JADAVPUR UNIVERSITY
Department of Civil Engineering
Faculty of Engineering & Technology
KOLKATA – 700 032, INDIA.

Ref: CE/AR/28/Q/R

08/06/2026

CERTIFICATE OF WATER QUALITY ANALYSIS

This is to certify that water samples collected from the premises of **Vivekananda Education Society (VMS), Baruipur, West Bengal** were analyzed in the Environmental Engineering Division, Department of Civil Engineering, Jadavpur University for assessment of drinking water quality and sanitary water quality.

The analysis was carried out using standard methods prescribed in relevant Indian Standards (IS 3025 series, IS 1622, etc.) and the results were compared with the applicable standards, namely:

1. BIS IS 10500:2012 (Drinking Water – Specification) and subsequent amendments.
2. General Standards for Discharge of Environmental Pollutants under Schedule VI of the Environment (Protection) Rules, 1986.

Summary of Findings

The detailed analytical results obtained from the laboratory investigation are presented in:

- **Table A:** Drinking Water Quality Analysis Results
- **Table B:** Sanitary Water Quality Analysis Results

A. Drinking Water Quality (Table A)

As presented in **Table A**, the treated drinking water sample was found to comply with the major physicochemical requirements of BIS IS 10500:2012 with respect to pH, turbidity, total dissolved solids (TDS), fluoride, chloride, alkalinity, hardness, iron and residual free chlorine.

The treatment system demonstrated significant improvement in water quality by reducing turbidity, dissolved solids, iron concentration and microbial contamination. The treated water was found suitable for drinking purposes subject to regular operation, maintenance and periodic monitoring of the treatment facilities.

B. Sanitary Water Quality (Table B)

As presented in Table B, the sanitary wastewater treatment system demonstrated substantial reduction in suspended impurities, organic load and microbial contamination. The treated effluent

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satisfied the applicable discharge criteria for BOD, COD and fecal coliforms considered in the present assessment, indicating satisfactory treatment performance under the conditions prevailing during sampling.

Conclusion

Based on the analytical results presented in **Table A** and **Table B**, it is concluded that:

1. The treated drinking water quality satisfies the tested physicochemical and microbiological requirements of BIS IS 10500:2012 and is considered suitable for potable use.
2. The sanitary wastewater treatment system demonstrated satisfactory pollutant removal efficiency and the treated effluent complied with the discharge criteria considered in the present assessment.
3. Regular monitoring and maintenance of the water treatment and sanitation facilities are recommended to ensure continued performance.

The detailed analytical results forming the basis of this certificate are enclosed as **Annexure-I (Table A: Drinking Water Quality Analysis Results)** and **Annexure-II (Table B: Sanitary Water Quality Analysis Results)** and shall be read as an integral part of this certificate.

This certificate is issued based on the samples submitted and the analytical results obtained therefrom. The findings are valid only for the samples tested and shall not be construed as a guarantee of future performance.

Do not hesitate to be in touch with us for any clarification,
Regards,

Abhisek Roy 08/06/26

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Annexure- I: Water Quality Tables with Applicable Standards

Table A. Drinking Water Quality

Parameter	Raw Inlet	Treated Outlet	Standard Limit (IS 10500:2012)	Analysis Method / IS Code
Colour	Unobjectionable	Unobjectionable	5 Hazen (15 permissible)	IS 3025 (Part 4)
Odour	Unobjectionable	Unobjectionable	Agreeable	IS 3025 (Part 5)
pH	7.05	7.31	6.5–8.5	IS 3025 (Part 11)
Turbidity (NTU)	4	<1	1 NTU (5 permissible)	IS 3025 (Part 10)
TDS (mg/L)	450	214	500 (2000 permissible)	IS 3025 (Part 16)
Fluoride (mg/L)	0.18	0.09	1.0 (1.5 permissible)	IS 3025 (Part 60)
Chloride (mg/L)	115	59	250 (1000 permissible)	IS 3025 (Part 32)
Total Alkalinity (mg/L as CaCO3)	185	107	200 (600 permissible)	IS 3025 (Part 23)
Total Hardness (mg/L as CaCO3)	242	111	200 (600 permissible)	IS 3025 (Part 21)
Manganese (mg/L)	0.12	0.05	0.1 (0.3 permissible)	IS 3025 (Part 59)
Iron (mg/L)	0.85	0.12	0.3	IS 3025 (Part 53)
Residual Free Chlorine (mg/L)	0	0.21	≥0.2	IS 3025 (Part 26)
Total Coliform (MPN/100 mL)	350	Not detectable	Not detectable	IS 1622
Fecal Coliform (MPN/100 mL)	12	Not detectable	Not detectable	IS 1622
Nitrate (mg/L)	16	6.5	45	IS 3025 (Part 34)
Calcium (mg/L)	66	31	75 (200 permissible)	IS 3025 (Part 40)

- ***Reference Standard: BIS IS 10500:2012 (Drinking Water — Specification) with latest amendments.***

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Annexure- II: Sanitary Water Quality Tables with Applicable Standards

Table B. Sanitary Water Quality

Parameter	Sanitary Inlet	Septic Tank Outlet	Standard Limit for Discharge	Analysis Method / IS Code
Colour	Objectionable (Greyish)	Unobjectionable	—	IS 3025 (Part 4)
Odour	Objectionable (Septic)	Objectionable (Fouling)	—	IS 3025 (Part 5)
pH	7.15	7.27	5.5–9.0	IS 3025 (Part 11)
Turbidity (NTU)	23	8	—	IS 3025 (Part 10)
TDS (mg/L)	665	492	2100	IS 3025 (Part 16)
Fluoride (mg/L)	0.17	0.15	—	IS 3025 (Part 60)
Chloride (mg/L)	195	145	1000	IS 3025 (Part 32)
Total Alkalinity (mg/L as $CaCO_3$)	184	195	—	IS 3025 (Part 23)
Total Hardness (mg/L as CaCO3)	218	204	—	IS 3025 (Part 21)
Manganese (mg/L)	0.11	0.09	2.0	IS 3025 (Part 59)
Iron (mg/L)	0.96	0.42	3.0	IS 3025 (Part 53)
Residual Free Chlorine (mg/L)	0	0	—	IS 3025 (Part 26)
Total Coliform (MPN/100 mL)	3.25×10^7	7.9×10^3	—	IS 1622
Fecal Coliform (MPN/100 mL)	1.72×10^7	920	≤1000	IS 1622
Nitrate (mg/L)	7	5	—	IS 3025 (Part 34)
Calcium (mg/L)	52	48	—	IS 3025 (Part 40)
BOD_3 at 27°C (mg/L)	220	25	≤30	IS 3025 (Part 44)
COD (mg/L)	420	228	≤250	IS 3025 (Part 58)

- ***Reference Standard: General Standards for Discharge of Environmental Pollutants under Schedule VI of the Environment (Protection) Rules, 1986 (MoEFCC/CPCB).***