



BHARAT HEAVY ELECTRICALS LIMITED
PROJECT ENGINEERING MANAGEMENT, NOIDA

Date-12-Aug-26

CORRIGENDUM- 01

PROJECTs	:	2000 TPD BCGCL COAL TO AMMONIUM NITRATE - LSTK 1
PACKAGE	:	INDUCED DRAFT COOLING TOWERS (IDCT)
ENQUIRY NO	:	77/26/6109/AMI dt.06/08/2026
SUBJECT	:	Technical amendment 01 and replies to pre-bid queries

Type of Corrigendum			
Technical Corrigendum -	☒	Commercial Corrigendum -	☐

Bidders are requested to note the following -

1. Technical amendment 01 to Technical Specifications no. PE-TS-544-165-W001 rev 01 is enclosed.
2. Replies to pre-bid queries enclosed.

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

Yours faithfully,
For and on behalf of BHEL

Amit Kumar
Sr. Manager/BOP



**TECHNICAL SPECIFICATION
INDUCED DRAFT COOLING TOWER
2000 TPD BCGCL COAL TO AMMONIUM
NITRATE -
LSTK-1**

SPECN. NO.:

PE-TS-544-165-W001

AMENDMENT NO. - 01

REV. NO.	
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01

DATE:

11-08-2026

1.0 Following drawings / documents / details are attached in Specification.

a) Annexure-P2 : Field bore log pertaining to IDC I and adjacent areas are attached for reference.

Annexure-P2

FIELD BORELOG SHEET										Boring Type		Polarizing Hydraulic		
NAME OF PROJECT				BOREHOLE NO. & LOCATION				BORING TYPE		DRILLING BIT		DIAMOND		
NAME OF CLIENT				DATE OF START				BH DIA. IN SOIL		BH DIA. IN ROCK		STANDARD		
GROUND ELEVATION				DATE OF END				BH DIA. IN SOIL		BH DIA. IN ROCK		STANDARD		
CASTING				CASING DEPTH (m)				BH DIA. IN SOIL		BH DIA. IN ROCK		STANDARD		
NORTHING				WATER TABLE (m)				BH DIA. IN SOIL		BH DIA. IN ROCK		STANDARD		
TOTAL DRILLING DEPTH (m)		DRILL RUN (m)	DESCRIPTION OF STRATA	TYPE OF SAMPLE	SAMPLE NO.	STANDARD PENETRATION TEST				CORE RECOVERY LENGTH	CR (%)	RQD LENGTH	RQD (%)	REMARK
FROM	TO					15	30	45	60					
1.50	1.95	0.45	Brownish hard clay	SPT	1	7	9	11	20	—	—	—	—	
3.00	3.45	0.45	"	SPT	2	21	24	27	51	—	—	—	—	
4.50	4.95	0.45	"	SPT	3	21	23	31	56	—	—	—	—	
6.00	6.45	0.45	"	SPT	4	19	30	34	64	—	—	—	—	
7.50	7.95	0.45	"	SPT	5	19	23	24	47	—	—	—	—	
9.00	9.45	0.45	"	SPT	6	50	—	—	—	—	—	—	—	
9.45	10.50	1.05	Brownish dense clay + sandstone	Core	1/6	—	—	—	—	62	41	—	—	VB
10.50	12.00	1.50	Weathered Sandstone	"	2/6	—	—	—	—	10	7	—	—	Greenish
12.00	13.50	1.50	"	"	7/6	—	—	—	—	20	13	—	—	Greenish
13.50	15.00	1.50	Greyish Sandstone with light brownish	"	9/17	—	—	—	—	78	52	17	11	
15.00	16.00	1.00	Sandstone	"	18/1	—	—	—	—	27	18	—	—	

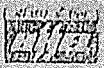
CR : Core Recovery

RQD : Rock Quality Designation

sp : Small Pieces

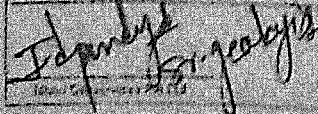
Signature: *Vijay Kumar*

Signature: *Vijay Kumar*

		FIELD BORELOG SHEET					
		Geotechnical investigation work for BCCCL's 2000 TPD Coal to Ammonium Nitrate Project, Lakhimpur, Orissa Client: Bharat Heavy Electricals Limited (BHEL)		BOREHOLE NO. & LOCATION B.N.19 IDCT		BORING TYPE Rotary/Hydraulic	
DATE OF START 18/05/26		DATE OF END 20/05/26		DRILLING BIT Diamond		DIH DIA. IN SOIL 150 mm	
CASING DEPTH (m) 7.0 mtr		WATER TABLE (m) 7.5 mtr		DIH DIA. IN ROCK 76 mm		STANDARD IS 4464 : 1985	

FROM DEPTH (m)	TO	DRILL CUT (m)	DESCRIPTION OF STRATA	TYPE OF SAMPLE	SAMPLE NO.	STANDARD PENETRATION TEST				CORE RECOVERY LENGTH	CR (%)	RQD LENGTH	RQD (%)	REMARK
						15	30	45	60					
0.0	1.5	1.5	Reddish yellow clayey sand	SP7	-	3	4	6	10					
1.5	3.0	1.5	"	SP7	-	7	9	11	20					
3.0	4.5	1.5	"	SP7	-	6	8	12	20					
4.5	6.0	1.5	"	SP7	-	8	11	13	24					
6.0	7.5	1.5	"	SP7	-	7	9	11	20					
7.5	9.0	1.5	greyish black clayey sand	SP7	-	8	9	10	19					
9.0	10.5	1.5	"	SP7	-	7	8	11	19					
10.5	12.0	1.5	greyish black S.S	CS	1/1	-	-	-	-	93	62	-	-	
12.0	13.5	1.5	"	CS	2/1	-	-	-	-	124	83	25	17	
13.5	15.0	1.5	"	CS	47/73	-	-	-	-	130	87	23	15	
15.0	16.5	1.5	"	CS	74/94	-	-	-	-	111	74	22	15	
16.5	18.0	1.5	"	CS	95/110	-	-	-	-	86	57	-	-	
18.0	19.5	1.5	greyish white S.S	CS	111/125	-	-	-	-	87	58	-	-	
19.5	21.0	1.5	"	CS	126/158	-	-	-	-	146	97	10	7	

1. Approved By
 2. Technical Review
 3. Reviewer's Name
 4. Date of Review



CR - Core Recovery
 RQD - Rock Quality Designation
 S.S - Sandstone

BHEL

FIELD BORELOG SHEET										Boring Type		Rotary/Hydraulic																									
NAME OF PROJECT		BOREHOLE NO. & LOCATION		DATE OF START		DATE OF END		CASING DEPTH (m)		WATER TABLE (m)		DRILLING BIT		BH DIA. IN SOIL		BH DIA. IN ROCK		STANDARD																			
Geological Investigation Work for DGCCL's 2000		BH-20		IDCT																																	
Name of Client		Date of Start		Date of End		Casing Depth (m)		Water Table (m)																													
Ground Elevation		Date of End		Casing Depth (m)		Water Table (m)																															
Casting		Date of End		Casing Depth (m)		Water Table (m)																															
Remarks		Date of End		Casing Depth (m)		Water Table (m)																															
TOTAL DRILLING DEPTH (m)		DRILL RUN (m)		DESCRIPTION OF STRATA		TYPE OF SAMPLE		SAMPLE NO.		STANDARD PENETRATION TEST				CORE RECOVERY LENGTH		CR (%)		ROD LENGTH (%)		ROD (%)		REMARK															
FROM		TO				DSPT/UBSCORE				15				30				45				N															
0.0		1.5		1.5		Reddish yellow sandy clay		SP7		13				14				17				31															
1.5		3.0		1.5		"		SP7		15				18				22				40															
3.0		4.5		1.5		"		SP7		25				28				30				58															
4.5		6.0		1.5		"		SP7		27				50/7 am																							
6.0		7.5		1.5		Yellowish claystone		CS 1/6		-				-				-				77				51				61				41			
7.5		9.0		1.5		"		CS 7/10		-				-				-				75				50				66				44			
9.0		10.5		1.5		greyish black SS		CS 11/13		-				-				-				42				28				24				16			
10.5		12.0		1.5		"		CS 14/25		-				-				-				86				57				44				29			
12.0		13.5		1.5		"		CS 24/29		-				-				-				131				87				131				87			
13.5		15.0		1.5		"		CS 30/42		-				-				-				148				99				94				63			
15.0		16.5		1.5		"		CS 43/52		-				-				-				131				87				91				61			
16.5		18.0		1.5		"		CS 53/77		-				-				-				133				89				-				-			
18.0		19.5		1.5		"		CS 78/97		-				-				-				110				73				-				-			
19.5		21.0		1.5		"		CS 98/112		-				-				-				85				57				-				-			
Note: Borehole terminated at <u>21.0</u> mtrs.																																					

CR : Core Recovery

ROD : Rock Quality Designation

ap : Small Pieces

Drilled by: *J. J. J.*

Geologist: *J. J. J.*

		ADITYA BIRLA GROUP PRIVATE LIMITED			
		FIELD BORELOG SHEET			
NAME OF PROJECT:		Geotechnical Investigation work for BCGCL's 2000 TPD Coal to Ammonium Nitrate Project, Lakhimpur, Odisha.		BOREHOLE NO. & LOCATION: B.H. 2 / CWPB	
NAME OF CLIENT:		Bharat Heavy Electricals Limited (BHEL)		RO TYPE: Rotary Hydraulic	
GROUND ELEVATION:		DATE OF START:		DRILLING BIT: Diamond	
CASTING:		DATE OF END:		BH DIA. IN SOIL: 150 mm	
NORTHING:		CASING DEPTH (m): 5.0 mtr		BIT DIA. IN ROCK: 75 mm	
		WATER TABLE (m): 7.0 mtr		STANDARD: IS 4664 : 1985	

TOTAL DRILLING DEPTH (m)	DRILL RUN (m)	DESCRIPTION OF STRATA	TYPE OF SAMPLE	SAMPLE NO.	STANDARD PENETRATION TEST				CORE RECOVERY LENGTH	CR (%)	ROD LENGTH	ROD (%)	REMARK
					15	30	45	N					
0.0	1.5	1.5	Reddish yellow Sandy clay	SP7	-	22	28	27	36				
1.5	3.0	1.5	"	SP1	-	19	26	29	55				
3.0	4.5	1.5	"	SP1	-	21	23	27	50				
4.5	6.0	1.5	Yellowish claystone	CS	1/4	-	-	-	53	35	25	17	
6.0	7.5	1.5	"	CS	5/12	-	-	-	74	49	54	36	
7.5	9.0	1.5	grayish claystone	CS	13/18	-	-	-	110	73	98	65	
9.0	10.5	1.5	grayish black S.S	CS	19/32	-	-	-	125	83	42	28	
10.5	12.0	1.5	"	CS	33/44	-	-	-	69	46	20	13	
12.0	13.5	1.5	"	CS	45/55	-	-	-	109	73	61	41	
13.5	15.0	1.5	"	CS	56/98	-	-	-	134	89	-	-	
15.0	16.5	1.5	"	CS	79/100	-	-	-	95	63	10	7	
16.5	18.0	1.5	"	CS	101/130	-	-	-	133	89	-	-	
18.0	19.5	1.5	"	CS	131/144	-	-	-	88	59	-	-	
19.5	21.0	1.5	"	CS	145/162	-	-	-	150	100	-	-	
Note: B.H. Terminated at 21.0 mtr													

APPROVALS: J.S. : Investigator D.S. : District Engineer L.S. : District Superintendent	CR : Core Recovery RQD : Rock Quality Designation sp : Small Pieces
J. Pandey Geotechnical Engineer	
BHEL	

Replies to pre-bid queries

BHEL Tender ID- 2026_BHEL_63725_1

BHEL Tender NIT /Enquiry No. 77/26/6109/AMI dt.06/08/2026

Project - INDUCED DRAFT COOLING TOWER for 2000 TPD BCGCL COAL TO AMMONIUM NITRATE - LSTK-1

Sr. No.	Tender Reference	Page No.	Clause Description	Bidder's Queries	BHEL Reply
1	Technical Specification Book1 of 2 (Part1) Cl.2.22 & 4.4	Page 20 of 143 & Page 22 of 143	Hot Water Distribution System	Please clarify whether BHEL distinguishes between the external HW and internal HW distribution systems. The external HW distribution system means the MS header laid along the IDCT length along with the riser piping that is embedded in the HW channel outside of the IDCT. Whereas the internal HW distribution system means the PVC pipes and the nozzles fixed to it. Clause 2.22 mentions of 10 kg/cm2 design pressure for the HW distribution system. And Clause 4.4 mentions that the HW distribution pipes must be of PVC to IS 4985, Class 3, which is 6 kg/cm2 pressure rating. Please clarify whether the 10 kg/cm2 pressure rating applies only to the MS HW piping external to the IDCT. If yes, we feel that this pressure rating is too high even for the MS piping because the max. pumping head available for the IDCT is 20 mWC, which is 2 kg/cm2. A standard 5 kg/cm2 pressure rating is adequate for the MS piping as well. Please review and clarify on both the above clauses.	Bidder to follow specification.
2	Technical Specification Book1 of 2 (Part1) Cl.4.8	Page 22 of 143	Fill Support Grid	Fill support grid of SS 316 will apply only to pure splash fills like V bars and Splash Grids. Whereas Modular Splash Fills will require RCC beam supports in RCC IDCTs and FRP beam supports in FRP IDCTs. Please confirm the fill support arrangement to be considered.	Bidder to follow specification.
3	Technical Specification Book1 of 2 (Part1) Cl.4.2.3	Page 15 of 143	Rubber Expansion Joints (REJ)	Rubber expansion joints are usually adopted in the rising piping of FRP IDCTs because sometimes the FRP structure is not designed to take the thermal expansion load from the MS riser piping. However, the MS riser piping is embedded in the RCC HW Channel of a RCC IDCT that is designed to take the residual stresses from the thermal expansion of the MS riser piping. Hence, please confirm that the REJ specified need not required for the RCC IDCT.	Bidder to follow specification.
4	Technical Specification Book1 of 2 (Part1) Part-A Mechanical Cl.1.12	Page 19 of 143	Thermal Design Standard	IS 18758:2004 – Thermo-Hydraulic Design of Induced Draught Cooling Towers-Guidelines is mentioned here. Please clarify whether it is mandatory to perform and present the thermal design as per this standard in this project. If this standard is included only as a reference, we will carry out thermic design as per our own internal methods and present the results in our bid in the form of detailed thermal design calculations. Please clarify/confirm whether IS18758:2004 compliance is mandatory or bidder methodology acceptable.	Bidder to follow specification.
5	Technical Specification Book1 of 2 (Part1) Technical Data, Part-A (Mechanical), Cl.2.16	Page 20 of 143	Pumping Head	The pumping head available at the terminal point w.r.t FGL is 20 mWC. This is too high a pumping head for an IDCT of the specified capacity. We will utilize the pumping head required out of the 20 mWC available and leave the rest to BHEL for utilization elsewhere or discharge by other means. Please confirm.	It is clarified that Maximum IDCT Pumping head permissible (as per Clause no- 2.16 of TECHNICAL DATA - PART - A (MECHANICAL) , page 20 of 143 of TECHNICAL_SPECIFICATION_BOOK_1_OF_2_(PART-1)) is 20 MWC inline with specification. Bidder to design IDCT system within this permissible value inline with specification. Bidder to follow specification.
6	Technical Specification Book 1 of 2 (Part-2) Annexure-3	Page 4 of 227	IDCT Key plan , Layout Orientation	As per the Windrose, the wind direction is at 45 degrees to the long axis of the IDCT. It is advisable to align the IDCT with the wind direction to mitigate recirculation. We see that there is enough space in the Key Plan to place the IDCT diagonally to align with the wind direction by moving and adjusting the locations of the CIO2 storage shed and CWPH. BHEL may like to make this adjustment to meet the recommendations on citing of IDCTs as per BS 4485 and CTI Bulletin PFM-110. Please review and confirm alignment along wind direction by adjusting nearby facilities.	The referred dimension/key plan/orientation are indicative . However, the final permissible dimensions/key plan/orientation shall be subject to detailed engineering requirements, statutory clearances, and interfacing constraints.

BHEL Tender ID- 2026_BHEL_63725_1

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Project - INDUCED DRAFT COOLING TOWER for 2000 TPD BCGCL COAL TO AMMONIUM NITRATE - LSTK-1

Sr. No.	Tender Reference	Page No.	Clause Description	Bidder's Queries	BHEL Reply
7	Technical Specification Book 2 of 2 Cl.3.1	Page 12 of 227	Geotechnical Investigation	It is stated here that NTPC has carried out the geotechnical investigations at the proposed cooling tower site and that the same is attached for the purpose of guidance to the bidder. It is also stated that BHEL does not take responsibility for the accuracy and applicability of the geotechnical data furnished herewith. It is further stated that any variation in the data furnished and that found during excavation at site shall not constitute a valid reason for affecting the terms & conditions of the bid and that the bidder shall not be paid anything extra on this account. Please review and confirm.	Field bore log pertaining to IDCT and adjacent areas are attached as per Amendment-01 for reference purposes only. Bidder to study the same and quote suitably. Other terms and conditions remain unchanged.
8	Technical Specification Book 2 of 2	Page 12 of 227	Responsibility for Soil Data	The basic minimum responsibility of BHEL is to ensure that the geotechnical data provided as part of the tender is applicable to the IDCT package. Each of the bidders cannot mobilize their teams at the bidding stage to conduct geotechnical investigations. It is a set standard in the cooling tower industry for the Client (EPC Contractor or Owner) to provide final geotechnical data that is fairly accurate for the cooling tower package based on geotechnical investigations carried by him. Hence, the responsibility of the applicability and accuracy of the soil data shall rest with BHEL and not the bidders. And any variation in the geotechnical data provided in the tender and that to be found during excavation by the bidder after award of work that causes an increase in cement and steel quantities and/or excavation work, shall be duly compensated by BHEL. Please confirm BHEL responsibility and compensation for variation.	Field bore log pertaining to IDCT and adjacent areas are attached as per Amendment-01 for reference purposes only. Bidder to study the same and quote suitably. Other terms and conditions remain unchanged.
9	Technical Specification Book 2 of 2 Annexure-P1	Page 221 of 227	Bore Log Data	Though a single bore hole is not adequate to know the soil strata and SBC for the entire IDCT area, please confirm that the bore log data presented here for the IDCT area is final.	Field bore log pertaining to IDCT and adjacent areas are attached as per Amendment-01 for reference purposes only. Bidder to study the same and quote suitably.