



BHARAT HEAVY ELECTRICALS LIMITED
PROJECT ENGINEERING MANAGEMENT

PROJECT : 1X800 MW KOTHAGUDAM STPP

DATE: - 16.04.2015

PACKAGE : COOLING TOWER.

ENQUIRY NO. : E-4750/2014 Dtd 27.03.2015

Subject: Tender Enquiry of COOLING TOWER as per Technical Specification No. PE-TS-410-165-N001(Rev-0) for 1X800 MW KOTHAGUDAM TPP.

Pre-Bid Clarification

Sr. No.	Reference clause of tender document	Existing Provision	Pre-Bid Query	BHEL Reply
1.	Clause 6.05.00, Vol. IIB, Section- C	PVC Drift eliminator blades shall be of three-pass full wave type supported on concrete framework & shall limit the drift losses to a value not greater than 0.002 % of the design water circulation rate.	There are no drift eliminators in India or outside, that can achieve 0.002% drift efficiency. The only way to achieve this very high drift efficiency is by using two layers of drift eliminator packing's (placed one above the other). But this will result in high pressure drop necessitating increase in tower size. This solution will increase the cost of drift eliminator packing and NDCCT as its size will be larger. Usually, a drift loss of 0.005% is specified all over the world, even for sea water applications. This loss figure can be achieved by a single layer of drift eliminator packing's available in India. This drift loss of 0.005% itself is very low and is outside the range of human senses (as per BS:4485). Hence, it is requested to revise the drift loss value as 0.005%. Please consider and confirm.	Please follow the specification.
2.	Clause 6.06.00, Vol. IIB, Section- C	All parts subjected to periodical maintenance & inspection such as Inlet louvers, fills, drift eliminators etc. shall be readily accessible.	Inlet louvers are not applicable to Counter Flow Natural Draught Cooling Towers.	Noted

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3.	Sr. No.5.0, Annexure-A, Datasheet For Natural Draft Cooling Tower, Volume : VII-D	Material of Construction : Fills - PVC with minimum spacing of 20 mm Fill Support - R.C.C./HDG Steel	Fills are mentioned to be spaced at minimum 20 mm. This is applicable only for film fills and this tender specifies PVC V bar type splash fill to be used. Please confirm. Further, the fill supports are mentioned to be RCC/HDG Steel. As the PVC V bar type of fills are to be supported on SS wire mesh, please specify an appropriate grade for this material. Please clarify.	Type of fills shall be PVC Splash V-bar type of approved make as per datasheet. Material grade for SS shall be SS-316.
4.	Sr. No.2.0, Annexure-A, Datasheet For Natural Draft Cooling Tower, Volume : VII-D	Design Working Conditions : Design Ambient Relative Humidity (RH) - 44.96%	The RH value of thermal design is 44.96% in Annexure A and 45% is mentioned in Data Sheet A of Volume IIB. Please confirm the correct value of RH to be considered.	RH value shall be 44.96%
5.	Clause 6.05.00, Data Sheet – A, Volume - IIB, Section- D1	As per terminal point Annex-2 enclosed. CW piping in BHEL scope 3840mm X 20mm thk. shall be terminated with centre	The header size at TP specified here is 3840 x 20 thk, which means that the ID of the pipe is 3800 mm. With this ID and a water flow rate of 90,000 m3/hr the velocity achievable is 2.204 m/s, which is higher than the specification requirement of 2 m/s (Clause 6.12.00, Sec C, Vol IIB). Hence, the ID of header at TP is required to be 4000 mm to limit the velocity to 2 m/s.	Header Pipe size at T.P shall be 3840 mm X20 mm thk. Bidder to design hot water distribution system by maintaining velocity



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6.	Clause no. 22 of NIT	The structural steel & reinforcement steel shall be free issue by BHEL.	Please confirm that the pipe OD is 4040 instead of 3840 mm.	of 2 m/s. Any other steel like Galvanized steel, hand rail etc will be arranged by bidder and to be included in bidder's scope.