

Title: CSO-Related Bypass in Long-Term Control Plans (Maximizing Treatment at the Existing POTW Treatment Plant)

Identification Number: Water-015

Date Originally Effective: April 11, 2008

Dates Revised: None

Other Policies Repealed or Amended: None

Brief Description of Subject Matter: The appropriate use of the CSO-Related Bypass as part of the long-term CSO control strategy.

Citations Affected: Federal Bypass Rule at 40 CFR 122.41(m)

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1. PURPOSE

The purpose of this policy is to assist CSO communities to understand the requirements of the federal Bypass Rule at 40 CFR 122.41(m) and to appropriately utilize the CSO-Related Bypass as part of the long-term CSO control strategy. Under certain circumstances described by this NPD and the federal Bypass Rule, a CSO community may be approved by IDEM to allow a bypass of a portion of wet weather flow as part of the long-term CSO control strategy.

2. SCOPE

This policy affects CSO communities, IDEM's review of the communities' Long-Term Control Plans (LTCPs) and compliance with them.

3. SUMMARY

Part II.C.7 of the national Combined Sewer Overflow (CSO) Control Policy (Policy), Federal Register/Vol. 59, No. 75/Tuesday, April 19, 1994, recognizes that a permitting authority may approve a CSO-Related Bypass, under certain conditions, to a portion of wet weather flow as a part of the long-term CSO control strategy. The Policy further states that the study of feasible alternatives (discussed below) in the Long-Term Control Plan may provide sufficient support for obtaining approval of CSO-Related Bypasses in permits.

4. DEFINITIONS

The following definitions apply to the defined term as used in this NPD:

"Bypass Rule" means the federal requirements contained in 40 CFR 122.41(m).

"CSO" means combined sewer overflow and is the discharge from a combined sewer system from a point prior to the WWTP. CSOs consist of the combination of sanitary sewage and storm water.

"CSOOP" means combined sewer overflow operational plan.

"CSO Community" means a community (municipality) that has combined sewer overflow discharges.

"Combined Sewer Overflow Control Policy" or "Policy" is the federal policy governing the control of combined sewer overflows from the systems of NPDES authorized communities.

"LTCP" means long-term control plan, a document required to be prepared by CSO Communities for the elimination or management of combined sewer overflow discharges.

"NPDES" means National Pollutant Discharge Elimination System and is a national program for the issuance of permits to entities that have direct discharge of treated wastewater into receiving waters.

"POTW" means Publicly Owned Treatment Works, which is a wastewater treatment facility owned by a municipality or other legal entity established to treat sanitary sewage.

"WWTP" means wastewater treatment plant.

5. ROLES

Long-Term Control Plans submitted by CSO Communities are reviewed for approval by the Office of Water Quality's Wet Weather Section.

6. POLICY

APPLICATION OF CSO-Related Bypass in Long-Term Control Plans

6.1 The Bypass Rule

40 CFR 122.41(m), the bypass rule, prohibits a bypass and provides that the Director may take enforcement against a permittee for bypass unless the following conditions are met:

- (1) Bypass is unavoidable to prevent loss of life, personal injury, or severe property damage.
- (2) There are no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance.
- (3) The permittee submits the notices required under [327 IAC 5-2-8\(11\)\(C\)](#) or 40 CFR Part 122.41(m)(3). The type of notice required depends on whether the bypass is "anticipated" or "unanticipated".

6.2 The Use of the CSO-Related Bypass in Maximizing Treatment at the POTW

The CSO-Related Bypass discussion is found in Part II.C.7., 'Maximizing Treatment at the Existing POTW Treatment Plant', on Page 18693 of the Policy. The Policy states the CSO-related bypass provision in an NPDES permit should make clear that all wet weather flows passing the headworks will receive at least:

- primary clarification;
- solids and floatables removal and disposal;
- disinfection, when necessary; and
- any other treatment that can reasonably be provided.

A CSO-Related Bypass scenario may include the use of a disinfection unit and outfall separate from those used for the fully treated discharge from the POTW.

In a CSO-Related Bypass scenario, the diversion is considered an "anticipated" bypass, meaning that the permittee is required to submit advanced notice of the need for a bypass. An anticipated bypass can be approved by IDEM, if, after considering its adverse effects, IDEM determines that the anticipated bypass will meet the conditions listed in the bypass rule, including the no feasible alternatives condition.

6.3 Recombination and CSO-Related Bypass

The CSO-Related Bypass may involve recombination of the bypassed flow with the final effluent prior to disinfection. The term "recombination", in the context of long-term control plan alternatives for wastewater treatment plants that receive flow from combined sewer systems, refers to the following scenario:

During high influent flow conditions due to wet weather events, wastewater flow at or below a specified flow rate receives full treatment, i.e., treatment through each unit treatment process present at the wastewater treatment plant. However, due to treatment process capacity restrictions, wastewater flow in excess of the specified flow rate receives partial treatment, i.e., treatment through some but not all of the unit treatment processes present at the wastewater treatment plant. The fully treated wastestream and the partially treated wastestream "recombine" prior to discharge through the wastewater treatment plant outfall to the receiving stream. The recombined flow must continue to meet permit limits.

Under both state and federal law, the intentional diversion of a wastestream from any portion of a treatment facility constitutes a bypass. While EPA reviews how recombination fits into the overall approach for treatment of wet weather flows from separate sanitary sewer systems, the approved bypass approach under the Policy is a way to account for recombination for the treatment of flows from combined sewer systems in the regulatory process. The Policy indicates the need for the conditions of the bypass rule, including the "no feasible alternatives" condition.

6.4 What does "no feasible alternatives" mean?

The Policy discusses the need for a permittee to document, among other things, the technical or financial infeasibility of providing secondary treatment for greater amounts of wet weather flow, including an assessment of the feasibility of increasing plant capacity through construction of additional treatment units or storage equipment. The Policy further discusses the need for the permittee to consider, as part of a feasible alternatives analysis,

additional treatment options.

6.5 "No Feasible Alternatives" Criteria

To demonstrate that there are no feasible alternatives other than the use of a CSO-related bypass in the CSO Long-Term Control Plan, a permittee should provide the following types of information in the alternatives analysis portion of the LTCP:

6.5.1. Documentation that the wastewater treatment plant, specifically including the secondary treatment system, is properly operated and maintained.

IDEM staff will review the facility's compliance and enforcement records, including the record of past bypassing. In addition, the permittee may also wish to provide information to IDEM to aid in this evaluation. Examples of the type of documentation that may be reviewed include, but are not limited to, the following information/records:

- a. Wastewater treatment plant maintenance procedures and activities.
- b. The date or dates that any wastewater treatment plant component was offline, the reason or reasons that the component was offline, and the steps that were taken to place the component back online.
- c. The most recent CSOOP submission.

6.5.2. Documentation that the wastewater treatment plant, specifically including the secondary treatment system, has been designed to meet secondary treatment limits for flows greater than the peak dry weather flow plus an appropriate quantity of wet weather flow.

Examples of documentation that should be provided include, but are not limited to, the following information/records:

- a. The expected peak dry weather flow rate, and the basis thereof.
- b. The peak and average design capacities of the each unit treatment process, specifically including secondary treatment, and the basis thereof (such capacities should be at least equivalent to those identified in the construction permit design summary).
- c. Peak, average, and minimum flow rates, including influent, primary effluent, secondary effluent, tertiary effluent (if applicable), and final effluent flow rates.
- d. Process control information, such as mixed liquor/suspended solids, sludge volume indices, recycling rates, settling rates, food to mass ratios, and percent removal rates for various pollutants including CBOD5, TSS, and ammonia.
- e. Sludge removal and disposal.
- f. Maximization of wastewater treatment plant capacity, including secondary treatment capacity, during wet weather events, over the course of the previous three years.

6.5.3. Documentation that it is either technically or financially infeasible to provide secondary treatment for greater amounts of wet weather flow.

The permittee must evaluate various options for achieving a range of reductions in bypassing (e.g., zero bypasses, 1-3 bypasses, 4 bypasses, etc.) in the documentation, including:

- construction of additional secondary treatment facilities;
- storage of wet weather flows that exceed the secondary treatment system capacity;
- nonbiological secondary treatment; and
- enhanced primary treatment (such as chemical addition);

for a range of capacities, including capacity equal to peak wet weather primary treatment capacity. For each option and capacity, the permittee must identify the projected costs and the expected performance (i.e., impact on effluent quality for each pollutant present in the wastewater treatment plant influent).

If financially infeasible, then the permittee must provide a benefit-cost analysis* demonstrating that conveyance of wet weather flow to the WWTP for primary treatment is more beneficial than other CSO abatement alternatives, such as storage and pump back for secondary treatment, recombination, sewer separation, or satellite treatment.

*This evaluation should be done in accordance with the following sections of the Policy:

- Part II.C.4., Evaluation of Alternatives; and
- Part II.C.5. Cost/Performance Considerations.

6.5.4. Documentation that, under its CSO-Related Bypass proposal, all wastewater flow entering the wastewater treatment plant will receive a minimum of primary clarification, solids and floatables removal and disposal, disinfection as specified in the NPDES permit, any other treatment that can feasibly be provided, and that any recombined wastestream will meet effluent limitations based upon the secondary treatment regulations and any more stringent limitations necessary to meet water quality standards.

- a. To the extent that the permittee is already using a CSO-Related Bypass scenario at its wastewater

treatment plant, such documentation shall include, but not be limited to, the following:

i. Standard operating procedures (SOP) for dry weather and wet weather conditions at the WWTP. The wet weather SOP must describe:

- under what conditions the CSO-Related Bypass occurs; and
- the cutoff point at which the flow will be diverted from the secondary treatment portion of the WWTP.

The permittee must justify the cutoff point by providing flow rate data of the primary effluent, secondary effluent, and tertiary effluent (if applicable) at the WWTP.

ii. If the permittee currently uses recombination, analytical results of final effluent for each day during which samples of the recombined wastestream were collected. If the permittee has not collected samples of the recombined wastestream, the permittee must do so for a range of storm events and must provide IDEM with the information. IDEM and the permittee will work together to determine the appropriate range of storm events.

b. In the event that the permittee does not already use a CSO-Related Bypass scenario at its wastewater treatment plant, the permittee must provide the projected peak wet weather influent flow rates and pollutant concentrations following implementation of the proposed long-term CSO controls. The projection must be based, in part, on actual flow and concentration data obtained from all CSO discharges that are proposed to be eliminated or reduced through a CSO-Related Bypass for a range of storm events.

Additionally, the permittee must develop standard operating procedures (SOP) for dry weather and wet weather conditions at the WWTP. The wet weather SOP must describe:

- under what conditions a CSO-Related Bypass occurs; and
- the cutoff point at which the flow will be diverted from the secondary treatment portion of the WWTP.

The permittee must justify the cutoff point by providing flow rate data of the primary effluent, secondary effluent, and tertiary effluent (if applicable) at the WWTP.

If using recombination, the permittee will be required to sample the recombined wastestream and provide IDEM with the data.

7. REFERENCES

The state of New York has developed the Wet Weather Operating Practices for POTWs with Combined Sewers manual. The manual can be found at:

http://www.dec.state.ny.us/website/dow/bwcp/ww_tecgtran.pdf

8. SIGNATURES

Thomas W. Easterly, Commissioner,
Indiana Department of Environmental Management

Date

Bruno Pigott, Assistant Commissioner,
Office of Water Quality

Date

Robert Keene, Assistant Commissioner,
Office of Legal Counsel

Date

This policy is consistent with Agency requirements.

Indiana Department of Environmental Management
Quality Assurance Program
Planning and Assessment

Date

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