

Region 7

NPDES Program and Permit Quality Review
Missouri Department of Natural Resources

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U.S. Environmental Protection Agency
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Executive Summary

EPA Region 7's National Pollutant Discharge Elimination System (NPDES) Program and Permit Quality Review (PQR) for Missouri Department of Natural Resources (MDNR or Department) found that permits issued in the state were generally concise and adhere to federal regulations. See Essential Action Items for complete list of PQR findings.

The PQR examined 21 site specific permits along with 7 general permits in varying capacities in Missouri, several MDNR permitting policies, and the statewide permit template. The PQR also focused on several national and regional priority areas including:

- Permit Controls for Nutrients in impaired waters before approval of a Total Maximum Daily Load (TMDL),
- Effectiveness of publicly-owned treatment works (POTW) NPDES Permits with Food Processor Contributions,
- Small Municipal Separate Storm Sewer System (MS4) Permit Requirements,
- Industrial Stormwater,
- Whole Effluent Toxicity (WET), and
- Concentrated Animal Feeding Operations (CAFOs)

MDNR has issued 2,380 site specific Missouri State Operating permits. MDNR has 42 categories of general permits and within those categories 7,875 permits have been issued to permittees. This is further discussed under Section II part B.

The PQR understands the many state and region-specific challenges faced by Missouri DNR, including state legislative mandates. In 2017, Red Tape Reduction-Executive Order 17-03 was filed and required Missouri to review and remove regulations that unnecessarily burdened individuals and businesses while doing little to protect or improve public health, safety, and our natural resources. MDNR reviewed 598 rules in compliance with Executive Order 17-03 to reduce regulatory burden and streamline regulations.

The permits reviewed commonly conformed to national requirements. However, this PQR identified the following action items to be addressed:

Essential Action Items

- MDNR must ensure that permit applications for major POTWs include three priority pollutant scans as required by (40 CFR 122.21(j)(4) and 40 CFR 122.21 appendix J);
- The permit writer needs to ensure that Part F of the permit application is attached and completed if the city answers in Part A that it receives industrial wastes per 40 CFR 122.21 requiring complete applications; and

Recommended Action Items

- EPA recommends current/updated applications be requested in cases where the application is beyond 180 days from permit issuance. Federal regulations at 40 CFR 122.21(c) and (d) specify the time to apply for NPDES permits. Anyone proposing a new discharge must apply to the permitting authority no later than 180 days before the

expected commencement of the discharge if applying for an individual permit. Any person with a currently effective individual permit must submit an application to the permitting authority at least 180 days before the expiration of its existing individual permit unless permission for a later date has been granted in accordance with 40 CFR 122.21(d)). In discussion with the State, EPA agrees that a renewal application that is beyond 180 days may be utilized in cases where the State has verified that no changes have occurred at the facility and that an explanation to that effect is described within the permit fact sheet.

- Focus on reducing I/I from collection systems. High, erratic flows make it more difficult to treat for nutrients.
- Highlight in fact sheets where the Lake Nutrient Implementation procedures are being implemented.
- Explore using pro-active nutrient reduction. Most nutrient work is based on a TMDL identifying an impairment, then adding treatment.
- Consider looking at rolling annual averages (RAA) for nutrients. RAA will acknowledge seasonal WWTF operations issues while providing a monthly limit for compliance purposes after the first 12 months of permit effectiveness.
- Permit writers should specify the pretreatment program approval or modification dates in fact sheets to ensure that the program includes up-to-date federal regulations.
- The fact sheet should include an inventory of any significant industrial users (SIUs) that discharge to cities not having approved Pretreatment Programs.
- The MDNR should develop a way to confirm statements made by cities that no industrial wastes are discharged to them.
- The MDNR should study how to utilize information reported in Part F of the permit application. All information provided on any industrial users should be shared with the Pretreatment Coordinator as a matter of routine.
- The Pretreatment program should provide a list of known SIUs to the permitting group to ensure the permit writers know which cities should be submitting Part F sections of the permit application.
- Permit writers need to document that they have considered reasonable potential (RP) for WET.
- If WET limits are removed, backsliding should be documented.
- MDNR should consider more standardized methods for dilution series, dilution water, and test temperatures.

MDNR reviewed and provided comments on the draft PQR report on April 2, 2021. The State agreed with many of the draft PQR's findings and recommendations and provided updates and some language changes.

I. PQR BACKGROUND

The NPDES PQRs are an evaluation of a select set of NPDES permits to determine whether permits are developed in a manner consistent with applicable requirements established in the Clean Water Act (CWA) and NPDES regulations. Through this review mechanism, U.S. Environmental Protection Agency (EPA) promotes national consistency and identifies successes in implementation of the NPDES program as well as opportunities for improvement in the development of NPDES permits. EPA conducted the previous PQR of the MDNR NPDES permitting program in March 2014. A copy of the document can be found at https://www.epa.gov/sites/production/files/2019-08/documents/missouri_2014_pqr_final.pdf. From that prior evaluation, the team proposed various action items to improve the MDNR NPDES permitting program. As part of the current PQR, EPA requested updates from MDNR on the progress on those action items. Of the nine action items identified during the last PQR as being Essential¹, eight tasks have been resolved and the remainder represent actions that are either longer-term activities or lower-level actions which MDNR is still addressing. Sections VI and VII of this report contain a detailed review of the progress on action items identified during the last PQR.

During this review, the evaluation team proposed action items to improve MDNR NPDES permit program. The proposed action items are identified within Sections III, IV, and V of this report and are divided into two categories to identify the priority that should be placed on each Item and facilitate discussions between regions and states.

- **Essential Actions** - Proposed essential action items address noncompliance with respect to a federal regulation, which EPA has cited for each essential action item. The permitting authority must address these action items in order to come into compliance with federal regulations.
- **Recommended Actions** - Proposed recommended action items are recommendations to increase the effectiveness of the state's or Region's NPDES permit program.

The Essential findings are used to augment the existing list of “follow up actions” currently tracked by EPA Headquarters on an annual basis and reviewed during subsequent PQRs.

EPA's review team, consisting of: John Dunn (WET and desk reviewer), Mark Matthews (Stormwater Coordinator and MS4 desk reviewer), Tanya Nix (NPDES desk reviewer), Mike Tate (Nutrients), Paul Marshall (Pretreatment Coordinator), Sunny Wellesley (State Coordinator), conducted a review of the MDNR NPDES permitting program which included a conference call with MDNR on June 4, 2020.

The MDNR PQR included reviews of core permit components and national and regional topic areas, as well as discussions between the PQR review team and MDNR staff addressing their program status and permit issuance process. The permit reviews focused on core permit quality

¹ During the 2012-2017 PQR cycle, these action items were known as “Category 1” and address deficiencies or noncompliance with respect to federal regulations. EPA is now referring to these action items going forward, as Essential. In addition, previous PQR reports identified recommendations as either “Category 2” or “Category 3” action items. EPA is now consolidating these categories of action items into a single category: Recommended.² <https://www.epa.gov/npdes/central-tenets-mpdes-permitting-program>

and included a review of the permit application, permit, fact sheet, and any correspondence, reports or documents that provide the basis for the development of the permit conditions and related administrative process. The PQR also included conversations between EPA and the State on program status, the permitting process, responsibilities, organization, staffing, and program challenges the state is experiencing.

A total of 28 permits were reviewed as part of the PQR. Of these, 17 permits were reviewed for the core review and 9 permits were reviewed for national topic areas. Permits were reviewed for both the core review and one or more topic areas reviews. Permits were selected based on issuance date and the review categories that they fulfilled.

Core Review

The core permit review involved the evaluation of selected permits and supporting materials using basic NPDES program criteria. Reviewers completed the core review by examining selected permits and supporting documentation, assessing these materials using standard PQR tools, and talking with permit writers regarding the permit development process. The core review focused on the Central Tenets of the NPDES Permitting Program² to evaluate the MDNR NPDES program. Core topic area permit reviews are conducted to evaluate similar issues or types of permits in all states.

Topic Area Reviews

The national topics reviewed in the Missouri DNR NPDES program were: Permit Controls for Nutrients in Non-TMDL Waters, Small Municipal Separate Storm Sewer System (MS4) Permit Requirements, and Effectiveness of POTW NPDES Permits with Food Processor Contributions.

Regional topic area reviews target regionally-specific permit types or particular aspects of permits. WET was selected as the regional by EPA Region 7. The review provides important information to MDNR, EPA Region 7, EPA HQs and the public on specific program areas.

II. STATE PROGRAM BACKGROUND

A. Program Structure

The State of Missouri has been authorized by EPA to administer a program equivalent to the federal NPDES program. Missouri identifies their permits as State Operating Permits; the operating permits are issued through the Clean Water Commission and are considered as effective as federal permits under the NPDES program. EPA oversees the state permitting program and provides the national framework for the NPDES program, including requirements for state programs. This program authorization involves permitting, inspection and enforcement activities, requiring varying interactions between MDNR and their regulated community.

² <https://www.epa.gov/npdes/central-tenets-npdes-permitting-program>

The Missouri Clean Water Commission (commission) consists of seven members who are appointed by the Governor. Each member must be representative of the general interest of the public and has an interest in and knowledge of conservation and the effects and control of water pollutants. The duties of the commission are to establish rules pursuant to the Missouri Clean Water Law regarding the Department's issuance of permits for the construction and operation of wastewater treatment facilities or other point or water contaminant sources, monitoring of waters of the state and plans to protect and improve them; inspection and monitoring of water contaminant sources; investigation of complaints from the public; adopt regulations; enforcement of the Missouri Clean Water Law and State regulations; and the administrator of grants and loans to municipalities and political subdivisions for construction of wastewater treatment facilities. MDNR's responsibilities also include water quality monitoring and analysis, technical assistance, and education. MDNR also provides financial assistance for construction of wastewater infrastructure projects at POTWs. The program has helped communities keep up with infrastructure needs and comply with CWA requirements.

MDNR operates a Central Office located at Lewis and Clark State Building, 1101 Riverside Drive, Jefferson City, Missouri and six Regional field offices. MDNR's Regional Offices (RO) conduct field inspections, complaint investigations, and provide technical assistance on environmental issues and emergencies.

The following are the RO:

Southwest Regional Office (SWRO) – Springfield
Northeast Regional Office (NERO) – Macon
Southeast Regional Office (SERO) – Popular Bluff
Kansas City Regional Office (KCRO) – Kansas City
St. Louis Regional Office (SLRO) – St. Louis
Central Field Office (CFO) – Jefferson City

The CFO was newly created due to restructuring of RO's county responsibilities. The office officially opened in July 2019 and is, at present, housed in the Lewis and Clark State Office Building in Jefferson City. Currently, the CFO houses Drinking Water and Wastewater staff including inspectors and engineers.

MDNR's Water Protection Program, Water Pollution Control Branch (WPCB) main duties are the issuance of permits for point sources of water pollution. They issue two types of permits: construction and operating permits. Construction permits require the applicant to submit engineering plans prior to construction. MDNR's construction permit staff review these plans to ensure they comply with the state's design requirements. The majority of the permits are for operating, which allows for the discharge of treated wastewater from domestic and industrial facilities. Permits are also issued for land application of wastes from domestic, industrial and agricultural facilities. The permits specify requirements for sampling and water quality standards (WQS) for any discharges.

Most of the permits are site-specific due to the nature of the wastewater or the receiving stream. Permits usually have a five-year cycle; however, due to permit synchronization, some permits are issued for less than five (5) years in order to achieve Watershed Based Management for permits. There are several steps taken prior to the expiration of the permit. The permit writer will review inspection reports, review discharge monitoring reports, compliance reports, and other facility file information. Permit writers also offer pre-application meetings or conferences and the opportunity for a ten-day draft permit pre-review to discuss concerns and/or conditions that may affect their permit. This process has been beneficial to reduce the number of appeals and comments that would delay issuance of the permit. After the permit is drafted, it is then placed on public notice for 30 days. Drafted permits on public notice are available for comments. Public noticed and final, site-specific permits are placed on the Internet so that they are available for the public to access. Once the 30-day public notice period has ended, comments are reviewed and responses are prepared, permits are issued with or without changes (as appropriate), modified and/or re-noticed to resolve any concerns.

MDNR has several categories of Master General Permits, under which the General Permits are developed (see Section II, Part B, Table 2 for a complete list). MDNR has created a template for each of their Master General Permits which are used to develop the more facility specific General Permits. The conditions in Master General Permits are placed on public notice prior to being issued to applicants. After being finalized, a Master General Permit cannot be modified. All facilities receiving a General Permit must adhere to the conditions contained in the Master General Permit until it expires or until the facility obtains a site-specific permit. General Permits are issued to multiple locations where activities are similar enough to be covered by a single set of requirements. An applicant that meets the conditions of the General Permit in which they are applying for are then issued a permit under that category. These General Permit types are identified by the prefixes MO-R (stormwater general permits) or MO-G (general permits), which appear in the permit numbers. General Permits for airports, chemical manufacturing, fabricated structured metal, foundries, limestone and rock quarries, lubricant manufacturing, petroleum storage greater than 50,000 gallons, and wood treaters are required to be placed on public notice prior to issuance to a new facility.

MDNR's WPCB also conducts water quality monitoring in an effort to track pollution trends and to educate their citizens on natural resources. Monitoring allows the Department to customize permit limitations based off the unique conditions of the waterbody. Monitoring also provides the evidence of water quality improvement. Impairments of waterbodies are caused by many sources; therefore, a major goal for the program is addressing them and documenting the restoration of waters to meet WQS.

MDNR's operating permit section offers permit writers the following resources for training and coaching:

- Department-developed and required orientation training which provides high-level description of different program areas.
- Supervisor and peer training specific to the tasks assigned;
- Online and in-person attendance at EPA's NPDES Permit Writers' Course. All new permit

writers are required to take this course and experienced permit writers are encouraged to retake the course every 5 years;

- Webinars both directly and indirectly related to their duties as provided by EPA, MDNR, or other state agencies or stakeholders; and
- Extensive electronic files on a range of training topics.

Some examples of tools used for new and experienced permit writers include:

- Easy-to-read and follow permit templates;
- Reasonable Potential Analysis (RPA) worksheets in Excel;
- Guidance documents and policy memoranda;
- Regular team meetings to delve into more technical concerns and questions; and
- EPA NPDES Permit Writers' Manual and Technical Support Document for Water Quality-based Toxics Control (TSD)³.

MDNR's permit writing responsibilities are divided into four main areas: (1) administrative staff, (2) Industrial Unit, (3) Domestic Unit, and (4) Stormwater and Certification Unit.

The Industrial Unit, handling industrial permits including CAFOs, is separated by the different types of industrial facilities. Therefore, team members are assigned a specific group or groups of industrial facilities. More complex facilities like power plants, with complex regulatory requirements (e.g., CWA 316(a) and (b)), are assigned to senior staff. Other permit assignments are typically grouped by similarity (e.g., one permit writer specializes in stormwater, such as quarries and concrete manufacturing or a permit writer specializes in agricultural industries). This specialization provides more accurate, technical, and efficient permitting. As time allows, permit writers are cross trained on other industrial areas.

Permit assignment in the Domestic Unit is based on the permit writer's experience. New and inexperienced permit writers are assigned less technical/complex permits. Additionally, they are assigned tasks that allow them to become familiar quickly with the administrative processes such as permit transfers, modifications, and terminations. As the permit writer grows with experience and knowledge, they are assigned permits that have new components such as but not limited to unusual/new-to-them parameters, affordability analyses, or technologies.

The Stormwater and Certification Unit team members are separated into specific duties based on their specific area of expertise. This unit manages Master General Permits, MS4 permits, 404 Water Quality Certifications, the Department's electronic Discharge Monitoring Reporting (eDMR) system and electronic Permitting (ePermitting) system.

³ U.S. EPA. (March 1991). *Technical Support Document for Water Quality-based Toxics Control* (EPA/505/2-90-001). <https://www3.epa.gov/npdes/pubs/owm0264.pdf>

Table 1, below, presents MDNR's Water Protection Program, WPCB staff as of May 2020.

Table 1. MDNR's Water Protection Program Staff

Chris Wieberg- Water Protection Program Director		
Mike Abbott- Operating Permits Section Environmental Program Manager		
Stormwater & Certification Unit Vacant- Unit Chief	Industrial Wastewater Unit Heather Peters- Unit Chief	Domestic Waste Unit Tim Bull- Unit Chief
Michael Irwin	Greg Caldwell (CAFO)	Charles Harwood
Sarah Wright-Aholt	Gorden Wray	Heather Martin
Amberly Schulz	Kyle O'Rourke	Ashley Keely
Billy Hackett	Pam Hackler	Danielle Skouby
	Vacant	Sam Buckler
		Jessica Vitale
		Brant Farris
		Myranda Alford
Vacant- Engineering Section Environmental Program Manager		
Wastewater Engineering Unit John Rustige-Unit Chief	Construction Permits Unit Cindy LePage- Unit Chief	
Ellen Modglin	Lei Hou	
Aaron Sawyer	Leasue Meyers	
Vacant	Callie Carlile	
	Mohammed Mohammed	
	Andy Appelbaum	
John Hoke- Watershed Protection Section Environmental Program Manager		
Monitoring & Assessment Unit Robert Voss- Unit Chief	TMDL & Modeling Unit Michael Kruse- Unit Chief	Water Quality Standards Unit Angela Falls- Unit Chief
Erin Louise Petty	Lisa Rodgers	Anna McElfresh
Megan Schmiedeler	James Vevrka	Sally Zemmer
Molly Vannoy	James Crawshaw	Jessica Klutts
Laura Richardson	Vacant	Collin Mackey
Vacant		
Jodi Gerling- Fiscal Management Section Administrative Manager		
Administrative Unit Trisha Adams- Program Specialist	Budget, Fees, Grants Management Unit Misty Lange- Program Specialist	
Vacant	Dennis Helton	
Vacant	Sherry Bell	
Vacant	Lisa Luecke	
Samantha Horrocks		

Hannah Humphrey- Fiscal Assistance Center Director		
Accounting Unit Sara Pringer- Administrative Manager	Clean Water Section Stacia Bax-Environmental Program Manager	Drinking Water Unit Vacant – Engineer Supervisor
Rachelle Thompson	Joe Blume	Aidan Humphrey
Ryne Brown	Joan Doerhoff	Lauren Graessle
Daniel Jones	Phillip Akin	Greg Powell
Neil Elerman	Cynthia Smith	Matthew Shallow
Vacant	Patrick Anderson	Jeremy Rackers
Melanie Jeffery	Joshua Brown	
	Virginia Bretzke	
	Vacant	
	Shane Graupman	
	Judy Morrison	
	Kara Simon	
	Kurtis Cooper	
	Bradley Allen	
Kristi Savage-Clarke- Water Pollution Compliance & Enforcement Environmental Program Manager		
Compliance Management & Coordination Unit Joe Clayton- Environmental Program Supervisor	Reporting & Special Projects Unit Logan Cole- Environmental Program Supervisor	
Vacant	Erin Meyer-Heidolph	
Vacant	Natalie Wigger	
Laura Grootens	Kalyn Godard	
	Todd Blanc	

B. Universe and Permit Issuance

Table 2 provides MDNR’s permit universe (counts are current as of April 2020).

Table 2. Permit Universe

Publicly Owned Treatment Works (site specific permits)	Number of Permits Issued
Majors (greater than 1 million gallons per day)	123
Non majors (less than 1 million gallons per day)	732
Combined sewer overflows Kansas City, Macon, Moberly, Metropolitan St. Louis Sewer District, St. Joseph	5
Terminated permits (since March 2010)	577

Non municipal (site specific permits)	Number of Permits Issued
Majors	52
Major industrial stormwater	0
Non major	1473
CAFO (concentrated animal feeding operations)	21
Terminated permits (since March 2010)	8076
Stormwater	Number of Permits Issued
Municipal	91 (general) 5 site-specific. (96 total)
Industrial site-specific covered facilities	174
Construction general permit covered facilities	3,813 (land disturbance)
Non stormwater general permit covered facilities	2225
CAFO general permit covered facilities	491
No Exposure Certifications	596
Terminated permits (since March 2010)	34,638
Administratively continued	Number of Permits
Majors	1
Non major permits	227
General permits	1

Permits that have expired and where a renewal application has been received are listed in the administratively continued permits count. MDNR also defines these permits as backlogged. MDNR has placed a priority on reducing permit backlog, which consists of nine (9) general permit covered facilities and 220 site-specific operating permits. The effort to reduce the backlog started in January 2017 with a value of 1,793. Through changes in processes, new directives, and a priority on reducing the permit backlog, MDNR has reduced the backlog by 87.23 percent.

Table 3. Master General Permit Categories

Master General Permit categories [MO-R (stormwater) and MO-G (general)]
(MOR04) Small Municipal Separate Storm Sewer Systems
(MOG14) Oil/Water Separators
(MOR240) Agrichemical Facilities - SIC 5191
(MOG76) Swimming Pools Discharges
(MOR203) Fab. Metal, Light Industrial
(MOGD) Non POTW's Discharges ≤50,000 gpd

(MOR22A) Lumber and Wood Primary
(MOR80H) Solid Waste Transfer
(MOG84) Clay Pits
(MOR22B) Wood Treaters
(MOR23A) Chemical Mfg.
(MOG50) Sand and Gravel Washing
(MOG251) Heat Pumps
(MOG94) Fuel Spill Cleanup
(MOR23D) Plastics and Rubber Mfg.
(MOG05) Abandoned Mine Land Reclamation
(MOG822) Land App of Food Processing WW
(MOG49) Limestone Quarries
(MOG87) Pesticide Applications
(MORA) Construction or Land Disturbance
(MOG823) Land App of Domestic Wastewater
(MOR100) Land Disturbance by City or County
(MOG35) Petroleum Storage <250,000 gallons
(MOG67) Hydrostatic Testing Petroleum Related Oil & Gas Pipelines and Storage Tanks
(MOG821) Land App Dom WW Biosolids ≤2000
(MOR80C) Motor Freight Transportation
(MOR80F) Airports
(MOG92) Feedstock Compost Sites
(MOG97) Yard Waste Compost Sites
(MOGS1) State No-Discharge CAFO
(MOG01) CAFO: Concentrated Animal Feeding Operation
(MOG69) Dredging Lakes/River Harbors
(MOG698) Dredging on the Missouri and Mississippi Rivers
(MOR13) Textile and Apparel/Printing and Publ.
(MOG641) Zeolite Softeners
(MOR23E) Biodiesel Manufacturing
(MOG75) Car Wash
(MOR22C) Lumber and Wood (Secondary)
(MOG64) WTP Settling Basins (MO & MISS)
(MOR60A) Motor Vehicle Salvage
(MOG13) Fish Farms/Hatcheries
(MOGC) Sewer Extension Construction

C. State-Specific Challenges

As part of the PQR, EPA is advised of the various challenges presented to the MDNR water program, many statewide and some regional, that reduced staff's time from working on NPDES activities. In 2017, Red Tape Reduction-Executive Order 17-03 was filed and required Missouri to review and remove regulations that unnecessarily burdened individuals and businesses while doing little to protect or improve public health, safety, and our natural resources. MDNR reviewed 598 rules in compliance with Executive Order 17-03 to reduce regulatory burden and streamline regulations.

One of the most significant challenges continues to be staffing vacancies within the program and which have a potential to impact implementation of the NPDES program. Other challenges have included establishing a program to meet Electronic Reporting (eReporting rule) requirements; successfully uploading DMR data to ICIS, and an increase of legal challenges within the last five years regarding CAFOs.

D. Current State Initiatives

Missouri developed the Multi-Discharger Variance (MDV) framework and incorporated into their WQS regulations. The MDV is a variance from the total ammonia nitrogen WQS and replaces the standards with the highest attainable conditions of the facility's treatment process.

The Nutrient Reduction Strategy is another initiative that was created to develop recommendations and plans on how to reduce nutrient loads to waterways. MDNR also created a nutrient trading workgroup and enlisted interested stakeholders to develop a framework to be consistent with the goals of the CWA. The water quality trading program is still under development, but MDNR hopes to establish a system to serve as a mechanism for point source dischargers to achieve compliance with WQS by exchanging credits among themselves and with nonpoint source entities.

MDNR has also revised certain guidance documents, such as the 2019 *Total Ammonia Nitrogen Criteria Implementation* and *Data Review and Exclusion Guidance for Determining Reasonable Potential and Deriving Water Quality-Based Effluent Limits*.

III. CORE REVIEW FINDINGS

A. Basic Facility Information and Permit Application

1. Facility Information

Background

Basic facility information is necessary to properly establish permit conditions. For example, information regarding facility type, location, processes and other factors is required by NPDES permit application regulations (40 CFR 122.21). This information is essential for developing technically sound, complete, clear, and enforceable permits. Similarly, fact sheets must include a description of the type of facility or activity subject to a draft permit.

Region 7 reviewed the following POTW and non-POTW facilities: Diggins (MO-0129828), Estates of DMonaco (MO-0135259), Hannibal (MO-0093513), Liberty (MO-0137111), Nevada (MO-0089109), Rogersville (MO-0102679), Big Cedar (MO-0039578), Branson Creek (MO-0123781), Barbour Concrete (MO-0123781), Six Flags (MO-0105473), Gower (MO-0099457, Marshall SE (MO-0032883), Palmyra (MO-0099457), St. Clair (MO-0099465), Water Treatment Plant (MO-G64), and Land Application of Septage (MO-G821).

Program Strengths

All permits reviewed include descriptions of the facility in the fact sheet, descriptions of

processes at the facility, identification of outfalls and waste streams, and location information relative to the receiving stream. Permits contain complete descriptions of the location, the receiving stream, and the facility discharge.

Areas for Improvement

The Major POTW permit records reviewed did not include three priority pollutant scans for those permits. The extent of this issue within the NPDES permit program is undetermined. This item was also listed in the 2014 PQR.

Action Items

Essential

- MDNR must ensure that permit applications for major POTWs include three priority pollutant scans as required by 40 CFR 122.21(j)(4) and 40 CFR 122.21 appendix J).

Recommended

- The PQR did not identify any recommended action items for this section.

2. Permit Application Requirements

Background and Process

Federal regulations at 40 CFR 122.21 and 122.22 specify application requirements for permittees seeking NPDES permits. Although federal forms are available, authorized states are also permitted to use their own forms provided they include all information required by the federal regulations. This portion of the review assesses whether appropriate, complete, and timely application information was received by the state and used in permit development. Both federal and MDNR's NPDES regulations require permittees to submit NPDES applications 180 days prior to the permits expiring.

Program Strengths

MDNR uses its own application forms, but they are based on EPA's forms. Once an application is received by MDNR, it is checked for the permittee's permit fee status. If all fees are up to date, the application is forwarded to the operating permits section where it is assigned a folder tracking number and then forwarded to the appropriate unit chief. The unit chief assigns the application to a permit writer for review. Permit writers review the application for completeness and draft a letter or email to the permittee notifying them that the permit has been assigned and indicating whether additional information is required for further processing. MDNR also sends out renewal reminder letters approximately 7-8 months prior to expiration for site-specific permits and 60 days prior to the expiration of general permits. MDNR uses the Missouri Clean Water Information System (MOCWIS) database to track permit application dates

and permit facility information.

Areas for Improvement

EPA recommends having applications that are current, relative to the permit expiration date. In the case of Ironton MO-0026514, the application received date was 2012 while the permit was public noticed in 2020. Having a current application, especially one prepared more recently than 8 years, will ensure that the permit writer has the most accurate and relevant information. In discussion with the State, EPA agrees that a renewal application that is beyond 180 days may be utilized in cases where the State has verified that no changes have occurred at the facility and that an explanation to that effect is described within the permit fact sheet.

Action Items

Essential

- The PQR did not identify any essential action items for this section.

Recommended

- EPA recommends current/updated applications be requested in cases where the application is beyond 180 days from permit issuance. Federal regulations at § 122.21(c) and (d) specify the time to apply for NPDES permits. Anyone proposing a new discharge must apply to the permitting authority no later than 180 days before the expected commencement of the discharge if applying for an individual permit. Any person with an currently effective individual permit must submit an application to the permitting authority at least 180 days before the expiration of its existing individual permit unless permission for a later date has been granted in accordance with § 122.21(d). However, EPA agrees that applications beyond 180 days may be utilized in cases where the State has verified that no changes have occurred at the facility and that an explanation to that effect is described within the permit fact sheet.

B. Developing Effluent Limitations

1. Technology-based Effluent Limitations

NPDES regulations at 40 CFR 125.3(a) require that permitting authorities develop technology-based requirements where applicable. Permits, fact sheets and other supporting documentation for POTWs and non-POTWs were reviewed to assess whether technology based effluent limitations (TBELs) represent the minimum level of control that must be imposed in a permit.

MDNR utilizes the EPA's established daily and monthly limits for certain industries based on the production of the facility, or, more commonly, a simple concentration-based limit. Both daily and monthly limits must be included in the permit. MDNR recommends that their permittees target the design of its treatment system to meet the long-term average monthly rather than the daily limits, since the daily limit is intended to account for variation in effluent concentration above the monthly limit. TBELs are found in MDNR's regulations at 10 CSR 20-

7.015 which contains technology-based limits for biochemical oxygen demand (BOD), total suspended solids (TSS), and pH for domestic waste discharges.

TBELs for POTWs

Background and Process

POTWs must meet secondary or equivalent to secondary standards (including limits for BOD, TSS, pH, and percent pollutant removal), and must contain numeric limits for all these parameters (or authorized alternatives) in accordance with the secondary treatment regulations at 40 CFR Part 133. A total of thirteen POTW permits were reviewed as part of the PQR.

EPA routinely reviews POTWs as they are put on public notice. These reviews indicate that Missouri is appropriately establishing technology-based permit limits for POTWs. Further, all permits reviewed during the PQR contained all parameters required by 40 CFR Part 133, based on the secondary treatment process, and limits were set using correct units of measure.

Fact sheets state which limits apply to the discharge.

Program Strengths

MDNR permit writers include appropriate numeric TBELs for BOD or carbonaceous BOD (CBOD₅), TSS, and pH in POTW permits. All files reviewed contained limits expressed in appropriate units of measure and in monthly and weekly averages and contained the 85% removal requirement. POTW permits also require influent monitoring for BOD or CBOD and TSS.

Areas for Improvement

EPA did not identify any inadequacies.

Action Items

The PQR team did not identify any action items in this section.

TBELs for Non-POTW Dischargers

Background and Process

Permits issued to non-POTWs must require compliance with a level of treatment performance equivalent to Best Available Technology Economically Achievable (BAT) or Best Conventional Pollutant Control Technology (BCT) for existing sources, and consistent with New Source Performance Standards (NSPS) for new sources. Where federal effluent limitations guidelines (ELGs) have been developed for a category of dischargers, the TBELs in a permit must be based on the application of these guidelines. If ELGs are not available, a permit must include requirements at least as stringent as BAT/BCT developed on a case-by-case using best professional judgment (BPJ) in accordance with the criteria outlined at 40 CFR 125.3(d).

Program Strengths

EPA routinely reviews industrial permits as they are put on public notice. These reviews as well as those conducted during the PQR indicate that Missouri DNR routinely establishes properly applied ELG-based permit limits for non-POTW dischargers.

Missouri DNR's fact sheets for non-POTW dischargers contain detailed descriptions of plant location, treatment processes, and waste streams and show how the guidelines are applied to calculate TBELs. Permit writers implement 40 CFR 125.3(d) which requires the permit writer to consider the six factors associated with setting BPJ-based TBELs. Permit writers identify the facility's standard industrial classification (SIC) code(s) and derive permit limits based on the applicable ELG.

The files reviewed include documentation of the calculations used to develop the ELG-based effluent limits. The final limits are as stringent as the required ELG, are expressed in the appropriate units of measure, and include both maximum daily and monthly average limits.

Areas for Improvement

EPA did not identify any inadequacies.

Action Items

The PQR team did not identify any action items in this section.

2. Reasonable Potential and Water Quality-Based Effluent Limitations

Background

The NPDES regulations at 40 CFR 122.44(d) require permits to include any requirements in addition to or more stringent than technology-based requirements where necessary to achieve state WQS, including narrative criteria for water quality. To establish such water quality-based effluent limitations (WQBELs), the permitting authority must evaluate whether any pollutants or pollutant parameters will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including for narrative criteria for water quality.

MDNR utilizes an Excel spreadsheet to conduct RPAs and also implements procedures provided in Sections 3.1.2, 3.1.3, and 3.2 of the TSD to determine whether RP exists. MDNR's Excel spreadsheet RPA calculator considers the TSD, state WQS, site specific hardness, and supports calculation of site specific effluent limitations.

The PQR for MDNR assessed the processes employed to implement these requirements. Specifically, the PQR reviewed permits, fact sheets, and other documents in the administrative record to evaluate how permit writers and water quality modelers:

- determined the appropriate WQS applicable to receiving waters,
- evaluated and characterized the effluent and receiving water including identifying pollutants of concern,

- determined critical conditions,
- incorporated information on ambient pollutant concentrations,
- assessed any dilution considerations,
- determined whether limits were necessary for pollutants of concern and, where necessary,
- calculated such limits or other permit conditions.

For impaired waters, the PQR also assessed whether and how permit writers consulted and developed limits consistent with the assumptions of applicable EPA-approved TMDLs.

On November 2019, MDNR developed a guidance document “*Data Review and Exclusion Guidance for Determining Reasonable Potential and Deriving WQBELs.*” The guidance document will be considered for permit renewals. The guidance document outlines the process for permit writers to determine when it is admissible to exclude data before determining reasonable potential or deriving effluent limits. The document defines an outlier as a data point(s) that lies outside of an expected statistical range of values in the dataset. The determination of an outlier only marks the data point as a candidate for exclusion rather than an automatic exclusion. MDNR determined that justifiable exclusions would be based on data error or non-representative conditions and that as general rule that if data are erroneous or do not represent normal operations, the data could be subject to removal. However, data from normal operations are not eligible for a justifiable exclusion. The permit writers accept discharge monitoring report (DMR) and application data submitted by the permittee as representative and do not conduct statistical tests for the determination of outliers. The results of the RPA are used to determine removal or application of a limit, reduction to monitoring only, or depending on the results of the last RPA, discontinuing monitoring only. RPAs are conducted consistent with the TSD, EPA/505/2-90.001, Section 3.3.2.

Process for Assessing Reasonable Potential

According to MDNR’s procedures to determine whether the reasonable potential exists to result in an excursion of applicable water quality criteria, MDNR uses the following procedures for pollutants of concern (POC):

1. DMR data for the pollutants of concern must be obtained in electronic format from DMRs reported by the permittee. Typically, five years of DMR data is used, if available, along with data provided with the application.
2. Review current permit for revisions during the permit cycle.
3. Check data for representativeness and outliers.
4. Check the method detect limit or minimum level for parameter at: <http://www.nemi.gov/>.
5. Assign approach for handling non-detect data or values at the minimum level.
 - Hardness data is a consideration for hardness-dependent metals and should be the lower 25 percentile [10 CSR 20-7.031(1)(Y)].

6. Permit writer will follow “*The Data Review and Exclusion Guidance*” document as established in November 2019.
7. Characterize the highest measured effluent concentration based on the 99th percentile confidence level. The value of $_n$ is the percentile represented by the highest concentration in the dataset that has ‘n’ number of samples.
8. Determine the relationship between the percentile represented by the highest concentration in the dataset and the 99th percentile upper bound of the lognormal effluent distribution (C_{99}/C_n). Where CV is the coefficient of variation determined from the data set and ‘z’ is the normal distribution value for the $_n$ percentile (Note: If $n < 10$, the coefficient of variation (CV) is estimated to equal 0.6, TSD on Page 50, Box 3-2): Note: $Z_{99} = 2.326$
9. Calculate the z-score, which is the distance from the sample mean to the population mean in units of the standard error or use the table at: http://en.wikipedia.org/wiki/Standard_normal_table
10. To obtain a maximum effluent concentration based on the distribution and variability of effluent data, the relationship determined in Step 8 is multiplied by the maximum value determined in Step 7.
11. The maximum effluent concentration and appropriate available dilution are used to project a maximum receiving water concentration (RWC) using the mass balance approach.
12. Compare the projected maximum RWC with applicable criteria (acute (CMC), chronic (CCC), or reference ambient concentration (RAC)). RAC is the concentration of a chemical in water that will not cause adverse impacts to human health. If the maximum RWC is greater than the applicable ambient criterion, there is reasonable potential to cause an excursion of the criterion. More recent permits have a minimally-degrading effluent limit (MDEL) that maintains the assimilative capacity less than 10% for Tier 2 pollutants. For these POCs, the RWC is compared to the maximum daily limit for that POC’s MDEL).
13. The results of the comparison between RWC and applicable criteria will require the reviewer to decide between removal or application of a limit, reduction to monitoring only, or depending on the results of the last RPA, discontinuing monitoring only.

Process for Developing WQBELs

The permit writer is responsible for the development of water quality-based effluent limits. MDNR calculates water quality-based effluent limitations using the procedures found in the TSD. The permit writer determines if a water body has designated uses to protect human health such as drinking water supply (DWS), human health fish consumption, groundwater protection, or irrigation. Permit writers’ understanding of pollutant type helps to determine whether a particular wasteload allocation (WLA) or modeling strategy can be used to establish effluent limits protective of water quality. TBELs are the minimum level of control that must be imposed in a discharge permit issued by the state. Where TBELs are known to cause, have the reasonable potential to cause, or contribute to an excursion of any state WQS, WQBELs are

required. Modeling strategies are typically employed to arrive at WQBELs for non-conservative pollutants (e.g., BOD and Ammonia Nitrogen) since these pollutants degrade within the natural environment. Conservative pollutants, however, are more difficult to model and more protective modeling approaches must be taken to ensure WQS are maintained; WQBELs must be based upon the more stringent criteria.

MDNR also conducts water quality reviews. Water quality reviews are requested by completing and submitting a Water Quality Review Sheet (WQRS) Request form to the Permits and Engineering Section. A WQRS Request may be submitted by a departmental permit writer, other department staff or a facility representative or consultant. The water quality review process determines and documents appropriate NPDES effluent limits and monitoring requirements for a wastewater treatment facility. This is accomplished by examining the quality, quantity, and other characteristics of the facility discharge, and the water quality and flow characteristics of the receiving waters. Typically, this process is conducted at the time of NPDES permit issuance or modification.

Completion of the form requires checking or filling in the appropriate information and attaching a topographic map of the outfall locations, a copy of the existing permit, and a list of expected pollutants at new or modified facilities. A helpful, additional attachment is a description of the outfalls and the nature of water contaminants released from the outfalls at facilities that have not had a previous permit. In addition, examples of other issues could include changes of water quality due to development in the watershed, new or increased wastewater discharges from other facilities in the vicinity, modifications of the WQS, the completion of special water quality studies, TMDL determinations, and Use Attainability Analyses (UAAs).

The 2019 Total Ammonia Nitrogen Criteria Implementation guidance document outlined the adaptation of Section 5.4.2 of EPA's TSD, which allows for direct application of both the acute and chronic WLAs as permit limits for toxic pollutants. For a discharge to a waterbody where mixing is not allowed, the criterion continuous concentration (CCC) and the criterion maximum concentration (CMC) will equal the chronic and acute WLA respectively. The WLAs are then applied as effluent limits, per Section 5.4.2 of the TSD, where the CMC is the Daily Maximum and the CCC is the Monthly Average.

Resolved Issue from the Previous PQR

The previous PQR indicated that application data were not being used in calculations for RPA. However, MDNR's guidance document now indicates that application data will be utilized when calculating RP.

An additional issue of concern discussed in the previous PQR addressed the anti-backsliding provisions, in that MDNR did not consistently provide an explanation as to how they conformed to the backsliding provisions. Since the previous PQR, MDNR has updated their fact sheets to explain backsliding provisions.

Program Strengths

Reasonable Potential

All permits and associated fact sheets reviewed contain a detailed discussion of POC. The fact sheets include brief statements identifying potential pollutants in the discharge according to the activity, discuss data available from the permit application forms or other effluent characterization data, and include RPA; the full version of the RPA spreadsheets is not included in the fact sheet but is available upon request.

WQBEL Development

MDNR's fact sheets include detailed development of WQBELs.

Areas for Improvement

Reasonable Potential

EPA did not identify any inadequacies in this section of the PQR review.

WQBEL Development

EPA did not identify any inadequacies in this section of the PQR review.

Action Items

The PQR team did not identify any action items in this section.

3. Final Effluent Limitations and Documentation

Background and Process

Permits must include all applicable statutory and regulatory requirements, including technology and WQS, and must include effluent limitations that ensure that all applicable CWA standards are met. The permitting authority must identify the most stringent effluent limitations and establish them as the final effluent limitations in the permit.

In addition, for reissued permits, if any of the limitations are less stringent than limitations on the same pollutant in the previous NPDES permit, the permit writer must conduct an anti-backsliding analysis, and if necessary, revise the limitations accordingly. In addition, for new or increased discharges, the permitting authority should conduct an antidegradation review, to ensure the permit is written to maintain existing high quality of surface waters, or if appropriate, allow for some degradation. The NPDES regulations at 40 CFR 131.12 outline the common elements of the antidegradation review process.

In addition, permit records for POTWs and industrial facilities should contain comprehensive documentation of the development of all effluent limitations. TBELs should include assessment of applicable standards, data used in developing effluent limitations, and actual calculations used to develop effluent limitations. The procedures implemented for determining the need for WQBELs as well as the procedures explaining the basis for establishing, or for not establishing, WQBELs should be clear and straightforward (e.g., RP determinations). The permit writer should adequately document changes from the previous permit, ensure draft and final limitations match (unless the basis for a change is documented), and include all supporting

documentation in the permit file. The permit writer should sufficiently document determinations regarding anti-backsliding and antidegradation requirements.

MDNR's fact sheets contain documentation of limit development, RP determinations, calculations, information on dilution and mixing zones, background data for the receiving water, the WLA, WLA calculations, and numeric WQBELs or best management practices (BMPs). The fact sheets also contain WQBELs for all pollutants that have demonstrated to cause, have the reasonable potential to cause, or contribute to an excursion of applicable WQS. The final WQBELs are consistent with the justification and documentation provided in the record. WQBELs are expressed in appropriate units of measure and where a compliance schedule is required, the schedule is consistent with the requirements of 40 CFR 122.47.

MDNR reviews and replicates models that calculate the amount of flow available for mixing. Models such as CORMIX are allowed in state WQS to calculate mixing zones and zones of initial dilution for permitted facilities, particularly those that discharge to large river systems. These mixing zone models ensure appropriate zones of passage are maintained and that aquatic life designated uses and criteria are protected. If site-specific stream information is not available, permit writers historically assume no mixing for streams lacking designated uses and Class 'C' streams and the minimum allowable mixing of 0.1 cubic feet per second (CFS) for Class 'P' Streams.

Permit writers utilize a low-flow calculator populated with data obtained from U.S. Geological Survey (USGS) stream gauges when available. Recently, for Class 'P' streams that do not have USGS stream gauges, permit writers have started using the USGS "*StreamStats*" program for calculating low-flow values. Upon request, permit writers will use "*StreamStats*" for Class 'C' stream low flow calculations and subsequent calculation of mixing zones if allowed in the WQS.

If calculated limits are higher than the older limits, MDNR establishes the most stringent limits in the permit in accordance with the CWA. If the receiving stream is impaired or a TMDL is applicable to the discharge, the TMDL is implemented and the WLAs in the TMDL are included in the permits unless the calculated limits or the older limits are the most stringent.

On July 2016, MDNR developed an Antidegradation Implementation procedure document. The following are the implementation procedures for Missouri's antidegradation rule found at Title 10 Code of State Regulations, Division 20, Chapter 7.031(3) (i.e., 10 CSR 20-7.031(3)) and federal antidegradation policy at Title 40 Code of Federal Regulations (CFR) Section (§)131.12. MDNR followed 40 CFR 131.12(a) to develop and adopt a statewide antidegradation policy and to identify procedures for implementing that policy. MDNR's implementation generally includes:

- identifying the antidegradation review levels (i.e., the "tiers") that apply to a surface water;
- determining existing water quality (EWQ);
- assessing and determining appropriate extent of water quality degradation;

- identifying and assessing less-degrading or non-degrading alternatives;
- determining the importance of economic or social development to justify degradation of waters; and
- establishing intergovernmental coordination and public participation processes.

The Missouri Clean Water Law (Sections (§§) 644.006 - 644.150 of the Revised Statutes of the State of Missouri (RSMo)) establishes requirements for the protection and management of surface water and groundwater quality. The Missouri Clean Water Commission, through the assistance of the Department, promulgates regulations on water quality. Missouri's WQS are written into regulation at 10 CSR 20-7.031. The specific portion of the regulation prescribing the policy on antidegradation is 10 CSR 20-7.031(3). The antidegradation rule is one of four required regulatory elements of the WQS. The other three elements include water classification, beneficial uses, and water quality criteria (narrative and numeric). All these review elements must be administered as a whole and apply to all waters of the state.

Program Strengths

MDNR's fact sheets contain documentation of limit development, RP determinations, calculations, information on dilution and mixing zones, background data for the receiving water, numeric WQBELs or BMP WQBELs for all pollutants that have demonstrated to cause, have the reasonable potential to cause or contribute to an excursion of applicable WQS. The final WQBELs contain both long and short-term effluent limits and are consistent with the justification and documentation provided in the record. WQBELs are expressed in appropriate units of measure and where a compliance schedule is required, the schedule is consistent with the requirements of 40 CFR 122.47. Major permits reviewed for this PQR include acute and/or chronic WET limits. Permits reviewed cite sludge requirements when necessary.

Areas for Improvement

EPA did not identify any inadequacies in this section of the PQR review.

Action Items

The PQR team did not identify any action items in this section.

C. Monitoring and Reporting Requirements

Background and Process

NPDES regulations at 40 CFR 122.41(j) require permittees to monitor their discharge and provide the results to the permitting authority. Monitoring and reporting conditions require the permittee to conduct routine or episodic self-monitoring of permitted discharges in a manner that is representative of the permitted effluent discharge(s) and where applicable, internal processes, and report the analytical results to the permitting authority with information necessary to evaluate discharge characteristics and compliance status.

Specifically, 40 CFR 122.44(i) requires NPDES permits to establish, at minimum, annual reporting of monitoring for all limited parameters sufficient to assure compliance with permit

limitations, including specific requirements for the types of information to be provided and the methods for the collection and analysis of such samples. In addition, 40 CFR 122.48(b) requires that permits specify the type, intervals, and frequency of monitoring sufficient to yield data which are representative of the monitored activity. The regulations at 40 CFR 122.44(i) also require reporting of monitoring results with a frequency dependent on the nature and effect of the discharge. 40 CFR Part 127 requires NPDES-regulated entities to submit certain data electronically, including discharge monitoring reports and various program-specific reports, as applicable.

NPDES permits should specify appropriate monitoring locations to ensure compliance with the permit limitations and provide the necessary data to determine the effects of an effluent on the receiving water. A complete fact sheet will include a description and justification for all monitoring locations required by the permit. States may have policy or guidance documents to support determining appropriate monitoring frequencies; documentation should include an explicit discussion in the fact sheet providing the basis for establishing monitoring frequencies, including identification of the specific state policy or internal guidance referenced. Permits must also specify the sample collection method for all parameters required to be monitored in the permit. The fact sheet should present the rationale for requiring grab or composite samples and discuss the basis of a permit requirement mandating use of a sufficiently sensitive Part 136 analytical method.

MDNR's regulatory provisions related to these reporting requirements are located in 10 CSR 20-6.010(2)(D), (4)(I), (7)(C), (8)(A)5, 6 and 9. MDNR uses the TSD, EPA's Permit Writer's Manual, and state documents/regulations to develop monitoring requirements. Monitoring frequency may be case-specific, compliance-based, or consistent with previous permits. The monitoring location is based on the treatment process while the pollutant of concern dictates the sample type.

POC are listed in the permit in tables, narratives, or compliance schedules and are assigned reporting requirements.

Program Strengths

The review of the fact sheets, indicates that MDNR permit writers provide justification and documentation for monitoring and reporting requirements. All fact sheets reviewed reference 40 CFR Part 136 for sampling consistency and recordkeeping.

Areas for Improvement

EPA did not identify any inadequacies in this section of the PQR review.

Action Items

The PQR team did not identify any action items in this section.

D. Standard and Special Conditions

Background and Process

Federal regulations at 40 CFR 122.41 require that all NPDES permits, including NPDES general

permits, contain certain “standard” permit conditions. Further, the regulations at 40 CFR 122.42 require that NPDES permits for certain categories of dischargers must contain additional standard conditions. Permitting authorities must include these conditions in NPDES permits and may not alter or omit any standard condition, unless such alteration or omission results in a requirement more stringent than those in the federal regulations.

Permits may also contain additional requirements that are unique to a particular discharger. These case-specific requirements are generally referred to as “special conditions.” Special conditions might include requirements such as: additional monitoring or special studies such as a mercury minimization plan; best management practices [see 40 CFR 122.44(k)]; or permit compliance schedules [see 40 CFR 122.47]. Where a permit contains special conditions, such conditions must be consistent with applicable regulations.

EPA reviewed each standard condition for implementation in each permit as required by 40 CFR 122.41. MDNR has a standard set of narrative conditions used for special conditions, such as compliance schedules, BMPs, operations and maintenance, toxicity, and monitoring and reporting requirements. Special conditions in permits are designed to provide an additional measure of control for the reduction of discharges of pollutants to waters of the state. In addition, special studies and additional monitoring requirements may be included within the special conditions of a permit if deemed necessary to supplement numeric effluent limits or support future permit development activities. A recent addition to special conditions has been the requirement to electronically submit DMRs (eDMRs) in order to comply with the Electronic Reporting Rule.

MDNR utilizes Federal regulations 40 CFR 122.41 as the basis for their Missouri Standard Conditions for NPDES Permits, which They contain three sets of Standard Conditions. Part I includes a set of “General Conditions” and is included in all permits: this is equivalent to the standard conditions set out in 40 CFR 122.41. Part II contains the Special Conditions for Publicly Owned Treatment Works (POTW) with Major Contributing Industries. Part III applies to Sludge and Biosolids from Domestic Wastewater Treatment Facilities.

Program Strengths

Based on the permits reviewed, MDNR permits explain the relevance and purpose of special conditions, identify measurable milestones in compliance schedules, and explain the need for additional monitoring requirements.

Areas for Improvement

EPA did not identify any inadequacies in this section of the PQR review.

Action Items

The PQR team did not identify any action items in this section.

E. Administrative Process

Background and Process

The administrative process includes documenting the basis of all permit decisions (40 CFR 124.5

and 40 CFR 124.6); coordinating EPA and state review of the draft (or proposed) permit (40 CFR 123.44); providing public notice (40 CFR 124.10); conducting hearings if appropriate (40 CFR 124.11 and 40 CFR 124.12); responding to public comments (40 CFR 124.17); and, modifying a permit (if necessary) after issuance (40 CFR 124.5). MDNRs permitting procedures include all these required components. Draft permits along with their corresponding factsheets and/or statement of basis are placed on the internet for the public to view and make comments. Additional information regarding administrative processes can be found under the section Universe and Permit Issuance. All the permits reviewed appropriately followed the administrative process regarding public notice of the permit and considered public comments received during the public comment period.

Draft permits and permit rationales are placed on MDNRs website. Missouri Clean Water Law 10 CSR 20-6.020(4) includes provisions regarding requests for hearings and the public notice process related to hearings.

The law requires that MDNR must issue notices, hold hearings, and consider comments and recommendations as required by state or federal law. The law indicates that hearings related to the issuance of a permit are to be held in accordance with Section 644.051.4, .6 and .7. Hearings related to permit denials, terminations, revocations, modifications, and variances are held in accord with Section 644.066 and Chapter 536, RSMo.

Requests or petitions for a hearing must be made during the comment period. The request for the hearing shall be in writing and shall state the interest of the party filing the request and the nature of the issues proposed to be raised in the hearing.

MDNR will hold a hearing if there is significant technical merit and concern related to Clean Water Law responsibilities. Any public hearing will be held in the geographic area of the proposed discharge or in another appropriate location.

Program Strengths

MOCWIS database is used for tracking permit development, issuance, terminations, and modifications, as well as dates those actions were implemented. MOCWIS also captures and tracks other permitting information such as permitted feature type, location, receiving waters and types (including if listed on/subject to the 303(d) list or TMDL), parameters, limits, schedules of compliance, and narrative conditions. MDNRs website stores most of the documents related to the permitted facility. Permits include fact sheets or statement of basis, along with the appropriate standard conditions.

Areas for Improvement

EPA did not identify any inadequacies in this section of the PQR review.

Action Items

The PQR team did not identify any action items in this section.

F. Administrative Record and Fact Sheet

Background and Process

The administrative record is the foundation that supports the NPDES permit. If EPA issues the permit, 40 CFR 124.9 identifies the required content of the administrative record for a draft permit and 40 CFR 124.18 identifies the requirements for a final permit. Authorized state programs should have equivalent documentation. The record should contain the necessary documentation to justify permit conditions. At a minimum, the administrative record for a permit should contain the permit application and supporting data; draft permit; fact sheet or statement of basis;⁴ all items cited in the statement of basis or fact sheet including calculations used to derive the permit limitations including the reasonable potential determinations; meeting reports; correspondence between the applicant and regulatory personnel; all other items supporting the file; final response to comments; and, for new sources where EPA issues the permit, any environmental assessment, environmental impact statement, or finding of no significant impact.

Current regulations require that fact sheets include information regarding the type of facility or activity permitted, the type and quantity of pollutants discharged, the technical, statutory, and regulatory basis for permit conditions, the basis and calculations for effluent limits including the reasonable potential determinations and conditions, the reasons for application of certain specific limits, rationales for variances or alternatives, contact information, and procedures for issuing the final permit. Generally, the administrative record includes the permit application, the draft permit, any fact sheet or statement of basis, documents cited in the fact sheet or statement of basis, and other documents contained in the supporting file for the permit.

The permit writer drafts the permit rationale within their fact sheet and/or statement of basis. The draft permit, fact sheet, and attachments are posted online at MDNR's internet site. Consistent with the Memorandum of Agreement, EPA has 30 days to review and comment on the draft permit and factsheet – this is concurrent with the public notice. The State DNR Director has delegated signatory authority to the permit writers to issue and sign final permits. MDNR provides administrative hearing and permit appeal opportunities in compliance with federal regulations.

The quality of MDNR permit rationales (fact sheets and statement of basis) has continually improved since the previous PQR by including additional information regarding permit limits derivation, improved facility descriptions, and discussion of concerns unique to the facility. In most cases, the permit writer routinely documents changes from the previous permit, ensures draft and final limitations are consistent (unless the basis for a change is documented), and includes all supporting documentation in the permit file.

MDNR retains all emails, drafts, and comments in an e-file for the site, organized by Regional

⁴ Per 40 CFR 124.8(a), every EPA and state-issued permit must be accompanied by a fact sheet if the permit: Incorporates a variance or requires an explanation under 124.56(b); is an NPDES general permit; is subject to widespread public interest; is a Class I sludge management facility; or includes a sewage sludge land application plan.

Office and county. Paper submittals are scanned and saved in the e-file. After the final permit is issued, a copy of any paper documents provided during the permitting process are retained in a facility-specific paper file in the MDNR file room.

Program Strengths

Permit records for POTWs and industrial facilities contain comprehensive documentation of the development of all effluent limitations including reasonable potential determinations, including data and calculation used in developing effluent limitations. All supporting documentation for permitting-related decisions is included in the permit record. For permits reviewed, not all had the application attached to the permit on the website. However, applications are available upon request and located within permit files and stored electronically.

Areas for Improvement

EPA did not identify any inadequacies in this section of the PQR review.

Action Items

The PQR team did not identify any action items in this section.

IV. NATIONAL TOPIC AREA FINDINGS

National topic areas are aspects of the NPDES permit program that warrant review based on the specific requirements applicable to the selected topic areas. These topic areas have been determined to be important on a national scale. National topic areas are reviewed for all state PQRs. The national topics areas are: Permit Controls for Nutrients in Non-TMDL Waters, Effectiveness of POTW NPDES Permits with Food Processor Contributions, and Small Municipal Separate Storm Sewer System (MS4) Permit Requirements.

A. Permit Controls for Nutrients in Non-TMDL Waters

Background

Nutrient pollution is an ongoing environmental challenge; however, nationally permits often lack nutrient limits. It is vital that permitting authorities actively consider nutrient pollution in their permitting decisions. Of the permits that do have limits, many are derived from WLAs in TMDLs, since state criteria are often challenging to interpret. For this section, waters that are not protected by a TMDL are considered⁵. These waters may already be impaired by nutrient pollution or may be vulnerable to nutrient pollution due to their hydrology and environmental conditions. For the purposes of this program area, ammonia is considered as a toxic pollutant, not a nutrient.

Federal regulations at 40 CFR 122.44(d)(1)(i) require permit limits to be developed for any pollutant that causes, has the reasonable potential to cause, or contributes to an excursion (e.g., impairment) of the state's WQS, whether those standards are narrative or numeric.

To assess how nutrients are addressed in the Missouri NPDES program, EPA Region 7 reviewed

⁵ Rogersville receiving water has TMDL, but the TMDL simply embraces the regulatory-mandated technology limit.

three permits as well as the Missouri WQS related to nutrients, the Implementation Policy for the new Missouri Lake Nutrient Criteria, and the Missouri Nutrient Loss Reduction Strategy.

Missouri addresses nutrients in the following manner:

- Missouri developed and recently received approval for lake nutrient criteria from EPA.
 - The criteria consist of chlorophyll-a (Chl-a)
 - Based on adverse impacts to fisheries
 - Numeric chlorophyll-a (Chl-a) criteria based on location and apply to lakes greater than 10 surface acres.
 - Screening values for Chl-a, total nitrogen (TN), and total phosphorus (TP) to determine impairment.
- Missouri has site-specific TP criteria for several recreational lakes and the tributaries to those lakes.
- Missouri has narrative criteria that encompass nutrient impacts.
- Missouri has a document titled *Nutrient Criteria Implementation Plan - July 27, 2018*. That plan is currently the subject of litigation (Case 2:19-cv-04215-WJE). As such, it will only be discussed in terms of its application to Missouri NPDES permits.

Missouri's implementation approach for the Lake Nutrient Criteria is largely coupled with their TMDLs. Missouri intends to review current nutrient related TMDLs to assess the reasonable potential of point sources to cause, have the reasonable potential to cause, or contribute to an excursion (e.g., impairment) of state WQS. If the conclusion is that point sources cause, potential to cause, or contribute to excursions of state WQS (and impairments), WLAs will be developed. It should be noted this approach is primarily *reactive* – it addresses those waters where an impairment exists. Ultimately, Missouri will need to address nutrient reduction in permits prior to an impairment occurring.

Program Strengths

Missouri includes regulatory TP limits in permits of facilities that discharge into a set of lakes with high recreational use—e.g., Rogersville Wastewater Treatment Facility (WWTF). Missouri has adopted lake nutrient criteria that were recently approved by EPA. It is too early to fairly assess the implementation of the criteria. Only one draft permit (Ironton) was available to review that would provide a look into how the criteria are implemented. That permit implemented Phase 1 by requiring data collection from the facility. In addition, Missouri has begun a study to determine technology-based nutrient reduction values that will help the Department better understand and develop feasible technology permit nutrient limits (Missouri Nutrient Loss Reduction Strategy).

Related to water quality trading, Missouri is in Phase 2 of developing a water quality trading program. Last year, the trading program received \$100K through the Gulf Hypoxia Task Force to bolster the effort. Point sources may soon be able to enter into trades to address nutrient reduction. Missouri has a unique advantage over many other states in their trading program in that the state has one-tenth of 1% sales tax devoted to conservation practices—a portion of which could be used to generate trading credits. In FY 2019 the tax raised \$36.5 million for conservation practices.

Areas for Improvement

MDNR should include a full explanation for nutrient limits in permit fact sheets. For example, the Branson Cr. WWTF permit has a TP limit of 0.2 mg/L with a Fact Sheet explanation of “...retains the 0.2 mg/L as a Monthly Average from the previous permit.” In addition, the facilities for most permits reviewed appeared to have infiltration/inflow (I/I) issues—e.g., the Rogersville WWTF appears to have an actual per capita flow 2.6 times the design per capita flow. I/I makes operation of nutrient reduction facilities more difficult. MDNR should continue to pursue I/I reductions for all facilities, but especially for those that are likely to have nutrient limitations.

Permits reviewed that contained nutrient limits (Rogersville and Branson Cr.) are essentially technology-based limits for TP specified by regulation. As Missouri begins to address WQBELs—either numeric or narrative—reasonable potential will need to be evaluated Per 40 CFR § 122.44(d)(1)(i).

The Missouri nutrient monitoring frequency is limited to monthly or quarterly monitoring.

Missouri should examine the use of rolling annual averages for nutrients. Reasons include:

- Nutrients are usually thought to have a longer term, accumulated load impact.
- WWTFs usually operate better in warm weather and produce lower effluent, and slightly higher strength effluent in cool weather. An RAA smooths out this effect.
- After the first 12 months of effluent data collection, the RAA will provide a monthly compliance point (similar to a monthly average) to evaluate—i.e., January 2019–December 2019 reported in January 2020; February 2019–January 2020 reported in February 2020, etc.

Action Items

Essential	<ul style="list-style-type: none"> •No essential action items were identified for this PQR element.
Recommended	<ul style="list-style-type: none"> •Focus on reducing I/I from collection systems. High, erratic flows make it more difficult to treat for nutrients. •Highlight in fact sheets where the Lake Nutrient Implementation procedures are being implemented. •Explore using pro-active nutrient reduction. Most nutrient work is based on a TMDL identifying an impairment, then adding treatment. •Consider examining rolling annual averages for nutrients. RAA will acknowledge seasonal WWTF operations issues while providing a monthly limit for compliance purposes after the first 12 months of permit. An RAA is appropriate based on the fact the Missouri nutrient criteria are expressed as annual averages. If the RAA is used, Fact Sheets should cite that daily and monthly permit limits are "impracticable" as per 122.45(d) because the state WQS for nutrients are expressed as an annual average.

B. Effectiveness of POTW NPDES Permits with Food Processor Contributions

The general pretreatment regulations (40 CFR 403) establish responsibilities of federal, state, and local government, industry and the public to implement pretreatment standards to control pollutants from industrial users which may cause pass through or interfere with POTW treatment processes or which may contaminate sewage sludge.

Background

Indirect discharges of food processors can be a significant contributor to noncompliance at recipient POTWs. Food processing discharges contribute to nutrient pollution (e.g., nitrogen, phosphorus, ammonia) to the nation's waterways. Focusing specifically on the Food Processing Industrial Sector will synchronize PQRs with the Office of Enforcement Compliance and Assurance (OECA)'s Significant Non-compliance (SNC)/National Compliance Initiative (NCI).

The goal of the PQR was to identify successful and unique practices with respect to the control of food processor discharges by evaluating whether appropriate controls are included in the receiving POTW NPDES Permit and documented in the associated fact sheet or statement of basis; as well as by compiling information to develop or improve permit writers' tools to be used to improve both POTW and industrial user compliance.

The PQR also assessed the status of the pretreatment program in Missouri as well as specific language in POTW NPDES permits. With respect to NPDES permits, focus was placed on the following regulatory requirements for pretreatment activities and pretreatment programs:

- 40 CFR 122.42(b) (POTW requirements to notify Director of new pollutants or change in discharge);
- 40 CFR 122.44(j) (Pretreatment Programs for POTWs);
- 40 CFR 403.8 (Pretreatment Program Requirements: Development and Implementation by POTW), including the requirement to permit all SIUs;
- 40 CFR 403.9 (POTW Pretreatment Program and/or Authorization to revise Pretreatment Standards: Submission for Approval);
- 40 CFR 403.12(i) (Annual POTW Reports); and
- 40 CFR 403.18 (Modification of POTW Pretreatment Program).

MDNR Pretreatment Program Overview

In addition to being authorized to administer the NPDES program, the State of Missouri has been authorized to implement the Pretreatment program since June 3, 1981. The State further authorizes the pretreatment program to municipalities. Individual POTW program approvals primarily occurred in the 1980s. However, since then several approved Programs have been granted inactive status, while a handful of new programs have been added.

The MDNR has historically implemented its authorized pretreatment program by splitting duties between the Pretreatment Coordinator in the Jefferson City Central Office and inspectors in the five field offices. Within the past year, a sixth field office was created that will cover the central part of the state. In general, the Pretreatment Coordinator is responsible for receiving and reviewing pretreatment annual report (and follow up, if needed), receiving and reviewing reports from industries outside Pretreatment cities, assisting on audits or pretreatment compliance inspections (PCIs), reviewing and approving new pretreatment programs or program modifications, preparing public notices and fulfilling reporting requirements to the EPA Region 7.

The field offices inspect industries outside pretreatment cities and conduct pretreatment audits or PCIs. If informal enforcement action is needed, it will be taken by the field office, usually while transmitting the inspection report. The goal of the compliance monitoring strategy (CMS) is for each approved Pretreatment city to receive one audit and two PCIs in a five-year span. This equates to 141 total Pretreatment inspections for the 47 approved pretreatment program cities in the five-year period, or an annual average of 28.2.

The composition of the Missouri Pretreatment Program for 2019 is presented in Table 4, below.

Table 4. State of Missouri Pretreatment Program at a Glance 2019

Number of Approved Pretreatment program cities	47
Number of WWTPs in Approved program cities	69
Number of SIUs in Program cities	458
Number of non-Categorical SIUs in Program Cities	167
Number of Categorical SIUs in Program Cities	291
Number of NSCIUs in Program Cities	25
Number of SIUs in non-approved Cities	Unk.
Number of CIUs in non-approved Cities	34
Number of NSCIUs in non-approved Cities	3
Date State Program updated for Streamlining Regulations	10/30/2012

Missouri only regulates Categorical Industrial Users (CIUs) in cities with non-approved pretreatment programs because it does not have permitting authority for indirect discharging facilities. Rather, once a CIU is identified, it is sent a letter identifying the applicable Categorical Standard and limits with the requirement that semiannual sampling occur and results be submitted. While no permit exists, because the General Pretreatment Regulations are self-implementing with respect to Categorical Standards, minimum sampling frequency and reporting requirements, CIUs comply.

For this PQR, four permits were reviewed in full (i.e., using the PQR checklist) with certain conditions reviewed for a handful of others. Of the four permits, two were of cities with approved pretreatment programs (Carthage and Marshall), both with multiple food processing contributors. Two permits for cities with non-approved pretreatment programs were also reviewed because they were known to receive wastewater from food processors: Moscow Mills Crooked Creek, and Pacific.

No Significant Industrial User (SIU) permits were reviewed. As stated earlier, Missouri does not have the authority to issue permits to indirect discharging facilities. For the two approved Pretreatment Program cities, reviewers obtained information about the SIU permits from review of the findings in the most recent PCI or audit for the city, specifically the checklist from the Carthage PCI of January 2018 and statements made in the March 2019 Pretreatment audit report of the Marshall program.

Three of the four cities reviewed maintain their sewer use ordinance online. The three with ordinances available online all establish the authority to regulate any facility discharging greater than 350 mg/L TSS or 300 mg/L BOD by making the discharge subject to review by the City. The ordinances also include the ability to establish surcharges for extra strength waste and establish the unit cost per pound for levels above domestic strength. The city whose SUO was unavailable via the internet, Marshall, MO, does post the city's extra strength surcharge rates, however.

The permits selected for review were chosen based on the historical knowledge of the Region 7 Pretreatment Coordinator. The SIU inventory of the Region 7 annual report is the source of this information for the two pretreatment program cities. The food processing industries in the cities with non-approved pretreatment programs were discovered years ago when Region 7 piloted inspection targeting processes for identifying facilities causing interference and/or pass through for conventional pollutants. These facilities were likely originally discovered in the Hoovers' database, a subscription to which all Regional libraries have.

Table 5. Permits Evaluated for the PQR – Pretreatment Requirements

Permittee	Permit No.	Approved Pretreatment Program?	Design Flow Average (MGD)	No. of SIUs	No. of Food Processors	Controls on Conventional Pollutants or Nutrients in SUO?
City of Marshall	MO0032883	Yes	7.1	3 ¹	3 ¹	BOD and TSS surcharge Local Limits: BOD, TSS, NH ₃
City of Carthage	MO0039136	No	7.0	6 ¹	3 ¹	BOD, TSS surcharge Local Limits
City of Pacific	MO0041131	No	2.0	0 ²	1 ³	BOD, TSS, O&G ⁴
City of Moscow Mills (Crooked Creek Plant)	MO0129852	No	1.2	0 ²	1 ³	BOD, TSS ⁴

¹ Based on information provided in the Pretreatment Annual Report for CY 2019. Note: all food processors were correctly reported as non-Categorical industries since there are no applicable Effluent Guidelines for indirect discharging industries.

² Based on information provided in permit application submitted by City

³ Based on targeting by Region for interference/pass through using Hoover's data in support of ECHO

⁴ Surcharges for extra strength discharges

MDNR On-line Resources

Missouri has a longstanding practice of maintaining copies of permits for individually permitted facilities online. Initially, only the permit was posted; however, over time the fact sheet and permit application were included in the package which is publicly accessible and available to download.

Permit Applications

Permit applications were reviewed for all four permittees. Industrial User information is reported in Part F – *Industrial User Discharges and RCRA/CERCLA Wastes*. The two cities with

approved pretreatment programs supplied information on all of their SIUs, identifying flow rates for process and non-process wastes, applicable discharge limit information, whether a source of past problems (e.g., upsets, interference), and the applicable Categorical Standard, if appropriate. MDNR also obtains this information through the pretreatment annual report submitted pursuant to 40 CFR 403.12(i) and the NPDES permit.

Permit applications for the two cities with non-approved pretreatment programs were deficient. For example, Moscow Mills responded “No” to question 7.9 of Part A – *Basic Application Information*, which indicates the permittee does not receive any industrial wastewater. Further, the pages for Part F were attached but all questions were unanswered.

Pacific submitted the permit application was absent of Part F, despite a history of Smith Foods (formerly Pacific Valley Dairy) causing problems at the city’s facility, of which MDNR field personnel were knowledgeable. In addition, Pacific responded “No” to question 7.8 of the permit application, which indicates the permittee does not receive any industrial wastewater. However, a query of EPA’s Enforcement and Compliance History Online (ECHO) database for facilities that hold either Clean Air Act (CAA) permits, Resource Conservation and Recovery Act (RCRA) identification numbers, Toxics Release Inventory (TRI) identification numbers, or stormwater permits returned 51 facilities (including Smith Foods). Certain facilities the query returned have known sister facilities regulated as SIUs by cities with approved pretreatment programs. While it is conceivable that none of these facilities in Pacific discharge process water of a type or volume that would result in it being categorized as an SIU, information to confirm this is lacking.

The finding that two cities with non-approved pretreatment programs submitted permit applications indicating they do not receive any industrial wastewater caused Region 7 to question MDNR’s consideration of Part F of the permit application. First, the permit writer relies upon the permittee to 1) understand what constitutes an SIU (which includes knowing what a CIU is), 2) have knowledge of discharge flow rates by all industries, and 3) report information accurately. Permit writers rely upon accurate application information and, without site-specific familiarity, may not know whether an applicant’s response to question 7.8 (or 7.9 in some applications) is an accurate statement or whether follow-up is necessary. Scenarios where the permittee responded “Yes” but did not submit Part F present an obvious prompt for the permit writer to contact the applicant to learn more about contributing waste streams.

The review of files during the PQR revealed that MDNR does not give detailed consideration to information submitted in Part F of the application for cities without an approved pretreatment program. EPA Region 7 reviewed a random number of permits for cities with non-approved pretreatment programs with contributing CIUs regulated by MDNR to assess how Part F is utilized. EPA evaluated whether the industries were being reported in the permit application, and if not, whether MDNR followed up with permittees. Below is a summary of the permits examined.

Table 6. *Summary of Permits and Application Part F Information*

Categorical Industry	Non Pretreatment City Permittee	Report Industrial Users at Question 7.8 or 7.9	Attached Part F
Advanced Industries	Odessa	Yes	Yes
Tracker Marine	Ozark	No	Yes
Heartland Metal Finishing	Salem	Yes	No
Stahl Specialty Co.	Kingsville	Yes ¹	No
Haines Finishing; Henniges Automotive	New Haven	Yes	No
Hutchens Industries	Mansfield	No	No
CertainTeed Corp	Jonesburg	Yes	No
Durham Industries	Houston	No	No
Cerro Flow Products	Shelbina	Yes	Yes

¹ Question 8.6 in the Kingsville permit application

It is uncertain whether MDNR provided any follow-up to request proper completion of the permit application. EPA believes that the posted record would contain additional information if MDNR required submittal of supplementation information. However, based on the observation that multiple cities with CIUs discharging to them but stating in the permit application they receive no industrial wastewater (Ozark, Mansfield, and Houston in the table above), it does not appear MDNR's permitting group is aware of the regulated industries in cities with non-approved pretreatment programs.

Fact Sheets

Section Part IV – *Rationale and Derivation of Effluent Limitations & Permit Conditions* of the fact sheet used for all permits addresses whether a Pretreatment program is needed. An un-numbered subheading, "*Pretreatment Program*", contains a brief section describing the purpose of the Pretreatment program and a description of facilities required to have one by regulation. This discussion is followed by a list of items that "may" be included in a permit for a city having a program. Essentially, the list consists of items that must be in a permit and which MDNR has put in all permits for cities with pretreatment programs. The permit writer checks one of two boxes to indicate whether the city has a pretreatment program or that a pretreatment program is not needed at this time. The permit writer lacks an option to check a box indicating that the permit needs to include a requirement to develop a pretreatment program.

The fact sheet lacks a section for itemizing or describing any SIUs discharging to the city that might have been reported in Part F of the facility's permit application. This is not particularly important for cities who have an approved pretreatment program as that list is annually submitted with the city's Pretreatment annual report. However, for cities without a pretreatment program, including a reference to SIUs that discharge to it is beneficial. Fact sheets and permits for POTWs identified as having an approved pretreatment program lack a statement that identifies the date the pretreatment program was approved, or any dates for approved program modifications.

NPDES Permit Contents

MDNR is both the Permitting authority and the Pretreatment authority. The Standard Conditions section of all POTW permits include pretreatment reopener clauses and related conditions. The permit writer reviews the permit application in which the applicant indicates whether the city has an approved pretreatment program. This appears to be the source of information that informs the section of the fact sheet regarding whether the city has a pretreatment program.

The Special Conditions section of the permit contains language requiring implementation of an approved pretreatment program. For example, the Carthage permit, Special Condition 22 states “The permittee shall implement and enforce its approved pretreatment program in accordance with the requirements of 10 CSR 20-6.100. The approved pretreatment program is hereby incorporated by reference.” The Marshall permit includes the same statement but as Special Condition 21. This Special Condition also requires at (a) the requirement to submit an annual pretreatment report (the contents of the report are specified), and (b) the requirement of 40 CFR 122.44(j)(2)(ii) to perform an evaluation of the need to revise local limits pursuant to 40 CFR 403.5(c)(1), with a date or time frame posted by when the evaluation is due. The Carthage permit specifies August 1, 2019 for the permit that became effective on February 1, 2019, while the Marshall permit specified 180 days after the effective date of the permit.

All permittees are required to comply with Standard Conditions, which are attached to the issued permit. There are three sets of Standard Conditions, Part I General Conditions, Part II, which addresses Industrial Users, and Part III which addresses biosolids disposal. The Part II Standard Conditions contain the:

- Identification requirements of Significant Industrial Users established at 40 CFR 122.44(j)(1);
- Three situations that require notification pursuant to 40 CFR 122.42(b) when significant changes to industrial flow or character occurs; and
- The requirement to report the addition of an industrial discharge not previously reported as required by 40 CFR 122.42(b).

No SIU permits were available for review for the two cities with approved pretreatment programs; therefore, the only evaluation for these permits was based on the most recent PCI or audit. MDNR’s report for the Carthage PCI conducted in January 2018 contained the checklist which specifically evaluated the permits issued by the City. A review of the checklist indicates the permits were appropriately written. The MDNR audit of the Marshall program, conducted in 2019, did not contain the audit checklist; however, the narrative discussed the permit contents and specifically identified the observed deficiencies.

It is uncertain whether either city with an approved program creates fact sheets when developing SIU permits. However, in a two-day joint training session conducted by Region 7 and

MDNR held in Jefferson City in August 2019, a module devoted to permitting covered extensively the use of fact sheets in support of permit development.

Action Items from the Previous PQR

There were two level 1 action items from the last PQR. The first one resulted from the finding that seven cities did not have a requirement to implement its approved pretreatment program. Without this NPDES permit requirement, MDNR lacked enforcement capability against any city. A review of the seven permits during this PQR indicated that all had either been reopened and the missing language inserted or had been reissued with the appropriate implementation requirement.

The second level 1 action item was the requirement to change the local limits re-valuation submission date following permit issuance. The State's previous policy was to submit the re-valuation with the next permit application in 4 ½ years. However, this is contrary to the purpose of ensuring one's local limits properly address any new or modified NPDES permit limits that would affect industrial users. That finding has been corrected—the local limits submission date has been changed to a 180-day requirement following the effective date of the permit, or a specific date is inserted that reflects the 180-day requirement.

Program Strengths

Missouri houses all individual NPDES permits online and accessible to the public as downloadable secure PDF documents. The permit package consists of the signed permit, the fact sheet, and (usually) the permit application submitted by the permittee, including any attachments.

Special Conditions for permittees with an approved pretreatment program contain program implementation requirements including the requirement to submit annual reports and to perform a re-evaluation of local limits to determine if they remain adequate. The local limits requirement must be submitted within 6 months of the permit effective date.

Areas for Improvement

Missouri lacks the legal authority to be able to issue permits to indirect discharging industries. This deficiency dates back to the program approval in 1981 and it has never been corrected.

It does not appear that Part F, the part of the permit application that identifies any SIUs discharging to the city, is given much importance. If not being done already, permit writers must follow up with any city that reports that it receives industrial wastes but doesn't submit Part F. In addition, the permitting group should share all Part F submissions with the Pretreatment group. A reasonable effort must be made to confirm a city's statement that it does not receive industrial waste discharges. MDNR permit writers should consider as a rule of thumb, that the larger the city is that makes that assertion, the less likely the statement is accurate. Permit writers are able to quickly check the reasonableness of the answer through a search of EPA's publicly available ECHO database for facilities with RCRA or CAA identification numbers in the city. This database query could provide specific names that the city could be

requested to address so that the permit writers is certain that the city deliberately answered the permit application questions addressing receipt of industrial waste discharges.

Action Items

Essential	<ul style="list-style-type: none"> •The permit writer must ensure that Part F of the permit application is attached and completed if the city answers in Part A that it receives industrial wastes per 40 CFR 122.21 requiring complete applications.
Recommended	<ul style="list-style-type: none"> •Permit writers should specify the program approval or modification dates in fact sheets to ensure that the program includes up-to-date federal regulations. •The fact sheet should include an inventory of any SIUs that discharge to cities not having approved Pretreatment Programs. •The MDNR should develop a way to confirm statements made by cities that no industrial wastes are discharged to them. •The MDNR should study how to utilize information reported in Part F of the permit application. All information provided on any industrial users should be shared with the Pretreatment Coordinator as a matter of routine. •The Pretreatment program should provide a list of known SIUs to the permitting group to ensure the permit writers know which cities should be submitting Part F sections of the permit application.

C. Small Municipal Separate Storm Sewer System (MS4) Permit Requirements

Background

As part of this PQR, EPA reviewed two of the state’s small MS4 permits for consistency with the Phase II stormwater permit regulations. EPA recently updated the small MS4 permitting regulations to clarify: (1) the procedures to be used when using general permits (see 40 CFR 122.28(d)); (2) the requirement that the permit establish the terms and conditions necessary to meet the MS4 permit standard (i.e., “to reduce the discharge of pollutants from the MS4 to the maximum extent practicable (MEP), to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act”), including conditions to address the minimum control measures, reporting, and, as appropriate, water quality requirements (see 40 CFR 122.34(a) and (b)); and (3) the requirement that permit terms must be established in a “clear, specific, and measurable” manner (see 40 CFR 122.34(a)).

Missouri currently has 162 regulated MS4s, according to the 2010 census. The general permit for small Missouri MS4s is effective from October 1, 2016 to September 30, 2021. The new

Remand Rule changes to the MS4 regulations became effective on January 9, 2017 and permits issued after the effective day must comply with the revised regulations. Missouri currently plans to offer small MS4s a choice of coverage by issuing two different general permits. One general permit will be a “comprehensive” permit (contains all conditions in the general permit that are necessary to meet the MS4 permit standard), and the other general permit will be a “two-step” permit (requires the state to issue a baseline general permit, and then establish, after a second public comment opportunity, MS4-specific conditions that are necessary to satisfy the MS4 permit standard). Drafts of both these permits have been reviewed as part of this PQR. Both permits may undergo revision before being put on public notice, and EPA will continue to work with Missouri to make sure that final permits also meet all the federal requirements.

Program Strengths

The reviewed drafts of both these permits have been reviewed as part of this PQR and both were found to fully meet all the federal requirements.

MDNR is to be commended for the extra effort to give permitted communities a choice between the two different permitting approaches.

Areas for Improvement

Both permits are significantly different from, and represent an improvement upon, the current MS4 permit with new clear, specific, and measurable provisions. The comprehensive permit, in particular, contains numerous new and improved conditions compared to the current permit. Consequently, given the level of improvement represented in both draft permits, and since both permits fully meet all the federal requirements, no suggested improvements are noted.

Action Items

The PQR team did not identify any action items in this section.

V. REGIONAL TOPIC AREA FINDINGS

A. Whole Effluent Toxicity (WET)

Background

Section 101(a)(3) of the CWA prohibits the discharge of toxic pollutants in toxic amounts. Sections 402(a)(2) and 308(a) of the CWA authorize EPA to establish toxicity testing requirements and toxicity-based permit limits in NPDES permits. Section 308 specifically states that biological monitoring methods may be required when needed to carry out the objectives of the Act. Under certain narrative State WQS and Sections 301, 303, and 402 of the CWA, EPA and the States may establish toxicity-based limits to implement the narrative no toxics in toxic amounts criterion.

EPA’s Surface toxics control regulation, 54 FR 23868, June 2, 1989, established specific requirements for using an “integrated approach” to water quality-based toxics control. EPA subsequently published the TSD, which recommends using an “integrated strategy” containing

both pollutant (chemical) specific approaches and whole effluent (biological) toxicity approaches to control toxic pollutants in effluent discharges from entering the nation's waterways. Pollutant-specific approaches to control toxics address individual chemicals, whereas, a WET approach to toxics control evaluates interactions between pollutants, thus rendering an "overall" or "aggregate" toxicity assessment of the effluent. Furthermore, WET measures the "additivity" and/or "antagonistic" effects of individual chemical pollutants while pollutant specific derived permit limits do not, thus the need for both approaches. In addition, the presence of an unknown toxic pollutant can be discovered and addressed through the process of WET testing. EPA Region 7 adopted this "integrated strategy" on July 1, 1991, for use in permit development and issuance.

Federal Regulations at 40 CFR 122.44(d) require NPDES permits to include limitations and conditions in addition to or more stringent than promulgated effluent limitations guidelines or standards under sections 301, 304, 306, 307, 318 and 405 of CWA necessary to: achieve WQS established under Section 303 of CWA including State narrative criteria.

MDNR has defined WET toxicity in the definitions in 10 CSR 20-7.031 and has also set numeric criteria for Acute toxicity (0.3 TUa) and Chronic toxicity (1.0 TUc). WET criteria are also included in definitions for Mixing Zones.

MDNR's policies for permits are set in a state manual used by permit writers: <https://dnr.mo.gov/env/wpp/permits/manual/index.html>. Section 5.2 of the manual includes approaches to WET limits and monitoring. Permit writers use templates with standardized language for NPDES WET limits and WET monitoring.

MDNR has a wide list of numeric criteria and these form the baseline of the state's control of toxics. WET testing is part of the "tool-box" for assessing and controlling toxicity. WET provides a means to detect unexpected pollutants and additive effects of multiple pollutants, such as metals. Ammonia toxicity (as evidenced by fathead minnows as the sensitive EPA test method organism) is often the cause of the uncommon events where toxicity is detected when using EPA's 2002 toxicity test methods.

In the past permit cycle, MDNR has moved from including WET limits in most permits (Design Flow >22,500 gallons per day (gpd)) to monitoring only unless there is reasonable potential. Currently, there are only a few permits where WET limits have been retained.

MDNR has invested in education of staff. In August 2019, EPA HQ provided a 2 ½ day training on WET in the MDNR offices. MDNR had many attendees (approximately 25) and six of those were NPDES program managers. Discussions during the PQR with MDNR managers indicated that staff are working with management to assess WET test QA/QC and use of test results. This demonstrates MDNR's awareness and engagement on the subject.

Individual Permit Reviews

Region 7 reviewed MDNR's WET permit policy, WET template language, and six permits (and fact sheets) to assess permit quality. The six permits reviewed included West Gower, Marshall

Southeast, St. Clair, Palmyra, Big Cedar Lodge, and Smithfield Fresh Meats -Milan.

The permits reviewed and that contained WET monitoring or limits used MDNR standardized language. Fact sheet templates also contain WET language.

One permit reviewed, Smithfield Fresh Meats, included WET limits. These limits were clearly written as a “limit” by inclusion in the WET limits and monitoring tables and a statement that a violation of the WET limit is a violation of the permit. Special conditions include a rapid follow-up with increased testing after a NPDES WET permit violation. This may seem punitive but is the best way to find and resolve the issue.

Two permits, Gower and Big Cedar Lodge, did not contain WET monitoring requirements even though they had design flows greater than 22,500 gpd. In both cases, that box for WET testing eligibility was not checked in the fact sheet template. These were administrative errors.

The Palmyra fact sheet made a finding of no RP lacked documentation of backsliding. The Gower fact sheet did not have an RP finding, but documented backsliding. The Big Cedar Lodge fact sheet did not have an RP finding and did not document backsliding.

Several fact sheets reviewed indicated that past rounds of Pass/Fail testing did not allow the permit writer to make a numeric assessment of reasonable potential. The MDNR WET policy indicated that failure of past WET tests would be a basis for requiring limits. Where permit writers made a finding of no RP, files reviewed lacked documentation of the reasoning. A basic statement that the facility had passed all Pass/Fail tests in the last permit cycle would be basis for a finding in keeping with MDNR policy.

Reviewed permit outcomes are generally following MDNR WET policy. As with any other pollutants, the fact sheet should include an RP finding with basic reasoning, and a statement indicating allowable backsliding where that occurs.

Technical Concerns

MDNR has used receiving stream water as dilution water in WET tests. This could create uncertainty in test results, including false indications of effluent toxicity. With lab water the chemistry of the dilution water is known. To properly assess the qualities of the stream water it would be necessary to do monitoring and analysis, and that monitoring would not be a complete assessment. It would also impose an additional cost.

As an example, a receiving stream could have some background level of ammonia, which could become different in each dilution adding uncertainty to toxicity caused by ammonia. The pH and alkalinity of the stream water could also affect the ammonia toxicity. A standardized lab water would eliminate this uncertainty. This could also apply to other stream background chemistry such as chloride, hardness, etc.

The permit language reviewed is silent on the temperature at which WET tests should be run. Standard Methods allow acute tests to be run at 20°C or 25°C, chronic tests must be run at 25°C. Most labs use the 25°C standard. EPA suggests that 25°C be specified to assure that tests

are uniform throughout the state.

Permit WET monitoring includes a set of dilutions based on the Allowable Effluent Concentration (AEC) which is a measure of the effluent concentration after dilution in the regulatory mixing zone set in MDNR WQS. This approach is a hold-over from Pass-Fail testing where a dilution set at the AEC served as a precise measure of the Pass-Fail endpoint. When monitoring-only becomes dominant, this is no longer needed.

AEC-based calculations create the potential for uncertainty. Permit writers must make a site-specific calculation, and a site-specific dilution series must be set up in the lab. MDNR should consider a standardized dilution series. This would allow permit writers to use standardized permit language. As a result, labs would perform dilutions the same way every time and statistical calculations of the WET test data results would then be standardized. This could prevent possibilities for error and would ensure that all WET test results are uniform and comparable throughout the state.

The move toward greater standardization will reduce uncertainty in individual testing and will also allow the assessment of data at a state scale. When all permittees are running the same WET tests, MDNR or academics could assess variability between similar POTWs or industries, thereby providing the ability to learn more about the effectiveness of treatment technologies and provide a better tool for future assessment.

Program Strengths

MDNR has created clear and well-constructed policy and implementation guidance for NPDES permit writers. These documents are available to the public on the MDNR Website. In addition, permit writers have standardized templates of permit language assuring uniformity.

Fact sheets are also built around a template. This helps standardize the process and helps permit writers to consider all the factors in WET and WQBELs.

Areas for Improvement

Permit writers need a better awareness of MDNR WET Policy and need to document WET decision making in fact sheets.

MDNR should consider more standardization in WET testing methods.

Action Items

Essential	<ul style="list-style-type: none"> •The PQR did not identify any essential action items for this section.
Recommended	<ul style="list-style-type: none"> •Permit writers need to document that they have considered RP for WET. •If WET limits are removed, backsliding should be documented. •MDNR should consider more standardized methods for dilution series, dilution water, and test temperatures.

B. Stormwater Permits

The NPDES program requires that stormwater discharges from certain MS4s, industrial activities, and construction sites be permitted. Missouri is authorized to implement the NPDES program and automatically assumes responsibility for implementing the stormwater program.

Missouri issues individual permits for medium and large MS4s and co-permittees in the St. Louis, Jefferson City, and Columbia areas, and a general permit for the remaining small MS4s, a general permit is also available for regulated construction site stormwater, and a number of different general permits are used for stormwater related to regulated industrial facilities. Industrial facilities not covered by one of the general permits are covered by individual permits. Stormwater permits are written at the central office in Jefferson City and the central office has a comprehensive stormwater website set up to assist with the permitting needs of the regulated community.

In addition to the general MS4 permits discussed in the section IV above, Region 7 selected four stormwater permits to review as part of this PQR:

- Land Disturbance General Permit (MO-RA00000)
- Boone County/Columbia/University of Missouri MS4 Permit (MO-0136557)
- Motor Vehicle Salvage Yards and Scrap Metal Recycling Operations (MO -R60Axxx)
- Airports General Permit (MO-R80F000)

General Permit for Stormwater Discharges from Construction Activity

The general permit which covers stormwater from construction sites over one acre is effective from February 8, 2017 to February 7, 2022. The permit was issued after the effective date for the new construction stormwater effluent guidelines and includes all the effluent guideline requirements of 40 CFR 450.21, including more detailed requirements needed to meet those regulations. For example, to minimize sediment discharges from the site, the permit contains provisions to minimize site sediment from getting onto roadways, and for protection of

stormwater inlets on streets. The required natural vegetation buffer has been increased from 25 feet in the previous permit to 50 feet in the current permit. Application for coverage under the permit can be done through an electronic application submittal system, or by filling out and sending in paper forms. Applications are processed by the central office. The permit requires facilities to develop a site-specific Stormwater Pollution Prevention Plan (SWPPP) but does not require the permittee to submit the SWPPP unless the department requests it.

Boone County/Columbia/University of Missouri MS4 Permit

The MS4 permit covering the co-permittees of Boone County, the City of Columbia, and the University of Missouri, expired March 31, 2020, and the state is in process reissuing the permit. Accordingly, in addition to reviewing the two draft general small MS4 permits, the draft MS4 permit for Boone County/Columbia/MU was also reviewed during this PQR.

This is an individual permit with co-permittees and as such it was found to comply with the federal regulations. These MS4s discharge to Hinkson Creek which has an approved TMDL. Missouri has worked with the City of Columbia to approve an integrated wastewater and stormwater management plan. The permit contains requirements which include the integrated plan, the TMDL, and the combined Stormwater Management Plan. The fact sheet for the permit contains an extended discussion of the Maximum Extent Practicable (MEP) standard and the requirements of the Remand Rule.

General Industrial Permit for Motor Vehicle Salvage Yards and Scrap Metal Recycling

Missouri does not have one general permit to cover stormwater from all the various regulated industrial facilities, instead they issue general industrial stormwater permits, each of which covers single (or closely allied) industrial sectors. Facilities in industries not covered by these permits get coverage under individual permits. For this PQR, two of these general industrial stormwater permits were reviewed, one being the permit which covers Motor Vehicle Salvage Yards and Scrap Metal Recycling operations. This general permit is effective from December 12, 2018 to December 11, 2023.

The permit is typical of industrial stormwater permits in that the permittee is required to reduce pollutants by the implementation of BMPs, inspections, and employee training. Facilities are to develop written, site-specific SWPPPs that contain details of the specific pollution prevention actions which are to be implemented at the facility. Facilities are not required to submit their SWPPP to the Department unless notified by the Department that they must do so. Site inspections must be conducted at least monthly. The permit contains benchmark values for five pollutant parameters, which are to be used as design criteria for the BMP elements, and the permit contains requirements for follow-up actions if benchmarks are exceeded; however, there is no requirement that the facility actually do any sampling and analysis for the benchmark parameters. The only time that sampling is required is at the state's discretion if, for example, complaints or inspections indicate a need for it. In addition, the permit lacks requirements for visual inspections of runoff quality during precipitation events.

General Industrial Permit for Airports

The second general industrial permit reviewed as part of this PQR is the permit covering Airports with maintenance facilities and/or deicing operations. The effective dates of the permit are from November 28, 2017 to November 27, 2022.

Airports are one of the few industrial sectors which have federal stormwater ELGs which must be put into permits as effluent limits. Specifically, there is an ammonia effluent limit in 40 CFR 449 that must be in airport permits with deicing facilities. This permit contains the required ELG limit and in addition contains other WQBELs. This permit also requires permitted facilities to develop site-specific SWPPPs with appropriate BMPs to minimize pollutants that might enter the stormwater. The permit fully complies with all federal requirements.

Program Strengths

The construction stormwater permit (MO-RA00000) contains all the federal requirements and the permitting program appears to be running well.

Working with the City of Columbia to develop an approvable integrated wastewater and stormwater plan has taken extra effort by the Department. And the Boone County/Columbia/University of Missouri MS4 Permit contains an extensive section of the permit which specifically addresses impaired waters.

The general permit for airports contains the limits required by 40 CFR 449.

Areas for Improvement

When the general permit for motor vehicle salvage yards and scrap metal recycling salvage is reissued, the state should consider requiring at least a minimal amount of sampling for benchmark parameters; and also consider requiring facility personal to do some visual monitoring during or shortly after precipitation events for obvious signs of runoff pollutants (e.g., oil sheens).

Action Items

<p>Essential</p>	<ul style="list-style-type: none"> •The PQR did not identify any essential action items for this section.
<p>Recommended</p>	<ul style="list-style-type: none"> •At the next reissuance of general permit for motor vehicle salvage yards and scrap metal recycling salvage, the state should consider requiring at least a minimal amount of sampling for benchmark parameters; and also consider requiring facility personal to do some visual monitoring during or shortly after precipitation events for obvious signs of runoff pollutants (e.g., oil sheens).

C. General NPDES Concentrated Animal Feeding Operations (CAFOs) Permit

The CAFO permit program is administered out of the Central Office in Jefferson City; and staff issue construction permits, operating permits, review nutrient management plans (NMPs) and applications, and are responsible for changes to regulations. MDNR has six field offices which conduct CAFO inspections.

Federal CAFO rule revisions became effective December 20, 2008. Later, in July 2012, in response to a court decision, the CAFO rules were further amended to eliminate the requirement that an owner or operator of a CAFO that “proposes to discharge” must apply for a NPDES permit. Because of this, currently MDNR has only 48 of its 501 CAFOs covered by NPDES permits. Facilities that are covered under the state no-discharge general permit must be inspected once to verify that they do not discharge, and then are typically re-inspected every 5 years or if new information becomes available that they do discharge. Many of the NPDES permitted CAFOs (27) are covered under General Permit (MOG010000) issued February 26, 2018. As part of this PQR, the general NPDES permit for CAFOs (MOG010000) was reviewed to see if it meets all the minimum federal requirements.

Any permit issued to a CAFO must include the requirements listed in 40 CFR 122.42(e)(1) through (e)(6)). These requirements include the nine minimum standards for an NMP, annual reporting and transfer requirements, and the terms needed to be included in the site-specific NMP. The requirements should be listed in a clear and concise format to make it easier for the permittee to comply as well as make the permit requirements straightforward for inspection and enforcement purposes.

Program Strengths

MOG010000 contains all the federally required elements for a NPDES CAFO Permit.

Areas for Improvement

The recordkeeping requirements appear in various parts the permit. It may be helpful to a permittee to have one section of the permit which contains all the record keeping requirements, or at least has a comprehensive list of references to the other parts of the permit which contain record keeping requirements. Having a dedicated section when the permit is reissued will help the permittee not to overlook or neglect any recordkeeping requirements.

Action Items

Essential

- The PQR did not identify any essential action items for this section.

Recommended

- The PQR did not identify any recommended action items for this section.

VI. REVIEW OF PROGRESS ON ESSENTIAL ACTION ITEMS FROM LAST PQR

This section provides a summary of the main unresolved findings from the previous PQR, dated March 24, 2014, and provides a review of the status of the State’s efforts in addressing the action items. As discussed previously, during the 2012-2017 PQR cycle, EPA referred to action items that address deficiencies or noncompliance with respect to federal regulations as “Category 1”. EPA is now referring to these action items going forward, as Essential. In addition, previous PQR reports identified recommendations to strengthen the state’s program as either “Category 2” or “Category 3” action items. EPA is consolidating these two categories of action items into a single category: Recommended.

Table 7. Essential Action Items Identified During Last PQR 2014

Program Area	Action Item Title	Status Update
<i>Water Quality-Based Effluent Limitations</i>	When calculating Reasonable Potential, it appeared that the application data indicated that it was not being used in the analysis.	Resolved
	The factsheet states that limitations within the permit for the reissuance of this permit conform to the anti-backsliding provisions of Section 402(o) of the Clean Water Law and 40 C.F.R. Part 122.44; however, several effluent parameter limitations have changed or been eliminated without an explanation as to how they conform to the backsliding provision.	Resolved
<i>Basic Facility Information and Permit Application</i>	Federal Rules require that permit applications for major POTWs include three priority pollutant scans (40 CFR 122.21(j)(4) and 40 CFR 122.21 appendix J), but MDNR is only requiring one scan from major POTWs.	Not started

<p><i>Pretreatment</i></p>	<p>MDNR must ensure that permits for all cities currently implementing Pretreatment programs contain language that requires implementation in accordance with the requirements of 40 CFR Part 403. Jefferson City, Moberly, Union, Wentzville, St. Peters, Farmington, and Sullivan are missing implementation requirements.</p> <p>MDNR must ensure that permits for POTWs with pretreatment programs include the requirement to reevaluate local limits in timely manner per 40 CFR 122.44(j)(2)(ii).</p>	<p>Resolved; A review of the seven permits during this PQR found all had either been reopened and the missing language inserted or had been reissued with the appropriate implementation requirement</p> <p>Resolved; The local limits submission date has been changed to a 180-day requirement following the effective date of the permit, or a specific date is inserted that reflects the 180-day requirement.</p>
<p><i>CAFOs</i></p>	<p>The MDNR definition of process wastewater must be as stringent as the federal regulation at 40 CFR 122.23(b)(7). The definition must include water directly and <u>indirectly</u> used in the operation of a CAFO.</p> <p>All uncontaminated stormwater originating outside of the production area footprint should be diverted to prevent contact with manure, litter, or process wastewater as specified in CFR 40 §122.42 (e)(iii). Any process wastewater/stormwater that comes in contact with these materials as specified in 40 CFR 122.23(b)(7) must be collected and disposed of in a manner that is consistent with the CWA. Authorization of discharges of process wastewater must be pursuant to a NPDES permit and consistent with the Effluent Limitation Guidelines.</p> <p>MDNR is not sufficiently reviewing NOIs to ensure CAFOs applying for the state no-discharge permit do not discharge to waters of the United States.</p>	<p>Resolved; indirectly is used in the definition of process wastewater in regulations</p> <p>Resolved; The general permit contains the requirement to divert clean water from the production area.</p> <p>Resolved; The state proports that they review the NOIs and</p>

	<p>The Wet Weather Management guide (PUB2422) contains practices that minimize discharges from land application areas during wet weather events. Implementation of the Wet Weather Management guide at CAFOs without an NPDES will not negate CWA liability. It should either be removed from the state permit or revised based on the no-discharge requirement.</p>	<p>conduct an inspection to verify that the CAFO won't discharge.</p> <p>Resolved based on no discharge requirements.</p>
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VII. RECOMMENDED ACTION ITEMS FROM LAST PQR

This section provides a summary of the unresolved recommendations from the previous PQR, dated March 24, 2014, and notes any State efforts to act on those recommendations. As discussed previously, during the 2012-2017 PQR cycle, EPA referred to action items that are recommendations to strengthen the state’s program as either “Category 2” or “Category 3” action items. EPA is consolidating these two categories of action items into a single category: Recommended.

Table 8. Recommended Action Items Identified During 2014 PQR

Program Area	Action Item Title	Status
<p><i>Monitoring and Reporting</i></p>	<p>Recommended Action Item: MDNR is making progress in permitting for Water Treatment Plants (WTP). The EPA urges a robust approach to setting BPJ-based technology limits, and in consideration of water quality-based limits. MDNR should assure that WTP are submitting complete applications with representative monitoring. Reissued permits, even those accompanied by orders, should have representative monitoring.</p> <p><i>State Response: No comment</i></p>	<p>In process</p>

<p><i>Nutrients</i></p>	<p>Recommended Action Item: The EPA views the adoption of numeric nutrient criteria as an important tool for effective water quality management of nutrient pollution. MDNR needs to continue development of numeric criteria for nutrients for the state’s waters.</p> <p><i>State Response: No comment</i></p>	<p>Lake nutrients have been established</p>
<p><i>Pesticides</i></p>	<p>Recommended Action Item: It is suggested that in the reissued permit the state addresses whether pesticide discharges to special waters (e.g., Outstanding Natural Resource Waters and impaired waters) are addressed differently than Waters of the State. The reissued permit should also address discharges to endangered and threatened species and critical habitats and discharges near drinking water intake structures.</p> <p><i>State Response: No comment</i></p>	<p>Resolved; Discussion under Applicability #8 and #9 of permit</p>
<p><i>Pretreatment</i></p>	<p>Recommended Action Item: MDNR must review and improve the quality of data in ICIS.</p> <p>Recommended Action Item: MDNR should ensure that fact sheets for POTWs without pretreatment programs state that a pretreatment program is not required and describe any discharging industries.</p> <p>MDNR should follow-up with CIUs outside of Pretreatment program to ensure they are complying with reporting requirements.</p> <p><i>State Response: No comment</i></p>	<p>In progress; MDNR is working with EPA HQ</p> <p>Resolved; information included in factsheet, however description of discharging industries is not included</p> <p>Resolved</p>
<p><i>CAFO</i></p>	<p>Recommended Action Item: Notice of Intent (NOI) application forms appear to contain language or terms that create confusion or misunderstanding regarding conditions that require CAFO owners or operators to apply for NPDES permits.</p> <p><i>State Response: No comment</i></p>	<p>Resolved</p>

VIII. ACTION ITEMS FROM FY 2018–2022 PQR CYCLE

This section provides a summary of the main findings of the PQR and provides proposed action items to improve Missouri DNR NPDES permit programs, as discussed throughout sections III, IV, and V of this report.

The proposed action items are divided into two categories to identify the priority that should be placed on each Item and facilitate discussions between Regions and states.

- Essential Actions** - Proposed “Essential” action items address noncompliance with respect to a federal regulation. The permitting authority is expected to address these action items in order to come into compliance with federal regulations. As discussed earlier in the report, prior PQR reports identified these action items as Category 1. Essential Actions are listed in Table 8 below.
- Recommended Actions** - Proposed “Recommended” action items are recommendations to increase the effectiveness of the state’s or Region’s NPDES permit program. Prior reports identified these action items as Category 2 and 3. Recommended Actions are listed in Table 9 below.

The following tables summarize only those action items that were identified in Sections III, IV, and V of the report.

Table 9. Essential Action Items from FY 2018-2022 PQR Cycle

Topic	Action(s)
<i>Basic Facility Information and Permit Application</i>	MDNR must ensure that permit applications for major POTWs include three priority pollutant scans as required by (40 CFR 122.21(j)(4) and 40 CFR 122.21 appendix J).
<i>Pretreatment: Food Processing Sector</i>	The permit writer must ensure that Part F of the permit application is attached and completed if the city answers in Part A that it receives industrial wastes.

Table 10. Recommended Action Items from FY 2018-2022 PQR Cycle

Topic	Action(s)
<i>Basic Facility Information and Permit Application</i>	<p>EPA recommends current/updated applications be requested in cases where the application is beyond 180 days from permit issuance. Federal regulations at § 122.21(c) and (d) specify the time to apply for NPDES permits. Anyone proposing a new discharge must apply to the permitting authority no later than 180 days before the expected commencement of the discharge if applying for an individual permit. Any person with a currently effective individual permit must submit an application to the permitting authority at least 180 days before the expiration of its existing individual permit unless permission for a later date has been granted in accordance with § 122.21(d). However, EPA agrees that applications beyond 180 days may be utilized in cases where the State has verified that no changes have occurred at the facility and that an explanation to that effect is described within the permit factsheet.</p>
<i>Nutrients</i>	<ul style="list-style-type: none"> • Focus on reducing I/I from collection systems. High, erratic flows make it more difficult to treat for nutrients • Highlight in fact sheets where the Lake Nutrient Implementation procedures are being implemented • Explore using pro-active nutrient reduction. Most nutrient work is based on a TMDL identifying an impairment, then adding treatment • Consider looking at rolling annual averages for nutrients. RAA will acknowledge seasonal WWTF operations issues while providing a monthly limit for compliance purposes after the first 12 months of permit
<i>Pretreatment: Food Processing Sector</i>	<ul style="list-style-type: none"> • Permit writers should specify the program approval or modification dates in fact sheets to ensure that the program includes up-to-date federal regulations. • The fact sheet should include an inventory of any SIUs that discharge to cities not having approved Pretreatment Programs. <ul style="list-style-type: none"> • The MDNR should develop a way to confirm statements made by cities that no industrial wastes are discharged to them. • The MDNR should study how to utilize information reported in Part F of the permit application. All information provided on any industrial users should be shared with the Pretreatment Coordinator as a matter of routine. • The Pretreatment program should provide a list of known SIUs to the

	<p>permitting group to ensure the permit writers know which cities should be submitting Part F sections of the permit application.</p>
<p><i>Whole Effluent Toxicity (WET)</i></p>	<ul style="list-style-type: none"> • Permit writers need to document that they have considered RP for WET. • If WET limits are removed, backsliding should be documented. • MDNR should consider more standardized methods for dilution series, dilution water, and test temperatures.
<p><i>Stormwater Permits</i></p>	<ul style="list-style-type: none"> • At the next reissuance of general permit for motor vehicle salvage yards and scrap metal recycling salvage, the state should consider requiring at least a minimal amount of sampling for benchmark parameters; and also consider requiring facility personal to do some visual monitoring during or shortly after precipitation events for obvious signs of runoff pollutants (e.g. oil sheens).