


INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT	STATUS: Final	POLICY NUMBER: Water-016	
AGENCY NONRULE POLICY DOCUMENT SUBJECT: CSO Treatment Facilities	AUTHORIZED: Thomas W. Easterly, Commissioner		
	SUPERSEDES: New	ISSUING OFFICE(S): Office of Water Quality	
	ORIGINALLY EFFECTIVE: Date April 11, 2008	RENEWED/REVIS ED: Date	

Disclaimer: This nonrule policy document (NPD) is intended solely as guidance and does not have the effect of law or represent formal Indiana Department of Environmental Management (IDEM) decisions or final actions. This nonrule policy document shall be used in conjunction with applicable laws. It does not replace applicable laws, and, if it conflicts with these laws, the laws shall control. This nonrule policy document may be put into effect by IDEM 30 days after presentation to the appropriate board. Pursuant to IC 13-14-11.5, this policy will be available for public inspection for at least 45 days prior to presentation to the appropriate board. If the nonrule policy is presented to more than one board, it will be effective 30 days after presentation to the last board. IDEM will submit the policy to the Indiana Register for publication. Revisions to the policy will follow the same procedure of presentation to the board and publication.

1. PURPOSE

Most Combined Sewer Overflow (CSO) communities in Indiana have already analyzed or are in the process of analyzing a range of alternatives for controlling CSOs for purposes of long term control plan development. The purpose of this document is to inform CSO communities that, in addition to the reasonable range of alternatives described in U.S. EPA's CSO Policy, IDEM is willing to accept, for additional evaluation as part of a community's alternatives analysis, a treatment basin alternative¹ provided that such alternative meets the criteria set forth in this nonrule policy document (NPD).

¹ For technical information concerning one type of CSO treatment basin, see *Michigan Combined Sewer Overflow Control Manual*, September 26, 1994 and <http://www.rougeriver.com/>

Consistent with the CSO Policy, IDEM will determine the appropriateness of such an alternative on a case-by-case basis, in the context of evaluating all of the alternatives.

2. SCOPE

This policy affects CSO communities that choose to consider a CSO Treatment Facility as part of a broader alternatives analysis in order to be consistent with the 1994 CSO Control Policy.

3. SUMMARY

A CSO Treatment Facility designed and operated as discussed in this document provides a prescribed high level of CSO treatment that precludes the need for a use attainability analysis.

4. DEFINITIONS

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

“CSO” means combined sewer overflow and is the combination of sanitary sewage and storm water in the same conduit (sewer pipe).

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

“Combined Sewer Overflow Control Policy” or “Policy” is the U.S. EPA policy governing the control of combined sewer overflows from CSO communities.

“CSOOP” means combined sewer overflow operational plan.

“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.

5. ROLES

CSO treatment facilities as part of a community’s Long Term Control Plan is reviewed for approval by the Office of Water Quality’s Wet Weather Section.

6. POLICY

CSO Treatment Facilities

6.A. CSO Treatment Facility Design Criteria

In developing information concerning CSO Treatment Facilities, CSO communities should evaluate facilities designed to meet the following general criteria:

1. Retention, for transportation to and treatment at the wastewater treatment plant ("WWTP"), of flows generated during storms no smaller than the "One Year, One Hour Storm." These alternatives should also provide for the transport of this entire volume to the WWTP and the full treatment of that same entire volume within 48 hours. (See 6.B.8. below). Inherent in this requirement is the complete transport of this flow within the sewer conveyance system to and adequate treatment of this flow at the WWTP.
2. Treatment of combined sewage flows generated during storms no smaller than the "Ten Year, One Hour Storm," which includes, at a minimum, the following:
 - a. The detention of flows for settling that achieves the Total Suspended Solids ("TSS") control described in 6.B.10 with the ten year one hour peak hourly flow retained for no less than 30 minutes.
 - b. Skimming of the detained flows to remove solids and floatables.
 - c. Disposal of the solids and floatables in accordance with any applicable solid waste disposal laws and regulations.
 - d. Disinfection of all detained flows, to the effluent level set forth in 6.B.9.
 - e. Dechlorination, if necessary, so that the effluent from the CSO Treatment Facility does not exceed the Total Residual Chlorine ("TRC") level set forth in 6.B.9.
3. Combined sewage flows in excess of the "Ten Year One Hour" (or higher) designed storm used for sizing of the CSO Treatment Facility should receive whatever treatment is feasible given capacity limitations at the CSO Treatment Facility and the WWTP.

The discharger may also evaluate alternative facilities that will achieve equivalent or better treatment and control than would a facility that meets the criteria set forth in 6.A.1., 6.A.2., and 6.A.3., above.

For CSOs into waters of the state where pollutants other than *E. coli* may be causing water quality problems, CSO communities must also evaluate, as part of the alternatives evaluation, the effectiveness of any CSO Treatment Facility alternative in treating those additional pollutants of concern.

6.B. Other Assumptions and Criteria to Use in Evaluating a CSO Treatment Facility

The following assumptions and design criteria should be applied when considering inclusion of a CSO Treatment Facility in the alternatives analysis in accordance with this nonrule policy document:

1. The Ten Year, One Hour Storm and the One Year, One Hour Storm should be defined in either of the following:
 - a. *Bulletin 71, Rainfall Frequency Atlas of the Midwest*, which can be found at: www.sws.uiuc.edu/pubdoc/B/ISWSB-71.pdf The Huff Climatic Regions for Indiana map should be used.
 - b. The HERPICC Storm Water Drainage Manual, July 1995, which can be found on the Purdue University website: [http://www.ecn.purdue.edu/INLTAP/Publications/documents/Stormwater%20Drainage%20 manual.pdf](http://www.ecn.purdue.edu/INLTAP/Publications/documents/Stormwater%20Drainage%20manual.pdf)
2. Rainfall should be assumed to be of uniform intensity and distribution over the entire service area for a duration of exactly one hour. Zero rainfall shall be assumed both before and after the one hour rainfall event.
3. Antecedent conditions should be assumed to be average warm weather conditions.
4. Retention/CSO Treatment Facilities should be sized based on case-specific sewer system response to the two theoretical design storms described in 6.B.1. above. All Primary treatment facilities should be sized for no less than thirty minutes detention time for solids removal and disinfection at no less than the “Ten Year, One Hour Storm,” and retention of all flow for ultimate transport to the WWTP at no less than the “One Year, One Hour Storm.” Where ‘equivalent’ facilities are proposed, both criteria would be considered.
5. Detention time for solids removal and disinfection should be calculated on the basis of maximum hourly flow.
6. Sewer system response should be estimated using data and appropriate engineering models (SWMM, etc.). Actual characterization data should be used in lieu of strictly model default data. Time of Concentration should not be

assumed to be one hour just because the “One Hour” storm is used as a definition.

7. Retention/CSO Treatment Facilities should be configured to optimize solids removal and disinfection.
8. Dewatering times should be less than 48 hours from the time when rainfall ceases. All combined sewage retained in the facility should be transported to the WWTP and receive full treatment at the WWTP, regardless of storm size. Dewatering while a bypass is in progress should not be considered.
9. Disinfection should be controlled to achieve the daily maximum *E. coli* concentration of 235/100 ml. If disinfection is carried out using chlorine or hypochlorite, dechlorination must be employed to meet a maximum TRC of .06 mg/l.
10. Combined sewage Facilities should be designed and operated to meet an appropriate level of TSS control to ensure effective disinfection.
12. The CSO community should evaluate how any CSO Treatment Facility alternative developed in accordance with this document would perform over the course of a “typical year.” This will assist in evaluating the costs, benefits, and effectiveness of such an alternative compared to the other alternatives that are being considered.

6.C. Treatment Flows in Excess of the Ten Year, One Hour Storm

Combined sewage flows in excess of the design storm used for sizing of the CSO Treatment Facility should receive whatever treatment is feasible, given capacity limitations at the CSO Treatment Facility and at the WWTP.

Since most storm and combined sewers are designed to handle the ten year storm without surcharging, this will probably mean that flows greater than those generated by the “Ten Year, One Hour Storm” should be transported to the CSO Treatment Facility, but the degree of treatment may need to be less than thirty minutes detention. The important point here is that no untreated overflows should occur from a CSO Treatment Facility. No untreated overflows means that pump stations should be provided with firm pump capacity to handle all flows transported by the existing collection system, even when it may be more than the ten year storm flow.

6.D. Permitting CSO Treatment Facilities

If an alternative including a CSO Treatment Facility is ultimately selected as part of the LTCP that is ultimately approved by IDEM, discharges from CSO Treatment Facilities

will require effluent grab sampling. Effluent limits shall be imposed for *E. coli* and monitoring may be required for flow, biochemical oxygen demand (“BOD”), total suspended solids (“TSS”), Ammonia Nitrogen (as N), Total Phosphorus (as P), pH, dissolved oxygen (“DO”), and total residual chlorine (“TRC”), if applicable. Metals monitoring may also be required on a case-by-case basis.

6.E. APPENDICES

6.E.1. ENFORCEMENT DISCRETION LANGUAGE

The City/Town of _____’s approved CSOOP, LTCP, and NPDES permit outline the wet weather operating procedures and design capabilities of the WWTP and CSO Treatment Facility. All CSO Treatment Facility wet weather discharges shall receive the specified treatment to the extent possible. In conditions where wet weather discharges from the CSO Treatment Facility result from a storm event, rainfall amount, or intensity which exceed the design capacity of the facility, the permittee shall provide documentation that all conditions and requirements expressed in its NPDES permit, including Attachment A, were achieved. All documentation regarding performance of the WWTP and CSO Treatment Facility during storm events identified above would be reviewable by IDEM with exercise of enforcement discretion for CSO Treatment Facility discharges accorded to it under IC 13–30 for these storm events.

6.E.2. SAMPLING PROTOCOL BASIN DISCHARGE SAMPLING

Effluent composite sampling, either by automatic sampler collecting at set intervals or by grab samples collected at the CSO Treatment Facility collected during discharges from the wet weather treatment component shall be initiated within 30 minutes from the beginning of a discharge event, must be representative of the discharge, and must be of sufficient quantity to ensure the parameters can be measured. Sampling must continue no less frequently than every two hours during the duration of the event. For events lasting more than 24 hours, a new sampling period shall be initiated each day. Composite samples may be used to analyze parameters identified. The daily average shall be reported as the maximum daily concentration. The average of the daily averages shall be reported as the monthly concentration. Facilities are encouraged to collect more data to better understand the discharges from CSO outfalls.

For *E. coli*, the daily maximum shall be the geometric mean of all samples on any

discharge day. The *E. coli* monthly average shall be the geometric mean of all samples collected during the month, provided that five (5) or more samples are collected. The goal of the effluent monitoring program is to collect at least three (3) samples during each discharge event, and the samples shall be collected at shorter intervals at the onset of the event if the permittee estimates that the event duration may be less than six (6) hours.

For purposes of reporting on a discharge event that lasts less than twenty-four (24) hours but occurs during two (2) calendar days, the pollutant concentrations for the event shall be reported as daily values on the day when the majority of the discharge occurred.

7. REFERENCES

8. SIGNATURES



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

MAY 6, 2008

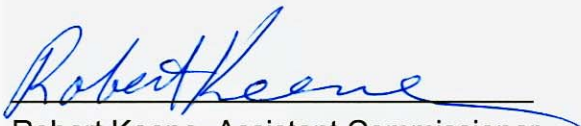
Date



Bruno Pigott, Assistant Commissioner,
Office of Water Quality

MAY 7, 2008

Date



Robert Keene, Assistant Commissioner,
Office of Legal Counsel

May 9, 2008

Date

This policy is consistent with Agency requirements.



Indiana Department of Environmental Management
Quality Assurance Program
Planning and Assessment

May 19, 2008

Date