and get the bank account, as mapped in the system of GGL, changed to another bank account.

Date: \_\_\_\_\_

Place: **Sign and Seal by only authorized person as per banking records**

\_\_\_\_\_ **BANK Confirmation** \_\_\_\_\_

We confirm that M/s \_\_\_\_\_  
\_\_\_\_\_ is having above bank account with us and above request to GGL has been signed by authorized signatories, same are matching with our banking records.

Date: \_\_\_\_\_

Place: **Sign and Seal by banks**



## **DECLARATION OF RELATIONSHIP WITH GGL EMPLOYEES**

**(Will be sought online through eTendering Portal & in Hard Copy on Bidders' Letterhead against EOI)**

To,  
GUJARAT GAS LIMITED,  
Office No. 4 & 5, Gr. Floor,  
IT Tower-2, Infocity,  
Gandhinagar - 382009 Gujarat

Dear Sir,

With reference to Gujarat Gas Ltd. e-Tender ID/EOI/RFQ Reference No. **GGL/EOI/2024-25/006** , I/We hereby confirm that **(Bidder shall tick/select any one of the options below - as applicable)**

I/We (including all Partners/Directors/Proprietor) are NOT Relative(s) of or have any financial or business transactions with any Employee(s) of Gujarat Gas Limited. It is further declared that if in the future such a conflict of interest arises, we will immediately intimate the same to GGL.

I/We (any of Partner/Director/Proprietor) am/are Relative(s) of or have financial or business transactions with Employee(s) of Gujarat Gas Limited  
**(Bidder to attach/upload list of such relationship, if any)**

We hereby declare and confirm that the above information and particulars are true and correct.

We undertake that, at its sole discretion GGL shall take appropriate action(s) in case of any contravention of this declaration.

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**Name & Sign of the Authorised Representative**  
**Company Seal**

**Note:** To encourage voluntary disclosures, any conflict of interest declared above would not mean automatic disqualification of the bidder(s) making such declarations. The declared conflict of interest would be evaluated and mitigation steps, if possible, would be taken by GGL. In case such mitigation is not possible, GGL may at its sole discretion exercise the right of disqualification of bidder(s).

**POWER OF ATTORNEY**

**(To be stamped in accordance with Stamp Act)**

Know all men by these present, We.....(name of the firm and address of the registered office) do hereby irrevocably constitute, nominate, appoint and authorized Mr./ Ms (name)..... son/daughter/wife of ..... And presently residing at....., who is presently employed with us/the Lead Partner of our Consortium and holding the positing of..... ,as our true and lawful attorney ( hereinafter referred to as the “Attorney”) to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our application for submission of our bid for the .... Project proposed or being developed by the ..... ( the “ Authority”) including but not limited to signing and submission of all applications, bids and other documents, and writings, participate in Pre-Application and other conference and providing information/ responses to the Authority, representing us in all matters before the Authority, signing and execution of all contracts including the Concession Agreement and undertaking consequent to acceptance of our bid, and generally dealing with the Authority in all matters in connection with or relating to or arising out of our bid for the said Project and /or upon award thereof to us and or till the entering into of the Concession Agreement with the Authority.

AND we hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE,..... THE ABOVE NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS..... DAY OF.....2....

For

(Signature, name designation and address)

Witness:-

1.

(Notarized)

2.

Accepted

.....

(Signature)

(Name, Title and Address of the Attorney)

Notes:-

- i. The mode of execution of the power of Attorney should be in accordance with the procedure , if any, laid down by the applicable law and the charter documents of the executants) (s) and when it is so required , the same should be under common self affixed in accordance with the required procedure.
- ii. Wherever required, the Applicant should submit for verification the extract of the charter documents and documents such as a board of shareholder’s resolution /power of attorney in favor of the person executing this power of Attorney for the delegation of power hereunder on behalf of the Applicant.



## C. Annexure-A- BQC -Bidder Qualification criteria



### **BIDDER QUALIFICATION CRITERIA (BQC) FOR SUPPLY OF PE-100 PIPES AT VARIOUS GGL LOCATIONS**

**Document No.:** GGL/TS/PE-PNG/SUPPLY/ PE PIPES /BQC

|                |                   |                              |                      |
|----------------|-------------------|------------------------------|----------------------|
| 00             | -                 | Original Document            | 02.07.2024           |
| <b>Rev.No.</b> | <b>Clause No.</b> | <b>Description of change</b> | <b>Date of Issue</b> |



## BIDDER QUALIFICATION CRITERIA FOR SUPPLY OF PE-100 PIPES AT VARIOUS GGL LOCATIONS

**DOCUMENT NO:** GGL/TS/PE-PNG/SUPPLY/PEPIPE/BQC

|                      | Technical Criteria   | Compliance Required in Technical Evaluation   |                    |                    |                    |                     |         |         |        |                     |        |        |        |                     |        |        |        |                      |        |        |        |                      |         |         |         |  |
|----------------------|--|---|--------------------|--------------------|--------------------|---------------------|---------|---------|--------|---------------------|--------|--------|--------|---------------------|--------|--------|--------|----------------------|--------|--------|--------|----------------------|---------|---------|---------|--|
| 1                    | Bidder must have valid BIS license of IS-14885 (latest) at the time of bid submission for quoted SOR item of PE Pipes.   | <p>A. Bidder shall submit copy of valid BIS license of IS 14885(latest) in the name of the manufacturing facility of the bidder.</p> <p>B. In case of validity of BIS license is less than 1 month period from date of bid publishing, evidence of application to BIS for renewal request of license validity also to be submitted.</p> |                    |                    |                    |                     |         |         |        |                     |        |        |        |                     |        |        |        |                      |        |        |        |                      |         |         |         |  |
| 2                    | <p>Bidder shall have supplied minimum quantity as mentioned below of any of the tendered PE pipes (<b>bidders for PE pipe manufacturer shall have each segment experience &amp; shall submit PO accordingly</b>) to any City Gas Distribution Company as per specification mentioned in this tender document in last Seven years reckoned from tender publish month.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Single PO (each)</th> <th style="text-align: center;">2 Nos of PO (each)</th> <th style="text-align: center;">3 Nos of PO (each)</th> </tr> </thead> <tbody> <tr> <td>MDPE,PE100, 32mm OD</td> <td style="text-align: center;">165 Kms</td> <td style="text-align: center;">100 Kms</td> <td style="text-align: center;">80 Kms</td> </tr> <tr> <td>MDPE,PE100, 63mm OD</td> <td style="text-align: center;">75 Kms</td> <td style="text-align: center;">45 Kms</td> <td style="text-align: center;">35 Kms</td> </tr> <tr> <td>MDPE,PE100, 90mm OD</td> <td style="text-align: center;">50 Kms</td> <td style="text-align: center;">30 Kms</td> <td style="text-align: center;">25 Kms</td> </tr> <tr> <td>MDPE,PE100, 125mm OD</td> <td style="text-align: center;">56 Kms</td> <td style="text-align: center;">35 Kms</td> <td style="text-align: center;">28 Kms</td> </tr> <tr> <td>MDPE,PE100, 160mm OD</td> <td style="text-align: center;">0.6 Kms</td> <td style="text-align: center;">0.4 Kms</td> <td style="text-align: center;">0.3 Kms</td> </tr> </tbody> </table> |   | Single PO (each)   | 2 Nos of PO (each) | 3 Nos of PO (each) | MDPE,PE100, 32mm OD | 165 Kms | 100 Kms | 80 Kms | MDPE,PE100, 63mm OD | 75 Kms | 45 Kms | 35 Kms | MDPE,PE100, 90mm OD | 50 Kms | 30 Kms | 25 Kms | MDPE,PE100, 125mm OD | 56 Kms | 35 Kms | 28 Kms | MDPE,PE100, 160mm OD | 0.6 Kms | 0.4 Kms | 0.3 Kms | <p>A. <b>Bidders not associated with GGL</b> shall submit the Work order for fulfilment of the criteria specified herein and shall submit the corresponding satisfactory work completion certificate issued by Client or Inspection release note as documentary evidence towards adherence to the criteria specified herein.</p> <p>B. <b>Bidders associated with GGL</b> (existing and previously) shall submit the Work order for fulfilment of the criteria specified herein.</p> |
|                      | Single PO (each)   | 2 Nos of PO (each)  | 3 Nos of PO (each) |                    |                    |                     |         |         |        |                     |        |        |        |                     |        |        |        |                      |        |        |        |                      |         |         |         |  |
| MDPE,PE100, 32mm OD  | 165 Kms  | 100 Kms   | 80 Kms             |                    |                    |                     |         |         |        |                     |        |        |        |                     |        |        |        |                      |        |        |        |                      |         |         |         |  |
| MDPE,PE100, 63mm OD  | 75 Kms   | 45 Kms  | 35 Kms             |                    |                    |                     |         |         |        |                     |        |        |        |                     |        |        |        |                      |        |        |        |                      |         |         |         |  |
| MDPE,PE100, 90mm OD  | 50 Kms   | 30 Kms  | 25 Kms             |                    |                    |                     |         |         |        |                     |        |        |        |                     |        |        |        |                      |        |        |        |                      |         |         |         |  |
| MDPE,PE100, 125mm OD | 56 Kms   | 35 Kms  | 28 Kms             |                    |                    |                     |         |         |        |                     |        |        |        |                     |        |        |        |                      |        |        |        |                      |         |         |         |  |
| MDPE,PE100, 160mm OD | 0.6 Kms  | 0.4 Kms   | 0.3 Kms            |                    |                    |                     |         |         |        |                     |        |        |        |                     |        |        |        |                      |        |        |        |                      |         |         |         |  |

### **BQC Notes (Most Important):**

- Bidder to submit the supporting documents against technical criteria for successful execution of Supply of MDPE PE pipes under Single Contract / WO / PO for the supply of maximum / highest number of quantity in last 7 years to be reckoned from EOI/tender publishing month.
- In case where Bidder has submitted multiple contracts / WO / POs showing experience on cumulative bases against Single Contract/ Rate Contract / PO / WO then PO with maximum/highest supply of Commercial Regulator shall be considered for evaluation against technical qualification criteria.
- For Bidder associated with GGL, Documentary evidence for work completion (i.e. Inspection Release Note / Completion Certificate / Performance Certificate) against Gujarat Gas Limited Purchaser Order/ Work order/ contract is not require. However, the same will be verified by GGL internally and Technical evaluation will be carried out by GGL as per criteria considering submitted PO/work order/contract.
- Bidder is suggested to submit the documents which have been already verified by GGL/GGL appointed consultant in previous tenders, if any. In case of submission of documents which have been not verified by GGL/GGL appointed consultant in previous tender, Bidder is suggested to submit the document for which issuing authority is accessible and responsive.



## BIDDER QUALIFICATION CRITERIA FOR SUPPLY OF PE-100 PIPES AT VARIOUS GGL LOCATIONS

DOCUMENT NO: GGL/TS/PE-PNG/SUPPLY/PEPIPE/BQC

- Bidder shall submit contact details (other than GGL) of document issuing authority with minimum as Name & Designation, Office address, Email address and Contact Number
- Bidder shall submit all supporting documents in English language only. In case the certificates/ documents are in a language other than English, translated documents of the same, duly attested by a third-party agency, shall however be submitted along with the technical bid
- Documents shall be submitted in line with BQC requirement only.
- Only those documents which are sufficient for qualification shall be uploaded. Extra documents shall be avoided.

**Checklist for BQC (Only for bidders' reference, criteria and supporting document for evaluation shall be considered as per above table):**

| Sr. No                                | Supporting Documents to be submitted   | Submitted in Technical Bid (Yes/ No) |
|---------------------------------------|--|--------------------------------------|
| <b>Technical Criteria- Check list</b> |  |                                      |
| 1.1                                   | <b>All bidders</b> shall submit valid BIS (IS-14885:2001 or latest) licence at the time of bid submission for quoted SOR item of PE Pipes.   |                                      |
| 1.2                                   | <b>All bidders</b> - In case of validity of BIS license is less than 1 months from date of bid publishing, evidence of application to BIS for renewal request of license validity also to be submitted   |                                      |
| 2.1                                   | <b>GGL associated Bidder (Existing and Previously)</b> : Submit GGL issued PO/WO as per criteria   |                                      |
| 2.2                                   | <b>GGL non-associated Bidder:</b> Submit PO/WO issued by end client as per criteria  |                                      |
| 2.3                                   | <b>GGL non-associated Bidder:</b><br>Submit Work completion certificate/ Inspection release against submitted PO/WO as per criteria reflecting min. below details but not limited to-<br><br>Completion certificate/Inspection release note shall contain PO no./ Service order no./ contract no., date of completion, quantity, make etc. |                                      |

# D. Annexure-2-Technical Specifications



## **TECHNICAL SPECIFICATIONS FOR PE-100- PE PIPE**

**Document No:** GGL/TS/PE-PNG/SUPPLY/PE-100 PIPE/SPEC



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## 1 GENERAL

Gujarat Gas Ltd., is a Group Company of Gujarat State Petroleum Corporation Ltd., (State Government undertaking) is supplying natural gas to automobile, industrial, commercial and domestic consumers including CNG stations in various Geographical Areas as per authorisation from PNGRB.

The intent of this specification is to establish minimum requirements to manufacture and supply of PE pipes for supplying natural gas.

The scope will include manufacture, supply, inspection, testing, marking, packaging, handling and despatch of PE pipes of ratings and grades as per IS: 14885: 2022 with latest amendments.

## 2 REFERENCE CODES AND STANDARDS:

### 2.1 Governing Standards

PNGRB T4S: Technical Standards and Specifications including Safety Standards for City or Local Natural Gas Distribution Networks.

ISO 4437: Buried polyethylene (PE) pipes for the supply of gaseous fuels — Specifications

IS 14885: Polyethylene pipes for the supply of Gaseous Fuels -- Specifications

### 2.2 Reference Standards

IS 7328: High density polyethylene materials for moulding and extrusion — Specification

IS 2530: Method of test for polyethylene moulding materials & polyethylene compound

EN 12099: Plastic Piping Systems — Polyethylene piping materials and components — Determination of volatile content

ISO 18553: Method for the assessment of the degree of pigment or carbon black dispersion in polyolefin pipes, fittings and compounds

ISO 8085-3: Polyethylene fittings for use with polyethylene pipes for the supply of gaseous fuels — Specifications — Part 3: Electrofusion fittings

ISO 11413: Plastic pipes and fittings — Preparation of test piece assembly between a polyethylene (PE) pipe and an electro fusion fitting

ISO 1133: Plastics- Determination of melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics

ISO 1167-1: Thermoplastic pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 1: General method

ISO 1167-2: Thermoplastic pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 2: Preparation of pipe test pieces

ISO 1183: Plastics — Methods for determining the density of non cellular plastics



|              |   |
|--------------|---|
| ISO 2505:    | Thermoplastic pipes — Longitudinal reversion — Test method and parameters   |
| ISO 6259-1:  | Thermoplastic pipes — Determination of Tensile properties — Part-1: General test method   |
| ISO 6259-3:  | Thermoplastic pipes — Determination of Tensile properties — Part-1: Polyolefin pipes  |
| ISO 9080:    | Plastics piping and ducting systems - Determination of the long-term hydrostatic strength of thermoplastics materials in pipe form by extrapolation                       |
| ISO 11357-6: | Plastics — Differential scanning calorimetry (DSC) — Part 6: Determination of oxidation induction time (isothermal 01T) and oxidation induction temperature (dynamic 01T) |
| ISO 13477:   | Thermoplastic pipes for the conveyance of fluids — Determination of resistance to rapid crack propagation (RCP) — Small scale steady-state test (S4 test)                 |
| ISO 13478:   | Thermoplastic pipes for the conveyance of fluids — Determination of resistance to rapid crack propagation (RCP) — Full-scale test (FST)                                   |
| ISO 13479:   | Polyolefin pipes for the conveyance of fluids — Determination of resistance to crack propagation — Test method for slow crack growth on notched pipes (notch test)        |

In case of conflict between the requirements of this specification and the Reference Codes & Standards, the requirements of the specification, having stringent requirement, shall govern. Vendor shall obtain prior permission from GGL in such cases.

### 3 DEFINITIONS

For this specification the following definitions shall apply:

|                |   |
|----------------|---|
| OWNER/ CLIENT: | Gujarat Gas Limited (GGL)   |
| CONSULTANT :   | Consultant engaged by GGL for evaluation of vendor  |
| MANUFACTURER:  | Means the Manufacturer of PE pipes.   |
| VENDOR:        | The person(s), firm, company, organization from whom Client / Contractor procures materials             |
| TPIA:          | Third Party Inspection Agency to be appointed by Vendor/ Contractor for inspection of brought out items |
| EIC:           | Engineer – in – charge  |



#### 4 MATERIAL

The material grade of polyethylene PE Pipes shall be PE-100. Material shall conform to the requirement of Cl. No. 5 of IS 14885: 2022 with latest amendments. Raw material of PE pipe shall be virgin quality. Approved manufacturers for virgin raw material of PE -100 are as below:

| S. No. | Manufacturer         | Grade (PE-100)                 |
|--------|----------------------|--------------------------------|
| 1.     | Borealis             | Borsafe™ HE 3492-LS-H (orange) |
| 2.     | Borouge              | Borsafe™ HE 3492-LS-H (orange) |
| 3.     | LyondellBasell       | Hostalen CRP 100 orange        |
| 4.     | INEOS O&P            | ELTEX® TUB 125 N2025 (orange)  |
| 5.     | Total Petrochemicals | Total HDPE XSC 50 (Orange)     |

- For PE compounds, the long term hydrostatic strength – calculated and classified according to the standardised method (ISO 9080 and ISO 12162) for a temperature of 20 °C, a period of 50 years and a reliability of 97.5% - must be at least 10 MPa.
- PE Compound Characteristics are as per the following:

| Characteristics                        | Units               | Requirement  | Test Parameter           | Test Method                      |
|--|---------------------|--|--------------------------|----------------------------------|
| <b>Tested as PE Compound</b>           |                     |  |                          |                                  |
| Conventional Density (of base polymer) | kg / m <sup>3</sup> | ≥ 930<br>(Base Polymer )   | 23 °C                    | IS 7328                          |
| Melt Flow Rate                         | g / 10 min          | 0.20 ≤ MFR ≤ 1.40 The tested value of MFR shall be with in ± 20 percent of the nominated value declared by the compound manufacturer | 190 °C / 5 kg            | IS 2530                          |
| Volatile Content                       | mg / kg             | ≤ 350  | Number of test pieces- 1 | Annex C of IS 4984               |
| Water Content                          | mg / kg             | ≤ 300 (equivalent to <0.03 percent by mass)  | 105± 2°C                 | Annex D of IS 4984               |
| Thermal stability                      | min                 | ≥ 20   | 200 °C                   | Annex B of IS 4984               |
| Pigment Dispersion                     | Grade               | ≤ 3  |                          | ISO 18553/<br>IS 14885 (Annex A) |



| Tested in Pipe Form                                     |      |  |                  |  |
|---|------|--|------------------|--|
| Resistance to gas constituents                          | Hour | ≥20  | 80°C<br>2 MPa    | IS 4984 (Annex E) /<br>IS 14885 (Clause 5.5) |
| Resistance to rapid crack propagation (RCP)             | Bar  | $P_c \geq 1.5X$ MOP with<br>$P_c = 3.6 \times P_{cs} + 2.6$ (in bar) | 0 °C             | ISO 13477                                    |
| Resistance to slow crack growth                         | Hour | 165, 500   | 80°C; 9.2 bar    | ISO 13479, Annex J & E of IS<br>4984         |
| Resistance To Weathering (Exposure to sunlight)         |      |  |                  | IS 14885 (Annex B & Cl 5.6)                  |
| Hydrostatic Strength                                    | –    | ≥ 1000 h   | 80°C;<br>5.0 MPa | Annex E of IS 4984                           |
| Elongation at Break of pipe                             | –    | ≥ 350 %  | 23 °C            | ISO 6259-1 & 3 /<br>IS 14885 ( Cl 5.6)       |
| De-cohesion of an Electrofusion joint — brittle failure | –    | ≤33.3%   | 23 °C            | ISO 13954/ISO 11413/<br>ISO-8085-3           |

## 5 PRESSURE RATING

The pressure rating of pipe shall be PE-100 shall be as per Table -7 of Clause 8.1 & 9.1 of IS: 14885: 2022 with latest amendments.

## 6 NOMINAL DIAMETER (DN)

The nominal diameter of pipes covered in this standard is DN 20, DN 32, DN 63, DN 90, DN 125 and DN 160.

## 7 DIMENSION, WALL THICKNESS, LENGTH OF PIPES

7.1 The Dimension of PE-100 shall be as per Table -4 of Clause 6.1 & 8.2.2 of IS: 14885 : 2022 with latest amendments

7.2 The wall thickness of PE-100 shall be as per Table -6 of Clause 6.2.1 of IS: 14885: 2022 with latest amendments

| Nominal Diameter<br>DN | SDR/thickness   | Straight / Coil Length |
|------------------------|-----------------|------------------------|
| 20                     | 9 (3mm Minimum) | Coil – 200 mtr.        |
| 32                     | 11              | Coil – 200 mtr.        |
| 63                     | 11              | Coil – 100 mtr.        |
| 90                     | 17              | Coil – 100 mtr.        |
| 125                    | 17              | Coil – 50 mtr.         |
| 160                    | 17              | Straight – 12 mtr.     |
| 125                    | 11              | Coil – 50 mtr.         |

7.3 Minimum inner diameter of coil shall be as per table 17 Annexure D of IS: 14885:2022 with latest amendments.

## 8 TOLERANCE

- Tolerances for Length of Pipes
- Tolerances for each rolled pipes : - 0 / +0.5m
- Tolerances for Outside diameter shall be as per Table 4 of IS: 14885: 2022 with latest amendments.
- Ovality of Pipes shall be as per Table 5 of IS: 14885: 2022 with latest amendments.

## 9 COLOUR

Colour of PE – 100 pipes shall be orange as per Clause 4.4 of IS: 14885: 2022 with latest amendments

## 10 APPEARANCE/ FINISH

When viewed without magnification, the internal and external surfaces of the pipes should be smooth, clean and free from grooving, rings and poke marks and other surface defects which may affect the pipe performance. The ends shall be cut cleanly and square to the axis of the pipe and within the tolerance as per IS 14885.

## 11 SAMPLING, FREQUENCY OF TEST

- Type tests as defined in clause 9.1 and in Table 11 of IS 14885:2022 shall be done at least once in two years on each pressure rating for each grade/class of material. However, hydrostatic pressure resistance test at 80° C for 1000 h shall be done at least once in 4 years and at 20° C for 100 h once in two years in accordance with IS 14885.
- Three samples of the same pressure class and same size should be selected at random for each type test and shall be tested for compliance with the requirements as indicated against each tests mentioned in IS 14885 QAP.
- Scale of sampling for visual and dimensional requirements shall be in accordance with IS 14885.
- Scale of sampling for tests for hydraulic characteristics (including Notched pipes), Reversion test, Density, MFR, Thermal stability (OIT), Pigment dispersion and Tensile test shall be in accordance with IS 14885.
- These pipes shall be selected at random from the lot and in order to ensure the randomness of selection, a random number tables given in IS 4905 may be referred.

## 12 MARKING

12.1 Owner name shall be marked on each pipe.

- All pipes shall be permanently and legibly marked along their length with a legend by inkjet marking or by embossing which shall be impressed to a depth of not more than 0.2 mm.
- Marking details shall be formed in such a way that marking does not initiate cracks or other type of failure and in such a way that with normal storage weathering and processing and permissible method of installation use legibility shall be maintained for the pipe.

**12.2** Legends shall be repeated at intervals of 1 m and shall consist of following information:

- a) Owner Trade mark / Name or Brand (i.e. GUJARAT GAS)
- b) Material and designation (i.e. D-32, SDR-11, PE-100, wall thickness)
- c) Manufacturer's identity name or trade name
- d) Code & Standard (i.e. IS – 14885:2022)
- e) Batch no. or lot no
- f) Length of Coil at every meter.
- g) Manufacturing Date
- h) Service (i.e. GAS)

### **13 INSPECTION/DOCUMENTATION**

- Inspection shall be carried out as per Owner Technical Specification.
- Owner Representative shall carry out stage wise inspection during manufacturing / final inspection.
- Manufacture /Vendor shall furnish all the material test certificates, proof of approval / licence from specified authority as per specified standard, if relevant, internal test / inspection reports as per Owner Tech. Spec. & specified code for 100% material, at the time of final inspection of each supply lot of material. All the codes / documents shall be made available for reference of TPIA at the time of inspection.  
For any control, test or examination required under the supervision of TPIA/Owner/Owner's representative, latter shall be informed in writing one (1) week in advance by vendor about inspection date and place along with production schedule. GGL will hire TPIA for production witnessing and testing as per approved QAP.
- Even after third party inspection, Owner reserves the right to select a sample of pipes randomly from each manufacturing batch & have these independently tested. Should the results of these tests fall outside the limits specified in Owner technical specification, then Owner reserves the right to reject all production supplied from the batch.
- Pipe shall be free from any sign of localized swelling, no leakage or bursting during hydro testing as well as delivery at site.
- Pipe shall be free from scoring, cavities and other surface defects and pipe end shall be cut cleanly and square to the axis.
- Pipe end shall cleanly cut, square with the axis of pipe and protected against shocks and ingress of foreign bodies by appropriate end caps.
- Pipe end shall cleanly cut, square with the axis of pipe and protected against shocks and ingress of foreign bodies by appropriate end caps.
- Manufacture /Vendor to submit QAP along based on indicative QAP enclosed in the tender. However, the same QAP shall be submitted for approval to the Owner / Owner's representative before manufacturing. Manufacturing shall start only after approval of QAP.
- The successful Manufacture /Vendor shall submit following for approval of Owner/Owner's Representative after placement of order:
  - The quality assurance plan
  - Material test report as per clause 5 of IS: 4984: 1995 with latest amendments.
  - Performance requirements as per clause 5, 8, & 9 of IS: 14885: 2022 with latest amendments.
  - Type test as per clause no. 9.1 of IS: 14885: 2022 with latest amendments.

- As per the requirement of Owner for meeting amendments if any, in IS 14885, QAP may be modified without any additional cost implication.

#### **14 PACKAGING**

- Packing shall be done for Pipe end cleanly cut, square with the axis of pipe and protected against shocks and ingress of foreign bodies by appropriate end caps.
- Both PE Films & hessian cloth packing to be done only for coils and only hessian cloth packing shall be sufficient for Straight length PE pipes, to avoid direct sunlight and facilitate out door storage and the ends shall be protected by proper end caps to prevent from shocks and ingress of the foreign body.
- Packing size to be mentioned to ensure uniformity in delivery conditions of the pipe being procured. Manufacturer shall submit the packaging details and also complied with at the time of delivery.
- Contractor or Manufacturer shall make an arrangement for unloading of pipes at Owner's premises.

#### **15 ENCLOSURE:**

- **ANNEXURE-1: QAP of PE 100 – Orange, Raw Material as per IS – 14885-2022**

**ANNEXURE-1**
**Raw Material (As per IS 14885:2022) Properties:**

| Sr. No. | Test Parameter                      | Specification / Tolerance  | Unit              | Instrument                  | Test Method  | Sample size / Frequency for TPIA                    | Inspection by |      | Remarks   |
|---------|-------------------------------------|--|-------------------|-----------------------------|--|---|---------------|------|---|
|         |                                     |  |                   |                             |  |   | Manufacturer  | TPIA |   |
| 1       | Conventional Density (Base Polymer) | ≥ 930 at 23°C  | Kg/m <sup>3</sup> | Electronic Weighing Balance | IS 7328:2020                                       | One sample for each lot/ batch of raw material used | P             | W    |   |
| 2       | Melt Flow Rate (MFR)                | ±20% of values nominated by compound producer at 190 °C & 5 kg load  | gm/10 min.        | Melt flow tester            | IS 2530:1963                                       |   | P             | W    |   |
| 3       | Thermal Stability (OIT)             | ≥ 20 minutes @ 200°C   | Minutes           | OIT Tester                  | Annex B of IS 4984:2016                            |   | P             | W    |   |
| 4       | Volatile Matter Content             | ≤ 350  | mg/kg             | Electronic balance, Oven    | Annex C of IS 4984:2016                            |   | P             | W    |   |
| 5       | Water Content                       | ≤ 300  | mg/kg             | Electronic balance, Oven    | Annex D of IS 4984:2016 & Table 2 of IS 14885:2022 |   | P             | W    | Applicable if volatile content is not in conformity |
| 6       | Pigment Dispersion                  | ≤ 3 grade  | -                 | Hot Plate, Microscope       | Annex A of IS 14885:2022                           |   | P             | W    |   |
| 7       | Resistance to gas constituents      | > 20 hours at 80 °C at an induced stress 2 Mpa   | -                 | -                           | Cl 5.5 & Table 3 of IS 14885:2022                  |   | R             | R    |   |
| 8       | Colour                              | Orange   | -                 | --                          | Cl 4.4 of IS 14885:2022                            |   | R             | R    |   |
| 9       | Anti-Oxidant UV Stabilizer          | The percentage of Antioxidant used shall not be more than 0.3 % by mass & the percentage of UV Stabilizer used shall not be more than 0.5% by mass of finished resin | %                 | --                          | Cl 5.3 & 5.4 of IS 14885:2022                      | --  | R             | R    |   |





|    |   |   |   |    |  |                                    |   |   |                                 |
|----|---|---|---|----|--|------------------------------------|---|---|---------------------------------|
| 10 | Material (PE Compound Quality Evaluation)       | Minimum required strength of material shall be 10 Mpa at 20 °C and material designation PE 100, For 10000 hrs shall be carried out once | - | -- | Cl. 4.2.1 & Table 1 of IS 14885:2022               | --                                 | R | R | Type Test certificate Review    |
| 11 | Resistance to rapid crack propagation           | Refer Note under Table 3  | - | -  | ISO 4437-1 : 2014                                  |                                    | R | R | Raw material supplier TC review |
| 12 | Resistance to slow cracking (SCR)               | As per ISO 13479, ≥ 500 hrs at 80°C   | - | -- | As per ISO 13479                                   |                                    | R | R | Raw material supplier TC review |
| 13 | Resistance to Growth of Cleavage fracture (RCP) | As per ISO 13477, ≥ 1.5xMOP bar at 0°C  | - | -- | As per ISO 13477, Ann E of IS 4984:2016            | As per Table 11 of IS:14885 - 2022 | R | R | Raw material supplier TC review |
| 14 | Resistance to Weathering                        |   | - | -- | As per clause no. 5.6 & Annex B of IS:14885 - 2022 |                                    | R | R | Raw material supplier TC review |

**QAP of PE 100 – Orange, Finished Gas Pipes/Coils as per IS – 14885-2022**

| Sr. No. | Test Parameter            | Specification / Tolerance                  | Unit | Instrument               | Test Method  | Sample size / Frequency for TPIA   | Inspection by |      | Remarks |
|---------|---------------------------|--|------|--------------------------|--|--|---------------|------|---------|
|         |                           |  |      |                          |  |  | Manufacturer  | TPIA |         |
| 1       | Dimensions                | As per IS 14885:2022                       |      |                          | As per IS:14885 –2022/ GGL Technical Specification | As per clause No. 9.2.3 Table 13 of IS 14885:2022, 100% on-line witness of all pipes by TPIA |               |      |         |
|         | a) Wall Thickness of pipe | As per Cl 6.2, Table 6&7 of IS 14885: 2022 | mm   | Ball ended micrometer    |  |  | P             | W    |         |
|         | b) Outer Diameter         | As per Cl 6.1, Table 4 of IS 14885:2022    | mm   | Vernier calliper/PI Tape |  |  | P             | W    |         |
|         | c) Ovality                | As per Cl 6.1, Table 5 of IS 14885:2022    | mm   | Vernier calliper         |  |  | P             | W    |         |



|   |   |  |                   |  |  |   |   |   |   |
|---|---|--|-------------------|--|--|---|---|---|---|
| 2 | Visual Check  | Internal surface of pipe shall be smooth, clean & free from grooving, rings & poke marks(As per clause No. 7 & Table 8 of Is 14885-2022)   | ----              | ---                                      |  |   | P | W |   |
| 3 | Length  | 20mm-200 Mtr. Length<br>32mm-200 Mtr. Length<br>63mm-100 Mtr. Length<br>90mm-100 Mtr. Length<br>125mm-50 Mtr. Length   | Mtr.              | Measuring Tape                           |  |   | P | W | Shorter length pipes shall not be accepted. |
| 4 | Marking   | Printing shall be done by Inkjet printers in black Colour. Legends shall be repeated at intervals of 1 m and shall consist of following information:<br>i) Owner Trade mark / Name or Brand (i.e. GUJARAT GAS)<br>j) Material and designation (Thk, D-32, SDR-11, PE-100)<br>k) Manufacturer's identity name or trade name<br>l) Code & Standard (i.e. IS – 14885:2022)<br>m) Batch no. or lot no<br>n) Length of Coil at every meter.<br>o) Manufacturing Date<br>p) Service (i.e. GAS) |                   | Visual                                   |  | 100%  |   |   |   |
| 5 | Density(Base Polymer)                                     | ≥ 930 at 23 °C   | Kg/m <sup>3</sup> | Electronic Balance                       |  |   | P | W |   |
| 6 | Melt Flow rate(MFR)                                       | ±20% of values nominated by compound manufacturer at 190 °C with normal load of 5 kgf  | g/10 min          | Melt flow tester                         |  | As per clause No. 9.2.4 table 14 of IS 14885-2022 | P | W |   |
| 7 | Thermal stability(OIT)                                    | ≥20 at 200° C  | Minutes           | Vendor to specify                        |  |   | P | W |   |
| 8 | Longitudinal reversion Test                               | Shall not be greater than 3 percent  | %                 | Oven, vernier calliper                   |  |   | P | W |   |
|   | Circumferential Reversion of Pipes with $d_n \geq 250$ mm | Shall not be greater than the range on mean outside diameter specified in Table 4  | mm                | Hot water bath, PI tape/Vernier Calliper |  | Cl 8.2.2 of IS 14885:2022                         | P | W |   |



|                                  |   |   |      |   |               |   |     |   |   |
|----------------------------------|---|---|------|---|---------------|---|-----|---|---|
| 9                                | Resistance to slow crack growth                 | ≥ 500 hrs at induced stress of 4.6 Mpa  | Hrs  | 80°C                                    | ISO 13479     | ISO 13479   | P   | R | To be carried out on manufactured pipe once for each type of raw material and each manufacturer (Type Test) |
| 10                               | Resistance To Weathering (Exposure to sunlight) |   |      |   | IS 14885      | Annex B   | P   | R | Review of Type test Certificates  |
| <b>HYDRAULIC CHARACTERISTICS</b> |   |   |      |   |               |   |     |   |   |
| 11                               | Plain Pipes                                     | 165 Hrs. at 80° C & Induced stress 5.4 Mpa (No sign of localized swelling, leakage or weeping, and shall not burst during the prescribed test duration) | Hrs. | Hydraulic test machine with accessories | IS 14885-2022 | All samples for hydro test will be taken from first batch Nos. of pipe, clause No. 8.1 Table 14, 9 of IS 14885-2022 | P   | W |   |
| 12                               | Notched Pipes                                   | 165 Hrs. at 80° C & Induced stress 4.6 Mpa (No sign of localized swelling, leakage or weeping, and shall not burst during the prescribed test duration) | Hrs. |   |               |   | P   | W | Applicable to pipes of size 63mm and above  |
| 13                               | Plain pipes                                     | Hydrostatic strength at 80° C for 1000 h. Induced stress 5 mpa  | Hrs  |   |               |   | P/R | R | Type test- Once in 4 years  |



|    |  |  |        |                                   |  |   |   |   |   |
|----|--|--|--------|-----------------------------------|--|---|---|---|---|
| 14 | Plain Pipes(Type Test)                           | 100 Hrs. at 20° C & Induced stress 12.0 Mpa (No sign of localized swelling, leakage or weeping, and shall not burst during the prescribed test duration) | Hrs    |                                   |  | One sample per lot testing as per Table 9,11 of IS 14885-2022 | P | W |   |
| 15 | Squeeze off Test(Type Test)                      | 165 Hrs. at 80° C & Induced stress 5.4 Mpa (No sign of localized swelling, leakage or weeping, and shall not burst during the prescribed test duration)  | Hrs    |                                   |  |   | P | W |   |
| 16 | Volatile content                                 | ≤350   | mg/K g | Electronic balance & Hot air oven |  | As per clause No. 9.2.4 Table 14 of IS: 14885-2022            | P | W |   |
| 17 | Tensile Test                                     | Min 15   | Mpa    | Tensile tester                    |  |   | P | W |   |
| 18 | Elongation at break                              | Min 350  | %      | Tensile Tester                    |  |   | P | W |   |
| 19 | Pigment Dispersion                               | ≤3   | Grade  | Microscope                        |  |   | P | W |   |
| 20 | Packing & transportation of coiled & plain pipes | Annex K of IS 14885-2022   | ---    | Visual Check                      |  | Every coil or length of pipe extruded                         | P | W | PE film and hessian cloth wrapping shall be done after inspection |

**Note:-**

- 1) TPIA-Third Party Inspection Agency, P-Perform, W-Witness, R-Review internal test record
- 2) On issuance of work order, vendor shall follow furnished QAP in GGL Tender. In case of any revision/amendment GGL shall furnish QAP in line with IS 14885: latest edition.
- 3) All external labs, if used for testing shall be NABL accredited.
- 4) All MDPE Gas pipes shall be manufactured, tested and designed as per IS 14885:2022 or latest