

QCVN 40:2025/BTNMT — Wastewater Discharge Limit Sheet

In force 1 Sep 2025 · replaces QCVN 40:2011 · F = discharge flow (m³/day) · all limits mg/L unless noted

Parameter	Column A	Column B	Column C	Note
BOD ₅ (F ≤ 2,000)	≤ 40	≤ 60	≤ 80	Biochemical oxygen demand; tightens above 2,000 m³/day
BOD ₅ (F > 2,000)	≤ 30	≤ 50	≤ 60	Larger discharge → tighter cap
COD (F ≤ 2,000)	≤ 65	≤ 90	≤ 130	Organic load; tightens above 2,000 m³/day
COD (F > 2,000)	≤ 60	≤ 70	≤ 90	Larger discharge → tighter cap
TOC (F ≤ 2,000)	≤ 35	≤ 50	≤ 75	Accepted COD alternative
TOC (F > 2,000)	≤ 25	≤ 40	≤ 50	Accepted COD alternative
TSS (F ≤ 2,000)	≤ 40	≤ 80	≤ 120	Gravimetric / optical, not turbidity
TSS (F > 2,000)	≤ 30	≤ 60	≤ 80	Gravimetric / optical, not turbidity
Total Nitrogen (T-N)	≤ 20	≤ 40	≤ 60	Same for every column; not flow-split
Total P (lake)	≤ 2	≤ 2.5	≤ 3	Receiving water = lake/pond; not flow-split
Total P (river — aquaculture/starch/rubber)	≤ 8	≤ 14	≤ 18	Receiving water = river, these sectors; not flow-split
Total P (river — general)	≤ 4	≤ 6	≤ 10	Receiving water = river, other sectors; not flow-split
pH	6 – 9	6 – 9	6 – 9	Allowed band, identical for every column
Ammonia NH ₄ ⁺ -N	≤ 5	≤ 10	≤ 12	Single row (not flow-split); continuous online monitoring for applicable dischargers

Four misconceptions that fail permits

- **“My turbidity meter proves TSS.”** No. Turbidity (NTU) ≠ suspended solids (mg/L). TSS must be determined by gravimetric (weight) or optical TSS analysis.
- **“COD is one number.”** No. It splits by discharge flow at the 2,000 m³/day breakpoint — ≤65/90/130 below, ≤60/70/90 above.
- **“TOC cannot substitute COD.”** Wrong. TOC is an accepted equivalent basis (≤35/50/75 or ≤25/40/50 mg/L). Use the basis your lab and monitor already report.
- **“All limits split by flow.”** No. Total nitrogen and pH are fixed; total phosphorus splits by receiving water (river vs lake), not by flow.

Selection principles (online monitoring)

- COD / TOC: dichromate (lab reference), UV/UV-Vis spectrometry (reagent-free, true in-line), or TOC analyzer (catalytic combustion + NDIR).
- BOD₅: manometric (dilution) or respirometric / optical BOD analyzer; required when the permit names BOD₅ as the control parameter.
- Ammonia (Ammonia NH₄⁺-N): electrode or colorimetric online analyzer; multi-outlet plants require continuous online monitoring feeding MONRE/DONRE.
- TSS: optical or gravimetric analyzer — not a turbidity meter.
- pH: combination pH electrode, maintained within the 6–9 band.
- Size the analyzer span to normal load plus surge peaks (after storms / batch discharge), not the worst line on the datasheet.

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