

# **TENDER DOCUMENTS**

**FOR**

**DESIGN, ERECTION, TESTING AND COMMISSIONING OF  
EFFLUENT TREATMENT PLANT (ETP) AT HAMDARD  
INSTITUTE OF MEDICAL SCIENCES & RESEARCH AND  
ASSOCIATED HAH CENTENARY HOSPITAL, HAMDARD  
NAGAR, NEW DELHI – 110062**

# **SCOPE OF WORK**

## **1.0 INTRODUCTION**

The Effluent Treatment Plant (ETP) is proposed for the pretreatment of Bio Medical waste liquid water generated in the hospital/health care facility i.e. from operation theaters, blood bank and various labs before mixing it with other waste water of hospital.

## **2.0 SCOPE OF THE WORK**

The tender is invited for Design, Engineering, Supply, Erection and Commissioning of 10 KLD Effluent Treatment Plant (ETP), based on chemical treatment, to provide pretreated effluent quality as specified under clause 4.0 of this document with performance guarantee for two years.

The schematic diagram/drawing is attached with this document is preliminary. However, the successful contractor will be required to submit the Detailed Process & Erection drawings incorporating the working details. These detailed drawings shall be submitted to Engineering & Maintenance Department, HIMSR. Vendor has to submit all the technical details for equipments used for operation of plant.

All the works shall be carried out as per approved drawings only. The project involves Design, Erection, Testing & Commissioning of ETP of 10 KLD capacity complete in all respects including all contingent Civil, Electrical, Mechanical, piping & instrumentation works and including two year performance warranty at Hamdard Institute of Medical Sciences & Research to strictly meet out the requirement of DPCC/BMWM Rules-2016.

The tender is for turnkey job where it will be the responsibility of the contractor to hand over a completely functional unit complying with DPCC/BMWM Rules-2016 norms and with all necessary components.

The work shall include but not limited to the following major items

- i.** Design and engineering of ETP to be operator friendly and for the operator's safety, health and hygiene.
- ii.** Design Calculations and drawings shall be submitted to Client. Erection shall be started only after approval of drawings by competent authority of HIMSR.
- iii.** Getting the required approvals, permissions, NOC from the statutory/ government agencies including incurring related expenses. 'Consent to establish' ETP has already been obtained by concerned department i.e. DPCC/CPCB. 'Consent to operate' shall be taken by Contractor.
- iv.** All aspects of quality assurance, including testing of equipment, procurement of materials from approved agencies/suppliers and other components of the work.

- v. Complete interconnecting piping between various units as per piping details including supply of all materials like GI/CPVC/UPVC pipes, fittings, all valves, gaskets, flanges, nuts and bolts , necessary pipe supports, etc., complete
- vi. Submission of Operators' Manual and training of personnel.
- vii. Submission of the completion ('as-built') drawings and other related documents along with a soft copy.
- viii. Making good any defect during the performance guarantee period of two years. Spares for the entire equipments and instruments for two years including all damaged components of ETP are also covered under vendor scope vide the performance guarantee.
- ix. The location of the treatment plant is indicated in the layout plan enclosed.

### 3.0 QUALITY OF INLET EFFLUENT

The inlet liquid waste water generated from OT, Blood Bank & Labs will generally have the following characteristics:

pH	6.0 – 7.5
BOD	800 – 1200 mg/l
COD	2500 – 600 mg/l
Suspended Solids	150 – 200 mg/l
Oil & Grease	2.0 – 8.0 mg/l

### 4.0 REQUIRED WATER QUALITY

Quality of Treated water

The treated water shall have following characteristics before the mixing with other waste water of STP:

pH	6.5 – 9.0
BOD	Less than 70 mg/l
COD	Less than 270 mg/l
Suspended Solids	Less than 5 mg/l
Oil & Grease	Less than 2 mg/l

Any other parameters required by Central Pollution Control Board or Delhi Pollution Control Committee shall be complied by the Contractor at no extra cost.

The contractor shall submit the report confirming the above parameters for the testing of treated water during the warranty period on half yearly basis from reputed/ Govt. approved Laboratory, failing which the penalty of Rs. 5,000/- per half shall be deducted from the bill of the contractor. The test report of treated water shall confirming the above parameters within the permissible limit of (+/-) 5%.

## 5.0 TREATMENT SCHEME

The treatment scheme shall be based on chemical based treatment. The ETP will consist of following stages:

Stage 1: Preliminary Treatment

Stage 2: Chemical Treatment

Stage 3: Tertiary Treatment

Stage 4: Ultra Violet Sterilization Treatment

Stage 5: Sludge Handling (Sludge Drying Beds/Centrifuge)

## 5.1 EFFICIENCIES OF TREATMENT UNITS

Following are the main units involved in above treatment scheme:

### 1) Preliminary Treatment:

- a. BOD Removal = 20 – 25%
- b. S.S. Removal = 50 – 60%

### 2) Chemical Treatment

- a. BOD Removal = 70 – 78%
- b. COD = 60 – 70%
- c. S.S. Removal = 80 – 90%

### 3) Tertiary Treatment

- a. BOD Removal = 80 – 90%
- b. COD = 70 – 80%
- c. T.S.S. Removal = 75 – 85%

### 4) Ultra Violet Sterilization Treatment

- a. BOD Removal = 15% of residue
- b. COD = 10% of residue
- c. T.S.S. Removal = 90% of total

## **6.0 SCOPE OF SUPPLY OF EQUIPMENTS**

Following equipments of suitable capacity shall be supplied by the Contractor. Supporting calculations to arrive at the capacities shall also be furnished.

1. Chemical Reaction Tank
2. Flocculation Tank
3. Effluent Transfer Pump
4. Twin Lobe Roots Blowers (Compressors)
5. Plumbing Fittings/Accessories
6. Erection Fittings & Platform for Dosing Tank
7. Tube Settler
8. Chemical Dosing Tank (PVC Tank)
9. Dual Media cum Activated Carbon Filter
10. Ultra Violet System
11. Centrifugal Pump for Dual Media Filter
12. Inlet Flow Meter
13. Electrical and instrumentation items

**Any other equipment required for smooth operation of the plant shall be under the scope of contract at no extra cost.**

## **7.0 Approval from Central Pollution Control Board (CPCB)/ Delhi Pollution Control Committee (DPCC)**

Obtaining necessary approval from Central Pollution Control Board/ Delhi Pollution Control Committee shall be under the scope of ETP Contractor. All statutory fees shall be paid by the contractor and shall be reimbursed by HIMSR provided the fee invoices are raised in the name of HIMSR. All expenses related to liaison, travel of statutory authorities, lodging and any other expenses incurred thereby shall be borne by the contractor and shall not be reimbursed by HIMSR.

## **8.0 PERFORMANCE GUARANTEE**

The guarantee is applicable for the performance of individual process equipment as well as overall performance of the Effluent Treatment Plant.

The Contractor shall give guarantee for a period of two years from the date of successful Commissioning of the treatment plant against design, defective materials, workmanship and performance. The contractor shall give guaranteed of required treated waste water quality. Any defects found in the workmanship, materials or performance of the unit shall be made good by the Contractor at his own expense within the time specified by Engineer-In-Charge.

## **9.0 Commissioning and Approval from Pollution Control Board**

The Contractor shall satisfy the Engineer-In-Charge in all respects regarding the satisfactory quality of materials, equipment and workmanship used in the plant and quality of treated water. Only after satisfying the completion certificate will be issue and such date shall be deemed as date of commissioning.

The performance guarantee Period described above will start from the date of commissioning or on obtaining approval from Central Pollution Control Board/Delhi Pollution Control Committee by the Contractor whichever is later.

**Signature of Tenderer**

Sd/-  
*Medical Superintendent*  
*HAH Centenary Hospital & HIMSR*  
*New Delhi - 110062*

**PROFILE BID**

*(To be filled in and submitted along with the offer by the tenderer)*

**I/We hereby furnish particulars of our firm as under:**

- 1 Name of the firm M/s.....
- 2 Address of the firm .....
- 3 Telephone No / Mobile No. ....
- 4 Name of proprietor / partner .....
- 5 PAN No. ....
- 6 GST No. ....
- 7 Any other information important in the opinion of the tenderer:

I/We undertake that the information furnished in this tender document is correct to the best of my/our knowledge and belief.

Date:

Place:

**Seal & Authorized Signatory of the Firm**



**PRICE BID**

<b>S. No</b>	<b>Name of Work</b>	<b>Amount (in Rs)</b>
<b>1</b>	<b>Design, erection, testing &amp; commissioning of ETP (Effluent Treatment Plant) of 10 KLD capacity at Hamdard Institute of Medical Sciences &amp; Research and Associated HAH Centenary Hospital, Hamdard Nagar, New Delhi - 110062</b>	
	<b>GST Amount</b>	
	<b>Total Amount (Including GST)</b>	

***Note:-***

- 1. Civil Work whatever required will be in contractor scope.***
- 2. Rate should be based on F.O.R. destination.***

Date:

Place:

**Seal & Authorized Signatory of the Firm**