



BHARAT HEAVY ELECTRICALS LIMITED
PROJECT ENGINEERING MANAGEMENT

PROJECT : 1 X 800 MW WANAKBORI TPP
PACKAGE : COOLING TOWER.
Enquiry No. : PE/PG/WAN/E-4865/15 Dtd.02.06.2015

DATE: - 05.08.2015

Pre-Bid Clarifications #5

S. No.	Reference Clause of Tender documents	Existing Provisions	Pre-Bid Query	BHEL Reply
1.	Technical specifications, vol II part 2, page 445 / 511, table - I	Water analysis: Clarified water analysis indicates a TSS value of 320 ppm (max) whereas the raw water analysis indicates a TSS of 1~2 ppm.	Considering COC of 5, the TSS value in the circulating water shall be 1600 ppm, film flow fill will not be suitable. Hence kindly confirm the TSS value in the circulating water to enable us to decide on the suitable fill type.	Raw water analysis & clarified water analysis indicated in Section-D of specification may please be ignored. "Revised clarified water analysis" is enclosed with this reply. COC shall be 5.0 as already indicated in specification.
2.	Technical specifications, vol IIB part 1, section C1, page 21/ 511, clause no. 2.01.04 a)	All faces of concrete structures and steel structures coming directly in contact with water shall be coated with corrosion resistant coating system as approved.	The raker column size shall be based on the design of the bidder. Kindly confirm.	Query is not clear. Specifications to be followed.



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3.	Technical specifications, vol IIB part 1, section C1, page 24/ 511, clause no. 8.01.00	Cooling tower testing during single visit of CTI approved agency is envisaged.	In case the NDCT is not ready for conducting PG test during visit of CTI 3rd party agency, due to reasons not attributable to bidder, the expenses & responsibility for any subsequent visits would be to the account of BHEL. Kindly confirm.	Specifications to be followed.
4.	Technical specifications, vol IIB part 1, page 40 / 511, clause no. 8.05.00 & 8.06.00	The RCC structure shall be painted on the exterior surface with two coats of cement paint. The interior surface of structure and the basin shall be painted with one coat of primer and two coats of bituminous paint.	This clause seems to be applicable for IDCT. Kindly confirm the painting of shell at interior & exterior surface and the level up to which painting is to be done. Also indicate the surface to be painted for basin.	Specifications to be followed
5.	Technical specifications, vol IIB part 1, section C1, page 46 / 511, clause no. 9.03.00 a)	Basin shall be checked for uplift forces considering empty condition with ground water table at level as per Geo technical investigation recommendation.	The ground water table to be considered for design purposes is not provided in the geo technical investigation. Kindly furnish the same.	Refer cl. 9.03.00-b & cl. no.5.00 of V2/G1.
6.	Technical specifications, vol IIB part 1, page 56 / 511,	Maximum drift loss : very close to 0%	It is not possible to maintain drift loss close to 0%. The drift loss shall be < 0.005% as per clause no.6.05.00 of page 23 / 511. Please	Confirmed.



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	annexure A, sl.no.3		confirm.	
7.	Technical specifications, vol IIB part 1, page 277 / 511, sl.no.2.00.00 A. d)	Grading work upto FGL (RL + 72.0 M) shall be in the scope of bidder.	Kindly confirm if grading work shall be done by BHEL and the graded site shall be handed over at FGL.	Graded site shall be given to bidder. Micro grading (if any) shall be in bidder scope. For better insight, bidder is advised to visit the site as grading works are under progress at site.
8.	Technical specifications, vol IIB part 1, page 277 / 511, sl.no.2.00.00	Soil investigation for entire plant area is in scope of bidder.	Kindly confirm if soil investigation has to be mandatorily carried out by the successful bidder after award of contract.	Soil investigation done by BHEL for the plant. Refer specific technical requirements, SECTION – C3 SPECIFIC TECHNICAL REQUIREMENTS (CIVIL). However, BHEL has already furnished the details of sufficient nos. of bore hole data as per Geo-Tech Work. Vendor to take the complete responsibility for total work including sub-starta. If required, Bidder can visit the site and do the necessary action/tests.

Table -1

CLARIFIED WATER ANALYSIS

Sl no.	Particulars	Units	Value
1	pH	---	8.42
2	TSS	ppm	15 ppm
3	Conductivity	Micro S/cm	440
4	Calcium Hardness	ppm as CaCO ₃	52
5	Magnesium hardness	ppm as CaCO ₃	82
6	Sodium	ppm as CaCO ₃	79
7	Iron in solution	ppm as Fe	Nil
8	Manganese in solution	ppm as CaCO ₃	Nil
9	Total Cations		213
10	Bicarbonate	ppm as CaCO ₃	152
11	Carbonate	ppm as CaCO ₃	2
12	Hydroxide	-----	Nil
13	Sulphate	ppm as CaCO ₃	13
14	Chloride	ppm as CaCO ₃	46.48
15	Nitrate	ppm as NO ₃	Nil
16	Fluoride	ppm as CaCO ₃	Nil
17	Total Anions		213
18	Reactive Silica as SiO ₂	ppm	22
19	Colloidal Silica as SiO ₂	ppm	Nil.

* Note: Other parameters not indicated above considering as Nil.

COC for CW system shall be 5.0.