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

OFFICE OF
WATER

MEMORANDUM

TO: Karen Flournoy
Director, Water, Wetlands and Pesticide Division, Region 7

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

SUBJECT: 2011 NPDES Permit Quality Review for Region 7

The EPA's Office of Wastewater Management, Water Permits Division is pleased to provide you with the findings of the 2011 Regional National Pollutant Discharge Elimination System (NPDES) Program Review conducted for EPA Region 7.

The enclosed report summarizes the findings of EPA's Permit Quality Review (PQR). The PQR assessed topics across the NPDES program as they apply specifically to Region 7. We have included proposed action items for the region and states, based on findings of the various permit reviews. These reviews also help the 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 7 and your authorized states, as well as between Region 7 and the EPA HQ. In order to facilitate these discussions, the 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 the EPA's Strategic Plan Water Quality Goals and/or may serve as a roadmap for modifications to Region 7 program management strategies. A complete description of the proposed Action Items is included in Section 4 of the report.

We believe the NPDES Permit Quality Review helped us to better understand the Region 7 NPDES program and identify strengths and opportunities for improvement for the EPA HQ, Region 7 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.

2011 NPDES PERMIT QUALITY REVIEW

EPA REGION 7

April 26, 2012

Water Permits Division
U.S. Environmental Protection Agency
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Contents

1.0 INTRODUCTION

This report presents findings of the U.S. Environmental Protection Agency's (EPA's) Office of Water (OW) National Pollutant Discharge Elimination System (NPDES) Permit Quality Review (PQR) conducted for EPA Region 7 in April 2011. An NPDES PQR is an evaluation of a select set of NPDES permits to determine whether permits have been developed in a manner consistent with applicable requirements established in the Clean Water Act (CWA) and NPDES regulations.

Through this review mechanism, EPA promotes national consistency and identifies successes in implementing the NPDES program, and opportunities for improvement in developing NPDES permits. EPA Headquarters (HQ) may use the findings of the review to identify areas for training or guidance, and by Region 7 to assist states in determining any needed areas to improve their NPDES programs.

Region 7 oversees the NPDES programs for Iowa, Kansas, Missouri, and Nebraska. Those states are all authorized to administer the NPDES program. Iowa, Missouri, and Nebraska have approved pretreatment programs; Region 7 implements the pretreatment program in Kansas.

This 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 application, limits, monitoring requirements, special conditions, standard conditions, correspondence, documentation, and the administrative process.

EPA conducted the Region 7 PQR during the 3rd quarter of FY2011. EPA HQ Water Permits Division (WPD) staff collected NPDES program information and permits from regional and state staff and made state visits to Nebraska on April 4 and 5, 2011, and Iowa on April 6 and 7, 2011. WPD staff and managers traveled to Region 7 for the formal OW Regional Program Review on April 19 and 20, 2011.

This report is organized as follows:

- Section 2 – Region 7 Core Review
- Section 3 – Region 7 Topic-Specific Review
- Section 4 – Summary of Findings and Proposed Action Items

2.0 CORE REVIEW

EPA conducted comprehensive core reviews in Iowa and Nebraska, with on-site visits in Des Moines, Iowa, and Lincoln, Nebraska. The review team consisted of EPA HQ, 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 these materials using PQR tools, and talking with permit writers regarding technical questions related to the permit development process. The following tools were primarily used for the core review, and are attached in Appendices A and B, respectively: (1) Central Tenets of National Pollutant Discharge Elimination System (NPDES) Permitting Program (developed during the 2000/2001 PQR); and (2) Checklist for Municipal and Industrial Permits (developed during the 2000/2001 PQR and revised in 2008). Materials reviewed as part of the Region 7 core review included NPDES permits; state water quality standards (WQS), including mixing zone provisions, bacteria standards, mercury standards and methods, and reasonable potential (RP) procedures; and various state permitting policy and guidance documents. The discussions with Region 7 and state staff addressed a range of topics including program status, the permitting process, relative responsibilities, organization, and staffing.

For the core review, 16 individual major permits were reviewed—8 from Iowa and 8 from Nebraska. Most were chosen at random from a list of permits issued after December 31, 2008, to ensure a review of recently issued permits. The remaining permits were selected on the basis of discussions with state and Region 7 staff, with an aim to primarily include major facilities and review an equal distribution of industrial and municipal permits.

2.1 Iowa

Iowa Department of Natural Resources (IDNR) operates a central office in Des Moines and six field offices. All NPDES permits are issued from the central office, including general permits. The field offices conduct compliance and inspection activities and address any complaints. IDNR is responsible for administering approximately 1,700 individual permits (approximately 128 major facilities) and 7 general permits. IDNR permits all CAFOs and municipal separate storm sewer systems (MS4s) using individual permits.

IDNR has been working to reissue permits in a timely manner. However, the Iowa legislature requires a use attainability analysis (UAA) of a receiving water before permit development, which has resulted in an increased number of expired permits; for municipal and industrial permits, the number of backlogged permits has risen to 52 percent. IDNR commented that its goal is to issue 300 permits per year to keep backlog at a steady and manageable rate. IDNR has implemented a *front-loading* approach to permit development in an attempt to process permits more efficiently. This approach is aimed at ensuring that in-house activities will be complete when the permit is available to be worked on (e.g., a UAA resolution is reached and the permit is cleared for action).

IDNR developed a Decision Matrix Checklist, revised in September 2010, to assess the ability of permit writers to proceed immediately on permit development. Under this approach, IDNR first checks the status of the UAA, if applicable, and any compliance issues. In addition, permit writers will initially ensure that the application is complete, follow up with the applicant for additional information, if necessary, and develop wasteload allocations (WLAs). IDNR indicated that the proportion of applications submitted electronically has increased, which fosters efficiency because, among other things, the electronic application interface does not allow the submittal of incomplete applications.

IDNR uses a database (NPDS) to generate permit documents (e.g., cover page, outfall description page, effluent limits, and monitoring requirements). Fact sheets are developed in Microsoft Word; permit writers may use a template for municipal fact sheets but not for industrial permits because they are more variable. Each permit writer has been trained by a senior permit writer, so most of the fact sheets are organized similarly. Permit writers have guidance and process manuals available to them, developed by IDNR staff (e.g., *Permit Process Manual*, "*E-Manual*," *Supporting Document for IA Water Quality Management Plans*). Technical information on specific permitting issues, WQS, and CWA section 303(d) lists are maintained on the IDNR website, and an internal network, and appear to be updated regularly. IDNR's application forms are based on EPA's forms, although state forms for industrial facilities request some additional information (e.g., the Supplemental Form requests sulfate and chloride data). Following receipt and a preliminary completeness review of the application, a permit writer fills out the Decision Matrix Checklist to ascertain whether permit development can begin expeditiously. The first step in the process is to identify whether the receiving stream requires a UAA.

Core Review Findings

As part of the core review, the PQR team examined eight individual permits; six were reviewed on-site and two were reviewed before the site visit. Of the eight permits reviewed, four permits were for municipal facilities and four permits were for industrial facilities. In general, concerns with the permits relate to the clarity of permit rationale documentation and supporting data evaluations. The individual permits reviewed in this core PQR were as follows:

Ames Water Pollution Control Facility (IA0035955), Archer Daniels Midland Corn Processing (IA0003620), The City of Fort Dodge Sewage Treatment Plant (STP) (IA0044849), The City of Fort Madison STP (IA0027219), Greater Des Moines Energy Center (IA0077941), IPL-Prairie Creek Generating System (IA0000540), The City of Muscatine STP (IA0023434), and Port Neal Corporation (IA0004014)

Permit Applications: A review of two municipal permit applications indicated that the three priority pollutant scans, required by 40 CFR 122.21(j) were incomplete. Furthermore, the guidance states that at least two of the samples used to complete the effluent testing information questions should have been taken between 4 and 8 months apart. In addition, in some cases, the permit file does not include a permit application or effluent data. Identification of pollutants of concern, and conduct of reasonable potential analyses (RPAs) are meant to be based on valid,

reliable, and representative data. The absence of these data made it difficult to evaluate the appropriateness of staff's determination of pollutants of concern and the need for water quality-based effluent limits (WQBELs). For example,

- The City of Ft. Madison STP application form presents two sets of data analyses. In addition, the samples were collected one month apart.
- The City of Muscatine STP application form provides analyses for effluent tests that were only one week apart.

It was not always clear from the applications reviewed whether sufficiently sensitive methods were used. The City of Muscatine STP permit application presents some metals data with concentrations lower than the detection limit listed. Further, two of the four industrial applications reviewed had not been signed by corporate officials as required by 40 CFR 122.22(a)(1), and instead had been signed by plant managers. It is unclear if the authority to sign documents had been assigned or delegated to the plant managers.

Reasonable Potential Determination: A review of the permits, fact sheets, and other permit files indicated that IDNR staff evaluates reasonable potential (RP). However, the fact sheets do not clearly illustrate the RP procedures. IDNR staff indicated that they follow EPA's NPDES *Technical Support Document* (TSD) approach for evaluating the need for WQBELs, but this was not clearly documented in the fact sheets examined during the core review. The City of Ft. Madison STP permit file includes a fact sheet determining that RP did not exist for ammonia because the data point reported in the application was less than the most stringent ammonia WLA. The fact sheet also states that RP did not exist for total dissolved solids (TDS) because the reported value was less than the WQBELs for sulfate (sulfate is a component of TDS) in the total maximum daily load (TMDL) WLA. No additional information exists regarding pollutants of concern, data analysis, or RPAs.

- The City of Muscatine STP permit file included evidence of an RPA for copper. The RPA determination for pollutants other than copper appeared to lack the detail afforded to the copper evaluation.

Permit files and fact sheets include *WLA worksheets* that appeared to be a part of the water quality impact analysis. The overall purpose and content of these worksheets was unclear. For instance, the WLA worksheets have a column listing monitoring frequency for each parameter, yet they do not explain why this information is presented. It would be useful to include a footnote stating that monitoring frequency is considered in developing effluent limits and that EPA assumes a default of four samples per month, which is the frequency presented in the WLA worksheets reviewed.

Further, the permits do not specify the source of the WLAs (e.g., TMDL, state water quality criteria, site-specific criteria). The lack of clear and descriptive column headings, table headings, and informative footnotes in the WLA worksheets made it difficult to understand the procedures underlying the RPA and resulting effluent limit development.

Effluent Limit Development: Effluent limit calculations for industrial permits were not easy to identify from the permit file information reviewed. The fact sheet for an industrial permit should

identify how the applicable effluent limitations guideline(s) (ELGs) were identified and incorporated into technology-based effluent limits (TBELs). For instance, the permit and fact sheet for Interstate Power and Light Company-Prairie Creek Generating Station does not clearly present the basis for the mass-based effluent limits. Upon review of the permit file, the reason those parameters are limited is still unclear. While some description of the calculations is included, it would have been useful to see a more detailed description of effluent limit calculations and the basis for the limits in the fact sheet or permit file.

Narrative Requirements: Some of the permits reviewed include references to state regulations instead of the requirements themselves. The permit would be clearer to understand and more straightforward to implement and enforce if it included the monitoring requirements directly. For example,

- In the City of Muscatine STP, under *Monitoring and Reporting Requirements,* item (c) reads, "Chapter 63 of the Iowa Administrative Code provides you with further explanation of your monitoring requirements."

Compliance Schedules: According to 40 CFR 125.3(a)(1), publicly owned treatment works (POTWs) are required to meet secondary treatment standards at the time of permit issuance. Because statutory deadlines have passed, permit compliance schedules for TBELs are not allowed. For certain permits it appeared that some of the language related to compliance schedules could have been interpreted as also being applicable to TBELs. For example,

- The City of Muscatine STP permit states, "The City shall provide facilities to achieve compliance with the final effluent limits listed on page 5 of this permit…" Page 5 of the permit lists effluent limits for the following parameters: Carbonaceous biochemical oxygen demand (CBOD), total suspended solids (TSS), pH, acute toxicity, and *E.coli*. All effluent limits, except for *E.coli*, are indicated as either *interim* or *final;* therefore, this language could be interpreted as indicating the compliance schedule applies to the TBELs.

2.2 Nebraska

Nebraska Department of Environmental Quality (NDEQ) operates a central office in Lincoln and four field offices. All NPDES permits, including general permits, are issued from the central office. The field offices primarily conduct compliance and inspection activities. NDEQ is responsible for administering approximately 674 individual permits (approximately 51 major facilities) and 6 general permits.

NDEQ is developing a permitting tool, *Tools for Environmental Permitting*, that it hopes to implement in September 2012. The tool is designed to house data (e.g., discharger, surface water, and standard language), calculate WLAs and effluent limits, and, through an Adobe-based, wizard-like tool, develop a standard-format permit document. NDEQ indicated that eventually the permitting tool would upload effluent limits to the Integrated Compliance Information System (ICIS) once a permit becomes effective. The permitting tool also tracks changes in the documentation to allow for greater ease and efficiency during the review process. EPA's prototype e-NPDES system provided the basis for NDEQ's system; however, the project's scope expanded when NDEQ realized the potential for use in developing permits in addition to

managing discharger data. NDEQ is also developing an electronic management tool similar to Enterprise Content Management, a document and file scanning and imaging system, to allow for easier access to permit documents by permit staff, EPA, and the general public.

During the on-site interview, NDEQ staff provided the following steps describing their general procedures for permit development process:

- NDEQ does not generally require major municipal applicants to provide three full priority pollutant scans, as required by 40 CFR 122.21 (j), as part of its state applications; instead, NDEQ requires data for only a basic subset of pollutants. Industrial applicants, by comparison, indicate pollutants expected to be in the discharge according to the industry. After receiving this information for new facilities, NDEQ requires permittees to report only those pollutants during the first permit term. The permit writer initially downloads discharge data from the current permit term from ICIS for review and analysis. The permit writer reviews the application package to identify changes since permit issuance that are relevant to facility operations or treatment processes. NDEQ commented during the on-site review that without a requirement for applicants to submit all the pollutant data required by EPA application regulations at 40 CFR 122.21, permit writers work with the individual applicants to identify pollutants of concern..

- Permit writers review applicable WQS for the receiving waterbody and identify pollutants of concern in the discharge. NDEQ stated that typical pollutants of concern at POTWs are ammonia and total residual chlorine. Other pollutants of concern typically identified for POTWs include chloride, conductivity, metals, and bacteria.

- After identifying pollutants of concern, permit writers check the 303(d) list for impaired waters, identify pollutants listed for the receiving water identified in the application, and collect basic information from the permittee regarding pollutants of concern common to the impairing pollutants.

- Permit writers develop WLAs for the facilities and consult staff from the water quality planning unit to verify WLAs developed are appropriate. WLAs are based on water quality criteria (e.g., acute, chronic, human health). WLAs and WQBELs are calculated using the methodology presented in the TSD.

- Permits may also include whole effluent toxicity (WET) requirements, most of which address acute toxicity, but in some cases may be established for chronic toxicity (e.g., McCook WWTF).

- Permit writers review stream data to develop the WLA and WQBELs, compare it to existing WQBELs for that pollutant, and apply the more stringent effluent limit.

- Draft NPDES permits are provided to the permittee for review, and all major permits are sent to EPA during the public review period. Public notices for all major permits are published in the newspaper for 30 days, and NDEQ lists on its website (http://www.deq.state.ne.us/) which permits are available for public notice. Comments

are generally submitted by the permittee, whereas few comments are received from the general public. The final administrative record is maintained in the central office, and a copy of the permit is sent to each respective field office for the compliance staff on-site. The permittee receives the original version of the final permit.

Core Review Findings

In the core review, the PQR team examined eight individual permits, six of which were reviewed on-site. Of the eight permits reviewed, four were for municipal facilities and four were for industrial facilities. The individual permits reviewed in this core PQR were: Archer Daniels Midland Corn Processing – Columbus (NE0130141), Behlen Manufacturing Company (NE0000647), Blair Wastewater Treatment Plant (WWTP) (NE0021482), City of Lincoln – Theresa Street Wastewater Treatment Facility (WWTF) (NE0036820), McCook WWTF (NE0021504), Nucor Steel – Norfolk (NE0111287), Plattsmouth WWTF (NE0021121), and City of Lexington - Tyson Fresh Meats, Inc. (NE0123501). The key issues identified during the review concern data collected from permittees and subsequent determination of the need for WQBELs. Examples of the issues include the following:

Application Data Requirements: NDEQ uses state application forms instead of EPA forms. EPA allows the use of state forms provided that they require, at a minimum, the information on the EPA forms. The applications used for municipal permits in Nebraska do not require applicants to submit effluent testing data (basic or expanded pollutant scans), which is required at 40 CFR 122.21(j). For example,

- Of the three municipal permits reviewed on-site (City of Lincoln-Theresa Street WWTP, Plattsmouth WWTF, and McCook WWTF), no effluent testing data were observed with the applications. The file reviewed for City of Lincoln-Theresa Street WWTP does not include a copy of the permit renewal application.

The application form used for industrial facilities (NPDES Combined 1 & 2C) appears to require effluent testing data for a small set of parameters (e.g., Section 11.C requests results for BOD, COD, TOC, ammonia, flow, temperature, and pH). Section 11.B of the NDEQ form requires the applicant to identify the industrial category, if any, appropriate to its facility and identify pollutants it believes to be present in the discharge. The application form requests an approximation of amount discharged, or measured amounts if analytical data are available. On the basis of the review of the state's application forms and the data provided for the facilities reviewed, NDEQ has not required data consistent with 40 CFR 122.21(g). For example,

- Of the three industrial permits reviewed on-site (Tyson Fresh Meats-Lexington, Behlen Manufacturing, and Nucor Steel), effluent testing data were provided only with the permit renewal application for Tyson Fresh Meats-Lexington.

NDEQ observed that its application data requirements for POTWs are undergoing revision through Nebraska's regulatory process. (Note: In addition, NDEQ's forthcoming Tools for Environmental Permitting will include requirements for major POTW applicants to conduct a priority pollutant scan as part of the permit requirements. The data would be collected in addition to data requested on the permit application form). The permit file for Plattsmouth WWTF includes a letter dated June 18, 2010, addressed to the U.S. Fish and Wildlife Service, stating that

NDEQ will require priority pollutant monitoring as part of the NPDES application documentation for all major municipal facilities, including Plattsmouth WWTF. This suggests that NDEQ is implementing changes to its application requirements more broadly for discharge characterization data across all permits.

Reasonable Potential Analysis: The fact sheets reviewed state that RPAs had been conducted but lacked detail and clarity in the specifics of the RPA process (e.g., pollutant selection for evaluation). Staff indicated that RP is typically calculated on the basis of effluent limits in the current permit. Staff are familiar with permitted facilities. Unless processes or industrial users (e.g., pretreatment permits) have changed significantly, the staff would not propose additional pollutant-specific effluent limits. All permits and associated fact sheets reviewed lack a detailed discussion of pollutants of concern. The fact sheets include brief statements identifying potential pollutants in the discharge according to the activity, but they do not discuss data available from the permit application forms or other effluent characterization data. Reviewing pollutant scans required during the permit application process would be useful in identifying pollutants of concern to alert permit writers of changes in effluent quality. The fact sheet for Plattsmouth WWTF lists "DMR data and Facility File data" as a source of supporting documentation; however, the fact sheet lacks an in-depth discussion of these data.

NDEQ indicated that ammonia is one of the main pollutants for which it established WQBELs and that it has been a longstanding pollutant of concern at municipal facilities. Because ammonia is a known pollutant of concern and its RP is predetermined, NDEQ has not conducted an RPA for ammonia for a number of years and permit cycles.

NDEQ commented that its RPA procedure is specified in the TSD, as are its procedures for calculating WQBELs. A review of the permits, fact sheets, and permit files on-site indicated that WQBEL calculations followed the TSD procedures. However, after a review of the state's files, the procedure for conducting the RPA was not always clear. NDEQ indicated that the forthcoming permitting tool will include RPA and WQBEL calculations, which can be transferred into the fact sheets in future permit cycles.

WLA worksheets included in the permit file on-site indicated that some background receiving water data were considered in developing the WLA.

Effluent limits for Metals (expressed as dissolved or total): The fact sheet for the Behlen Manufacturing Company states that the effluent limits for metals were converted from dissolved to total. However, the file does not appear to provide the calculations to document the derivation of the final effluent limit expressed as total form; namely, the conversion factors used in the calculations (e.g., EPA default or site-specific conversion factors). Appendix 3 of the fact sheet for Behlen Manufacturing includes a table listing proposed permit limits for metals at Outfall 003. However, the list appears to be a comparison of TBELs and WQBELs, including limits expressed in both dissolved and total recoverable forms, as opposed to an illustration of effluent limit calculations. It would be useful if the file included calculations supporting the development of proposed effluent limits.

*Mixing Zones***:** NDEQ stated that it follows its regulations, Title 117 of the Nebraska Administrative Code, and its mixing zone policy when establishing an allowable mixing zone in permits. Mixing zones are allowed for most pollutants but not for bacteria indicator parameters. The fact sheets and associated WLA worksheets examined indicate a mixing zone or dilution is incorporated into effluent limit calculations (i.e., *percent of stream*); however, determining the extent of the allowable mixing zone is not discussed or presented in the permit file. For example,

- A review of the Lincoln-Theresa Street WWTP permit file revealed the fact sheet from the previous permit cycle included an in-depth discussion of mixing zone allowances and size determination. The fact sheet reviewed for the current permit lacks the same level of detail. It would be useful to use the mixing zone discussion during permit development to provide a better understanding of effluent limits and the derivation of those effluent limits.

*Impaired Waters***:** Fact sheets reviewed have an introductory paragraph explaining whether receiving waters are impaired. Expanding the discussion to include information in the Integrated Report would be ideal, and would provide a better understanding of the condition of the receiving waters and resulting permit conditions. Fact sheets should include a discussion of TMDLs in the receiving water, regardless of whether the facility is a source of the impairing pollutant. Such a discussion would better illustrate the permit writer's process for evaluating the discharge with respect to impaired waters and TMDLs. A discussion of impaired waters status and TMDL applicability would provide a stronger linkage between receiving water quality and TMDL development, and data collected during pollutant scans could support TMDL planning and future WLA determinations. For example,

- The City of Lincoln-Theresa Street WWTP record indicates that a TMDL was completed for *E. coli* in 2007; however, the fact sheet lacks any discussion of the TMDL. The fact sheet mentions the 303(d) list with respect to the rationale for monitoring for iron, dieldrin, and PCBs.

Rationale for Monitoring Requirements: The fact sheets examined do not explain the rationale for monitoring requirements, other than for the monitoring location. NDEQ staff indicated that they refer to their internal policy to determine appropriate frequencies. It would be useful for fact sheets to include a brief description of the policy as it relates to monitoring requirements established in the permit.

Pretreatment: NDEQ implements industrial pretreatment requirements for indirect significant industrial users (SIUs) at the state level in accordance with 40 CFR 403.10(e). As such, some NPDES permits contain requirements for discharges to POTW collection systems. For example, the Behlen Manufacturing Company permit indicates that discharges of metal finishing process wastewater from Outfall 004 are to the City of Columbus POTW and are "categorically regulated under the regulations set forth in 40 CFR, Part 433.17."

3.0 TOPIC-SPECIFIC REVIEWS

In addition to reviewing core permits from Nebraska and Iowa in the Region 7 PQR, this report includes topic-specific reviews for all Region 7 state program areas. Some of the topic areas do not have reviews on all the state's programs. All the findings of the topic-specific review were based on desktop reviews of permits and fact sheets and not based on complete file review or interviews of state staff.

3.1 Impaired Waters

CWA section 303(d) requires states to identify and establish a priority ranking for waters not attaining WQS despite implementation of technology-based requirements (e.g., impaired waters). For those priority waters, the states must establish TMDLs for pollutants causing impairments. The focus of the impaired waters review is to verify that permits and fact sheets acknowledge the 303(d) status of receiving waters and to verify that NPDES permits are addressing impairing pollutants, even 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 a water quality impairment was considered by a permit writer but that the documentation was not included in the fact sheet.

Impaired Waters Findings

For impaired waters, EPA examined 10 permits, 2 each from Iowa, Kansas, and Nebraska, and 4 permits from Missouri. The fact sheet for each of the 10 permits notes that the receiving water is impaired and describes the impairment. Of the 10 permits, 8 cover facilities that discharge a pollutant associated with an impairment to the waterbody. Of the 10 permits reviewed, 7 contain WQBELs that address pollutants that cause or contribute to the impairment. Of the three permits without WQBELs: one Kansas permit does not include a limit for the pollutant of concern (copper) but does require monitoring for that pollutant; the fact sheet for one Missouri permit indicates that the facility does not discharge pollutants of concern (chlordane, PCBs) and, thus, the permit does not include limits or monitoring for these pollutants; and one Nebraska permit does not include permit limits or monitoring for *E. coli*, although the fact sheet indicates that monitoring is required. Of the 10 permits, 8 require monitoring for the pollutants of concern.

3.2 TMDLs

A TMDL is a calculation of the maximum quantity of a given pollutant that may be added to a waterbody from all sources without exceeding its applicable WQS. States must establish TMDLs for all impairing pollutants that prevent waters from attaining WQS after implementation of applicable technology-based requirements. Where a TMDL has been established for a waterbody, WQBELs must be consistent with the assumptions and requirements of any WLA established for the discharger [40 CFR 122.44(d)(1)(vii)].

The focus of the TMDL review was to verify that final TMDL WLAs applicable to point sources are being implemented in NPDES permits. For the TMDL review, EPA examined eight NPDES permits, two from each Region 7 state.

TMDL Findings

Of the eight permits reviewed, seven incorporate WQBELs consistent with WLAs established in the approved TMDLs. The other permit was issued before EPA approval of final TMDLs and had not yet been modified to incorporate conditions consistent with the applicable WLAs. The WLAs were being implemented through five of the seven permits and partially implemented in one permit. The fact sheets for all eight of these permits discuss TMDLs. With regard to each Region 7 state, TMDL implementation was as follows:

Iowa: One permit includes WQBELs consistent with the TMDL WLA; the other permit was issued before the relevant TMDLs were approved.

The Cedar Rapids STP (IA0042641) fact sheet discusses impairment due to bacteria, and the permit includes WQBELs, which are expressed as daily loads, consistent with the WLA for *E. coli* established in the TMDL. The permit includes equivalent limits based on design flow and the *E. coli* WQS.

The Fort Dodge STP (IA0044849) fact sheet discusses impairments far downstream due to bacteria and nitrates and states that it is unknown how this facility can be contributing to such impairments. A final bacteria TMDL was approved in 2010, after the permit was issued. A final nitrate TMDL was approved in September 2009, after the permit was issued. This TMDL includes a WLA of 6,220 and 2,000 lbs/day maximum and average daily nitrate loads, respectively. The permit includes limits for ammonia nitrogen and *E. coli*. The fact sheet states that if TMDLs indicate that the facility contributes to an impairment, the permit may be amended. It also states that the WLA will be revised according to a relevant TMDL and limits will be revised accordingly. No such amendment to the permit was identified.

Missouri: One permit includes WQBELs that are consistent with the TMDL WLA. The second permit partially meets the TMDL, but the fact sheet explains the basis of the limits in the context of the TMDL.

The Quail Creek Mobile Home Park (MO0116467) fact sheet indicates that the facility is on a waterbody listed for organic sediments and an unknown parameter. The facility is not considered a source of these pollutants or a contributor to the impairment of Piper Creek. The 2010 Piper Creek TMDL identifies this facility as a point source but indicates that, because of its small size, WLAs equal existing permit limits.

The Poplar Bluff WWTP (MO0043648) fact sheet indicates that the receiving stream is not impaired but that 0.13 mile downstream, Main Ditch is impaired for BOD, volatile suspended solids (VSS), dissolved oxygen (DO). A December 1995 TMDL applicable to this facility sets WLAs for CBOD, TSS, DO, and ammonia (seasonal). The documentation for the permit details how the permit limits were developed consistent with the CBOD WLA. The permit includes

limits for TSS based on best professional judgment (BPJ) that are less stringent than those necessary to meet the WLA for TSS. The permit DO limits are based on the DO concentration used in the TMDL model. The permit includes monthly average limits for ammonia consistent with the TMDL. It also notes that WLAs were calculated on the basis of criteria updated in 2005.

Kansas: One permit does not appear to include WQBELs consistent with the TMDL WLA for chloride. The second permit does appear to include limits or conditions consistent with the TMDL WLAs.

The City of Hays (KS0036684) fact sheet indicates, "[n]o TMDLs have been written for this segment of the receiving stream." A final TMDL for chloride, which was approved on November 15, 2004, provides a WLA of 1.75 tons/day for the City of Hays. The permit does not include limits for chloride. TMDLs for TSS, nitrate, and *E. coli* bacteria were approved on September 30, 2010, which is after the issuance date and are not applicable to this permit.

The City of Salina (KS0038474) permit notes that an approved TMDL has been established that provides WLAs for sulfate and chloride for the City of Salina. The fact sheet indicates that the permit has addressed the biological impairment concerns. The permit requires monthly monitoring for chlorides and sulfates. The permit does not contain limits or conditions consistent with the WLAs established in these TMDLs.

Nebraska: Both permits include WQBELs that are consistent with the WLA established in the respective TMDLs. The fact sheets acknowledge and describe limit development with the TMDLs.

The North Platte WWTF (NE0032891) fact sheet indicates that a final TMDL includes WLAs for fecal coliform for this facility and states that the pathogen limit in the permit is set at the current state WQS for *E. coli* and that the limit consistent with the TMDL WLA. The permit includes a seasonal *E. coli* limit (126 monthly geometric mean/100 milliliters).

The McCook WWTF (NE0024504) fact sheet indicates an approved TMDL has established WLAs for fecal coliform and *E. coli* for the McCook WWTF. The fact sheet indicates that the basis for the *E. coli* limits in the permit is state WQS and that the limit is consistent with the WLA in the approved TMDL. The permit includes a seasonal *E. coli* limit (126 monthly geometric mean/100 milliliters).

3.3 Nutrients

The primary goal of the nutrients component of this PQR was to determine whether and how the permitting authority incorporated nitrogen and phosphorus limits into permits. EPA reviewed two permits in Missouri, two permits in Kansas, three permits in Nebraska, and two permits in Iowa. EPA's review included an examination of how well the permitting authority documented decisions about whether to include nitrogen and phosphorus limits. Permitting decisions reviewed included RPA documentation, characterization of the receiving waterbody, identification of applicable WQS (narrative or numeric or both), including designated uses,

identification of impairments, water quality concerns or existing TMDLs, limit expression, and WQBELs calculations.

Nutrient Findings

Missouri: Missouri has adopted a phosphorus monthly average limit of 0.5 milligrams per liter (mg/L) for discharges to Lake Taneycomo and its tributaries between Table Rock Dam and Power Site Dam. In addition, the state has narrative criteria for DO, turbidity, color, and other narrative "free from" general criteria provisions [see 10CSR 20-7(3)] that might all be affected by nutrient pollution.

EPA reviewed two Missouri permits for facilities discharging to receiving waters for which TMDLs have been developed. Both facilities are subject to TMDL WLAs for phosphorus.

The Nixa WWTF (MO0028037) discharges to Finley Creek, which drains into James River, which has a TMDL associated with a nutrient impairment. The TMDL identifies phosphorus as the limiting pollutant. The facility permit includes a phosphorus limit of 0.5 mg/L; however, the basis of this limit is unclear. The permit file does not indicate whether the facility was named in the phosphorus TMDL or whether the phosphorus limits in the permit were implementing requirements of the TMDL. Although the waterbody is listed for nutrient impairment, the fact sheet does not discuss nor does the permit contain effluent limits for nitrogen.

The City of Fairview WWTF (MO0112631) is a no-discharge storage and irrigation system for year-round flows into a lagoon and irrigation system during warm months only. No limits for nitrogen or phosphorus are in the permit. A TMDL is associated with Sand Creek that includes a WLA for this facility; however, because this permit is actually a *no discharge* permit, it appears to be unnecessary to include in the permit a WQBEL for nitrogen or phosphorus. The permit does, however, include effluent monitoring requirements for total Kjeldahl nitrogen, nitrate/nitrite, ammonia nitrogen, and total phosphorus (TP). The permit includes several special conditions related to the control of nutrients through a nutrient management plan and requirements about how the wastewater should be applied for irrigation purposes to ensure that the irrigation flow does not contribute to excess nutrient loadings.

Kansas: Kansas has adopted nutrient WQS that are applicable to surface waters. These standards are narrative and require that the introduction of plant nutrients into waters be controlled to ensure water quality sufficient to support aquatic life use and use as a domestic water supply. The state standards also include general *free from* provisions. The state also issued a *Surface Water Nutrient Reduction Plan* in December 2004.

EPA reviewed two permits: a POTW and an industrial facility. Both of these permits identify "effluent nutrient reduction goals" for phosphorus and nitrogen, related to the Kansas *Nutrient Reduction Plan*, by establishing an overall 30 percent removal of nitrogen and phosphorus in effluent discharge through achievable levels of removal by the technology treatment performance and capacity of a respective facility. In addition, both of these permits include schedules of compliance to achieve these nutrient-removal goals.

The Hays WWTF (KS0036654) discharges into Big Creek via Chetolah Creek in the Smoky Hill River Basin. According to the fact sheet, no TMDL is applicable. However, after permit issuance, a TMDL was approved in 2010 for the Smoky Hill River Basin for nitrates.

The pollutants discharged from the Hays facility include DO, nitrogen, phosphorus, and ammonia. The permit requires monitoring for all these parameters; however, no WQBELS are in it for DO, nitrogen and phosphorus. It has monthly average limits for ammonia. The permit includes effluent nutrient limits for nitrogen and phosphorus. No RPA is described in the fact sheet.

When the permit does not include WQBELS for nitrogen and phosphorus, it does include a schedule of compliance for effluent nutrient goals nitrogen and phosphorus. The goal of the schedule, as described in the permit, was to require the permittee to conduct a study to assess the cost and feasibility of nitrogen and phosphorus reduction in the effluent. This is not a schedule that is consistent with 40 CFR 122.47 or existing policy, which provide that the goal of compliance schedules is to achieve the calculated WQBEL, because there is no final calculated WQBEL and schedules are not appropriate when granted solely to conduct a study. In addition, the CWA requires that WQBELs be derived without considering costs.

The Cargill Meat Solutions Corporation (KS0092029) is a complex slaughterhouse that discharges wastewater from by-product processing into the Arkansas River. During the growing season, treated wastewater is generally routed to holding ponds for irrigation. The fact sheet indicates 303(d) impairment listings for boron, fluoride, and selenium, and established TMDLs for fecal coliform and sulfate.

The pollutants discharged from the facility included total nitrogen (TN), phosphorus, and ammonia. The permit requires monitoring for all those parameters; however, it has no WQBELs for phosphorus. It has concentration-based limits included for total nitrogen and ammonia derived on the basis of the effluent guidelines at 40 CFR Part 432. The permit addresses land application and groundwater monitoring, and includes a stormwater pollution prevention plan (SWPPP). No RPA for nutrients is described in the fact sheet.

While the permit does not include WQBELs for nitrogen and phosphorus, it includes a schedule of compliance to achieve the effluent nutrient goals for nitrogen and phosphorus. The goal of the schedule, as described in the permit, is to require the permittee to conduct a study to assess the cost and feasibility of nitrogen and phosphorus reduction in the effluent. That is not a schedule that is consistent with 40 CFR 122.47 or existing policy in the Hanlon Memo, because there is no calculated WQBEL and the schedule simply provides time to conduct a study. In addition, the CWA requires that WQBELs be derived without considering costs.

The facts sheet establishes industrial or facility-specific technology-based BPJ requirements for total phosphorus, nitrate/nitrite, and total Kjeldhal nitrogen. However, the permit establishes only monitoring requirements..

Nebraska: Nebraska has adopted a variety of standards for different designated uses in state waters:

- Nitrite-nitrogen (NO_2^--N) and nitrate-nitrogen (NO_3^--N) statewide criteria to protect public drinking water (NO_2^--N: not to exceed 1 mg/L, and NO_3^--N: not to exceed 10 mg/L)
- Nitrite-nitrogen (NO_2^--N) and nitrate-nitrogen (NO_3^--N) statewide criteria to protect agricultural water supply uses (both NO_2^--N and NO_3^--N not to exceed 100 mg/L). The state also applies biocriteria and DO criteria to protect aquatic life uses.
- DO is applied on a site-specific and tiered use basis (e.g., Lake Ogallala [site-specific]), and cold water and warm water habitat (tiered use).
- Numeric nutrient criteria for lakes and impounded waters in respect to its classified use
- Criteria include total phosphorus, total nitrogen, and chlorophyll *a*. EPA has not yet approved these nutrient criteria.
- Narrative criteria for aesthetics as a use where the waterbody is protected from noxious odors, materials that produce objectionable films, colors, turbidity, or deposits, and nuisance aquatic life (e.g., algal blooms).

EPA reviewed three Nebraska permits for implementing nutrient requirements. All permits contain narrative-based permit limits language that pertains to nutrient-related impacts. No RPA was conducted to assess narrative criteria, biocriteria, or DO criteria attainment. Also, in the fact sheet, no ambient data are reported to characterize ambient critical conditions.

The Tyson Fresh Meats-Lexington Facility (NE0123501) is a complex slaughterhouse that slaughters and processes beef products and is subject to the effluent guidelines at 40 CFR Part 432 (Meat and Poultry Products Point Source Category). The facility has two outfalls:

- For Outfall 001, the permit includes limits for total nitrogen of 134 mg/L as an average monthly limit and 194 mg/L as a maximum daily limit, with weekly monitoring requirements. The fact sheet references 40 CFR 432.63 (Subpart F - Meat-cutters category) for incorporating and deriving TN limits. However, Attachment 4 does not include Subpart F as a part of the ELG Summary. Nor was an RPA for nitrate or nitrite conducted. The permit does not include total phosphorus limits nor does it include an RPA for TP, but it does include seasonal monitoring requirements.
- For Outfall 002, the permit requires monitoring for TN and TP for processed water discharged into the Platte River. No RPA was conducted to determine the need for WQBELs for TN or TP because the outfall has had no history of discharge. Outfall 002 is for emergency purposes only.

The City of Lexington WWTF (NE004668) has two outfalls discharging into two water segments: Outfall 001 to Platte River (Segment MP2-20000) and Outfall 002 to Dawson Drain No. 1, an undesignated waterbody. Both outfalls are subject to monitoring-only requirements for TN and TP, and the permit provides its basis for requiring nutrient monitoring instead of a permit limit.

The Grand Island WWTF (NE0043702) directly discharges into the Wood River via the Grand Island Utilities Ditch, but the permit also protects the Middle Platte River, a downstream

segment, for recreational use protection. The fact sheet states that the facility has operated at over capacity and has contributed to a fish kill event in March 2008 that extended approximately 28 miles downstream. The permit does not require nutrient limits; however, it requires TN and TP weekly effluent monitoring. The Great Island fact sheet neglects to provide a basis for requiring nutrient monitoring instead of a permit limit.

Iowa: Iowa adopted EPA's maximum contaminant level (MCL) values for Class "C" (drinking water) uses:

- Nitrate as nitrogen (10 mg/L)
- Nitrite as nitrogen (1 mg/L)
- Nitrate + nitrite as nitrogen (10 mg/L)

In addition, the state has narrative criteria for turbidity, color, and other narrative *free from* provisions. The state also has numeric criteria for DO in Class B waters, ranging from 4 to 7 mg/L [61.3(3)(b)(1)].

The City of Waterloo STP (IA0042650) discharges to the Middle Cedar River watershed, which is impaired for *E. coli* and nitrate. The permit contains a monthly average limit for total nitrogen of 5,259.2 lbs/day and a daily maximum of 8,608.5 lbs/day. These limits appear to be implementing the 2006 Cedar River TMDL. The permit mentions a 2009 WLA, but it is unclear whether this is from the Cedar River TMDL (unlikely, given the dates) or if the permit is referring to a separate facility-specific WLA. The fact sheet does not contain a discussion of an RPA for nutrients, nor does it contain ambient monitoring requirements for nutrients.

The Terra Industries Port Neal facility *(*IA0004014) manufactures nitric acid, ammonia, and urea ammonium nitrate from natural gas, air, water, carbon dioxide, and intermediates and is classified under SIC code 2873, nitrogenous fertilizers. The permit contains the following TBELs consistent with ELGs for this type of facility:

- Nitrate as nitrogen = 180.52 lbs/day (30-day avg.), and 515.24 lbs/day (daily max)
- Organic nitrogen as nitrogen = 474.0 lbs/day (30-day avg.), 888.75 lbs/day (daily max)

The permit rationale section called "Waste Load Allocation Calculations and Notes" states, "Results of a screening model using a CBOD assimilative capacity of 20 lbs/day/cubic feet per second (cfs) show that to comply with the [WQS] for $CBOD_5$ and DO, the allowed effluent CBOD limits so calculated is 22,162 mg/L." However, this limit does not appear to be in the permit. A table in the WLA Calculations and Notes section also seems to indicate that the effluent contains less than 22 g/l $CBOD_5$, but if that is meant to indicate that the calculated limit is unnecessary, the table is unclear. Neither the permit rationale in the fact sheet nor the permit appears to include a discussion of RP for nitrogen or phosphorus against the *free-froms* general criteria in the state's WQS.

3.4 Mixing Zones

As part of the PQR review, permits were evaluated to assess how the state determined and applied mixing zones. Specifically, the PQR evaluated whether the permit file provides

documentation of how mixing zones were established and whether mixing zones are consistent with state WQS and implementation procedures.

Iowa: Chapter 61.2(4) of Iowa's WQS defines the mixing zone that may be provided for a wastewater discharge. In addition, the *Supporting Document for Iowa Water Quality Management Plans* provides guidance on implementing the mixing zone policy. IDNR staff indicated that mixing zones are allowed for all water quality-based parameters, and the size of the mixing zone applied during WQBEL development is identified in the WLA calculations worksheets. In some permits reviewed, it appears that the state provided a mixing zone; however, the fact sheet and permit file lack a thorough discussion regarding the size of the mixing zone, contributions from other facilities, or background concentrations considered in the application of mixing zones. The rationale for IPL-Prairie Creek and Terra Industries-Port Neal indicate the percentage of stream flow used as the mixing zone, but they do not discuss detailed derivation of the percentage applied to the WQBELs calculations. Thus, using the record, the PQR could not determine whether the implementation of the mixing zone was consistent with state mixing zone policies.

Nebraska: Chapter 2 of Title 117 of the Nebraska Administrative Code contains the regulations pertaining to mixing zones. No mixing zone is allowed for bacteria. Background pollutant concentrations are based on U.S. Geological Survey (USGS) data and data available through their natural resources group or other ambient monitoring programs. NDEQ staff indicated that when there is low confidence in the background data, they use conservative, default values; the WLA worksheets reviewed appear to indicate NDEQ's confidence level. NDEQ staff indicated that they may also use data from similar streams or ecoregional-type data. Permit writers never assume zero as the background concentration. The WLA worksheets indicate the source of data for background concentrations. Thus on the basis of the record in the PQR, Nebraska is implementing mixing zones consistent with the state mixing policies.

3.5 Thermal Discharges and Cooling Water Intake Structures [CWA section 316(a) & (b)]

CWA section 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. EPA determined the universe of potential NPDES permits for review using the Permit Compliance System (PCS) database and the lists of facilities developed during the rulemaking for the §316(b) Phase II and Phase III rules. EPA HQ, in consultation with Region 7, selected eight permits for review (three in Iowa; two in Kansas; two in Missouri; and one in Nebraska).

Note that, as a result of litigation, on July 9, 2007 (72 FR 37107) EPA suspended the Phase II §316(b) regulation and announced that, pending further rulemaking, which is ongoing, permit requirements for cooling water intake structures at Phase II facilities need to be established on a case-by-case, BPJ basis [see 125.90(b)].

316(a) and 316(b) Findings

Iowa: EPA reviewed three Iowa permits: Interstate Power and Light Company Burlington Generating Station (IA2900101), Interstate Power and Light Company Prairie Creek Generating Station (IA0000540), and MidAmerican Energy Neal South Energy Center (IA0061859).

- Section*316(a):* The permits for Burlington and Neal South Energy Center do not grant §316(a) variances, and instead use a mixing zone to meet temperature standards. The Prairie Creek permit contains a compliance schedule for temperature limits at outfall 001, suggesting that the permittee might need a §316(a) thermal variance depending on the outcome of thermal modeling for the new limit.
- §*316(b):* The permit for Burlington was amended and now designates the current technologies as Best Available Technology (BAT) and requires proper operation and maintenance of the existing equipment. The Prairie Creek permit materials designate the intake structure as representing BAT and require proper operation and maintenance, but they do not specify what this operation and maintenance includes. The Neal South Energy Center permit materials include a BAT determination and a request for further studies to institute additional permit requirements to reduce adverse environmental impact.

Kansas: EPA reviewed two Kansas permits: Empire Electric Riverton (KS0079812) and Wolf Creek Nuclear Generating Station (KS0079057).

- §*316(a):* The Riverton permit requires only monitoring for temperature. The permit supporting information states that the limits are based on *BPJ* and not on Kansas WQS; however, the basis for BPJ-based temperature limitations is unclear. The permit materials for Wolf Creek indicate that the permittee was granted a §316(a) thermal variance, but the permit lacks temperature limits entirely, requiring only temperature monitoring. In addition, no explanation is given as to why a §316(a) thermal variance is being granted or is still valid.
- §*316(b):* The Riverton and Wolf Creek permit materials do not contain a determination of BAT or include associated §316(b) permit conditions.

Missouri: EPA reviewed two Missouri permits: Springfield Southwest Power Plant (MO0089940) and AECI, New Madrid Power Plant (MO0001171) (which was a draft permit).

- §*316(a):* The permit for Springfield Southwest and draft permit for New Madrid provide for attainment of Missouri WQS and, thus, do not require a thermal variance.
- §*316(b):* The Springfield Southwest permit materials indicate that the permittee uses closed-cycle cooling, but they do not include a BAT determination or associated permit conditions. The draft permit materials for New Madrid indicate that the permittee is required to continue to operate the intake as indicated in impingement studies from the 1970s and from 2005, but it is unclear what is included in those studies. The fact sheet indicates that the studies from the 1970s are still valid, but it does not provide relevant evidence for why this is the case.

Nebraska: EPA reviewed the permits for NPPD Cooper Nuclear Station (NE0001244).

- §*316(a):* The permit does not discuss the basis for temperature limits, so it is unclear whether the limit is based on a mixing zone or a thermal variance.
- §*316(b):* The permit requires an analysis of new cooling water intake technologies to reduce impingement, but it does not include a determination of BAT or implementing permit conditions to ensure proper use of cooling water intake technologies.

3.6 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.

For this PQR, EPA conducted a brief review of several draft and final permits. Overall, the quality of the permits is good. The permits are drafted in a manner comprehensible to non-stormwater professionals and in general contain the major provisions that the regulations require. Most permits include some extra provisions that are innovative and enhance effectiveness. All the Region 7 states need to ensure that permits or fact sheets include provisions that appropriately address discharges to impaired waters and are consistent with the assumptions of applicable TMDLs.

State-Specific Findings for Industrial Stormwater

Iowa: EPA reviewed the Iowa Industrial Stormwater General Permit No. 1, which is generally of good quality. No TMDLs or impaired waters provisions are in the permit, although it contains strong requirements for the 313 water priority chemicals.

Kansas: EPA reviewed the Kansas Industrial Stormwater General Permit (KSR000000) and found that it contains no TMDL or impaired waters provisions or sector-specific requirements, such as best management practices (BMPs), despite the existence of an SWPPP. Stormwater industrial general permits need to include specific BMP options (or their equivalents) as effluent limitations to ensure compliance with CWA sections 304(e) and 122.44(k).

Missouri: EPA reviewed Missouri's Industrial Stormwater General Permit (MOR203000) and found that it contains no sector-specific requirements addressing unique operations or activities, and source pollutants, materials, waste products, facility features and potential BMPs that operators must consider, as EPA has done in the multi-sector general permit (MSGP). When a permit does not have such specificity, it is interpreted by the courts and other stakeholders as having insufficient effluent limits and essentially allows a permittee to write its own permit requirements.

Nebraska: EPA reviewed the draft Nebraska Industrial Stormwater General Permit (NER900000) and found that it is the same as the EPA permit and of good quality.

State-Specific Findings for Construction Stormwater

Iowa: EPA reviewed the Iowa Construction Stormwater General Permit No. 2 (IA000000) and found that it lacks TMDL or impaired waters provisions, and could be more specific regarding pollutant sources and controls. However, the overall permit quality is satisfactory.

Kansas: EPA reviewed the Kansas Construction Stormwater General Permit (KSR000000) and found that it lacks TMDL or impaired waters provisions, although the permit is generally good otherwise.

Missouri: EPA reviewed the Missouri Construction Stormwater General Permit (MOR101000 for existing sites, MOR10A000 for new sites) and found a lack of TMDLs or impaired waters provisions, and a lack of detail and specificity, such as requirements for a new discharge or load of a pollutant of concern to impaired [303(d)-listed] receiving waters. A permit or notice of intent (NOI) must require an operator to know the impairment status of the receiving water and whether the discharge could exacerbate that impairment. For a construction operator, that would include information on sediments, TSS, and turbidity, but could include such things as nutrients that might be absorbed into the sediment. The permit must also include requirements explaining what to do when the receiving water is impaired and when there is a TMDL with a WLA for a pollutant of concern. EPA's permit provides guidance on such permit provisions.

Nebraska: EPA reviewed Nebraska's Construction Stormwater General Permit (NER110000) and found that it needs greater BMP specificity and language regarding site features and project activities requiring BMPs. The permit materials lacks TMDLs or impaired waters provisions.

3.7 Combined Sewer Overflows (CSOs)

As part of the PQR, EPA is assessing whether Region 7 is meeting its performing goals. In 2007 EPA adopted a new definition for the Water Safe for Swimming Measure,[1] 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 of approved projects into an appropriate enforceable mechanism, including a permit or enforcement order, with specific dates and milestones. The cumulative national goal was for 65 percent of the nation's CSO communities to be subject to an implementation schedule consistent with this measure.

As of April 2011, Region 7 has 24 communities with combined sewer systems: 10 in Iowa, 3 in Kansas, 9 in Missouri, and 2 in Nebraska.

- In FY2005 the regional commitment under this measure was 6 communities (25 percent) with an enforceable schedule; the Region 7 states achieved 1 (4 percent).
- In FY2006, the regional commitment was 7 (29 percent), and it missed its commitment.
- In FY2007, the regional commitment was 11 (46 percent), and it achieved its commitment.
- In FY2008, the regional commitment was 16, and it missed its commitment.
- In FY2009 the regional commitment was 20 (83 percent), and it achieved 14 (58 percent).

[1] As part of EPA's Office of Water Strategic Plan (within Goal 2: Protecting America's Waters). See generally, http://water.epa.gov/aboutow/org/programs/goals.cfm.

- In FY1010 the regional commitment was 19 (79 percent) and it achieved 18 (75 percent).
- The Region 7 FY2011 commitment was 22 (92 percent).

CSO Permit and Long-Term Control Plan Review

For the regional review, EPA HQ expected to receive a full set of documents with supporting papers for a through and detail CSO program review. EPA HQ received two permits: CSO long-term control plan (LTCP) and related consent order for the City of Kansas City, Missouri, and only the CSO NPDES permit for City of Des Moines, Iowa.

For the City of Kansas City, Missouri (MO0024929 and MO0024911), EPA reviewed the two Phase I NPDES CSO permits, which addressed implementing the nine minimum controls (NMC) and developing an LTCP. The related consent decree is well written and effectively incorporates NMC and LTCP requirements. The consent decree has a strategy to incorporate green CSO control alternatives, and the CSO control measures, descriptions, critical milestones and performance criteria are accurately captured.

The Kansas City LTCP, which supports two Kansas City CSO permits is well developed with good monitoring, modeling and characterization, data and water quality analysis. It contains effective BMPs, a good green infrastructure initiative, and appropriate CSO control alternatives analysis. It reflects an effective public participation program and post-construction compliance monitoring program, and good financial capability analysis.

For the City of Des Moines, Iowa (IA7727001), the permit effectively incorporates approved NMC and LTCP requirements, and it properly addresses bypass issues. However, the LTCP is missing, making it difficult to determine the effectiveness of CSO control.

CSO Findings

Some CSOs in Missouri are discharging into streams that are unclassified. For these streams, the only water quality-based requirements would be the *free-froms*. One example is Kansas City where several CSOs discharge into Brush Creek. Another example is Macon. In these cases, Region 7 has indicated that it believes that technology-based requirements for CSOs should go beyond the NMC identified in the CSO Control Policy. Region 7 has pushed the cities to go beyond merely meeting the technology-based and water quality-based requirements. The Region wants to use the *minimizing impacts* provisions of the objectives of the CSO Policy to require cities to go beyond the technology-based and water quality-based provisions of the CWA.

In a letter to the Honorable Sen. Charles E. Grassley dated February 4, 2010, EPA HQ makes it clear that the CWA stipulates that NPDES permits must include technology-based and, as necessary, more stringent water quality-based requirements to meet WQS, for point source discharges, including CSO discharges. For CSO dischargers, technology-based requirements are to be established on a case-by-case basis using BPJ according to the application of BAT for toxic and nonconventional pollutants and best conventional pollutant control technology (BCT) for conventional pollutants. EPA HQ believes the permittee should be obligated to meet only the

technology-based and water quality-based requirements as written in their NPDES permit. EPA HQ does not agree with Region 7's approach of pushing the permittees beyond technology-based and water quality-based requirements.

3.8 Concentrated Animal Feeding Operations

EPA reviewed general permits issued by Nebraska and Missouri and individual permits issued by Iowa and Kansas. Missouri's general permit covers all animal sectors, and Nebraska's covers open-lot facilities for cattle. The Iowa and Kansas permits were chosen on the basis of their widespread applicability.

Iowa: IDNR has had a livestock permitting program since 1972 and has administered the NPDES program since 1978. According to information provided by Region 7, 1,576 CAFOs are in Iowa and 132 are covered by an NPDES permit. These are primarily in the swine sector.

Iowa Findings: Iowa proposed to incorporate the 2008 CAFO Rule by reference into its regulations. The changes were approved by the Environmental Protection Commission and went through public notice. After the 5th Circuit Court ruling that struck down the "propose to discharge" language of the 2008 CAFO Rule, Iowa had to pull the entire proposed regulation because Iowa statute prohibits any state regulations that are stricter than federal regulations. Once "propose to discharge" is removed from the proposed regulations, Iowa will begin the process again.

EPA reviewed permits IA0083321, IA0083232 and IA0083267, which were issued on or about February 4, 2011, and expire on or about February 3, 2016. EPA found that they do not include requirements that meet the regulations found at

- 412.4(c)(5) *Setback requirements*
- *122.42(e)(1)(vii) is in permit, but need to list distances, i.e., 100 ft.),(i) Vegetated buffer compliance alternative, and (ii) Alternative practices compliance alternative*

The following regulation needs to be added when the state's regulations are updated:

- 122.42(e)(6) *Changes to a nutrient management plan*

Kansas: The Kansas Department of Health and Environment (KDHE) Bureau of Water has regulatory authority over livestock operations with more than 300 animal units and any and all facilities with significant potential to pollute, regardless of animal unit capacity. KDHE has regulated feedlots since 1968. The program traditionally focused on large-cattle feeding operations, but recently emphasis has shifted to large hog operations. According to information provided by Region 7, 463 CAFOs are in Kansas and all are covered by permits. These are primarily in the beef, swine, and dairy sectors.

Kansas Findings: KDHE is evaluating which regulations might need to be changed and added to the New Source Performance Standards (NSPS), but believes that the current regulations are in compliance with the December 2008 revised CAFO regulations. Both NPDES and state permits

are used in Kansas. The only difference in the state permit is that no NMP is required. EPA reviewed the following permits:

- KS0038091, issued February 21, 2011, and expiring February 20, 2016
- KS0095150, issued January 18, 2011, and expiring January 17, 2016
- KS0097179, issued January 28, 2011, and expiring October 25, 2014

EPA found that the permits do not include requirements meeting the regulations at

- 122.21(i) Application requirements for new and existing operations, (1) For concentrated animal feeding operations: (x) A nutrient management plan
- 122.42(e) *Concentrated animal feeding operations (CAFOs)*, (1) *Requirement to implement a nutrient management plan*
- Manure testing in accordance with 122.42(e)(1)(vii)

In addition, the reissued permits must either make better reference to the Kansas Technical Standards, using the appropriate terms and conditions of the permit, or include the Kansas Technical Standards as an enforceable appendix to the permits. The Kansas Technical Standards do not include the following: specific records to be maintained, the terms of the NMP, the requirement to develop and implement BMPs, land application discharges from CAFOs that are subject to NPDES requirements (e.g., defining the agricultural storm water exemption), record-keeping requirements for land application, and the record-keeping requirements for the production area. The following regulations are not addressed in the permit, either explicitly or by reference:

- 122.42(e)(1)(ix) Identify specific records that will be maintained to document the implementation and management of the minimum elements described in paragraphs (e)(1)(i) through (e)(1)(viii) of this section
- 122.42(e)(5) *Terms of the nutrient management plan*
- 122.42(e)(6) *Changes to a nutrient management plan*
- 122.23(e) Land application discharges from a CAFO are subject to NPDES requirements
- 412.37(a) (1) *Visual inspection*
- 412.4(c)(1) *Requirement to develop and implement best management practices*
- 412.4(c) (2) *Determination of application rates*
- 412.4(c)(3) *Manure and soil sampling*
- 412.4(c)(4) *Inspect land application equipment for leaks*
- 122.42(e)(2) *Recordkeeping requirements*
- 412.37(c)) *Recordkeeping requirements for the land application areas*
- 412.37(b) *Record keeping requirements for the production area*

Missouri: The Missouri Department of Natural Resources (MDNR) administers and enforces the NPDES program. Missouri has experienced an increase in large hog and poultry operations. In 1995 a series of spills from two of the largest hog operations in the state led to legislation in 1996 that required MDNR to strengthen its CAFO regulatory program. According to information

provided by Region 7, 573 CAFOs are in Missouri, primarily in the swine and poultry sectors, and all are covered by the state's general permit.

Missouri Findings: Missouri began the process of state rulemaking in the fall of 2010 to update its regulations to include the changes made by EPA in 2008. The state rulemaking takes approximately a year and a half to complete. Missouri expected this process to be completed around January 2011. Missouri will have available both an NPDES permit and a *no-discharge,* state-only permit. CAFOs can choose to be covered by one or the other. MDNR expects well over half to obtain state-only permits.

EPA found the following issues during the review of the Missouri general NPDES permit (MOG010000), which was issued February 24, 2011, and expires February 23, 2013. The permit does not include requirements that meet the regulations found at

- 122.21(i) Application requirements for new and existing concentrated animal feeding operations and aquatic animal production facilities
- 412.4(c)(3) *Manure and soil sampling*
- 412.4(c)(4) Inspect land application equipment for leaks
- 412.4(c)(5)(5) Setback requirements
- (b) Record-keeping requirements for the production area
- 412.37(c) Record-keeping requirements for the land application areas

The following regulation was not included in the state's standards when the general permit was issued, but according to Region 7, Missouri started requiring NMPs to be submitted starting in 2011:

- 122.42(e)(6) *Changes to a nutrient management plan.*

Nebraska: NDEQ regulates the discharge of livestock wastes into waters of the state in accordance with the NPDES program. According to information provided by Region 7, the state has 862 CAFOs, of which 350 are covered by an NPDES permit. The 350 permits are for open-lots beef feedlots. Nebraska does not issue NPDES permits to confinements (swine and poultry).

Nebraska Findings: Nebraska will continue to have both a state construction and operating permit and an NPDES permit available. CAFOs that require NPDES coverage will require the NPDES permit in addition to any state permit. Nebraska has updated its regulations with the exception of the duty to apply regulation in Chapter 5 of Title 130. Chapter 5 was pulled as a result of the 5th Circuit Court decision.

EPA found the following issues during its review of the general permit (NEG011000), which was issued April 1, 2008, and expires March 31, 2013. The permit does not include a requirement that meets the regulations found at

- 122.21(i) Application requirements for new and existing concentrated animal feeding operations and aquatic animal production facilities

- 122.42(e)(1)((iii) Ensure that clean water is diverted, as appropriate, from the production area
- 122.42(e)(2) *Record-keeping requirements*

The following EPA regulations went into effect after the general permit was issued, but need to be added in the next permit cycle:

- 122.42(e)(5) *Terms of the nutrient management plan*
- 122.42(e)(6) *Changes to a nutrient management plan*
- 412.37(c) *Recordkeeping requirements for the land application areas*

3.9 Biofuels

Federal mandates requiring a significant increase in biofuels production and use have spurred an increase in the number of retail facilities storing and dispensing renewable fuels such as ethanol and biodiesel. These fuels have different characteristics than petroleum gasoline and diesel. Region 7 has a number of issues regarding the growth of the ethanol industry. After some initial struggles with developing permits for this industry, states have been able to issue a number of permits over the past 5 years.

For this PQR, EPA reviewed four biofuels permits from the Region 7 states: one Kansas permit [MGP Ingredients, Inc. (KS0001635)]; and three Missouri permits [Biodiesel GP (MOR23E000), Show Me the Ethanol, LLC (MO0134198), and Ag Processing, Inc. (MO0100595)]. Below are the findings from this review:

- Effluent limit calculations for industrial permits were not easy to identify from the information reviewed in the permit files. For industrial facilities, fact sheets need to include a clear description of facility categorization as it applies to effluent guidelines. When ELGs do not exist, such as for biofuels facilities, permits must include TBELs to be established using BPJ, as required by CWA section 301(b).
- Only one out of the four fact sheets includes an RP evaluation. That RP evaluation was sufficient to explain how the RP decisions were made and limits included in the permit.
- One of the permits includes WET monitoring requirements that appeared consistent with EPA protocol. One other permit includes WET testing and limit requirements but, inconsistent with the protocol, requires that only one dilution be tested.
- A general permit for biodiesel was among those reviewed. The general permit does not include conditions that describe who could apply or what conditions precluded discharges from being authorized. Because the fact sheet for that permit does not include any analysis of water quality, the fact that it did not preclude authorization of discharges to impaired waters is problematic.

3.10 Whole Effluent Toxicity (WET)

EPA reviewed eight NPDES permits issued by Region 7 states: two municipal permits in Iowa, two municipal permits in Kansas, two industrial permits in Missouri, and two municipal permits in Nebraska. EPA assessed whether the provisions in the permits and fact sheets adequately address each state's aquatic protection life criteria, and checked the permits and fact sheets for the following items:

- WET test methods proper citation (or reference to 40 CFR Part 136)
- Whether and how RP determinations were made
- Whether monitoring occurred with sufficient frequency to be representative of the effluent
- Whether an adequate basis or rationale was provided to support the permitting authorities' decision to include or not include certain permit requirements (i.e., WET limits, monitoring frequencies)

WET Findings

All permits contain either a direct citation to EPA's WET test methods or to 40 CFR Part 136 for WET test methods, although Missouri's draft Fairview Greenhouse permit (MO0107166) has some inaccuracies on its citations. Both Nebraska permits contain well-written and well-documented WET requirements.

Three of the eight permits (both Missouri permits, one Kansas permit) contain monitoring requirements but no WET limits, without including a rationale. Five permits have WET limits: both Iowa permits include acute limits, and one Kansas permit and both Nebraska permits include chronic limits. Draft permit MO0107166 has a good deal of documentation (e.g., failed WET tests, failure to conduct TIE/TRE, WET enforcement action) to support an RP demonstration [thus requiring WET limits under 40 CFR 122.44(d)(1)] but has only monitoring requirements and no WET limits.

Two (Iowa, Missouri) of the eight permits lack or have insufficient documentation in the fact sheet for the RP determination. Four of the eight permits lack sufficient rationale for monitoring frequency. Region 7 objected to Kansas's Mill Creek permit (KS0088269) because the permit had not met the *special aquatic life* requirement but it appears that the state revised the permit.

State-Specific Findings for WET

Iowa: Ames Water Pollution Control (IA0035955) and Fort Madison City STP (IA0027219)

State Water Quality Standards (WQS): Iowa's WQS have provisions only for acute toxicity prevention. The Iowa WQS do not include a provision(s) for the protection of aquatic life propagation as required by the CWA [CWA section 101(a)(2) (33 U.S.C. 1251)] which is implemented through chronic sublethal endpoints**.**

EPA WET Test Methods: Both permits have appropriate references to 40 CFR Part 136.

Permit Decisions/Rationale: The fact sheet for permit IA0027219 lacks RP documentation.

Permit Conditions/Monitoring: Both permits require only annual monitoring, which is usually not representative of the effluent unless the effluent is very stable. EPA regulations [40 CFR 122.44(d)(1), 122.48 (a-c), 122.41(j)(1), 122.44(i)(2)] require that the monitoring frequency be representative of the permitted discharge, and annual monitoring might not be sufficient to detect toxicity. EPA's TSD guidance recommends a minimum of quarterly monitoring.

Kansas: Mill Creek (KS0088269) and Cedar Creek (KS0081295)

EPA WET Test Methods: Both permits contain appropriate references to 40 CFR Part 136.

Permit Decisions/Rationale: Cedar Creek (KS0081299) permit files provide calculations for the RP determination and permit limit (chronic sublethal) derivation.

Permit Conditions/Monitoring: Both permits require only annual monitoring and contain insufficient documentation to justify whether the annual monitoring frequency is representative of the permitted discharge. The Cedar Creek permit contains a provision to allow an increase or decrease in the monitoring frequency but does not give a rationale for the basis of such a change.

Missouri: Fairview Greenhouse (MO0107166) and Lone Star (MO0008090)

EPA WET Test Methods: The Fairview Greenhouse draft permit includes references to both the acute and chronic marine and estuarine WET test methods, but the facility discharges to fresh water only. The reference to the acute method does not provide a citation for the methods manual, and the chronic marine and estuarine methods manual citation is incorrect.

Permit Decisions/Rationale: Both fact sheets state that no RP determination was done even though an RP determination is required under EPA's regulations. Documentation for the Fairview Greenhouse permit demonstrates RP but the permit contains no WET limit, which is required under EPA regulations [40 CFR 122.44(d)(1)] if RP is determined.

Permit Conditions/Monitoring: The Lone Star permit requires only annual monitoring and does not provide a rationale to support that this monitoring frequency is representative of the effluent. The Fairview Greenhouse permit includes quarterly acute testing and chronic annual testing.

Nebraska: City of Lincoln (NE0112488) and Lincoln Theresa Street (NE0036820)

EPA WET Test Methods: Both permits reference EPA's 40 CFR Part 136 WET test methods.

Permit Decisions/Rationale: Both permits are documented well.

Permit Conditions/Monitoring: Both permits provide the basis for annual monitoring (for chronic testing only). Because there is a *free-from-toxics* WQS and provision for a *corrective*

action if toxicity occurs, monitoring more frequently than once a year would be more likely to capture toxicity when it occurs.

3.11 National Pretreatment Program

EPA's goal was to assess the status of the pretreatment programs in Region 7, assess specific language in POTW permits, and assess specific language in Industrial User (IU) control mechanisms. EPA based its review on regulatory requirements for pretreatment activities and pretreatment programs at 40 CFR 122.42(b), 122.44(j), 403, and 403.12(i).

For this review, EPA HQ reviewed the following permits: Ames WPCF (IA 0035 955), Fort Dodge STP (IA0044849), Allison WWTP (IA0042731), Shell Rock STP (IA0033359), Topeka North WWTP (KS0042714), Salina (KS0038474), Olathe Cedar Creek WWTP (KS0081295), Sherwood Improvement District (KS0117731), Hays (KS0036684), Butler WWTP (MO0096229), Kennett WWTF (MO0028568), Poplar Bluff WWTP (MO0043648), and Lexington WWTF (NE0042668).

With respect to IU control mechanisms, the focus was on requirements at 40 CFR 403.8(f)(1). This PQR also summarizes the numbers of approved pretreatment programs; the number of audits and inspections conducted; the numbers of SIUs in approved pretreatment programs; the numbers of categorical industrial users (CIUs) discharging to municipalities that do not have approved pretreatment programs; the status of streamlining rule implementation; the status of 40 CFR 403.10(e) state oversight (for Nebraska); and the adequacy of pretreatment program requirements in NPDES permits.

Pretreatment Findings

Iowa, Missouri, and Nebraska have approved state pretreatment programs. Nebraska is classified as a 40 CFR 403.10(e) state and has assumed responsibility for implementing the POTW program requirements instead of requiring POTWs to develop pretreatment programs.

Region 7 audited the state pretreatment programs for Kansas in 2007, Nebraska in 2008, Iowa in 2009, and Missouri in 2010. Region 7 conducts audits at each state once every 4 years and has scheduled an audit of Kansas in April 2011. Region 7's audit findings are not reflected in this report.

CIUs in Non-Approved Programs: Kansas has 58 CIUs. Iowa has 51 CIUs discharging to non-pretreatment POTWs, Kansas has 56, Missouri has 22, and Nebraska has 96. The states' numbers come from their individual records list. The numbers are not consistent with numbers in PCS or ICIS.

Data Issues: Recent downloads of data from PCS and ICIS were performed. Data from the Regional Pretreatment Coordinator were also supplied for key program elements. Information on audits and pretreatment compliance inspection (PCIs) conducted were not submitted by the

Regional Coordinator. Data from these two sources were compared to assist in targeting where database cleanup might be most needed.

Data differences for Iowa and Kansas were less than 10 percent for the number of approved programs, SIUs, and CIUs. Numbers of SIUs and CIUs are not decipherable for Nebraska in ICIS. Entries for SIUs and CIUs are coded the same for NPDES permits and IU in ICIS.

The number of approved programs and CIUs in non-approved POTWs are widely different for Missouri, which might be caused by a PCS-to-ICIS migration error.

Compliance Monitoring Strategy (CMS) Goals: Audits and Inspections: ICIS and PCS data and data from the Regional Coordinator, when available, were used to determine whether Approval Authorities are meeting CMS goals. CMS goals are that one pretreatment control authority (PCA) and two PCIs be conducted per 5-year NPDES permit cycle. This PQR does not look at each POTW's NPDES permit term, but it looks at compliance for the period of 2006 through 2010. Because no Regional Coordinator data were available, only ICIS and PCS were used. A table exhibiting these data comparisons is in the Exhibit file.

Special Programs: EPA queried the state websites to determine whether the Region 7 states have adopted/implemented special programs such as mercury (related to all types of mercury sources); dental amalgam; pharmaceutical take-back; fats, oil, and grease; or removal credits.

- Iowa, Missouri, and Nebraska provide information about mercury and its effect on health and the environment.
- Iowa and Nebraska websites have information about pharmaceutical programs and National Take-Back Days.
- None of the state websites indicate the existence of dental amalgam programs or fats, oil, and grease programs.

Streamlining Rule: The regional coordinator for Region 7 indicated that the streamlining rule was completed in Iowa but not in Missouri and Nebraska. Kansas is not required to complete the rule, because it is not authorized for pretreatment). The regulations that the states are required to update are at http://www.epa.gov/npdes/pubs/pretreatment_streamlining_required_changes.pdf.

As a composite (all Region 7 states combined), Region 7 is meeting the CMS goal at 16 percent of its POTWs. The CMS goal statistics are presented in the findings below for each state.

State-Specific Findings

Iowa: On the basis of data compiled from PCS, Iowa is achieving PCA or PCI CMS goals in only 5 percent of its POTWs (1 of 21 POTWs).

Kansas: On the basis of data compiled from PCS, Kansas (or EPA Region 7) is not achieving PCA or PCI CMS goals in its Approved Pretreatment POTW (meeting CMS goals in 0 of 20 POTW programs). Kansas has and continues to meet its Pretreatment Work plan. Kansas needs to transfer its information into PCS. For further direction, see the new *Pretreatment Data Entry Guidance*.

Missouri: It is very difficult to assess compliance with CMS because of a lack of computer database resolution. On the basis of data compiled from ICIS, Missouri achieving PCA or PCI CMS goals in 22 percent of its Approved Pretreatment POTW (19 of 87 POTWs) or 27 percent (i.e., 19 of 70 POTWs), depending on database errors. However, Regional office reports 44 programs. Missouri conducted many PCIs, sometimes every year (e.g., five times from 2006 to 2010) for several POTWs, but no PCAs were conducted. In those cases, this is not counted toward the CMS goal of one PCA and two PCIs in 5 years.

Nebraska: CMS goals are not applicable

4.0 PROPOSED ACTION ITEMS

This section summarizes the main findings of the review and provides proposed action items to improve Region 7 NPDES permit programs. This list of proposed action items will serve as the basis for ongoing discussions between Region 7 and its authorized states, and between Region 7 and EPA HQ. These discussions are aimed to eliminate program deficiencies and to improve performance by enabling good quality, defensible permits issued in a timely fashion.

The proposed action items are divided into three tiers to identify the priority that should be placed on each item and facilitate discussions between regions and states.

- **Category 1 -** Most Significant: Address a current deficiency or noncompliance with a federal regulation.
- **Category 2 -** Recommended: Address a current deficiency with EPA guidance or policy.
- **Category 3 -** Suggested: 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 and may also serve as a roadmap for modifications to Region 7 program management.

4.1 Core Review

Iowa

Iowa's permitting process appears to follow a systematic approach, including use of the Permit Decision Matrix Checklist to guide permit staff to schedule and prioritize permits more efficiently. IDNR NPDES staff maintains a deep repository of policy and guidance documents and strive to update them regularly. However, the core review suggested IDNR permits could benefit from improved documentation throughout permit development. Proposed action items to help the state strengthen its NPDES permit program include the following:

- Ensure that municipal and nonmunicipal permit applications are submitted with data representative of the discharge, including priority pollutant scans. (Category 1)
- Fact sheets should include a more in-depth discussion of pollutants of concern, explanation of the methodology followed to conduct the RPA, basis for WLA development, discussion of developing effluent limits, applying a mixing zone, and implementing compliance schedules. (Category 2)
- Continue to build on existing permit development procedures, guidance, and template documents to better document the decisions and justifications for permit limits and requirements. (Category 2)
- Continue developing the permit while seeking EPA's approval of the UAA. (Category 2)

- Ensure that IDNR meets its goal of issuing 300 permits each year to achieve a constant backlog rate; its *front-loading* approach and use of the Decision Matrix Checklist should support its goal for reducing permit backlog. (Category 2)

Nebraska

Nebraska has developed consistent permits and fact sheets, and the forthcoming *Tools for Environmental Permitting* system suggests consistency will continue. However, NDEQ still needs to ensure discharge data are requested and evaluated during the permit application process in order to comply with requirements to evaluate the RP for a discharge to cause or contribute to a violation of a WQS. Proposed action items to help the state strengthen its NPDES permit program are the following:

- Ensure that municipal and non-municipal application forms are moving forward in the regulatory process to be revised and, specifically, must require data consistent with federal regulations at 40 CFR 122.21. (Category 1)
- The core review indicates NDEQ does not have an adequate data set (consistent with regulatory requirements) and, thus, is not able to perform a complete RPA for all potential pollutants of concern [40 CFR 122.44(d)]. (Category 1)
- Expand discussions in the fact sheets to meet the minimum requirements at 40 CFR 124.8 and 124.56, to include the following:
    - Status of receiving waters with respect to impairments and TMDLs
    - Development of effluent limits (e.g., decision to express effluent limits for metals as dissolved or total)
    - Application of the mixing zone policy
    - Rationale for monitoring requirements (i.e., location and minimum frequency). (All Category 1)
- Improve the approach to identifying pollutants of concern and ensure the evaluation of RP is current to the facility's operations and discharge. Provide a thorough discussion in the fact sheets and supporting documentation. (Category 2)

4.2 Topic-Specific Reviews

4.2.1 Impaired Waters

In general, nearly all the permits and fact sheets reviewed identify impaired waters and indicate how permit requirements address any impairment. Proposed action items to help the state strengthen its NPDES permit program are the following:

- The fact sheet or permit file should continue to include consistent documentation regarding whether the receiving water is listed as a 303(d)-impaired waterbody. (Category 2)

- The fact sheet or permit file should continue to 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 2)

4.2.2 TMDLs

All but two of the permits subject to WLAs implement those WLAs, and one of the two remaining permits partially implements such WLAs. In addition, the fact sheets for all the permits reviewed discuss relevant TMDLs. Proposed action items to help the state strengthen its NPDES permit program are the following:

- Continue to ensure that permits limits reflect final TMDLs that are applicable to each facility. (Category 2)
- The fact sheet or permit file should continue to include discussion of whether a facility is subject to one or more TMDLs and how the permit conditions were developed consistent with requirements of such TMDLs and any state TMDL implementation policy. (Category 2)

4.2.3 Nutrients

Region7 states do not appear to be doing RP in accordance with their state's standards for nutrients or putting WQBELs in permits. Where RPs for nitrogen or phosphorus were present in permits, permitting authorities in Region 7 must do a better job documenting their decision about whether to include nitrogen or phosphorus limits (or both) in permits. The following decisions should be documented in the fact sheet:

- In several states, EPA found that the RPA for nitrogen and phosphorus are not adequately explained. (Category 1)
- In several states, EPA found that WQBEL calculations are not included in the fact sheet. In some instances, a permit limit was carried over from a previous permit, without any explanation of how that limit was derived. (Category 1)

Iowa: Proposed action items to improve implementation of nutrient criteria in Iowa's permits are the following:

- Confirm and demonstrate consideration of WQBELs for permit limit derivation and present the selection of the more stringent effluent limitation. [40 CFR 122.44(d)] (Category 1)
- Ensure that RP determinations are properly documented in fact sheets or administrative record where fact sheets are not required. (40 CFR 124.56) (Category 1)
- Clarify when a limit is present in a permit because of a WLA from a TMDL or because of a calculation the permit writer performed as part of the RP procedures or WQBEL derivation. (Category 2)

- Include ambient monitoring to assess overall nutrient-related effects on receiving waterbody quality. (Category 3)
- Ensure that adequate documentation is provided in the fact sheet when a limit that implements a TMDL is included. (Category 3)

Kansas: Proposed action items to improve implementation of nutrient criteria in Kansas's permits are the following:

- Ensure that RP determinations are properly documented in its permit fact sheets. (40 CFR 124.56) (Category 1)
- WQBELS must be calculated to meet applicable WQS and must be implemented without considering costs or feasibility. [CWA 301(b)(1)(C); 122.44(d)]. The state should ensure that when there is a finding of RP that a WQBEL is calculated and included in the permit [40 CFR 122.44(d)]. (Category 1).
- Ensure that compliance schedules are consistent with 40 CFR 122.47 and the applicable compliance schedule policy [e.g. Memo from James Hanlon to Region 9 (May 10, 2007)]. (Category 1)
- The basis for the appropriateness and *as soon as possible* determinations should be included in the permit fact sheets. (Category 3)
- Ensure that adequate documentation is provided in the fact sheet when a limit is included that implements an ELG. (Category 3)
- Ensure that adequate documentation is provided in the fact sheet when a limit is included that implements a TMDL. (Category 3)

Missouri: Proposed action items to improve implementation of nutrient criteria in Missouri's permits are the following:

- Confirm and demonstrate consideration of WQBELs for nitrogen and phosphorus in permit limit derivation and apply the more stringent effluent limitation. [40 CFR 122.44(d)] (Category 1)
- Ensure that RP determinations are properly documented in fact sheets or administrative record where fact sheets are not required. (40 CFR 124.56) (Category 1)
- Include ambient monitoring to assess overall nutrient-related effects on receiving waterbody quality. (Category 3)
- Ensure that adequate documentation is provided in the fact sheet when a limit is included that implements a TMDL. (Category 3)

Nebraska: Proposed action items to improve implementation of nutrient criteria in Nebraska's permits are the following:

- Confirm and demonstrate consideration of WQBELs for permit limit derivation and apply the more stringent effluent limitation. [40 CFR 122.44(d)] (Category 1)

- Ensure that RP determinations are properly documented in fact sheets or administrative record where fact sheets are not required. (40 CFR 124.56) (Category 1)
- Include ambient monitoring to assess overall nutrient-related effects on receiving waterbody quality. (Category 3)
- Ensure that adequate documentation is provided in the fact sheet when a limit that implements an ELG is included. (Category 3)

4.2.4 Antidegradation and Mixing Zones

Antidegradation is discussed in every fact sheet; antidegradation policies are mentioned. It appears that mixing zone policies are implemented. Fact sheets include mention of the mixing zone policies, and some supporting documentation suggests that a mixing zone was applied.

- IDNR could strengthen its permits by developing a thorough discussion regarding the size of the mixing zone, contributions from other facilities, background concentrations considered in applying mixing zones, and deriving the percentage applied to the WQBEL calculations. (Category 1)

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

Region 7 should implement the following action items to improve implementation of CWA section 316(a) and (b) requirements in permits:

- Include section 316(b) cooling water intake structure permit conditions and a determination of BAT for existing facilities on a BPJ basis. The basis for the determination of BAT should be documented in the fact sheet. (Category 1)
- Permit materials 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)
- Permits with 316(a) variances must include temperature limitations that are more stringent than necessary to ensure a balanced indigenous population. (Category 1)

4.2.6 Stormwater

All Region 7 states should ensure that impaired waters and TMDL provisions are listed in the permits or permit fact sheets to further improve the quality. No specific action items are suggested for this review.

4.2.7 Combined Sewer Overflows

Region 7 should implement the following action items to improve implementation CSOs:

- Increase its Water Safe for Swimming commitment. (Category 2)

- Make sure that all the approved CSO long term control plan has an effective Post-Construction Compliance Monitoring program. (Category 2)

4.2.8 Concentrated Animal Feeding Operations

Region 7 should implement the following action items to improve CAFO permitting:

Iowa

- Upon reissuance of NPDES permits, IDNR must include procedures for how a permittee can make changes to its nutrient management plan. (Category 1)
- Complete evaluation of the current statutes to determine if any legislation is needed to revise the current CAFO regulations. Following this determination, IDNR should make the necessary rule changes as soon as possible. (Category 1)
- Continue to work with the region to increase the number of CAFOs covered by an NPDES permit (only 8 percent are covered). (Category 2)
- Make a final determination on the use of alternative technology at CAFOs. If the determination is affirmative, IDNR must reissue the NPDES permits for those operations. (Category 2)

Kansas

- Upon reissuance of the NPDES permits, KDHE must include the requirements in the permits as outlined above under Findings of Permit Review. For example: application requirements; implementing nutrient management plan; and testing for manure [i.e., 40 CFR 122.21(i) 122.42(e), and 122.42,(e)(1)(vii)]. (Category 1)
- Reissued permits must either make better reference to the Kansas Technical Standards, using the appropriate terms and conditions of the permit, or include the Kansas Technical Standards as an enforceable appendix to the permits. It needs to be clear that all the regulations are referenced (Category 1)
- Complete evaluation of KDHE regulations to determine if they are in compliance with the December 2008 revised CAFO regulations. Following this determination, KDHE should make any necessary rule changes as soon as possible. (Category 1)

Missouri

- Upon reissuance of NPDES permits, MDNR must include the following requirements in the permits (also outlined above under Findings of Permit Review): Application requirements; manure and soil sampling; inspection of equipment; setback requirements; and record keeping requirements. These requirements are at 40 CFR 122.21, 412.4 and 412.37. (Category 1)
- Complete the rulemaking process to bring regulations into compliance with the December 2008 revised CAFO regulations. (Category 1)

Nebraska

- Upon reissuance of NPDES permits, NDEQ must include the following (also outlined above under Findings of Permit Review): applications requirements; record-keeping requirements; and the requirement that clean water be diverted appropriately [40 CFR 122.21(i), 122.42(e)(1)(iii), and 122.42(e)(2)]. (Category 1)
- Complete evaluation of NDEQ regulations to determine if they are in compliance with the December 2008 revised CAFO regulations. Following this determination, NDEQ should make any necessary rule changes as soon as possible. (Category 1)

4.2.9 Biofuels

All the recommended action items are related to strengthening fact sheets. Listed below are the areas in the fact sheets that could be strengthened; they are all listed as Category 2:

- Include technology-based limits as required by CWA section 301(b) and how they were derived or whether the limits were based on BAT, BCT, or BPT.
- Include RP evaluations, which helps supports the permit writers' decisions on the limits included in the permit.
- Include WET monitoring limits that are consistent with EPA protocol.
- Include provisions that describe who can apply or what conditions precluded discharges from being authorized.
- Include an analysis of water quality. If there are provisions for discharging into an impaired waterbody, they need to be included in permits.

4.2.10 Whole Effluent Toxicity

EPA Region 7 should continue to work with some of its states to improve permit documentation and mandated permit requirements to ensure that the permits reflect adequate documentation and compliance with states' aquatic life protection (WET WQS). Region 7 must ensure that the state permits thoroughly discuss and document the rationale behind each of the permit requirements and decisions (e.g., monitoring with a potential for reducing monitoring frequency, WET limits). The state permits, at a minimum, need to clearly explain state decisions on WET permit requirements, including providing a summary or reference to the WET data on which the decisions were based (i.e., RPA and rationale).

State-specific WET action items include the following:
Iowa:

- Fort Madison City STP permit must document in the permit fact sheet the required RP determination and the rationale behind it (40 CFR 124.56). (Category 1)
- Monitoring frequencies must be representative of the effluent [(40 CFR 122.44(d)(1), 122.48 (a-c), 122.41(j)(1), 122.44(i)(2)] and protective of the state WQS. EPA's TSD recommends a minimum of quarterly monitoring. (Category 2)

Kansas:

- Monitoring frequencies must be representative of the effluent [40 CFR 122.44(d)(1), 122.48 (a-c), 122.41(j)(1), 122.44(i)(2)] and protective of the state WQS. EPA's TSD recommends a minimum of quarterly monitoring if monitoring is not done each quarter; the permit should explain why monitoring is less frequent. (Category 2)

Missouri:

- The Fairview Greenhouse permit has very good documentation demonstrating RP (although RPA was not actually done). An RPA must be conducted on the effluent, and the permit must include a WET limit, as required by 40 CFR 122.44(d)(1). (Category 1)
- The Lone Star permit fact sheet indicates that no RP determination was done. An RPA must be conducted on the effluent [40 CFR 122.44(d)(1)]. (Category 1)
- The Lone Star permit contains only annual monitoring, which is usually not representative of the effluent unless it is a very stable effluent. EPA regulations [40 CFR 122.44(d)(1), 122.48 (a-c), 122.41(j)(1), 122.44(i)(2)] require that the monitoring frequency be representative of the permitted discharge and that annual monitoring may not be sufficient to detect toxicity. EPA's TSD guidance recommends a minimum of quarterly monitoring. (Category 2)

Nebraska: Both permits are well documented and include WET limits where RP was demonstrated.

- Ensure that permits include the requirement to monitor more frequently than annually, in order to capture toxicity, consistent with the *free from* toxics WQS. (Category 3)

4.2.11 National Pretreatment Program

Region 7 should implement the following action items to improve the pretreatment program in permits.

Region 7

- *Compliance Monitoring Strategy and Data Resolution:* The region's rate of meeting the CMS goal of at least one audit and two inspections within 5 years is very low. It is unclear if this is because of data entry/download issues or lack of conducting the audits/inspections. Region 7 should work with its states to ensure that they are attaining all CMS goals for conducting inspections and audits at POTWs and resolve data entry issues as applicable. (Category 2)
- *Streamlining:* Region 7 should work with its states to ensure that required provisions of the 2005 Streamlining revisions are incorporated in the state regulations (Missouri, Nebraska) and that the states have a strategy to ensure that the POTW legal authorities are updated accordingly. (Category 2)

Iowa

- Iowa needs to ensure that all POTW permits are reissued in the newly observed format, i.e., contain all the required provisions of POTW permits. (Category 1)
- Iowa POTW without a pretreatment program permits need to contain the obligation to conduct an industrial wastewater survey, as required by 40 CFR 122.44(j)(1). (Category 1)
- If administrative orders (AOs) issued to IUs are intended to act as the control mechanism, they must include all the required provisions of 40 CFR Part 403 and 40 CFR 122.42. AOs do not include the notice of slug load requirement [40 CFR 403.12(f)]; the reporting requirements [40 CFR 122.42(b)(1)-(3)]; the statement of no transferability [40 CFR 403.8(f)(1)(iii)(B)(2)]; and do not contain an end date or compliance date [40 CFR 403.8(f)(1)(B)(1)]. If this is the only control mechanism issued to this IU, all requirements must be included. (Category 1)
- Permits for Iowa POTWs without pretreatment programs could be strengthened if they had a reopener clause specific to pretreatment program development should results of 40 CFR 122.42(b) warrant the reopening of the permit to include developing such a pretreatment program. (It is recognized that all permits contain general reopener clauses.) (Category 3)
- Fact sheets and permits should be consistent with whether the state is required to implement a program. One of the older Iowa permits requiring program implementation is silent on the pretreatment program topic in its fact sheet. This topic might already be resolved with the new permitting format in Iowa. (Category 3)

Kansas

- All Kansas POTW permits need to contain the specific language found at 40 CFR 122.42(b) and appropriate requirements of 40 CFR 122.44(j). The regulation at 40 CFR 122.44(j)(2)(ii) requires reevaluation of local limits following permit issuance or reissuance, and a submittal date will need to be included in this permit condition. (Category 1)
- Kansas needs to have due dates for submittal of the annual report required under 40 CFR 403.12(i). (Category 1)
- Permits for Kansas POTWs without pretreatment programs could be strengthened if they had a reopener clause specific to pretreatment program development if results of 40 CFR 122.42(b) warrant the reopening of the permit to include developing such pretreatment program. (It is recognized that all permits contain general reopener clauses.) (Category 3)
- Permits for Kansas POTWs without pretreatment programs should include the requirement to conduct Industrial Wastewater Surveys per 40 CFR 122.44(j)(1) (e.g., updating an existing survey). Fact sheets and permits should be consistent with whether the state is required to implement a program. Fact sheets for Kansas permits are silent on the basis for program implementation. (Category 3)

Missouri

- All Missouri POTW permits need to contain specific language at 40 CFR 122.42(b) and appropriate requirements of 40 CFR 122.44(j) and 40 CFR Part 403. 40 CFR 122.44(j)(2)(ii) requires reevaluation of local limits following permit issuance or reissuance, and a submittal date will need to be included in this permit condition. (Category 1)
- Missouri needs to update its pretreatment regulations to include the required provisions of the 2005 Streamlining revisions. (Category 1)
- If AOs issued to IUs are intended to act as the control mechanism, they must include all the required provisions of 40 CFR Part 403 and 40 CFR 122.42. AOs do not include the notice of slug load requirement [40 CFR 403.12(f)]; the reporting requirements [40 CFR 122.42(b)(1)-(3)]; the statement of no transferability [40 CFR 403.8(f)(1)(iii)(B)(2)]; and do not contain an end date or compliance date [40 CFR 403.8(f)(1)(B)(1)]. If this is the only control mechanism issued to this IU, all requirements need to be included. (Category 1)
- Permits for Missouri POTWs without pretreatment programs could be strengthened if they had a reopener clause specific to pretreatment program development if results of 40 CFR 122.42(b) warrant the reopening of the permit to include developing such pretreatment program. (It is recognized that all permits contain general reopener clauses.) (Category 3)
- Permits for Missouri POTWs without pretreatment programs should include the requirement to conduct Industrial Wastewater Surveys per 40 CFR 122.44(j)(1). (Category 3)

Nebraska

- Nebraska needs to update its pretreatment regulations to include the required provisions of the 2005 Streamlining revisions. (Category 1)
- Nebraska IU permits need to contain all required provisions. Specifically noted as missing are slug notification requirements at 40 CFR 403.12(f). (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)		