

**TAMILNADU GENERATION AND DISTRIBUTION
CORPORATION LIMITED.**

**2X660MW ENNORE SEZ COAL BASED STPP AT ASH
DYKE OF NCTPS, CHENNAI**

AMENDMENT NO – 02

Fuel Oil Handling system

SPECIFICATION NO.: PE-TS-412-166-A001



BHARAT HEAVY ELECTRICALS LTD

POWER SECTOR

PROJECT ENGINEERING MANAGEMENT

NOIDA



**ENNORE SEZ COAL BASED STPP
(2 X 660 MW)**

FUEL OIL HANDLING SYSTEM

SPEC. No: PE-TS-412-166-A001

AMENDMENT NO. - 2

DATE 29.03.2017

REPLIES TO PRE-BID QUERIES ARE ATTACHED AS ANNEXURE- A TO THIS AMENDMENT AND SHALL BE BINDING ON BIDDERS AND SAME SHALL BE SUPERCEDED THE CORRESPONDING CLAUSE OF TECHNICAL SPECIFICATION /AMENDMENT.

ANNEXURE-A

PRE -BID REPLIES				
Project:	2 x 660MW ENNORE SEZ COAL BASED STPP			
Package:	FUEL OIL UNLOADING AND STORAGE SYSTEM			
Sr.No.	Section/Clause/ Page No.	BHEL Statement / Reply	Clarification required	BHEL REPLY
1	Amendment No. 1. dt: 14.03.17, pg no. 3 of 44, clause no. 1	Bidder to compliance on the following points/requirement :- "SCOPE OF C&I FOR FUEL OIL UNLOADING & STORAGE SYSTEM" has been revised w.r.t. the following chages : (a) Sensor Redundancy :: : For sensor redundancy,-----/discharge pressure very low. b) Explosion proof enclosure- All the instruments, ----- proof/intrinsically safe.	We understood that instrumentation shown in tender PID are in line with refered clause. If not, please clarify where critical & protection(triple redundancy) and double measurement scheme to be considered in FOHS or provide revised PID.	The instrumnets indicated in the P&ID are the minimum requirement. Redundency of the instrument shall be as per the amendment .Bidder to consider redundancy w.r.t criticality of application ,which shall be finalised during detail engineering subject to customer approval.
2	Amendment No. 1. dt: 14.03.17, pg no. 4 of 44, clause no.11	All the instruments for oil services viz. PG/DPG/PS/PT,etc. shall have chemical / diaphragm seal. Level transmitters shall be Radar type.	Kindly clarify whether all the instruments with remote diaphragm seal are with capillarity or with out capillarity.	Requirment of capillary shall be considered by bidder depends on location of instrument and bearing capacity of the fuel oil pipe.
3	Annexure - II, Reply of pre-bid clarifications, pg no. 40 of 44, Sr.no. 3	Initial temperature shall be considered minium ambient temperature and heating time to be consider 1.5 hrs (max.).	Total steam consumption is 5.745 MT/H. Breakup for steam consumption is attached. BHEL should provide 5.745 MT/H at terminal point.	This shall be finalized during detail engineering .
4	Annexure - II, Reply of pre-bid clarifications, pg no. 40 of 44, Sr.no. 6	In case of any buried fuel oil pipe, same shall be considered along with their wrapping & coating	We are considering recoverd water pumps discharge piping up to guard pond (ETP area) as a buried pipe and we have considered 4mm thick single layer anti corrosive tape for wrapping and coating. Please confirm.	Bidder to follow technical specification .Further detailing shall be done during detail engineering.
5	Annexure - II, Reply of pre-bid clarifications, pg no. 40 of 44, Sr.no. 7	VELOCITIES FOR SELECTING PIPING : Bidder to follow page No. 32 & 208 of 644 for velocity.	We are considering velocity for HFO and HSD as said in annexure II, BHEL reply pt no. 5, pg no. 38 of 44 (corrigenda 2). Velocities for the piping which are not covered in tech spec pg 32 of 644, we are considering from tech spec, pg 208 of 644. Please confirm.	Confirmed .
6	Annexure - II, Reply of pre-bid clarifications, pg no. 41 of 44, Sr.no.. 14	Bidder to follow customer specification (clause No.15.4.10 page No. 121 ,122 of 644)	From the referred clause pg no. 121 and 122 of 644 calls for Construction materials: Pipes, Valves & Hoses : Pipes- 65 mm NB & larger - API-5L Gr.B or A106 Gr.B, BW ends ANSI B16.25 Pipes- 50 mm NB & below - A106 Gr.B Socket weld ends ANSI-B-16.11 Kindly clairfy whether API 5L Gr.B pipes are seamless or ERW.	API 5L pipe shall be seamless.
7	Annexure - II, Reply of pre-bid clarifications, pg no. 41 of 44, Sr.no. 15	Bidder to consider 2 No. of pump.	From the referred clause we are considering 2 nos working pumps for intertank transfer line. If we considered 2 nos. then the pipe size will come as 400NB w.r.t velocity criteria. However in the given P&ID PE-DG-412-166-A101, inter tank transfer line is shown as 300NB. Please clarify which size to be consider.	Size indicated in P&ID is minimum and same shall be as per calculation .
8	TECH SPEC_Part1, Pg.No. 200 of 322, Cl.No. 6.6.2	Overground Piping: Internal surfaces---	Referred clause calls for Internal painting for over ground pipes. Internal painting is generally considered for 1000NB and above pipes. Hence we are not considering internal paint for the pipes. Please confirm.	Confirmed .
9	TECH SPEC_Part1, Pg.No. 31 of 322, Cl.No. 3.1.12	1. Fuel Oil Pump Discharge Piping/Other Fuel Oil / Piping - API 5L GR.B (ERW)	Referred clauses are contradicting each other reg discharge pipe material. Please clarify.	Bidder to follow customer specification (refer page 266 of 644) specification
	TECH SPEC_Part1, Pg.No. 266 of 322, Cl.No. 13.3.6	13. FUEL OIL PUMP DISCHARGE LINES : ASTM A 106 GR B		
10	TECH SPEC_Part1, Pg.No. 29 of 322, Cl.No. 3.1.11	2. Gate valve shall be used in the oil lines for sizes 350NB and above.	Both referred clauses are contradicting each other in the type of valve for 350NB size. Kindly clarify which type of valve to be considered for 350NB.	GATE valve to be considered for line size above 350NB.
	TECH SPEC_Part1, Pg.No. 29 of 322, Cl.No. 3.1.11	5. Oil Line Ball / Plug Valves : Plug valves shall be of fire safe pattern for external leakage only. Plug valves in general shall confirm to API 6D/ Equivalent for design &manufacturing standard and to BS6755 Part-2/ API607/ Equivalent for fire safe test. For sizes above 250 and upto 350, plug valve shall be used.		

ANNEXURE-A

11	TECH SPEC_Part2, Pg.No. 315, 316,317 of 322	Drawing no : PE-DG-412-166-A103 P&ID for HFO, HSD, steam and condensate for HFO Heating & tracing	In the referred drawings, pipe sizes are given and in tech spec1 pg no. 32,33 of 322 velocity criteria is given. Kindly clarify whether we have to follow the sizes as per velocity criteria or given pipe sizes in drawings.	Size indicated in P&ID is minimum and same shall be as per calculation .
12	TECH SPEC_Part1, Pg.No. 29 of 322, Cl.No. 3.1.11	Valves	Both referred clauses are contradicting in the type of valves on oil lines. As per spec: Ball valves - sizes up to 250NB Plug valves - sizes above 250NB and up to 350NB Gate valves - Sizes 350NB and above. However in the referred drawings for sizes above 250NB, ball valves are shown. Please clarify the type of valves to be followed for all sizes.	Valve to be considered as per final line size. Criteria for selection valve type is given under (page No. 29 ,30 of 644) of Technical Specification.
	TECH SPEC_Part2, Pg.No. 315, 316,317 of 322	Drawing no : PE-DG-412-166-A101, 102 , 103 P&ID for HFO, HSD, steam and condensate for HFO Heating & tracing		
13	NIT Ref no - PE/PG/EN1/E-5458/2016, Dtd-09.02.2017, Annexure - I	PRICE SCHEDULE - FOHS INDIAN VENDORS Rev-01 s.no. 2.1.7 : Drain oil pump with motors - 2 Nos	In the given price schedule , referred s.no. calls for drain oil pumps. As drain oil pumps are not in our scope, this is not applicable. Please confirm.	1Nos. horizontal single screw type drain oil pump motor set of capacity 5 m3/hr with all its accessories shall be in Bidder scope Revised price schedule is attached and bidder to follow the same.
B. Electrical, Control & Instrumentation				
1	TECH SPEC_Part1, Pg.No. 69 of 322	Sub-Vendor list	We have not found list of makes for Power Distribution panel for EHT in the tender document. However we are considering as per our reputed vendor.	Sub vendor shall be subject to customer approval and shall be finalized during detail engineering without any commercial implication to BHEL.
2	TECH SPEC_Part1, Pg.No. 19 of 322	b) Annual Minimum Mean Temperature : 24 ^o C	Referred Clauses are contradicting on the Min. Ambient temperature. However for heat loss calculations we have considered 24Deg.C as min. ambient temperature and accordingly selected the Electrical heat tracer. Please confirm.	Min. ambient termeparture for tracer design to be considered as 24 Deg. C.
	TECH SPEC_Part1, Pg.No. 312 of 322; Technical specifications for Electrical Heat Tracing System	Ambient Conditions: 1.4) Design Min. Ambient Temp. 0 ^o C		
3	TECH SPEC_Part1, Pg.No. 305 of 322; Technical specifications for Electrical Heat Tracing System	5.10. Heaters (EHT) shall be operate on purchaser's 240V, 1Ph, 2-wire . For this purpose 415V, 3Ph, 3-wires, 50Hz, Ac supply system, will be provided by purchaser. Necessary power distribution for distributing power to eacg segment of tracer from this power rating shall be properly engineered and supplied. 415V/415V, Delta/ Star transformer to be provided by vendor with primary and secondary isolation (MCCB) as part of panel to convert 3 wire incoming supply to 240V AC feeders.	Referred clauses are contradicting each other regarding incoming power supply system provided by purchaser. However as per scope matrix we are considering power supply given by BHEL is 415V, 3Ph, 4-wire supply to our Electrical heat tracing panel and we are not considering any isolation transformer in our panel to convert 3-wire to 4-wire. Please confirm.	Power supply shall be provided as per Standard Electrical scope between BHEL and vendor. Requirement of transformer or any other equipment to achieve desire voltage level other than 240 V AC to be decided by vendor as per their requirement.
	TECH SPEC_Part2, Pg.No. 42 of 322; Standard Electrical scope between BHEL and vendor (for EPC projects)	240 V AC (supply feeder)/415 V AC (3 PHASE 4 WIRE) supply shall be provided by BHEL based on load data provided by vendor at contract stage for all equipment supplied by vendor as part of contract. Any other voltage level (AC/DC) required will be derived by the vendor.		
4	TECH SPEC_Part2, Pg.No. 10 of 322; Technical Specification for Power Distribution Panel	Part-1, Data sheet	We understood that given data sheet is for reference only and we are considering No. of circuits and panels are based on the actual requirement of the system and P&ID.	Requirement is clearly mentioned under running page no. 302 of 644. Bidder to provide the circuit and panel based on actual requirement.
5	TECH SPEC_Part2, Pg.No. 315 of 322	P&ID for HFO System	In the given P&ID electrical tracing shown for water lines also. Electrical tracing and insulation is not required for these lines. Hence we are not considered. Please confirm.	Electric Tracing of OWS sump pump discharge line is not required.
6	TECH SPEC_Part1, Pg.No. 35 of 322	Operation and Control of Fuel Oil unloading and storage system will be from DDCMIS located at Fuel oil pump house control room.	We understood from the first clause that the fuel oil unloading and storage system will be controlled from DDCMIS. From the referred second & 3rd clauses it was understood that a backup panel is required for complete operaton of the system. That means you require a backup panel ie., relay based local control panel to control all pumps, instruments & control valves from the local also. Please confirm.	The fuel oil unloading and storage system shall be controlled from DDCMIS only .No control from local panel is envisaged. Local control panel referred in the specification shall not be relay based and will be used for indication of process parameter and for housing switches, push buttons for drives, annunciation, alarms, remote indicators etc. as specified for the offered fuel oil handling facilities.
	TECH SPEC_Part1, Pg.No. 121 of 322	a) One (1) local control panel housing switches, annunciation, alarms, remote indicators etc as specified for the offered fuel oil handling facilities for control, operation and annunciation purpose of the offered plant shall be furnished. All control valves on electric and oil lines as considered necessary for safe and satisfactory operation of the system.		
	TECH SPEC_Part1, Pg.No. 37 of 322	PLC with Redundant Hot Stand by Processor with one no. OEWS, ONE no. OWS & one no. B/W A4 sized LJP & A3 sized DMP. In addition to OWS operation, Backup control desk with coloured Process Mimics, Hard wired Annunciation system, required Push Button arrangements in Back Panel for complete operation of the systems, Ammeters, Parameter Indicator s, LED Based indication Lamps etc., shall also be provided.		
7	TECH SPEC_Part2, 7 of 322, 3.03.01.01	C&I Customer Spec-Instruments, Control Valves, Electric Actuators : Transmitters & other HART based instruments shall be supplied a long with 3 Nos. of universal type hand held/portable pressure calibrators. Temperature transmitters shall be supplied along with 3 Nos. of hand held/portable mV source generators.	From the referred clause we understood that the given 3Nos of hand held/ portable calibrators for transmitters and 3Nos of mV source generators for temperature transmitters are for complete BOP. Hence we are not considering the same in our Fuel Oil Handling System Package. Please confirm.	Confirmed.