

# 61-9.133

## Secondary Treatment Regulation

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### **133.100. Purpose.**

This part provides information on the level of effluent quality attainable through the application of secondary or equivalent treatment. R.61-9.133 will apply to permits drafted or issued under R.61-9.122 (NPDES permits or NPDES general permits).

### **133.101. Definitions.**

All terms not defined herein shall have the meaning given them R.61-9.122 or R.61-9.124. Terms used in this regulation are defined as follows:

(a) “7-day average.” The arithmetic mean of pollutant parameter values for samples collected in a period of 7 consecutive days.

(b) “30-day average.” The arithmetic mean of pollutant parameter values of samples collected in a period of 30 consecutive days.

(c) “BOD<sub>5</sub>” The five day measure of the pollutant parameter biochemical oxygen demand (BOD).

(d) “CBOD<sub>5</sub>”. The five day measure of the pollutant parameter carbonaceous biochemical oxygen demand (CBOD<sub>5</sub>).

(e) “Effluent concentrations consistently achievable through proper operation and maintenance.”

(1) For a given pollutant parameter, the 95th percentile value for the 30-day average effluent quality achieved by a treatment works in a period of at least two years, excluding values attributable to upsets, bypasses, operational errors, or other unusual conditions, and

(2) A 7-day average value equal to 1.5 times the value derived under paragraph (f)(1) of this section.

(f) “Facilities eligible for treatment equivalent to secondary treatment.” Treatment works shall be eligible for consideration for effluent limitations described for treatment equivalent to secondary treatment (section 133.105), if:

(1) The BOD<sub>5</sub> and TSS effluent concentrations consistently achievable through proper operation and maintenance (section 133.101(f) of the treatment works exceed the minimum level of the effluent quality set forth in section 133.102(a) and section 133.102(b).

(2) A trickling filter or waste stabilization pond is used as the principal process, and

(3) The treatment works provide significant biological treatment of municipal and/or domestic wastewater.

(g) “mg/l.” Milligrams per liter.

(h) “Percent removal.” A percentage expression of the removal efficiency across a treatment plant for a given pollutant parameter, as determined from the 30-day average values of the raw wastewater influent pollutant concentrations to the facility and the 30-day average values of the effluent pollutant concentrations for a given time period.

(i) “Significant biological treatment.” The use of an aerobic or anaerobic biological treatment process in a treatment works to consistently achieve a 30-day average of at least 65 percent removal of BOD<sub>5</sub>.

(j) “Significantly more stringent limitation” means BOD<sub>5</sub> and TSS limitations necessary to meet the percent removal requirements of at least 5 mg/l more stringent than the otherwise applicable concentration-based limitations (e.g., less than 25 mg/l in the case of the secondary treatment limits for BOD<sub>5</sub> and TSS), or the percent removal limitations in section 133.102 and section 133.105, if such limits would, by themselves, force significant construction or other significant capital expenditure.

(k) “TSS.” The pollutant parameter total suspended solids.

### **133.102. Secondary treatment.**

The following paragraphs describe the minimum level of effluent quality (in NPDES permits) attainable by secondary treatment in terms of the parameters - BOD<sub>5</sub>, TSS and pH. All requirements for each parameter shall be achieved except as provided for in section 133.103 and section 133.105.

(a) BOD<sub>5</sub>.

(1) The 30-day average shall not exceed 30 mg/l.

(2) The 7-day average shall not exceed 45 mg/l.

(3) The 30-day average percent removal shall not be less than 85 percent.

(4) At the option of the NPDES permitting authority, in lieu of the parameter BOD<sub>5</sub> and the levels of the effluent quality specified in paragraphs (a)(1), (a)(2) and (a)(3), the parameter CBOD<sub>5</sub> may be substituted with the following levels of the CBOD<sub>5</sub> effluent quality provided:

(i) The 30-day average shall not exceed 25 mg/l.

(ii) The 7-day average shall not exceed 40 mg/l.

(iii) The 30-day average percent removal shall not be less than 85 percent.

(b) TSS.

(1) The 30-day average shall not exceed 30 mg/l.

(2) The 7-day average shall not exceed 45 mg/l.

(3) The 30-day average percent removal shall not be less than 85 percent.

(c) pH. The effluent values for pH shall be maintained within the limits of 6.0 to 9.0 unless the publicly owned treatment works demonstrates that:

(1) Inorganic chemicals are not added to the waste stream as part of the treatment process; and

(2) Contributions from industrial sources do not cause the pH of the effluent to be less than 6.0 or greater than 9.0.

### **133.103. Special considerations.**

(a) Combined sewers. Treatment works subject to this part may not be capable of meeting the percentage removal requirements established under section 133.102(a)(3) and section 133.102(b)(3), or section 133.105(a)(3) and section 133.105(b)(3) during wet weather where the treatment works receive flows from combined sewers (i.e., sewers which are designed to transport both storm water and sanitary sewage). For such treatment works, the decisions must be made on a case-by-case basis as to whether any attainable percentage removal level can be defined, and if so, what the level should be.

(b) Industrial wastes. For certain industrial categories, the discharge to waters of the State of BOD<sub>5</sub> and TSS permitted under sections 301(b)(1)(A)(i), (b)(2)(E) or 306 of the CWA may be less stringent than the values given in section 133.102(a)(1), section 133.102(a)(4)(i), section 133.102(b)(1), section 133.105(a)(1), section 133.105(b)(1) and section 133.105(e)(1)(i). In cases when wastes would be introduced from such an industrial category into a publicly owned treatment works, the values for BOD<sub>5</sub> and TSS in section 133.102(a)(1), section 133.102(a)(4)(i), section 133.102(b)(1), section 133.105(a)(1), section 133.105(b)(1), and section 133.105(e)(1)(i) may be adjusted upwards provided that:

(1) The permitted discharge of such pollutants, attributable to the industrial category, would not be greater than that which would be permitted under sections 301(b)(1)(A)(i), 301(b)(2)(E) or 306 of the CWA if such industrial category were to discharge directly into the waters of the State, and

(2) The flow or loading of such pollutants introduced by the industrial category exceeds 10 percent of the design flow or loading of the publicly owned treatment works. When such an adjustment is made, the values for BOD<sub>5</sub> or TSS in section 133.102(a)(2), section 133.102(a)(4)(ii), section 133.102(b)(2), section 133.105(a)(2), section 133.105(b)(2), and section 133.105(e)(1)(ii) shall be adjusted proportionately.

(c) Waste stabilization ponds.

(1) The Department, is authorized to adjust the minimum level of effluent quality set forth in section 133.105(b)(1), (b)(2), and (b)(3) for treatment works subject to this part, to conform to the suspended solids concentrations achievable with waste stabilization ponds, provided that:

(A) Waste stabilization ponds including aerated lagoon systems are the principal process used for secondary treatment; and

(B) Operation and maintenance data indicate that the TSS values specified in section 133.105(b)(1), (b)(2), and (b)(3) cannot be achieved.

(2)(A) The term “TSS concentrations achievable with waste stabilization ponds” means a TSS value, determined by the Regional Administrator or the Department, subject to EPA approval, which is equal to the effluent concentration achieved 90 percent of the time within a State or appropriate contiguous geographical area by waste stabilization ponds that are achieving the levels of effluent quality for BOD<sub>5</sub> specified in section 133.105(a)(1).

(B) Allowable limits:

(i) The 30-day average shall not exceed 90 mg/l.

(ii) The 7-day average shall not exceed 135 mg/l.

(d) Less concentrated influent wastewater for separate sewers. The Department may substitute either a lower percent removal requirement or a mass loading limit for the percent removal requirements set forth in section 133.102(a)(3), section 133.102(a)(4)(iii), section 133.102(b)(3), section 133.105(a)(3), section 133.105(b)(3) and section 133.105(e)(1)(iii) provided that the permittee satisfactorily demonstrates that:

(1) The treatment works is consistently meeting, or will consistently meet, its permit effluent concentration limits but its percent removal requirements cannot be met due to less concentrated influent wastewater,

(2) To meet the percent removal requirements, the treatment works would have to achieve significantly more stringent limitations than would otherwise be required by the concentration-based standard, and

(3) The less concentrated influent wastewater is not the result of excessive I/I. The determination of whether the less concentrated wastewater is the result of excessive I/I will use the definition of excessive I/I in 40 CFR 35.2005(b)(16) plus the additional criterion that inflow is non-excessive if the total flow to the POTW (i.e., wastewater plus inflow plus infiltration) is less than 275 gallons per capita per day.

(e) Less concentrated influent wastewater for combined sewers during dry weather. The Department, subject to EPA approval, is authorized to substitute either a lower percent removal requirement or a mass loading limit for the percent removal requirements set forth in section 133.102(a)(3), section 133.102(a)(4)(iii), section 133.102(b)(3), section 133.105(a)(3), section 133.105(b)(3) and section 133.105(e)(1)(iii) provided that the permittee satisfactorily demonstrates that:

(1) The treatment works is consistently meeting, or will consistently meet, its permit effluent concentration limits, but the percent removal requirements cannot be met due to less concentrated influent wastewater;

(2) To meet the percent removal requirements, the treatment works would have to achieve significantly more stringent effluent concentrations than would otherwise be required by the concentration-based standards; and

(3) The less concentrated influent wastewater does not result from either excessive infiltration or clear water industrial discharges during dry weather periods. If the less concentrated influent wastewater is the result of clear water industrial discharges, then the treatment works must control such discharges pursuant to R.61-9.403.

#### **133.104. Sampling and test procedures.**

(a) Sampling and test procedures for pollutants listed in this part shall be in accordance with test methods set forth in 40 CFR Part 136.

(b) Chemical oxygen demand (COD) or total organic carbon (TOC) may be substituted for BOD<sub>5</sub> when a long-term BOD:COD or BOD:TOC correlation has been demonstrated.

#### **133.105. Treatment equivalent to secondary treatment.**

This section describes the minimum level of effluent quality (in NPDES permits) attainable by facilities eligible for treatment equivalent to secondary treatment (section 133.101(g)) in terms of the parameters - BOD<sub>5</sub>, TSS and pH. All requirements for the specified parameters in paragraphs (a), (b) and (c) of this section shall be achieved except as provided for in section 133.103, or paragraphs (d), (e) or (f) of this section.

(a) BOD<sub>5</sub>.

- (1) The 30-day average shall not exceed 45 mg/l.
- (2) The 7-day average shall not exceed 65 mg/l.
- (3) The 30-day average percent removal shall not be less than 65 percent.

(b) TSS. Except where TSS values have been adjusted in accordance with section 133.103(c).

- (1) The 30-day average shall not exceed 45 mg/l.
- (2) The 7-day average shall not exceed 65 mg/l.
- (3) The 30-day average percent removal shall not be less than 65 percent.

(c) pH. The requirements of section 133.102(c) shall be met.

(d) Alternative State requirements. Except as limited by paragraph (f) of this section, the Department may adjust the minimum levels of effluent quality set forth in paragraphs (a)(1), (a)(2), (b)(1) and (b)(2) of this section for trickling filter facilities and in paragraphs (a)(1) and (a)(2) of this section for waste stabilization pond facilities, to conform to the BOD<sub>5</sub> and TSS effluent concentrations consistently achievable through proper operation and maintenance (section 133.101(f)) by the median (50th percentile) facility in a representative sample of facilities within the State or appropriate contiguous geographical area that meet the definition of facilities eligible for treatment equivalent to secondary treatment (section 133.101(g)).

(e) CBOD<sub>5</sub> limitations:

(1) Where data are available to establish CBOD<sub>5</sub> limitations for a treatment works subject to this section, the Department may substitute the parameter CBOD<sub>5</sub> for the parameter BOD<sub>5</sub> in section 133.105(a)(1), section 133.105(a)(2) and section 133.105(a)(3), on a case-by-case basis provided that the levels of CBOD<sub>5</sub> effluent quality are not less stringent than the following:

- (i) The 30-day average shall not exceed 40 mg/l.
- (ii) The 7-day average shall not exceed 60 mg/l.
- (iii) The 30-day average percent removal shall not be less than 65 percent.

(2) Where data are available, the parameter CBOD<sub>5</sub> may be used for effluent quality limitations established under paragraph (d) of this section. Where concurrent BOD effluent data are available, they must be submitted with the CBOD data as a part of the approval process outlined in paragraph (d) of this section.

(f) Permit adjustments. Any NPDES permit adjustment made pursuant to this part may not be any less stringent than the limitations required pursuant to section 133.105(a)-(e). Furthermore, the Department shall require more stringent limitations when adjusting permits if:

(1) For existing facilities the Department determines that the 30-day average and 7-day average BOD<sub>5</sub> and TSS effluent values that could be achievable through proper operation and maintenance of the

treatment works, based on an analysis of the past performance of the treatment works, would enable the treatment works to achieve more stringent limitations, or

(2) For new facilities, the Department determines that the 30-day average and 7-day average BOD<sub>5</sub> and TSS effluent values that could be achievable through proper operation and maintenance of the treatment works, considering the design capability of the treatment process and geographical and climatic conditions, would enable the treatment works to achieve more stringent limitations.