NPDES PERMITTING COURSE FOR PERMITTEES – PART III

Wet Weather and Nutrients

Clean Water Professionals of Kentucky and Tennessee

by

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WET WEATHER ISSUES

Sanitary Sewer Overflows ("SSO")
Blending
Combined Sewer Overflows ("CSO")
Municipal Separate Storm Sewer System ("MS4") Permitting

OVERFLOWS - CWA STANDARD

 Unpermitted "Discharges" of Pollutants are Prohibited.

 Other "Releases" from the Collection System are not, per se, Prohibited.

WHAT IS AN "OVERFLOW" THAT TRIGGERS POTENTIAL LIABILITY?



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REGULATORY PERSPECTIVE

- Standard Depends Upon What the State Regulations Provide
 - e.g., Tennessee Regulations Used to Have a No Feasible Alternative Defense for Overflows
- Iowa Expanded Bypass Rule to the Collection System
 LEGAL LIABILITY DEPENDS UPON YOUR
 - PERMIT!

TDEC PERMIT LANGUAGE

DEPENDS UPON CURRENT STANDARD IN PERMIT

a. "Overflow" Means any ["<u>Release</u>" or "<u>Discharge</u>"] of Sewage from Any Portion of the Collection, Transmission, or Treatment System Other than Through Permitted Outfalls.
b. Overflows are Prohibited.
c. The Permittee Shall Operate the Collection System so as to Avoid Overflows. * * *

TENNESSEE PROPOSED RULES

- Proposal to Amend Chapter 0400-40-05 (Permits Effluent Limitations and Standards)
- Sanitary Sewer Overflow" vs. "Release"
- O&M: To Specifically Include Collection System
 - But Not All Overflows Are Due to Improper O&M.
 - How is this Determined?

 Question Whether Statutory Authority Addresses Releases Not Reaching Receiving Waters.

OPTIONS TO MINIMIZE MUNICIPAL LIABILITY

• NPDES Rules/Permits Do Not Address Releases

- Potential Liability for Releases is Limited
 - Design Standards Based Upon Storm Event
 - Compliance with CMOM or MOM Program
 - Industry Standard
 - Flooding or Extreme Wet Weather Event
 - Other

BLENDING

- 2001 Memorandum
- PMAA v. Horinko (D.D.C. 2003)
- 2003 Fed. Reg. Notice re Proposed Policy
- 2005 Fed. Reg. Notice re Proposed Policy for SSS
- 2010 Fed. Reg. Notice of Listening Sessions re Broadbased Approach to SSS including Blending
- Iowa League of Cities v. EPA (8th Cir. 2013) ("ILOC")
- 2014 Experts Forum on Public Health Impacts of Blending
- CRR v. EPA (D.C. Cir. 2017)
- 2018 Fed. Reg. Notice of Listening Sessions re Peak Flow Management at SSS.

BLENDING - 2013 *IOWA LEAGUE OF CITIES (ILOC)* DECISION (8th Cir.)

DECLARES BLENDING PROHIBITION ILLEGAL

- Failed to Follow APA Rulemaking ("Without Observance of Procedure Required by Law.")
- No CWA Authority: Additionally, the Court found that the EPA's Blending Rule "Clearly Exceed[ed] the EPA's Statutory Authority and Little would be Gained by Postponing a Decision on the Merits."
- EPA is Not Authorized to Regulate the Pollutant Levels in a Facility's Internal Waste Stream and "Insofar as the Blending Rule Imposes Secondary Treatment Regulations on Flows Within Facilities, we Vacate it as Exceeding the EPA's Statutory Authority."

CRR v. EPA, HALL & ASSOC. v. EPA

CRR v. EPA, 849 F.3d 453 (D.C. Cir. 2017)

"We need not determine whether EPA's non-acquiescence statement constitutes a 'promulgation' because EPA's non-acquiescence statement does not announce an effluent or other limit on discharge of pollutants. The non-acquiescence statement merely articulates how EPA will interpret the Eighth Circuit's decision."

Hall & Associates v. EPA, 315 F. Supp. 3d 519 (D.D.C. 2018)

"So the EPA's Reservation of the Right to Proceed 'Consistent with the Agency's Existing Interpretation' Outside of the Eighth Circuit on a Case-By-Case Basis. . . Necessarily Means that the Agency has Refused to Commit to Applying *Iowa League of Cities* as its Policy in all Jurisdictions, which is all that Intercircuit Nonacquiescence Requires."

<u>See also Hall & Associates v. EPA, Case No. 18-5241 (D.C. Cir., Apr. 21, 2020)</u>

EPA POSITION

"EPA has Consistently Maintained that No Final Agency Action has Occurred, and that it would Review Permitting Matters (most of which are issued by the States in the first instance, not EPA) on a 'Case-By-Case' or 'Facility-Specific' Basis outside the Eighth Circuit." (Feb. 2019)

EPA BLENDING RULEMAKING?

NPRM?
Final Rule?
Likely to Address Only Sanitary Sewer Systems (Not Combined Systems)
Applicability in 8th Circuit?

BOTTOM LINE

EPA Keeps Stating that it is not Prohibiting Blending Outside of the 8th Circuit
States can Approve Blending
CSO's: Blending Approved Under CSO Policy

MS4 PERMITTING

- The Age-Old Question: What is MEP?
- MEP Intended to Provide Flexibility
- EPA/State Dearth of Regulations
 - Small MS4'S: At Least Have Some Minimal Regulations Beyond Permit Application Requirements
- EPA Guidance Regarding What Others Have Done
 Lawsuits: e.g., Tennessee Now Required to Promulgate Regulations

MS4's

CURRENT APPEAL OF EPA'S MS4 PERMITS

- Appeal of New Hampshire and Massachusetts MS4 Permits
 - NH MS4 Permit Issued by EPA
 - MA MS4 PERMIT ISSUED BY EPA/STATE
 - Appeals in Federal Court of Appeals (D.C. Cir.)
 - Mediated
 - Settlement Public Noticed
 - Draft Permit Modifications TOMORROW!

CRR RAISED ISSUES COMMON TO MANY STATE MS4 PERMITS

MEP vs. WQ
"Cause or Contribute"
60-Day Compliance for Meeting WQS
Unilateral Permit Modification
Enhanced BMPs FOR TMDL/§ 303(d) Limited Waters

CWA AMENDMENT PROVIDES FOR INTEGRATED PLANNING

- Water Infrastructure Improvement Act of 2018 (<u>H.R 7279</u>) – signed into law January 2019.
- Adds new IP CWA § 402(s)
- Incorporates by Reference EPA's June 5, 2012 Integrated Planning Framework.
- Provides Teeth to the Process.
- Allows for Sequencing and Prioritizing most Important Projects.

CAN INCLUDE ALL CWA REQUIREMENTS

- May Integrate all Requirements under the CWA, Including Requirements related to:
 - Municipal Stormwater Discharge
 - CSO
 - CMOM Program for Sanitary Sewers
 - Municipal Wastewater Discharge, and
 - WQBELs to Implement a TMDL WLA

NUTRIENT LIMITS IN NPDES PERMITS

KENTUCKY NUTRIENT STANDARDS

401 KAR 10:031. Surface water standards
 – Section 1. Nutrient Criterion.

Nutrients Shall not be Elevated in a Surface Water to a Level that results in a Eutrophication Problem.

 Section 2. Minimum Criteria Surface Waters shall not be Aesthetically Degraded by Substances that:
 (c) Produce Objectionable Color, Odor, Taste, or Turbidity
 (e) Produce Undesirable Aquatic Life or Result in the Dominance of Nuisance Species.

TENNESSEE NUTRIENT STANDARDS

- Chapter 0400-40-03 General Water Quality Criteria
- Rule 0400-40-03-.03
 - (k) Nutrients
 - Waters shall not Contain Nutrients in Concentrations that Stimulate Aquatic Plant Growth to the extent that Aquatic Habitat is Substantially Reduced and/or Biological Integrity fails to meet Regional Goals.
 - Interpretation of this Provision may be Made using the document Development of Regionally-based
 Interpretations of Tennessee's Narrative Nutrient
 Criterion and/or other Scientifically Defensible Methods.
 (h) Same as Above for Protection of Recreational Uses.

TAKE AWAY MESSAGE

No Numeric Nutrient Criteria
Narrative Interpretation Required
Cause and Effect Demonstration Necessary
Linkage to Use Impairment

Eutrophication Problem ?
Objectionable Color, Odor, Etc. ?
Undesirable Aquatic Life ?
Aquatic Habitat Reduced/Biological Integrity Fails

40 CFR 122.44(d) APPROACH

- Interpreting Narrative Standards
 - Examine Relevant Site-Specific Information
 - Determine Nutrient Concentration that will Prevent Eutrophication, considering several (Appropriate) Indicators and Published EPA Criteria Documents
 - Confirm Nutrient Concentration that will Protect the Resource at Issue.
 - Calculate the Applicable Limitation based on Numeric Criteria.

USEPA RECOMMENDATIONS FOR IMPLEMENTING NUTRIENT CRITERIA

- Pick Proper Response Threshold (e.g., Nuisance Algal Level)
 - i. Direct Link to Use Impairment
 - **ii.** Anticipated Nutrient Level to Prevent Nuisance Condition
- Use Growing Season Application
- Focus on Limiting Nutrient

 Account for Actual Receiving Water Response considering Confounding Factors (turbidity, shading, habitat, etc.)

Using Stressor-response Relationships to Derive Numeric Nutrient Criteria

USEPA CONCEPTUAL MODEL



Take-Away Observations

Nutrients do not Directly Cause Use Impairments

Multiple Factors Influence whether Excessive Plant Growth will Occur in Response to Nutrients

TYPICAL ISSUES

Lakes – Relatively Straightforward

- No Shading
- Lots of Detention Time
- But (Natural vs Reservoir; Shallow vs Deep; Colored Water)
- Stream and Rivers Highly Variable
 - Nutrient Form (Total, Dissolved, Ortho-P)
 - Shading
 - Travel Time
 - Scour (Storm Flows)
 - Phytoplankton, Periphyton

CHLOROPHYLL RESPONSE IN LAKES



Figure 1-37. SCI versus Ln(TN), 2006–2011 data, relationship for all regions combined. Linear fit is shown. Panhandle West: pink closed circle, pink line; Panhandle East: green open triangle, green line; Peninsula: black closed square; North Central: red open diamond, red line; West Central: gray closed diamond, gray line.

PERIPHYTON GROWTH ON CLARK FORK RIVER, MONTANA - 2009



 $TP = 18 \mu g/L$ (Median) in All Locations



JACKSON RIVER, VA: POST-TP REDUCTION IMPACT

Jackson River, VA - 2001, 2006 Growing Season Average Periphyton Data for Stations up to 15 miles below Point Source



REFERENCE STREAMS ANALYSIS OF TP IMPACT ON MMI



No Difference between MMI Response Above and Below Anchor Point. Should Conclude that TP is Not a Stressor for MMI.

CYANOTOXIN CRITERIA

Table 2-1. WHO (2003b) Recreational Guidance/Action Levels for Cyanobacteria, Chlorophyll *a*, and Microcystin

Relative Probability of Acute Health Effects	Cyanobacteria (cells/mL)	Chlorophyll a (µg/L)	Estimated Microcystin Levels (µg/L) ^s
Low	< 20,000	< 10	< 10
Moderate	20,000-100,000	10-50	10-20
High	>100,000-10,000,000	50-5,000	20-2,000
Very High	> 10,000,000	> 5,000	> 2,000

^a WHO (2003b) derived the microcystin concentrations from the cyanobacterial cell density levels.

EPA Recommendations			
Microcystins	8 µg/L		
Cyanobacteria	40,000 cells/mL		

SAB RECOMMENDATIONS ON HOW TO SET NUTRIENT TARGETS

For criteria that meet EPA's stated goal of "protecting against environmental degradation by nutrients," the underlying causal models must be correct. *Habitat condition is a crucial consideration in this regard (e.g., light [for example, canopy cover], hydrology, grazer abundance, velocity, sediment type)* that is not adequately addressed in the Guidance.

Numeric nutrient criteria developed and implemented without consideration of system specific conditions (e.g., from a classification based on site types) can lead to management actions that may *have negative social and economic and unintended environmental consequences without additional environmental protection*.

Science Advisory Board Recommendations on Stressor-Response Guidance (2010)

CONCLUSIONS

Nutrient Issues Complicated
 Need Scientific Analysis

 Typically Site-Specific
 Stressor (P,N) → Response → Use
 Must Link to Use Impairment (Adopted Criteria)



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