ENIRONMENTAL PROTECTION AGENCY

40 CFR Part 133

[WH-FRL-2799-B]

Secondary Treatment Regulation

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rulemaking.

SUMMARY: On September 20, 1984, the EPA published in the Federal Register (49 FR 36966—37009) amendments to the secondary treatment regulation (40 CFR Part 133) and related revisions of the National Pollutant Discharge Elimination System (NPDES) Permit requirements (40 CFR Part 122). In addition, EPA issued on the same date (September 20, 1984) a notice soliciting additional public comment on the issue of modifying the percent removal requirement of the secondary treatment regulation (49 FR 37010—37014). The Agency has reviewed all comments and is today promulgating final amendments to the percent removal requirements.

EFFECTIVE DATE: In accordance with 40 CFR 102.01 (45 FR 29046—4/17/80), this regulation will be considered issued for purposes of judicial review. Under section 509(b)(2) of the Clean Water Act (the Act), any petition for judicial review of this regulation must be filed within 60 days of enactment and from time to time thereafter. Appeals within 90 days after the effective date of this regulation will not be delayed by consideration of such comments.

Under section 509(b)(1) of the Clean Water Act (the Act), any petition for judicial review of this regulation must be filed in the United States Court of Appeals within 90 days after the regulation is considered issued for purposes of judicial review. Under section 509(b)(2) of the Act, the regulation may not be challenged later in civil or criminal proceedings brought by EPA to enforce its requirements.

ADDRESSES: The record for this rulemaking will be available for public review in the EPA’s Public Information Reference Unit, Room 2004, 401 M St., Washington, D.C., 20460. Copies of the "Technical Support Document for Regulations under Section 304(d)(4)," may be obtained from the National Technical Information Service, Springfield, Virginia 22161, (703) 487–6000.


SUPPLEMENTARY INFORMATION: The SUPPLEMENTARY INFORMATION section of this preamble describes the legal authority and background for these amendments, summarizes the final amendments, responds to public comments received on the proposed rulemaking, and gives highlights on implementation of the regulation as amended. The abbreviations, acronyms and other terms used in the SUPPLEMENTARY INFORMATION section are defined in Appendix A of this notice.

A more detailed discussion of the data collection and analysis which supports all of the amendments to the secondary treatment regulation may be found in the Federal Register notices for the proposed and final amendments (48 FR 52258–11/16/83, 48 FR 52272–11/16/83 and 49 FR 36986–9/20/84). This information is still pertinent, but is not reprinted to avoid duplication. These notices should be consulted for further information on these topics.

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I. Introduction

A. Statutory Authority

Section 301(b)(1)(B) of the Clean Water Act (CWA or the Act), 33 U.S.C. 1311(b)(1)(B), requires that publicly owned treatment works (POTWs) achieve effluent limitations based upon secondary treatment as defined by the Administrator of EPA pursuant to section 304(d)(1) of the Act. Section 304(d)(1), 33 U.S.C. 1314(d)(1), requires that the Administrator publish information on the degree of effluent reduction attainable through the application of secondary treatment within 60 days of enactment and from time to time thereafter.

B. Previous Regulation

Final amendments to the secondary treatment regulation were promulgated on September 20, 1984 (49 FR 37006). That regulation includes: (1) A definition of secondary treatment; (2) a definition of "significant biological treatment;" (3) a definition of "facilities eligible for treatment equivalent to secondary treatment;" and (4) provisions which define the effluent quality attainable by facilities eligible for treatment equivalent to secondary treatment.

The final rulemaking also provided permitting authorities the option to substitute CSOD for BOD, by: (1) Defining the level of effluent quality achievable by application of secondary treatment in terms of CBOD5, and (2) allowing the CBOD5 parameter to be used for setting effluent limitations for treatment equivalent to secondary treatment.

C. Request for Comments on Proposed Options to Amend the Percent Removal Requirements (November 16, 1983)

In the Preamble of the November 16, 1983 Notice of Proposed Rulemaking (48 FR 52258), the Agency requested information on any problems caused by the existing 85 percent removal requirement which is part of the definition of secondary treatment (40 CFR Part 133). In addition, the Agency solicited comments on five options for modifying the percent removal requirement.

The percent removal requirements were originally established to achieve two basic objectives: (1) To encourage municipalities to correct excessive infiltration/inflow (I/I) problems in their sanitary sewer systems, and (2) to help prevent intentional dilution of influent wastewater as a means of meeting permit limits. The Agency retains these objectives, but recognized the need for adjustment of the percent removal requirements in some cases. This need was reflected in the findings of the Agency’s 1978 study of the I/I programs which concluded that: (1) The I/I program had not been as successful in reducing excessive I/I as expected; (2) many treatment systems without excessive I/I have influent strengths of less than 200 mg/l for BOD and SS; (3) certain treatment technologies cannot achieve 85 percent removal under all conditions; and (4) retention of the...
current percent removal requirement could cause overly stringent levels of treatment and use of expensive advanced treatment processes in some cases. Based on these conclusions, the Agency developed and proposed the following five options, expressing a preference of either Option 1 or 4:

1. Eliminate the mandatory requirement, but provide substitute language allowing and requiring the permitting authority to establish percent removal requirements for BOD₅ and SS; and
2. Modify the requirement so that it applies on an annual average basis instead of applying on a 30-day average basis;
3. Modify the requirement to provide for a percent removal of BOD₅ and SS on a 30-day average that is less than 85 percent;
4. Retain the 85 percent removal requirement, but allow the substitution of either a flow limit or a mass loading limit for BOD₅ and SS; and
5. Determine percentage removal requirements on a case-by-case basis using the design removal efficiency for BOD₅ and SS.

The Agency supported Option 1 because it provided the permitting authority the greatest flexibility in adjusting the percent removal requirement for facilities that are meeting 30 mg/L BOD₅ and SS, but that cannot meet the percent removal requirement. The Agency supported Option 4 because retaining the 85 percent removal requirement, except for case-by-case substitution of flow or mass loading limits, would provide flexibility and, at the same time, encourage cost effective I/I reduction. Under both Options 1 and 4, the percent removal requirement would remain unchanged for those facilities that do not need relief.

D. Additional Request for Comments on the Selected Option to Amend the Percent Removal Requirements (September 20, 1984)

The overwhelming consensus of commenters on the November 1983 notice favored providing relief from the percent removal requirement, either by eliminating its mandatory application (Option 1) or by allowing substitution on a case-by-case basis of a flow limit or mass loading limit (Option 4). This consensus recognized that the original objective of the percent removal requirement, to encourage correction of excessive I/I, could be achieved more effectively through one of the above options.

Some commenters stated that all of the options for modifying the percent removal requirement (with the possible exception of Option 4) would cause an increase in the permissible discharge of BOD₅ and SS. They believed that the discharger, not the permitting authority, should show that the increase in BOD₅ and SS resulting from adjustment of percent removal requirements would not cause water quality problems. Some commenters noted that EPA must propose a specific percent removal amendment in the Federal Register before promulgating a final rule.

Based on the comments received on the proposed options and further Agency study of the issue, the Agency proposed selection of Option 4, modified to delete flow limits, as an amendment of the percent removal requirements in 40 CFR Part 133. On September 20, 1984, the Agency published a notice discussing the proposed option and soliciting additional public comments thereon (49 FR 37010-37014).

II. Summary of Final Regulation

Today's final rulemaking includes the following provisions:

- Requires a thirty (30) day average of not less than 85 percent removal for BOD₅, CBOD₅, and SS for conventional secondary treatment processes (e.g., conventional activated sludge treatment).
- Requires a thirty (30) day average of not less than 65 percent removal for BOD₅, CBOD₅, and SS (except SS limits for waste stabilization ponds) for treatment processes equivalent to secondary treatment (e.g., trickling filters).
- Provides special consideration for lowering the percent removal requirements or for substituting a mass limit for percent removal for certain POTW's that cannot meet the minimum percent removal due to less concentrated influent conditions.
- Treatment plants can apply for a permit adjustment in percent removal under this special consideration only if: (1) The treatment plant is consistently meeting or will consistently meet, for new plant, its other permit effluent concentration limitations, but its percent removal requirements cannot be met due to less concentrated influent; (2) to meet the percent removal requirement would require significantly more stringent effluent limitations than would otherwise be required by the concentration based standard; and (3) the less concentrated influent is not the result of "excessive" I/I.

Today's rulemaking also promulgates the percent removal requirements for treatment equivalent to secondary as final amendments. Those amendments (§ 132.105(a)(3), (b)(3), and (c)(1)(iii)) were published in interim final amendments in the September 20, 1984 rulemaking because the Agency was soliciting additional public comments on the percent removal requirement (49 FR 36966-920/20/84, 37007-920/20/84). The 65 percent removal requirements published as interim final amendments are being promulgated as final amendments in today's rulemaking.

III. Response to Additional Comments on the proposed September 20, 1984 Amendment to the Percentage Removal Requirements

The Agency has responded to all comments, which are available for inspection at EPA's Central Docket. Comments received on the original Notice of Proposed Rulemaking (48 FR 52258-11/16/83) were addressed in the Preamble of the September 20, 1984, request for additional comments (49 FR 3701-920/20/84), but were also considered in this final rulemaking. This section of the preamble will set out and address only the additional comments received on the September 20, 1984 notice.

1. One commenter suggested that the 85 percent removal criterion be eliminated. This was based on the demonstrated ability of conventional secondary treatment processes to reliably achieve 30/30 mg/l effluent BOD₅ and SS levels with normal domestic influent loading of 125 to 250 mg/l, and on the lack of direct correlation between influent strength and effluent quality. The Agency does not concur. The Agency believes that most properly designed and operated secondary treatment plants can and should achieve 85 percent removal, or (a minimum) 65 percent removal in the case of treatment equivalent to secondary, over a wide range of influent conditions. Unnecessarily eliminating these requirements on a blanket basis could lead to less treatment in some cases and increased discharge of pollutants. These amendments, however, provide the flexibility to lower the percent removal requirement or substitute a mass limit in appropriate cases where the otherwise applicable percent removal cannot be achieved without advanced treatment due to less concentrated influent conditions.

2. One commenter suggested dropping the use of the definition of excessive I/I found in 40 CFR 35.2005(b)(18) of the Construction Grant...
Regulations and the additional criterion for non-excessive inflow of less than 275 gallons per capita per day (gpcpd) from the proposed secondary regulation. The commenter believes this amendment would lead to required I/I evaluations for many small communities where the I/I problems are well known but where I/I studies may not have been formally completed.

The Agency understands the commenter's concern but unnecessary I/I evaluations can be avoided without changing the definition. Sewer system evaluations of I/I are required to satisfy the construction grant requirements for funding. This amendment does not require new sewer system evaluations for every plant. All treatment facilities that have received, or will apply for construction grant assistance, must meet the requirements of the applicable construction grant regulations for demonstrating non-excessive I/I. The construction grant regulations apply to many treatment facilities that may be eligible for a change in the percent removal limit under this amendment. These regulations require demonstration by the grantee that the sewer system is not or will not be subject to "excessive" I/I in accordance with 40 CFR 35.2005(b)(6). These grant provisions set limits, including 120 gpcpd for base flow plus infiltration and 275 gpcpd for base flow plus infiltration plus inflow to be used as initial screening levels to check the separate sewer system for excessive I/I and to determine if additional evaluation is needed before a grant is awarded. If non-excessive flows were determined correctly, provided no major changes have occurred in the sewer system, then the previous grant determination will satisfy the non-excessive I/I requirements of (§ 133.103(d)(3)).

Non-grant funded treatment facilities and facilities funded before I/I requirements were imposed must either meet the 120 gpcpd and 275 gpcpd criteria for non-excessive I/I or demonstrate to the satisfaction of the permitting authority that the higher flows with less concentrated influent are not the result of excessive I/I. For example, plants with base flows and infiltration rates of less than 120 gpcpd and peak storm flows of less than 275 gpcpd would normally satisfy the requirements of § 133.103(d)(3)]. These flows can generally be obtained by simple flow monitoring and population calculations. Plants with less concentrated influent and flows significantly higher than the 120 gpcpd and 275 gpcpd criteria must demonstrate to the permitting authority that the less concentrated influent are not the result of excessive I/I and do not cause chronic operating problems. This demonstration should include information on the condition of the sewer system, flow monitoring data, and reasons for the high flows. In most of these cases, a full sewer system evaluation survey and rehabilitation/correction plan would not be necessary.

(3) Another commenter recommended elimination of the percent removal requirement at the discretion of the permitting authority. This was based on a concern that the permitting authority needed more flexibility in dealing with complex problems, and the additional requirements that might be placed on municipalities to submit documents on I/I as defined in 40 CFR 35.2005(b)(16).

The Agency does not concur with this comment for the reasons discussed above. Also, to ensure the equity of the permit system, criteria must be established as a basis for adjusting the permit and applied to all cases. The Agency believes that the 120 gpcpd and 275 gpcpd flow criteria discussed above are reasonable and fair means of determining excessive I/I.

We note that by definition it is always cost-effective to remove excessive I/I. Therefore, locating and eliminating excessive I/I would benefit the community through cost savings realized over the long run. The final regulation encourages communities to eliminate excessive flows, and at the same time, gives the permitting authorities the flexibility necessary to deal with unusual situations.

(4) One commenter asked how the excessive infiltration requirements defined in 40 CFR 35.212C(e)(2)(i), would be applied if a plant currently under construction and whether such plants would be required to eliminate excessive infiltration even though the plant had been designed to treat the flows and infiltration reduction had been found non-cost-effective. A treatment plant currently under construction may be eligible for percent removal adjustment under this amendment if it meets all of the necessary conditions. For plants that have not yet completed construction, the permitting authority must satisfy its other permit effluent concentration limits, but that its percent removal requirements cannot be met due to less concentrated influent. The permitting authority must also demonstrate that to meet the percent removal requirements the treatment works would have to provide significantly lower effluent concentrations (a difference of more than 5 mg/l BOD) than would otherwise be required by the concentration based standard or would require significant construction or other significant capital expenditures. In addition, the permitting authority must demonstrate that the less concentrated influent was not due to "excessive" I/I. If the plant was grant funded, the permitting authority should have already demonstrated that the less concentrated influent was not due to "excessive" I/I, and no additional information should be required to meet the flow conditions for permit adjustment under this amendment. If the plant were not grant funded, then the permitting authority must provide information as required by the permitting authority to show that the I/I is non-excessive before the percent removal requirements can be adjusted under this amendment.

(5) One commenter recommended that the proposed regulation allowing an optional mass limit be deleted. This was based on the contention that the proposed substitution conflicts with current NPDES permit regulations (40 CFR 122.45(b)(1) and (f)) which require permits to include mass loading limits based on design flow.

The Agency agrees that mass flow limits are based on design flow. The special condition, however, does not conflict with the Part 122 regulations. If mass limits as well as the required concentration limits are included in the POTW's permit, they must be based on the design flow (40 CFR 122.45(b)(1)). If the permitting authority decides to adjust the percent removal requirement, in accordance with these amendments, an adjusted percent removal limit based upon actual plant performance (for new plants) must be calculated. This percent removal can then be converted into a mass limit using the influent concentration values the design flow or existing mass loading. The permitting authority can insert the adjusted mass limit in the permit, in lieu of the percent removal requirement, if it so desires. The permit modification procedures under 40 CFR 122.45(e)(3) must be followed unless the permit has expired or a new discharge permit is being issued. Where concentration limits are also expressed as a mass limit in the current permit, the adjusted percent removal can be implemented by adjusting the mass limit.

(6) Another commenter expressed concern about the change in wording from the original preferred option (November 16, 1983, FR 52770) which allowed "substituting the percent removal requirements with either a flow
or mass loading limit." The commenter noted that the proposed regulation allows "substituting the percent removal with either a lower percent removal or a mass loading limit." The commenter was concerned that, without a flow limit, some communities with high I/I flows would be able to meet the permit limits for concentration and mass loading limits because of the dilution effect of the I/I. The Agency dropped the substitution of a flow limit in place of the percent removal because it is not an appropriate substitution for the effluent quality based secondary treatment standards. Both percent removal and mass limits address the quality of the effluent (i.e., percent of the pollutant removed or pounds of pollutant discharged). A flow limit, on the other hand deals only with quantity (i.e., amount of water discharged).

Treatment plants that experience a dilution effect of I/I, and cannot meet the effluent concentration requirements or plants that have low influent concentrations due to excessive I/I are not eligible for permit adjustment under these amendments. These amendments only allow the permitting authority to adjust percent removal or substitute a mass loading limit for percent removal.

Although flow limits are not a requirement of these amendments, neither this amendment nor the NPDES regulation prohibits inclusion of an influent or effluent flow limit as a condition of the permit.

(7) One commenter noted that neither the response to comments nor the secondary treatment regulation addresses treatment works which handle large increases in wet weather flows from separate sewers with prohibitive costs for either sewer rehabilitation or treatment. In this case, sewer overflows do not meet the concentration limits for secondary treatment. The Agency agrees that this final regulation does not apply to the commenter's case because it allows adjustment only of the percentage removal requirement and not the concentration limits of BOD_5 and SS. Under the final secondary treatment and construction grant regulations, these concentration limits must be met either through rehabilitating the sewer system to prevent overflows and bypasses or conveying and treating these flows.

(8) Another commenter requested clarification of the proposed special condition (40 CFR 133.103(d)) to confirm that it applies only to separate sanitary sewer systems and not combined sewers.

The Agency concurs and has added the words "in Separate Sewers" to the title of the special condition.

(9) Another commenter recommended that the percent removal requirement for secondary treatment include an absolute minimum percent limit. This suggestion recognizes that the typical treatment level for high rates of inflow is primary settling and that, on this basis, the minimum removal should be 50-60 percent.

The Agency agrees that primary settling processes can achieve 50-60 percent BOD removal under normal flow conditions. However, such removal may not always be attained during high flow periods. Further, it would not be appropriate to set a minimum value for secondary treatment based on the performance of a primary treatment process. We thus believe that the permitting authority should have sufficient flexibility to adjust the 85 or 65 percent removal requirements on a case-by-case basis without the constraint of an arbitrary percentage floor.

IV. Process for Revising NPDES Permits

A. General Discussion

Under this final rule, NPDES permitting authorities would be allowed to modify the percent removal requirement in existing secondary treatment permits on a case-by-case basis, based on the removal capability of the treatment plant, influent wastewater concentration and the I/I situation. The concentration limits in the permit would remain unchanged.

Due to the number of municipal permits that could potentially be impacted by this regulation, the preferred method of implementation would be to revise the percent removal limitation during the normal period for permit reissuance. Permittees who wish to request permit modification prior to reissuance may do so, but must submit their requests for modification within 90 days of the effective date of this regulation (40 CFR 122.62).

In no case shall a permit be adjusted where the permitting authority determines that adverse water quality impacts will result from a change in permit limits. The Agency's NPDES permit regulations already require that any permit effluent limitations result in compliance with applicable water quality standards, state effluent requirements, and other provisions of the Act (40 CFR 122.44 and 40 CFR 124.53).

B. Impact of the Percent Removal Requirements

In addition to providing requirements for percent removal for secondary treatment and for treatment equivalent to secondary treatment, these amendments also provide special consideration for the adjustment in the percent removal for facilities with less concentrated influent. In order to be eligible for a permit adjustment for percent removal these facilities must meet all of the requirements in section 133.103(d) which requires the permitting authority to demonstrate that: (1) It is meeting, or will meet, its permit effluent concentration limits but its percent removal requirements cannot be met due to less concentrated wastewater influent; (2) to meet the percent removal requirements, it would have to achieve significantly more stringent limitations than would otherwise be required by the concentration-based standards and (3) the less concentrated influent is not due to excessive I/I.

The term "significantly more stringent limitations" is defined in the new paragraph § 133.101(m) to mean: (1) BOD_5 and SS limitations necessary to meet the percent removal requirement would have to be 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_5 and SS), or (2) the percent removal limitations in §§ 133.102 and 133.105, if such limits would, by themselves, force significant construction or other significant capital expenditure. Costs for operation, maintenance or replacement (as defined in 40 CFR 35.2005(b)(30)&(36)) necessary to meet the applicable percent removal requirements would not be grounds for consideration of an adjustment.

Although these provisions would allow the percent removal requirement for equivalent technologies to be adjusted below 65 percent in certain extreme cases where very dilute influents occur during wet seasons, the 65 percent removal criterion would still be used in determining whether a facility is providing "significant biological treatment" (40 CFR 133.101(k)).

If a treatment facility would not have to "achieve significantly more stringent limitations" (as defined above) in order to meet its percent removal requirements, the treatment works would have to meet the applicable percent removal requirement (i.e., 85 percent or 65 percent, respectively). Agency experience has shown that well

When adjusting the percent removal requirement for a particular facility, the permitting authority would be the revised percent removal requirement or mass loading on the values achievable through proper operation and maintenance of the facility. In cases where less concentrated influents are a result of seasonal increases in flow, the permitting authority should consider seasonal permit limits with an adjusted percent removal requirement only during those periods when increased flows or lower influent concentrations are occurring (e.g., lower percent removal or mass limits would apply only during certain months). An example of such a condition is the seasonal increase in flow from the elevated groundwater levels during wet seasons.

This final rule recognizes that the percent removal requirement is a valuable regulatory tool but will allow for substitution of a lower percent removal or a mass loading limit since either can represent a given effluent quality. This flexibility provides relief to facilities that are experiencing various degrees of less concentrated influent and cannot meet the percent removal requirement without significant additional construction.

The Agency believes that this amendment will better reflect the influent strengths actually occurring and recognizes the limited effectiveness of I/I correction. There will be greater flexibility given to the permitting authority by allowing use of case-by-case analysis to adjust the percent removal requirements where the 85 percent requirement cannot be met. This case-by-case analysis has been successful in allowing special consideration for adjusting percent removal requirements for combined sewer systems (§ 133.103(a)).

Under these amendments the adjustments of the percent removal requirements in NPDES permits would be made on a case-by-case basis, based on the removal capability of the POTW, influent wastewater concentration and the I/I situation. The concentration limits in the permit would remain the same.

Where concentration limits are also expressed as a mass limit in the current permit, the adjusted percent removal limit can be implemented by adjusting the mass limit.

V. Regulatory Reviews

A. Executive Order 12291

Under Executive Order (E.O.) 12291, EPA is required to judge whether a regulation is "major" and therefore subject to the regulation impact analysis requirements of the Order or whether it may follow other development procedures. The Agency has determined that this regulation is not a major rule within the scope of E.O. 12291. This final rulemaking was submitted to the Office of Management and Budget (OMB) for review as required under E.O. 12291.

B. Paperwork Reduction Act

In accordance with the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 et seq., EPA must submit a copy of any proposed rule which contains a collection of information requirements to the Director of OMB for review and approval. The Agency determined that this regulation does not significantly increase the data collection of information requirements (OMB Control Number 2040–0051).

C. Regulatory Flexibility Act

The Regulatory Flexibility Act, 5 U.S.C. 601 et seq., requires EPA to assess the impact of its regulatory proposals on "small entities." No regulatory flexibility analysis is required, however, where the head of the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities.

The secondary treatment amendments promulgated today will allow permitting authorities to modify percent removal requirements for some small communities. Where requirements are modified, the operation and maintenance costs of existing facilities may be reduced. The estimates of the ultimate benefits that will accrue to small communities as a result of these amendments are uncertain because of the flexibility provided and inherent result differences in estimating cost impacts. Although precise quantification of costs and benefits is not possible, the Agency believes that this rulemaking will result in cost savings.

The Agency believes that today's regulation will not result in any significant economic impact on small communities. Accordingly, I hereby certify, pursuant to 5 U.S.C. 605(b), that...
this amendment will not have a significant impact on a substantial number of small entities.

List of Subjects in 40 CFR Part 133
Publicly owned treatment works, Waste treatment and disposal, Water pollution control.

Lee M. Thomas, Administrator.

Appendix A—Abbreviations, Acronyms and Terms Used In This Notice
Agency—The United States Environmental Protection Agency.
BOD—A pollutant parameter for the biochemical oxygen demand of wastewater, which typically includes both a carbonaceous and a nitrogenous portion.
BOD, 5—The BOD exerted in a 5-day period.
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