SUBJECT: Procurement of 4" Steel Pipeline for Vadodara Gas Limited (GA)

TENDER NO.: VGL/CO/C&P-PNG/BD202506P220_RI-III Date: 27/11/2025 & Tender ID: 247398

Sl. No.	Sec. Reply No.	Page No.	Clause No.	Subject	Bidder's Query	VGL'S Reply
1	3.2.2 of 3LPE coating specification	-	-	3.2.2 FUSION BONDED EPOXY (FBE) POWDER Epoxy powder shall comply Canadian Standard Association (CSA) Standard Z245.20-2018. The color of epoxy powder shall be either green or dark red or any other color approved by Company except grey.	Bidder has considered the latest version CAN/CSA Z245.20-2022. Please confirm.	Coating shall comply strictly with tender specifications (API 5L & 3LPE). CAN/CSA Z245.20-2022 may be followed only where it does not conflict with tender requirements.
2	3.2.5 of 3LPE coating specification	-	-	3.2.5 COATING SYSTEM PROPERTIES Bond Strength (using Type 2 Test Assembly i.e. Dynamometer • @ 20+/-5 ° C • @ 65+/-5°C	Bidder proposes to bond strength test shall be carried out by manual peel test machine (Spring loaded type test assembly) due to size constraint. Please confirm. We request to kindly consider the practical difficulty.	Tender Condition Prevail
3	3.6 of 3LPE coating specification	-	-	3.6. MATERIAL IDENTIFICATION All materials to be used shall be packed in damage free containers suitably marked with the following minimum information for identification: a. Name of the manufacturer. b. Type of material and product designation. c. Batch Number. d. Date and place of Manufacture e. Shelf Life / Expiry Date f. Storage Conditions g. Quantity Any materials found without above identification markings shall be Deemed suspect and rejected by Company.	Bidder clarifies that any missing information shall be traceable to batch test certificate or manufacturer publications.	Confirmed
4	4.2.7 of 3LPE coating specification	-	-	4.2.7. TESTING At least five (5) test pipes, including one (1) pipe partly coated with epoxy and one (1) pipe partly coated with both epoxy and adhesive layers, shall be randomly selected by Company Representative for carrying out PQT as per Table 5.3.1	There is a contradiction with the requirement stated under the Clause 4.2.1 of coating specification. Bidder understands that Out of 5 (five) test pipes, 1 (one) pipe partly coated with epoxy and partly coated with both epoxy and adhesive layers shall be included. Remaining 4 (four) test pipes shall have all three layers. In accordance with Clause 4.2.1 of coating Specification.	Confirmed
5	4.2.8 of 3LPE coating specification	-	-	4.2.8. PQT REPORT Upon completion of the testing, the Contractor shall prepare and submit to the Company a detailed report covering operating and controlling	Bidder would like clarify that PQT (Pre-Qualification Tests) shall be carried out as a part of first day production and shall be followed by regular production without	PQT shall be carried out as per tender requirements. Regular production cannot proceed until compliance of PQT as per specification is ensured. Production without waiting for long-duration test results is

				parameters, inspection and test reports and material test certificates for Company approval. Only upon written approval from Company, the Contractor shall commence production coating.	waiting for the results of the long duration tests. Please confirm.	not acceptable unless explicitly permitted in tender, which is not provided.
6	4.3.6 of 3LPE coating specification	-	-	4.3.6. ACCEPTANCE OF SURFACE PREPARATION Upon Completion of the blasting operations, the Contractor's quality control supervisor shall inspect the pipes for their compliance to requirements specified below: • The surface finish after blast cleaning shall conform to near white metal finish i.e. Sa 2½ of Swedish Standard SIS 055900. • Anchor pattern/roughness profile shall be between 50 to 70 microns. • Dust contamination shall be rating max. 2 as per ISO 8502-3.	Bidder propose test frequency shall be as following. • The surface finish (Sa 2½) – each pipe. • Anchor pattern/roughness – once per hour. • Dust contamination – once per hour.	Test frequencies shall be as per tender specifications only. Bidder's proposed frequencies (Sa 2½ each pipe, anchor pattern once per hour, dust contamination once per hour) are not acceptable unless they match the frequencies defined in the tender. Tender requirements shall prevail.
7	4.4.1 of 3LPE coating specification	-	-	**4.4.** COATING APPLICATION **4.4.1.** PIPE HEATING d. Temperature of the pipe surface shall be continuously monitored & recorded by using suitable instruments such as infrared sensors, contact thermometers, thermocouples etc. e. Temperature measuring & monitoring equipment shall be calibrated twice every shift and/or as per Company. f. Representative's instruction.	Bidder clarifies that optical pyrometers are used for pipe surface temperature monitoring before coating application. Pyrometers are specialized equipment and are calibrated in specialized equip outside laboratory, so we propose to review the outside lab calibration certificate. However, the pyrometer shall be checked for errors every shift Against a calibrated contact type temperature-measuring instrument.	Calibration requirements shall be as per tender specifications. Outside-lab calibration certificates for optical pyrometers may be reviewed only if fully compliant with tender requirements. Shift-wise checking against a calibrated contact thermometer is acceptable as an internal check, but it does not replace the required calibration.
8	4.4.2 of 3LPE coating specification	-	-	4.4.2.APPLICATION OF EPOXY, ADHESIVE AND POLYETHYLENE Note 4: Unless indicated otherwise in Purchase Order, total thickness Corresponding to Normal Type (n) coating shall be applicable.	Bidder understands that minimum total coating thickness shall be 1.85 mm and in case of HDPE topcoat 1.70 mm.	Minimum total coating thickness shall be as specified in the tender coating specification only. Any deviation (1.85 mm or 1.70 mm for HDPE topcoat) is not acceptable unless it matches the tender-specified minimum thickness.
10	4.4.3 of 3LPE coating specification	-	-	4.4.3. COATING CUT BACK Coating and/or adhesive shall terminate 120 mm +20 / -0 mm from pipe ends. Contractor shall adopt mechanical brushing for termination of the coating at pipe ends. Edge of the coating shall be shaped to form a bevel angle of 30° to 45°.	Bidder use tool instead of mechanical brushing.	Tender Condition Prevail
11	5.3.5 of 3LPE coating specification	-	-	5.3. TESTING OF COATING 5.3.5. BOND STRENGTH TEST One test shall be performed at cut back portion at each end and one in the middle of test pipe for each specified temperature (i.e. total 6 tests per pipe).	For bond strength at each cut back ends, bidder confirms to comply. Bidder proposes to perform bond strength test at maximum feasible distance from either end instead of middle of the pipe. It is not possible to maintain the test temperature required at the middle of the pipe due to size constraint.	Bond strength testing shall be performed strictly at the location specified in the tender, i.e., at the middle of the pipe. Testing at a "feasible distance from either end" due to size constraints is not acceptable. Bidder must comply with the tender-specified test location and requirements.

					Please confirm.	
12	Table 5.3.2 of 3LPE coating specification	-	-	Table 5.3.2: Testing Requirement During Production Coating Bond Strength: One out of 25 Pipes	Bidder clarifies that the test frequency of Middle peel test is very high. Middle peel test area is repaired by patch repair. From technical point of view bond strength and mechanical strength at patch repair portion is lower than other extruded 3LPE coated portion of the pipe. Hence bidder proposes that peel test at both ends of the pipe shall be carried out one in out of 25 pipes and middle peel test shall be carried out one in out of 50 pipes. Please confirm.	Test frequencies shall be as per tender specifications only. Bidder's proposed reduced frequency (end peel 1/25 and middle peel 1/50) is not acceptable. Middle peel test frequency and locations must comply with the tender, regardless of repair considerations.
13	5.3.12 of 3LPE coating specification	-	-	5.3. TESTING OF COATING 5.3.12. HOLIDAY DETECTION ONLY EPOXY / EPOXY AND ADHESIVE COATED PIPES Only epoxy coated section shall be subject to holiday inspection at a test voltage set to exceed	Bidder clarifies that it is practically difficult to achieve no holiday at 200 microns thickness of FBE layer. Hence holiday acceptance criteria shall be ≤1.0 Holiday per meter as per Table-9 of CSA Z245.20-22 for FBE coated portion of partly coated pipe.	Bidder clarifies that it is practically difficult to achieve no holiday at 200 microns thickness of FBE layer. Hence holiday acceptance criteria shall be ≤1.0 Holiday per meter as per Table-9 of CSA Z245.20-22 for FBE coated portion of partly coated pipe.
14	-	-	-	5V / micron of epoxy thickness. Section of pipe coated with both epoxy and adhesive shall be tested at a voltage of 25kV. No holidays are permitted.	Bidder proposes to pipe coated with both epoxy and adhesive shall be tested at a voltage of 5V/microns and holiday if any will be reported. Bidder understands that the epoxy coated & both epoxy and adhesive coated holiday test shall be applicable for procedure qualification test (PQT) only. Please Confirm.	Holiday testing voltage and requirements shall be as per tender specifications. Bidder's proposal to test epoxy-only and epoxy-plus-adhesive coated pipes at 5 V/micron is not acceptable unless it matches the tender. Holiday testing is not limited to PQT; it shall be performed as specified in the tender for PQT and regular production wherever applicable.
15	5.6 of 3LPE coating specification	-	-	5.6 Soluble Salt Measurements After blast cleaning, all pipes shall be tested for salt contamination. One test shall be carried out at each end of each pipe using salt meter (SCM 400 or approved equivalent). The acceptance criteria shall be 2 µg/cm^2.	Bidder proposes that the salt contamination test shall be performed at one end of each pipe. Please confirm.	Salt contamination test shall be carried out as per tender specifications. Proposal to test only at one end of each pipe is not acceptable unless specifically allowed in the tender.
16	5.6 of 3LPE coating specification	-	-	5.6 Soluble Salt Measurements After blast cleaning, all pipes shall be tested for salt contamination. One test shall be carried out at each end of each pipe using salt meter (SCM 400 or approved equivalent). The acceptance criteria shall be 2 µg/cm^2. Any pipe having salt contamination exceeding 2 µg/cm^2 shall be treated by phosphoric acid wash followed by de- ionized water wash in accordance with the recommendations of the manufacturer. The Contractor shall submit a detailed procedure for phosphoric acid wash for	Bidder understands that the phosphoric acid wash followed by de-ionized water wash shall be carried out only in case salt contamination level of blast cleaned pipe exceeds 2µg/cm^2. Please confirm.	The tender document specifies that the phosphoric acid wash followed by de-ionized water wash is the required treatment only if the salt contamination level of the blast-cleaned pipe surface exceeds 2µg/cm^2. This procedure must be carried out in accordance with the manufacturer's recommendations after submitting a detailed procedure to VGL for approval.

				Company approval.		
17	Annexure I of 3LPE coating specification	-	-	ANNEXURE-I LIST OF ACCEPTABLE COMBINATIONS OF COATING MATERIALS Epoxy Powder (Manufacturer) - SCOTCHKOTE 226N (3M) Adhesive (Manufacturer) - ME 0420 (BOREALIS) PE Compound (Manufacturer) - HE 3450H (BOREALIS /BOROUGE)	Bidder propose to use HE3450 (BOREALIS /BOROUGE) material, suitable to meets the requirement also. Please confirm.	HE3450 (Borealis/Borouge) is acceptable as it is already listed in the approved PE compounds; bidder shall submit required data sheets and compatibility certificates for final approval.
18	Annexure II of 3LPE coating specification	-	-	ANNEXURE – II PIPE END PROTECTION g. Following are the approved manufacturer for the end seal tape: 1) M/s Dhatec • M/s Seal For Life 2) (Formerly Berry Plastics) OR Equivalent	Bidders propose end seal tape manufactured by MAASH Industries for approval. Please confirm.	Confirmed
19	3LPE coating specification	-	-	INSPECTION AND TEST PLAN	Bidder understands that inspection and test plan for 3-layer polyethylene coating of line pipes is for information only. Bidder to follow 3LPE coating specification for all the testing, test frequency and acceptance criteria except the comments / clarification given in this comments sheet.	The Inspection and Test Plan 3LPE coating is mandatory as it details the minimum testing requirements, and it must be followed along with the 3LPE coating specification
20	Section-V - Scope of	90	3. Documents &	a. The table hereunder specifies the	Bidder proposes to provide MRB dossier in soft copy	Confirmed. However, the bidder must submit all documents required and mandated as per the Purchase Order.
21	Section-V - Scope of Supply, Tender No. : VGL/CO/C&P-PNG/BD202506P220_ RI-III	-	Standard Specification For Seamless (SMLS) Line Pipe 3. Pipe Grade, Steel Grade And Delivery Condition	Note: The requirement of HFW manufacturing will be as per API 5 L specifications.	Since no specification is given for HFW Line pipe, we confirm that manufacturing, inspection, testing, certification & supply of ERW pipes will be in accordance with API 5L 46th Edition-2018 & Errata 1 dated May 2018 for the size & grade specified in page 1 of this comment sheet for Onshore & Non-sour service application. Pipes shall be supplied with delivery condition M.	Your confirmation to supply ERW pipes according to API 5L 46th Edition is noted1. You must ensure the selected delivery condition (M) complies with all specifications for PSL-2 Grade X-52 ERW pipe. The requested Information to be supplied by purchaser is already provided within the technical and scope sections of the tender document. Your request to omit the CVN impact test is rejected as the requirement is mandatory for PSL2 pipe, and options for sub-sized or longitudinal specimens are available to ensure testing feasibility
22	-	-	-	-	Bidder requests to provide "Information to be supplied by purchaser" as per Clause 7.1 & 7.2 of API Spec 5L 46th Edition, applicable to the scope of supply of ERW Pipes.	
23	Section-II ITB	4 of 184	iii	Tender Fee	We would request you to confirm the payable at location for issuance of Demand Draft. We would request you to give us the reply of this query within 1-2 days as we need 5	Vadodara Gas Limited – Vadodara, Gujarat

					days for necessary arrangement of required documents.	
24	Section – IV SCC	85 of 184	6	Bid Security	We understand that Bank Details of VGL mentioned in Instructions for Furnishing CPS/SP on page 85 are also applicable for issuance of SFMS against EMD/Bid Security of subject procurement. Kindly confirm.	Confirmed.
25	Section-II ITB	30 of 184	16	EMD submitted in the form of 'Bank Guarantee', Should have validity of at least 'two [02] months' beyond the validity of the bid.	We would request you to confirm the EMD in the form of BG to be validity for a period of 2 months or 3 months beyond bid validity period.	02 Months beyond bid validity period
26	Section – II	13 of 184	1.2	1.2 The bidder must be a manufacturer of Carbon Steel Line Pipe and must have successfully supplied at least following specified quantities for hydrocarbon application during last 7 years reckoned from the final due date of bid submission in single purchase order, duly certified by the Chartered Engineer and Notary Public with legible stamp along with the bid to meet the above technical criteria.	We understand that we can submit proof of supply of pipes as 4" API 5L X-52 to X-70 PSL-2 of same type, equal or higher. Kindly confirm.	Confirmed
27	Section – II	13 of 184	1.3 c)	Qualification Criteria for Coating Work b) The proposed coating plant by the bidder for three-layer side extruded PE (3 LPE) coating on bare line pipes shall have coated at 25% (3.75 Km) of 4" or Above Size of pipe as per API 5L- X-52/X-70 that are of same type, equal or higher using three layers' side extruded PE coating, in single Order during any of the last Seven years reckoned from the bid due date.	We understand that we can submit proof of supply of coated pipes for API 5L X-52 to X-70 pipe grade. Kindly confirm.	Confirmed
28	FAQ	7 to 184	15	Fall clause is applicable only in case of nomination And proprietary/ OEM procurement.	We understand the Fall Clause is not applicable for subject procurement.	Confirmed
29	Section – IV SCC	72 of 184	3	3.0 TERMS OF PAYMENT 100 % payment within 60 Days of raising the invoice for the supplied material along with all taxes & charges will be paid on submission of documents.	We hereby propose to accept payment terms as 100% within 15 days of raising the invoice for the supplied material along with all taxes & charges to be paid on submission of required documents. Kindly confirm.	Tender Condition prevail
30	Section – V	86 & 147		Scope of supply.	We understand that bidder scope of work is limited to unloading and stacking of pipes at Designated ware- house/ storage yard. Please confirm. 1. Please also confirm whether arrangement of Sand Bags and Preparation of Sand Rows is in the scope of Bidder.	Manufacturing, Loading, Transit Insurance, Transpiration at VGL designate Store, un-loading and Stacking at site, all are in scope of Suppliers

					2. We understand that land for unloading & stacking of pipes will be issued by VGL in developed condition.	
31	Section – V SOS	88 of 184	Notes d)	Pipes shall be supplied between 11.5 m to 12.5 m.	We understand the average length of pipe will be 12 meter.	Confirmed
32	Section – V SOS	92 of 184	20	Final technical file	We would request you to accept the submission of final technical files in 1 hard copy & 3 soft copies.	Tender Conditional prevail
33	Section – V SOS	88 of 184	Notes b)	Quantity Variation: Quantity may vary ± 5% for coated pipe. Final quantity will be informed to successful bidder.	We request confirmation of the quantity variation for the subject procurement to enable us to evaluate our bid accordingly.	Final quantity will be informed to successful bidder.
34	Material Requisition	150 of 184	-	List of Steel coil manufacturing company 1. Jindal Stainless 2. Tata Steel 3. J.K. Steel Strips 4. JSW Steel	We would request your add the following coil suppliers name in your List of acceptable Steel Coil Supplier. • Arcelor Mittal Nippon Steel India (earlier Essar Steel) • SAIL, Bokaro • Lloyd Steel • Jindal Steel Odisha Limited This is also approved by major PSU/Govt. organizations.	Confirmed
35	Tender Documents	-	-	Technical Specification for HFW Manufacturing Process	We would like to bring your notice that Technical Specification for HFW Manufacturing Process is missing in tender documents to enable us to participate in the subject Tender. In light of above we request to allow us to provide our technical queries within 7 days from the date of receipt of Technical Specification for HFW Manufacturing Process.	File is attached for reference.
37	General Query	-	-	Reverse Auction	We understand that Reverse Auction is not applicable for subject procurements. Kindly confirm.	Confirmed
38	-	-	-	Fall Clause is applicable against this Tender.	We understand that "Fall Clause" is not applicable against the subject tender. Kindly confirm?	Confirmed
39	-	-	-	Contract Period Validity 6 Month & Delivery Period of 90 days	We Would like to mention that kindly clarify regarding Contract period as well delivery period. As we understand that if any bidder will be L1 Bidder then VGL may place the order maximum within 6-month period and delivery period would be counted 90 days from date of order. Kindly confirm?	Confirmed

40	-	-	-	Letter of Award/ Purchase Order- Prior to the expiry of Bid Validity Period, VGL will issue the LOA/PO to successful Bidder in writing,	We understand that VGL must place the order to L1 Bidder with in the Bid validity period for full & confirm Quantity. Kindly confirm?	Confirmed
41	-	-	-	TERMS OF PAYMENT- 100 % payment within 60 Days of raising the invoice for the supplied material along with all taxes & charges.	We request you to kindly amend the payment terms within 30 days instead of 60 days, as PSU following the system. Kindly confirm?	Tender condition Prevail
42	-	-	-	INSURANCE-The responsibility to maintain adequate insurance coverage at all time during the period of contract till completion of installation, testing and commission including PG Tests shall be that of Supplier in line with the tender documents. The Transit Insurance shall be arranged by the supplier failing to which, the supplier shall be fully Responsible for transit damage, if any.	We understand that L1 bidder have to arrange the Transit Insurance only as vendor scope is delivered the materials on FOR basis only, after successfully unload the materials at VGL premises then VGL will be fully responsible regarding Insurance. Kindly confirm?	Confirmed but the warranty period applicable as mentioned in tender documents.
43	-	-	Clause 5.3	CVN Impact at - 29°C & Values required 33J min. & 40J Avg.	Requirement given for full size specimen. For sub- size specimen L10x5x55, values may be reduced as 17J min. & 20J Avg. Kindly confirm?	As per tender specifications, the impact test requirements shall strictly comply with API 5L PSL-2 norms for the full-size specimen as specified. No reduction in impact values for sub-size specimens is permitted. Bidder is required to comply with the impact values exactly as mentioned in the tender document.
44	-	-	Clause 5.6.3b	Inside diameter shall be measured.	Not applicable. Hot rolled seamless pipes shall be manufactured with OD x WT basis. Kindly confirm?	Confirmed
45	-	-	Clause 5.6.3.2	Length: 11.5-12.5 meter (95%) & 10.0-11.5 meter (5%) of pipes.	Length: 11.5-12.2 meter (90%) & 10.0-11.5 meter (10%) of pipes. Kindly confirm?	Pipe length requirements shall be strictly as specified in the tender document. Bidder shall comply with the lengths mentioned in API 5L / tender specifications. No separate confirmation or deviation in pipe length distribution is permitted.
46	-	-	Clause 6.3.1 & Table 18	Frequency Chemical, Tensile & Impact = 02 sample/Heat/Lot of 100 pipes & Hardness 01/Heat/Lot of 50 Pipes	01 sample/Heat /Lot of 200 pipes for Chemical, Tensile, Impact, and Hardness due to as per API 5L lot consist of 400 pipes & Hardness not mandatory. Kindly confirm?	Sampling and testing requirements shall be strictly as per the tender specifications, which include Chemical, Tensile, Impact, and Hardness testing as specified. VGL will not follow the bidder's suggested lot size. The bidder shall comply with the sampling frequency and testing requirements defined in the tender**,** irrespective of the number of pipes in a lot. Hardness testing is mandatory as per tender requirements. No deviation is permitted. The bidder shall carry out measurement and recording strictly as per the requirements specified in the tender document**.** Any percentage-based sampling or measurement criteria proposed by the bidder is not applicable. All measurements and inspections shall comply fully with API 5L and tender specifications**.** No deviation is permitted.

47	-	-	-	Pipe diameter & out of roundness – 100%	10% pipes to be measured & recorded as per API 5L Kindly confirm?	Confirmed
48	-	-	-	Weighing of pipes 100%	Weighing shall be in convenient lot as per API 5L Kindly confirm?	Confirmed
49	-	-	Table 20	CVN impact test sample - Transverse	CVN impact test shall be longitudinal Kindly confirm?	Impact testing shall be carried out strictly as per tender specifications and API 5L PSL-2 requirements**.** Where longitudinal CVN impact testing is specified in the tender/API, the same shall be followed. No deviation from tender-specified testing orientation is permitted.
50	-	-	Clause 6.3.4.3.1	Hydro test pressure held at 15 Sec. min.	Test Pressure holding at 10 Sec. max. Kindly confirm?	CVN impact test orientation shall be strictly as specified in the tender document and API 5L PSL-2**.** Where longitudinal impact testing is required by the specification, the same shall be followed. No deviation in impact test orientation is permitted. Hydrostatic test pressure shall be calculated strictly as per API 5L requirements and tender specifications. The bidder shall comply with the hydro test pressure formula and stress limits defined in API 5L PSL-2**,** without any deviation. Any alternative calculation or % SMYS proposed by the bidder is not applicable**.**
51	-	-	Clause 6.3.4.5	Hydro test pressure calculated with 95% SMYS	Hydro test pressure calculated with 85% SMYS Kindly confirm?	As per the tender specification, hydro test pressure shall be calculated at 95% of SMYS**;** therefore**,** 85% SMYS is not acceptable.
52	-	-	Clause 6.3.5.2	Illumination Area = 1000 Lux minimum	500 Lux maximum Kindly confirm?	Lighting requirements shall be strictly as specified in the tender document and applicable standards**.** Where 500 Lux is required for inspection or testing activities, the same shall be ensured by the bidder. No deviation in lighting requirements is permitted.
53	-	-	Clause 6.3.7	Retesting – Re check analysis	As per API 5L only. Kindly confirm?	Confirmed
54	-	-	Clause 7.3.2	Pipe number mark with cold rolling, low stress dot marking or Vibro-etching	Only paint stenciling on outer surface of pipes after 3LPE coating. Kindly confirm?	Marking and stenciling shall be done strictly as per the tender specifications and applicable standards. All required markings including paint stenciling and any additional identification specified in the tender shall be applied after completion of 3LPE coating**.**
55	-	-	Clause 11	Field Inspection & Test	Not applicable. All testing & inspection shall be performing at factory premises of in-house facility. Kindly confirm?	Confirmed
56	-	-	Clause B5 (C ii)	Transition curve: four set of three transverse specimen	One set of three longitudinal specimens, values for information only. Kindly Confirm?	Tender Condition Prevail

57	-	-		NDT: EMI/UT (Any one method) to be used	Kindly confirm?	Confirmed
58	-	-	8	Barcode labels shall be fixed on one end at inside of Pipes.	Please confirm Bar code required or not Kindly confirm?	Bar code is required as per tender specifications, and it shall be fixed on one end inside the pipe.
59	-	-	3.2.5 (e,f & g) & 4.1.n	The long duration Tests Coating Resistivity, Heat Ageing & Light Ageing. 1) Test carried out in an independent laboratory of national/international recognition on PE topcoat is also acceptable. 2) Test certificates from PE compound manufacturer for tests for thermal aging coating resistivity and aging under exposure to light. These test certificates shall not be older than three years.	For info & clarification: These are long duration tests (Coating Resistivity, Heat Ageing & Light Ageing), As per project specification we will submit manufacturer test data for review, for the test conducted within 3 years. Kindly confirm?	Your understanding regarding the submission of manufacturer's test data for the long-duration coating tests is confirmed. For the Coating Resistivity, Heat Ageing, and Light Ageing tests, you are permitted to submit manufacturer test certificates, provided the tests were conducted within the last three (3) years. These tests may also be accepted if carried out by an independent laboratory of national or international recognition on the PE topcoat
60	-	-	4.3.6	SURFACE PREPARATION: 1) Anchor pattern/roughness profile shall be between 50 to 70 microns.	For Better anchor pattern/roughness and as per relevant coating standards we suggest profile range 50 to 100 microns (Rz scale). Kindly confirm?	Tender conditions prevail
61	-	-	5.3.5	Bond Strength: One test shall be performed at cut back portion at each end and one in the middle of test pipe for each specified temperature (i.e. total 6 tests per pipe).	For info & clarification: We consider middle peel testing at maximum feasible distance approx. 400 mm from pipe bevel ends. We will be repaired Testing area by using Heat shrinkable Sleeve. Kindly confirm?	The middle peel test location is generally accepted. The peel test area can be repaired using a Heat Shrinkable Sleeve (HTLP 80 or equivalent), provided the repair procedure is qualified and approved by VGL.

Note: This Replies to Bidder's Queries as uploaded on n-Procure & VGL's Website. Please upload the same duly Sign and Seal with Techno–Commercial Bid as this is an Integral Part of the Tender.

1 MANUFACTURING

1.1 Process of Manufacture

Pipe furnished to this specification shall be manufactured in accordance with the applicable requirements and limitations given in Table 2 of API Spec 5L and Table 3of this specification.

Table 3 of API Spec 5L stands replaced by Table 3 of this specification.

Table 3 - Acceptable manufacturing routes for PSL 2 pipe

Type of Pipe	Starting Material	Pipe forming	Pipe Heat treatment	Delivery condition
HFW	Thermomechanical-rolled coil	Cold forming	Heat treating [a] of weld area only	M
[a] See clause 4.3 of this specification for applicable heat treatment				

High frequency electric welding shall be performed with a minimum welding current frequency of 200 kHz. The welding system shall have an integrated control in which following data as a minimum shall be monitored:

- Welding Temperature
- Welding speed
- Current and Voltage

Abutting edges of the coil shall be milled or machined immediately before welding. The width of the coil shall be continuously monitored.

1.2 Starting Material

1.2.1 Line pipe furnished to this specification shall be made from steel produced in basic oxygen or electric arc furnace. Steel shall be made by continuous casting only.

4.2.1 The steel used for manufacture of pipe shall be fully killed and fine grained with ASTM grain size number 7 or finer as per ASTM E 112.

1.3 Treatment of Weld Seams in EW and LW Pipes

4.3.2 **LW pipe and PSL 2 HFW pipe**

The weld seam and the entire Heat Affected Zone (HAZ) shall be heat treated so as to stimulate a normalizing heat treatment in order to control the grain structure so that no un-tempered martensite remains in the weld seam and the HAZ, and the mechanical properties of heat-treated zone approximate that of the parent metal.

Heat treatment temperature of the weld seam and the entire HAZ shall be continuously measured and recorded.

1.4 Cold Sizing and Cold Expansion

1.4.1 Pipes furnished to this specification shall be non-expanded.

1.5 Jointers

1.5.1 Jointers on pipes are not permitted.

2 ACCEPTANCE CRITERIA

5.2 Chemical composition

5.2.2 For pipes supplied as per this specification, the chemical composition of each heat of steel on product analysis shall be as given in Table 5 of this specification.

Table 5 of API Spec 5L stands replaced by Table 5 of this specification.

Table 5 - Chemical composition for pipe

Element	Mass fraction based upon heat and product analyses (%)	
C [b]	0.16	max. (For Grade BM to X56M)
	0.12[f]	max. (For Grade X60M to X70M)
Si	0.15 m(new)	min.
	0.45	max.
Mn [b]	1.20	max. (For Grade BM to X46M)
	1.40	max. (For Grade X52M & X56M)
	1.60	max. (For Grade X60M & X65M)
	1.70	max. (For Grade X70M)
P	0.020	max.
S	0.015	max.
V	0.05	max. (For Grade BM to X46M)
	d	max. (For Grade X52M to X70M)
Nb	0.05	max. (For Grade BM to X46M)
	d	max. (For Grade X52M to X70M)
Ti	0.04	max. (For Grade BM to X46M)
	d	max. (For Grade X52M to X70M)
Al n (new)	0.02 o(new)	min.
	0.07	max.
Cr	0.20	max.
Mo	0.10	max. (For Grade BM to X65M)
	0.20	max. (For Grade X70M)
Cu	0.35	max.
Ni	0.20	max.
N n (new)	0.012	max.
B	0.0005	max.

a Based upon product analysis as per clause 9.2.4 and 9.2.5 of API Spec 5L, theCE Pcm limits apply if C =< 0.12% and CE IIW limits apply if C > 0.12%. For pipesof all grades, sizes and wall thicknesses, Carbon Equivalent shall comply with the following limits:

CE Pcm =< 0.20 % CE IIW

=< 0.40%

Boron content shall be considered in CE Pcm formula even if it is less

than0.0005%. b Deletedc

Deleted

d Nb + V + Ti = < 0.15%

e Deletedf Deleted g

Deletedh Deleted.I

Deletedj Deleted k

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(New)m: Minimum for Si is not applicable for AI killed steel.

(New)n: AI/N shall be minimum 2 (not applicable to titanium-killed steel ortitanium-treated steel).

(New)o : Applicable for AI killed steel.

For heat analysis and product analysis, all the elements listed in Table 5 of this specification shall be analysed and reported, even if those are not purposely added but are present as residuals only.

If alloying elements other than those specified in Table 5 of this specification are added to the steel, the limits of the additional components shall be agreed with the Purchaser.

Tensile properties

The finished pipe (after all heat treatment & sizing operations) shall conform to the requirements of Table 7 of API Spec 5L and as modified herein.

The actual yield strength shall be as close as possible to the specified minimum yield strength (SMYS) but in no case it shall exceed the limits specified here under:

API Spec 5L Grade	Permissible in excess of SMYS, MPa (psi)
Up to and including X46 M	131 (19,000)
X52M to X60M	125 (18,000)
X65M to X70M	120 (17,400)

The ratio of body yield strength and body tensile strength of each test pipe on which yield strength and ultimate tensile strength are determined, shall not exceed 0.90.

The tensile strength of the weld (after heat treatment of the weld seam) shall be equal to or higher than the specified minimum tensile strength of the base metal.

The minimum elongation of base metal shall be determined in accordance with the formula given in foot note (f) of Table 7 of API Spec 5L, however, minimum elongation in no case shall be less than 20%.

5.4 Flattening Test

Acceptance criteria for flattening tests shall be as follows:

5.4.2 For HFW pipe of grade ≥ X60 and t ≥ 12.7 mm, there shall be no opening of the weld before the distance between the plates is less than 66% of the original outside diameter. For all other combinations of pipe grade and specified wall thickness, there shall be no cracks or breaks in either weld or parent metal before the distance between the plates is less than 50% of the original outside diameter. Dye penetrant testing shall be used to positively confirm the presence of crack, break or opening.

5.4.3 For HFW pipe with a D / t> 10, there shall be no cracks or breaks other than in the weld before the distance between the plates is less than 33% of the original outside diameter.

5.4.4 For all pipes, there shall be no evidence of lamination or burnt metal during the entire test before opposite walls of the pipe meet.

Note: The weld extends to a distance of 13 mm on each side of the weld line. Theoriginal outside diameter is the specified outside diameter.