UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MEMORANDUM

DATE: January 13, 2011

TO: Tinka Hyde
Director, Water Division, Region 5

FROM: Deborah G. Nagle
Acting Director, Water Permits Division
Office of Wastewater Management

SUBJECT: 2008 Regional National Pollutant Discharge Elimination System (NPDES) Program Review for Region 5

EPA's Office of Wastewater Management, Water Permits Division is pleased to provide you with the findings of the 2008 Regional National Pollutant Discharge Elimination System (NPDES) Program Review conducted for EPA Region 5.

The enclosed report summarizes the discussions held during the EPA Office of Water NPDES Program Review, as well as the Permit Quality Review (PQR), conducted in preparation for the Program Review. These reviews cover topics across the NPDES program as they apply specifically to Region 5. We have included proposed action items for the Region and the States, based on discussions conducted during the Office of Water NPDES Program Review of Region 5 and the findings of the Permit Quality Reviews. These reviews also help EPA Headquarters (HQ) promote national consistency and identify areas where guidance and support is necessary.

The report includes a list of proposed Action Items to serve as the basis for ongoing discussions between Region 5 and your authorized States, as well as between Region 5 and EPA HQ. In order to facilitate these discussions, EPA HQ divided the proposed Action Items into three categories to identify the priority that should be placed on each Item:

- Category One - Most Significant: Proposed Action Items will address a current deficiency or noncompliance with a federal regulation.
- Category Two - Recommended: Proposed Action Items will address a current deficiency with respect to EPA guidance or policy.

- Category Three - Suggested: Proposed Action Items are listed as recommendations to increase the effectiveness of the State's or Region's NPDES permit program.

The Category One and Category Two proposed Action Items should be used to augment the existing list of "follow up actions" currently established as an indicator performance measure and tracked under EPA's Strategic Plan Water Quality Goals and/or may serve as a roadmap for modifications to Region 5 program management strategies. A complete description of the proposed Action Items is included in Section 4 of the report.

We believe the NPDES Program Review helped us to better understand the Region 5 NPDES program and identify strengths and opportunities for improvement for EPA HQ, Region 5 and its States.

Thank you for your cooperation and for the help of your staff in conducting the reviews, and in the development of the report and its findings. If you have any questions regarding this effort, please call me at (202) 564-9545 or Sharmin Syed of my staff at (202) 564-3052.

2008 REGIONAL NPDES PROGRAM REVIEW
EPA REGION 5

January 13, 2011

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1.0 INTRODUCTION

This report presents findings of a U.S. Environmental Protection Agency (EPA) Office of Water (OW) Regional National Pollutant Discharge Elimination System (NPDES) Program and Permit Quality Review (PQR) conducted for EPA Region 5 in March and April 2008.

On a rotating basis, the Office of Wastewater Management, Water Permits Division (WPD) at EPA Headquarters reviews Regional NPDES programs. Topics discussed during the review vary by Region, according to the needs and interest of the Region. EPA Headquarters reviews topics such as permit backlog, Priority Permits, Action Items, and watershed-based permits before the review. A large component of each review is the PQR, which assesses whether a State adequately implements the requirements of the NPDES Program as reflected in the permit and other supporting documents (e.g., fact sheet, calculations). In this report, an entire section is devoted to the results of that PQR.

Through the review mechanism, EPA Headquarters promotes national consistency, identifies successes in implementing the NPDES program, and opportunities for improvement in developing NPDES permits. EPA Headquarters can use the findings of the review to identify areas for training or guidance, and Region 5 can use them to help identify or assist States in determining any needed action items to improve their NPDES programs.

Region 5 oversees the NPDES Program for Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin. All the States are authorized to administer the NPDES Program; however, Illinois and Indiana are not authorized to administer the Pretreatment program.

The PQRs were performed during the third quarter of FY2008. WPD staff collected NPDES program information and permits from Regional and State staff, and a detailed PQR was performed for Illinois, Indiana, and Wisconsin in April 2008. WPD staff and managers traveled to Region 5 for the formal OW Water Regional Program Review on July 10 and 11, 2008

This report is organized as follows:

- Section 2—Region 5 Regional Review Overview
- Section 3—Permit Quality Review
- Section 4—Summary of Findings and Proposed Action Items

2.0 REGION 5 REGIONAL REVIEW OVERVIEW

Regional reviews assist in assessing the consistency and effectiveness of the Regional and State programs. The reviews also can include an analysis of the entire permitting workflow, progress on action items, progress on memorandum of understanding commitments or other legal arrangements, and progress on Government Performance and Results Act/Program Assessment Rating Tool measures.

The Region 5 NPDES Regional Performance Program Review explored several NPDES program accomplishments and issues, which are discussed briefly below.

2.1 Select Accomplishments

On the basis of the work conducted in preparation for the Regional program review, Region 5 deserves specific recognition for accomplishing the following:

- Region 5 is actively working with States to address Clean Water Act (CWA) section (§) 316(b) issues, hosting conference calls, and reviewing permits accordingly. In addition, the Region has had CWA §316(b) implementation meetings with its States to help ensure consistency.
- Region 5 has 87 facilities eligible for or actively trading water quality credits, covered under 41 permits.
- Region 5 is one of the most active Combined Sewer Overflow (CSO) Regions and has a team of permit and enforcement staff who work on CSO issues.
- Region 5, with EPA Headquarters, has developed a draft stormwater *Total Maximum Daily Loads (TMDL) Handbook*, following a study of 17 TMDLs nationwide addressing stormwater and how other States deal with stormwater and TMDLs.

2.2 Permit Issuance Status

2.2.1 Priority Permits

Region 5 exceeded the FY2007 goal of 95 percent for priority permit issuance. However, there is some concern that only about 10 percent of backlogged permits were designated as priority, when the national average is 20–25 percent. Under the expanded definition of priority permits, Region 5 should be able to designate more permits as priority.

According to Region 5, the additions of general permits and TMDLs to the universe have made the priority permit process difficult. The changing universe has been a challenge in terms of meeting priority permit issuance goals.

2.2.2 Backlog

The issuance of general permits in Ohio and Minnesota has helped in reducing backlog in the two States. However, Ohio had a 19 percent backlog (81 percent permits current) during

FY2008. Indiana backlog has improved greatly, and Region 5 is working with the State on a few remaining industrial permits. Indiana has committed to providing an opportunity for the Region to review permits before public notice. However, many Region 5 States are facing resource issues, which could affect their backlog rates in the future. Region 5 has committed that its review process will not slow down the State permit processes, unless specific concerns with reviewed permits are discovered.

2.2.3 10-Year Expired Permits

Wisconsin has two permits expired greater than 10 years, both have thermal discharge issues that must be addressed. The State is making progress in developing thermal water quality standards (WQS), which will allow the permit issuance to proceed. The Wisconsin permits should be scheduled as priority 2 years from now. Indiana has one permit that has been expired for more than 10 years; EPA has objected to the permit.

2.3 Antidegradation

Indiana, Wisconsin, and Minnesota are in the process of rewriting their antidegradation rules. Environmental groups in Region 5 have raised concerns that the decision-making process—on the basis of existing rules in Minnesota and Wisconsin—is too subjective or that the review is not being done. Region 5 has encouraged States to clearly document antidegradation decisions in permit fact sheets.

Michigan has denied some permits because of antidegradation issues, including a recently denied Concentrated Animal Feeding Operation (CAFO) permit. Illinois has had permit appeals because of antidegradation as well.

All States express concern about the subjective nature of their antidegradation rules and lack of detailed EPA guidance. Indiana, Minnesota, and Ohio are in the process of revising their antidegradation rules. Indiana Department of Environmental Management (IDEM) is seeking public comment on its draft antidegradation rule and meets regularly with an external workgroup to discuss issues involved in antidegradation rulemaking. Minnesota Pollution Control Agency (MPCA) published a series of issue papers on antidegradation topics (referred to as nondegradation in Minnesota), conducts regular stakeholder meetings, and developed a timeline for rule revision. MPCA anticipates that its revised nondegradation rule will be approved by December 2011. Ohio EPA (OEPA) has issued draft revisions to its antidegradation rule. The end of the public comment period on this draft will be timed to coincide with other Ohio WQS rulemaking activities including a draft rule addressing mitigation requirements on streams.

Illinois Environmental Protection Agency (Illinois EPA) is implementing antidegradation with no immediate plans to revise its antidegradation rule, approved in 2002. Michigan legislation prohibits Michigan Department of Environmental Quality (MDEQ) from adopting new water quality rules, including antidegradation. The prohibition went into effect on 12/31/2006 and MDEQ hopes to see it rescinded. Wisconsin Department of Natural Resources (WDNR) is having internal discussions for antidegradation rule revisions.

2.4 Wet Weather

2.4.1 Sanitary Sewer Overflow (SSO) Program and Peak Flows

WDNR is in the process of reissuing the permit for the Milwaukee Metropolitan Sewerage District. The previous permit allowed for internal diversions under certain circumstances, consistent with EPA's then-draft Blending Policy. The Region and State are discussing how to reconcile conditions in the reissued permit with the bypass prohibition.

Illinois has permitted excess flow outfalls in publicly owned treatment works (POTW) permits, including those served by separate sanitary sewer systems. The excess flow outfalls are allowed to discharge only when the main outfalls are receiving their maximum practical flow. The limits for these outfalls are concentration-based, 30 milligrams per liter (mg/L) monthly average for biochemical oxygen demand (BOD) and total suspended solids (TSS). The secondary treatment regulations at Title 40 of the *Code of Federal Regulations* (CFR) Part 133 have no 85 percent removal requirements for BOD and TSS.

2.4.2 Combined Sewer Overflow (CSO) Program

With regard to CSOs, a barrier for States has been setting defensible endpoints for CSO control. Affordability could become a problem.

Region 5 is working on CSO and long-term control plan (LTCP) issues, particularly in Wisconsin and Indiana. In Wisconsin, Milwaukee Metropolitan Sewerage District operates a tunnel system, completed in 1994, and designed to have two to three overflows per year. The Jones Island treatment plant uses blending during certain wet weather. The WQS are based on geometric mean values and 10 percent exceedance values. The waterbody is impaired, and the overflows could contribute to the impairment, despite a high level of control.

Indianapolis will submit a use attainability analysis and propose a standards change to deal with the few CSO events that will still occur even after implementing the LTCP. Region 5 and IDEM are considering if any conditions should be imposed in conjunction with action on the request for a standards change.

2.4.3 Stormwater Program

Region 5 has received requests for guidance from States regarding water quality conditions appropriate to stormwater discharges, particularly municipal separate storm sewer systems (MS4s), including water quality-based effluent limits (WQBELs), antidegradation requirements, and monitoring. Region 5 is working with its States on how to address antidegradation. Region 5 has put forward an idea for addressing antidegradation for MS4 permittees that have new or increased discharges as growth and development takes place; the Region presented the idea at the 2009 SWiMS conference

Monitoring might be necessary to evaluate the effectiveness of the program. Region 5 worked with IDEM to develop a fact sheet on monitoring and evaluating the effectiveness of MS4 stormwater programs, using a Region 3 fact sheet as a model. The requirement to evaluate the

effectiveness of the program is from a 2002 EPA memo from Bob Wayland and Jim Hanlon on TMDLs and stormwater permits.

The need for additional tools and guidance regarding the implementation of waste load allocations (WLAs) and WQBELs for stormwater discharges was also discussed. The National Academy of Science's review of the stormwater program could help identify improvements in program regulations, models, and so on. Region 5 is working on three pilot projects to develop TMDLs for waters impaired due to stormwater discharges and to identify the stormwater best management practices (BMPs) that would need to be implemented to meet the TMDL WLAs.

In addition, the Region is dealing with local water quality needs with its Stormwater General Permits, identifying BMPs for load reduction and addressing them in TMDLs. One approach might be to enhance language in the TMDL as an adaptive management approach. In conjunction with work on the *TMDL/Stormwater Handbook*, Region 5 and its States are working on procedures and language to knit together TMDLs and permits; Wisconsin has developed draft guidance for TMDL and NPDES staff specifically on this topic, and Minnesota has a number of policy and procedures documents completed or in process that also address the issue. Region 5 is looking at TMDL implementation as an important aspect of permit reviews.

2.5 Whole Effluent Toxicity (WET)

Illinois uses WET monitoring data to determine the need for toxicity identification evaluations/toxicity reduction evaluations (TIEs/TREs), used to identify the pollutants causing toxicity. Illinois has narrative aquatic life protection criteria, which uses TIE/TRE data to identify pollutants of concern before permit issuance; chemical-specific limits are then included in the permit, eliminating the need for a WET limit. That is allowed under NPDES regulations where narrative WET criterion exist and the chemical limit results in the reduction, abatement, or elimination of toxicity, such that the State WQS are not exceeded when reasonable potential analysis (RP) is completed [40 CFR 122.44(d)(v)]. That analysis should be documented in the permit's fact sheet or statement of basis. TIEs/TREs are studies, not controls or limits, and should not be used in lieu of WET limits where RP has been demonstrated. There is agreement with the State for an action item to be developed containing a schedule for the State to develop RP procedures and requirements, compliant with CWA and NPDES regulations at 40 CFR 122.44(d)(ii).

Wisconsin implements WET RP by applying a failure rate that allows some toxicity to be demonstrated, yet not result in a permit limit. EPA disapproved that rule and over-promulgated procedures in 40 CFR 132, appendix F.6 for discharges in the Lake Superior and Lake Michigan basins. The State has implemented the over-promulgation, citing insufficient legal authority to do so. Wisconsin law prohibits putting WET limits into NPDES permits where WET RP has been demonstrated. The longstanding issue remains unresolved because of this legal authority problem. Region 5 has not requested States change their laws to provide the appropriate legal authority.

2.6 Withdrawal Petitions

Three withdrawal petitions for Region 5 had been filed at the time of the Regional Review—in Indiana, Michigan, and Illinois. In Indiana, a petition was filed regarding two allegations that Indiana's NPDES program lacked (1) requisite federal standing requirements for appeal of NPDES permits, and (2) authority to enforce EPA's CSO policy. Region 5 proposed a response to the petition and submitted it to EPA Headquarters in January 2008. Region 5 has not received concurrence and final approval.

In 1999, Sierra Club petitioned EPA to withdraw Michigan's NPDES program because of an alleged failure to implement the program for CAFOs. Since then, the State has developed and is implementing a high quality program for CAFOs and has a high rate of permit issuance. EPA informed the petitioners in July 2009 that it was not planning to take any further action to withdraw the Michigan NPDES program because of improved authorities and implementation of the CAFO program.

In March 2008, a citizen's group petitioned EPA to withdraw Illinois' NPDES program on the basis of its alleged failure to implement the program for CAFOs. Region 5 developed a review protocol and has performed file reviews at two State offices. Following visits to additional State offices, the Region will prepare draft report.

2.7 Clean Water Act §316(a) and (b)

§316(a): Variances must be clearly documented every 5 years. Region 5 has been working on this with States to assure that is done when permits are reissued, and can request Headquarters assistance on specific §316(a) related issues.

§316(b): Region 5 has been a leader in addressing cooling water intake issues for all regulated facilities. One of the objections to the US Steel permit related to the absence of §316(b) provisions. Headquarters appreciates the Region's work. Region 5 is working with States to agree on approaches for addressing §316(b) in permits. That has been delayed by recent rulings in the Second Circuit and Supreme Court on the Phase II rule.

Region 5 has been reviewing an increased number of permits recently and has revamped its review process and review checklists. Many permit applications lack information regarding the design and construction, including screens, of intake structures and the impingement and entrainment effects. That must be assessed to determine if the structure is constructed and operated to minimize adverse environmental effects.

2.8 BP Whiting Permit, Indiana

The BP Permit in Indiana was unique in that there was a great deal of public participation in the permit issuance/appeals process, when limits were changed because of an upgrade to the oil refinery to allow increased levels of ammonia to be discharged into Lake Michigan. Press coverage of the permit, although not always accurate, raised a number of questions about Indiana's permitting program in general and helped increase public knowledge of the facility and permitting program. Because of public pressure, the company ultimately committed to meeting

its previous limits. That demonstrated the importance of public opinion in influencing the actions of the regulated community. Through that permit, Indiana recognized the need for improved fact sheets and better outreach.

3.0 PERMIT QUALITY REVIEW

PQRs are an evaluation of a selected set of NPDES permits to determine whether permits are developed in a manner consistent with applicable requirements established in the CWA and NPDES regulations.

EPA's Region 5 PQR consisted of two components—a core review and a topic-specific review. The core review focused on core permit quality and included a review of the permit applications, limits, monitoring requirements, special conditions, standard conditions, correspondence, documentation, administrative process, and other factors.

Topic-specific reviews target components or types of permits. The scope of a topic-specific review is determined in consultation with the Region and States on a case-by-case basis. Region 5 topic-specific reviews focused on the following areas: mercury methods/limits; discharges to impaired waters; TMDL implementation; use of *Escherichia coli* and enterococcus standards; antidegradation and use of mixing zones; implementation of CWA §316(a) and (b); stormwater permitting; implementation of LTCPs for combined sewer overflows (CSOs); sanitary sewer overflows (SSOs); implementation of CAFO requirements; implementation of WET; and pretreatment.

EPA has conducted NPDES PQRs since the mid-1980s and has revisited the review process periodically. The PQRs are done in an effort to promote permit quality to ensure a reasonable degree of national consistency with regard to core program requirements. Such reviews also serve to ensure that NPDES permits keep pace with developments in the NPDES program. Information developed during PQRs serves to inform broader regional reviews being conducted by EPA Headquarters. Section 4 of this report identifies recommended action items.

The Region 5 PQR consisted of the following: a comprehensive core permit review in Illinois, Indiana, and Wisconsin to provide an overall review of a sample of NPDES permits, and a topic-specific review of a sample of permits from all six Region 5 States to assess specific areas of concern. Information gleaned from the Region 5 PQR will help guide discussions regarding making the permitting process more efficient. The results of the PQR also will serve as a mechanism to provide information on the integrity of the NPDES Permit Program and to promote national consistency, in accordance with EPA's Permitting for Environmental Results initiative.

Details of the Region 5 PQR process and review results are provided below.

3.1 Core Permit Reviews

EPA conducted comprehensive core reviews with on-site visits in Illinois, Indiana, and Wisconsin. The review team consisted of EPA Headquarters, Regional, and contractor personnel.

The core permit review process involves evaluating selected permits and support materials using basic NPDES program criteria. Reviewers complete the core review by examining selected permits and supporting documentation, assessing those materials using basic PQR tools, and

talking with permit writers regarding technical questions related to the permit development process. The following tools were used during the review and are attached in Appendices A and B, respectively: (1) Central Tenets of Permitting (developed during the 2000/2001 PQR); and (2) Checklist for Municipal and Industrial Permits (developed during the 2000/2001 PQR and revised in 2008). Material reviewed as part of the Region 5 core review included NPDES permits, State WQS (including mixing zone provisions, bacteria standards, mercury standards and methods, and RP procedures), and various State permitting policy and guidance documents. In addition, discussions with Region 5 and State staff addressed a range of topics including program status, the permitting process, relative responsibilities, organization, and staffing.

The majority of the permits were chosen randomly from a list of permits issued after December 31, 2004, to ensure a review of recently issued permits. The remaining permits were selected on the basis of discussions with State and Region 5 staff, with an effort to primarily include major facilities, with an equal distribution of industrial and municipal permits. For the core review, the team reviewed 18 permits—6 each from Illinois, Indiana, and Wisconsin.

3.1.1 Illinois

Illinois EPA operates a central office and seven regional offices. The central office issues all NPDES permits. State regional offices support permit development and issuance by providing information about dischargers and environmental conditions, and they support permit implementation by conducting inspections and performing other duties. Illinois is not authorized to implement the Pretreatment Program, but Illinois EPA works with Region 5 to implement the program. Approximately 46 POTWs have pretreatment programs, and Illinois EPA permits include relevant pretreatment requirements.

Illinois EPA has issued permits to approximately 2,350 permittees. Of those permits, 268 are for major facilities, and 1,250 are individual permits for minor facilities. Approximately 664 entities are covered under eight Illinois EPA general permits. A separate group in Illinois EPA also has issued approximately 149 sand and gravel permits. With regard to stormwater permits, Illinois EPA has issued 5,894 construction permits, 2,688 industrial stormwater permits, and 457 MS4 Phase II permits. The State has issued approximately 60 coal mine permits, which are developed by permit writers in a separate mining program in Illinois EPA. Currently 21 staff support NPDES permitting, although full staffing would constitute 28 full-time people.

Permit Development and Issuance Process. For existing facilities, Illinois EPA sends out a 270-day notice (including an application—the State uses EPA's application forms) and a 180-day notice indicating that a permit renewal is coming due. Illinois EPA has also received numerous new facility permit applications. In general, Illinois EPA is made aware of new municipal facilities from loan applications and construction permit requirements and encourages the facilities to submit permit applications with engineering reports and facility plans. For new industrial facilities, not as much is known until an application is submitted. A list of new facilities is generated each month.

Upon submittal, the records unit logs the permit applications into the State's tracking system, then sends them to a permitting engineer. Initially, the engineer performs a completeness review and sends an incomplete notice, if needed. Permit development workload is balanced by

assigning minor permits on a rotational basis, while assigning major permits to specific staff to promote familiarity with the larger, more complex facilities. Illinois EPA is working to ensure that permit expiration dates are distributed evenly across the typical 5-year permit term. Doing so will balance the permit development workload for State staff (i.e., 20 percent of renewals each year). As distributed now, permits tend to come up for renewal in large groups, exceeding staff capacity. Illinois has a permit backlog of about 13 percent. Illinois EPA does not issue permits on a watershed rotation basis. The State considered such an approach but determined that it wanted to retain flexibility to address dynamic changes within watersheds.

Permitting engineers coordinate with water quality staff by providing a memo and form indicating the analyses needed for each permit. In some cases, the permit writer can share a copy of the permit application with the water quality staff. The permit writer and water quality staff can work in parallel on aspects of the permit. Water quality staff members look at discharge monitoring report data, determine the applicable WQS, and conduct an RP analysis if warranted. The water quality staff members also conduct antidegradation analyses for new and expanding facilities. Information about the facility is provided by the permit writer. Once technology-based and water quality-based limits are calculated, the more stringent limit is put into the permit.

After a permit is drafted, a 15-day advance notice is provided to the applicant, compliance staff, U.S. Army Corps of Engineers, and State field offices. The purpose of the early notice is to eliminate surprises and ensure that nothing is missing in the permit. Subsequently, a public notice draft is published, and a 30-day public notice and comment period is provided. For major permits, notice is published in the local newspaper. All permit notices are posted on Illinois EPA's website, and Region 5 receives a copy of major permits. The permit writers then respond to major comments. If a hearing is requested and granted, a 45-day notice is provided, and a 30-day comment period is allowed. A permittee has 35 days to appeal a permit to the State's Pollution Control Board.

State effluent standards are in 35 IAC Subtitle C, Chapter 1, Part 304. State WQS are in Part 302.

Illinois Core Review Findings

The core review examined six Illinois NPDES permits. Overall, permit quality appeared to be good. Most of the issues identified were based on a lack of clear documentation, as discussed below.

Fact Sheet Documentation. Although fact sheets reviewed included useful information, they were brief and limited with regard to some topic areas. The fact sheets sometimes do not include a complete discussion of permit limits, including whether the limits are technology or water quality-based, discussion of allowed dilution or any regulatory mixing zones, discussion of the process for determining RP for a pollutant to cause or contribute to a water quality exceedance, and discussion of selection of the most stringent limits. In addition, fact sheets contain very little explanation of potential antidegradation and backsliding issues. The fact sheets reviewed generally specify the relevant receiving water classification; indicate whether the discharge is to an impaired water segment; and some note increases in flow, limits, and loads. That is useful information for understanding and evaluating a permit.

Secondary Treatment 85 Percent BOD and TSS Removal Requirements. For three municipal facilities (Wauconda, IL0020109; Dekalb, IL0023027; and Spring Valley, IL0031216), the 85 percent removal requirements for BOD and TSS are not in permits, although concentration limits in permits for CBOD5 and TSS are more stringent than federal secondary treatment concentration limits. BOD and TSS limits are 10 mg/L and 12 mg/L, respectively, for Wauconda and DeKalb permits and 20 mg/L and 25 mg/L, respectively, for the Spring Valley permit. Discussions with State NPDES staff indicated that the State has concluded that when stricter CBOD5 and TSS limits are applied, it is not necessary to include an 85 percent removal requirement because it is never exceeded. State staff indicated that the 85 percent removal requirement is used when federal secondary treatment limits are used (i.e., when BOD and TSS limits are 30/30 mg/L). That approach should be documented more clearly in the fact sheets.

Excess Flow Outfalls. For two municipal facilities (Wauconda, IL0020109; and Dekalb, IL0023027), some outfalls (e.g., A01) are Excess Flow Outfalls (used only when the main treatment facility is receiving maximum practical flow). The limits for outfalls are concentration-based only, require monthly averages only (i.e., no weekly averages), but reflect 30-day averages required by secondary treatment. Discussions with Illinois EPA NPDES staff members indicated that limits reflect irregular use of outfalls and are consistent with State regulations at 35 IAC Subtitle C, Chapter 1, Part 306.305; they have also previously been agreed to by EPA. When the SSO rule was being developed, Region 5 notified the State that the practice might need to change pending the outcome of the rulemaking; however, Region 5 has not discussed the issue with the State recently.

Documentation of Water Quality Report. The file documentation of the water quality report is limited in some respects. The memos in files tend to present only results of the analyses.

Documentation of No Reasonable Potential for Technology-based Limits. In reviewing some permits, it was not clear that in each instance where a technology-based limit was included in a permit that the limit was analyzed to ensure that it would be protective of water quality.

Use of Actual Flow for Establishing Industrial Limits. In one industrial permit, design flow or maximum flow is used to calculate limits rather than a reasonable measure of actual flow, as specified in federal regulations. Discussions with Illinois EPA staff indicate that flow was based on a court stipulation from several permit terms earlier, and the permit writer felt compelled to continue to base the limits on that value.

CWA §316(b) Requirements. Illinois EPA reduced its efforts and stopped addressing §316(b) after the Phase II rule court decision and EPA suspension of the Phase II rule. The Ameren Energy Grand Tower Station permit (IL0000124) does not include §316(b) requirements and it appears that the permit was issued before the State was adding §316(b) language in permits. For renewals and permit modifications, Illinois EPA will require the submittal of study data to support a best professional judgment (BPJ) determination. Most facilities have completed plans for information collection (PICs), and it appears that study information is generally equivalent to the comprehensive demonstration study requirements of the suspended rule. Future permits will require a comprehensive demonstration study within 6 months of permit issuance. Older permits will require a modification. In the Ameren permit, no study was completed despite a schedule in the permit. The permit and fact sheet include a single BPJ statement. Illinois EPA will replace

such language with new language once requirements are settled. State regulations at §306.201 require that new water intake structures on general use waters must be designed to minimize harm to fish and aquatic organisms.

3.1.2 Indiana

IDEM's NPDES program resides in the Office of Water Quality. IDEM operates a central office and three regional offices. All NPDES permits are issued from the central office, including general permits. State regional offices conduct inspection activities. IDEM is responsible for administering approximately 195 major individual permits, about 1,060 minor individual permits, and six nonstormwater general permits covering approximately 332 facilities. In addition, IDEM's Office of Land Quality administers the CAFO program; 655 CAFOs are in the State, of which 507 are covered by an NPDES CAFO permit (20 individual permittees and 487 general permit enrollees). The remaining 150 CAFOs are not covered by federal permit requirements; however, they are regulated by the State program.

The Office of Water Quality's permitting branch is composed of five sections: municipal, industrial, construction, administration, and modeling. Permitting staff members maintain a database to manage permitting information and track permit status, and they manually enter data into Integrated Compliance Information System. IDEM is in the process of implementing an enterprise-wide system (TEMPO), a new agency-wide unified database. TEMPO is in Phase I, and data from two programs (i.e., wetlands and drinking water) populate TEMPO.

Permitting assignments are prioritized by permit expiration date, although IDEM is considering a pilot program to reissue permits on a watershed basis. IDEM's NPDES permit backlog is about four percent. Each permit section develops and implements an action plan, and it staffs permitting assignments accordingly to ensure that the backlog remains low. IDEM conducts on-the-job training for new permit writers by assigning a senior permit writer to work with new permit writers and provide training. IDEM has experienced low turnover in recent years.

Permit writers send out renewal application request letters about 10 months before permit expiration. Upon receipt, the application is logged into a database and assigned immediately to permitting staff. IDEM permit writers use electronic templates to develop permit documents and administrative letters, and use spreadsheets to develop technology-based effluent limitations. IDEM permit writers submit requests for WLA development for certain parameters (including pollutants of concern), typically called an RP Evaluation (RPE). Water quality modelers develop the WLA reports, conduct modeling as necessary, and calculate WQBELs. For facilities within the Great Lakes Basin, IDEM develops WQBELs consistent with procedures in EPA's Final Water Quality Guidance for the Great Lakes System (40 CFR 132). For facilities outside the Great Lakes Basin, IDEM follows separate procedures that are similar to those at 40 CFR 132.

Separate IDEM staff members develop TMDLs. The TMDL section of the Watershed branch notifies permitting staff of approved TMDLs and provides recommendations for WLAs. Permit writers then incorporate requirements in the permit according to input from the TMDL staff. The most recent approved TMDL is for *E. coli,* and the permits reviewed contain effluent limitations for *E. coli*. Further, TMDLs are being developed for nutrients, and permit writers are including

monitoring requirements for nutrients to provide baseline information for consideration, upon approval of the TMDL.

IDEM sends all major permits to Region 5, where Regional staff review a portion of the permits received from the State. IDEM implements a 30-day period for public review and comment. For more complex permits, IDEM sometimes implements a 90-day period for review and comment. Generally, only permittees have submitted comments on draft permits; on occasion outside parties have submitted comments. In recent years, few permits have received appeals or progressed to final hearings.

State WQS are in 327 IAC, Article 2.

Core Review Findings

The core review was based on an examination of six Indiana NPDES permits. Overall, permit quality appears to be good. Significant findings regarding the permits are below.

Permit Application Data. Three POTW permits were examined as part of the core review. Two of the three applications reviewed do not require monitoring of all the parameters listed in Tables 1A, 1, and 2 in Part 122 Appendix J. Those two permit applications were submitted using Federal Standard Form A (Form 7550-22; OMB approval expired in 1988); the other POTW application was submitted using the Federal Form 2A (Form 3510; OMB approved January 1999). IDEM's website provides access to NPDES permit application forms; however, Form 7550-22 is provided as the municipal application standard form.

Secondary Treatment 85 Percent BOD and TSS Removal Requirement. POTW permits examined do not include appropriate *percent removal* limitations for BOD and TSS. Fact sheets for POTW permits lack any discussion of an alternative to percent removal requirements in 40 CFR 133. IDEM provided an internal memorandum (dated July 24, 1992) as an explanation to the omission of percent removal limitations. However, a review of 40 CFR 133 did not reveal any language to exclude percent removal requirements for BOD and TSS that supports the July 24, 1992, memorandum.

Use of Peak Flow for Mass-based Limits. POTW permits contain mass-based effluent limitations developed using peak wet-weather flows. POTW permits reference the State's CSO policy, which was reviewed. The methodology for developing mass-based effluent limitations using the peak wet-weather flow appears to be supported by State policy, although federal regulations provide that limits for POTWs are to be calculated on the basis of design flow [40 CFR 122.45(b)].

Documentation of No Reasonable Potential Analysis. The identification and RP of pollutants of concern is not always clearly documented. For most permits examined in the core review, the permit file reveals that the permit writer communicated with water quality modelers via a worksheet to perform RP for certain parameters. In one case (New Castle sewage treatment plant [STP], IN0023914), the permit writer requested RP for metals. RP was performed for all metals, and the results indicate that there was no RP for cadmium, chromium, copper, lead, nickel, and zinc. However, effluent limitations for cyanide were discontinued without documentation of the RP analysis.

Discussions with IDEM staff members indicated the New Castle permit was issued during a transition period with respect to cyanide testing (i.e., total cyanide versus free cyanide). IDEM staff members indicated that they have revised the RP methodology for cyanide and, as a result, the oversight should now be corrected in current permits. In addition, a review of the New Castle file indicated mercury was detected in all samples, but no RP was documented for mercury. A "back-of-the-envelope" RP analysis for the New Castle facility, performed by the review team, suggests RP exists for mercury to exceed water quality criteria.

3.1.3 Wisconsin

WDNR administers approximately 1,000 individual Wisconsin NPDES (WPDES) permits, including approximately 150 major permits and 900 minors. An additional estimated 1,500 dischargers are covered by 17 general WPDES permits issued for such categories of discharges as those from the nonmetallic mining industry and noncontact cooling waters. Complex industrial permits are prepared by WDNR staff in Madison, while the municipal and less complex industrial permits are prepared in five regional WDNR offices. All WDNR offices adhere to the same WPDES permitting rules and procedures. Approximately 20 personnel in the central and regional offices are responsible for permit writing and are supported by additional staff or limit calculators, who determine WQBELs for inclusion in each permit. The State is divided into three major drainage basins - the Lake Superior Basin, Mississippi River Basin, and the Lake Michigan Basin.

The permitting process begins approximately 12 to 15 months before expiration of a permit, when the WDNR alerts a discharger that an application for permit renewal will be expected. After an application is received, copies are provided to the central or regional office permit writer and to a limits calculator, who is responsible for developing WQBELs for the permit. The limits calculator prepares a memorandum that summarizes the relevance and basis for any WQBELs developed. The memorandum is reviewed before WQBELs are included in the draft permit. Draft permits undergo a peer review process (WDNR explained that it is developing a formal QA procedure) before public notice. Region 5 has developed a list of permits that it reviews during the public comment period. The Region has formally objected to some permit conditions, in particular with regard to limitations/requirements for temperature and chlorine. The Region has raised programmatic concerns regarding other provisions such as WET, and mercury and how they are implemented into permits. WDNR and Region 5 are addressing those independently of the PQR process.

In its WPDES permitting activities, WDNR relies on its SWAMP (System for Wastewater Applications, Monitoring, and Permits) database, which integrates discharger information, monitoring requirements and forms, monitoring data and permit documentation, permit deadlines, compliance schedules, pretreatment information, and permit templates. For permit writing, SWAMP is used to pre-populate draft documents with standard information. As a permit management tool, SWAMP has enabled WDNR to decrease its permit backlog from greater than 40 percent in 1993 to a level consistently near or below 10 percent today. SWAMP is partly Web-enabled which allows dischargers to electronically submit discharge monitoring reports.

Core Review Findings

The core review was based on examination of six Wisconsin NPDES permits, including supporting documentation from WDNR files. In general, these permits properly applied EPA's rules, guidance, and policy pertaining to NPDES permits and were consistent from permit to permit. WDNR has numerous permitting procedures in place, such as its extensive procedure, codified at NR 106, for determining the need for and, if necessary, calculating WQBELs. Such procedures help to ensure correctness and consistency in all permits issued by WDNR. The core review of Wisconsin permits resulted in the following findings.

Although the core review showed that permits issued by DNR are generally consistent with EPA requirements, certain issues recur in permits and reflect potential inconsistencies with EPA requirements. Those observations had been noted before the PQR review and are being addressed by WDNR and Region 5 independent of the PQR process. For completeness, the issues are included in the findings below.

Adoption/ Incorporation of USEPA Rules. WDNR does not incorporate by reference EPA's rules regarding NPDES permitting into its administrative rules. Instead, it appears that WDNR reproduces the applicable federal rules by writing them into Wisconsin Administrative Code. Unless the language of federal rules are transferred word-for-word into Wisconsin Administrative Code and constantly updated, the practice can result in real or perceived differences in meaning between EPA and WDNR NPDES permitting requirements. Some examples follow:

- Bypass. Differences exist between DNR rules regarding bypass, expressed at NR 110.15 and NR 205.07, and EPA requirements regarding bypass, established at 40 CFR 122.41 (m).
- Effluent Limitations Guidelines (ELGs). Rather than incorporate by reference technology-based ELGs established by EPA at 40 CFR 405–471, WDNR has written the requirements into the Wisconsin Administrative Code at NR 221—NR 297. By including the requirements in the Administrative Code, additions or changes to the requirements must be accomplished through State rule-making procedures. Such a method of implementing ELGs creates some risk that the text of federal regulations, especially amendments to established text, might not be fully incorporated into the Administrative Code or that significant lags can occur between additions/changes made by EPA and their incorporation into Wisconsin Administrative Code.
- Variance to 85 Percent TSS Removal Requirement. 40 CFR 133.103(c) allows a permitting authority to adjust the 85 percent removal requirement for TSS from POTWs [expressed at 40 CFR 133.102 (b)(3)] if waste stabilization ponds are the principal process used for secondary treatment and if operational data indicate that 85 percent removal cannot be achieved. The WDNR equivalent rule at NR 210.07 (2) also allows an exception to the 85 percent TSS removal requirement for waste stabilization ponds; however, it does not require a demonstration that 85 percent removal cannot be achieved. That difference was highlighted by review of Section 6.3.4 of WPDES Permit WI0030767 (Ashland Sewage Works), which allows a variance to the 85 percent TSS removal requirement, if conditions of NR 210.07 (2) are satisfied.

WET and Mercury. WDNR operates a robust permitting program for including effluent limits for WET into permits; those effluent limits are based on mortality for acute exposures and chronic or subchronic effects for long-term exposures. WDNR's WET RP procedures, however, are not fully consistent with 40 CFR 122.44(d) or 40 CFR 132, appendix F, procedure 6, and WDNR is not implementing an EPA over-promulgation [40 CFR 132.6(j)]. In practice, the State does RP analysis using both federal and state procedures. Where RP is found using both procedures or with the state procedure alone, the State implements the WET permit limit. In a small number of cases where the federal procedure finds RP not found by the State procedure, permits have been backlogged pending resolution of the conflict.

Elevated Temperature Discharges. Because of State court decisions, regulation of thermal discharges by WDNR has been inconsistent and difficult. In 2008 WDNR hoped to adopt revisions to its rules regarding standards for temperature and, by doing so, enable more consistent regulation of thermal discharges.

Chlorine. WDNR exempts regulation of chlorine in NPDES permits of certain discharges, although State WQS establish criteria for this pollutant. More specifically, WDNR rules at NR 106.10 say that WDNR cannot impose WQBELs for toxics in discharges of noncontact cooling water, when those toxics are introduced at a rate and quantity necessary to provide a safe drinking water supply. The regulation is difficult to apply (e.g., does the rule permit an indefinite violation of the WQ criteria for chlorine, without taking any steps to come into compliance? What, if any, are the acceptable periods and physical boundaries when/where WQ criteria can be exceeded? Is compliance ever required?). Moreover, because of nutrient content, elevated temperatures, and aerated conditions of cooling water systems, chlorine is typically applied at significantly higher rates to maintain control of microbiological activity in cooling systems as compared to potable water supply systems. Thus, it is unclear whether chlorine is ever introduced to a noncontact cooling water system "at a rate and quantity necessary to provide a safe drinking water supply." The Region has objected to the application of that provision in one NPDES permit, and the State has agreed to amend the rule.

Permit Documentation. Documentation of the permit development process does not always clearly provide complete explanations of permit provisions. In particular, fact sheets do not always completely address subjects of interest to third parties—parties other than WDNR and the discharger. Some examples are described below.

- Development of WQBELs: Permit documentation, including fact sheets, do not always include complete or clear descriptions of such information as what water quality data characterizing receiving waters was available and considered for development of WQBELs; §303(d) status of receiving waters; what universe of effluent data was available for determining the need for WQBELs and why attention was focused on particular pollutants of concern; and what information was available or what assumptions were made regarding mixing and dilution in the receiving water.
- Development of Technology-Based Limitations: Current fact sheets appear to focus on changes from previous permits; however, a brief description of the basis for limitations and requirements retained from previous permits is needed to help all parties understand permit requirements, particularly during subsequent permit cycles. The basis for effluent limitations for bacteria and phosphorous, for example, were typically not explained

(although an informed reviewer could determine the source of such limits.) And, in an industry as complex as the pulp and paper industry, the rationale for determining applicable subcategories of the ELGs is helpful for understanding applicable requirements.

- Stormwater and Pretreatment: In cases where stormwater from an industrial facility is addressed by a general permit, and when a POTW, because of treatment capacity or a lack of industrial dischargers, is not subject to pretreatment requirements, a statement in the fact sheet that explains the circumstances is not provided.

3.2 Topic-Specific Reviews

3.2.1 Mercury Methods

EPA's regulations require that measurements included on NPDES permit applications and on reports required to be submitted under the permit must generally be made using analytical methods approved by EPA under 40 CFR 136 (see 40 CFR 122.21(g)(7), 122.41(j), 136.1, 136.3, and 136.6). Four analytical methods for mercury in wastewater have been approved for use under 40 CFR 136: Method 245.1, Method 245.2, Method 245.7, and Method 1631E. Methods 245.1 and 245.2, approved by EPA in 1974, can achieve measurement of mercury to 200 nanograms per liter (ng/L). Method 245.7, approved March 12, 2007, has a quantitation level of 5.0 ng/L. EPA also approved Method 1631 Revision E in 2002, with a quantitation level of 0.5 ng/L. The sensitivity of Methods 245.1 and 245.2 are well above most State mercury water quality criteria adopted for the protection of aquatic life and human health, which generally fall in the range of 1 to 50 ng/L. In contrast, Methods 245.7 and 1631E do support measurement of mercury at sufficiently sensitive levels.

While several different methods are approved under 40 CFR 136 for the analysis of mercury, some methods have greater sensitivities and lower quantitation levels than others. An August 23, 2007, memorandum from James A. Hanlon to the Water Division Directors clarifies and explains that, in light of existing regulatory requirements for NPDES permits, only the most sensitive methods such as Methods 1631E and 245.7 are appropriate in most instances for use in deciding whether to set a permit limitation for mercury and for sampling and analysis of mercury pursuant to the monitoring requirements within a permit.[1] This portion of the review looked at analytical methods or quantitation levels specified for monitoring requirements in permits following promulgation of more sensitive methods and whether permits provide consideration of method quantitation levels for analytical methods approved by EPA under 40 CFR 136.

EPA examined two permits in each Region 5 State to determine whether justification for limits, monitoring conditions, and appropriate analytical methods are provided in the permit or fact sheet. In addition, another 13 permits for power generation facilities were reviewed, including 4 permits each from Illinois, Michigan, and Ohio and one permit from Indiana. No additional permits were reviewed for Wisconsin or Minnesota. Each of those permits was examined to determine whether justification for the limits, monitoring conditions, and appropriate analytical methods are provided in the permit or fact sheet.

[1] See *Analytical Methods for Mercury in National Pollutant Discharge Elimination System (NPDES) Permits*, at http://www.epa.gov/npdes/pubs/mercurymemo_analyticalmethods.pdf.

Mercury Methods Findings

Region 5 States have adopted low-level mercury criteria applicable to the Great Lakes Basin. In some States, those criteria apply statewide. Four States have adopted statewide mercury variance procedures.

Illinois: Two permits identified in Permit Compliance System (PCS) as containing mercury limits were reviewed. The permits were issued after publication of Method 1631E. Permit IL0004316, Southern Illinois Power-Marion Station, lists Method 1631E (or equivalent) as the analytic method but does d not include specific limits for mercury in the final permit. The fact sheet lists mercury as a *monitor only* parameter. The second permit, Ameren Energy Resources-Edward, IL0001970, also lists Method 1631E (or equivalent) as the method. However, the permit does not include any specific limits for mercury, and the fact sheet provides no explanation for the decision.

In addition, four permits for power generation facilities were reviewed for mercury limits. The permits for Midwest Generation- Joliet Station 29 (IL0064254), Midwest Generation LLC-Waukegan (IL0002259), Kincaid Generation LLC (IL0002241), and Midwest Generation LLC-Powerton (IL0002232) do not list mercury as a parameter in the permit or the fact sheet.

Indiana: Two permits identified in PCS as containing mercury limits were reviewed. The permit IN0020397, Scottsburg Municipal Treatment Plant, was issued after promulgation of Method 1631E. Both the permit and fact sheet specify use of Method 1631E, but neither includes mercury limits.

The other permit, Michigan City Generating Station, IN0000116, was issued after promulgation of Method 1631E. The permit and fact sheet list both mass-based and concentration-based effluent limits for mercury (daily maximum of 0.0064 lb/day and a monthly average of 0.0026 lbs/day; and a daily maximum of 3.2 ng/L and a monthly average of 1.3 ng/L. Method 1631E is specified.

In addition, one permit for a power generation facility was reviewed for mercury limits. Nipsco Rollin M Schahfer Generating (IN0053201) includes mercury as a limited parameter in the permit and lists Method 1631E and clean sampling methodology Method 1669. The fact sheet lists mercury and provides justification for monitoring requirements. Specific limits are listed for meeting water quality criteria and for effluent limits. The effluent limit monthly average is 0.05 micrograms per liter (µg/L), and the daily maximum limit is 0.11 µg/L.

Michigan: Two permits identified in PCS as containing mercury limits were reviewed. One permit, Grand Haven BL&P- JB Sims (MI0000728), lists Method 1631E as the analytic method but does not include specific limits for mercury. The fact sheet does not discuss a mercury limit. The second permit, Coopersville Wastewater Treatment Plant (MI0022730), also lists Method 1631E. Although no specific mercury limits are included, the quantification level for total mercury is listed as 0.5 ng/L, unless otherwise appropriate justification is submitted. The fact sheet identifies a limit for total mercury (daily maximum limit of 18 ng/L). No method or justification is listed in the fact sheet.

In addition, the team reviewed four Michigan permits for power generation facilities for mercury limits. One permit, D.E. Karn and J.C. Weadock Power Plant (MI0001678), lists mercury in both permit and fact sheet. Specific limits are in the permit for total mercury (beginning October 1, 2009): 12-month rolling average of 0.12 lb/day and 10 ng/L. Justification for monitoring requirements is addressed in the permit, with Method 1631E listed as the specific analytical protocol. The permit also includes a section on the Pollutant Minimization Program for Total Mercury. The fact sheet includes specific limits for total mercury: discharge weighted average of 1.95 ng/L, daily maximum of 3.3 ng/L, combined intake weighted average of 1.84 ng/L, daily maximum of 2.79 ng/L, net discharge weighted average of 0.11 ng/L, and daily maximum of 1.0 ng/L. The specific analytical methods are not included in the fact sheet.

Permit MI0001520, Consumers Energy Company- BC Cobb, does not list specific limits but says the analytical protocol should be Method 1631E. The permit also includes a section on the Pollutant Minimization Program for Total Mercury. Mercury is not addressed in the fact sheet. The Detroit Edison Company (MI0001686) permit includes a monthly maximum loading limit of 0.35 lbs/day and a monthly maximum concentration limit of 30 ng/L (both beginning 12/1/06). The permit also says that Method 1631E should be the protocol used for sampling and analysis and included a section on the Pollutant Minimization Program for Total Mercury. The fact sheet does not include any information about mercury. Permit MI0038172, Detroit Edison Belle River Power, does not address mercury in the permit or the fact sheet.

Ohio: Two permits were selected from PCS for Ohio because it appeared that they addressed mercury. The permit for City of Fremont, OH0025291, includes limits for mercury that become effective from month 40 of the permit term until expiration. The permit also includes a compliance schedule and potential variance. The fact sheet also discusses mercury criteria for mixing zones and for maintaining applicable water quality criteria. The permit includes justification for mercury requirements and lists Method 1631E. The second permit, City of Hubbard (OH0025810), does not include any mercury limits but specifies Method 1631E. The fact sheet includes Projected Effluent Quality (PEQ) for mercury, which is the estimated level of pollutant in an effluent, and is used as part of the process to determine whether water-quality based limits are needed.

In addition, the team reviewed four permits for power generation facilities for mercury limits. Permit OH0011533, Orion Power Midwest LTD Partnership, include both concentration and mass-based mercury limits (a concentration maximum of 2,200 ng/L and a monthly average of 12 ng/L; a daily loading of 0.033 kg/day and a monthly average of 0.0002 kg/day). The permit (June 2006) requires the use of Method 1631.

The second permit, WH Zimmer Generating Station (OH0048836), does not list any mercury limits but includes Method 1631E as the specific method. The fact sheet indicates why no water-quality based limits for mercury were included in the permit. It also discussed PEQ levels for mercury and included relevant water quality criteria. No specific methods are included in the fact sheet.

Permit OH0028762, General James M Gavin Power Plant, does not include specific limits or a method in the permit. The fact sheet indicates why no water-quality based limits for mercury are

included in the permit. It also discusses PEQ levels for mercury, and includes relevant water quality criteria. Method 1631E is included as the analytical protocol.

Permit OH0099538, Richard H Gorsuch Station, does not list any specific limits but includes Method 1631E or Method 245.7 as the specific analytical protocol. The permit is a minor facility and, therefore, does not have a fact sheet.

Wisconsin: Wisconsin requires use of test methods listed in State rule NR 219 for effluent monitoring. NR 219 does not incorporate 40 CFR 136, either directly or by reference. In 2009, the State amended its administrative rules to include all four mercury methods approved in 40 CFR 136.

3.2.2 Impaired Waters

Clean Water Act Section 303(d) requires States identify and establish a priority ranking for waters not attaining WQS (impaired waters) despite implementation of technology-based requirements. For such priority waters, States must establish TMDLs for pollutants causing impairments. The focus of the impaired waters review was to verify that permits and fact sheets acknowledge §303(d) status of receiving waters, and verify that impairing pollutants are being addressed in NPDES permits before TMDLs are completed. With regard to the findings below, note that in some cases a facility might discharge to a water segment that is impaired but may not discharge a pollutant of concern. Additionally, it is possible that an impairment was considered but that documentation is not included in the fact sheet.

For impaired waters, EPA examined eight permits, two from Indiana, two from Michigan, two from Ohio, and two from Wisconsin. The focus of the inquiry was to assess if and how each State considers impairment of a receiving waterbody when developing permit conditions.

Illinois regulations allow no mixing where the WQS for the constituent in question is already violated in the receiving water. Indiana's antidegradation regulations provide that where designated uses of a waterbody in the Great Lakes system are impaired, there may be no lowering of the water quality with respect to the pollutant or pollutants that are causing the impairment. Wisconsin's antidegradation regulations do not include a similar restriction.

Impaired Waters Findings

Illinois: The Granite City Regional STP (IL0033481) discharges to Chain of Rocks Canal. The fact sheet identifies the receiving water segment as being listed on the §303(d) list of impaired waters, for unspecified priority organic pollutants, sedimentation/ siltation, and TSS. It also indicates that sources of impairments are unknown. The permit includes limits for TSS and requires annual monitoring for 110 organic priority pollutants. The fact sheet includes no further discussion of impairments.

The NSSD Gurnee STP (IL0035092) discharges to Des Plaines River and Lake Michigan. The fact sheet identifies Des Plaines River as a §303(d) listed impaired water and indicates that impairments include total fecal coliform, PCBs, and mercury. It also indicates that sources of impairments are unknown. The permit includes seasonal fecal coliform limits, and the facility would not be expected to be a source of PCBs or mercury. The permit also requires annual

monitoring for mercury (plus other metals, and 110 organic priority pollutants). The fact sheet includes no further discussion of the impairments.

Indiana: The Ligonier Municipal STP (IN0023582) discharges to Elkhart River at a point that has been listed on the State §303(d) lists for 2002, 2004, and 2006 for *E. coli*, mercury, and PCBs. The fact sheet does not indicate whether the Elkhart River meets WQS or if the facility discharges into an impaired water. The permit includes a seasonal limit and monitoring for *E. coli* during from April 1 through October 31. That limit is based on 327 IAC 5-10-6(d). The fact sheet indicates that the permit includes a mercury sampling requirement (bimonthly sampling) for the term of the permit, and that such sampling is intended to determine if the facility has the RP to cause or contribute to an exceedance of water quality criteria.

West Lafayette wastewater treatment facility (WWTF) (IN0024821) discharges to Wabash River (Lower Wabash River and Kankakee River Basin) at a point at which IDEM considers as fully supporting its aquatic life use designation but not supporting its recreational uses because of *E. coli* contamination. The *Wabash River Nutrient and Pathogen TMDL Development*, final report was issued September 18, 2006, by Illinois EPA and IDEM. The permit for West Lafayette WWTF was issued January 12, 2006, effective February 1, 2006, before final approval of the Wabash River TMDL. The receiving water is designated for warm water species and is classified for general use, including protection of fish and aquatic life. Effluent limits are based on a WLA analysis performed by IDEM staff for ammonia-nitrogen in May 2002 and a WLA analysis for *E. coli* performed in October 2005. Limits are included for CBOD, TSS, Ammonia-Nitrogen, pH, TRC, *E. coli*, and mercury. Although the Wabash River is impaired for dissolved oxygen, monitoring is not being required in the permit because of the dilution afforded by the receiving stream.

Michigan: The permit provided for EPA's review of impaired waters (GM-Bay City Plant, MI0001121) expired October 1, 2006. A new permit was issued May 5, 2006. The plant discharges to Saginaw River, identified in 2000 as impaired for PCBs, TCDD (dioxin), and dissolved oxygen.[2] The 2002 §303(d) list also lists Saginaw River as impaired for mercury and dioxin but delists PCBs. As of January 2004, the entire Saginaw River watershed was not meeting WQS for PCBs according to fish tissue concentrations. The fact sheet does not reference any impairment of the receiving water, although WQBELs are included, as well as a Pollutant Minimization Program for total PCBs. No additional limitations are included for other pollutants of concern for Saginaw River.

Martin Marietta-MAGN SPEC, Inc. (MI0004154), discharges to Manistee Lake and Manistee River. The permit was issued April 6, 2006; the 2006 §303(d) list was not approved by EPA until June 5, 2006, so the applicable §303(d) list is the 2004 list. The 2004 §303(d) list includes Manistee Lake for PCBs and pathogens. It is not clear whether the discharge causes or contributes to any impairment; neither the permit nor fact sheet mention the receiving water (Manistee Lake or Manistee River) as impaired or on the §303(d) list. Limits and monitoring are not included for PCBs or pathogens in the permit.

[2] Michigan Department of Environmental Quality prepared a *Total Maximum Daily Loads (TMDLs) Year 2000 Section 303(d) Report*

Ohio: Aleris International, Inc., Construction/Alsco Metals Corporation (OH0003891-previously Owens Corning Metal Systems) discharges at river mile 4.43 to Walnut Creek in Pikaway County. The subsequent receiving water network is Scioto and Ohio rivers. The areas of Walnut Creek were listed as being in attainment for recreational use in 2004, but in the TMDL priority list 2006 report are listed as impaired for PCBs and bacteria. Since Ohio's 2006 TMDL priority list was approved by EPA on May 1, 2006, and is made available on OEPA Division of Surface Water's website, it should have been available before permit issuance. However, the fact sheet does not indicate that the receiving water is impaired or whether the discharge contributes to the impairment, and no limit or monitoring for PCBs is in the permit. The permit and fact sheet State that parameters are evaluated with respect to Ohio water quality criteria and examined to determine the likelihood that the existing effluent could violate the calculated limits.

The Bowling Green Municipal Facilities Water Pollution Control Facility (OH0024139) discharges to Poe Ditch at river mile 2.5. North Branch of Portage River is the subsequent receiving water. While Poe Ditch is not listed on the 2006 or 2004 §303(d) lists as impaired, the North Branch Portage River is on the 2004 §303(d) list as impaired by PCBs, which would have been the list applicable at the time of permit issuance. The 2004 report states that field monitoring will begin in 2008 and a TMDL is expected in 2010. Ohio WQS include aquatic life and use designations for waterbodies that cannot meet the CWA goals because of human-caused conditions that cannot be remedied without causing fundamental changes to land use and widespread economic impact. Dredging and clearing of some small streams to support agricultural or urban drainage is the most common of such conditions. The streams are given Modified Warmwater or Limited Use Designations. The permit discusses use designations for both Poe Ditch and North Branch of Portage River, and Poe Ditch has been designated as a Limited Resource Water. Neither the fact sheet nor permit discusses receiving water impairments of concern, and although the subsequent stream (North Branch of Portage River) is listed as impaired by PCBs, no limit or monitoring requirement is included.

Wisconsin: According to the fact sheet, the Fort Atkinson WWTF (WI0022489) discharges to Rock River (Koshkonong Creek Watershed, LR11 - Lower Rock River Basin) in Jefferson County. According to WDNR Proposed 2006 Impaired Waters List dated September 27, 2006, Rock River is designated as having a degraded habitat because of sediment and phosphorus. Phosphorus was a new addition in 2006. The 2004 §303(d) listing includes the segment of Rock River from Watertown to Lake Koshkonong, which is inclusive of Fort Atkinson WWTF, and would be applicable to the permit issued on June 29, 2006. It was designated as impaired by phosphorus, further causing a dissolved oxygen impairment and resulting in eutrophication. Monitoring and limits are included for phosphorus, although the fact sheet does not discuss whether the facility contributes to any impairment or §303(d) listing of Rock River.

Delafield Hatland Pollution Control wastewater treatment plant (WWTP) (WI0032026) discharges to Bark River, Lower Rock River Basin, Waukesha County. Bark River was listed on the 2004 updated Wisconsin §303(d) list for phosphorus (impairment dissolved oxygen) with a medium priority for stream miles 35–41. Bark River was classified as Category 5A: Impaired Waters without approved TMDLs, excluding those with impairments caused by atmospheric deposition of mercury. Bark River remained on the §303(d) list during 2006 updates, and the priority was changed to *high*—indicating the waterway will have a TMDL complete in 1–2 years. Mapping the facility and impaired stream on EPA's EnviroMapper for Water tool, it could

be determined that Delafield Hartland Pollution Control WWTP does not discharge to the segment of the stream that was impaired on either the 2004 or 2006 §303(d) listing for Wisconsin. Although the facility does not discharge to the §303(d)-listed impaired section of the Bark River, monitoring and effluent limitations are included in the permit and fact sheet for phosphorus. Additionally, the limit was reduced in concentration compared to the limit in the previous permit.

3.2.3 TMDLs

A TMDL is a calculation of the maximum quantity of a pollutant that may be added to a waterbody from all sources, without exceeding its applicable WQS. States must establish TMDLs for all impairing pollutants—pollutants that prevent waters from attaining WQS after implementing applicable technology-based requirements. Where a TMDL has been established for a waterbody, WQBELs must be consistent with assumptions and requirements of any wasteload allocation (WLA) for the discharge.

The focus of the TMDL review has been to verify that final TMDL requirements applicable to point sources are being implemented in NPDES permits. For the TMDL review, EPA examined seven permits—one from Illinois, two from Indiana, two from Michigan, and two from Minnesota.

TMDL Findings

Illinois: Bloomington/Normal Water Reclamation District (IL0027731) discharges to Sugar Creek, a tributary to Sangamon River in USGS Hydro Basin Code 07130009 and part of the Lower Sangamon River Watershed. In September 2005, EPA approved a TMDL titled *Regional Fecal Coliform TMDL on Salt Creek of Sangamon River and Lower Sangamon River Watersheds*. Salt Creek of Sangamon River Watershed is 1,182,633 acres, and contains impaired stream segments including Sugar Creek (EID 04) and others that are either partial or nonsupporting for primary contact use because of bacteria. Impaired segments were initially on the §303(d) list in either 1998 or 2002 as impaired for primary contact use.

In the TMDL, a WLA for each facility is based on the permitted water quality effluent of 400 colony forming units (cfu)/100 mL, multiplied by design flow (for facilities with an exemption, the WLA is based on WQS where the exemption no longer applies). Illinois EPA believes that the current permit limits are appropriate for each facility, although Illinois EPA noted that a number of facilities are exceeding permit limits and that it will be addressing the issue through its NPDES permitting and compliance program. Several facilities in the watersheds have received either seasonal or year-round exemptions from disinfection requirements, including Bloomington/Normal Water Reclamation District (TMDL indicates that it is a year-round disinfection exemption—the fact sheet indicates that disinfection is not required because the downstream segment is not suitable for primary recreation). As a result, the WLA specified in the TMDL for that facility is not specifically reflected in actual permit limits. The fact sheet states, “the stream segments receiving the discharge from the facility outfalls are on the §303(d) list of impaired waters. The following parameters have been identified as the pollutants causing the impairment: Total Nitrogen as N, physical habitat alterations, and Total Phosphorus.” Limitations and monitoring are included in reviewed documents for ammonia, nitrogen and fecal

coliform (fecal limit appears to be based on WQS and is effective 18 months after the permit becomes effective).

Murphysboro STP (IL0023248) discharges to Big Muddy River. The receiving water segment is impaired for atrazine, cadmium, dissolved oxygen, sediment, sulfates, TSS, pH, and fecal coliform. A TMDL that addresses manganese, sulfates, pH, and low dissolved oxygen was published September 2004. EPA approved TMDLs for manganese and sulfates for Big Muddy River on September 23, 2004. TMDLs do not include a WLA applicable to Murphysboro STP (the TMDL indicates that the source of the manganese and sulfates is abandoned mines).

Indiana: New Castle Municipal STP (IN0023914) discharges to Big Blue River. The permit was issued January 31, 2006, and became effective March 1, 2006. A TMDL addresses about 53.87 miles of Big Blue River watershed in Henry and Rush counties, Indiana, where designated uses are impaired by elevated levels of *E. coli* during the recreational season. New Castle WWTP has recorded violations of *E. coli* limits in the previous 5 years of review of the TMDL. However, according to IDEM's inspectors for each site, the upsets were primarily due to heavy rain events and subsequent flooding in and around Big Blue River. Since those incidents, the sites have not been consistently violating their limits, except during extreme weather conditions, and are not considered significant sources of *E. coli* to the Big Blue River.

In the TMDL, New Castle Municipal STP has an *E. coli* WLA because of having a sanitary component in its discharge. For the Big Blue River watershed during the recreational season (April 1 through October 31), the target level is set at the *E. coli* WQS of 125 colonies/100 mL as a 30-day geometric mean, based on not less than five samples equally spaced over a 30- day period. Any facility that has a sanitary component to its permit with total residual chlorine limits is changed to include *E. coli* WQS when the permit is renewed. The TMDL for Big Blue River was not applicable at the time of permit issuance, but the permit and fact sheet include *E. coli* limitations. A WLA was developed in March 2003 that translated WQS for *E. coli* into a specific effluent limitation of a daily maximum of 235 colonies/100 mL and an average monthly of 125 colonies/100 ml.

Richmond Sanitary District (William Edwin Ross WWTP, IN0025615) discharges to East Fork Whitewater River. The permit was issued January 12, 2006, and was effective February 1, 2006. A TMDL in its draft stages addresses approximately 73.96 miles of East Fork Whitewater River watershed in Wayne, Union, Fayette, and Franklin counties where recreational uses are impaired by elevated levels of *E. coli* during the recreational season. For the East Fork Whitewater River watershed during the recreational season (April 1 through October 31), the WLA is set at the WQS of 125 colonies/100 mL as a geometric mean based on not less than five samples equally spaced over a 30-day period. IDEM determined that applying the *E. coli* WQS of 125/100 mL to all flow conditions and with no rate of decay for *E. coli* is a more conservative approach that provides for greater protection of the water quality. Although the TMDL was not yet finalized, the permit and fact sheet indicate that the facility is a contributor to the *E. coli* impairment. Both documents include *E. coli* limitations as stringent as those included in the draft TMDL document.

Michigan: Ypsilanti Community Utilities Authority (YCUA) (MI0042676) discharges to Lower Rouge River. According to MDEQ, two TMDLs have been created in the years after the

reviewed permit was issued. The TMDLs are for *E. coli* and biota (both issued August 2007). The permit available for this facility expired October 1, 2006, and a more recent permit was not available at the time of review.

The flow of Lower Branch of Rouge River is dominated by YCUA under low- and dry-flow conditions. No other NPDES permitted facilities are expected to discharge during low- and dry-events; therefore, the entire WLA was assigned to YCUA. Sanitary wastewater discharges are considered in compliance with WQS of 130 colonies of *E. coli*/100 mL, if the permit limit of 200 fecal coliform/100 mL as a monthly average is met. The target for this TMDL is 300 *E. coli*/100 mL expressed as a daily maximum load and concentration from May 1 to October 31 (i.e., daily target). An additional target is 130 *E. coli*/100 mL as a 30-day geometric mean, expressed as a concentration (e.g., monthly target). The permit reviewed (issued before TMDL issuance), included a limitation for fecal coliform bacteria with a monthly maximum average of 200 cts/100 mL and a 7-day average of 400 cts/100 mL.

Commerce Township WWTP (MI0025071) discharges to an unnamed tributary of Seeley Creek (Drain), which is part of the Upper River Rouge watershed (assessment unit ID MI061305A). The permit was effective October 1, 2006. A TMDL for biota for the River Rouge watershed was completed September 1, 2007. The entire Rouge River watershed is addressed in the TMDL with the recognition that the listed TMDL reaches are affected by land use and stormwater within, and upstream from, the reaches. The TMDL designates a facility WLA for suspended solids of 1,400.0 pounds/day (daily load) and 511,000 pounds/year (annual load). The permit does not reflect that WLA because the TMDL was not applicable at the time the permit was issued. However, the permit include a TSS limitation more stringent than the WLA included in the TMDL (500 lbs/day monthly average and 750 lbs/day 7-day average). The fact sheet indicates that the TSS effluent limitation is based on the permit writer's judgment and not a draft TMDL.

Minnesota: Both Minnesota permits examined, Faribault WWTP (MN0030121) and Owatonna Municipal WWTP (MN005 1284), discharge to Straight River (Class 2B, 3B, 4A, 4B, 5, 6). The permits were issued and effective March 31, 2003; a more recent permit was issued for each facility on July 12, 2006, but was not available at the time of review. A 13-mile reach of Straight River that includes Faribault WWTP and Owatonna Municipal WWTP, from Rush Creek to Cannon River (AUID: 07040002-5 15), was added to the 2002 §303(d) list for fecal coliform. In 2002, MPCA submitted a report to EPA titled *Regional Total Maximum Daily Study of Fecal Coliform Bacteria Impairments in the Lower Mississippi River Basin in Minnesota*. In a June 2005 ruling on the legal challenge from MCEA, the United States District Court for Minnesota remanded the TMDL report to EPA for revision "in accordance with the requirements of the CWA and the regulations set forth there under." In January 2006, MPCA submitted to EPA the *Revised Regional Total Maximum Daily Load Evaluation of Fecal Coliform Bacteria Impairments in the Lower Mississippi River Basin in Minnesota Final Report* for approval. EPA granted approval of the revised TMDL April 5, 2006. According to requirements of the court order, the approach to the revised TMDL differs from the original. The original TMDL report sets source-specific fecal coliform reduction goals for the entire basin. The revised report establishes monthly fecal coliform WLAs for each impaired reach. Both permits reviewed included seasonal limits for fecal coliform. There is no indication in permits or fact sheets that fecal coliform limits are based on the finalized TMDL. However, both facilities contain a fecal

coliform limit of 200 MPN (most probably number)/100 mL as a calendar month geometric mean, which is consistent with the revised final TMDL for fecal coliform.

3.2.4 Use of *E. coli* and Enterococcus Bacteria Standard

In its *Ambient Water Quality Criteria for Bacteria - 1986* document,[3] EPA determined that *E. coli* and Enterococcus are the most reliable indicators of bacteria in surface waters and recommended that the two indicators serve as the basis for bacterial WQS. *E. coli* is recommended as an indicator criterion for fresh waters, and enterococci is recommended as an indicator criterion for fresh waters and marine waters.

The EPA-recommended recreational WQS for *E. coli* is based on two criteria: (1) a geometric mean of 126 organisms/100 mL based on several samples collected during dry weather conditions or (2) a single sample maximum based on designated use (e.g., 235 organisms/100 mL for designated beach). The EPA-recommended recreational WQS for Enterococci also is based on two criteria: (1) a geometric mean of 33 organisms/100 mL (fresh water) or 35 organisms/100 mL (marine waters), and (2) a single sample maximum based on designated use. EPA published approved test methods for *E. coli* and Enterococci in wastewater on March 26, 2007 (72 FR 14220), which were added to 40 CFR 136.

Illinois's WQS include standards for fecal coliform but not *E. coli*. However, Illinois has *E. coli* sanitary requirements for bathing beaches in its administrative code (Title 77, Ch.I, Subch. n, Sect. 820.400). Those standards affect only bathing beaches water. The standards provide for an initial sanitary survey based on at least two samples. Under the survey provision, fecal coliform bacteria counts of 200 colonies/100 ml or an *E. coli* density of 126 colonies/100 mL in one or more samples will require additional investigation, survey, special analysis and correction of any problems determined to be causing the high counts. The beach standards also provide operational standards. The operational standards provide that a fecal coliform count of 500 colonies/100 ml or an *E. coli* count of 235 colonies/100 mL in each of two samples collected on the same day will require closing the beach. They also provide that such exceedances in a single sample of a two sample set will require further sampling (as specified). The fecal requirements in Illinois WQS state that during May through October, based on a minimum of five samples taken over not more than a 30-day period, fecal coliform may not exceed a geometric mean of 200/100 mL, nor may more than 10 percent of the samples during any 30-day period exceed 400/100 mL in protected waters. At no time may the fecal coliform geometric mean, based on a minimum of five samples taken over a 30-day period, exceed 2000/100 mL. Illinois is subject to 40 CFR 131.41, bacteriological criteria for those States not complying with CWA §303(i)(1)(A). As a result, NPDES permits that address discharges to coastal recreational waters (including waters used for swimming, bathing, surfing and similar activities, including Great Lakes waters) should reflect the criteria in §131.41 unless the State has equal or more stringent requirements.

Indiana's WQS include limitations for *E. coli* and the coliform bacteria group as a whole. *E. coli* bacteria, using membrane filter (MF) count, may not exceed 125/100 mL as a geometric mean, based on not less than five samples equally spaced over a 30-day period, nor exceed 235/100 mL in any one sample in a 30-day period. The coliform bacteria group may not exceed 5,000/100 mL

[3] EPA 440/5-84-002, Jan. 1986.

as a monthly average value (either MPN or MF count); nor exceed this number in more than 20 percent of the samples examined during any month; nor exceed 20,000/100 mL in more than 5 percent of such samples.

Ohio has nuisance WQS for fecal coliform and *E. coli* that apply to all surface waters and are well above the respective federal bacteria WQS. (3745-1-04). In addition, Ohio has WQS for three recreational use designations: Bathing Waters; Primary Contact; and Secondary Contact. For waters within such designations, either specified State fecal coliform or *E. coli* standards must be met. State standards for Bathing Waters are consistent with respective federal fecal coliform and *E. coli* standards. State *E. coli* standards for Primary Contact and Secondary Contact waters appear consistent with federal criteria. However, State fecal coliform standards for Primary Contact and Secondary Contact waters appear to be less stringent than federal criteria. Note that a design standard for new sources discharging sanitary wastewater does mirror the federal standard for *E. coli*, but that is only a design standard. In addition, Ohio is subject to 40 CFR 131.41, which requires application of federal *E. coli* standards in coastal recreational waters (including the Great Lakes). Ohio issued an internal memo on November 9, 2005, regarding *E. coli* for direct Lake Erie dischargers based on the BEACH Act. The State has been incorporating *E. coli* limits into permits for Lake Erie direct dischargers; those limits become effective from 3 to 5 years from the effective date of the permit.

Michigan's WQS contain different *E. coli* standards for different classes of water, stating that total body contact recreational waters may not contain more than 130 *E. coli*/100 mL, as a 30-day geometric mean. Partial body contact recreation may not contain more than a maximum of 1,000 *E. coli*/100 mL.

Minnesota has standards that appear consistent with EPA's *E. coli* standards for all waters except limited resource value waters, with an *E. coli* standard not to exceed 630 organisms/100 mL as a geometric mean of not less than five samples, representative of conditions within any calendar month. Under State WQS, all recreational waters must not exceed 126 organisms/100 mL as a geometric mean of not less than five samples, representative of conditions within any calendar month. In addition, Minnesota is subject to 40 CFR 131.41, bacteriological criteria for those States not complying with CWA §303(i)(1)(A).

Wisconsin has yet to transition to establishing *E. coli* limits on the basis of its WQS, fecal coliform is still the bacteria determinant. *Wisconsin's Great Lakes Beach Monitoring and Notification Program Annual Report 2007*[4] indicates that under the State's beach monitoring program there are *E. coli* monitoring standards for recreational waters (levels are consistent with 40 CFR 131.41). Public notice is required in cases of exceedances, and beaches are closed when *E. coli* levels exceed 1000 cfu/100 mL. Under State WQS, the membrane filter fecal coliform count may not exceed 200/100 mL as a geometric mean based on not less than five samples per month, nor exceed 400/100 mL in more than 10 percent of all samples during any month. Wisconsin permits for discharges that affect the coastal waters of the Great Lakes are subject to 40 CFR 131.41.

[4] Shaunna M.Chase, 2007.

Select permits were reviewed to assess implementation of *E. coli* standards, some of which were issued by Region 5.

E. coli and Enterococcus Bacteria Standards Findings

Two permits from Indiana were reviewed, and both were consistent with State bacteria standards. Both permits reviewed, Carriage Estates WWTP, West Lafayette (IN0043273) and William Edwin Ross WWTP in Richmond (IN0025615), had identical permit language for *E. coli* limits. Outfall 001 for both facilities has final seasonal *E. coli* limits of 235/100 mL daily max, 126/100 mL monthly average, that apply from April 1 through October 31 annually, with the monthly average value calculated as a geometric mean. The permits reference that IDEM has specified methods as allowable for the detection and enumeration of *E. coli*.

Two permits for Ohio were reviewed, City of Ashtabula WWTP (OH0023914) and Lake County Board of Commissioners Wastewater Treatment Works in Madison (OH0036790). In both permits, the primary outfall has interim effluent limitations for fecal coliform, but not *E. coli.* Both permits include seasonal monitoring requirements for *E coli*, with final effluent limitations for *E. coli* effective November 1, 2010, consistent with federal criteria. The fact sheets state that fecal coliform will be phased out as a limit once *E coli* becomes a limit.

One Michigan permit was reviewed –Grand Traverse Band of Ottawa treatment facility in Suttons Bay (MI0054640). Outfall 001 has effluent limitations for *E coli* of 126/100 mL in a 30 day period, consistent with federal *E. coli* standards. The statement of basis indicates that this facility is in compliance with the new *E coli* standards that have been established by EPA.

One Minnesota permit was reviewed for White Earth Reservation Treatment Facility in Naytahwaush (MN0064165). Final effluent limitations in this permit include an *E. coli* limit of 126/100 mL during the summer months, consistent with the federal criteria.

Two Wisconsin permits were reviewed. City of Manitowoc WWTP (WI0024601) discharges to Lake Michigan. Outfall 001 has limits for fecal coliform of 400/100 mL weekly. The permit has a monitoring requirement for *E coli,* but no limit has been established. The fact sheet states that monitoring for *E. coli* is now required during May through September to complement beach monitoring efforts during the recreation season. That data will assist the permittee in dealing with public inquires regarding beach closings.

The second permit reviewed was for Superior Sewer Disposal System (WI0025593), which discharges to Nemadji River, St Louis Bay, and Lake Superior. Outfall 001, effluent from the main plant, has a fecal coliform limit of 400/100 mL sampled biweekly. In accordance with EPA federal water quality criteria for Great Lakes waters (40 CFR 131.41), the facility has agreed to sample for *E. coli*. The EPA criterion of 126/100 mL has not been included in the permit but will be used as a guide for the facility. Data collected will be used to determine if the existing disinfection is adequate and if a limit will be required during the next permit term. Year-round effluent disinfection is required because Lake Superior is a public water supply.

3.2.5 Antidegradation and Mixing Zones

Antidegradation and mixing zone regulations and policies were reviewed for Indiana, Illinois, and Wisconsin. Each has antidegradation regulations or policies in place in their respective administrative codes [Illinois: 302.105; Indiana: 327 IAC 2-1.5-4; Wisconsin: NR 102.05(1)], although each State expresses its requirements somewhat differently. Similarly, each State has mixing zone regulations that specify when mixing zones are appropriate [Illinois: 302.102; Indiana: 327 IAC 2-1-4; Wisconsin: NR 102.05(3)]. Indiana regulations prohibit the use of mixing zones in lakes in the Great Lakes basin, and Wisconsin limits such zones to 10 percent of a lake's total surface area.

Findings on Application of Antidegradation and Mixing Zones

The primary observation regarding antidegradation is limited documentation of the consideration of antidegradation requirements and decisions made pursuant to those requirements. For example, some Illinois permits indicate that antidegradation could be an issue but do not document whether such an analysis was necessary or completed:

- The Dekalb, IL0023027, fact sheet indicates the reissued permit increases limits and loads for ammonia nitrogen. It does not say whether an antidegradation analysis was completed. Discussions with Illinois EPA staff indicate State criteria changed but that loads did not change. A second permit (U.S. Steel, IL0000329) also included the changed criteria with no explicit discussion of antidegradation.
- The Wauconda, IL0020109, fact sheet says the permit will not increase load limits; however, it does not appear to consider the two phases of expansion, which increase mass load limits. Discussions with Illinois EPA staff indicate that an antidegradation analysis was conducted for the prior permit.
- The Ameren Energy Grand Tower Station, IL0000124, permit does not explain the basis for a TRC limit that is less stringent than the draft permit, and although a notice indicates an increase in loads from all three outfalls, the permit and fact sheet do not discuss antidegradation.

While Wisconsin fact sheets do not directly address antidegradation and antibacksliding, a careful review of other permit documentation revealed some consideration of the topics. Fact sheets should include a summary of the basis for the permit and refer to appropriate supporting documents.

Indiana permits presented both documentation and State requirements as issues. Two Indiana POTW permits authorize an increase in mass-based effluent limitations from the previous to current permit on the basis of the increase in peak wet-weather flow used. That potentially triggers antidegradation issues such as allowance of increased loadings to receiving waters; however, permits do not document any evaluation of antidegradation requirements. IDEM staff explained that rules that establish antidegradation implementation procedures exist only for the Great Lakes Basin. IDEM is developing antidegradation implementation procedures and a workgroup to facilitate rulemaking. IDEM expected that the final rule would have been adopted by December 2008, however, a second draft rule was published in late 2009, and comments were being considered in early 2010 (including EPA concerns) with a final rule expected in 2011. Antidegradation procedures would apply to situations where a new or increased discharge could

cause decreased water quality; for example, if a discharge load increases above a de minimis amount of the receiving water's assimilative capacity.

With regard to mixing zones, the most significant observation was lack of documentation. Fact sheets for all three States typically provide limited information regarding whether mixing zones were used in developing WQBELs. Illinois staff indicated that use of mixing zones is addressed in water quality reports developed to support permit issuance.

Region 5 NPDES and Water Quality Branches have undertaken a comprehensive review of antidegradation issues and implementation in Region 5, including examining how fact sheets are used and should be used to provide information about antidegradation decisions.

3.2.6 Thermal Variances & Cooling Water Intake Structures [CWA §316(a) & (b)]

Clean Water Act §316(a) addresses thermal variances from effluent limitations and §316(b) addresses impacts from cooling water intake structures. The goal of this permit review was to identify how the permitting authority incorporated §316 provisions into permit requirements.

The universe of potential NPDES permits for review was determined using EPA's PCS database and lists of facilities developed during rulemaking for the §316(b) Phase II and Phase III rules. EPA selected 19 permits for review (3 in Minnesota, 3 in Illinois, 3 in Indiana, 3 in Michigan, 3 in Ohio, and 4 in Wisconsin).

Note that as a result of litigation, on July 9, 2007 (72 FR 37107), EPA suspended the bulk of the Phase II §316(b) regulation and announced that, pending further ongoing rulemaking, permit requirements for cooling water intake structures at Phase II facilities should be established on a case-by-case, BPJ basis [see 40 CFR 125.90(b)]. In addition, facilities with cooling water intake structures not subject to a national regulation under §316(b) (e.g., manufacturing facilities) must also include permit requirements on a case-by-case, BPJ basis [40 CFR 401.14 and 125.90(b)].

Illinois: Three permits from Illinois were reviewed: Midwest Generation Will County Generating Station (IL0002208), Ameren Energy Newton (IL0049191), and Archer Daniels Midland Company (IL0061930).

§316(a): The permit for Midwest Generation Will County Generating Station includes temperature limits and discusses a mixing zone but does not indicate whether the limits are based on a §316(a) variance. The Archer Daniels Midland permit contains temperature limitations based on State mixing zone requirements, so there is no §316(a) thermal variance in this permit. For Ameren Energy Newton, a §316(a) thermal variance was approved on the basis of a §316(a) demonstration for Unit 1 in 1984 and Unit 2 in 1990. For the facility, temperature limits must be met at the edge of a 26 acre mixing zone. There is no mention of a current review of the variance at the Ameren Energy Newton facility.

§316(b): Two permits, Midwest Generation Will County Generating Station and Ameren Energy Newton, incorporate the Phase II rule by reference and require submittal of a comprehensive demonstration study by January 2008, but they do not contain a determination of Best

Technology Available (based on BPJ or otherwise). Both permits were issued before suspension of the Phase II rule. The fact sheet for Ameren Energy Newton mentions a §316(b) demonstration, which was approved in 1981, but no discussion is provided. Archer Daniels Midland is a grain alcohol distillery and discharges an average of more than 50 million gallons per day (mgd) of noncontact cooling water. No mention of §316(b) considerations are provided in the permit or fact sheet.

Indiana: Three permits were reviewed for Indiana: BP Whiting (IN0000108), Michigan City Generating Station (IN0000116), and PSI Energy Gallagher Generating Station (IN0002798).

§316(a): Permits for all three facilities include §316(a) thermal variances. BP Whiting requires temperature monitoring and limits total heat rejection. The facility conducted a §316(a) demonstration study in 1975 and received approval for its configuration and operations. The permit renews the variance, but also requires the facility to submit a proposal for conducting a new thermal study during the next permit term. The permit for Michigan City requires operation of a cooling tower for Unit 12 as part of the §316(a) variance requirements; the variance has been evaluated in the past five years. For PSE Energy Gallagher, a §316(a) variance was renewed based on a 1978 §316(a) demonstration. The permit requires a new variance request to be submitted with the next permit term. The temperature requirement is for monitoring/reporting only.

§316(b): All three permits address §316(b). BP Whiting conducted a §316(b) demonstration study in 1975 and received approval for its configuration and operations. The permit states no further action will be taken until new national regulations are established. Whiting is a Phase III facility and is thus subject to BTA based on BPJ. The permit for Michigan City was issued before Phase II suspension and cites Phase II application submittal requirements. The permit references a 1976 §316(b) demonstration but does not provide details. Unit 12 has a cooling tower; units 2 and 3 are once-through, but are not in use. The permit for PSI Energy Gallagher includes Phase II application requirements and references a §316(b) demonstration approved in April 1980, and no details are provided regarding demonstration.

Michigan: Three permits from Michigan were reviewed: Detroit Edison Monroe Power Plant (MI0001848), Donald C. Cook Nuclear Power Plant (MI0005827), and Neenah Paper-Munising (MI0000892-permit only, no fact sheet).

§316(a): It is not clear from permit materials whether Detroit Edison Monroe requested a §316(a) variance or if a §316(a) demonstration study was submitted. A thermal study and a thermal plume verification study are required and a mixing zone is used for temperature limitations, which includes language consistent with a §316(a) thermal variance. The permit for Donald C. Cook contains no temperature effluent limitations (the State is considering including a temperature limitation and may modify the permit in the future); however, there is a heat load limitation. There is no specific mention of §316(a) thermal variance in the permit for Neenah Paper-Munising.

§316(b): Both permits for Detroit Edison Monroe and Donald C. Cook contain §316(b) requirements based on Phase II application requirements. The fact sheet for Donald C. Cook references a 1977 §316(b) demonstration study which was approved in 1987. The Neenah Paper-

Munising facility permit materials indicate the facility uses a cooling water structure, but §316(b) conditions are not discussed.

Minnesota: Three facilities from Minnesota were reviewed, the Black Dog Generating Plant (MN0000876), Hibbard Energy Center (MN0001015), and the Taconite Harbor Energy Center (MN0002208).

§316(a): The Black Dog Generating facility submitted a §316(a) demonstration study in May 2007, which was reviewed and approved. The facility uses a cooling lake and two cooling ponds. The permit allows for thermal limitations to be exceeded during periods of flood overflow and electrical emergencies. The permits for Hibbard Energy and Taconite Harbor require temperature monitoring and contain temperature limits, but do not denote whether limits are based on a §316(a) thermal variance. All three permits state facilities may be required to perform a §316(a) study if their discharge is shown to have an impact on the propagation of a balanced indigenous population, which conflicts with the regulatory requirements for receiving a §316(a) thermal variance.

§316(b): All three facilities have submitted studies on the impacts of their cooling water intake structures. However, only Black Dog Generating Plant contains permit conditions instituting a determination of Best Technology Available, requiring the facility to operate its intake structure in accordance with a report submitted in 1978. Taconite Harbor and Hibbard Energy facilities lack a determination of Best Technology Available with relevant permit conditions. The permitting authority plans to make a determination of Best Technology Available after further review of cooling water intake structure studies.

Ohio: Three permits from Ohio were reviewed: Lake Shore Plant (OH0001147), Ormet Aluminum (OH0010855), and Orion Power Midwest—Reliant Energy Niles Power Plant (OH0011533).

§316(a): No §316(a) variances are included for Lake Shore or Ormet Aluminum. A §316(a) variance was approved for Orion Power on August 22, 1986, with no mention of a current review or additional studies. The temperature limits apply from June 15 through September 15; during other parts of the year, the permit requires temperature monitoring only.

§316(b): The permit for Lake Shore requires the permittee to submit components of a Phase II Comprehensive Demonstration Study by January 7, 2008. The permit does not discuss current cooling water intake structure configuration, technology, or requirements. Permits for Ormet Aluminum and Orion Power indicate they both use cooling water intake structures, but §316(b) conditions are not discussed.

Wisconsin: Four permits from Wisconsin were reviewed: Port Washington Generating Station (WI0000922), Weston Plant (WI0003131), Wausau-Mosinee Paper Corporation (WI0003671), and Pleasant Prairie Power Plant (WI0043583).

§316(a): None of the permits reviewed address §316(a). The permit and fact sheet for Port Washington state, based on previous court rulings and lack of State regulations, there are no WQS for temperature; WDNR states that it therefore does not have authority to issue a permit with thermal limits. A State rule addressing thermal discharges has been proposed. Permits for

Weston and Wausau-Mosinee Paper only require monitoring for temperature. Pleasant Prairie Power Plant uses a closed-cycle recirculating system; no mention of §316(a) or temperature limitations is included in the permit or fact sheet.

§316(b): Two permits address §316(b). According to the fact sheet for Port Washington, the State agreed with conclusions reached in the permittee's studies submittal under Phase II, and would have required construction of a porous dike to address impingement and restoration to address entrainment losses. Following the Phase II court ruling and suspension of the Phase II rule, the revised permit continues to require construction of the porous dike, but does not contain entrainment requirements, stating the population-level impacts from entrainment losses are not significant. The State considers the porous dike to be best technology available, recognizing future EPA regulations may affect that determination. For Weston Plant, the permit and fact sheet establish a compliance schedule to collect impingement and entrainment data, and to submit a comprehensive demonstration study. The fact sheet discusses how the fish community has changed and how current technology may be insufficient, but does not include any further requirements (i.e., BPJ-based requirements). §316(b) is not addressed in the permit or fact sheet for Wausau-Mosinee Paper Corporation or Pleasant Prairie Power Plant (Pleasant Prairie employs a closed-cycle recirculating system), even though permit materials indicate facilities are using cooling water intake structures.

3.2.7 Stormwater

The NPDES program requires stormwater discharges from certain MS4s, industrial activities, and construction sites to be permitted. Generally, EPA and NPDES-authorized States issue individual permits for medium and large MS4s and general permits for smaller MS4s, industrial activities, and construction activities.

The status of Region 5 stormwater permits at the time of the review was as follows:

		Phase 1 MS4s	Phase II MS4s	Construction	Industrial
Indiana	Permits	1	PBR (201 permittees)	PBR	PBR
	Expired	0	NA	NA	NA
Illinois	Permits	1	1 (486 permittees)	1	1
	Expired		1 – exp. 2008	1 – exp. 2008	1 – exp. 2008
Michigan	Permits	11	2 (410 permittees)	PBR	10
	Expired	0	0	NA	0
Minnesota	Permits	2	1 (201 permittees)	1	1
	Expired	2 – exp. 2004	0	0	1 – exp. 2002
Ohio	Permits	4	2 (271 permittees)	3	2
	Expired	0	2 – exp. 2007	0	0
Wisconsin	Permits	76	1 (141 permittees)	1	5
	Expired		0	0	4 – exp. 2003-2006
Region 5	Permits	0	5 (individual)	1 (CGP)	1 (MSGP)
	Expired	0	0 (4 not yet issued)	NA	NA

Notes: PBR = Permit-by-rule; CGP = construction general permit; MSGP = multisector general permit; NA = not applicable

For Region 5, EPA headquarters selected seven NPDES stormwater permits to review on the basis of two different criteria: (1) draft permits scheduled to be published for public notice soon,

and (2) individual Phase I MS4 permits that had been reissued recently. Those permits and findings are presented below:

- Two stormwater construction general permits (CGPs), one for Illinois (ILR100000; Draft) and one for Ohio (Olentangy River Watershed; OHCO00001; Draft)
- One Illinois stormwater industrial general permit (ILR000000; Draft)
- One Illinois MS4 General Permit (ILR400000; Draft)
- Three individual MS4 Permits were reviewed, including one each from:
  - Ohio (Dayton, OH; OH0112828)
  - Michigan (MDOT; MI0057364)
  - Wisconsin (Milwaukee, WI; WIS049018)

Illinois: At the time of review, all Illinois stormwater general permits had expired. The State sent pre-public notice drafts of a Small MS4 general permit, CGP and Industrial stormwater general permit to Region 5 for review on May 9, 2008. Public notice of the draft CGP was given on June 6, 2008. The Illinois CGP was reissued in 2008. Public notice of the Small MS4 general permit was given and is being revised according to comments from Region 5 and other stakeholders. Region 5 was completing comments on the Industrial general permit.

EPA headquarters reviewed all three permits and sent comments to the Region on June 21, 2008. The industrial and CGPs are similar to EPA's 2003 CGP and 2000 MultiSector General Permit. The Industrial stormwater general permit contains several good Stormwater Pollution Prevention Plan (SWPPP) and BMP elements, but lacks detail on several elements, including: continuation of coverage after permit expiration, corrective action timeframes and expectations, description of potential design standards, numeric effluent limits or benchmarks, construction activities, monitoring purpose, and visual monitoring requirements. In addition, the permit appears to contain language from the previous permit that should no longer be considered in the new permit, for both group applications and NOI submittal requirements.

The CGP also lacked detail on a number of elements, including: treatment design standards, commingled discharges, construction dewatering or run-on requirements, qualifying local programs, permittee notification of 404 permits, and spill prevention and response procedure requirements. In addition, no electronic NOI system was available and NOI requirements were unclear in the permits. The permit also did not require development of a pollution prevention team or training of employees regarding stormwater controls.

The MS4 general permit was similar to EPA's 2000 model MS4 general permit, but lacked detail on the following elements: targeted outreach efforts, stakeholder involvement, illicit discharge targeting areas, training for construction operators and inspectors, green infrastructure practices or techniques. The permit also did not include language on evaluating and tracking program compliance and progress towards meeting and tracking measurable goals. It should be noted that a fact sheet was not reviewed for this permit.

Indiana: All IDEM Phase II general permits were current at the time of review. EPA Headquarters did not review any Indiana stormwater permits.

IDEM held its First Annual Statewide Meeting for Small MS4s with 300 attendees, including elected officials, consultants, and MS4 operators. IDEM staff representing stormwater, nonpoint source, wetlands, and State Revolving fund were present. Staff provided updates on MS4 requirements and annual reports. IDEM will conduct relatively formal evaluations of all 201 small MS4s over the next 2 years. IDEM developed user-friendly guidance documents on program evaluation and annual reporting to improve the consistency of reporting statewide.

IDEM staff also will conduct separate audits of the MS4's construction and post-construction activities during routine inspections of small MS4s as a supplement to the formal audits.

Michigan: MDEQ reissued small MS4 general permits for jurisdictional dischargers and dischargers covered under a watershed plan in 2008. MDEQ's construction permit-by-rule was current at review, and all 10 of its industrial general permits were current.

EPA Headquarters reviewed the Michigan Department of Transportation individual MS4 permit, which contained very little information of water quality, TMDLs or antidegradation. Other elements missing from the permit included the following: endangered or threatened species discussion, specific language for public education/outreach, areas with high likelihood for illicit discharges, requirement for SWPPP, detail on inspection requirements, identification of green infrastructure BMPs or BMP maintenance activities, pollution prevention training, and actual measurable data requirements. The permit also references language from the stormwater rule regarding menu of BMPs that is not relevant, specifically Section C.1.c.1 states "Failure to obtain a measurable goal for a BMP implemented to meet minimum measures in Parts 1.B.3 through 1.B.6 is not a violation of this permit if the Department has not provided or issued a menu of BMPs for that minimum measure." In addition, the fact sheet is two pages long and contains little information detailing the rationale for permit conditions.

MDEQ's Small MS4 general permit is based on a watershed plan and provides an option for multiple jurisdictions to work together to better target resources to address water quality concerns.

Ohio: Public notice of OEPA's Draft General Permit for Stormwater Associated with Construction Activity Located within Portions of the Olentangy River Watershed was given March 14, 2008; the comment period closed May 7, 2008. The draft general permit included requirements beyond statewide construction stormwater general permit requirements to address TMDL recommendations for the Olentangy River watershed. The permit was issued January 23, 2009, became effective April 8, 2009, and expires on April 7, 2014.

OEPA issued a general permit for construction activity in the Big Darby Watershed (OHCD00001), one of the most biologically diverse streams in the Midwest. The Big Darby watershed has an EPA-approved TMDL for impairments including nutrients, siltation, organic enrichment, pathogens, low dissolved oxygen, home sewage treatment systems, urban runoff, and others. TMDLs are established for phosphorous, sediment, fecal coliform, dissolved oxygen, ammonia, floodplain capacity, and habitat. Recommendations include stormwater controls, point source controls, manure management, and habitat improvements. The State issued a watershed-based CGP for Big Darby on September 12, 2006.

OEPA's general permit for Stormwater Discharges from Small and Large Construction Activities has been reissued since the time of review, effective April 21, 2008; the expiration

date is April 20, 2013. Public notice of OEPA's Small MS4 General Permit was given on December 24, 2007, and the comment period closed February 21, 2008. The permit was issued and effective January 20, 2009, and expires January 29, 2014. The MS4 general permit has been reissued.

OEPA is looking forward to the *Construction and Development Effluent Limitations Guideline* addressing construction and post-construction BMPs so the State can incorporate relevant aspects of the provisions into its construction permits.

Wisconsin: WDNR issued its Small MS4 general permit January 19, 2006; the permit expired December 31, 2010. The CGP was issued on September 29, 2006, and expires September 30, 2011.

EPA reviewed the Milwaukee MS4 permit (WIS049018) as part of the PQR; the review found that permit quality could improve in a number of areas: identification of specific impairments and TMDLs; specific requirements for public involvement; criteria, frequency and objectives for inspections and proper operation and maintenance; measures of accountability for geographic priorities; and, specific measurable goals and long term evaluation criteria. It should be noted that a fact sheet was not made available for EPA's review.

WNDR has developed construction and post-construction performance standards for runoff from new development and redevelopment projects (NR 151 Wisconsin Admin Code)., which are incorporated in the CGP. Specific standards include: BMP requirement to achieve 80 percent reduction of sediment load on an annual average basis or maximum sediment reduction attainable; BMPs designed to reduce TSS loads by 80 percent based on average annual rainfall for new development, 40 percent for redevelopment, 40 percent reduction for in-fill developed until 2012, then an 80 percent reduction after 2012; BMPs designed to maintain or reduce peak discharge as compared to pre-development conditions from a 2-year, 24-hour storm event; Infiltration standards for residential, nonresidential, pre-development condition, pretreatment of parking lot runoff; Credit (for using runoff for irrigation, laundry, toilet flushing); and, Protective Areas Standard (Setbacks) based on waterbody designation. NR 151.24 contains similar standards for transportation projects.

WDNR is concerned that the timetable for EPA's *Construction and Development Effluent Limitations Guideline* will not allow the State adequate time to review and comment on proposed rules. Adequate review time is critical because NPDES authorized States would have to incorporate federal standards into their stormwater permits.

Region 5: Region 5 is leading an effort, in conjunction with EPA Headquarters, to develop guidance on stormwater and TMDLs. A draft has been posted at: http://www.epa.gov/owow/tmdl/pdf/tmdl-sw_permits11172008.pdf.

At the time of the review, Region 5 was in the process of drafting four individual permits for small MS4s that are fully or partially within the Oneida Indian Reservation in Wisconsin: Village of Ashwaubenon, Village of Hobart, City of Green Bay, and the Oneida Tribe of Indians of Wisconsin.

Indiana, Minnesota, and Wisconsin are revising their antidegradation rules and have raised the issue of how to apply antidegradation to general permits for small MS4s. Region 5 NPDES and water quality staff are in the process of reviewing available literature regarding antidegradation as it applies to MS4s. Some of the issues being explored include antidegradation in MS4 permits, how Region 5 is addressing antidegradation, general permit review, challenges to applying antidegradation, and identification of best practices.

Region 5 encourages further guidance on wet-weather WQBELs. The stormwater and CAFO programs and, to some extent, other wet-weather programs, continue to rely on BMPs to implement controls in permits. The NPDES and related programs (including TMDLs, WQS, antidegradation, trading, and the like) are not well suited to accommodate BMP approaches. Expectations among the public are high, and NPDES permit authorities are struggling with how to write permits that more comprehensively protect water quality.

3.2.8 Combined Sewer Overflows (CSOs)

In 2007, EPA adopted a new definition for the Water Safe for Swimming (SS) Measure, which sets goals to address the water quality and human health impacts of CSOs. The new definition sets a goal of incorporating an implementation schedule with specific dates and milestones for approved projects into an appropriate enforceable mechanism, including a permit or enforcement order. The cumulative national goal for SS was 65 percent of the nation's CSO communities.

EPA's OW, Office of Enforcement and Compliance Assurance (OECA), and Regional offices worked together to revise the measure for FY2008, incorporating a revised baseline to account for 59 CSO communities that are not required to develop LTCPs. The resulting measure ensures that reporting is consistent across all Regions. OW and OECA have provided guidelines describing various elements of the new SS Measure to promote a better understanding of the measure itself. The revised SS measure is the number and national percent, using a constant denominator, of CSO permits with a schedule incorporated into an appropriate enforceable mechanism with specific dates and milestones, including a completion date consistent with Agency guidance, which requires the following:

- Implementation of an LTCP, which will result in compliance with technology and water quality-based requirements of the CWA;
- Implementation of any other acceptable CSO control measures consistent with the 1994 CSO Control Policy; and,
- Completion of separation after the baseline date.

As part of this review, EPA assessed the SS Measure in Region 5 and conducted a comprehensive review of LTCPs in Region 5. LTCP review was based on the expectation of the CWA and 1994 CSO Control Policy.

Water Safe for Swimming (SS) Measure

In FY2007, Region 5 States exceeded the Regional commitment of 230, and completed 238 (66 percent) control mechanisms. Beginning in FY2008, under the revised definition, the Region's baseline dropped to 200 (55 percent), with a FY2008 commitment of 232 (64 percent). The

Region reached its commitment of 64 percent by October 31, 2008. The Region 5 CSO universe is 362.

Long-Term Control Plan Review

Two LTCP reviews were completed as part of this review for North Judson, Indiana, and Port Huron, Michigan.

North Judson used the LTCP-EZ format and template for small communities developed by EPA Headquarters. North Judson developed good documentation of public participation, evaluation of sensitive areas, and evaluation of the need for storage in a straightforward manner using Schedule 4, CSO Volume of the template. However, the town could have provided more documentation of how numbers used in Schedule 4were derived; much of the information came from correspondence submitted with the form and was not part of the formal LTPC-EZ submission of the LTCP. EPA scored the North Judson LTCP-EZ as *Medium-High.*

Specific findings from this review include the following:

1. Nine Minimum Controls (NMC) are documented in Schedule 1 in fairly good detail; however, additional detail on control of solid and floatables and monitoring should be provided.
2. No sensitive areas exist in the receiving waters; this is documented in correspondence attached to the LTCP between the town and IDEM.
3. Although North Judson is a small community, the LTCP talks about an operational plan in a letter to IDEM that will include daily checks of equipment, a yearly check of pumping equipment, and cleaning the basin liner as solids build up to maintain the quality of the liner so brush does not grow.
4. A letter from the town to IDEM discusses post-construction monitoring, however, documentation should provide more detail regarding sampling plan activities, such as timing, frequency, etc.
5. The sampling plan could be more detailed; however, it does discuss shutting down the last outfall (004) if monitoring suggests that such action is needed.

Port Huron's LTCP focuses on sewer separation and does not provide detail on topics such as analysis of collection system or receiving waters, cost performance considerations, post-construction monitoring, etc. Some items are not required since Port Huron is a small community, but if a community can provide that information, it allows the LTCP to be viewed (and assessed) in a more complete context and provides greater insight regarding expected efficacy of the LTCP. EPA scored the Port Huron LTCP as *Medium*.

Specific findings from this review include the following:

1. There is no mention of NMCs; however, some mention is made of increasing flow to the POTW, addressing floatables, increasing retention, and sewer capacity. These could be discussed in the context of the NMCs.
2. The LTCP mentions a public event where financing options were discussed; however, no documentation of the event is identified, including any mention of whether public

comment was sought or considered.

3. The LTCP does not evaluate or mention sensitive areas.
4. The LTCP does not include an explicit evaluation of cost performance, although costs were evaluated for partial retention. This was determined to be less cost-effective than other options, and therefore considered for limited locations only.
5. Sewer separation was the only alternative addressed in the LTCP, so it is unclear if other viable alternatives exist or were considered. The LTCP does not explain why separation was chosen and does not indicate that it was needed to meet WQS.

3.2.9 Sanitary Sewer Overflows (SSOs) and Peak Flows

Ensuring reporting of overflows to the NPDES authority is essential to controlling wet-weather discharges from municipal wastewater sources. EPA believes that most CSOs and bypasses at treatment plants are being adequately reported. However, information obtained in developing the *Report to Congress on the Impacts and Control of CSOs and SSOs,*[5] indicates that some NPDES authorities need to improve permittee reporting of SSOs.

Sewage overflows and bypasses at STPs can endanger human health. Appropriate third party notification can reduce health risks associated with such releases. Permits can establish a process for requiring the permittee or the NPDES authority to notify specified third parties of overflows, unanticipated bypasses, or upsets that exceed an effluent limitation in the permit or that could endanger health because of a likelihood of human exposure.

In April 2005, EPA's WPD distributed draft guidance for NPDES permit requirements for SSOs, which addresses how NPDES permits should be clarified to ensure that SSOs and unanticipated bypasses and upsets are reported.[6]

EPA's review of SSOs included an evaluation of reporting of SSOs and notification to drinking water officials, focusing on whether SSO occurrences are being reported, and how drinking water facilities are notified of the effects on source water.

Peak Flows at Treatment Facilities

During heavy wet-weather events, most municipal sewer collection systems and treatment facilities receive increased flows that can cause sewage overflows and backups in the collection system and create operational challenges at the plant. To maximize treatment of flows at the plant, minimize overflows of raw sewage in the collection system, and avoid plant damage and operating problems, during wet-weather many POTWs route the portion of flow exceeding the capacity of the secondary units around the units.

Discharges from POTWs must meet effluent limitations based on the secondary treatment regulations (which establish 7-day and 30-day limits for TSS; BOD and pH) and more stringent WQBELs. In addition, NPDES regulations establish standard permit conditions that apply to all

[5] EPA Office of Water, 833-R-04-001, August, 2004.
[6] Available at http://www.epa.gov/npdes/pubs/sso_fact_sheet_model_permit_cond.pdf .

NPDES permits. One standard condition that is important to peak wet-weather diversions is the bypass provision at 40 CFR 122.41(m).

In the CSO Control Policy, EPA addressed peak wet-weather bypasses at POTWs that serve combined sewers. The policy states NPDES authorities may provide for permit authorized wet-weather diversions around secondary treatment based, in part, on a demonstration that there are *no feasible alternatives* to the anticipated bypass. On December 22, 2005, EPA proposed a policy for implementing requirements for wet-weather discharges at POTWs served by sanitary sewers. Unlike EPA's earlier 2003 draft policy, the December 2005 draft policy specifies the bypass provision applies to wet-weather diversions at POTW treatment plants serving separate sanitary sewer collection systems under all circumstances. Under the draft policy, NPDES authorities would be able to approve—in the NPDES permit—wet-weather diversions around secondary treatment based on a demonstration that, among other things, there are *no feasible alternatives* to the anticipated bypass.

Findings

SSO Reporting: Region 5 believes that its States require NPDES permittees to report SSOs to the NPDES authority. The permits reviewed for this evaluation included Wauconda, Illinois (IL0020109); Bay City, Michigan (MI0022284), Battle Creek, Michigan (MI0022276) Ashland, Wisconsin (WI0030767-07-0), Hubbard, Ohio (OH 3PD00028); and Owatonna, Minnesota (MN0051284).

Wisconsin issued an NPDES general permit to municipal satellite collection systems. Permittees are required to report SSOs to the Wisconsin NPDES authority. Michigan law requires municipal satellite collection systems to report SSOs to the NPDES authority. The State notified municipalities (including satellites) by letter of SSO notification requirements in 2000.

Notification of Drinking Water Suppliers: The Region believes that Michigan, Ohio and Wisconsin NPDES permits require municipal permittees to notify drinking water suppliers of SSOs that could affect drinking water sources. In addition, Indiana is in the process of amending its rules to require such public notification. Wastewater facilities in Michigan are required to notify local health departments. The three municipalities in Minnesota with surface water intakes are in the process of preparing intake protection plans. In Illinois, permits require wastewater facilities to report SSOs to the State. The Region indicated that State spill coordinators receive the information and forward it to local facilities as appropriate.

PEFTFs in Illinois: Illinois has issued permits authorizing wet-weather discharges to several peak excess flow treatment facilities (PEFTFs) serving sanitary sewers. Those facilities typically provide primary treatment with polymer addition. Permits include Dupage County (IL0031844), Village of Manteno (IL0025089), Village of Homewood (IL0029211), and Village of Villa Park (IL0033618).

The Dupage, Manteno, and Homewood permits have 30-day limits of 30 mg/L for TSS and BOD. Those permits do not provide 30-day percent removal requirements.

The 30-day limit in the Homewood permit (which expired in November of 2008), is expressed as an equation that depends on the days discharged. When reissued, it should ensure that the 30-day limit is at least as stringent as the 40 CFR 133 requirements under all conditions.

Peak Flows Feasibility Analysis: Illinois and Wisconsin are not requiring permittees to submit a *feasible alternative analysis* before the State approves bypasses in permits.

Indiana Bypass Guidance: Indiana recently issued guidance on CSO-related bypasses that discusses application of the *no feasible alternatives* criteria. However, Indiana does not approve bypasses at treatment plants served by sanitary sewers (the State does not apply the CSO-related bypass guidance to plants served by sanitary sewers).

3.2.10 Concentrated Animal Feeding Operations (CAFOs)

EPA reviewed general permits issued by States in Region 5 for CAFOs that cover all animal sectors in the Region, and were chosen because of their widespread applicability. The following section includes a brief discussion of each State's procedures, then a discussion of findings from the permit review.

Illinois

Illinois Department of Agriculture (IDA) administers the Livestock Management Facilities Act (LMFA) and Illinois Environmental Protection Agency (IEPA) administers the NPDES program for CAFOs. According to information Illinois provided to the Region, it has 500 CAFOs, primarily in the swine sector; eight are covered by an NPDES permit.

Since 1978, Illinois EPA has implemented a livestock waste management program. That program establishes an inspection process for livestock facilities throughout the State. In response to public concerns regarding the growth of large livestock production facilities, the Illinois General Assembly adopted the LMFA on May 21, 1996. After the LMFA's adoption, the Illinois Pollution Control Board and IDA submitted emergency rules to address the influx of large livestock facilities to Illinois. Those rules, addressing design, construction, and operation of livestock management and livestock waste-handling facilities, as well as a public information process, were adopted as part of the final permanent LMFA rules on May 20, 1997. Since its initial passage in 1996, the LMFA has been amended twice, in 1998 and 1999.

Illinois Findings: EPA reviewed the Illinois NPDES general permit for CAFOs and Special Conditions in the permit. Provisions of the permit are designed to encourage the permittee to undertake activities to reduce the overall quantity of pollutants being discharged and to reduce the potential for discharges of pollutants. However, it is important to note that no facilities are covered under the general permit. EPA found the following:

- The permit requires only submittal of a BMP plan for field application of livestock waste with the Notice of Intent; submitting a stormwater management plan and a spill control and prevention plan are not required.
- The permit lacks the following federally required condition, "The production area is designed, constructed, operated and maintained to contain all manure, litter and process

wastewater including the runoff and the direct precipitation from a 25 year, 24-hour rainfall event."

- To be as stringent as federal requirements, the State should modify language in the Field Application of Livestock Wastes [see 5(a)(v)] part of the general permit to explicitly require the sampling of soils in those fields that will be receiving wastes from CAFOs. The last sentence reads, "Assessment procedures used to determine the site specific practices shall be specified in the best management practices plan for land application of livestock wastes." While that statement implies use of soil sampling, the general permit does not explicitly require soil sampling.
- The definitions listed in the permit do not include definitions for animal feeding operations, CAFOs, large CAFOs, manure, medium CAFOs, process wastewater, and production area. However, Illinois does have equivalent terms.

Indiana

IDEM is responsible for regulating confined feeding operations. According to information provided by IDEM, more than 3,000 confined feeding operations are covered by State regulation in Indiana. According to information provided by the Region, 645 CAFOs (as defined by federal regulation) are in Indiana; 495 are covered by an NPDES permit.

Indiana Findings: As is the case with other general permits in the State, Indiana's general permit for CAFOs appears as an administrative rule, which expires every 7 years. As a result, to make any modifications to the general permit, modifications would have to be introduced to the Indiana Pollution Control Board for passage. That could present a timing problem depending on how often the legislature meets and how many permit modifications might be required during the term of the general permit. The 7-year term is in conflict with federal regulations, which require permits to have no more than a 5-year term.

A noteworthy element of Indiana's general permit is the inclusion of a requirement to develop an emergency spill response plan (327 IAC 16-9-4), which goes beyond federal NPDES permit requirements for CAFOs. In the CAFO permit by rule, the requirement is at 327 IAC 15-15-16.

The following definitions are not included in the general permit: animal feeding operations, CAFOs, medium CAFOs, process wastewater, and production area. Those are in State rules at 327 IAC 5-4-3.

The review also found that the general permit does not include the following requirements:

- The submission of an Annual Report [40 CFR 122.42.(e)(4)].
- Ensuring proper management of mortalities [40 CFR 122.42(e)(1)]. However, there is discussion at 327 IAC 16-9-3: Dead animal compost operations, but limits itself only to requirements for composting mortalities. This is at 327 IAC 15-15-4(g)(7) in the State rules.
- The diversion of clean water [40 CFR 122.42(e)(1)].
- The prevention of direct contact of animals with waters of the United States [122.42(e)(1)]. This is at 327 IAC 15-15-4(c) in the State rules.

- The proper handling of chemicals [40 CFR 122.42(e)(1)].
- Conservation practices to control nutrient loss [40 CFR 122.42(e)(1)]. This is at 327 IAC 15-15-11 in the State rules.

During permit issuance, Region 5 disapproved two parts of the technical standards for nutrient management incorporated into the permit:

- The rate at which phosphorus can be applied when a soil test is used to assess the risk of phosphorus transport and the test result is between 100 and 200 ppm.
- Application of dairy manure on snow or frozen soil and application of layer or broiler manure on snow or frozen soil where the soil is classified as Hydrologic Soil Group B, C, or D.

Michigan

MDEQ is the lead regulatory agency for regulating CAFOs. Michigan is authorized to issue NPDES permits to CAFOs. Michigan has 202 CAFOs; 165 CAFOs are covered by an NPDES permit.

Michigan Findings: Review of the Michigan general permit found both strengths and weakness in the permit. Positive elements in the permit include requirements (see Part I, Section A(4)(b),7(b), D and E) to visually inspect tile drains before and after wastes have been applied to fields that are tile drained. While not necessarily weaknesses, elements that could be improved include

- The permit does not include definitions for *medium CAFOs* and *process wastewater*.
- The permit fails to include the requirements of what an operation needs to include in its Notice of Intent (NOI) or application to obtain coverage under the general permit.

Minnesota

MPCA Water Quality Division feedlot unit issues permits to livestock operations throughout Minnesota. Counties may assume responsibility to issue non-NPDES permits for feedlots up to 1,000 animal units (AUs). MPCA issues all permits for facilities of more than 1,000 AUs and all permits issued in non-delegated counties.

On the basis of information provided by the Region, Minnesota has 1,065 CAFOs, primarily in the swine sector; 1,059 are covered by an NPDES permit..

Minnesota Findings: The general permit coverage is limited to large CAFOs. The definition of a large CAFO in the permit is the same as the federal regulations. The permit specifies all operations with less than 1,000 AUs that are below the large CAFO threshold and are designated as CAFOs are required to apply for coverage under an individual permit. It is not clear how the State intends to address AFOs that meet the definition of a medium CAFO within the NPDES program. Specific findings regarding the Minnesota general permit include the following:

- The permit (Part I, E.1) references Minnesota regulation (Minn. R. 7020.0405) as describing permit application information collection requirements. However, that section

of the State regulation was reviewed, and no specific information requirements were identified.

- The permit (Part IV) requires proper closure of the site, but it does not explicitly state that permit coverage is required until the facility is properly closed.
- Appendix A of the permit does not contain a definition for a medium CAFO.

EPA reviewed the permit for winter application of manure found in Part II.B.4: Winter Application of the permit. Headquarters could not determine if all the evaluation requirements identified in *Policy 2005-01—Winter Land Application Review Guidance for Large Concentrated Animal Feeding Operations* have been implemented.

Review of the Minnesota general permit highlighted positive elements including the following:

- The requirement (see Part I.E.2.) for submission of an Air Emission Plan, an Emergency Response Plan, and a Stormwater Pollution Prevention Plan
- The requirement (Part II.A.2) for the permittee to annually review the facility's manure management plan (MMP) and update the MMP, as necessary, to reflect changes that affect available nutrient amounts, crop nutrient needs, setbacks, or production area operation and maintenance
- The requirement (Part III.E) for the permittee to develop and implement an SWPPP in accordance with the requirements of Appendix C of the permit

Ohio

Ohio Senate Bill 141 transfers authority to issue NPDES permits for discharges from animal feeding facilities from OEPA to Ohio Department of Agriculture. The authority to issue the permits depends on approval of the Director of Agriculture's program approval submitted by EPA. EPA is working with Ohio to transfer that authority. Authority to issue permits to construct or modify concentrated animal feeding facilities was transferred to the Director of Agriculture. The Division of Soil and Water Conservation, Ohio Department of Natural Resources, addresses pollution problems from non-CAFOs with fewer than 1,000 animal units. According to information provided to EPA by the Region, 167 CAFOs are in Ohio. Of those, 40 are covered under an NPDES permit. That figure suggests that OEPA has not evaluated whether other CAFOs propose to discharge, and would thus be required to apply for a permit. The State should update its inspection checklist to enable inspectors to assess whether unpermitted CAFOs propose to discharge, using the criteria from the federal regulations.

Ohio Findings: Ohio's general permit appeared to meet all requirements specified in federal NPDES and Effluent Guideline CAFO regulations. In addition, the review highlighted elements of the permit worthy of recognition, including the following:

- Requirement (Part VI.B.3) for visually monitoring field tile outlets, which reads, "The land application sites with subsurface tile drainage, the permittee shall visually monitor all field tile outlets before, during and after application of manure to the site and record the results of that monitoring."
- Requirement (Part VI.5) for managing manure in freezing conditions, which reads, "Manure shall be managed in such a manner to prevent land application on frozen or

snow covered ground. Every attempt shall be made by the permittee to avoid land application during frozen or snow covered ground conditions because of lack of agronomic benefit and high risk of pollution of surface waters."

Wisconsin

WDNR, Bureau of Watershed Management, WPDES Permit Program, along with Runoff Management Program, regulates livestock operations with 1,000 AUs or more and operations with less than 1,000 AUs that have discharges that significantly affect water quality.

WDNR is responsible for issuance, reissuance, modification, and enforcement of all WPDES permits issued for discharges into the waters of Wisconsin. Wisconsin regulates discharges to both groundwater and surface water. No operation may legally discharge to State waters without a permit issued under this authority. According to information provided to EPA by the Region, 169 CAFOs are in Wisconsin, all covered by an individual NPDES permit.

Wisconsin Findings: Because Wisconsin does not have a CAFO general permit, EPA reviewed a sample CAFO permit. That review highlighted a number of positive elements. Some of the commendable elements in the permit include prohibition of introduction of materials, other than manure, into a digester without written approval from the WDNR (Section 1.3.2); inclusion of general spreading restrictions on frozen or snow covered ground (Section 1.6.4); and preparedness of having an Emergency Response Plan (Section 3.2.1). The State should be commended for having all CAFOs covered by a WPDES permit.

Review of the example Wisconsin permit also found areas that could be improved, including the following:

- The permit does not contain any definitions. At a minimum, the permit should either contain or incorporate by reference definitions for animal feeding operations, CAFOs, large CAFOs, medium CAFOs, manure, process wastewater and production area or reference where those and other definitions can be found.
- The permit does not require records needed for the transfer of manure as described in 40 CFR 122.42(e)(3). The requirements are in NR 243.142(5) but do not appear to be cross-referenced in the permit language.

3.2.11 Whole Effluent Toxicity (WET)

EPA reviewed 12 permits in Region 5 for the WET review, one industrial and one municipal permit per State. Before reviewing permits or fact sheets, EPA carefully reviewed the sections of WQS related to WET for each State to see if permit requirements adequately and correctly implemented WET requirements. In addition, permittees who are within the jurisdiction of the Great Lakes Basin must comply with EPA's Great Lakes Initiative (GLI) Rule requirements, which include GLI WET criteria and requirements for NPDES basin permits (40 CFR 132, Appendix F, Procedure 6).

EPA reviewed the following in the permit and fact sheet: references to 40 CFR 136 or EPA's 2002 WET test methods (or both); whether and how WET RP determinations were made; adequacy of monitoring frequencies to be representative of effluent compliance with 40 CFR

132, and whether an adequate basis or rationale (or both) was provided in the permit fact sheet for requirements contained or not contained in the permit.

NPDES regulations at 40 CFR 122.44(i)(1)(iv) require permits to include monitoring using analytical methods in 40 CFR 136, unless an alternative method is approved under 40 CFR 136.5. The permits were reviewed to ensure that WET monitoring requirements were being conducted consistent with 40 CFR 136.

Regulations at 40 CFR 122.44(d) require the assessment of all available, representative WET data to determine RP. Specific procedures are in the *Technical Support Document (TSD) for Water Quality-based Toxics Control*[7] and, for the Great Lakes States in 40 CFR 132, Appendix F.6. 40 CFR 122.48(b) requires permits establish monitoring requirements to yield data representative of monitored activity, and 40 CFR 122.44(i)(l) requires monitoring requirements ensure compliance with permit limitations. Minimum monitoring frequencies are determined by several factors, including the nature of the facility and discharge, existing or previous permit's monitoring results or compliance history. In addition, the TSD recommends that toxicity tests be conducted quarterly for one year at a minimum to adequately assess variability of toxicity observed in effluents. Below that suggested initial minimum frequency, chances of missing toxic events can increase. The toxicity test result for the most sensitive of tested species is considered to be measured toxicity for a particular effluent sample.

WET Findings: General WET findings for Region 5 State NPDES permits include the following:

Permit Documentation: Some permit fact sheets lack adequate documentation of the rationale and basis supporting permit WET requirements, and decisions such as RP determinations, WET limits, and monitoring frequencies, reductions and triggers. In addition, in permits from Wisconsin, Michigan, and Indiana, it was unclear as to whether RP determinations were done because they were not discussed in the fact sheets or supporting documentation. For example, the Indiana permit had no calculations in the fact sheet to support the determination of *no toxicity*, yet the State's WQS include provisions for NPDES calculations for WET RP. In most permits, there is no clear explanation for interpretation of WET test data and insufficient information on any allowed dilution, mixing zones, or zones of initial dilution.

GLI Rule compliance: Of the 12 permits reviewed, 7 are for facilities in the GLI Basin and are required to comply with the additional requirements in 40 CFR 132, appendix F.6. Of the seven permits, five contain acute or chronic effluent limits for WET higher than the corresponding WQC. This could be because of allowed dilution, but that is not documented in the fact sheets.

EPA WET Test Method Citations: WET test methods were cited that were outdated or conflicted with fact sheet citations, including the general permit conditions referenced in the 40 CFR 136 test methods. For example, the Michigan municipal permit's fact sheet lists 1991 WET test methods and cites 40 CFR 136 methods, which is an inherent inconsistency within the permit and, therefore, does not provide clear direction to the permittee. On the basis of permits reviewed, some fact sheets do not include a citation to EPA's required WET test methods (40

[7] EPA, 505/2-90-001, 1991.

CFR 136), either within the general conditions section or inconsistent WET test methods references in the permit. In either situation, the required test method is not clearly communicated to the permittee. Permits should provide transparent communication to the permittee, and for the public, as part of the public record. If test method citations are provided in State regulations, that should be documented in the permit.

Permit Conditions and Monitoring: The basis how annual monitoring and frequency are representative and protective of State WET WQS should be explicitly documented in the fact sheet. The monitoring frequency rationale should include an explanation for when samples are taken during the year, taking into account seasonal or production considerations. EPA recommends that monitoring be representative of the effluent discharge pursuant to 40 CFR 122.44 (d). Unless the effluent is very stable or has a documented history based on valid toxicity data that State WQS are not being exceeded, then upon permit renewal, the monitoring frequency should be reassessed to be representative of the discharge to substantiate the RP determinations [40 CFR 122.48(b)].

State-Specific Findings

Indiana

Permit Documentation: The municipal (Town of Sellersburg WWTP, IN0020419) and industrial (BP Products North America, IN0000108) fact sheets lack rationale for permit decisions. The municipal fact sheet includes a decision of *no toxicity*, but it does not indicate how WET RP was conducted or the rationale for permit requirements, such as the basis to support decision for no required monitoring. However, the industrial permit's fact sheet does adequately describe the use of alternate mixing zones and the reason for conducting WET tests.

EPA WET Test Methods (cited): Although the municipal permit does not require WET limits or monitoring, it does contain a statement that "…analytical and sampling methods should conform to the current version of 40 CFR, Part 136." The industrial permit fact sheet specifically cites EPA's 2002 WET test methods.

Permit Conditions and Monitoring: The municipal permit requires monitoring only every 5 years upon permit renewal. The review of permit conditions and monitoring requirements identified that the municipal permit's fact sheet indicate *no effluent toxicity* and do not provide RP calculations that could be addressed through appropriate permit documentation. However, the industrial permit fact sheet documents that no WET RP evaluation was necessary because an alternate mixing zone was applied.

Minnesota

Permit Documentation: The municipal permit (City of Montevideo WWTF, MN0020133) contains an RP chronic toxicity determination but no acute toxicity determination. The Minnesota rule at 7050.0170 subpart 8 provides requirements for use of WET test methods at 40 CFR 136; that citation should be cross-referenced in the permit because references to EPA's methods are not provided specifically or as part of the general permits conditions. Because the fact sheet confirms demonstration of RP for chronic toxic, the permit includes WET chronic limits. The industrial permit (Northshore Mining Co., MN0055301) documentation was done

reasonably well when compared against other permits reviewed. While the permit documents RP determination for chronic, it does not do so for acute. The permit includes a chronic WET limit, monitoring requirements, and triggers for accelerated monitoring and, if necessary, a TRE/TIE, including instructions to the permittee as to what was required under TRE/TIE permit requirements.

EPA WET Test Methods (cited): The municipal and industrial permit cite only the EPA 2002 chronic WET test methods. The permits require chronic testing for only two species—a vertebrate (fathead minnow) and an invertebrate (*C. dubia*) but does not require the plant test (*S. capricornutum*).

Permit Conditions and Monitoring: The municipal permit requires semiannual monitoring during the first year and, afterwards, annual monitoring for the life of permit. Supporting information should be provided in the fact sheet to justify why semiannual monitoring instead of more frequent monitoring is representative of the effluent and sufficient to support RP determination in the permit [40 CFR 122.48(b)].

Ohio

Permit Documentation: In both the industrial (Republic Engineered Products, Inc., OH0001562) and municipal permit (City of Columbus, OH0024741), use of a chronic mixing zone is allowed; rationale is based on WLA models. Both permits present adequate RP analysis, which result in acute and chronic WET limits for the industrial permit, and no WET limits for the municipal permit. Municipal permit requires extrapolation of acute endpoints from chronic tests, which is inadequate on the basis of difference in test design to control variability and bioavailability.

EPA WET Test Methods (cited): OEPA's *Testing Guidance* was referenced in the industrial and municipal permits, and contains citations to 40 CFR 136 WET methods. The Ohio rule at 3745-1-03(A)(3), the basis for Ohio test method requirements, should be cross-referenced in the permit. The industrial permit required testing with two species, a vertebrate (fathead minnow) and an invertebrate (*C. dubia*) for chronic testing.

Permit Conditions and Monitoring: The permit conditions and instructions for TRE/TIE are not detailed in either the industrial or the municipal permits.

Michigan

Permit Documentation: The fact sheets for both municipal (City of Ann Arbor WWTP, MI0022217) and industrial (Detroit Steel Company, MI0002399) permits do not adequately describe the State's WET criteria and implementation procedures. The industrial permit does not explain the WET RP decision to substantiate why WET limits were not required. The municipal permit contains only acute and chronic *triggers*, or levels of toxicity that would result in further permittee action, such as a TIE/TRE when persistent toxicity was demonstrated with more than one WET test failure. The municipal fact sheet provides insufficient information concerning whether the decision to include triggers is based on an assumption of low flow or design flow conditions.

EPA WET Test Methods (cited): The industrial permit cites outdated 1990 WET test methods, contradicting the standard permit provisions citation to 40 CFR 136, which requires that 2002 methods be followed. That could be an artifact of the timing of permit issuance, which makes the case for incorporating EPA test methods by reference to avoid such inconsistencies in the permit. The municipal permit cites only 1991 WET test methods. Conflicting test method citations in both permits can contribute to unclear direction to the permittee as to which EPA WET test methods are required by the permit.

Permit Conditions and Monitoring: The review of permit conditions and monitoring requirements identified that fact sheets for both permits do not provide rationale for decisions concerning WET RP and for monitoring, which could be addressed through appropriate permit documentation.

Wisconsin

Permit Documentation: The municipal permit (Milwaukee Metro Sewerage District, WI0036820) fact sheet does not adequately describe how the State determined WET limits are required or how they are derived to ensure that State's WET WQS are protected. The fact sheets contain no rationale or appropriate citations. However, while the State's WQBEL memo explains the basis under which the State requires a WET limit, it is *not* cited in the permit or fact sheet or incorporated by reference in the documentation.

The industrial permit (Kohler Company, WI0000795) does not document acute RP assessment or justify why a WET limit is not required, because chronic toxicity had been demonstrated in the past. Past toxicity can be attributed to changes made at the facility, which permanently removed the source of toxicity, but that was not documented in the permit. While the State's WQBEL memo does explain the approach to assessments for WET RP and limits, the memo is *not* cited or incorporated by reference into the permit's fact sheet as part of the documentation.

RP determinations and WQBEL calculation information should be included in the fact sheet, by reference in the fact sheet or appended as an attachment to the fact sheet. If incorporated by reference, the State agency memo needs to be available to the public as part of the permit's public record.

EPA WET Test Methods (cited): EPA WET test methods are *not* cited in the municipal permit; however, Wisconsin's WET testing manual is referenced. The municipal Milawaukee Metro Sewerage District permit was issued April 1, 2003, and expired May 31, 2008. The industrial permit (Kohler Company) expired July 1, 2001. The State had an opportunity to revise permit language to refer the pemittee to general permit conditions boilerplate language, which requires EPA test methods at 40 CFR 136 for all parameters regulated under the permit. If that had been done, the 2002 EPA WET test methods would have been incorporated by reference in the issued municipal permit and available for the reissued industrial permit. Although the State adopted its own methods in 2004, it is still required to use EPA's WET test methods for NPDES permits (40 CFR 136.3).

Permit Conditions and Monitoring: The permittee is required to conduct only annual WET tests, for which retests can be postponed. Those permit conditions or decisions are insufficiently substantiated and do not document why it relies only on monitoring *triggers* after *persistent or*

repeated toxicity to ensure that State's WET WQS are protected. The industrial permit indicates repeated and persistent toxicity and should have WET limits. The lack of WET limits is not compliant with NPDES regulations, according to chronic toxicity that was demonstrated when RP determination was done. Many of these items exhibit a lack of adequate permit documentation.

Illinois

Permit Documentation: The municipal (City of Wood Dale, IL0020061) and industrial (Minnesota Mining and Manufacturing Co., IL0003140) fact sheets do not adequately describe how permit requirements ensured that State WQS would not be exceeded. Neither permit requires WET limits for acute or chronic toxicity, nor is documentation provided to explain why WET limits are not necessary. Neither permit documents the exposure assumptions considered on the basis of mixing zones, or whether WET limits were based on flow considerations (i.e., low flow, or design flow). The lack of WET limits, despite demonstrated WET RP of the two permits, is consistent with Illinois's statewide NPDES approach to WET, which is not in compliance with 40 CFR 122.44(d). That is based on a series of discussions with both the State and Region and shows that the State program lacks WET limits in permits regardless of the outcome of RP demonstration. The State, instead of including an acute or chronic WET limit in permits when RP is demonstrated, requires only TRE/TIEs. That does not comply with 40 CFR 122.44(d), which requires a WET limit upon demonstrating WET RP. Region 5 indicated that the State made one exception for a WET limit in one permit when there was an exceptional case due to a failure to complete a required TIE/TRE; however, that does not appear to be a general state practice.

EPA WET Test Methods (cited): The municipal permit cited EPA's 2002 WET test methods. The industrial permit initially cites outdated 1990 WET test methods, but later on in its *Attachment H - Special Conditions*, requires that all test methods used under the permit should conform to 40 CFR 136 EPA methods, which results in a permit test methods inconsistency. That could contribute to the permittee using the incorrect method. Chronic testing is not required by the permit, but acute WET testing is required for both *C. dubia* and fathead minnow.

Permit Conditions and Monitoring: The review of permit conditions and monitoring requirements identified that the fact sheet does not provide information on WET RP analysis for acute and chronic toxicity for either the municipal or industrial permits, which could be addressed through appropriate permit documentation.

3.2.12 National Pretreatment Program

The General Pretreatment Regulations (40 CFR 403) establish responsibilities of federal, State, and local government; industry; and the public to implement Pretreatment Standards to control pollutants from the industrial users, that could pass through or interfere with POTW treatment processes or that could contaminate sewage sludge. The goal of this Pretreatment Program PQR review was to identify if permitting authorities incorporated POTWs' responsibilities into permit requirements.

The universe of potential NPDES permits for this review was all POTWs already part of the core PQR review and topic-specific PQR review. POTWs' design flow rate was pulled from PCS to help with the selection processes. Permits were grouped by their design flow rate—less than 5 mgd, 5 to 10 mgd, and more than 10 mgd. EPA selected 16 permits from Region 5 (3 in Illinois, 3 in Indiana, 3 in Michigan, 2 in Minnesota, 2 in Ohio, and 3 in Wisconsin). The permits were reviewed for these requirements: 40 CFR 122.42(b) notice requirements, 40 CFR 122.41(m) bypass prohibition, 40 CFR 122.41(n) upset provisions, 40 CFR 403.8 POTW Pretreatment Program, and 40 CFR 403.12(i) POTWs annual report requirements.

Findings

All POTWs required to develop a Pretreatment Program have an approved Pretreatment Program according to their permits. Their permits also include an annual report requirement. One Indiana permit and one Minnesota permit require annual reports even though POTWs are not required to develop a Pretreatment Program. One Indiana permit, a POTW with less than 5-mgd design flow, includes requirements to develop a Pretreatment Program, if necessary.

Three Illinois permits and one Ohio permit do not include standard conditions for upset and bypass. One reason for the missing standard conditions in the Ohio permit could be that the copy reviewed was an incomplete permit. Three Wisconsin permits do not include standard conditions for upset.

One Illinois permit, one Ohio permit, and three Wisconsin permits reviewed by EPA do not include 40 CFR 122.42(b) requirements. One reason for the missing standard conditions in the Ohio permit could be that the copy reviewed is an incomplete permit.

4.0 SUMMARY OF FINDINGS AND PROPOSED ACTION ITEMS

The NPDES Regional Program Review and PQR identified areas where the Region and its States were doing well and recommended areas where improvement is needed. This section provides a summary of the main findings of the review and provides proposed NPDES Action Items to improve Region 5 NPDES permit programs. This list of proposed Action Items will serve as the basis for ongoing discussions between Region 5 and its authorized States, as well as between Region 5 and EPA Headquarters. Those discussions should focus on eliminating program deficiencies to improve performance by enabling good quality, defensible permits to be issued in a timely fashion.

The proposed Action Items are divided into three categories to identify the priority that should be placed on each item and facilitate discussions between Regions and States.

- Category 1—Most Significant: Proposed Action Items will address a current deficiency or noncompliance with a federal regulation.
- Category 2—Recommended: Proposed Action Items will address a current deficiency with EPA guidance or policy.
- Category 3—Suggested: Proposed Action Items are listed as recommendations to increase the effectiveness of the State's or Region's NPDES permit program.

The Category 1 and Category 2 proposed Action Items should be used to augment the existing list of *follow-up actions* established as an indicator performance measure and tracked under EPA's Strategic Plan Water Quality Goals or might serve as a roadmap for modifications to Region 5 program management.

Note that the NPDES Program Review for Region 5 took place in late Spring 2008, and significant steps for improvement in deficient areas might have already occurred.

4.1 NPDES Regional Program Review

4.1.1 Permit Issuance

In FY2008, Region 5 exceeded its goal of priority permit issuance with 99.2 percent of permits designated as priority issued by the end of the year. Approximately 10 percent of the Region's backlogged permits were designated as priority permits. As of September 30, 2008, approximately 89 percent of Region 5's universe of about 13,441 out of 15,181 permits were current. Of the expired permits, nine were major permits that had been expired for more than 10 years.

- Region 5 should look at the priority permits universe to ensure that more priority permits are designated. EPA Headquarters encourages Region 5 to look at more permits with environmental significance. (Category 3)
- Region 5 should work with its States in issuing permits expired more than 10 years.

- Specifically, Wisconsin's two permits that had been expired for more than 10 years should be scheduled as priority permits to be issued within the next 2 years. (Category 2)

4.1.2 Sanitary Sewer Overflow (SSO)

Illinois has not been including the 85 percent influent removal requirement for *excess flow* outfalls in permits.

- Illinois permits should include 85 percent removal requirements in permits or include in the fact sheet the rationale clarifying why 85 percent removal influent removal is not included as a permit requirement. (Category 1)

4.1.3 Whole Effluent Toxicity (WET)

Illinois does not issue permits in compliance with 40 CFR 122.44 (d)(ii), and the Region needs to review the State's Continuing Planning Procedures for adequacy as required under 40 CFR 130.5(a). There is an agreement with the State to initiate an Action Item, which includes setting milestones for achieving the goal.

- The Region should work with the State to develop RP procedures and requirements that are compliant with the CWA and the NPDES regulations at 40 CFR 122.44(d)(ii), which provide the basis for the WET NPDES permit controls (i.e., monitoring, WET limits). The State must establish or update the Continuing Planning Procedures, as required under 40 CFR 130.5(a). (Category 1).

4.1.4 Withdrawal Petitions

Illinois has not been issuing CAFO permits, and does not have any active CAFO permits.

- Illinois should improve its CAFO program and work with EPA in issuing CAFO permits as required by federal regulations. (Category 1)

4.2 Permit Quality Review

4.2.1 Core Permit Review

In general, the core review indicated that the permits reviewed are largely consistent with State and EPA rules, guidance, and policy pertaining to NPDES permits. Recommendations for addressing issues or concerns that were identified for each State reviewed are presented below.

Illinois

Several fact sheets developed by the State and reviewed during the PQR did not fully meet the requirements of 40 CFR 124.8 and 124.56. The State should revise its fact sheet structure to fully document development of permit conditions for major permits and specifically address the following concerns:

- Illinois EPA should expand the discussion in fact sheets to include additional discussion of how permit limits are developed. Specifically, fact sheets should more clearly discuss the process for determining RP and selecting the most stringent limits. (Category 1)
- Where appropriate, Illinois EPA should cross-reference the titles and dates of supporting analyses or rationales (e.g., water quality reports) where it determines that the documents are too large to include in fact sheets. (Category 1)
- Because the water quality analyses are not performed by the permit writer, the State's limit development process should include a final check to ensure that any technology-based effluent limits are protective of water quality. (Category 1)
- When permit limits change from the values in the previous permit, fact sheets should provide more standardized documentation of antibacksliding and antidegradation. Illinois EPA should expand the discussion in the fact sheets of antidegradation and antibacksliding, including the possible use of standard headings, explanatory template language, and discussion of why such provisions are not applicable in situations where they appear to be potentially applicable. (Category 1)
- Where Illinois EPA develops BOD and TSS limits for POTWs that are more stringent than those required by Secondary Treatment Standards, the fact sheet should explain that this is why the 85 percent removal requirement for BOD and TSS is not included in these permits. (Category 1)
- Water quality reports should include or clearly reference additional information on the data supporting the analysis (e.g., effluent and stream flow, ambient and effluent data, mixing considerations). (Category 1)
- Permit limits derived from flow or production-based effluent limitation guidelines for industrial facilities should be based on a reasonable measure of actual production and flow. (Category 2)

Indiana

The Indiana core review identified some issues regarding the submission of appropriate application data and completion of antidegradation policy. For example, two of the three POTW applications reviewed do not require monitoring of all the parameters listed in Tables 1A, 1, and 2 in Part 122 Appendix J. Indiana also should include additional documentation regarding certain topics. The following proposed Action Items should be considered for permits issued by IDEM:

- IDEM should ensure that POTW application forms require monitoring of all the parameters listed in Tables 1A, 1, and 2 in Part 122 Appendix J. (Category 1)
- IDEM should include percent removal requirements in POTW permits where BOD and TSS limits are based on the Secondary Treatment Standards (40 CFR 133). Where IDEM determines that BOD and TSS limits are more stringent than Secondary Treatment requirements, documentation in the fact sheet or permit file should state why the 85 percent removal requirement for BOD and TSS is not included in relevant permits. (Category 1)
- IDEM should continue developing antidegradation implementation procedures and an associated rulemaking. When completed, IDEM should work to ensure consistent

implementation of antidegradation requirements including documentation in permit fact sheets. (Category 2)

- The identification and RP analysis of pollutants of concern should be more clearly documented. It might be useful to develop a more structured approach to requesting RP (e.g., a request checklist with individual pollutants listed) to increase the likelihood that all pollutants of concern are addressed, by the permit writers and the water quality modelers. (Category 2)

Wisconsin

Although the Wisconsin core review showed that permits issued by WDNR are generally consistent with EPA requirements, certain issues recur in permits and reflect potential inconsistencies with EPA requirements. Those issues are generally understood by and being addressed by the WDNR and Region 5. Nevertheless, the following proposed Action Items should be considered for permits issued by WDNR:

- The WDNR should consider approaches for adopting/incorporating EPA rules to ensure that State rules are consistent with federal NPDES regulations. Specific provisions of concern include Bypass and Effluent Limitations Guidelines requirements. (Category 1)
- WDNR and Region 5 should determine whether Wisconsin's Variance to 85 Percent TSS Removal Requirement [NR 210.07 (2)] is consistent with federal secondary treatment requirements and exceptions. (Category 2)
- WDNR and Region 5 should reconcile the State's approach to addressing effluent limitations for WET or mercury in State permits after elevated toxicity or mercury levels are measured in a discharge. (Category 1)
- WDNR should continue work to adopt revisions to its rules regarding standards for temperature and by doing so, enable more consistent regulation of thermal discharges. (Category 1).
- WDNR and Region 5 should reconcile the fact that, by regulation, WDNR exempts regulation of chlorine in NPDES permits of certain discharges, although State WQS establish water quality criteria for this pollutant. (Category 1)
- WDNR should strengthen fact sheets in the following areas to ensure that they meet the requirements of 40 CFR 124.8 and 124.56. As a general matter, Wisconsin should be able to implement this recommendation by referring readers to the State's WQBEL memos. (Category 1)
    - Permit documentation should include such information as what water quality data characterizing receiving waters were available and considered for development of WQBELs; §303(d) status of receiving waters; what effluent data were available for determining the need for WQBELs and why attention was focused on particular pollutants of concern; and what information was available and what assumptions were made regarding mixing and dilution in the receiving water.
    - A description of the basis for limitations and requirements retained from previous permits.
    - WDNR fact sheets would be improved with more direct attention to specific subjects such as antidegradation and antibacksliding. For example, where the requirements are

not triggered, a statement to that effect, with a brief explanation, would be meaningful to third party reviewers.

4.2.2 Mercury Methods

As described in Section 3.2.1, a review of mercury methods specified in the permits reviewed for the Region 5 States presented mixed results, including the finding that several permits do not include mercury limits even though RP seemed to exist. Proposed Action Items for Region 5 and its States include the following:

- Region 5 should ensure that the States are aware of the most current mercury methods and should verify that each State is incorporating sufficiently sensitive analytical methods into relevant permits. See *Analytical Methods for Mercury in National Pollutant Discharge Elimination System (NPDES) Permits*, at http://www.epa.gov/npdes/pubs/mercurymemo_analyticalmethods.pdf. (Category 1)
- States in Region 5 should implement policies and procedures to evaluate which methods are appropriate for application data and for monitoring during the permit term. (Category 2)
- Fact sheets should better document decisions and rationales behind mercury limits used in the permit. (Category 2)
- Where monitoring data that are analyzed with a sufficiently sensitive analytical method are not available at permit renewal, EPA encourages Regions and States to consider the use of Toxic Release Inventory data as appropriate. (Category 3)

4.2.3 Impaired Waters and TMDLs

The Indiana permits include limits for those pollutants of concern that were likely to be discharged from the facility (e.g., *E. coli*) but do not discuss the impaired status of the receiving waters or how the permit conditions address such impairments. The Michigan permits do not discuss the impaired status of the receiving waters or how the permit conditions address such impairments. Additionally, the permits do not include limits for the pollutants identified as causing §303(d) impairments in the receiving water; however, those facilities might not cause or contribute to such impairments. The Ohio permits do not discuss the impaired status of the receiving waters and do not include limits for the pollutants identified as causing the §303(d) impairments or explain why limits were not included. Finally, one Wisconsin permit includes limits and monitoring requirements for a pollutant of concern (phosphorus) but offers no discussion, and the second permit's facility does not appear to discharge to an impaired segment, but the permit includes limits and monitoring requirements for phosphorus. The following proposed Action Items should be considered by Region 5 and the Region 5 States:

- The fact sheet or permit file should include documentation regarding whether the receiving water is listed as a §303(d) impaired waterbody. (Category 1)
- The fact sheet or permit file should include discussion of whether a facility discharges pollutants of concern and, if so, how the permit conditions were developed consistent with state requirements to account for such impairments. (Category 1)

In the Illinois permit reviewed, a completed TMDL for fecal coliform is implemented in effluent limitations; however, the facility has received a year-round exemption from meeting that effluent limitation at the point of discharge. Illinois EPA believes the permit limits are appropriate (the TMDL document indicates that it is a year-round disinfection exemption—the fact sheet indicates that disinfection is not required because the downstream segment is not suitable for primary recreation). In the Indiana permits, final WLAs are not applicable to the permits reviewed; however, the permits include equivalent limits. Similarly, in one Michigan permit, a WLA for TSS was not yet applicable; however, the permit includes a more stringent limit. For the second Michigan permit, a TMDL for *E. coli* and biota was finalized after permit issuance, and the permit includes limits for fecal coliform; available information indicates that compliance with the fecal limit will be considered compliance with *E. coli* WQS. Finally, a revised TMDL for fecal coliform was developed after the Minnesota permits were issued; however, the permits include limits that are consistent with the TMDL. The following proposed Action Item should be considered by Region 5 and States.

- States should document the status of relevant TMDLs in the fact sheet or permit files, including how permit conditions reflect applicable TMDL results. (Category 1)

4.2.4 Use of *E coli* and Enterococcus Bacteria Standard

Overall, permits in Indiana, Michigan, and Minnesota include limits for *E. coli* that are consistent with current federal criteria, while permits in Ohio and Wisconsin include limits for fecal coliform and require monitoring for *E. coli*. Ohio appears to be phasing in *E. coli* standards, and Wisconsin has a beach monitoring program that requires public notice for *E. coli* levels that exceed the federal *E. coli* water quality criteria. In addition, Illinois, Minnesota, Ohio, and Wisconsin are subject to 40 CFR 131.41, "Biological criteria for those states not complying with CWA §303(i)(1)(a)." Finally, in Minnesota, limited resource value waters have an *E. coli* standard of not to exceed 630 organisms/100 mL as a geometric mean of not less than five samples representative of conditions within any calendar month.

The following recommendations should be considered by Region 5 and States:

- Region 5 should ensure that Minnesota is applying *E. coli* limits as needed for discharges to Lake Superior, including when the discharge initially enters limited resource waters. (Category 2)
- Wisconsin and Region 5 should ensure that *E. coli* standards are being applied consistent with Great Lakes beach monitoring program requirements and should explore the State's adoption of *E. coli* WQS. (Category 2)
- Region 5 should continue to work with Ohio as the State works toward implementing *E. coli* standards by November 1, 2010. (Category 3)

4.2.5 Thermal Variances & Cooling Water Intake Structures [CWA §316(a) & (b)]

Decisions regarding thermal discharge variances authorized under CWA §316(a) were not well documented in many permits. Permit requirements and determinations of Best Technology Available for cooling water intake structures in accordance with §316(b) are missing in many

permits. Region 5 States should implement the following Action Items to improve implementation of §316(a) and (b) requirements in permits:

- Permits and fact sheets should explicitly document the basis (including the use of mixing zones) for any §316(a) thermal variances. (Category 1)
- States should include §316(b) cooling water intake structure permit conditions for existing facilities on a BPJ basis, and the basis for determining Best Technology Available should be documented in the permit fact sheet. (Category 2)
- States should ensure that §316(b) is applied to all applicable facilities, not just power generating facilities. (Category 1)
- States should reevaluate any §316(a) thermal variances and §316(b) requirements at each permit renewal and document the basis in the permit fact sheet. Prior determinations should also be documented in the fact sheet and reflected in the current permit, as appropriate. (Category 1)

4.2.6 Stormwater

The stormwater general permits that were reviewed are current, except for those in Illinois, which had expired, with new draft permits under development (the draft permits were reviewed for Illinois). Two Ohio permits were reviewed, a CGP and an MS4 individual permit. The Olentangy River CP contains many good qualities, although there are opportunities to strengthen the BMP requirements. The review of the Dayton permit found the quality to be poor. The Michigan MS4 permit reviewed does not include specific measureable goals, includes some stormwater rule provisions of questionable relevance, and does not include a quality fact sheet. The Wisconsin MS4 permit reviewed was good; however, the permit does not include a requirement for any type of large-scale or long-term evaluation of the program.

Region 5 and States should consider the following recommendations:

- Illinois and Region 5 should continue to work together to reissue the Illinois stormwater permits expeditiously. (Category 2)
- Region 5 and States should consider using the stormwater findings presented in this report to strengthen the relevant stormwater permits. (Category 3)
  - Permits such as the Dayton Ohio MS4 permit should be revised and strengthened, for example, to clarify the stormwater discharges permitted.
- Region 5 should ensure that reissued stormwater permits, particularly MS4 permits, advance beyond basic requirements contained in previously issued permits (i.e., address EPA's iterative BMP approach for MEP). To improve permit quality, the permits should include enhanced requirements for permittees to evaluate existing SWPPPs and stormwater management plans (SWMPs) and modify or enhance them as necessary to further reduce the discharge of pollutants. Specific post-construction retention performance standards should be included. Also, particularly for MS4 permits, permit conditions should be written such that the requirements are clear and enforceable per the MS4 permit improvement guidance circulated to the Regions earlier this year. (Category 3)

In addition to the recommendations above, the following could warrant further guidance and coordination (Category 3):

- IDEM is looking for guidance based on the recent 9th Circuit Court decision vacating EPA's Oil and Gas Rule.
- Region 5 encourages further guidance on wet weather WQBELs. The stormwater and CAFO programs and, to some extent, other wet-weather programs, continue to rely on BMPs to implement controls in permits. The NPDES and related programs (including TMDLs, WQS, antidegradation, trading, and such) are not well suited to accommodate BMP approaches. Expectations among certain members of the public are high, and NPDES permit authorities are struggling with how to write permits that protect water quality. Region 5 sees a need for a national forum to focus on these topics and provide clearer guidance to States.
- Several Region 5 States (Indiana, Minnesota, and Ohio) are revising their antidegradation rules and have raised the issue of how to apply antidegradation to general permits for small MS4s. Region 5 NPDES and water quality staff are in the process of reviewing available literature regarding antidegradation as it applies to MS4s. Some of the issues being explored include
  - Does antidegradation apply to MS4 permits?
  - How are Region 5 States addressing antidegradation now?
  - General permit review/major topics that have emerged.
  - Challenges to applying antidegradation.
  - Identify best practices.

4.2.7 Combined Sewer Overflows

Recommendations based on a review of select CSO requirements include the following:

- Indiana should provide more detail in their LTCPs on the source of data values in Schedule 4. (Category 3)
- Michigan should provide more detail in their LTCPs of the following: (Category 3)
  - Further discussion on the evaluation of sensitive areas
  - Explicit evaluation of cost performance
  - Whether viable alternatives were considered

4.2.8 Sanitary Sewer Overflows

Proposed Action Items to improve SSO implementation and management of Peak Flows in Region 5 States include the following:

- Illinois EPA and Region 5 should ensure that permits for PEFTFs in Illinois contain appropriate effluent limitations based on the secondary treatment regulations and more stringent WQBELs. (Category 1)
- The Region needs to investigate whether municipal satellite collection systems in Indiana, Illinois, Minnesota, and Ohio are required to report SSOs. If not currently required to report SSOs, the States should provide municipalities with information in the

EPA draft SSO Fact Sheet related to reporting requirements for future SSO discharges. (Category 2)

- Illinois EPA and WDNR should work with Region 5 to ensure that permittees in Illinois and Wisconsin who are seeking approved bypasses in their permit must submit a *no feasible alternative analysis* as part of their permit application. (Category 1)

In Illinois, the State has not been including the 85 percent influent removal requirement for *excess flow* outfalls in permits.

- Illinois permits should include 85 percent removal requirements in permits, or include in the fact sheet the rationale clarifying why 85 percent removal influent removal is not listed as a permit requirement. (Category 1)

4.2.9 Concentrated Animal Feeding Operations

In general, Region 5 States have made good progress in authorizing CAFOs under NPDES permits. To date, EPA and State efforts have focused primarily on issuance of permits to Large CAFOs. Region 5 will work with the States to address AFOs that meet the definition of a Medium CAFO. Some of the language in the State-issued NPDES permits will need to be updated to meet the requirements of the federal regulations, once the States have assessed, and made revisions to, their programs as necessary to incorporate the 2008 federal CAFO rule. Listed below are proposed Action Items that the identified States should consider to improve the quality of their permits.

Illinois

- Illinois should provide justification for why only 8 of the 500 CAFOs in the State are covered under an NPDES permit. (Category 1)

Indiana

- The General Permit By Rule must be updated to include the following federal requirements: (all Category 1)
  - The submission of an Annual Report [122.42.(e)(4)].
  - Ensure the proper management of mortalities [122.42(e)(1)]. However, there is a discussion at *327 IAC 16-9-3 Dead animal compost operations*, but it limits itself to only the requirements for composting mortalities.
  - The diversion of clean water [122.42(e)(1)].
  - The prevention of direct contact of animals with waters of the United States [122.42(e)(1)].
  - The proper handling of chemicals [122.42(e)(1)].
  - Conservation practices to control nutrient loss [122.42(e)(1)].
- In addition, the State must work with Region 5 to obtain approval of the technical standards for nutrient management incorporated into the permit. (Category 1)

Michigan

- The permit must include the content requirements of its Notice of Intent (NOI) or application for coverage under the general permit. (Category 1)

Minnesota

- Minnesota should inform Region 5 how it is implementing the evaluation requirements identified in *Policy 2005-01—Winter Land Application Review Guidance for Large Concentrated Animal Feeding Operations.* (Category 2) (Minnesota used the 2005 guidance to help craft new general permit language related to winter spreading of manure. The new general permit prohibits winter spreading of liquid manure and establishes new safeguards for winter spreading of solid manure, including pre-approval of fields based on modeling results (Minnesota Phosphorus Index). The new general permit goes into effect February 1, 2011, and will eliminate the need for the 2005 guidance.)

Ohio

- Ohio should update its inspection checklist to enable inspectors to assess whether unpermitted CAFOs propose to discharge, using the criteria in the federal regulations. (Category 3)

4.2.10 Whole Effluent Toxicity

Region 5 should pursue more State oversight and coordination on WET program implementation, including an analysis of NPDES WET permitting programs to ensure that the States' aquatic life protection (or WET) WQS are complied with, as well as the GLI Rule. EPA should check and ensure that WET test methods are incorporated by reference to 40 CFR 136 in all permits, avoiding inconsistencies caused by citing outdated WET test methods or no WET test methods at all. EPA also recommends that *if State* WQS cite WET test methods for NPDES permit purposes, they incorporate by reference 40 CFR 136, so appropriate and current test methods, such as the 2002 WET test methods, are contained in the WQS to provide consistency between the State WQS and the State's permits.

EPA should ensure that fact sheets thoroughly document the rationale behind each permit decision and requirement, or lack of permit requirements, including monitoring, WET limits, or a reduction in monitoring frequency. The permits, at a minimum, should provide a clear explanation to substantiate their WET permit decisions and RP assessments, including a summary or reference to WET data on which decisions were based.

While regulations require annual monitoring where there is a WET limit, 40 CFR 122.44(d) also requires several factors to be considered when determining WET RP, and appropriate monitoring frequency be used under 40 CFR 122.48(b) and (c). For example, monitoring data should be representative of the effluent, including ensuring effluent variability is accounted for even when evidence of RP is deemed sufficient. 40 CFR 122.48(b) requires permits establish monitoring requirements to yield data representative of the monitored activity, and 40 CFR 122.44(i)(l) requires monitoring requirements ensure compliance with permit limitations. Monitoring frequencies are based on the nature of the facility, similar facilities and, if applicable, existing and/or previous permit's monitoring results or compliance history. In addition, EPA's 1991 Technical Support Document (TSD) for Water Quality-based Toxics Control (EPA/505/2-90-001) recommends conducting toxicity tests quarterly for one year to adequately assess the variability of toxicity observed in effluents.

State-specific proposed Action Items include the following:

Indiana

- Municipal fact sheets should adequately document the rationale and decisions not to include WET limits or WET monitoring requirements in the permit. Specifically, the permit should contain documentation for: RP assessment of *no toxicity*; the decision that monitoring is only required at permit renewal, not during permit term to identify potential State WQS exceedances. The State must determine RP in a manner that is consistent with 40 CFR 122.44(d)(ii), which requires that "…the permitting authority shall use procedures that account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing…" To support this requirement the monitoring frequency selected should be representative of the effluent discharge as required under 40 CFR 122.48(b), "All permits shall specify: (b) Required monitoring including type, intervals, and frequency sufficient to yield data which are representative of the monitored activity including, when appropriate, continuous monitoring. (c) Applicable reporting requirements based upon the impact of the regulated activity and as specified in 40 CFR Section 122.44. Reporting shall be no less frequent than specified in the above regulation." (Category 1)

Minnesota

- Fact sheets should more accurately and completely document the rationale for monitoring requirements included in the permit, including whether WET RP assessment was completed. The procedure used and results obtained for WET RP determination should be stated in the fact sheet. (Category 1)
- The State should incorporate appropriate compliance monitoring frequencies to enable the collection of representative toxicity data [40 CFR 122.48 (b) and (c)]. (Category 1)

Ohio

- Instead of calculating acute toxicity from chronic WET tests, the State should conduct acute WET tests. The calculation of acute toxicity endpoints from chronic toxicity test is not recommended because of differences in WET test design of an acute test versus a chronic test, including replication, organisms per replicate, and feeding. (Category 2)
- Permit requirements for TRE/TIE should include clear conditions and instructions to the permittee and be documented thoroughly in the permit and fact sheet. (Category 3)

Michigan

- The fact sheets for both municipal and industrial permits should document how permit requirements ensure that State's WET WQS, criteria and implementation procedures are addressed in the permit. (Category 1)
- Permit fact sheets should clearly and completely document WET RP assessment and data upon which it was based. Permits should cite appropriate WET test methods, or incorporate by reference 40 CFR 136. (Category 1)

Wisconsin

- Industrial fact sheets (directly or by reference to other documents) should clearly document the WET RP assessments, decisions and the data and rationale upon which these are based. (Category 1)
- WDNR should implement GLI over promulgation to ensure that correct WET test methods are specified or incorporated by reference in the permit (40 CFR 136). (Category 1)
- Outside the Great Lakes Basins, WDNR should ensure that upon demonstration of toxicity exceeding State WET WQS, a WET limit must be included in the permit. (Category 1)
- The State should incorporate appropriate monitoring frequencies to enable the collection of representative toxicity data [40 CFR 122.48(b) and (c)]. (Category 1)

Illinois

- Illinois should revise its NPDES approach to WET. Illinois should include acute or chronic WET limits in permits when WET RP is demonstrated, as required under federal regulations [40 CFR 122.44(d)], instead of including TRE/TIEs in permits as substitutes for WET limits. (Category 1)
- Municipal and industrial fact sheets should thoroughly document the rationale behind RP assessments and procedures used for determining RP, results obtained from RP determination, as well as decisions to include WET limits. (Category 1)
- Illinois EPA should ensure that permits list WET test methods promulgated at 40 CFR 136, or incorporate them by reference in the permit's general conditions. (Category 1)
- The State should incorporate appropriate monitoring frequencies to enable collection of representative toxicity data [122.44(d)(ii), 122.48(b) and (c)]. (Category 1)

4.2.11 Pretreatment Program

All POTWs required to develop a Pretreatment Program should have an approved Pretreatment Program as required in 40 CFR 403. Except for Wisconsin, all States included 40 CFR 122.42(b) language in permits.

- Wisconsin permits should include 40 CFR 122.42(b) requirements. (Category 1)

4.2.12 Bypass 40 CFR 122.41(m) and Upset 40 CFR 122.41(n)

All States included bypass and upset standard conditions except for Illinois.

- Illinois permits must include bypass standard conditions. (Category 1)

LIST OF ATTACHED APPENDICES:

APPENDIX A: CENTRAL TENETS OF THE NPDES PERMITTING PROGRAM

APPENDIX B: CORE REVIEW CHECKLISTS

APPENDIX A

CENTRAL TENETS OF THE NPDES PERMITTING PROGRAM

APPENDIX A – CENTRAL TENETS OF THE NPDES PERMITTING PROGRAM

I. Permit Administration	
CWA/NPDES Requirements	**Conditions Subject to Disapproval**
The Clean Water Act (CWA) and NPDES regulations require that no point source may discharge pollutants to Waters of United States without explicit authorization provided by an NPDES permit. Complete applications must be submitted at least 180 days prior to discharge or expiration. Addtionally, NPDES permit terms may not exceed 5 years. NPDES permits must clearly state the permit term and may not be modified to extend the permit term beyond 5 years. The NPDES regulations also require "fact sheets" for all major facilities, general permits, and other permits that may be subject to widespread public interest or raise major issues. Fact sheets MUST contain all of the elements prescribed at 40CFR124.8 AND 40CFR124.56.	- Any facility that fails to submit a complete permit application at least 180 days prior to discharge or expiration -Any permit that does not clearly identify the permitted facility and describe the authorized discharge location(s) -Any permit with term > 5 years -Any permit modification that extends the permit term beyond 5 years - Any permit (for a major facility, general permit, et al.) that is not accompanied by a fact sheet developed in accordance with the requirements of 40CFR124.8 and 40CFR124.56.

II. Technology-Based Effluent Limits	
Municipal Dischargers - Publicly Owned Treatment Works (POTWs)	
CWA/NPDES Requirements	**Conditions Subject to Disapproval**
CWA requires POTWs to meet secondary or equivalent to secondary standards (including limits for BOD, TSS, pH, and percent removal). Permits issued to POTWs, therefore, MUST contain limits for ALL of these parameters (or authorized alternatives) in accordance with the Secondary Treatment Regulations at 40 CFR Part 133.	-Any permit that does not contain specific numerical limits for BOD (or authorized alternative; e.g., CBOD), TSS, pH, and percent removal. - Any permit that contains limits less stringent than those prescribed by the Secondary Treatment Regulation at 40 CFR Part 133, unless authorized by the exceptions noted in this regulation. Any permit that applies these exceptions must clearly document the basis. - Any permit that contains a compliance schedule that extends a statutory deadline for meeting secondary treatment requirements.

Non-Municipal Dischargers	
CWA/NPDES Requirements	**Conditions Subject to Disapproval**
The CWA requires permits issued to non-municipal dischargers to require compliance with a level of treatment performance equivalent to "Best Available Technology Economically Achievable (BAT)" or "Best Conventional Pollutant Control Technology (BCT) by July 1, 1989, for existing sources, and consistent with "New Source Performance Standards (NSPS)" for new sources. Where effluent limitations guidelines (ELG) have been developed for a category of dischargers, the technology-based effluent limits MUST be based on the application of these guidelines. In addition, if pollutants are discharged at treatable levels, and ELGs are not available, or for pollutants that were not considered during the development of an applicable ELG, the permit must include requirements at least as stringent as BAT/BCT. The performance level equivalent to BAT/BCT MUST be developed on a case-by-case basis using the permit writer's best professional judgement in accordance with the criteria outlined at 40CFR125.3(d).	- Any permit that does not include a specific numerical limit (or other requirement) for any pollutant parameter that is part of an ELG applicable to a discharger. - Any permit that misapplies or miscalculates an applicable limit required by an ELG (*e.g., improper categorization, improper new source/existing source determination, inappropriate production or flow data used to calculate limits, failure to adjust limits to account for unregulated wastestreams such as non-contact cooling water or storm water*). - Any permit that does not contain a limit at least as stringent as required by 40CFR125.3(c)(2) where effluent limitations guidelines are inapplicable (*e.g., where a pollutant is discharged at treatable levels, but there is no applicable ELG, or the applicable ELG did not consider the pollutant of concern*). - Any permit that contains a compliance schedule that extends a statutory deadline for meeting a technology-based effluent limit.

III. Water Quality-Based Effluent Limits	
CWA/NPDES Requirements	**Conditions Subject to Disapproval**

III. Water Quality-Based Effluent Limits

CWA requires every State to develop water quality standards to protect receiving water, including designated uses, water quality criteria, and an antidegradation policy. The NPDES regulations at 40 CFR 122.44(d), require that limits MUST be included in permits where pollutants will cause, have reasonable potential to cause, or contribute to an exceedance of the State's water quality standards. States will likely have unique implementation policies for determining the need for and calculating water quality-based effluent limits; however, there are certain tenets that may not be waived by these State procedures. These include:

- Where valid, reliable, and representative effluent data or instream background data are available they MUST be used in applicable reasonable potential and limits derivation calculations. Data may not be arbitrarily discarded or ignored.
- Where calculations indicate reasonable potential, a specific numeric limit MUST be included in the permit. Additional "studies" or data collection efforts may not be substituted for enforceable permit limits where "reasonable potential" has been determined.
- Where the preponderance of evidence clearly indicates the potential to cause or contribute to an exceedance of State water quality standards (even though data may be sparse or absent), a limit MUST be included in the permit (e.g., a new POTW plans to chlorinate its effluent and instream chlorine toxicity is anticipated).
- Where a technology-based is limit is required (due to an ELG or BPJ) AND the limit is not protective of water quality standards, a WQBEL MUST be developed and included in the permit regardless of whether data indicate reasonable potential (i.e., a technology-based limit cannot authorize a discharge that would result in a violation of water quality standards).
- Where the permit authorizes the discharge of a pollutant that results in a new or increased load to the receiving water, the State must ensure that the new or increased load complies with the antidegradation provisions of the State's water quality standards.
- The final calculated limit placed in the permit MUST be protective of water quality standards, and MAY NOT be adjusted to account for "treatability" or analytical method detection levels.
- Any permit where the State fails to use all valid, reliable, and representative effluent or instream background data in reasonable potential and limits calculations.
- Any permit where the State fails to include a final enforceable limit in a permit where the discharge of a pollutant will cause, have reasonable potential to cause, or contribute to an exceedance of a State water quality standard.
- Any permit that fails to incorporate WLAs from an approved TMDL, or that contains a limit that is not consistent with the WLA prescribed in an approved TMDL
- Any permit that contains technology-based limits that are not protective of water quality standards
- Any permit that modifies a properly developed WQBEL to account for the ability of treatment to achieve the WQBEL or the availability of an analytical procedure to measure the presence of the pollutant
- Any permit that authorizes new or increased loading of a pollutant that is not in compliance with the State's antidegradation policy
- Any permit that contains a limit less stringent than a limit in the previous permit, unless specifically authorized under the antibacksliding provisions of the CWA
- Any permit that allows a variance of a State water quality standard, unless the variance has been approved by the EPA Region.
- Any permit that allows a new or increased loading of a pollutant to a receiving water that has not been evaluated for and shown to be in compliance with the antidegradation provisions of the State's water quality standards regulations.
- Any permit that includes a compliance schedule for meeting a WQBEL, unless the State standards specifically allow for compliance schedules, and the standard was established or modified after July 1, 1977.

IV. Monitoring and Reporting Conditions	
CWA/NPDES Requirements	**Conditions Subject to Disapproval**
The CWA and NPDES regulations require permitted facilities to monitor the quality of their discharge and report data to the permitting authority. Each State will have unique policies and procedures to establish appropriate frequencies, procedures, and locations for monitoring; however, there are certain tenets that may not be waived by these procedures.	- Any permit that does not require at least annual monitoring for all pollutants limited in the NPDES permit, unless the permittee has applied for and been granted a specific monitoring waiver by the permitting authority, and this specific waiver is included as a condition of the permit. - Any permit that does not require monitoring to be performed at the location where limits are calculated and applied (i.e., the monitoring location cannot be at a location that includes flows that were not accounted for in limits development; e.g., cooling water, storm water). - Any permit that does not require that the results of all monitoring of permitted discharges conducted using approved methods, be submitted to the permitting authority.

V. Special Conditions

Municipal Dischargers - Publicly Owned Treatment Works (POTWs)	
CWA/NPDES Requirements	**Conditions Subject to Disapproval**
In general, special conditions will be established based on the unique characteristics of the permitted facility. The appropriateness of these conditions, therefore, must be assessed on a case-by-case basis. However, there are certain elements of special conditions that may be the basis of an objection.	- Pretreatment: Any permit for a POTW required to implement a pretreatment program that does not contain specific pretreatment conditions. [State/Regional-specific language] - Municipal Sewage Sludge/Biosolids: Any permit that does not contain conditions addressing the facility's use/disposal of biosolids consistent with Federal requirements. [State/Regional-specific language] - Combined Sewer Overflows (CSO): Any permit for a facility authorized to discharge from CSOs, that does not comply with the State's CSO control policy and, at a minimum contain requirements for: ▸ Requiring compliance with all of the "Nine Minimum Controls" ▸ Requiring development and implementation of a "Long Term Control Plan" - Sanitary Sewer Overflows (SSO): Any permit that authorizes the discharge of untreated effluent from SSOs under any circumstances.
Municipal and Non-Municipal Dischargers	
CWA/NPDES Requirements	**Conditions Subject to Disapproval**

V. Special Conditions	
In general, special conditions will be established based on the unique characteristics of the permitted facility. The appropriateness of these conditions, therefore, must be assessed on a case-by-case basis. However, there are certain elements of special conditions that may be the basis of an objection.	- Any permit that contains a compliance schedule that extends a CWA deadline or otherwise modifies or postpones CWA or NPDES requirements unless specifically provided for in the statute or regulations. - Any permit that uses special studies or management plans to replace or modify limits or conditions that are required by the CWA or NPDES regulations, unless specifically provided for in the CWA or NPDES regulations (*e.g., permit requires a monitoring program in lieu of establishing a permit limit where available data indicate reasonable potential*).

VI. Standard Conditions	
CWA/NPDES Requirements	**Conditions Subject to Disapproval**
The NPDES regulations at 40 CFR 122.41 and 122.42 require that certain "standard condtions" be placed in all NPDES permits. The regulations allow States to omit or modify these standard conditions ONLY where the omission or modification results in more stringent requirements. For example, the standard condition that allows "bypass" under certain circumstances or the standard condition that allows "upset" to be used as an affirmative defense, may be omitted because the result of the omission is a more stringent permit requirement.	- Any permit that does not contain ALL of the standard conditions of 40 CFR 122.41 (unless the omission results in a more stringent condition). - Any permit that modifies the language of the standard conditions (unless the modification results in language that is more stringent than the 122.41 requirement). - Any permit for an existing non-municipal discharger that does not include the notification requirement of 40 CFR 122.42(a) - Any permit for a POTW that does not include the notification requirement of 40 CFR 122.42(b) - Any permit for a Municipal Separate Storm Sewer System (MS4) that does not include the annual reporting requirement of 40 CFR 122.42(c)

APPENDIX B

CORE REVIEW CHECKLISTS

APPENDIX B – CORE REVIEW CHECKLISTS

NPDES Permit Quality Review Checklist - For POTWs

Pre-Site Visit Review Information

		Response	Comment
1.	NPDES Permit number of facility:		
2.	Name of facility:		
3.	Permit Reviewer (Last Name):		
4.	Date of pre-site visit review (MM/DD/YYYY):		
5.	Is the draft permit complete ? (Y/N)		
6.	Is the fact sheet complete ? (Y/N)		

Site Visit Review Information

		Response	Comment
7.	Date of site visit review (MM/DD/YYYY)		
8.	Is the file copy of permit the same as the pre-site visit review version? (Y/N)		
9.	Is the file copy of the fact sheet the same as the pre-site visit review version? (Y/N)		
10.	Does the file (administrative record) contain appropriate supporting information (e.g., permit application, permit rationale, limit calculations)? (Y/N)		
11.	Does the file indicate that the permit writer obtained and reviewed DMR/compliance data? (Y/N)		
12.	Does the file indicate that the permit writer obtained and reviewed water quality data (e.g., pollutant concentrations, stream flows) for the receiving water (Y/N/NA)		

Facility Information

		Response	Comment
13.	Does the record or permit describe the physical location of the facility (e.g., address, lat/long)? (Y/N)		
14.	Does the record or permit provide the name of the receiving water body(s) to which the facility discharges? (Y/N)		
15.	Are all outfalls (including combined sewer overflow points) from the POTW treatment facility properly identified and authorized in the permit? (Y/N)		
16.	Does the record or permit contain a description of the wastewater treatment process? (Y/N)		

Permit Cover Page/Administration

		Response	Comment
17.	Does the permit term exceed 5 years? (Y/N)		
18.	Does the permit contain specific authorization-to-discharge information (from where to where, by whom)? (Y/N)		
19.	Does the permit contain appropriate issuance, effective, and expiration dates and authorized signatures? (Y/N)		

Effluent Limits

General Elements

		Response	Comment
20.	Does the record describe the basis (technology or water quality) for each of the final effluent limits? (Y/N)		
21.	Does the record indicate that any limits are less stringent than those in the previous NPDES permit? (Y/N)		
21a.	If yes, does the record discuss whether "antibacksliding" provisions were met? (Y/N)		

Technology-Based Effluent Limits (POTWs)

		Response	Comment
22.	Does the permit contain numeric limits for ALL of the following: BOD (or an alternative; e.g., CBOD, COD, TOC), TSS, pH, and percent removal? (Y/N)		
23.	Are percent removal requirements for BOD (or BOD alternative) and TSS included, and are they consistent with secondary treatment requirements (generally 85%; or modified in accordance with 40 CFR Part 133 allowances)? (Y/N)		
24.	Are technology-based permit limits expressed in appropriate units of measure (i.e., concentration, mass, SU)? (Y/N)		
25.	Are permit limits for BOD and TSS expressed in terms of both 30-day (monthly) average and 7-day (weekly) average limits? (Y/N)		
26.	Are any concentration limitations in the permit less stringent than the secondary treatment requirements (30 mg/l BOD5 and TSS for a 30-day (monthly) average and 45 mg/l BOD5 and TSS for a 7-day (weekly) average)? (Y/N)		
26a.	If yes, does the record provide a justification (e.g., waste stabilization pond, trickling filter, etc.) for the alternate limitations? (Y/N/NA)		
27.	Does the permit contain any technology-based limits for parameters other than those required by secondary treatment (e.g., chlorine, ammonia, nutrients)? (Y/N)		

Water Quality-Based Effluent Limits

		Response	Comment
28.	Does the record clearly identify the name of the receiving water(s) and the location within the receiving water(s) where the discharge(s) occur? (Y/N)		
29.	Does the record describe (list) the designated uses of the receiving water(s) to which the facility discharges (e.g., contact recreation, aquatic life use)? (Y/N)		
30.	Does the record describe the characteristics of the receiving water(s) (e.g., background pollutant concentrations) in the vicinity of the discharge(s)? (Y/N)		
31.	Does the record indicate that the receiving water(s) is/are impaired for any uses (i.e., that the receiving water(s) is/are listed on the State's 303(d) list)? (Y/N)		
31a.	If yes, does the record indicate that a TMDL has been COMPLETED for the pollutant(s) causing the impairment(s)? (Y/N/NA)		
31b.	If yes, does the record indicate that WQBELs based on applicable WLAs from the completed TMDL(s) were included in the permit? (Y/N/NA)		
32.	Does the record document that a **water quality impact assessment** (i.e., RP/WQBEL calculations or other WQ model) was performed for this discharger? (Y/N) **NOTE: IF "NO"** – Skip to question **#44**		

33.	Does the record show that a WQ impact assessment was performed for all relevant outfalls at this facility? (Y/N)		
34.	Does the record show that the WQ impact assessment was performed in accordance with the State/Region implementation procedures? (Y/N/NA)		
35.	Does the record describe how "pollutants of concern" were selected for the WQ impact assessment? (Y/N)		
36.	Does the record indicate that any pollutants were missing from the WQ impact assessment (e.g., detected in the effluent or otherwise regulated by TBELs, but no WQ impact assessment performed)? (Y/N)		
37.	Did the WQ impact assessment (i.e., calculations/WQ model) provide an allowance for dilution? (Y/N)		
37a.	If yes, does the record describe how the dilution allowance was determined (e.g., complete/incomplete mixing, critical flow assumptions, mixing zone size)? (Y/N)		
37b.	If yes, did the WQ impact assessment account for contributions from other sources (e.g., ambient/background concentrations)? (Y/N/NA)		
38.	Based on the WQ impact assessment, does the permit contain numeric effluent limits for all pollutants that have a reasonable potential to cause or contribute to an excursion of applicable WQ standards? (Y/N/NA)		
39.	Does the record provide WQBEL calculations for all pollutants that were found to have "reasonable potential"? (Y/N/NA)		
39a.	If yes, are the calculation procedures consistent with the State's implementation procedures? (Y/N/NA)		
40.	Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the record? (Y/N/NA)		
41.	For all final WQBELs, are both long-term (e.g., average monthly) and short-term (e.g., maximum daily, instantaneous) effluent limits established? (Y/N/NA)		
42.	Does the record indicate that the permit will allow new or increased loadings to the receiving water? (Y/N)		
42a.	If yes, does the record indicate that an "antidegradation" review was performed in accordance with the State's approved antidegradation policy? (Y/N/NA)		

Monitoring and Reporting Requirements

		Response	**Comment**
43.	Does the permit require at least annual monitoring for all limited parameters? (Y/N)		
44.	Does the record describe the rationale for monitoring location(s) and frequency(s)? (Y/N)		
45.	Does the permit require influent monitoring for BOD (or alternative) and TSS? (Y/N)		
46.	Does the permit require testing for Whole Effluent Toxicity? (Y/N)		

Special Conditions

		Response	Comment
47.	Does the permit include appropriate pretreatment program requirements? (Y/N/NA)		
48.	Does the permit include appropriate biosolids use/disposal requirements? (Y/N/NA)		
49.	If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadllines and requirements ? (Y/N/NA)		
50.	Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations? (Y/N/NA)		
51.	Does the permit allow discharges from Combined Sewer Overflows (CSOs) ? (Y/N)		
51a.	If yes, does the permit require implementation of the "Nine Minimum Controls" ? (Y/N/NA)		
51b.	If yes, does the permit require development and implementation of a "long-term control plan"? (Y/N/NA)		
51c.	If yes, does the permit require monitoring and reporting for CSO events? (Y/N)		
52.	Does the permit allow/authorize discharge of sanitary sewage from points other than the POTW outfall(s) or CSO outfalls [i.e., Sanitary Sewer Overflows (SSOs)]? (Y/N)		

Standard Conditions

		Response	Comment
53.	Does the permit contain all 40 CFR 122.41 standard conditions? (Y/N)		

List of Standard Conditions – 40 CFR 122.41

- Duty to comply
- Duty to reapply
- Need to halt or reduce activity not a defense
- Duty to mitigate
- Proper O & M
- Permit actions
- Property rights
- Duty to provide information
- Inspections and entry
- Monitoring and records
- Signatory requirement
- Reporting requirements
  - Planned change
  - Anticipated noncompliance
  - Transfers
  - Monitoring reports
  - Compliance schedules
  - 24 hour reporting
  - Other non-compliance
- Bypass
- Upset

54.	Does the permit contain the additional standard condition for POTWs regarding notification of new introduction of pollutants and new industrial users [40 CFR 122.42(b)]? (Y/N)		

NPDES Permit Quality Review Checklist - For Non-Municipals

Pre-Site Visit Review Information

		Response	Comment
1.	NPDES Permit number of facility:		
2.	Name of facility:		
3.	Permit Reviewer (Last Name):		
4.	Date of pre-site visit review (MM/DD/YYYY):		
5.	Is the draft permit complete ? (Y/N)		
6.	Is the fact sheet complete ? (Y/N)		

Site Visit Review Information

		Response	Comment
7.	Date of site visit review (MM/DD/YYYY)		
8.	Is the file copy of permit the same as the pre-site visit review version? (Y/N)		
9.	Is the file copy of the fact sheet the same as the pre-site visit review version? (Y/N)		
10.	Does the file (administrative record) contain appropriate supporting information (e.g., permit application, permit rationale, limit calculations)? (Y/N)		
11.	Does the file indicate that the permit writer obtained and reviewed DMR/compliance data? (Y/N)		
12.	Does the file indicate that the permit writer obtained and reviewed water quality data (e.g., pollutant concentrations, stream flows) for the receiving water (Y/N/NA)		

Facility Information

		Response	Comment
13.	Does the record or permit describe the physical location of the facility (e.g., address, lat/long)? (Y/N)		
14.	Does the record or permit provide the name of the receiving water body(s) to which the facility discharges? (Y/N)		
15.	Are all outfalls from the facility properly identified and authorized in the permit? (Y/N)		
16.	Does the record or permit contain a description of the wastewater treatment process? (Y/N)		

Permit Cover Page/Administration

		Response	Comment
17.	Does the permit term exceed 5 years? (Y/N)		
18.	Does the permit contain specific authorization-to-discharge information (from where to where, by whom)? (Y/N)		
19.	Does the permit contain appropriate issuance, effective, and expiration dates and authorized signatures? (Y/N)		

Effluent Limits

General Elements

		Response	Comment
20.	Does the record describe the basis (technology or water quality) for each of the final effluent limits? (Y/N)		
21.	Does the record indicate that any limits are less stringent than those in the previous NPDES permit? (Y/N)		
21a.	If yes, does the record discuss whether "antibacksliding" provisions were met? (Y/N)		

Technology-Based Effluent Limits (Effluent Guidelines and BPJ)

		Response	Comment
22.	Is the facility subject to a national effluent limitations guideline (ELG) ? (Y/N)		
22a.	If yes, does the record adequately document the categorization process, including an evaluation of whether the facility is a new source or an existing source ? (Y/N/NA)		
23.	For all limits that are based on production or flow, does the record indicate that the calculations are based on a "reasonable measure of ACTUAL production" for the facility (not design)? (Y/N/NA)		
24.	Does the permit contain "tiered" limits that reflect projected increases in production or flow? (Y/N)		
24a.	If yes, does the permit require the facility to notify the permitting authority when alternate levels of production or flow are attained? (Y/N/NA)		
25.	Does the record indicate that any limits were developed based on Best Professional Judgement (BPJ)? (Y/N/NA)		
25a.	If yes, does the record indicate that the limits were developed considering all of the criteria established at 40 CFR 125.3(d)?		
26.	Does the record adequately document the calculations used to develop both ELG and/or BPJ technology-based effluent limits ? (Y/N)		
27.	Are technology-based permit limits expressed in appropriate units of measure (i.e., concentration, mass, SU)? (Y/N)		
28.	Are all technology-based limits expressed in terms of both maximum daily and monthly average limits? (Y/N)		
29.	Are any final limits less stringent than required by applicable effluent limitations guidelines or BPJ? (Y/N)		

Water Quality-Based Effluent Limits

		Response	Comment
30.	Does the record clearly identify the name of the receiving water(s) and the location within the receiving water(s) where the discharge(s) occur? (Y/N)		
31.	Does the record describe (list) the designated uses of the receiving water(s) to which the facility discharges (e.g., contact recreation, aquatic life use)? (Y/N)		
32.	Does the record describe the characteristics of the receiving water(s) (e.g., background pollutant concentrations) in the vicinity of the discharge(s)? (Y/N)		
33.	Does the record indicate that the receiving water(s) is/are impaired for any uses (i.e., that the receiving water(s) is/are listed on the State's 303(d) list)? (Y/N)		
33a.	If yes, does the record indicate that a TMDL has been COMPLETED for the pollutant(s) causing the impairment(s)? (Y/N/NA)		
33b.	If yes, does the record indicate that WQBELs based on applicable WLAs from the completed TMDL(s) were included in the permit? (Y/N/NA)		
34.	Does the record document that a **water quality impact assessment** (i.e., RP/WQBEL calculations or other WQ model) was performed for this discharger? (Y/N) **NOTE: IF "NO"** – Skip to question **#44**		
35.	Does the record show that a WQ impact assessment was performed for all relevant outfalls at this facility? (Y/N)		
36.	Does the record show that the WQ impact assessment was performed in accordance with the State/Region implementation procedures? (Y/N/NA)		
37.	Does the record describe how "pollutants of concern" were selected for the WQ impact assessment? (Y/N)		
38.	Does the record indicate that any pollutants were missing from the WQ impact assessment (e.g., detected in the effluent or otherwise regulated by TBELs, but no WQ impact assessment performed)? (Y/N)		
39.	Did the WQ impact assessment (i.e., calculations/WQ model) provide an allowance for dilution? (Y/N)		
39a.	If yes, does the record describe how the dilution allowance was determined (e.g., complete/incomplete mixing, critical flow assumptions, mixing zone size)? (Y/N)		
39b.	If yes, did the WQ impact assessment account for contributions from other sources (e.g., ambient/background concentrations)? (Y/N/NA)		
40.	Based on the WQ impact assessment, does the permit contain numeric effluent limits for all pollutants that have a reasonable potential to cause or contribute to an excursion of applicable WQ standards? (Y/N/NA)		
41.	Does the record provide WQBEL calculations for all pollutants that were found to have "reasonable potential"? (Y/N/NA)		
41a.	If yes, are the calculation procedures consistent with the State's implementation procedures? (Y/N/NA)		
42.	Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the record? (Y/N/NA)		
43.	For all final WQBELs, are both long-term (e.g., average monthly) and short-term (e.g., maximum daily, instantaneous) effluent limits established? (Y/N/NA)		
44.	Does the record indicate that the permit will allow new or increased loadings to the receiving water? (Y/N)		
44a.	If yes, does the record indicate that an "antidegradation" review was performed in accordance with the State's approved antidegradation policy? (Y/N/NA)		

Monitoring and Reporting Requirements

		Response	Comment
45.	Does the permit require at least annual monitoring for all limited parameters? (Y/N)		
45a.	If no, does the record indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver? (Y/N)		
46.	Does the record describe the rationale for monitoring location(s) and frequency(s)? (Y/N)		
47.	Does the permit require testing for Whole Effluent Toxicity? (Y/N)		

Special Conditions

		Response	Comment
48.	Does the permit require development and implementation of a Best Management Practices (BMP) plan or site specific BMPs? (Y/N)		
48a.	If yes, does the permit adequately incorporate and require compliance with the BMPs? (Y/N/NA)		
49.	If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadllines and requirements ? (Y/N/NA)		
50.	Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations? (Y/N/NA)		

Standard Conditions

		Response	Comment
51.	Does the permit contain all 40 CFR 122.41 standard conditions? (Y/N)		

List of Standard Conditions – 40 CFR 122.41

- Duty to comply
- Duty to reapply
- Need to halt or reduce activity not a defense
- Duty to mitigate
- Proper O & M
- Permit actions
- Property rights
- Duty to provide information
- Inspections and entry
- Monitoring and records
- Signatory requirement
- Reporting requirements
  - Planned change
  - Anticipated noncompliance
  - Transfers
  - Monitoring reports
  - Compliance schedules
  - 24 hour reporting
  - Other non-compliance
- Bypass
- Upset

52.	Does the permit contain the additional standard condition for non-municipals regarding notification levels [40 CFR 122.42(a)]? (Y/N)		