



**AMENDMENT ON SPECIFICATION FOR
DEMINERALIZATION PLANT-YADADRI**

SPEC. NO.: ROS 6277, Rev:0

AMENDMENT NO # 2

DT 18.05.2020

The following modifications with respect to Technical Specification, ROS:6277 for **DM plant** shall apply. This shall be read along with ROS6277 Rev:0 and other amendments/ corrigendum's released from time to time.

Bidder to note that existing clauses/details as appearing in the specification stands deleted and clauses/details as mentioned in "Modified to or Read as" column shall be applicable and complied to by the bidder. All other details of BHEL's specification ROS:6277 remain unchanged.

MODIFIED CLAUSES/PAGE NUMBERS

Sl. No.	Clause No.	Page No.	Existing Clause/details	Modified to or Read as
1.	Annexure-5 c) i) 8.04.00	297	Each Activated Carbon Filter will have a rated continuous treated water output capacity of not less than 60 m ³ /hr (net) over and above the quantity of treated water required for backwash / regeneration / rinse of itself and other units of the same stream or chain it belongs to. It shall be backwashed once after every 18 hours of continuous service run.	Each Activated Carbon Filter will have a rated continuous treated water output capacity of not less than 78.4 m³/hr (net) over and above the quantity of treated water required for backwash / regeneration / rinse of itself and other units of the same stream or chain it belongs to. It shall be backwashed once after every 18 hours of continuous service run.
2.	Annexure-5 d) i) 8.04.00	297	Each Ion Exchange Unit will have a rated continuous treated water output capacity of not less than 60 m ³ /hr (net) over and above the quantity of treated water required for backwash / regeneration / rinse of itself and other units of the same stream or chain it belongs to. Except Mixed Bed Units, each Ion Exchange Unit shall be regenerated once after every 18 hours of continuous service run. Each Mixed Bed Unit shall be regenerated once after every 126 hours of continuous service run.	Each Ion Exchange Unit will have a rated continuous treated water output capacity of not less than 65 m³/hr (net) over and above the quantity of treated water required for backwash / regeneration / rinse of itself and other units of the same stream or chain it belongs to. Except Mixed Bed Units, each Ion Exchange Unit shall be regenerated once after every 18 hours of continuous service run. Each Mixed Bed Unit shall be regenerated once after every 126 hours of continuous service run.
3.	Annexure-5 d) ii) 8.04.00	297	Net output from each of Weakly Acidic Cation Exchanger Unit, Strongly Acidic Cation Exchanger Unit,	Net output from each of Weakly Acidic Cation Exchanger Unit, Strongly Acidic Cation Exchanger Unit,



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			Weakly Basic Anion Exchanger Unit, Strongly Basic Anion Exchanger Unit between two regenerations shall be not less than 1080 m ³ of treated water and that for each of Mixed Bed Exchanger Unit shall be not less than 7560 m ³ of treated water for the design water analysis as exhibited in Annexure-I. In case water analysis is different from the design values, guaranteed quantity shall be calculated as indicated elsewhere in this Specification and guarantee shall be applicable on this calculated quantity.	Weakly Basic Anion Exchanger Unit, Strongly Basic Anion Exchanger Unit between two regenerations shall be not less than 1233 m³ of treated water and that for each of Mixed Bed Exchanger Unit shall be not less than 8631 m³ of treated water for the design water analysis as exhibited in Table-1B of Design memorandum. In case water analysis is different from the design values, guaranteed quantity shall be calculated as indicated elsewhere in this Specification and guarantee shall be applicable on this calculated quantity.
4.	Annexure-5 d) vi) 8.04.00	298	Qualities of treated water from various units are envisaged as follows: Water Quality at the outlet of MB Exchanger: Total Electrolyte: 0.1 ppm, max. Total SiO₂ 0.02 ppm SiO₂, max. Free Carbon dioxide ppm as Carbon dioxide: Nil Iron as Fe: Nil Total Hardness: Nil pH value at 25°C: 6.8 - 7.2 Conductivity, micro mho/cm ≤ 0.1 at 25 Deg.C Water Quality at the outlet of Strongly Basic Anion Exchanger: SiO₂ ≤ 0.1 ppm as SiO₂ Conductivity, micro mho/cm ≤ 5.0 at 25 °C Water Quality at the outlet of Degasser Tower: CARBON DI-OXIDE content ≤ 5 ppm as Carbon Di-Oxide Water Quality at the outlet of Strongly Acidic Cation	Qualities of treated water from various units are envisaged as follows: Water Quality at the outlet of UF sytem Total SiO₂: ≤ 0.02ppm Water Quality at the outlet of MB Exchanger: Conductivity, mic.S/cm: ≤ 0.1 at 25Deg.C Reactive SiO₂ ≤ 0.02 ppm as SiO₂ pH value at 25Deg.C: 6.8 – 7.2 Total Electrolyte: 0.1 ppm, max. Iron as Fe: Nil Free Carbon dioxide ppm as Carbon dioxide: Nil Total Hardness: Nil Water Quality at the outlet of Strongly Basic Anion Exchanger: Reactive SiO₂ ≤ 0.1 ppm as SiO₂ Conductivity, micro mho/cm ≤ 5.0 at 25Deg.C Water Quality at the outlet of Degasser Tower:



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			Exchanger: Sodium $\leq$ 1.0 ppm as CaCO_3 Hardness Not Detectable	CARBON DI-OXIDE content $\leq$ 5 ppm as CO_2 Water Quality at the outlet of Strongly Acidic Cation Exchanger: Sodium $\leq$ 1.0 ppm as CaCO_3 Hardness: Not Detectable
5.	22.00.00 B), ix) b)	354	ACID MEASURING TANK FOR STRONG ACID CATION EXCHANGERS Material of construction Dished Ends: Carbon steel as per IS 2062 or ASTM A 515 Gr.70.	ACID MEASURING TANK FOR STRONG ACID CATION EXCHANGERS Material of construction Tank bottom & top: Carbon steel as per IS 2062 or ASTM A 515 Gr.70.
6.	23.00.00 B), ix) b)	355	ACID MEASURING TANK FOR MIXED BED EXCHANGERS Material of construction Dished Ends: Carbon steel as per IS 2062 or ASTM A 515 Gr.70.	ACID MEASURING TANK FOR MIXED BED EXCHANGERS Material of construction Tank bottom & top: Carbon steel as per IS 2062 or ASTM A 515 Gr.70.
7.	24.00.00 B), ix) b)	356	ACID MEASURING TANK FOR NEUTRALIZATION PIT Material of construction Dished Ends: Carbon steel as per IS 2062 or ASTM A 515 Gr.70.	ACID MEASURING TANK FOR NEUTRALIZATION PIT Material of construction Tank bottom & top: Carbon steel as per IS 2062 or ASTM A 515 Gr.70.
8.	27.00.00 B), ix) b)	360	CAUSTIC MEASURING TANK FOR STRONG BASE ANION EXCHANERS Material of construction Dished Ends: Carbon steel as per IS 2062 or ASTM A 515 Gr.70.	CAUSTIC MEASURING TANK FOR STRONG BASE ANION EXCHANERS Material of construction Tank bottom & top: Carbon steel as per IS 2062 or ASTM A 515 Gr.70.



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9.	28.00.00 B), ix) b)	361	CAUSTIC MEASURING TANK FOR MB UNITS Material of construction Dished Ends: Carbon steel as per IS 2062 or ASTM A 515 Gr.70.	CAUSTIC MEASURING TANK FOR MB UNITS Material of construction Tank bottom & top: Carbon steel as per IS 2062 or ASTM A 515 Gr.70.
10.	29.00.00 B), ix) b)	362	CAUSTIC MEASURING TANKS FOR NEUTRALIZATION PIT Material of construction Dished Ends: Carbon steel as per IS 2062 or ASTM A 515 Gr.70.	CAUSTIC MEASURING TANKS FOR NEUTRALIZATION PIT Material of construction Tank bottom & top: Carbon steel as per IS 2062 or ASTM A 515 Gr.70.
11.	32.00.00 B), x) b)	366	BRINE SOLUTION PREPARATION TANK Material of construction Dished Ends: Carbon steel as per IS 2062 or ASTM A 515 Gr.70.	BRINE SOLUTION PREPARATION TANK Material of construction Tank bottom & top: Carbon steel as per IS 2062 or ASTM A 515 Gr.70.
12.	1.6	378	UF feed tank to UF common permeate Header: cPVC Sch.40/ PN16	UF feed tank to UF common permeate including UF backwash Header: cPVC Sch.40/ PN16. Refer P&ID for MOC
13.	8.01.00	532	8.01.00 The Bidder shall submit along with his bid all documents/drawings as requested in respective specifications. The documents shall include but not be limited to the following: a) All Bid proposal sheets duly filled up. b) Detailed experience list and financial resources of the prime bidder his collaborators/associates in this bid as well as the sub-vendors proposed. c) Scheme drawings indicating scope of supply and service as offered by the Bidder indicating	Bidder to provide filled in datasheet as per tender. However, detailed drawings, L1 schedule can be provided during detailed Engg. Stage.



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			clearly exclusions, if any. d) List of terminal points of the package offered together with quality and quantity of various input (i.e. water, air, electricity etc.) as required from the Owner at such interfaces. e) Equipment GA, Layout, Design Calculations, interlock and other write-up, catalogues/ literature etc. as required for clear understanding of the bid submitted. f) L-1 network indicating target dates for intermediate milestones and final commissioning of equipment supplied; This network shall be supplemented by a detailed write-up on proposal procedure of project implementation, deployment schedule for Key personnel with their biodata, schedule of construction machinery etc.	
14.	Annexure-6 P&ID	381	P&ID Diagram for DM Plant 1-WT-500-01295 Rev:02	P&ID Diagram for DM Plant 1-WT-500-01295 Rev:03