



# भारत हेवी इलेक्ट्रिकल्स लिमिटेड

( भारत सरकार का उपक्रम )

## BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

TCN - 02

Ref: PSER:SCT:KLN-M1857:TCN-02

Date: 06-11-2017

Sub	Tender Change Notice -TCN-02	
Job	Design, Engineering, Manufacturing, Supply, (Including Mandatory Spares) Erection & Commissioning, Etc. Of Fuel Oil Handling System & Miscellaneous Tanks Package For 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.	
Ref	1.0	Tender no PSER:SCT:KLN-M1857:17
	2.0	BHEL's NIT, vide reference no PSER:SCT:KLN-M1857: 6119 , Dated 05-10-2017
	3.0	BHEL's TCN-01 vide ref PSER:SCT:KLN-M1857:TCN-01 dated 26-10-2017
	4.0	All other pertinent issues till date.

With reference to above, following points/ documents, relevant to tender, may please be noted and complied with while submitting offer.

- 1.0 Extension of due date of submission of offer from 07-11-2017 to 13-11-2017 (15:00 hrs).
- 2.0 Clarification to bidder's queries vide Annexure-A to TCN-02.
- 3.0 Revised 'No deviation certificate' as per enclosed Annexure-2. Bidder shall submit no deviation certificate as per enclosed format only.
- 4.0 All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,  
for BHARAT HEAVY ELECTRICALS LTD

DY MGR (SCT)

Encl : As above.

पावर सेक्टर पूर्वी क्षेत्र ( मुख्यालय )

POWER SECTOR EASTERN REGION, DJ-9/1, SECTOR-II, SALT LAKE CITY, KOLKATA - 700 091

फैक्स/Fax : (033) 23211960

फोन/Phone : बोर्ड/EPABX : 23211691, 23211798, 23211796

**FORMAT FOR NO DEVIATION CERTIFICATE**  
**(To be submitted in the bidder's letter head)**

BHARAT HEAVY ELECTRICALS LIMITED,  
Power Sector - Eastern Region,  
Plot no 9/1, DJ Block, Sector – II, Salt Lake City,  
Kolkata – 700 091

<b>Sub</b>	No Deviation Certificate.	
<b>Job</b>	Design, Engineering, Manufacturing, Supply, (Including Mandatory Spares) Erection & Commissioning, Etc. Of Fuel Oil Handling System & Miscellaneous Tanks Package For 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.	
<b>Ref</b>	1.0	Tender no PSER:SCT:KLN-M1857:17
	2.0	BHEL's NIT, vide reference no PSER:SCT:KLN-M1857:6119, Dated 05-10-2017
	3.0	BHEL's TCN-01, vide reference PSER:SCT:KLN-M1857:TCN-01, dated 26-10-2017.
	4.0	BHEL's TCN-02, vide reference PSER:SCT:KLN-M1857:TCN-02, dated 06-11-2017.
	5.0	All other pertinent issues till date.

Dear Sirs,

With reference to above, this is to confirm that as per tender conditions, we have visited site before submission of our offer and noted the job content & site conditions etc. We also confirm that we have not changed/ modified the tender documents as appeared in the website/ issued by you and in case of such observance at any stage, it shall be treated as null and void.

We hereby confirm that we have not taken any deviation from tender clauses together with other references as enumerated in the above referred NIT. We hereby confirm our unqualified acceptance to all terms & conditions, unqualified compliance to technical specification, integrity pact (if applicable) and acceptance to reverse auctioning process.

In the event of observance of any deviation in any part of our offer at a later date whether implicit or explicit, the deviations shall stand null & void.

We confirm to have submitted offer in accordance with tender instructions and as per aforesaid references.

Thanking you,

Yours faithfully,

(Signature, date & seal of authorized  
representative of the bidder)

पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)

POWER SECTOR EASTERN REGION DJ-9/1, SECTOR-II, SALTLAKE CITY, KOLKATA - 700 091

फैक्स/Fax : (033) 23211960

फोन/Phone : बोर्ड/EPABX : 23211691, 23211798, 23211796

ANNEXURE-A TO TCN-02				
Sub: Tender for Design, Engineering, Manufacturing, Supply, (Including Mandatory Spares) Erection & Commissioning, Etc. Of Fuel Oil Handling System & Miscellaneous Tanks Package For 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.				
Tender No. PSER-SCT:KLN-M1857-17.				
Sr.No.	Reference Clause of Tender Document	Existing provision	Bidder's query	BHEL clarification
1	NOTICE INVITING TENDER / clause no.3 / page no. 3 of 39	Volume – I F : Technical Conditions of Contract (TCC)	Volume 1F is missing in the given tender. Please provide the same.	Not applicable
2	Volume 1D R-0 / clause 29.1 / page no. 19 of 119	MAIN SERVICE (REFER VOLUME-III A & IIIB)	We are aware of VOL-III A_M1857( Price bid) as given in the tender specification. Volume IIIB is missing. Please provide the same.	It shall be "MAIN SERVICE (REFER VOLUME-III)".
3	Volume II / Section I / Sub section IA / clause 1.1.1 (a) / page no. 100 of 633	Two (2) Nos. Vertical, Cylindrical, cone roof type HSD storage tanks of <b>net working capacity</b> 2000 M3 each designed as per API 650 including vents, drains, required nozzles, connecting piping, fittings & valves, manholes, foundation anchor fasteners, overflow indicators and instruments , required ladders / staircases / approach platforms etc.	Definition of net working capacity is not given in the specification to check the correctness of tank dimensions. Hence we presume that given tank sizes are inline with your net working capacities. Please check and confirm.	Tank sizes given under specification are to be followed.
4	Volume II / Section I / Sub section IA / clause 1.1.1 (a) / page no. 101 of 633	e. Miscellaneous Tanks : (i) Two (2) Nos. vertical cylindrical carbon steel DM Water Storage Tanks of <b>net effective</b> capacity of 750 M3 complete with all accessories as indicated in relevant Data sheet & sketch. (ii) Two (2) Nos. vertical cylindrical carbon steel Condensate Storage Tanks of <b>net effective capacity</b> of 350 M3 complete with all accessories as indicated in relevant Data sheet & sketch. (iii) One (1) Nos. vertical cylindrical carbon steel Desalination Water Storage Tank of <b>net effective</b> capacity of 12000M3. (iv) One (1) Nos. vertical cylindrical carbon steel service water Storage Tank of <b>net effective</b> capacity of 400M3. (v) One (1) Nos. vertical cylindrical carbon steel potable water Storage Tank of <b>net effective</b> capacity of 400M3.	Definition of net working capacity is not given in the specification to check the correctness of tank dimensions. Hence we presume that given tank sizes are inline with your net working capacities. Please check and confirm.	Tank sizes given under specification are to be followed.
5	Volume II / Section I / Sub section IA / clause 1.1.1 (I) / page no. 102 of 633	Sump pumps (1W + 1S) where ever required (at all such places where in oil water waste cannot be pushed through gravity flow) within the battery limit of FOHS package. Type and capacities of these pumps will be decided during detailed engineering stage without any commercial and delivery implications.	Both referred clauses are contradicting regarding the sump pumps. We presume that sump pumps in the HSD pump house will be in BHEL Trichy scope.	Bidder has not carefully gone through the specification requirements. The sump pump inside HSD pump house is in BHEL (Trichy) scope as per Volume II / Section I / Sub section IA / clause 1.0.2 / page no. 114 of 633. Any other sump pump required (where gravity flow is not possible) to transfer oily waste etc shall be under bidder scope as per Volume II / Section I / Sub section IA / clause 1.1.1 (I) / page no. 114 of 633. Bidder to comply specification requirements in totality.
	Volume II / Section I / Sub section IA / clause 1.0.2 / page no. 114 of 633	Sump pump (under BHEL Trichy scope) is also envisaged in the HSD Pump House to pump the oil water mixture to oily water retention basin of fuel oil area..		
6	Volume II / Section I / Sub section IA / clause 2.0.0 / page no. 105 of 633	Painting for all equipments, valves, piping, fittings, tanks etc. of the system shall be carried out generally as per Clause 80.6.5 of contract specification. Detaild painting schedule for individual Itmes as applicable for the package shall be devlope by vendor inline with stipulated requirement under Clause no 80.6.5,Page 80.99to 80.100 (under sectionIA CUSTOMER'S GENERAL TECHNICAL SPECIFICATION-80) Color codes for painting system shall be as per table given under clause 80.6.9 at running page no 80106.	Please inform which painting system number to be followed for HSD tanks & Piping and Misc. Tanks in the referred clause.  Also internal and underneath paint for HSD tanks and Misc. tanks is not available in the referred clause. Please provide the same.	Bidder to comply specification requirements as mentioned under Volume II / Section I / Sub section IA / clause 2.0.0 / page no. 105 of 633. Specific issues pertaining to internal and underneath paint will be discussed and finalised during detailed engineering .
	Volume II / BIFPCL/EPC-Main plant/1 / page no. 279 of 633 (80-99)	Coating systems		
7	Volume II / Section I / Sub section IA / clause 7.0.0 / page no. 106 of 633	Exclusions: Fire Protection system for Fuel Oil storage tanks.	In the customers specification it is written that fire protection system for tank is in our scope of supply where as in the BHEL specification fire protection system is excluded from our scope. Please clarify.	Fire protection system is not in bidder scope as mentioned at Volume II / Section I / Sub section IA / clause 7.0.0 (b) / page no. 107 of 633 .
	Volume II / BIFPCL/EPC-Main plant/2015/01 / clause B4.3.3 / page no. 124 of 633 (B4-36)	High speed diesel system (HSD) : Fuel oil storage tank : The tank shall have permanently installed roof and shell sprinkling system for fire protection. Care must be taken to ensure that both roof and shell of the tank are adequately cooled on all sides.  The tanks shall have a permanently installed top and side spray installation for fire protection as well as permanently installed foam system. <b>The scope of supply for the tanks includes</b> the foam inlet branches and all mountings for the foam tubes, etc, at the tanks.  A water supply is to be provided for the complete sprinkling (roof and shell) of the tanks. Care must be taken to ensure that both roof and shell of the tank are adequately cooled on all sides.		

ANNEXURE-A TO TCN-02

**Sub: Tender for Design, Engineering, Manufacturing, Supply, (Including Mandatory Spares) Erection & Commissioning, Etc. Of Fuel Oil Handling System & Miscellaneous Tanks Package For 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.**

**Tender No. PSER-SCT:KLN-M1857:17.**

Sr.No.	Reference Clause of Tender Document	Existing provision	Bidder's query	BHEL clarification
8	Volume II / Dwg no. Maitree-00-EG-FB-421166A001-PEM-A, REV-A, Sheet 2 of 2	Process and instrumentation diagram of HSD unloading and storage system.	In the referred P&ID, all the motorised valves are shown as ball valves where as customers specification calls for motorized gate valves. Please clarify the type to be consider.	Bidder to follow the P&ID for valves selection.
	Volume II / BIFPCL/EPC-Main plant/2015/01 / clause B4.3.3 / page no. 125 of 633 (B4-37)	High speed diesel system (HSD) : Fuel oil storage tank : In addition the tank must be provided with overfilling protection which must respond when maximum permissible level is exceeded by giving an alarm and closing the <b>motorized gate valves</b> in the filling lines so that no further oil can enter the tank.		
9	Volume II / BIFPCL/EPC-Main plant/2015/01 / clause B6.3.4 / page no. 127 of 633 (B6-46)	Misc. Tanks: Around the inside of the tank perimeter, <b>six drainage sumps shall be provided</b> . Each sump shall be equipped with a 50mm diameter drain pipe connected to the shell double flange nozzle. A shut off valve with a blind flange shall be provided.	Number drains per tank is contradicting with the data sheets given in SECTION – IC of Misc. tanks. Please check and confirm number of drains required per tank.	Bidder to follow clause B6.3.4 at page 127 of specification.
10	Volume II / BIFPCL/EPC-Main plant/2015/01 / clause B6.3.4 / page no. 127 of 633 (B6-46)	Misc. Tanks: All tank internals (pipes etc) shall be made of stainless steel type AISI 304 or approved equivalent materials. Bolts, nuts etc located with in the tank shall also be made of stainless steel.	Customer specification calls for stainless steel material for tank internals for all the Misc tanks where as in the BHEL specification only condensate storage tank and DM water storage tank internals are stainless steel material, remaining tanks are of carbon steel. Please clarify.	Bidder to follow the datasheet of Misc tanks
	Volume II / Section IC / page no. 505 to 511 of 633	Data sheets for Misc tanks		
11	Volume II / Section I / Sub section IA / clause 1.1.1 (c) / page no. 101 of 633	HSD Unloading header of Minimum Dia 300 Nb for at least <b>Ten (10) Nos. road tankers</b> . For details please refer progressive P&ID No. Maitree-00-EG-FB-421166A001-PEM-A enclosed in this specifications.	BHEL specification calls for 10 nos road tankers where as in referred P&ID it is written as 5 nos tankers (but showing 10 nos tankers). Please clarify number of unloading tankers to be considered	Bidder to consider 10 no road tankers as per clause no. Volume II / Section I / Sub section IA / clause 1.1.1 (c) / page no. 101 of 633.
	Volume II / Dwg no. Maitree-00-EG-FB-421166A001-PEM-A, REV-A, Sheet 2 of 2	Process and instrumentation diagram of HSD unloading and storage system: <b>5 nos road tankers</b> ; 20 cu.m cap each.		
12	Volume II / Dwg no. Maitree-00-EG-FB-421166A001-PEM-A, REV-A, Sheet 2 of 2	Process and instrumentation diagram of HSD unloading and storage system: <b>400NB</b> HSD supply line to HSD pressurizing pumps	In P&ID sheet 2 of 2, 400NB Motorised ball valve is shown on the supply line where as in sheet 1 of 2 above 350NB should be a gate valve. Please clarify which type of motorised valve to be considered on supply line.	Bidder to follow valve selection criteria as given in Sh 1 of 2 of P&ID no Maitree-00-EG-FB-421166A001-PEM attached with specification.
	Volume II / Dwg no. Maitree-00-EG-FB-421166A001-PEM-A, REV-A, Sheet 1 of 2	Valve selection criteria for fuel line : For oil lines 200NB & below - Ball valves 250NB to 350NB - plug valves above 350NB - Gate valves		
13	Volume II / Dwg no. Maitree-00-EG-FB-421166A001-PEM-A, REV-A, Sheet 2 of 2	Process and instrumentation diagram of HSD unloading and storage system	Kindly provide sizes for spare inlet and spare outlet on HSD storage tank.	Size of spare inlet and spare outlet will be same as inlet and outlet nozzle size respectively.
14	Volume II / Dwg no. Maitree-00-EG-FB-421166A001-PEM-A, REV-A, Sheet 2 of 2	Process and instrumentation diagram of HSD unloading and storage system: HSD Unloading pumps- cap 50cu.m./hr, 5 nos (4W+1S) HSD intertank transfer pumps - cap 50cu.m./hr, 2 nos (1W+1S) Pump Discharge header 200NB	We understood that unloading and intertank transfer pumps are not working simultaneously. Please confirm.  This is required to verify the size of discharge header.	Bidder understanding is correct.
15	Volume II / Dwg no. Maitree-00-EG-FB-421166A001-PEM-A, REV-A, Sheet 1 of 2	Pipes, fittings and flanges specification : Pipes 50NB and below - API 5L GrB above 50NB - API 5L GrB	Kindly specify whether API 5L GrB is ERW or seamless.	Bidder to refer CI B0.6.14.2, 2nd para on page 293 of 633 Technical specification for pipe construction type.
16	Volume II / Dwg no. Maitree-00-EG-FB-421166A001-PEM-A, REV-A, Sheet 1 of 2	Pipes, fittings and flanges specification : Fittings above 50NB - ASTM A 234 Gr.WPB	Kindly clarify whether the type of construction is seamless or welded.	Bidder to pls refer ASTM standard A234. All the material grades supplemented with "W" are welded type construction grades.
17	Volume II / Dwg no. PE-DG-421-166-S001, REV-A, Sheet 1 of 1	Main tank dyke area (2x2000 HSD)	In the referred layout in the main tank dyke area it is written as floating roof tank. We presume as it is wrongly printed and correcting the same as fixed roof cone tank. Please confirm.	Bidder to estimate considering fixed roof tank.
18	Volume II / Section IC / clause no 11 / page no. 509 of 633	Material of construction : CARBON STEEL PLATES AS PER ASTM A36, GALVANIZED. REFER CUSTOMER SPECIFICATION FOR DETAILS	Plate material called for galvanised steel. We never come across using of Galvanised steel plates for tank construction. Please check and confirm.	Bidder to comply specification requirements. Specific issues, if any, will be taken up while taking approval of tank drawings during detailed engineering.
19	Volume II / Section IC / clause no 13 / page no. 509 of 633	PIPE MATERIAL : ASTM A-53 TYPE E GR.B GALVANISED	Kindly provide the Schedule / thickness to be considered for specified pipes.	Refer BHEL reply at S.No.31 below
20	Volume II / Section IC / clause no 13 / page no. 510 of 633	PIPE MATERIAL : PIPING UPTO AND INCLUDING 350NB SHALL BE CARBON STEEL AS PER ASTM A53	Kindly provide the Schedule / thickness to be considered for specified pipes.	Refer BHEL reply at S.No.31 below
21	Volume II / Section IC / clause no 14 / page no. 511 of 633	PIPE MATERIAL : A) PIPING UPTO AND INCLUDING 350NB SHALL BE CARBON STEEL AS PER ASTM A53 B) PIPING 400NB & ABOVE SHALL BE CARBON STEEL AS PER ASTM A671	Please provide the grade for ASTM A671 and also provide the Schedule / thickness to be considered for specified pipes.	Refer BHEL reply at S.No.31 . Piping grade & MOC shall be furnished in <b>Amendment to technical specification</b> to be issued later as TCN

ANNEXURE-A TO TCN-02				
Sub: Tender for Design, Engineering, Manufacturing, Supply, (Including Mandatory Spares) Erection & Commissioning, Etc. Of Fuel Oil Handling System & Miscellaneous Tanks Package For 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.				
Tender No. PSER-SCT-KLN-M1857-17.				
Sr.No.	Reference Clause of Tender Document	Existing provision	Bidder's query	
			BH&L clarification	
22	Volume II / Section IC / clause no 12/ page no. 509,510 of 633 and clause no 13 / page no 511 of 633	Nozzle Detail	Please provide the MOC and standard for nozzle flanges.	MOC for flanges shall be carbon steel as per A105.
23	Volume II / Section C / clause no 28 / page no. 522 of 633	Redundancy of sensors shall be provided, irrespective of instrumentation shown in the PID, by bidder as per following: (i) Triple redundancy for all analog and binary inputs required for protection of system/drives. (ii) For all other control functions & alarms dual redundancy of the sensors shall be provided by the bidder	With respect to referred clause, we request you to mention the number of instruments in PID itself to avoid confusion on the redundancy.	Bidder to follow the specification in totality.
24	Volume II / Section I / clause no 2.0.3 / page no. 114 of 632	The LCC is envisaged to achieve the following functions: a) Filling of HSD storage tanks .....to n) Low level in storage tanks will be used for annunciation purpose in the unloading pump house to alert the operator for tank inventory.	Since Operation and Control of HSD unloading and storage system will be from DCS based control system located in HSD unloading and forwarding pump house. Please confirm LCC (Local Control Center) is part of DCS or Separate Local Control Center panel (Relay Based) and Scope of supply and erection of LCC.	LCC is DCS based control panel only .
25	Volume II / Sub Section II A / page no. 590 of 633 Volume II / Sub section IA / clause no 1.1.0 / page no. 117 of 633	Standard Technical requirement - Mechanical <b>Indian Standards and Chinese Standards are NOT acceptable.</b> Chinese materials are not acceptable. Wherever international standards have been mentioned same shall not include Indian and Chinese standards.	We presume that standard technical requirement is a general specification and we are not considering the same as the specification contains all the indian standards and various tank specifications which are not in our scope. Please confirm.	Bidder to follow clause no. 1.1.0 at page 117 of 633 for codes and standards.
26	Volume II / Section I / Sub section -IA / clause no. 1.0.0 / page no.100 of 633	SCOPE OF WORK: This specification includes, but not limited to SUPPLY PART, SERVICE PART, GAURANTEE PART & MANDATORY SPARES comprising of design (i.e. preparation and submission of drawing /documents including "As Built" drawings and O&M manuals), engineering, manufacture, fabrication, assembly, inspection / testing at vendor's & subvendor's works, painting, maintenance tools & tackles (as applicable), fill of lubricants & consumables along with spares for erection, start up and commissioning as required, forwarding, <b>sea worthy packing</b> , shipment and delivery (at site or port, as per NIT conditions), unloading, handling, transportation & storage at site (in containers), onsite transportation, assembly, erection, testing & commissioning, trial run at site, preparation of drawings in 3D (as applicable) and carrying out performance guarantee/Functional/Demonstration tests at site-----	We prefer to transport / deliver the items to site by road ways, hence sea worthy packing is not applicable for the items transported by road ways. Please confirm.	Plant material shall be sent in sea-worthy packing due to saline environment at site. However, other material such as structural steel, pipes, etc. shall be suitably packed in weather proof packing for tropical & saline conditions. The packing shall be strong and efficient enough to ensure safe preservation of the materials.
27	Volume II / Section II / Sub section -IIA / clause no. 3.2.6 / page no.595 of 633	Each shell course shall be of uniform width throughout longitudinal weld in plates. Make up for the course width shall not be permitted. Shell plates in each course width shall be so arranged that all vertical joints be staggered having a minimum of 600 mm stagger. Shell thickness could be reduced in upper courses depending on design requirements but in <b>no case the plate thickness shall be less than 8mm.</b>	Storage tanks (HSD and MISC tanks) minimum thickness to be considered is no where mentioned in the tender specification / data sheets. However in the standard specification (referred clause) says that plate thickness should be minimum 8mm thk. Please clarify whether we can consider the thickness as per our design calculations or we have to go as per the referred clause only.	Thickness to be considered shall be furnished under <b>Amendment to technical specification</b> to be issued later as TCN .
28	Volume II / Section II / Sub section -IIA / clause no. 3.1.3 / page no.592 of 633	All tanks will be designed for the capacities, dimensions and working conditions as specified in DATA SHEET for DM & Condensate Storage Tank. These tanks will be provided with all necessary connections as specified. The design of tanks will be such as to allow easy inspection, cleaning and repair. Due consideration will be given to wind loading and adequate stiffening will be provided to prevent failure of tank due to buckling when it is empty. <b>A 2.0 mm corrosion allowance for shells, bottom and roofs above and beyond the required thickness / calculated thickness / nominal thickness as specified in the design code shall be provided.</b>	Storage tanks (MISC tanks) corrosion allowances to be considered is no where mentioned in the tender specification / data sheets. However standard specification (referred clause) calls for 2.0 mm corrosion allowance for shells, bottom and roofs above and beyond the required thickness. Please clarify whether corrosion allowance to be considered as per above clause or not.	Follow clause 3.1.3/ page 592 of 633 of technical specification.
29	Volume II / BIFPCL/EPC-Main plant/2015/01 / clause B4.3.3 / page no. 124 of 633 (B4-36)	The fuel oil storage tank shall include a double bottom, a double wall (second wall in steel serving as spilling basin) up to the top of the tank and a roof covering the two walls. Alternatively a single wall tank with catchment is acceptable, if it meets the required safety standard. The catchment pit shall be provided with a capacity at least 10% greater than that of the tank.	Referred clause calls for double wall or alternatively a single wall tanks. As per specification and datasheets, tanks are of single wall only. Hence we are considering single wall HSD and Misc tanks. Please confirm.	Confirmed.

ANNEXURE-A TO TCN-02

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Tender No. PSER-SCT:KLN-M1857:17.

Sr.No.	Reference Clause of Tender Document	Existing provision	Bidder's query	BHEL clarification																										
30	Volume II / BIFPCL/EPC-Main plant/2015/01 / clause 80.6.19.12 / page no. 367 of 633 (80-187)  Volume II / Section IC / page no. 515 of 633	Level Measurements: Local level indicators for water shall be provided with an illumination device and indicators shall be designed so that the water column can be seen as whole .....Refer clause  DATASHEET FOR PIPES, FITTINGS, VALVES, PLATES, LEVEL GAUGE (MISCELLANEOUS TANKS) : Level gauge shall be provided as per clause no. 80.6.19.12 (level measurement) under section IA - customers general technical specification - B0	From the referred clause we understood that type of level gauge for Condensate and DM water tanks is tubular type. Generally Tubular type level gauge is used for small capacity tanks (i.e; small height tanks) however here the height of the tanks are large, so tubular type LG is not suitable. Hence instead of tubular we are considering Float and board level indicator with out illumination device for CST and DMWST. Please confirm.	All the tanks are to be provided with level indicators. Bidder to follow the specification for level indicator.																										
31				Thickneses of pipes for service water , potable water and desalinated water , to be considered are given as below: <b>Pipe size</b> <table border="1"> <thead> <tr> <th>(NB)</th> <th>Thickness (mm)</th> </tr> </thead> <tbody> <tr><td>25</td><td>3.38</td></tr> <tr><td>40</td><td>3.68</td></tr> <tr><td>50</td><td>3.91</td></tr> <tr><td>80</td><td>3.96</td></tr> <tr><td>100</td><td>4.78</td></tr> <tr><td>150</td><td>5.56</td></tr> <tr><td>200</td><td>5.56</td></tr> <tr><td>250</td><td>5.56</td></tr> <tr><td>300</td><td>5.56</td></tr> <tr><td>350</td><td>6.35</td></tr> <tr><td>400</td><td>9.53</td></tr> <tr><td>450</td><td>9.53</td></tr> </tbody> </table>	(NB)	Thickness (mm)	25	3.38	40	3.68	50	3.91	80	3.96	100	4.78	150	5.56	200	5.56	250	5.56	300	5.56	350	6.35	400	9.53	450	9.53
(NB)	Thickness (mm)																													
25	3.38																													
40	3.68																													
50	3.91																													
80	3.96																													
100	4.78																													
150	5.56																													
200	5.56																													
250	5.56																													
300	5.56																													
350	6.35																													
400	9.53																													
450	9.53																													