



BHARAT HEAVY ELECTRICALS LIMITED
PROJECT ENGINEERING MANAGEMENT, NOIDA

Date-8-Jul-19

CORRIGENDUM- 03

PROJECT	:	1X660 MW BHUSAWAL TPS UNIT-6
PACKAGE	:	CONDENSATE POLISHING UNIT
ENQUIRY NO	:	E-6232/2019 Dated. 14.06.2019
SUBJECT	:	PRE- BID CLARIFICATION

Type of Corrigendum			
Technical Corrigendum -	☒	Commercial Corrigendum -	☐

Please note the following:

- 1. Reply to Pre Bid Query (of 6 Pages) attached with this corrigendum shall be treated as part of NIT.**

All the other terms and conditions of the tender enquiry shall remain unchanged. All the bidders are requested to quote accordingly.

Yours faithfully,

For and on behalf of BHEL

Sharad Chandra
Dy. Manager

Pre-Bid clarification for Condensate polishing Unit Packag							
Tender: PE-TS-415-155-A00							
Project: Design, engineering, manufacturing, supply, testing, erection & commissioning, etc of Condensate Polishing Unit system for 1 x 660 MW Bhusawal TPS Unit - 6.							
S.No	Volume	Section	Clause	Page No	Specification requiremen	Clarification	BHEL Reply dated 08/07/201
1	SPECIFICATI ON NO. PE-TS- 415-155- A001	SECTION : I, SUB SECTION: IA	9.0 Scope of Services, sub- clause (xi)	20 of 712	MCC, DCS control room & battery room shall be located in CPU regeneration area building. All regeneration vessels and chemical dosing facilities shall be located in CPU regeneration building. Further N-pit shall be located in open area near DM plant building. CPU regeneration cum resin transfer pumps shall be located inside CPU regeneration Building. Further Bidder to also provide the localized CANOPY arrangement on all pumps, blower & motors which are open to sky. CPU regeneration area equipment layout drawing has been enclosed herewith this technical specification for bidder's compliance. Successful bidder has to use the same layout during detail engineering and arrange CPU regeneration area	The first Para Shows CPU Regeneration Pump located inside of CPU regeneration Building, However the second Para shows DM Water Regeneration/Resin Transfer pumps shall be located in CST DM Pump house, There is Contradiction between two Paras. Kindly confirm the exact Location of the CPU Regeneration / Resin transfer pump.	Bidder to follow tender specification clause 4.0 B, I, sr. no. 10 page 14 & 15 of 712 of CPU technical specification for the same. Further Bidder to refer amendment 1, Schedule-A. sr. no. 8.
	SPECIFICATI ON NO. PE-TS- 415-155- A001	SECTION : I, SUB SECTION: IA	B. Regeneration System, sub- clause 10)	14 of 712 & 15 of 712	Two nos. (2X100%) (1W+1S) DM water Regeneration/Resin transfer Pumps each with electric drive motor drives, one normally operating and the other standby, for water supply for chemical preparation/ dosing and transfer of resin from service vessel to regeneration vessels & vice-versa, backwash & rinse activities shall be provided. These pump shall be CST & DM pump house located near the DM water storage tanks. These CPU Regeneration cum Resin Transfer Pumps will take suction from DM water storage tanks (DM water storage tanks not in bidder's scope) of DM plant. A terminal point of DM water line shall be provided by BHEL at 5 m distance from DM water regeneration/Resin transfer		
2	SPECIFICATI ON NO. PE-TS- 415-155- A001	SECTION : I, SUB SECTION: IA	B. Regeneration System, sub- clause 10)	14 of 712	1) One no. Resin Separation & Anion Resin Regeneration Vessel. 2) One no. Cation resin regeneration vessel. 3) One no Resin Isolation vessel 4)One no Mixed Resin Storage vessel 7) The vessels indicated against s.no 1 to 4 is tentative and for reference only. The same shall depend on the supplier recommendations based on specific regeneration technology to make the system suitable in all respects for satisfactory operation and performance	The type of vessels (S.No 1,2, 3)& 4) shall be depend on the supplier recommendations .Hence we shall be supplying the following vessels without affecting the performance guarantees. 1. SCR/V (Separation cum Cation regeneration vessel) - 1 No. 2. ARV/MRSV (Anion regeneration vessel (or) Mixed resin storage vessel) - 1 No Kindly confirm.	Tender specification requirement is clear, bidder to follow the same.

3	SPECIFICATION NO. PE-TS-415-155-A001	SECTION : I, SUB SECTION: IA	F. Additional Requirement, sub-clause 25)	21 of 712	All handrails shall be of 32 mm nominal bore MS pipes (medium class) as per IS: 1161 galvanized using 750 gm/sq. m of zinc. Hand railing shall be a two-rail system with the top rail 1000 mm above the walkway surface and the intermediate rail 450 mm below the top rail. Handrail post spacing shall be limited to 1500 mm as far as possible but can be proportioned to the length of the opening. In such a case spacing shall not exceed 1850 mm centre to centre of posts. Hand railing shall be shop fabricated for specific locations and field welded or bolted to the erected structural steel. Railings shall be provided with 100 mm wide and 8 mm thick MS strip at bottom as toe guard all along the length of railing in horizontal plane. For RCC stairs, hand railing with 20 mm square MS bar balustrade with suitable MS flat and Aluminium / Teakwood handrail shall be provided, unless specified otherwise.	Please confirm whether the same is in Bidder Scope.	Handrail required for the equipment supplied by bidder for CPU package shall be in bidders' scope. Specification for the same has been mentioned in the CPU tender specification. Bidder to follow the same.
4	SPECIFICATION NO. PE-TS-415-155-A001	SECTION : I, SUB SECTION: IA	B. REGENERATION SYSTEM, sub-clause 17)	16 of 712	BHEL will provide a 150 NB size DM water line terminal point at 5 m distance from DM water Regeneration/Resin transfer Pumps located in CST & DM pump house. Further counter flanges, piping, valve, instrumentation and required fitting & accessories after BHEL terminal point shall be in bidder's scope. Further recirculation line from DM water Regeneration/Resin transfer Pumps shall be connected by bidder to individual DM water storage tanks dedicated recirculation nozzle provided by BHEL along with pressure reducing valve and NRV. Necessary Valves, piping, instruments, flanges & fitting along with accessories for DM water Regeneration/Resin transfer Pumps recirculation line shall be in bidder's scope of supply.	We understood, that DM Water Regeneration / Resin transfer pump Recirculation shall be connected to DM Water Storage tank by Bidder. Kindly confirm the distance between DM Water Storage Tank to DM water Regeneration / Resin Transfer pump location.	Bidder to note that DM Water Regeneration / Resin transfer for CPU system shall be located in CST & DM pump house (drawing attached with tender specification). Further DM water storage tanks (identified in plot plan under sr. no. 3.15) located adjacent to CST & DM pump house (identified in plot plan under sr. no. 1.14). Bidder to note that location of CST & DM pump house & DM water storage tanks both are clearly indicated in plot plan attached with tender specification and accordingly bidder to consider the piping distance between these equipments

Project: Condensate Polishing Unit For 1X660 MW BHUSAWAL TPS UNIT-6
Tender No.: PE/PG/BHU/E-6232/2019 dated June 14, 2019
Doc. Title: **Pre-Bid Queries (Technical)**

Sr. No.	Volume	Section	Clause No.	Page No.	Specification Requirement	Clarification	Reason for Clarification / Bidder's Assumption	BHEL reply dated 08/07/2019
Mechanical Clarification								
1.	SECTION: I VOLUME : III F	SUB-SECTION: IA Section - 1	E Serial no. 1 3.0 – 3.1	Page 18 of 712 Page 479 of 712	Service vessel inlet header shall be ASTM A 106 Gr. C Condensate Piping MOC ASTM A 106 Gr. B	Please clarify the MOC of Grade for condensate Piping.	Contradictory in specification.	Bidder to follow tender specification clause E Sr. no.1 to 3 page 18 of 712 & clause 5.0 iii) to v) of datasheet –A, page 318 of 712 of CPU technical specification for the same. Bidder to consider condensate Piping MOC ASTM A 106 Gr. C. Further Bidder to refer amendment 1, schedule-A. sr. no. 1 & 2.
2.	SECTION: I VOLUME : III F	SUB-SECTION: IA Section - 2	E Serial no. 8 1.0-2.0-C	Page 18 of 712 Page 479 of 712	Piping handling DM water shall be ASTM A 312 Gr. TP 304 (SS 304) Sch 10 (minimum) for Sizes above 40NB and 40NB & below ASTM A 312 Gr. TP 304 (SS 304) Sch 40 DM water service sizes equal to or greater than 50NB be ASTM A 312 Gr. TP 304 Sch 10S DM water service sizes equal to or less than 40NB be ASTM A 312 Gr. TP 304 Sch 40S	Please clarify the MOC of Schedule for DM Water Piping.	Contradictory in specification.	Bidder to follow tender specification clause E Sr. no.8 page 18 of 712 & clause 5.0 ii) of datasheet –A, page 318 of 712 of CPU technical specification for the same. Bidder to consider Piping handling DM water shall be ASTM A 312 Gr. TP 304 (SS 304) Sch 10 (minimum) for Sizes above 40NB and 40NB & below ASTM A 312 Gr. TP 304 (SS 304) Sch 40.
3.	SECTION : I	SUB-SECTION:IA	(a) Of 3.02.00	Page 37 of 712	Normal run: pH of effluent: 6.5-7.5	There is not separate pH correction chemical dosing system has been envisaged in our scope of supply. Please confirm if our understanding is correct.	Clarification required	Bidder understanding is correct.

Project: Condensate Polishing Unit For 1X660 MW BHUSAWAL TPS UNIT-6
Tender No.: PE/PG/BHU/E-6232/2019 dated June 14, 2019
Doc. Title: **Pre-Bid Queries (Technical)**

Sr. No.	Volume	Section	Clause No.	Page No.	Specification Requirement	Clarification	Reason for Clarification / Bidder's Assumption	BHEL reply dated 08/07/2019
4.	SECTION : I	SUB-SECTION:IA	4.1-(iii)	Page 316 of 712	<u>NEUTRALIZATION PIT LINING</u> RCC with inside lining of PVC sheet (3 mm thick).	Please confirm the scope of PVC lining for N. Pit.	Scope of PVC lining is not defined in tender.	lining for N-pit is in BHEL scope.
5.	Section I Section I	SUB-SECTION: IA SUB-SECTION: IA	5.05.17, Serial no. 3 6.0-(iii)	44 of 712 319 of 712	Lugged wafer butterfly type isolation valves (resilient material seated, to ensure bubble-tight shut off) on the upstream and downstream sides of the control valve. Butterfly valves shall be of flanged type of low leakage rate confirming to AWWA-C-504 class 300 (min.) or EN593/BS:5155 PN 10 (min.)	We have considered the lugged wafer type Butterfly valve only. For Emergency bypass control valve, double flanged butterfly type shall be provided. Please confirm.	Contradictory in specification.	Bidder to note that condensate polishing plant service vessel area all butterfly valves shall be of stainless steel construction, SS-316(for Body, disc and shaft). Seat/seat rings shall be of Teflon/titanium back up rings. Seal shall also be of Teflon only. Bidder to note that bypass line of CPU service vessel area shall be provided with Emergency bypass control valve shall be of double flanged butterfly type control valve. Lugged wafer butterfly type isolation valves (resilient material seated, to ensure bubble-tightshut off) on the upstream and downstream sides of the control valve. Further Butterfly valves provided in service vessel area other than by-pass line shall be double flanged type for sizes above 300NB.For sizes 300 NB and below valve shall be double flanged or lugged wafer type. Further Bidder to refer amendment 1, Schedule-A. sr. no. 3,4 & 5.

Project: Condensate Polishing Unit For 1X660 MW BHUSAWAL TPS UNIT-6
Tender No.: PE/PG/BHU/E-6232/2019 dated June 14, 2019
Doc. Title: **Pre-Bid Queries (Technical)**

Sr. No.	Volume	Section	Clause No.	Page No.	Specification Requirement	Clarification	Reason for Clarification / Bidder's Assumption	BHEL reply dated 08/07/2019
6.	Section I VOLUME : III F	SUB-SECTION:IA Section - 2	5.05.17 , Serial no. 5 4.0 (a)	44 of 712 519 of 712	Isolation Valves handling DM water shall be Butterfly or gate or globe type and shall be SS construction. Butterfly valves for DM Water application for sizes 50NB and above rubber lining valves shall be provided.	Please clarify the MOC of valves for DM water application.	Contradictory in specification.	Isolation Valves handling DM water shall be Butterfly or gate or globe type and shall be SS-316 construction. Bidder to note that condensate polishing plant regeneration area all butterfly valves used in DM water & alkali application shall be of stainless steel construction, SS-316 (for Body, disc and shaft). Seat/seat rings shall be of Teflon/titanium back up rings. Seal shall also be of Teflon only. These butterfly valve shall be of flanged type. Further Bidder to refer amendment 1, Schedule-A. sr. no. 6 & 7.
7.	Tender P & ID	DRAWING NO. PE-DG-415-155-A001		306 of 712	At discharge terminal of Neutralized waste transfer pump, two nos. of discharge header [To ETP (MB)] have been shown.	Please clarify the nos. of pipes to be laid between N-pit to ETP CMB, single header or two headers.	Clarification required	Bidder to provide single header up to CMB, from where two separate pipe shall be connected to each compartment of CMB.
C & I Clarification								
8.		I	3.4 (d)	314 of 712	(1) Wherein Density meter (Hydro meter) type is indicated. (2) Tender P & ID shows Density Indicator only.	Please provide the technical data sheet of Density Indicator (Hydrometer type).	Data sheet of Density indicator is not available in C&I specification.	Bidder to note that Density indicator and density Meter ((Hydro meter) type both are same thing. The technical details shall be as per process requirement and manufacturer standard practice subjected to BHEL / Customer approval during detail engineering.

PROJECT: 1X660 MW BHUSAWAL TPS UNIT-6
PACKAGE: CONDENSATE POLISHING UNIT
ENQUIRY NO: E-6232/2019 Dated. 14.06.2019

Sl No.	Bidder's Query	BHEL Reply Dtd. 08.07.2019
1.	This refers to above subject plant, refer to Resin Specification CI No.5.04.04 Page 40 of 172 of Sub section IA Section I, we find that Uniformity Coefficient for resin is specified as 1.1 in the tender which was not there earlier in the BHEL specification. We would also like to bring to your kind attention that the resin being used in CPU unit has Uniformity Coefficient of <1.7. In addition to this we want to propose INDION CPU Grade resin for the said Project. We request you to kindly amend the same.	Bidder to note that resin specification requirement is clear in tender specification, In view of this bidder to follow the same.