



भारत हेवी इलेक्ट्रिकल्स लिमिटेड

(भारत सरकार का उपक्रम)

BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

TCN - 05

Ref: PSER:SCT:NKP-M1739:TCN-05

Date: 13-05-2016

Sub	Tender Change Notice (TCN) - 05.	
Job	Design, Engineering, Manufacturing, Supply/Delivery, Erection, Commissioning, Trial Run, Handing Over to Customer etc of DEMINERALIZATION PLANT (DM PLANT) excluding civil construction work for 3X 660 MW North Karanpura Super Thermal Power Project at Jharkhand.	
Ref	1.0	Tender no PSER:SCT:NKP-M1739:16.
	2.0	BHEL's NIT, vide reference no PSER:SCT:NKP-M1739:4965, Dated 05-04-2016.
	3.0	BHEL's TCN-01, vide reference no PSER:SCT:NKP-M1739:TCN-01, Dated: 23-04-2016.
	4.0	BHEL's TCN-02, vide reference no PSER:SCT:NKP-M1739:TCN-02, Dated: 29-04-2016.
	5.0	BHEL's TCN-03, vide reference no PSER:SCT:NKP-M1739:TCN-03, Dated: 03-05-2016.
	6.0	BHEL's TCN-04, vide reference no PSER:SCT:NKP-M1739:TCN-04, Dated: 12-05-2016.
	7.0	Other references (if any).

With reference to above, following points/ documents, relevant to tender, may please be noted and complied with while submitting offer.

- 1.0 Bidder's clarification is attached vide **Annexure-A to TCN-05**.
- 2.0 Amendment-3 to Volume-II, Technical Specification for Demineralization Plant (DM PLANT) is attached herewith.
- 3.0 Revised 'No deviation certificate' is attached. Bidder to submit 'No deviation certificate' as per attached format only.
- 4.0 All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,
for BHARAT HEAVY ELECTRICALS LTD

ENGINEER (SCT)

Encl: As above.

पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)

POWER SECTOR EASTERN REGION, DJ-9/1, SALT LAKE CITY, KOLKATA - 700 091

फैक्स/Fax : (033) 23211960

फोन/Phone : बोर्ड/EPABX : (033) 23398234/ 23398000

ANNEXURE-A TO TCN-05

JOB: Design, Engineering, Manufacturing, Supply/Delivery, Erection, Commissioning, Trial Run, Handing Over to Customer etc of DEMINERALIZATION PLANT (DM PLANT) excluding civil construction work for 3X 660 MW North Karanpura Super Thermal Power Project at Jharkhand.

TENDER NO : PSER:SCT:NKP-M1739:16

CLARIFICATION OF BIDDERS' QUERY

SL NO	REFERENCE CLAUSE OF TENDER DOCUMENT	EXISTING PROVISION	BIDDER'S QUERY	BHEL'S CLARIFICATION
1.0	Clause No. 19.3, Page no. 50 of 830, Section C1, Volume II B, Data Sheet-A. Clause No. 22.10.00 b, Page No. 122 of 830, General Technical Requirement of DM Plant.	Cap : to empty the entire pit in 3 hours. Minimum Capacity and : Suitable to pump the total volume of one total head of each pump section in 8 hours (Minimum 50 cu.m/hr). Head to suit the requirement.	As per page no. 50 of 830 pump capacity required to empty the N-pit in 3 hours whereas as per page no. 122 of 830 capacity required to empty the N-pit in 8 hours. Bidder requested to confirm the operating hours of Effluent disposal pump.	Refer attached Amendment-3 to Volume-II.
2.0	Clause No. 4.0, Page no. 22 of 830, Section C1, Volume II B, Piping Sr. No. 4	400 meter DM plant feed piping from filtered water reservoir to DM plant.	Bidder requested to confirm laying of piping is underground or above ground	Refer attached Amendment-3 to Volume-II.
3.0	Clause No. 4.0, Page no. 22 of 830, Section C1, Volume II B, Piping Sr. No. 8	900 meter piping from N.Pit to ash handling plant & central monitoring basin.	Bidder requested to confirm laying of piping is underground or above ground	Refer attached Amendment-3 to Volume-II.
4.0	Clause No. 4.0, Page no. 22 of 830, Section C1, Volume II B, Piping Sr. No. 9	900 meter reject piping from UF+RO skid (N.Pit) to ash handling plant.	Bidder requested to confirm laying of piping is underground or above ground	Refer attached Amendment-3 to Volume-II.
5.0	Clause No. 4.0, Page no. 22 of 830, Section C1, Volume II B, Piping Sr. No. 10	100 meter permeate piping from UF+RO skid (N.Pit) to ACW system.	Bidder requested to confirm laying of piping is underground or above ground	Refer attached Amendment-3 to Volume-II.
6.0	Clause No. 4.0, Page no. 22 of 830, Section C1, Volume II B, Piping Sr. No. 11	400 meter filter backwash piping to stilling chamber of PT Plant.	Bidder requested to confirm laying of piping is underground or above ground	Refer attached Amendment-3 to Volume-II.
7.0	Tender Change Notice 03, SPECIFICATION NO.: PE-TS-405-163A-A001, AMENDMENT NO #2 SI.No. 1 Technical Specification for DM Plant, SPEC NO: PE-TS-405-163A-A001, Volume-II B, Clause 13.5, Pg 48 of 830	Acid Storage Tank: To store 30 days requirement of acid for regeneration of all operating DM stream & N-pit neutralization + 314.0 CUM for CPU regeneration + 5% overall margin. Alkali Storage Tank: To store 30 days requirement of alkali for regeneration of all operating DM stream & N-pit neutralization + 125.0 cum for CPU regeneration + 5% overall margin. Horizontal cylindrical with dished end(Torospherical), Atmospheric	Since the capacity of the storage tank is too high , Horizontal cylindrical Rubberlining vessel cannot be fabricated & transported and it does not comply the code BS 2594. Kindly clarify and confirm whether we can offer 4 x 25% configuration for Acid & Alkali storage tanks.	Refer attached Amendment-3 to Volume-II.
8.0	Technical Specification for DM Plant, SPEC NO: PE-TS-405-163A-A001, Volume-II B, Clause 5.0, Pg 44 of 830	Degassed water storage tank: Design code - IS 803, Useful capacity of each tank = 30 min	As per IS 803, Degassed water storage cannot be designed for Horizontal cylindrical type vessel. Kindly clarify whether the same can be designed as per BS 2594 code.	Refer attached Amendment-3 to Volume-II.



**AMENDMENT TO TECHNICAL SPECIFICATION FOR
DEMINERALIZATION PLANT (DM PLANT)
3X660 MW NTPC NORTH KARANPURA STPP**

SPECIFICATION NO.: PE-TS-405-163A-A001

AMENDMENT NO # 3

REV. NO. 00

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The following modifications with respect to Technical Specification for DEMINERALIZATION PLANT (DM PLANT), BHEL's Technical specification no PE-TS-405-163A-A001 shall apply.

Bidder to note that existing clauses/page numbers as appearing in the specification stands deleted and clauses/page numbers as mentioned in "Modified to" column shall be applicable and complied by the bidder.

MODIFIED CLAUSES/PAGE NUMBERS.

Sl no.	Vol. No.	Section/ Description	Clause no	Page no	Existing	Modified to
1.	IIB	SECTION – A	1.1	04 of 830	<p>This specification is intended to cover design, engineering, manufacture, fabrication, assembly, inspection & testing at vendor's & sub-vendor's works, painting, forwarding, supply and delivery at site including start up and commissioning spares, mandatory spares, operation & maintenance spares, as required, properly packed for transportation, loading/unloading / handling and storage at site, in site transportation, assembly, erection and commissioning, trial run, preparation and submission of drawing/documents including "As Built" drawings, site testing, carrying out performance guarantee tests at site and handover in flawless operating condition to end customer the entire DEMIERALIZATION PLANT (DM PLANT) as per the details in different sections / volumes of this specification for 3X660 MW NTPC NORTH KARANPURA STPP.</p> <p>The bidder's scope shall also include any other services, etc. if called for in the succeeding sections of the specification.</p>	<p>This specification is intended to cover design, engineering, manufacture, fabrication, assembly, inspection & testing at vendor's & sub-vendor's works, painting, forwarding, supply and delivery at site including start up and commissioning spares, mandatory spares, properly packed for transportation, loading/unloading / handling and storage at site, in site transportation, assembly, erection and commissioning, trial run, preparation and submission of drawing/documents including "As Built" drawings, site testing, carrying out performance guarantee tests at site and handover in flawless operating condition to end customer the entire DEMIERALIZATION PLANT (DM PLANT) as per the details in different sections / volumes of this specification for 3X660 MW NTPC NORTH KARANPURA STPP.</p> <p>The bidder's scope shall also include any other services, etc. if called for in the succeeding sections of the specification.</p>
2.	IIB	SECTION – C1	1.0	18 of 830	<p>GENERAL This specification is intended to cover design, engineering, manufacture, fabrication, assembly, inspection & testing at vendor's & sub vendor's works, painting, forwarding, supply and delivery at site including start up and commissioning spares, mandatory spares, operation & maintenance spares, as required, properly packed for transportation, loading/unloading / handling and storage at site, in site transportation, assembly, erection and commissioning, trail run, preparation and submission of drawing/documents including "As Built" drawings,</p>	<p>GENERAL This specification is intended to cover design, engineering, manufacture, fabrication, assembly, inspection & testing at vendor's & sub vendor's works, painting, forwarding, supply and delivery at site including start up and commissioning spares, mandatory spares, properly packed for transportation, loading/unloading / handling and storage at site, in site transportation, assembly, erection and commissioning, trail run, preparation and submission of drawing/documents including "As Built" drawings, site</p>



**AMENDMENT TO TECHNICAL SPECIFICATION FOR
DEMINERALIZATION PLANT (DM PLANT)
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REV. NO. 00

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					site testing, carrying out performance guarantee tests at site and handover in flawless operating condition to end customer the entire Demineralization Plant complete with all accessories for 3X660 MW NTPC NORTH KARANPURA STPP (EPC) .	testing, carrying out performance guarantee tests at site and handover in flawless operating condition to end customer the entire Demineralization Plant complete with all accessories for 3X660 MW NTPC NORTH KARANPURA STPP (EPC) .
3.	IIB	SECTION – C1	4.0	22 of 830	<p>PIPING</p> <p>All the piping as listed below shall be in bidder's scope. The below indicated pipes shall be designed, supplied, erected, laid and tested by the bidder. Elbows, tees, flanges Hangers and supports, embedment plates with lugs etc required for the below given piping shall also be provided by the bidder.</p> <ol style="list-style-type: none"> 1) All piping within the DM Plant including UF+RO skid for N-Pit. 2) All SS Pipes shall be of minimum Schedule 40. 3) Inlet and outlet pipes for each vessel, pumps, other equipments, etc. with pipe connections to the respective vessels/equipments. 4) 400 meter DM plant feed piping from filtered water reservoir to DM plant. 5) 110 meter DM water piping from Mixed bed vessel outlet to DM Water storage tank. 6) 170 meter regeneration piping from DM make up pump house to DM Plant. 7) 120 meter from Mixed bed vessel outlet to DM to DM Plant Lab for sampling. 8) 900 meter piping from N.Pit to ash handling plant & central monitoring basin. 9) 900 meter reject piping from UF+RO skid (N.Pit) to ash handling plant. 10) 100 meter permeate piping from UF+RO skid (N.Pit) to ACW system. 11) 400 meter filter backwash piping to stilling chamber of PT Plant. 12) Service water piping, instrument air piping, service air piping, potable water piping, etc. as applicable as per the Terminal 	<p>PIPING</p> <p>All the piping as listed below shall be in bidder's scope. The below indicated pipes shall be designed, supplied, erected, laid and tested by the bidder. Elbows, tees, flanges Hangers and supports, embedment plates with lugs etc required for the below given piping shall also be provided by the bidder.</p> <ol style="list-style-type: none"> 1) All piping within the DM Plant including UF+RO skid for N-Pit. 2) All SS Pipes shall be of minimum Schedule 40. 3) Inlet and outlet pipes for each vessel, pumps, other equipments, etc. with pipe connections to the respective vessels/equipments. 4) 400 meter DM plant feed piping from filtered water reservoir to DM plant. (300 m-Buried & Remaining on Rack/Pedestal) 5) 110 meter DM water piping from Mixed bed vessel outlet to DM Water storage tank. (Buried) 6) 170 meter regeneration piping from DM make up pump house to DM Plant. (Buried) 7) 120 meter from Mixed bed vessel outlet to DM to DM Plant Lab for sampling. (Buried) 8) 900 meter piping from N.Pit to ash handling plant & central monitoring basin. (400 m-Buried & Remaining on Rack/Pedestal) 9) 900 meter reject piping from UF+RO skid (N.Pit) to ash handling plant. (400 m-Buried & Remaining on Rack/Pedestal). 10) 160 meter permeate piping from UF+RO skid (N.Pit) to ACW



**AMENDMENT TO TECHNICAL SPECIFICATION FOR
DEMINERALIZATION PLANT (DM PLANT)
3X660 MW NTPC NORTH KARANPURA STPP**

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AMENDMENT NO # 3

REV. NO. 00

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					Points. 13) In addition, any additional piping and associated accessories required to complete the system shall be in bidder's scope.	system. (Buried) 11) 400 meter filter backwash piping to stilling chamber of PT Plant. (300 m-Buried & Remaining on Rack/Pedestal) 12) Service water piping, instrument air piping, service air piping, potable water piping, etc. as applicable as per the Terminal Points. 13) In addition, any additional piping and associated accessories required to complete the system shall be in bidder's scope.																
4.	IIB	SECTION - C1	5.6	44 of 830	Degassed Water Storage Tank Design Code- IS 803	Degassed Water Storage Tank Design Code- BS 2594																
5.	IIB	SECTION - C1	13.1	47 of 830	<table border="1"> <thead> <tr> <th>13.0</th> <th>DESCRIPTION FOR CHEMICAL STORAGE TANK</th> <th>ACID STORAGE TANKS</th> <th>ALKALI STORAGE TANKS</th> </tr> </thead> <tbody> <tr> <td>13.1</td> <td>Quantity (nos.)</td> <td>Two (2)</td> <td>Two (2)</td> </tr> </tbody> </table>	13.0	DESCRIPTION FOR CHEMICAL STORAGE TANK	ACID STORAGE TANKS	ALKALI STORAGE TANKS	13.1	Quantity (nos.)	Two (2)	Two (2)	<table border="1"> <thead> <tr> <th>13.0</th> <th>DESCRIPTION FOR CHEMICAL STORAGE TANK</th> <th>ACID STORAGE TANKS</th> <th>ALKALI STORAGE TANKS</th> </tr> </thead> <tbody> <tr> <td>13.4</td> <td>Quantity (nos.)</td> <td>Two (2) Minimum.</td> <td>Two (2) Minimum.</td> </tr> </tbody> </table>	13.0	DESCRIPTION FOR CHEMICAL STORAGE TANK	ACID STORAGE TANKS	ALKALI STORAGE TANKS	13.4	Quantity (nos.)	Two (2) Minimum.	Two (2) Minimum.
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13.4	Quantity (nos.)	Two (2) Minimum.	Two (2) Minimum.																			
6.	IIB	SECTION - C1	19.3	50 of 830	Effluent Disposal Pumps 3x100% horizontal centrifugal pumps, SS316 Cap : to empty the entire pit in 3 hours TDH : As required	Effluent Disposal Pumps 3x100% horizontal centrifugal single stage with priming system MOC- Casing & Impeller- Rubber Lined, Cast iron IS:210 Grade FG 260. Shaft Material- stainless Steel-316. No. Of Priming Chambers -Three (3). Capacity (Each) : Suitable to pump the total volume of one compartment in 8 hours. (Min 50 Cum/hr.) Head : To suit the requirement.																
7.	IIB	SECTION - C2	Annexure-II	62 of 830	Electrical Load data format (Annexure -II)	Electrical Load data format (Annexure -II)-R01																
8.	IIB	SECTION - D1	15.00.00 (b)	103 of 830	N-PIT WASTE RE-CIRCULATION CUM-DISPOSAL PUMPS	Stands Deleted.																

FORMAT FOR NO DEVIATION CERTIFICATE
(To be submitted in the bidder's letter head)

BHARAT HEAVY ELECTRICALS LIMITED,
Power Sector - Eastern Region,
Plot no 9/1, DJ Block, Sector – II, Salt Lake City,
Kolkata – 700 091

Sub	No Deviation Certificate.	
Job	Design, Engineering, Manufacturing, Supply/Delivery, Erection, Commissioning, Trial Run, Handing Over to Customer etc of DEMINERALIZATION PLANT (DM PLANT) excluding civil construction work for 3X 660 MW North Karanpura Super Thermal Power Project at Jharkhand.	
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	7.0	BHEL's TCN-05, vide reference no PSER:SCT:NKP-M1739:TCN-05, Dated: 13-05-2016.
	8.0	All other pertinent issues till date.

Dear Sirs,

With reference to above, this is to confirm that as per tender conditions, we have visited site before submission of our offer and noted the job content & site conditions etc. We also confirm that we have not changed/ modified the tender documents as appeared in the website/ issued by you and in case of such observance at any stage, it shall be treated as null and void.

We hereby confirm that we have not taken any deviation from tender clauses together with other references as enumerated in the above referred NIT. We hereby confirm our unqualified acceptance to all terms & conditions, unqualified compliance to technical specification, integrity pact (if applicable) and acceptance to reverse auctioning process.

In the event of observance of any deviation in any part of our offer at a later date whether implicit or explicit, the deviations shall stand null & void.

We confirm to have submitted offer in accordance with tender instructions and as per aforesaid references.

Thanking you,

Yours faithfully,

(Signature, date & seal of authorized
representative of the bidder)

<p>पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय) POWER SECTOR EASTERN REGION, DJ-9/1, SALT LAKE CITY, KOLKATA - 700 091 फैक्स/Fax : (033) 23211960 फोन/Phone : बोर्ड/EPABX : (033) 23398234/ 23398000</p>
