Amendment No: 1 Issued on dated 26/09/2014

Ref: Tender Enquiry No: HLL/PCD/IMPCL-11/14-15 dtd.04/09/2014 issued on 05/09/2014

Following amendments are issued to the above Tender Enquiry Document

In Section I: Notice Inviting Tenders(NIT)

For Clause:

1. Tender No.: HLL/PCD/IMPCL-11/14-15

Sl No.	Description	Schedule
vi.	Closing date & time for receipt of Tender	08.10.2014, 02.00 PM
vii.	Time and date of opening of Techno-Commercial tenders	08.10.2014, 02.30 PM

Read As:

2. Tender No.: HLL/PCD/IMPCL-11/14-15

Sl No.	Description	Schedule
vi.	Closing date & time for receipt of Tender	15.10.2014, 02.00 PM
vii.	Time and date of opening of Techno-Commercial tenders	15.10.2014, 02.30 PM

In Section IV: General Conditions of Contract (GCC)

For Clause

21.1 b) **30%** of contract value will be paid on receipt of all materials (as per BoQ, or revised quantities , if any, due to variation in quantities duly certified by IMPCL) at site as against……..

Read As:

21.1 b) **40%** of contract value will be paid on receipt of all materials (as per BoQ, or revised quantities , if any, due to variation in quantities duly certified by IMPCL) at site as against ……..

For Clause

21.1 c) On acceptance

Balance 50% payment would be made against 'Final Acceptance Certificate' as per Section XVIII .....

Read As:

21.1 c) On acceptance

Balance 40% payment would be made against 'Final Acceptance Certificate' as per Section XVIII .....

In Section VI: LIST OF REQUIREMENTS

For Clause:

Part IV: Warranty and AMC

The goods and the works provided under the contract shall be warranted for 24 month from the date of Final Acceptance Certificate.

One-year service (labour only) for maintenance to be provided after the expiry of warranty period without any additional cost to the Purchaser/ Consignee as and when required.

Read As:

Part IV: Warranty and AMC

The goods and the works provided under the contract shall be warranted for **12 month** from the date of Final Acceptance Certificate.

One-year service (labour only) for maintenance to be provided after the expiry of warranty period without any additional cost to the Purchaser/ Consignee as and when required.

In Section VII:
Technical Specification

The Technical Specification is replaced as below:

Schedule No-1

Supply, Installation, Testing and Commissioning of Compressed Air Pipelines Distribution System

Scope:

The scope of work covers Supply, Installation, Testing, Commissioning and validation of Compressed Air Pipelines Distribution System.

Compressed air is required for operation of pneumatic systems/valves and also used for various other applications required in the process plant.

The air will be generated using an air compressor in the utility block at site.

The scope of work includes inter-connecting piping from compressor to Air receiver, Filters and Moisture Separator etc.

Material of Construction :

The material of construction of pipes, fittings & fixtures is as given below.

Services	MOC		
	Pipes	Fittings	Gasket
Compressed Air	G.I.(IS1239M Class) and SS304 Seam less	ASTM A 105, SORF, B16.5, 150#, SF / SS304 Seam Less	Non Asbestos joint sheet

Types of Valves :

Valves are used for the isolation,regulation or special such as non return etc. of air. The valve selection is based on their function & use in process.

Services	**Type of valve**
Compressed Air	Ball valve

Compressed Air :

Valve	**Ball valve**
	Manufacturing standard : BS 5352 Body :- ASTM A 182 Gr. F 304 Bolted /ASTM A 351 Gr.CF 8M Seat & stem: AISI304 Packing : PTFE, Trim SS304 End Connection : Screw upto 20NB & beyond Flanged to B 16.5 RF 150#

Design data :

Pressure:

The minimum & maximum pressure consider for line size & thickness design is

Services	**Pressure Consideration (kg/cm^2)**	
	Min	**Max**
Compressed Air	3	5

Temperature:

The minimum & maximum temperature consider for line size & thickness design is

Services	**Temperature Consideration (0C)**	
	Min	**Max**
Compressed Air	25	45

Velocity:

The minimum & maximum velocity consider for line size & thickness design is

Services	Velocity Consideration (M/S)	
	Min	Max
Compressed Air	8	12

Welding/ Screw Threading :

Services	Type of Welding
Compressed Air- SS pipes	Orbital Welding
Compressed Air- GI pipes	Screw Threading

Painting :

After successful completion of the installation, testing and insulation of exposed piping shall be given two coats of approved synthetic enamel paint as per IS: 2379 (color coding of pipes).

Cleaning :

a. During all stages of prefabrication and erection, the Supplier shall ensure that internal Surfaces of all pipes shall be kept clean to remove foreign matters inside the pipe during prefabrication, erection & commissioning of pipe work

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b. All the internal surfaces of pipe work during prefabrication stage shall be cleaned thoroughly by wire brushing and /or purging with an air blast to remove all scale or other foreign material from internal surfaces. The Supplier shall ensure that the method adopted for cleaning shall not leave any materials on the internal or external surfaces that will affect the serviceability of the pipe.

c. The installed pipe work shall be thoroughly cleaned by flushing with water and /or by blowing until all muck, welding flux, etc., is removed from the pipe work and clear water is available at the drain points.

PIPE & PIPE SUPPORT ERECTION:

All the tests like Hydro testing etc shall be carried out after erection of pipes. Piping work shall be considered inclusive of any type of pipe supports, clamps, Nut bolts etc. necessary for proper alignment/ slope of pipes. No piping load should come on equipment. The pipe support arrangement should take care of entire piping load with no stress on connected equipments.

STRUCTURAL FABRICATION & ERECTION:

All structural steel such as plates, tees, channels, beams, etc., should conform to IS: 226. The structural steel shall be straightened to remove bends, curves, deformation, etc., before taking up fabrication. The sections shall be cut using an oxy-acetylene flame to required sizes and shapes. The cut ends shall be neatly ground to remove burs, etc., from the cut surfaces. The cut sections shall be then welded / bolted / riveted to each other as per the approved drawings. Welding rods used shall be 6013 for all structural fabrication. In case of bolted / riveted sections, the sections are drilled and then assembled with fasteners.

After fabrication and erection, the final structure should be given two coats of red oxide primer and one coat of synthetic enamel of approved make and shade.

EQUIPMENT ALLIGNMENT:

The intent of equipment alignment is to place the equipment in the proper location as per approved drawings taking adequate care to prevent the equipment from damage or mechanical shocks while positioning.
The scope of equipment alignment would include the following but not necessarily limited to the ones as given under:

a. Lifting using mechanical devices and positioning on the foundation.
b. Proper alignment of the equipment on the foundation.
c. Assembling of loose parts related piping works, if any, to the equipment.
d. Fabrication and provision of proper supports etc., for the piping works as per the specifications and client's requirements.
e. Making any minor modification in the foundation / structure / wall, etc. (like small chipping / cutting) to accommodate the equipment in position.

FOLLOWING ADDITIONAL RULES SHALL BE FOLLOWED FOR SS PIPING:

a) Welding shall be done in separate areas/workshop. The material shall be protected against all kinds of impurities and particles from other metals.
b) The faces as well as material up to 50 mm next to the weld shall be cleaned thoroughly with acetone or methyl ethyl ketene.
c) Oxygen cutting and electrode cutting are not allowed for preparation of welding shapes.
d) Oxidation of metal surface during welding shall be prevented as much as possible by application of shielding and purge gas.
e) Oxy-acetylene welding of S.S. piping is not allowed.
f) All welds in the fabricated piping shall be pickled and passivity to restore corrosion resistance.
g) Proper 'V' groove at an angle of 60 deg - 70 deg shall be made at the faces of two pipes before welding them together.

MODE OF MEASUREMENT

Unit Prices in the Schedule of Quantities:
The unit price shall include the complete all activities necessary to complete the work covered by the item in accordance with the List of Requirements (Section-VI), Technical Specification and applicable drawings etc. as per Tender Enquiry Document. The sum total of all the individual item prices shall represent the total contract price.

Measurement of Piping, fittings, valves, fabricated items

1. All Piping shall be measured in linear meter (to the nearest millimeter/cm) along the axis of the pipes and rates shall be inclusive of all the fittings e.g. tees, bends, reducers, elbows, coupling, nipples etc. Deductions shall be made for valves in the Line.
2. The length of the pipe for the purpose of payment will be taken through the centerline of the pipe and all fittings (e.g. Tees, bends, reducers, elbows) as through the fittings are also presumed to be pipe lengths.
3. The valves shall be considered as a separate item. The rates of valve supply and installation etc. shall be inclusive or matching flanges in case of flanged valve.

All permanent structural supports for pipeline, as well as any temporary piping, valves and fittings fabricated for conducting hydro test, pneumatic test, etc., will not be considered for measurement. The unit quoted rates in the Bill of Quantities (BoQ) shall be inclusive of all permanent structural steel frame and supports.

Dismantling of pipes:
In case any pipeline is dismantled from its position after complete erection, due to revision / alteration in drawings /site requirements as per advice of Purchaser, charges of 20% of the cost of item as per rates specified in the BoQ of the contract of the related piping item alone would be allowed for compensation for such dismantling,. In this case, any temporary pipe, fittings and valves fabricated and erected for testing will not be considered for measurement. In this regard, client's decision shall be final and binding. In this regard, client's decision shall be final and binding.

BOQ FOR COMPRESSED AIR

Sr. No.	DESCRIPTION	Unit	QTY.
Shl- I	**COMPRESSED AIR**		
1	**PIPES**		
	Supplying, installation, testing and commissioning of G.I. Pipes complete (IS:1239 Medium class) with G.I. Fittings (bends, tees, reducers, plugs, union, flange etc) and clamps and jointing with Teflon tape including chase cutting and making good the walls, floors etc. wherever required, Pipe Hangers and all structural steel supports		

a	80 NB	Rmt	30
b	65 NB	Rmt	30
c	50 NB	Rmt	150
d	40 NB	Rmt	24
e	32 NB	Rmt	200
f	25 NB	Rmt	250
g	20NB	Rmt	60
2	Supplying, installation, testing and commissioning of Sch.10 SS 304.Piping complete with all Fittings like Elbow,Bends,Tee, Reducers,Flanges, Gaskets,nut bolts, etc. including Pipe Hangers and all structural steel supports.		
a	15 NB	Rmt	170
3	**BALL VALVES**		
	Supplying, installation, testing and commissioning of full bore SS 304 ball valve with CS body, disc & stem union, with hard chromeplated stainless steel ball tested to a pressure not less than 15 Kg / $cm^2$with flanged jointsor socket weld joints complete with nuts, bolts, gaskets, washers etc.		
a	40 mm dia	No	2
b	65 mm dia	No	3
c	80 mm dia	No	3
4	Supplying, installation, testing and commissioning of Ball Valves SS304 Body ,2P Design,Fire Safe,Teflon seated,Lever op. installed with all welded joints, fittings such as SS flanges, gasket,		
a	50 NB	No.	4
b	15 NB	No.	68
5	**5 MICRON FILTER**		
	Supplying, installation, testing and commissioning of compressed air cartridge filters 5 MICRON FILTER, dial type Pressure Regulator piston type, Quick acting Couplers, **FR** Unit with pressure gauge complete with pipe fittings		
a	**15 NB**	Set.	68
6	Supplying, installation, testing and commissioning of **Air Blow Gun** for cleaning purpose with bult in regulation control having 1/4" BSPT inlet hose connection. 2.0 bar is the outlet pressure to be set at the nozzle.	No	4
7	Supplying, installation, testing and commissioning of Polyurethane / Nylon coiled tubing with heavy duty brass end connectors and properly reinforced at both ends with ss wire.		
a	8 mm (OD) x 5 mm (ID) x 2500 mm	No.	2
b	8 mm (OD) x 5 mm (ID) x 5000 mm	No	2
8	Supplying, installation, testing and commissioning of Polyurethane / Nylon straight tube suitable for 10 bar with push on aluminium anodised fittings. Wall thickness 1.5 mm		

a	Hose ID 6mm	Rmt	68
9	**AIR VENT**		
	Supplying, installation, testing and commissioning of Automatic Air Vent		
a	15 NB	No.	2
10	Supplying, installation, testing and commissioning of S.S. PU tube and Connector (Easy Removable Type) 1/2" Male BSP		
a	15 NB	Rmt	68
11	Supplying, installation, testing and commissioning of SS 304 Pipe support assembly complete with base plate, barrel nipple, Anchor fastener and dome nuts etc. suitable for Inside room	No.	140
12	Hydraulic pressure Testing & Cleaning.	LS	1
13	Test Certificate of all supplied materials with As Built drawing.	Set	1

All the unit rates above shall be inclusive of installation/erection, inspection, testing, commissioning etc.

NOTE : 1) Supplier Scope includes complete erection, Installation and commissioning and trial run at client site

2) The Trial Run shall be carried out for a period of 7 days

3) Schematic Diagram and GA Drawings of all pipelines showing dimensions should be approved from the purchaser before manufacturing.

4) Scope of Standard Documentation for RO-EDI Storage and distribution pileline by the supplier:

- Validation documents DQ, OQ, IQ, PQ etc.
- Material Test certificate
- Installation & Maintenance Manual
- Certificates, Manual for Bought out items

5) Final Trial & validation with documents to be provided by supplier

6) Inspection- By Client/Purchaser or by their nominated agency.

7) Quarterly routine inspection of distribution pipeline system in the defect liability period has to be done by the supplier that without any additional charge to purchaser.

8) Hydrotest to be conducted at site by the supplier

Schedule No-2

Supply, Installation, Testing And Commissioning of Steam Pipelines Distribution System

Scope:

The scope of work covers Supply, Installation, Testing, Commissioning and validation of Steam Pipelines Distribution System.

Steam is a vapour of water & it is in the condition of absorbing the latent heat of vaporization .Steam does not follow the law of perfect gases, until it is perfectly dry . the Steam is required mainly as heating medium to heat air /water coming in contact with product .

This will be generated using boiler, which is mainly water tube type & having 75-90% of efficiency .

Material of Construction :

The material of construction of pipes ,fittings & fixtures is based on the process requirement MOC are as given below.

Services	MOC		
	Pipes	Fittings	Gasket
Steam	MS Black Pipes to ASTM A106 Gr. B, Seamless, Sch. 40, BE	A105, SORF, B16.5, 150#, IBR.	Non Asbestos joint sheet

Types of Valves :

Valves are used for the isolation regulation or special such as non return etc of fluid. The valve selection is based on their function & use in process.

Services	**Type of valve**
Steam	Globe valve and Piston Valve

Standard :

Globe valve	**Piston valve**
Out side screw & yoke type bolted bonnet (IBR Approved) Body :- ASTM A 216 Gr. B , Trim-13 Cr Ends : Flanged to ANSI B 16.5 RF# 150	ASA-150#, END : Flanged to B 16.5 RF Body : ASTM A 150, BOLTED Piston & Spindle: ASTM A 276 TP 410

Design data :

Pressure:

The minimum & maximum pressure considered for line size & thickness design is as below

Services	Pressure Consideration (kg/cm2)	
	Min	Max
Steam Line-1	1	4
Steam Line -2	6	7

Temperature:

The minimum & maximum temperature considered for line size & thickness design is as below.

Services	Temperature Consideration (0C)	
	Min	Max
Steam	100	145

Velocity:

The minimum & maximum velocity considered for line size & thickness design is as below.

Services	Velocity Consideration (M/S)	
	Min	Max
Steam	20	30

Insulation Material :

Hot Insulation:

Rock wool shall be used for the hot insulation & it shall be of high tensile strength chemically inert non hygroscope & fungus / vermin proof . the material shall be non corrosive type . The material shall have density of 48 kg /cu.m and thermal conductivity as given below.

Mean Temp W/Mok
20^{o} c 0.036
This product shall conform to IS 8183 -1993 (with amendments thereto, if any) group 3

Welding :

Services	Type of Welding
Steam	Arc Welding

Painting :

After successful completion of the installation, testing and insulation of exposed piping shall be given two coats of approved synthetic enamel paint as per IS: 2379 (color coding of pipes).

Tank (For condensate) Specification:

MS Feed water tank, CONDENSATE Line 3000 ltrs, fabricated out of 5 mm thick sheet, complete with nozzles for inlet, outlet, drain, condensate, manhole, MLG, solenoid valve, by pass valve, level indicator, dodging & spare etc. all nozzles shall be fabricated from MS ERW C Class pipe. All flanges shall be confirming to ANSI B 16.5, 150# RF The tank shall be placed at a height of + 1.5 meters from FFL. Necessary structure required for placement of tank is been asked separately in the supports column.

The tank shall be provided with the following valves, fittings & instruments CS ball valve, flanged , SS Magnetic Level gauge etc.

Dimensions of the tank shall be subject to prior approval of IMPCL before fabrication

Cleaning :

a. During all stages of prefabrication and erection, the Supplier shall ensure that internal Surfaces of all pipes shall be kept clean to remove foreign matters inside the pipe during prefabrication, erection & commissioning of pipe work.

b. All the internal surfaces of pipe work during prefabrication stage shall be cleaned thoroughly by wire brushing and /or purging with an air blast to remove all scale or other foreign material from internal surfaces. The Supplier shall ensure that the method adopted for cleaning shall not leave any materials on the internal or external surfaces that will affect the serviceability of the pipe.

c. The installed pipe work shall be thoroughly cleaned by flushing with water and /or by blowing until all muck, welding flux, etc., is removed from the pipe work and clear water is available at the drain points.

PIPE & PIPE SUPPORT ERECTION:

All the tests like Hydro testing etc shall be carried out after erection of pipes. Piping work shall be considered inclusive of any type of pipe supports, clamps, Nut bolts etc. necessary for proper alignment/ slope of pipes. No piping load should come on equipment. The pipe support arrangement should take care of entire piping load with no stress on connected equipments.

All condensate drainage shall be pitched in the directions of flow to ensure adequate drainage.

STRUCTURAL FABRICATION & ERECTION:

All structural steel such as plates, tees, channels, beams, etc., should conform to IS: 226. The structural steel shall be straightened to remove bends, curves, deformation, etc., before taking up fabrication. The sections shall be cut using an oxy-acetylene flame to required sizes and shapes. The cut ends shall be neatly ground to remove burs, etc., from the cut surfaces. The cut

sections shall be then welded / bolted / riveted to each other as per the approved drawings. Welding rods used shall be 6013 for all structural fabrication. In case of bolted / riveted sections, the sections are drilled and then assembled with fasteners.

After fabrication and erection, the final structure should be given two coats of red oxide primer and one coat of synthetic enamel of approved make and shade.

EQUIPMENT ALLIGNMENT:

The intent of equipment allignement is to place the equipment in the proper location as per approved drawings taking adequate care to prevent the equipment from damage or mechanical shocks while positioning.
The scope of equipment allignment would include the following but not necessarily limited to the ones as given under:

a. Lifting using mechanical devices and positioning on the foundation.
b. Proper alignment of the equipment on the foundation.
c. Assembling of loose parts related piping works, if any, to the equipment.
d. Fabrication and provision of proper supports etc., for the piping works as per the specifications and client's requirements.
e. Making any minor modification in the foundation / structure / wall, etc. (like small chipping / cutting) to accommodate the equipment in position.

MODE OF MEASUREMENT

Unit Prices in the Schedule of Quantities:
The unit price shall include the complete all activities necessary to complete the work covered by the item in accordance with the List of Requirements(Section-VI), Technical Specification and applicable drawings etc. as per Tender Enquiry Document. The sum total of all the individual item prices shall represent the total contract price.

Measurement of Piping, fittings, valves, Fabricated items

1. All Piping shall be measured in linear meter (to the nearest millimeter/cm) along the axis of the pipes and rates shall be inclusive of all the fittingse.g. tees, bends, reducers, elbows, coupling, nipples etc. Deductions shall be made for valves in the Line.
2. The length of the pipe for the purpose of payment will be taken through the centerline of the pipe and all fittings (e.g. Tees, bends, reducers, elbows) as through the fittings are also presumed to be pipe lengths.
3. The valves shall be considered as a separate item. The rates of valve supply and installation etc. shall be inclusive or matching flanges in case of flanged valve.

All permanent structural supports for pipeline, as well as any temporarypiping, valvesand fittings fabricated for conducting hydro test, pneumatic test, etc., will not be considered for measurement. The unit quoted rates in the Bill of Quantities (BoQ) shall be inclusive of all permanent structural steel frame and supports.

Dismantling of pipes:

In case any pipeline is dismantled from its position after complete erection, due to revision / alteration in drawings /site requirements as per advice of Purchaser, charges of 20% of the cost of item as per rates specified in the BOQ of the contract of the related piping item alone would be allowed for compensation for such dismantling,. In this case, any temporary pipe, fittings and valves fabricated and erected for testing will not be considered for measurement. In this regard, client's decision shall be final and binding. In this regard, client's decision shall be final and binding.

BILL OF QUANTITIES(BOQ) FOR STEAM PIPELINE			
Sr. No.	**DESCRIPTION**	**Unit**	**QTY.**
d			
Shl-II	**STEAM LINE**		
1	Supplying, installation, testing and commissioning of factory rolled MS Black Pipes to ASTM A106 Gr. B,Smls, Sch. 40, BE pipes with specified wall thickness cut to required lengths and installed with all welded joints, fittings such as bends, tees, elbows, reducers, flanges, Pipe Hangers and all structural steel supports		
a	15 NB	Rmt	60
b	20 NB	Rmt	40
c	25 NB	Rmt	90
d	40 NB	Rmt	90
e	50 NB	Rmt	120
f	65 NB	Rmt	140
g	80 NB	Rmt	70
h	100 NB	Rmt	100
i	125 NB	Rmt	70
j.	Expansion "U" band	Set	2
2	**PRESSURE REDUCING STATION**		
a	Supplying, installation, testing and commissioning of PRESSURE REDUCING STATION (6 to 7 kg) PRV STATION (Inlet**100mm** - outlet **150mm**, Inlet pressure 8 to 10 kg/cm2 outlet pressure 7kg/cm2) complete with all accessories For EXTRACTION -I, including the following	Set	1
i)	DP Type pressure reducing valve with required reducing range.(Spriex make)- 1 no.		
ii)	Stop valve on up steam side. - 1 no.		
iii)	stop valve on down steam side. - 1 no.		
iv)	By pass with stop valve. - 1 no.		
v)	Stop valve on pressure control. - 1 no		

vi)	Safety valve - 1 no.		
vii)	150mm dia pressure gauges with isolation cocks and syphon- 2 Nos.		
viii)	All inter connecting pipe with fitting and required fixtures as required, including moisture separator with drain trap assembly and strainer- 1 set		
ix)	20mm thermodynamic steam trap assembly:-2 Nos.		
x)	Steam valve, sight glass, strainer complete flanges, bends, piping etc. or required:- 9 sets		
xi)	Ball float type steam trap assembly with 02 Nos		
xii)	Steam valve sight glass and brass strainer complete :- 20 sets		
b.	Supplying, installation, testing and commissioning of PRESSURE REDUCING STATION (3 TO 4 kg) PRV STATION (Inlet 40mm- outlet 50mm, Inlet pressure 8 to 10 kg/cm2 outlet pressure 3kg/cm2) complete with all accessories, including the following	Set	1
i)	DP Type pressure reducing valve with required reducing range.(Spriex make)- 1 no.		
ii)	Stop valve on up steam side. - 1 no.		
iii)	stop valve on down steam side. - 1 no.		
iv)	By pass with stop valve. - 1 no.		
v)	Stop valve on pressure control. - 1 no		
vi)	Safety valve - 1 no.		
vii)	150mm dia pressure gauges with isolution cocks and syphon- 2 Nos.		
viii)	All inter connecting pipe with fitting and required fixtures as required, including moisture separator with drain trap assembly and strainer- 1 set		
3	**SAFETY RELIEF VALVE**		
	Supplying, installation, testing and commissioning of Design: Self Actuating, Full lift, Spring Loaded. Discharge: Angle Bonnet: Closed Pressure Rating: 150# MOC: Cast Steel Temp. Limit: 0 to 200^{o}C Size: 15 NB End Connection: 1/2" Screwed	No.	2
4	**PRESSURE GAUGE**		
	Supplying, installation, testing and commissioning of PRESSURE GAUGE (With Isolation Niddle valve)Wetted Material: Brass Housing: SS 304 Pressure Limit: 0 to 15Kg/cm2Temp. Limit: 0 to 200^{o}C Size: 4" (100mm) Process Connection: 1/2" Male BSP	No.	20
5	**TEMPERATURE GAUGE**		
	Supplying, installation, testing and commissioning of TEMPERATURE	No.	20

	GAUGE :- Wetted Material: Brass Housing: Black powder coated steel Bulb Length:. 3" (76 mm)Temp. Limit: 0 to 200^{o}C Size: 4" (100mm)Process Connection:1/2" Male BSP		
6	**Globe VALVES**		
	Supplying, installation, testing and commissioning of Globe Valve: Material: Cast Steel (ASTM A 216 WCB) End Connection: Flanged Pressure Rating : 150 Class (CL#150)		
a	25 NB	No.	1
b	40 NB	No.	1
c	50 NB	No.	1
d	100 NB	No.	2
7	**INSULATION**		
	Supplying, installation, testing and commissioning of hot insulation with 50mm LRB mattresses of 100 kg/m 3 Density + 24Swg. Alu. Cladding.(for Flange & valve Boxes used 24 Swg Alu. Sheet)		
a	50 NB / 100 NB / 80 NB / 65 NB / 40 NB	TMR	510
b	25 NB	TMR	130
c	25 NB VALVE	No.	20
8	**Air Vent**		
	Supplying, installation, testing and commissioning of Automatic Air Vent		
a	50 NB	No.	4
b	25 NB	No.	2
9	**STEAM TRAP ASSEMBLY**		
a	Supplying, installation, testing and commissioning of STEAM TRAP ASSEMBLY: - 1" Steam trap assembly Complete With Float type Steam Trap, Isolation globe valve (2 Nos),Flanges, gasket, nut-Bolts etc. and inter connectivity pipe etc.	No.	12
b	Flow trap	No.	18
	CONDENSATE WATER PIPING		
10	Supplying, installation, testing and commissioning of factory rolled M.S. Pipes to IS-1239, Heavy, ERW, BW pipes with specified wall thickness cut to required lengths and installed with all welded joints, fittings such as bends, tees, elbows, reducers, flanges, Pipe Hangers, Supports		
a	50 NB SS 304 PIPE LINE	tmR	280
b	50NB MS PIPE IS-1239	Rmt	40
c	80 NB MS PIPE IS-1239	Rmt	360
11	Supplying, installation, testing and commissioning of hot insulation with 25mm LRB mattresses of 100 kg/m 3 Density + 24Swg. Alu. Cladding. (for Flange & valve boxes used 24 Swg Alu. Sheet)		
a	50 NB SS 304 PIPE LINE	Rmt	280
b	50 NB MS PIPE LINE IS-1239	Rmt	40
c	80 NB MS PIPE IS-1239	Rmt	360

12	Supplying, installation, testing and commissioning of MS Feed water tank, 3000 ltrs, FOR CONDENSATE WATER PIPING fabicated out of 5 mm thick sheet, complete with nozzles for inlet, outlet, drain, condensate, manhole, MLG, solenoid valve, by pass valve, level indicator, doding & spare etc. all nozzles shall be fabricated from MS ERW C Class pipe. All flanges shall be confirming to ANSI B 16.5, 150# RF The tank shall be placed at a height of + .5 mtrs from FFL. Necessary structure required for placement of tank is been asked separately in the supports column.	No	1
13	Supplying, installation, testing and commissioning of 5.0 HP Pump assembly complete with base frame, coupling, motor, scope includes flanged end isolation Valve, NRV ,strainer etc on suction & Discharge.	No	2
14	**Steam Header (Boiler and Ancillary Equipments)** Main Steam header 3.0Rmt Long Made out of IBR quality Schedule-40 pipe dia 250 NB, with 2 Nos inlet, 2 Nos outlet, safety valve pressure Gauge, steam trap drain without valve and its fittings,	No	1
15	**Steam Valve / NRV / strainer**		
	15 NB - (NRV) H	No.	6
	20 NB - (NRV) H	No.	10
	25 NB - steam valve	No.	8
	25 NB - steam strainer	No.	8
	20 NB - Steam Valve	No.	6
	20 NB - Steam Strainer	No.	6
	100 NB - NRV flyed type for 4 TPH Boiler	No.	1
	50 NB - NRV flyed type for 1 TPH Boiler	No.	1
16	Boiler registration (IBR) and its approval of the CIB Uttarakhand		
17	Steam pipe line layout drawing and Isometric and its approval		
	Hydraulic pressure Testing & Cleaning.	LS	1
	Test Certificate with As Built drawing.	Set	1

NOTE (1): Scope of Standard Documentation for Compressor

- Validation documents DQ, OQ, IQ, PQ etc.
- Material Test certificate
- Installation & Maintenance Manual
- Spare Part List
- Schematic Diagram and GA Drawings of all pipelines showing dimensions should be approved from the purchaser before manufacturing.
- Inspection- By Client/Purchaser or by their nominated agency.
- Hydro- test
- Trial run at site.
- Final Trial & validation with documents to be provided by supplier.

- Quarterly routine inspection of pipelines in the defect liability period has to be done by the supplier that without any additional charge to purchaser.

All the unit rates above shall be inclusive of installation/erection, inspection, testing, commissioning etc.

NOTE : 1) Supplier Scope includes complete erection, Installation and commissioning and trial run at client site
2) The Trial Run shall be carried out for a period of 7 days
3) Schematic Diagram and GA Drawings of all pipelines showing dimensions should be approved from the purchaser before manufacturing.
4) Scope of Standard Documentation for RO-EDI Storage and distribution pileline by the supplier:
   - Validation documents DQ, OQ, IQ, PQ etc.
   - Material Test certificate
   - Installation & Maintenance Manual
   - Certificates, Manual for Bought out items
5) Final Trial & validation with documents to be provided by supplier
6) Inspection- By Client/Purchaser or by their nominated agency.
7) Quarterly routine inspection of distribution pipeline system in the defect liability period has to be done by the supplier that without any additional charge to purchaser.
8) Hydrotest to be conducted at site by the supplier
9) Supplier's scope includes IBR registration and its approval from CIB, Uttarakhand
10) Supplier's scope includes minor civil works related to provision of supports for piping i.e grouting, fixing and finishing.

Others:

All other contents of the Tender Enquiry Document including terms and conditions of the tender enquiry remain unchanged.

……..The End……