

Annexure I
Material Standards and Specifications

Sr. No.	Item	Material Type	Specification
1	Steel Pipe or Galvanized Pipe	Mild steel (M.S.) ✓ or Carbon Steel (C.S)	ERW GI pipes (Class C) as per IS 1239 Part I standard or API 5L Gr. B or ASTM A106 or ASTM A333
2	PE pipes and fittings and valves (underground)	Polyethylene	PE100 or PE80 grade, as per following standards: Pipes: IS 14885 or ISO 4437-2 or EN 1555-2 Fittings: ISO 4437-3 or EN 1555-3 Valves: ISO 4437-4 or EN 1555-4 or ASME B16.40
2	Isolation Valve	Brass/Carbon Steel (C.S)	Up to and including 2": EN 331 More than 2": API 6D
3	Galvanized Fittings	GI Fittings, Mild steel (M.S.) or Carbon Steel (C.S)	IS 1239 (Part-2); IS 1879, ASME B16.9, ASME B16.11, ASTM A234
4	Galvanized Flanges (forged)	Carbon Steel	SORF, 150#, ASME B 16.5, Material as per ASTM A 105 hot dip galvanized
5	Socket weld end fittings	CS Forged, Socket Welding fitting,	ASTM A 234 WPB, Dimensions as per ANSI B16.11, hot dip galvanized
6	PE fittings	Electrofusion Fitting	ISO 4437-3
7	Flexible Hose	Stainless Steel (S.S.) 316L ✓	SS braided bellow pipe with polyolefin (heat shrunk)
8	Gasket	CNAF- Spiral wound non-metallic flat	ASME B16.20 or ASME B16.21
9	Galvanized Fasteners	Steel	ASTM A193 or A 194 Grade B7 or 2 H
10	Galvanizing	Hot dip Zinc coating	IS 4736
11	"U" clamp	GI Coated and PVC sleeve ✓	1" to 4"
12	Welding Electrodes		AWS E 6010 & E6013
13	Stud bolt, Nut	Galvanized	Stud - ASTM A 193 GrB7M Nut - ASTM A 194
14	Filter	Stainless steel	50 micron mesh and forged body. Internal SS 316 and External ASTM A 106.
15	Self-adhesive Anti corrosive Tape for wall crossing	300 micron, 2.5 cm or 5 cm (1" or 2")	As approved by CGD entity

Fit for Use Certificate
(To be issued by TPA) Definition

Date:

To,

<Name of authorized CGD Definition entity>
<Address >

Subject: Fit for Use Certificate for Internal pipeline and
gas installation Customer no-

Respected Sir/ Madam,

We have inspected and tested the installation or modification of complete internal gas pipeline (IP) or gas installation from <Name of the Contractor>.

The entire gas pipeline (IP) has been tested at _____ bar(g) pressure for _____ hours. The testing was satisfactory, and no leakage was found.

The customer has used all materials and followed the construction procedure as mentioned in specification of authorized entity's guidelines.

The internal pipes (IP) and equipment are inspected, tested, and are safe and Fit for Use to receive natural gas.

We hereby reconfirm that this connection is ready for commissioning and is suitable in all ways for using the safe PNG gas supply.

Regards,

<Name and sign of the authorized person>
<Seal of the Company

Check list
(for issuance of Fit for Use Certificate)
(To be submitted by TPIA Definition on letter head and signed by PNG customer)

Date:

Customer Number:
 Customer Name:
 Address:

Date of Inspection:
 Name of CGD
 Entity: Name of
 Contractor: Name of
 TPIA
 Name of Authorized personal:

Sr. No.	Checklist Items	Yes	No	Remarks
A	Route Selection			
1	Pipe route, which is indicated by the authorized personnel, is followed			
2	Whether the pipeline route selected for IP is safe	<input type="checkbox"/>	<input type="checkbox"/>	
B	Materials			
1	All materials and equipment use in piping system are complied with PNGRB guidelines and relevant regulations			
C	Internal Piping			
1	All welding is carried out as per API 1104. NDE Definition carried out and found satisfactory			
2	Teflon tape is used for threaded joints			
3	PVC sleeve is provided wherever distance between pipe and electric cables/electric points is less than 300 mm			
4	Flanged joints are not provided within 300 mm radial distance of electrical points or junction points			
5	Pipe is firmly tightened on support with U bolt or clamps.			

6	Sufficient permanent support provided for Internal piping			
7	Pipe support or clamps should be firmly fixed on wall with U bolt or clamps			
8	Pipe supports are not mounted on temporary wall/un-plastered wall/shed/trees etc.			
9	The steel pipeline is not laid across or below the electrical lines			
D	Corrosion protection and Markings			
1	Pipes or fittings or valves or supports & other equipment are painted as per guideline			
2	Direction of gas flow and PNG are marked along the PNG pipeline			
3	Provide self-adhesive anti-corrosion tapes or PE sleeve while crossing of walls or slabs or other corrosion prone area to protect the pipe from corrosion			
E	Inspection and Testing			
1	Inspection and testing are carried out as per approved procedure			
2	The pneumatic test is carried out as per approved procedure			
3	The testing certificate is produced and signed by Contractor and Authorized personnel of approved TPA as per the proforma.			
4	For IP operating at the pressure 4 bar or above, 10 % nondestructive examination is carried out and defects are repaired			
F	Records			

Remarks:

1 _____

2 _____

Certificate

We hereby certify that the pipeline installation or laying work have been carried out in accordance with guidelines, specification, approved work procedures, including inspection and testing and the installation is found satisfactory and fit for use or ready for commissioning.

Issued by:

Third party Inspection agency	
Sign and Stamp:	
Date and Time:	

We hereby confirm that any responsibility beyond the delivery point lies with us in line with the Gas Sales Agreement.

Regards,

<Name and sign of the authorized person>
<Seal of the Company