

PRE BID CLARIFICATION SCHEDULE

Project:	4 x 270MW BHADRADRI TPP			
Package:	FUEL OIL UNLOADING AND STORAGE SYSTEM			
Bidder:				
Sr.No.	Section / Clause / Page No.	Statement of the referred clause	Clarification required	BHEL Reply to prebid clarifications dt 18.04.17
1	Specification no.: PE-TS-411-166-A001; Section- IA; page no. 10 of 358; clause no. 1.1.0 j)	Two (2) nos. vertical single screw type pump motor set of capacity 10m3/hr with all accessories in OWS to transfer separated oil water mixture to ETP.	The type of pump in the referred clauses are contradicting each other. Please clarify.	(i)Recovery oil Pumps in oil pit of OWS are vertical screw type (ii) Sump pump in U/L P/H, water pit of OWS and in unloading header trench are centrifugal type.
	Drawing no. PE-DG-411-166-A101 Rev 00 sheet 02 of 02; Process & Instrumentation diagram for HFO system(Railway wagon unloading)	Water pit sump pumps - Centrifugal pumps - cap : 10 cu.m/hr		
	Specification no.: PE-TS-411-166-A001; Section- IA; page no. 130 of 358; clause no. 1.5	Sump Pump in Oil Water Separator pit : 1. Type of pumps : Vertical single screw type		
2	Specification no.: PE-TS-411-166-A001; Section- IA; page no. 10 of 358; clause no. 1.1.0 l)	One (1) no. Pressure Reducing station to reduce aux. steam pressure from 11 kg/cm2 (a) to 4.0 kg/cm2 (a) or as required by FO System vendor during detail engineering. PRS shall be located near Tank Dyke Area.	Both referred clauses are contradicting about Aux. steam parameters. Please clarify which one has to be considered.	Steam pressure at TP = 14 kg/cm2, 210 degC
	Specification no.: PE-TS-411-166-A001; Section- IA; page no. 104 of 358; clause no. 4.0.0 Terminal point	Steam header at 14 kg/cm2 , 210 degC by BHEL at 2000mm from FO pressurizing building	Incase Cl.No. 1.1.0 l) Pg.No. 10 of 358 to be followed, please provide the temperature of steam.	
3	Specification no.: PE-TS-411-166-A001; Section- IA; page no. 10 of 358; clause no. 1.1.0 m)	50 Nos. HFO unloading flexible neoprene/ metallic hoses.	The no. of HFO unloading hoses for railway wagons are contradicting in the referred clauses. Please clarify.	Bidder to follow P&ID for HFO system
	Drawing no. PE-DG-411-166-A101 Rev 00 sheet 02 of 02; Process & Instrumentation diagram for HFO system(Railway wagon unloading)	48 nos. railway wagons, 96 nos UL hose.		
4	Specification no.: PE-TS-411-166-A001; Section- IA; page no. 13 of 358; clause no. 2.0.0	Lifting equipment for unloading pump house for maintenance purpose of these pumps. Capacity of lifting equipment is envisaged as 2.0 T with lift as 14.0 m. Bidder to confirm adequacy of the same.	Referred clause is contradicting each other regarding lifting equipment. However we are following section IA specific technical requirement in which lifting equipment is excluded from our scope. Please confirm.	Lifting equipment is excluded from bidder's scope.
	Specification no.: PE-TS-411-166-A001; Section- IA; page no. 27 of 358; clause no. 7.03.0	Motorised lifting devices, i.e. hoists, chain pulleys, jacks, etc. shall be provided for handling and carrying out maintenance of any equipment and/or part having weight in excess of 3000 Kg.		
5	Specification no.: PE-TS-411-166-A001; Section- IA; page no. 124 of 358; clause no. 1.2.2	LDO from unloading header shall be pumped to LDO storage tank with the help of Three (3) Nos (2W+1S) unloading pumps as indicated in the LDO Unloading and Storage system flow diagram. The LDO unloading pumps are of rotary positive displacement, twin screw type and provided with matching capacity simplex strainers at their suction with interconnecting piping and valves as shown in the P&I diagrams for LDO System, Drwg No. - PE-DG-411-166-A102.	Referred clause calls for simplex strainers at the suction of LDO UL pumps. However in the P&I diagrams for LDO System, Drwg No. - PE-DG-411-166-A102 duplex strainers are shown at the suction of each pump. Kindly clarify.	Duplex strainers shall be provided.

6	Specification no.: PE-TS-411-166-A001; Section- IA; page no. 124 of 358; clause no. 1.3.2	A condensate flash tank of capacity 6.0 m3 will also be provided in the unloading area for collecting condensate from railway wagons heating before discharging the same to oil water separator near tank farm area.	Referred clause says that the condensate from the flash tank should be discharged to OWS near tank farm area. However in the given P&I diagram for steam & Condensate system, it shown that condensate from 6 cu.m tank is discharged to plant drain. Please clarify. In case if it should discharge to OWS, the distance between unloading area and tank farm area is about 500m(approx), gravity flow of condensate from flash tank(in unloading area) to oil water seperator (in tank farm area) is not possible. Hence we suggest to have condensate transfer pumps for transferring condensate from flash tank to OWS in tank farm area. Please check and confirm.	Bidder to follow P&ID for steam and condensate system.
7	Specification no.: PE-TS-411-166-A001; Section- IA; page no. 124 of 358; clause no. 1.3.3	Condensate formed in HFO unloading pump house i.e. pumps, strainers, drain oil tank shall be fed to sump.	Referred clause says that condensate from pumps, strainers and drain oil tank shall discharge to sump however in the given P&I diagram for steam & Condensate system, it is shown that condensate from pumps strainers are terminated to 6 cu.m condensate tank. Please clarify.	Condensate from pumps, strainers and drain oil tank shall discharge to sump inside HFO U/L P/H.
8	Specification no.: PE-TS-411-166-A001; Section- IA; page no. 124 of 358; clause no. 1.4.1	The fuel oil drains from different equipments (LDO & HFO U/L pumps, strainers) and piping etc. in FO unloading pump house shall be collected by gravity in a Drain Oil tank of capacity 10m3. Two (2) nos, 1W+1S, rotary positive displacement type drain oil pump of capacity 10 m3/hr shall be provided to transfer the drained oil to HFO tanks	From the referred clause we understood that drains from HFO pumps and strainers are collected in 10 cu.m Drain oil tank which is placed in UL PH. (which is in our scope). In P&I Diagram of HFO System (Railway wagon unloading) Drawing no. PE-DG-411-166-A101 Rev 00 sheet 02 of 02; HFO storage tank drains are terminated to drain oil tank (FO pressurizing P/H placed near tank farm area) which is in purchaser scope. Please clarify the terminal point for the the drain piping coming in tank farm area	Drain oil tank shown in Drawing no. PE-DG-411-166-A101 Rev 00 sheet 02 of 02 , is kept in HFO U/L P/H. Drains from HFO equipment shall be terminated at this DOT only. Further, the discharge line of Draon oil pump shall be connected in discharge header of HFO U/L pumps as shown in P&ID.
9	Specification no.: PE-TS-411-166-A001; Section- IA; page no. 128 of 358; clause no. 1.3	FLOOR COIL HEATER OF HFO STORAGE TANKS: Design capacity : To raise the temperature of full tank capacity of Heavy Fuel oil from min. ambient temp. to storage temperature in 72hours for HFO storage tanks and 4 hours for drain oil tank.	Kindly provide minimum ambient temperature to be considered for maintaining HFO storage tank and drain oil tank to 50degC.	Refer project information for minimum ambient temperature.
10	Specification no.: PE-TS-411-166-A001; Section- IA; page no. 123 of 358; clause no. 1.1.7	Each HFO storage tank shall also be provided with a suction heater at tank outlet to heat the outgoing HFO by 10 degC over maintenance temp of 50 degC inside the tanks.	Both referred clauses are contradicting each other regarding initial and final temperatures of suction heater. Please clarify.	Bidder to follow Clause 1.1.7, page 123 of 358.
	Specification no.: PE-TS-411-166-A001; Section- IA; page no. 129 of 358; clause no. 1.4	SUCTION HEATER FOR HFO STORAGE TANKS : Initial temperature of oil : 60 deg C Final temperature of oil : 70 degc		
11	Specification no.: PE-TS-411-166-A001; Section- IA; page no. 10 of 358; clause no. 1.1.7	Two (2) number vertical single screw pump motor sets with all accessories of capacity 10m3/hr in Fuel oil U/L Pump House to transfer bilge water from pump house to OWS.	Referred clauses are contradicting each other in the type of pumps to be considered. Please clarify.	Bidder to refer reply at S.N.1.

	Specification no.: PE-TS-411-166-A001; Section- IA; page no. 124 of 358; clause no. 1.1.7	Two (2) nos. vertical centrifugal type sump pumps of cap. 10m3/hr, are also envisaged inside FO Unloading pump house to pump the oil water mixture to oil water separator located near tanks farm area		
	Specification no.: PE-TS-411-166-A001; Section- IA; page no. 130 of 358; clause no. 1.5	Sump Pumps in pump house : Type of pumps : Vertical single screw type		
12	Specification no.: PE-TS-411-166-A001; Section- IA; page no. 14 of 358; clause no. 4.0.0	Terminal point : Aux. steam : Steam header at 14 kg/cm2, 210 degC by BHEL at 2000mm from FO pressurizing building. At the TP BHEL shall supply 25 MT/hr of steam . Bidder shall check the adequacy of the same. In case this is not adequate, bidder to inform the maximum aux. steam requirement at this TP along with manual calculation for the same.	Please provide the wagon initial temperature and heating time to be considered for checking the adequacy of supplied steam of 25 MT/hr.	Wagon initial temperature = minimum ambient temperature, heating time to be considered as 6 hrs.
	Specification no.: PE-TS-411-166-A001; Section- IA; page no. 133 of 358; clause no. 1.11	DATASHEET FOR PRESSURE REDUCING STATION : Configuration: e) 48 nos railway wagons with heating arrangement under simultaneous unloading.		
13	Specification no.: PE-TS-411-166-A001; Section- IA; page no. 134, 135 of 358; clause no. 1.12	Valves : Gate Valves : Gate valve shall be used in the oil lines for sizes 350NB and above . Oil Line Ball / Plug Valves : Ball valves shall be used for sizes up to 250NB, while PTFE sleeved plug valves shall be used for sizes above 250NB .	Referred clauses are contradicting each other in the type of valve to be considered for 250NB and 350NB. Please clarify.	Bidder to follow P&ID of HFO system
	Drawing no. PE-DG-411-166-A101 Rev 00 sheet 01 of 02; Process & Instrumentation diagram for HFO system(Railway wagon unloading)	Valve selection criteria for Fuel line: For oil lines : 200 NB And below : Ball valve 250 NB to 350NB : Plug valve above 350NB : Gate valve		
14	Specification no.: PE-TS-411-166-A001; Annexure - VII , page no. 171, 135 of 358; clause no. 4	Madatory spares - Mechanical - Misc pump	As we did not come across any misc pumps in the tender specification, hence it is not applicable. Please confirm.	All sump pumps, recovery oil pumps and Drain oil pumps shall be considered as Misc. pumps.
15	Specification no.: PE-TS-411-166-A001; Annexure - VIII , page no. 178 of 358; clause no. 4.03.02	Specification for application of paints for external surfaces protection of vessels / tanks / equipment / piping / fittings / valves etc to be installed outdoor shall be as follows : SB, primer , intermediate, finishê è ..	We are considering the painting given under the referred clause for LDO tanks & uninsulated pipes. As HFO, DOT and Condensate tanks are insulated tanks we are considering surface preparation and only primer which is given in the referred caluse. However surface preparation and painting for internal and underneath surfaces for all the tanks are not given. Please provide the same. Also please clarify can we consider the same surface preparation and primer(given in referred caluse) for insulated pipes also.	Bidder to follow specification. Any painting data not available shall be finalized during detailed engineering.

16	Specification no.: PE-TS-411-166-A001; Section - IIB , page no. 320 of 358; clause no.3.1.2	All tanks will be designed for the capacities, dimensions and working conditions as specified in TANKS DATA SHEET given under section-C.	Referred clause says that tanks data sheet is under section C. We presume that it is a typographical error. Tank data sheets are given in section IA Rev 00, pg 127 of 358. we are following the same.	Bidder understanding is correct.
17	General	Velocity criteria	Kindly provide velocity criteria for the following: 1. Superheated steam 2. Saturated Steam 3. Condensate piping 4. sump pump discharge piping, 5. recovered water pump discharge piping.	Bidder to follow line sizes given under P&IDs.
18	Specification no.: PE-TS-411-166-A001; Section- IA; page no. 124 of 358; clause no. 1.4.1	The fuel oil drains from different equipments (LDO & HFO U/L pumps, strainers) and piping etc. in FO unloading pump house shall be collected by gravity in a Drain Oil tank of capacity 10m3. Two (2) nos, 1W+1S, rotary positive displacement type drain oil pump of capacity 10 m3/hr shall be provided to transfer the drained oil to HFO tanks	Both referred clauses are contradicting each other regarding termination of drains in to drain oil tank. However we are considering as shown in the LDO P&ID. Please confirm.	Bidder to follow P&ID.
	Drawing no. PE-DG-411-166-A102 Rev 00 sheet 02 of 02; Process & Instrumentation diagram for LDO system(Road tanker unloading)	Drains from LDO UL pumps, strainers and tanks terminate to Drain oil tank of BHEL - TRY		
19	Drawing no. PE-DG-411-166-A103 Rev 00 sheet 02 of 02; Process & Instrumentation diagram for Steam and Condensate system)	Pressure reducing station	One PRS is indicated in the referred P&ID. As the distance between unloading area and tank farm area is about 500m(approx), we can not get the required pressure in unloading area at the down stream of PRS. Hence we suggest to have separate PRS for unloading area and tank farm area. Please confirm.	Bidder to decide on their own.
20	Specification no.: PE-TS-411-166-A001; Section- IA; page no. 136 of 358; clause no. 1.13	d)BURIED PIPE, IF ANY / PIPE CARRYING BILGE WATER (WATER WITH TRACES OF OIL) : Up to 150 NB - M.S ERW to IS 1239 (1) Heavy Grade	We understood this piping specification to be considered for sum pump and recovered water pumps discharge piping. Please confirm.	Confirmed.
21	Drawing no. PE-DG-411-166-A102 Rev 00 sheet 02 of 02; Process & Instrumentation diagram for LDO system(Road tanker unloading)	LDO inter tank transfer line	Please provide the number of working pumps to be considered for sizing inter tank transfer line in LDO system.	Same as under normal operation i.e. 2W+1S.
22	Drawing no. PE-DG-411-166-A103 Rev 00 sheet 02 of 02; Process & Instrumentation diagram for Steam and Condensate system)		Two steam control valves shown for floor coil heater of each tank. In general 50% of coils connected to steam control valve and remaining coils connected to manual valves. Both valves will be used during heating and only control valve used during maintenance. Please check and confirm.	Bidder to follow specification.

23	Drawing no. PE-DG-411-100-M001 Rev 01 A sheet 1 of 1; Plot plan		In the referred plot plan and also in the given tech specification, the location of LDO unloading area and unloading pumps are not shown. However we are presuming that LDO unloading area (by road tankers) will be near tank farm area and LDO unloading pumps are placed in fuel oil forwarding pump house. Please confirm.	Confirmed.
24	Specification no.: PE-TS-411-166-A001; Section- IA; page no. 136 of 358; clause no. 1.13	Pipes - Fuel oil : All sizes : Seamless carbon steel pipe to A106 Gr.B, standard weight or Sch-40 as available / API 5L Gr.B (with thicknesses corresponding those covered in other mentioned standards) / Equivalent with type of end as available and acceptable in line with relevant standard	Referred clause calls for SMLS or API 5L pipes for oil lines where as in the referred P&ID only API 5L ERW pipes are asked. Both are contradicting. However we are considering as per given in the P&IDs. Please confirm. Also we are considering ASTM A 106 Gr.B SMLS sch STD for Steam and condensate lines. Please confirm.	MOC as API 5L ERW for fuel oil pipes and ASTM A106 Gr.B for steam and condensate pipes shall be followed.
	Drawing no. PE-DG-411-166-A101 Rev 00 sheet 01 of 02; Process & Instrumentation diagram for HFO system(Railway wagon unloading)	MOC for oil pipe : API - 5L Gr.B ERW		
25	Specification no.: PE-TS-411-166-A001; Section- IA; page no. 133 of 358; clause no. 1.11	2x60% self-actuated pilot operated PRV complete with isolation and manual by pass valve sized for same duty as PRV.	Referred clause calls for manual by pass valve for PRS arrangement where as in the referred P&ID motorised bypass valve is shown. Please clarify.	Bidder to follow P&ID for steam and condensate system.
	Drawing no. PE-DG-411-166-A103 Rev 00 sheet 02 of 02; Process & Instrumentation diagram for Steam and Condensate system)	PRS isolation and by pass valve.		
26	Drawing no. PE-DG-411-166-A101, A102, A103 Rev 00 sheet 02 of 02; Process & Instrumentation diagram for HFO system, LDO system, Steam and Condensate system.	Line sizes	P&ID which are in sheet 02 of 02 pipe line sizes are given where as P&ID in sheet 01 of 02 velocity criteria is given. Kindly clarify whether we have to follow the sizes as per velocity criteria or the sizes given in the drawings (sheet 02 of 02).	Bidder to follow pipe sizes given under P&IDs.
	Drawing no. PE-DG-411-166-A101, A102, A103 Rev 00 sheet 01 of 02; Process & Instrumentation diagram for HFO system, LDO system.	Velocity criteria : HFO : Suction side - 1 m/s , Discharge side : 1.5 m/s LDO : Suction side - 1 m/s , Discharge side : 2 m/s		