

BHEL's replies to Pre-Bid Queries on Water Based Fire Protection System

Project 2x250 M W BSEB Barauni

Doc Ref.: PEM C 03843, Rev No. 00.

Sl.No	Ref.Clause No.	Section	Page No	Tender requirement	Contradictory statement in the enquiry	Bidders Queries	Final Resolution
1	Clause - 2.7		Page 4 of 157	Bidder to note that the Purchase Order for the entire WFPS system for the 2 x 250 MW BSEB Barauni thermal power project shall be placed on lump sum fixed prices based as per tender specification requirements. Bidder to further note that they shall not be permitted for any claim for additional commercial implication on any account during the detail engineering stage including the following: ☐ Change (increase/decrease) in dimensions of equipments/areas ☐ Change in location of equipments/areas within the battery limits. ☐ Change (increase/decrease) in quantities in the equipments/areas covered by different FPS facilities. ☐ Furnishing of any Input drawing to bidder at any stage of contract execution ☐ Changes in any of the Input drawings. ☐ Other conditions mentioned elsewhere in this specification.		5% of quantity variations are acceptable. Variations above 5% will be charged extra.	Not acceptable. Please comply with the specification requirement.
2	Clause - 7.8		Page 15 of 157	Bidder shall quote Monthly rates for maintaining and running the plant at bidder's risk and cost till the plant is taken over by customer from BHEL (after handing over to BHEL subsequent to successful commissioning and conductance and acceptance of site performance test.) All the required manpower, consumable, maintenance spares etc. during such period shall be included in bidder's scope of supply only.		Not Acceptable, Since erection is not in our scope.	Please comply with the specification requirement.
3	Clause - 8.1, Sl.No.: 1		Page 17 of 157	Support structure for piping, cabling etc		Please clarify what kind of support required.	Support structure for piping, cabling etc are Bidder's scope of supply.
4	Clause - 8.2, Sl.No.: 3		Page 17 of 157	Laying of cables by BHEL except for cabling in vendor scope.		Kindly Clarify.	Laying of Cables are excluded from Bidder's scope as erection is not the scope of bidder.
5	Clause - 8.3, Sl.No.: 12		Page 17 of 157	Supply and fixing of framework, Supply of vibration isolators / fixing hardware to be embedded / mounted on foundations		Kindly clarify the scope.	Supply of structural steel is the scope of bidder, however fixing of the same is not in the scope of bidder.
6	Clause - 23		Page 23 of 157	Noise level near equipments at 1 m horizontal and 1.5 above floor level shall be max. of 85 dB.		Not acceptable.	Noise level near equipments at 1.5 m horizontal and 1.5 above floor level shall be max. of 105 dB.
7	Clause - 10.1.7		Page 33 of 157	Total number of outdoor and internal/fire escape hydrants shall be determined as per guidelines of TAC regulations. Similarly, number of branch pipes with nozzles and hoses shall be determined based on total number of outdoor/ internal hydrants. Necessary hose boxes containing two (2) lengths of 15 m. long hoses and branch pipes with nozzles shall be provided and located adjacent to each external hydrant & internal hydrant across main plant area. Hose cabinets containing two (2) lengths of 7.5 mtr. long hoses, nozzle		Please clarify us which is required inside the building whether internal hydrant required or Hose reel required. And also clarify <u>type of hose</u> to be considered for internal hydrant.	Inside Building internal hydrant are required. Type of Hose shall be followed as per TAC.
8	Doc Ref.: PEM C 0 38 4 3, Rev No. 00, Page 44 of 157, Clause -11.8.1		Page 44 of 157	Hose reels shall be provided along with every landing valve. Hose reels shall be provided in all plant buildings.			Hose reels are not required.
9	Clause -10.1.7		Page 33 of 157	Isolation valves (gate valves) shall be provided at suitable places in the ring mains to enable maintenance of any part of the ring main without affecting the balance part.		Please mention what kind of gate valve is required rising spindle or Non - Rising Spindle.	Type of valve shall be followed as per TAC.
10	Clause -11.14.3		Page 48 of 157	The detection network shall be pneumatic type (instrument air) with Quartzite bulb detectors (QBD). There should be provision for manual actuation of the system from Control Room and locally at site in addition to auto actuation.		Please confirm us pneumatic air compressor for detection network is in our scope.	Pneumatic air compressor is not the scope of bidder. However bidder to furnish the list of utilities required for WBFPS.
11	Clause -11.14.12.		Page 49 of 157	HVWS system for other areas as listed shall be provided as per above principle: a) Main turbine lube oil tanks, oil coolers & purifier unit. b) Central lube oil tanks (both clean & dirty oil tanks) & its purifier units c) Turbine oil canal pipeline in the main plant d) Generator seal oil system, tanks, cooler assembly etc e) BFP lube coolers & consoles etc. f) Boiler burner fronts.		Please provided the drawings, quantity and dimensions for the following. a) Main turbine lube oil tanks, oil coolers & purifier unit. b) Central lube oil tanks (both clean & dirty oil tanks) & its purifier units c) Turbine oil canal pipeline in the main plant d) Generator seal oil system, tanks, cooler assembly etc e) BFP lube coolers & consoles etc. f) Boiler burner fronts. <u>We request you to confirm what kind of detection is required for above mentioned system.</u>	Drawings of the same is not available.
12	Clause -11.15.4		Page 50 of 157	The M VWS system for underground coal conveyors shall be provided for both top and return conveyors. Hoppers and feeders shall also be covered. These conveyors shall be divided into number of zones. Operation of this system shall be in similar lines as explained for cable gallery.		Please provide the list and length of conveyors to be protected by M VWS system.	Please note that all the GA of Conveyors drawings are attached as annexures in the specification.
13	Clause -11.16.5		Page 51 of 157	Flameproof and/ or weatherproof control stations (IP-55) for Deluge Valve Operation shall be provided.		Our understanding is weather proof Deluge valve control panel shall be provided. Kindly confirm.	Accepted.
14	Clause -11.16.7		Page 51 of 157	Outdoor area Local control stations shall have canopies for additional weather protection.		We presumed that all Local control station shall be located in DV shed and the canopy arrangement is not required for the same. Kindly Confirm.	Canopy for DV Control panel is required.
15	Clause -11.17.11		Page 52 of 157	Solenoid valves used in hazardous area shall be flameproof (Ex'd).		Kindly clarify us what are all areas are hazardous.	No hazardous area is envisaged for this project.
16	Clause -11.17.14, Sl.No.: 1.(iii)		Page 55 of 157	Any other Panel as per this specification.		Please clarify us what are all other panels to be supplied by us.	Please comply specification.
17	Clause -11..17.21.2		Page 60 of 157	Each junction shall have minimum of 30% spare terminal of those actually required to be utilized. Number of terminals for various types of junction boxes shall be as follows: 24 Nos. for 6 pair junction box. 48 Nos. for 12 pair junction box 36 Nos. for 6 triad junction box.		Please clarify the scope.	Please comply specification.
18	Clause -11..17.26.4		Page 65 of 157	Local control panels located in the hazardous area shall be either purged type or flameproof Exd as finalized by the purchaser.		Kindly clarify us what are all areas are hazardous.	No hazardous area is envisaged for this project.
19	Clause -11..13.7.		Page 48 of 157	Material of Construction		Kindly provide us the thickness of MS & GI pipes for hydrant and spray system.	Pipe thickness shall be 6.35 mm for sizes 200 to 350NB, 7 mm for 400 NB and 8 mm for sizes 450 NB and above. The pipe protection shall be as follows: To prevent soil corrosion, buried pipes shall be properly lagged with 4mm thick wrapping and coating corrosion protection tape as per IS: 10221/IS:15337. Above ground piping a) Material GI for spray system after deluge valve / MS for other system b) Standard (Pipes) IS 1239/ IS 3589 c) Standard (Fitting) IS 1239 part II/ TAC d) Class Medium Note : pipes NB 200 mm & above shall have thickness of 6.35 mm. e) Type of joint Welded / Flanged f) Type of protection Painted (Two coats of Grey zinc primer. Two coats of enamel paint each 75 microns thickness.) Underground piping a) Material MS b) Standard (Pipes) IS 3589/ IS 1239 Part - I c) Standard (Fitting) IS 1239 part II for fittings NB 150 & below & Fabricated from parent pipes for NB 200 & above d) Type of joints Welded e) Type of protection IS 10221/ IS 15337-2003 f) Class Medium (pipes NB 200 mm & above shall have thickness of 6.35 mm.)
20	Clause -10.1.7		Page 34 of 157	The monitor provided in the fuel oil handling area shall be dual type suitable for foam injection also.		Since foam system is not in our scope. Please clarify us whether Foam/water monitor is in our scope.	Foam Monitor shall be in Water Based FPS bidder's scope. Please comply with specification.

21				You have asked the hydrant Pump capacity 410 m ³ /hr 105 M W C as per Cl. No. 10.1.1 of PEM C 03843. But the pump capacity as per Table-2 of TAC Fire Protection Manual it would be 273 m ³ /hr 88 M W C.		Please comply with the specification.
22	cl. No. 7.4.1.7			Again in the cl. No. 7.4.1.7 states that where the hydrant service of consist of more than 1 pump, not more than half the total number (total number + 1 in case of odd number) of pump shall have prime movers is one type		Please comply with the specification.
23				Fixed water spray system is a fixed pipe system connected to a reliable source of water supply and equipped with water spray nozzles for specific water discharge and distribution over the surface of area to be protected. Please confirm whether the pump capacity and qty as per your specification		Pump capacity and quantity shall be as per specification.
24	Cl. No. 10.1.9			According to Cl. No. 10.1.9 all controls of the fire water pump house Equipments suooled by others.		All controls of the firewater pump house equipments shall be PLC based & foam pump house equipments (supplied by others) shall be controlled by PLC system.
25	Cl. No. 11.11.1 (b)			According to Cl. No. 11.11.1 (b) of technical specification no. PEM C 03843 Isolation Valves shall be provided below M onitor's and at all Hydrants and Landing valves. But TAC has not asked the same. Pl. Confirm the above clause.		Cl. No. 11.11.1 (b) of technical specification no. PEM C 03843 stands deleted.
26	Cl. No. 11.4.9			You have stated in Cl. No. 11.4.9 of technical specification no. PEM C 03843 the hydrant or Water Monitor will be distributed for every 30 mtr. External perimeter through the plant area. Pl. Note the Thermal Power generation plant falls under Ordinary Hazard. Please confirm the spacing of the Hydrant/ Water monitor.		At least one hydrant post and water monitor shall be provided for every 45 m of external wall measurement or perimeter of unit battery limit.
27	Cl. no. 6.1.2.1		Page 9 of 157	Hydrant system for i) All other auxiliary buildings including stores. j) Non plant bldg. Canteen, Administration bldg. etc. as per Plot Plan. k) All other areas included within BHEL's battery limit.	Please provide the location and dimensions of the other auxiliary bldgs and all other area which are to be protected with hydrant system. Please clarify all other auxiliary building are whether it is single or multi storey as to calculate the hydrant and monitors to avoid the ambiguity after the award of contract.	Location of buildings are available in the Plot Plan. Details of all buildings are not available, this will be furnished after due course of time.
28	Cl. no. 6.1.3.1		Page 10 of 157	Areas to be covered by HVW Spray System :- a) Transformers located in the transformer yard • Generator Transformer • Station Transformer • Unit Auxiliary Transformers • Any other transformer greater than 10 MVA.	Please provide the Quantity and rating of the transformer/reactors (i.e. GT, ST, UT, UAT, SAT, Any other transformer greater than 10 MVA.) to be protected with HVWS system.	Please note that GA of GT, UAT and ST attached as Annexures-43,44 & 45. Capacity, size of the transformer are available in the GA drgs. Quantity and list of transformers of rating graeter than 10 MVA are as given below. 1. Generator Transformer - 2 nos (for Unit #8 & #9) – 189 / 252 / 315 MVA 2. Station Transformer - 2 nos (for Unit #8 & #9) – 50 / 25 / 25 MVA 3. Unit Aux Transformers - 4 nos (for Unit #8- 2 nos & #9-2nos) – 16 / 20 MVA
29	Cl. no. 6.1.4.1		Page 10 of 157	Areas to be covered under M VW Spray System : a) Cable galleries / cable vault / cable spreader rooms in main plant building b) Cable vault in ESP Control Room.	Please provide the no. of rows & tiers and dimensions of the tray where the M VWS system to be provided	Drawings of the same is not available.
30	Cl. No. 11..18.7.		Page 79 of 157	Mandatory Spares The bidder shall offer alongwith main offer, the Mandatory Spares as specified elsewhere in the specification	Please provide the list of mandatory spares as not received along with the specification.	Mandatory spares is not applicable for this system.
31	Cl. No. 6.1.4.1			Areas to be covered under M VW Spray System : c) All Coal conveyor transfer points, crusher house and all the coal conveyor galleries & conveyor tunnel.	As per your drawing no. PE-DG-374-100-M001, Rev. 06, we understand that only following conveyors will be protected with M VWS system. Please confirm. BCN 1A-1B, BCN 2A-2B, BCN 3A-3B, BCN 4, BCN 5, BCN 6A-6B, BCN 7A, 7B	Please note that all the GA of Conveyors, TP, Crusher house and Wagon Tippler are attached as annexures from 23 to 42 as a part of specification. Bidder to follow the same.
32					Please indicate the Fuel Oil tanks : Dia & Height	HFO storage Tanks : 2 Nos : 16 M Dia and 10.8 M Height LDO storage Tanks : 2 Nos : 7 M Dia and 10.4 M Height
33					Please indicate the Lube Oil tanks : Dia & Height Boiler Burner Fronts : Size Oil Cooler & Purifier Units : Dia & Height	Drawings of the same is not available.
34					Please indicate the Fuel Pump house L x W	Drawings of the same is not available.
35				As per tender it is mentioned, scope is for supply and supervision of erection & commissioning work :	Kindly confirm whether we have to quote for Supply, Installation, Testing and Commissioning .	Scope is Supply and supervision of E&C.
36					Kindly confirm the following o M OC Of hydrant valve –SS304 or Gun Metal o Gate valve M OC. Cl or CS and Rising or Non-rising. o M OC of Branch pipe – SS304 or Gun Metal	Please follow specification.
37					Kindly confirm the following o Type of Hose - Type A or B.	Type of Hose shall be followed as per TAC.
38	6.1.5			Other systems required to complete the package as per the intent of this specification	Why not list all the other systems too?	Please follow specification.
39	6.1.2.1			Hydrant system : Buildings/ areas: d, e, g, i, j, k	Fire Extinguishers will do?	Not in Bidder's scope of supply.
40	7.3.r			Material reconciliation and linkage with payment	As Stores is under BHEL control, we like to be not responsible for this	Material reconciliation/ Identification is in Bidder's scope.
41	7.7			Mandays for training etc.	only on-the-job training, our responsibility. As with mandays for supervision of E&C, requested later too, actual mandays may please be paid without any ceiling.	Please follow specification.
42	7.8			Note:9: consumables during E&C activities for running till handing over	Power & water are to BHEL client's a/c., consumables, Activities for running & maintenance too not ours, and it be covered by scope & guarantees of erection contr. for workmanship.	As E&C is not in bidder's scope, hence consumables for erection are under BHEL's scope.
43	8.22			Approved software for hydraulic calculations	BHEL may please indicate preferred softwares.	Bidder to follow best industry practice.
44	8			Scope matrix	lumpsum price to vary if sizes of areas covered vary by more than % Concreting/civil work, be excluded from our scope	Civil works is not in Bidders scope.
45	10			Fire water pump and source	Dual supply to Fire Pumps will be to the input to the MCC panel for pumps by us, and hence changeover of source, etc. are concern of BHEL	Please refer the Electrical scope matrix as indicated in the specification.
46	10.1.7			Hydrant System	UG Piping RCC trench and cover slab, whose scope? Limit switches for Deluge valves? Pl. elaborate	As E&C is not in bidder's scope, hence RCC trench and laying of U/G pipes is not in the scope of bidder.
47	17.12.12			No non-billable item to be supplied to site	May not be practicable.	Not acceptable. Please follow specification.
48	Annex.III			200 days & 13 visits ceiling	Pay by actual counts, no ceiling please.	Please follow specification.
49	7.3.x		14 of 157 (14 of 294)	Running of the Water Based Fire Protection System as per Purchaser / End customer's requirements till final handing over.	Material supply will be in Purchaser's scope. Manpower only will be included in our scope on per DIEM basis. Please confirm your requirement	Please follow specification
50	11.4.9		41 of 157 (41 of 294)	Number of hydrants shall be based on one hydrant or water monitor for every 30 m of external perimeter through the plant area.	BHEL Specification DOC.No.PEM C 03843.REV.00..CL NO. 10.1.7.PG. 33 of 157 (33 of 294) indicates, Total number of outdoor and internal fire escape hydrants shall be determine as per guidelines of TAC regulations. However as per TAC, for Ordinary Hazard, Number of hydrants shall be based on one hydrant for every 45m of external wall measurement or perimeter of unit battery limit. Kindly confirm the requirement.	At least one hydrant post and water monitor shall be provided for every 45 m of external wall measurement or perimeter of unit battery limit.
51	11.6.1		42 of 157 (42 of 294)	All monitors shall be non-aspirating type water cum foam Monitor with arrangement of Jet & Spray (Aqua fog/ foam).	As per TAC, Normally for fuel oil areas required Water cum Foam Monitor. However specification calls to provide all Foam Monitors. Kindly confirm the requirement.	Water cum Foam monitors shall be provided for Fuel Oil areas.
52	11.6.20		43 of 157 (43 of 294)	Remote operated long range foam monitors (1000 GPM and above) to fight tank fires shall be provided which should be of variable flow.	Kindly furnish the details of tanks to be protected with Remote operated long range foam monitors.	Remote operated long range water monitors are not required.
53	11.9.3		45 of 157 (45 of 294)	Hose cabinets (type-II) along with hoses (BIS marked) and accessories shall be provided at every alternate hydrant location and with every landing valve.	As per TAC, each internal & external hydrant point shall be provided with dedicaed Hose Box. Kindly confirm the requirement.	Noted and Confirmed.
54	11.11.1.b		45 of 157 (45 of 294)	Isolation valves shall be provided at the following places: b. Shall be provided below monitor and at all hydrants and landing	Isolation Valve is not necessary to provide for all hydrant Valve, as per general practice of power plant. Kindly confirm the requirement.	Please follow specification
55	11.13.4		47 of 157 (47 of 294)	Rim seal protection shall also be provided for all the TANKS	Kindly furnish the details of tanks to be protected with Rim seal protection.	As there is no floating roof tank is available, hence Rim seal protection is not required.

56	11.13.7		48 of 157 (48 of 294)	Material of construction- Deluge Valve - CS		As per TAC, C.I. Deluge Valve is sufficient. Kindly confirm the requirement.	C.I. Deluge valve is acceptable.
57	11.13.7		48 of 157 (48 of 294)	Material of construction- Detector piping - GI		We have considered Galvanised pipes to ASTM A 53 for detector piping as indicated in cl.no. 11.19.2.3,Pg. 82 of 294. Kindly confirm.	Confirmed
58	11.14.5		48 of 157 (48 of 294)	HVWS system for each Transformer shall consists of dry type Deluge valve assembly (with pneumatic trim)		Instrument air for Pneumatic detection shall be provided by BHEL near to each Deluge Valve.	Instrument air piping shall be given at one point near transformer yard and near each equipments which are to be protected by HVWS system, further piping is in bidder's scope. However bidder has to give Instrument air requirements (Flow, Pressure and Temp) for each area/equipments to be protected.
59	11.15.2		50 of 157 (50 of 294)	Coal conveyors will be detected by a detection system which will give an electrical signal for the operation of the deluge valve.		Kindly clarify the type of detection system to be required for coal conveyors.	Please follow specification
60	11.17.11		53 of 157 (53 of 294)	Solenoid valves used in hazardous area shall be flameproof (Ex'd'). Solenoid coil shall be rated for continuous operation of the upper limit of supply voltage (i.e. rating shall be 110 V DC continuous). Class F rating for solenoid valves preferable.		As per industrial practice fire protection system, solenoid valve will be of 24 V DC & for Power Plant Weather proof solenoid valve is sufficient. Please confirm your acceptance.	No hazardous area is applicable for this project. Weather proof solenoid valve is sufficient.
61	11.17.12		53 of 157 (53 of 294)	Following power supply voltage levels shall be used, unless otherwise specified:			
62				For Instruments, Control Systems, 110 V AC± .10% (UPS) 50 Hz ±.3 Hz		As per industrial practice fire protection system, solenoid valve will be of 24 V DC . Please confirm your acceptance.	Arrangement of conversion of main AC supply (BHEL scope) to DC supply shall be possible through a dedicated rectifier bank , which is bidders scope.
63				Solenoid Valves, Relays, lamps 110 V DC± .10%			
64			158 of 294	Annexure - I Sub Vendor List		The sub-vendor list furnished by BHEL is not covering all the fire fighting equipments/items,Hence we have attached a vendor list covering all items. Kindly approved the same.	Sub-vendor list cannot approve at this time.
65	11.19.4.1		82 of 157 (82 of 294)	Flanges shall be as follows:		Since MS pipes are used for fire fighting system, Slip-on flanges as per IS:2062 can be used instead of using WN Flanges. Kindly confirm the requirement.	Confirmed.
				Rating Size Type			
				150 Up to 1.50"			
				150 2" & above			
66	10.1.9 & 11.3		Page 39 & 41 of 294	Each of the diesel engines shall be provided with batteries (2 x 100%) and battery chargers (2 x 100%). The battery capacity shall be adequate for ten (10) consecutive starts without recharging with a cold engine under full compression.	Each of the diesel engines shall be provided with batteries (2x100%) and battery chargers (2x100%). Battery of the diesel engine shall be automotive lead acid type and shall be large enough to crank the engine twelve times successively, each for duration of 10 sec. without any charging in between.	A) what is the actual requirement? B) whether the engine fail to start signal to the PLC/FDA panel required to be sent after 10 or 12 attempts or earlier?	Engine fail to start signal to the PLC/FDA panel required to be sent after 10 attempts.
67	10.2		Page 39 of 294	LT Motor Voltage: AC 415 V, 3 phase, 50 Hz (for motors up to 160 kW)	HT Motor Voltage: AC 6600 V, 3 phase, 50 Hz (for motors 160 kW and above)	What will be the voltage for 160KW motors?	6600 V required for 160 kW motor.
68	11.13.3		Page 47 of 294	Water spray on Hydrocarbon storage tanks shall be provided with two tappings,each for 100% flow from two different main headers.		whether both tappings are with Deluge valves or 1 D.V & 1 Isolation valve	Water spray on Hydrocarbon storage tanks shall be provided with one tapping.
69	11.13.5 / 11.14.11		47 of 294 & 49 of 294	Water spray on every equipment, vessel, column, air fin cooler, within the process unit and transformers shall have one connection from main header for 100% flow.	Water spray on every transformer shall have tapings from two sides of main header	Please clarify how many tappings are required for transformers	Water spray on every transformer shall have taping from one side of main header