

5.5.9 Effluent Limits/Water Quality Based Effluent Limits/ Effluent Limitations for Specific Waters/Outstanding State Resource Waters

Applicability:

This information summarizes the maximum effluent limits for point sources, water contaminant sources and wastewater treatment facilities that discharge to the Outstanding State Resource Waters. The key regulatory citations are 10 CSR 20-7.015(6)(B) and (8). Supporting citations are 10 CSR 20-7.015(1)(A)5, and 10 CSR 20-7.031(8) and Table E.

Content:

The Effluent Regulations state that discharges to Outstanding State Resources Waters:

- shall not cause the existing water quality to be lowered, and
- are allowed as long as water quality is not degraded and that the requirements of 10 CSR 20-7.015(8) are met.

For discharges from wastewater treatment facilities that receive primarily domestic waste or from publicly owned treatment works (POTWs):

Activated Sludge Facilities – all variations

- BOD5 - monthly average equal to or less than 30 mg/l
 - weekly average equal to or less than 45 mg/l
- NFR - monthly average equal to or less than 30 mg/l
 - weekly average equal to or less than 45 mg/l
- pH - maintained in the range of 6.0 to 9.0 standard units

Alternative limitations may be allowed based on the results of a water quality impact study showing that there will not be a violation of the Water Quality Standards. The alternate limitations may be:

Wastewater Stabilization Basins – Lagoons

- BOD5 – monthly average equal to or less than 45 mg/l
 - weekly average equal to or less than 65 mg/l
- NFR - monthly average equal to or less than 80 mg/l
 - weekly average equal to or less than 120 mg/l
- pH - maintained above 6.0 standard units

Trickling Filter Facilities

- BOD5 - monthly average equal to or less than 45 mg/l

- weekly average equal to or less than 65 mg/l
- NFR - monthly average equal to or less than 45 mg/l
- weekly average equal to or less than 65 mg/l
- pH - maintained in the range of 6.0 to 9.0 standard units

Special Effluent Limitations

Where the use of the standard effluent limitations is known or expected to endanger water quality, site-specific effluent limitations will be developed and incorporated into the permit. All permits in a study area for a waste load allocation or TMDL can be modified to reflect the limits established through the study.

More stringent limitations than the standard requirements may be required under the following conditions:

1. For existing facilities, BOD5 and NFR limits may be based on past performance rounded up to the next 5 mg/l range. For new facilities, the limits may be based on the design capability.
2. For new lagoons, the limits should be:
 - BOD5 – monthly average equal to or less than 45 mg/l
 - weekly average equal to or less than 65 mg/l
 - NFR - monthly average equal to or less than 70 mg/l
 - weekly average equal to or less than 110 mg/l
 - pH - maintained above 6.0 standard units.
3. For new trickling filter facilities, the limits should be:
 - BOD5 - monthly average equal to or less than 40 mg/l
 - weekly average equal to or less than 60 mg/l
 - NFR - monthly average equal to or less than 40 mg/l
 - weekly average equal to or less than 60 mg/l
 - pH - maintained in the range of 6.0 to 9.0 standard units

POTW Storm Water Facilities with Noncontinuous Discharge

- BOD5 - weekly average equal to or less than 45 mg/l
- NFR - weekly average equal to or less than 45 mg/l; NFR can exceed 45mg/l for combined sewer overflow (CSO) treatment devices under certain conditions
- pH - maintained in the range of 6.0 to 9.0 standard unit

Carbonaceous BOD5 (CBOD5)

When the wastewater treatment process causes nitrification, CBOD5 can be substituted for BOD5 at 5 mg/l less than the regular BOD5 limit in the operating permit.

Fecal Coliform

Discharges to waters identified as whole body contact areas, and discharges within 2 miles upstream of these areas, shall not contain more than:

- a monthly geometric mean of 400 colonies/100 ml, and
- a daily maximum of 1000 colonies/100 ml.

These limits are in effect from April 1 to October 31. The department may waive or relax this limitation if the owner or operator of the wastewater treatment facility can demonstrate that neither health nor water quality will be endangered. Facilities without disinfection shall comply with the implementation schedule in 10 CSR 20-7.015(9)(H). A temporary suspension of the bacterial limitation during periods of wet weather may be sought through the process described in 10 CSR 20-7.015(9)(I).

Where chlorine is used as a disinfectant, the discharge is to be dechlorinated, except when the discharge is to:

- an unclassified stream at least one mile upstream of a water quality standards classified stream, or
- a flowing stream with a 7-day Q10 low flow equal to or greater than 50 times the effluent flow.

Sludge

Sludge removed in the treatment process is not to be discharged. It is to be used or disposed in accord with the approved sludge management practices.

Legal References:

Missouri Clean Water Law, Chapter 644

[644.026\(8\), \(13\) and \(17\)](#)

Powers and duties of commission--rules, procedure.

[644.051.1\(3\) and .2](#)

Prohibited acts--permits required, when, fee--bond required of permit holders, when--permit application procedures--rulemaking--limitation on use of permit fee moneys.

Code of State Regulations:

[10 CSR 20-6.010\(1\)\(A\) and \(5\)\(A\)](#)

Construction and Operating Permits -
(1)(A) General - Permits Required for Point Sources
(5)(A) Operating Permits (OP) - Required

[10 CSR 20-7.015\(6\)\(B\) and \(8\)](#)

Effluent Regulations -
(6)(B) Special Stream Limitations - Outstanding State Resource Waters
(8) All Other Water Limitations

[10 CSR 20-7.031\(10\) and Table E](#)

Water Quality Standards
(10) Permittee Compliance Timeframes
Table E - Outstanding State Resource Waters

Other Links:

[5.1 Overview – Effluent Limits](#)

[5.3.2.1 Secondary Treatment](#)

[5.3.2.2 Equivalent to Secondary Treatment](#)

[5.3.3 Best Professional Judgment \(BPJ\) Permit Limits](#)

[6.1.5.3 Analytical Detection Levels-Total Residual Chlorine](#)

[6.1.6.9 Outstanding State Resource Waters-Monitoring Req.'s](#)

[7.3.2.2 Combined Sewer Overflows \(CSOs\)](#)

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