

Final

Region 4 NPDES Permit Quality Review
Mississippi

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United States Environmental Protection Agency– Region 4
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I. PQR BACKGROUND

National Pollutant Discharge Elimination System (NPDES) Permit Quality Reviews (PQR) 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, the U.S. Environmental Protection Agency (EPA) promotes national consistency, and identifies successes in implementation of the NPDES program and identifies opportunities for improvement in the development of NPDES permits.

The EPA's review team, consisting of three Regional staff and one Headquarters staff conducted a review of the Mississippi NPDES permitting program which included an on-site visit to the Department of Environmental Quality (DEQ) in Jackson, Mississippi on April 4–6, 2017.

The Mississippi PQR consisted of two components: permit records reviews and special focus area reviews. The permit reviews focused on core permit quality and included a review of the permit application, draft and final permit, fact sheet, and any correspondence, reports or documents that provide the basis for the development of the final permit conditions. The Mississippi environmental regulations pertinent to these activities are found in Part 6: Water Pollution Control Regulations as Title 11 Miss. Admin. Code Pt. 6, Ch. 1. through Ch. 7.

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 speaking with permit writers regarding the permit development process. The core review focused on the Central Tenets of the NPDES Permitting program to evaluate the Mississippi NPDES program. In addition, discussions between the EPA and state staff addressed a range of topics including program status, the permitting process, responsibilities, organization, and staffing. Core topic area permit reviews are conducted to evaluate similar issues or types of permits in all states. The national topics reviewed in the Mississippi NPDES program were: nutrients, pesticide general permit, pretreatment, and stormwater.

Regional topic area reviews target regionally-specific permit types or particular aspects of permits. The regional topic areas selected by EPA Region 4 included: TMDL implementation and hydrograph controlled release (HCR) lagoons flow. These reviews provide important information to Mississippi, EPA Region 4, EPA HQs and the public on specific program areas.

Thirteen (13) permits were reviewed as part of the PQR along with a summary of the core permit for the Municipal Separate Storm Sewer System (MS4) program. Eleven (11) individual permits were reviewed for the core review of topics, and three general permits were reviewed for Statewide coverage of Industrial Stormwater and Pesticide application. All 11 permits were also reviewed for TMDL implementation and five were reviewed for the HCR Lagoon flow regional topic. Permits were selected based on issue date [within the last 5-years] and the review categories they fulfilled.

II. STATE PROGRAM BACKGROUND

A. Program Structure

Within the Mississippi Department of Environmental Quality (DEQ), Office of Pollution Control, the Environmental Permits Division (EPD) implements and oversees the water permitting program. EPD is divided into multiple branches that are responsible for permitting a subset of the permits administered by the EPD; the specific group of facility types managed by each branch is based on Standard Industrial Classification (SIC) Codes. The nine branches include: Agricultural, Chemical Manufacturing, Construction and Building Materials, Energy and Transportation, Metal and Metals Manufacturing, Municipal and Private Facilities, Solid Waste and Mining, Timber and Wood Products, and Service and Miscellaneous Industries. For the past 20 years, the EPD has operated a multi-media/sector-based permitting approach, where permit writers manage permits for various programs: NPDES, air, and Resource Conservation and Recovery Act (RCRA). In 2017, the State underwent a reorganization and transitioned to a single-media permitting approach. Following the reorganization, EPD water permitting will distribute NPDES permits among three groups—a branch for municipal and privately-owned facilities, a branch for pretreatment and industrial NPDES, with the industrial NPDES permits divided amongst the permit writers, based on SIC Codes. The main EPD office, located in Jackson, Mississippi, administers all major pollution control programs—air, water, and RCRA. DEQ maintains three regional offices that provide investigative support to the main regulatory programs through monitoring, inspections, and complaint investigations. DEQ also maintains a full service environmental laboratory in Jackson, under the Office of Pollution Control.

The EPD currently employs eight permit writers who are collectively experienced in multi-media permitting. Whenever possible, EPD permit writers attend the EPA's NPDES Permit Writers' Training Course, the Wastewater Operators Training Course as time allows, and receive mentoring from senior staff. The Surface Water Division closely supports the development of NPDES permits with guidance for the implementation of water quality standards, Total Maximum Daily Loads (TMDLs), and wasteload allocations (WLAs). In addition, administrative staff provide support for the permit renewal and issuance process by reviewing applications for completeness and submittal of the appropriate forms. Permits are then assigned to permit writers based on industrial sectors, or SIC Codes. DEQ utilizes and maintains a database system called the Environmental Surface Water Portal for Information Repository and Exchange, or *enSPIRE*, to manage all collected surface water quality data, stream assessment data, and receiving water(s) 303(d) listing data. DEQ also uses *enSPIRE* to track TMDL status and historical stream listing information electronically. Facility compliance data is uploaded into EPA's Integrated Compliance Information System (ICIS) and to the State's system, TEMPO[®]. Template documents are used to generate NPDES draft permits, their rationales and/or fact sheets, and boilerplate language (e.g., standard conditions) is included for consistent draft permit development. The TEMPO[®] database has some functionality to generate permits and it is used to track permit writing assignments, progress, and permit module development due dates. When needed, the EPA's CORMIX model is used for mixing zone determinations and inclusion in

permit development. EPD managers, NPDES leads, and pretreatment coordinators all provide staff mentoring and NPDES permit QA/QC review.

At the start of the process to draft a new or renewal permit, an internal document called a Project Awareness Checklist (PAC), is executed to guide permit writers through the permit development components, tasks, and actions prior to and throughout the permitting process. In addition, the Permit Action Form (PAF) is completed as part of the final permitting package and summarizes the permitting action. These forms were not included in the PQR as they are “in-house” tools and not part of NPDES regulations. However, the PAC and PAF should be maintained by staff or kept as records of final permit development. Hard copy files regarding permit development documentation, correspondence, monitoring and reporting, and compliance records are maintained in the permit file, and stored at the main office. Electronic versions of this documentation are maintained in the TEMPO® database, ICIS, or NetDMR.

B. Universe and Permit Issuance

EPD estimates that its NPDES permit universe includes 1,352 permits. This universe is comprised of NPDES permits for 326 publicly-owned treatment works (POTWs) (68 major permits and 258 non-major permits) and 1,071 non-POTW facilities (24 major, 1,002 non-major, and 45 CAFOs). EPD administers seven non-stormwater general permits, as follows:

- Underground Storage Tank Groundwater Remediation (MSG12)
- CAFO (MSG22)
- Multimedia Ready-Mix Concrete Facility (MSG11)
- Pesticide General Permit (MSG23)
- Hydrostatic Test Water (MSG13)
- Wet Deck Log Spray (MSG17)
- Drinking Water

In addition, EPD has issued six stormwater general permits.

- Large Construction (MSR10)
- Small Construction (MSR15)
- Small MS4 (MSRMS4)
- Baseline Industrial (MSR00)
- Hot Mix Asphalt (MSR70)
- Mining Storm Water and Dewatering (MSR32)

The EPD estimates there are 36 municipal stormwater permittees, 938 industrial stormwater permittees, and 1,470 construction permittees that have submitted notices of intent (NOI) to be covered. NOIs are posted and tracked on the DEQ website for 10 days using the TEMPO® database.

For major individual permits, 14.1 percent (13 of 92 permits) are administratively continued; 85.9 percent are current. For non-major individual permits, 5.9 percent (75 of 1,260 permits) are administratively continued; 94.1 percent are current.

EPD administrative staff supports the permit program by issuing permit renewal reminders to most permittees a year in advance of permit expiration. For major and municipal facilities, reminders are sent two years in advance to provide ample notice to the applicant to conduct the extended testing requirements needed for permit renewal. Generally, permit renewal reminder letters are mailed monthly. If permittees fail to provide a renewal application in a timely manner, e.g., 180 days prior to permit expiration, the administrative staff informs the permit program manager who then coordinates with their enforcement staff to step up the notification process. Upon receipt of a new application, administrative staff enter application information into the TEMPO® database and issue the applicant a letter acknowledging receipt of the application.

Administrative staff initially review the application for administrative completeness and following permit assignment, the permit writer reviews it for technical completeness. Permit writers will contact the applicant if application deficiencies are identified and will work with the applicant to resolve the issues. Upon determination that the application is complete, the EPD issues the applicant a notice of completeness letter. The permitting branch chief assigns permits to staff based on industrial sector/SIC Code and experience with writing permits for [those] types of facilities. DEQ uses EPA's application forms for individual permits but has generated their own NOIs for Mississippi's general permits. EPD staff use the TEMPO® database to generate permit development due dates and track permit progress, and estimates the permit development process lasts approximately 180 days from receipt of the permit application through public notice proceedings and transmittal of the final permit to the facility.

The process for developing a draft NPDES permit is very similar for all permit writers, and DEQ's process is not very different. Application data is reviewed and compared to any previous data obtained from a facility, DMR data is reviewed and assessed for compliance and/or non-compliance, the receiving waterbody is reviewed for any new or known TMDLs, or reassessments of allowable conditions or new impairment status (e.g., 303(d) listing). An evaluation of any applicable national effluent limitation guidelines and standards (ELGs) is made based on the universe of pollutants reported as being present in the discharge.

For Mississippi's program, if necessary, a Waste Load Allocation (WLA) request is submitted to the Surface Water Division's TMDL and Modeling Branch for recommendations regarding applicable TMDLs and receiving stream impairment status. Any WLAs returned to the permit writer will identify the relationship between certain pollutants—ammonia, dissolved oxygen, and biochemical oxygen demand, as well as specific numeric WLAs where available. Further, permit writers also consider receiving water conditions regarding near-field toxic conditions. Note that the EPD conducts weekly meetings between NPDES permitting and the Surface Water Division staff, to increase staff communication and collaboration.

Facility production data generated during the permit term is reviewed to identify what changes in production levels may have occurred; whether it is increased or decreased. The EPD also

requests submittal of historical production data from industrial facilities with the permit application. Using this data, the permit writer can recalculate production-based loadings with each permit renewal, using approved spreadsheet-based tools. EPD's permit writers intentionally do not use the term "Best Professional Judgment (BPJ)" when developing TBELs. Because on a case-by-case basis, they may not know or employ the specific [extensive] process that is required to apply BPJ to develop TBELs. Instead, categorical standards (ELGs), and the industry's production and effluent flow rates are used to develop a TBEL that is appropriate for the facility. The accompanying fact sheet and administrative record contain documentation of the basis and calculations of the TBELs applied.

Water quality-based effluent limitations (WQBELs) are developed from effluent characterization data for toxic pollutants submitted in new or renewal permit applications and are compared to the regulations found in 11 Mississippi Administrative Code Part 6, Rule 1.2.3. Associated rules for toxicity screening are contained in Rule 1.2.6 of 11 Mississippi Administrative Code Part 6. Historic bioassay data can also be used to develop chemical-specific limitations by Rule 1.2.6.D of 11 Mississippi Administrative Code Part 6, which establishes the procedures for chemical-specific screening. In screening for toxicity, permit writers consider whole effluent toxicity (WET) WQBELs for those facilities exhibiting reasonable potential (RP) for toxicity, and incorporate additional WET requirements into those permits.

Normally, permit writers use spreadsheets to develop WQBELs following the procedures identified in EPA's *Technical Support Document for Water Quality-based Toxics Control* (TSD). Permit writers must review all available effluent monitoring data and apply appropriate 7Q10 or other applicable stream flow values when calculating technology-based permit limitations and/or water quality based limitations. A mass-balance equation is used to determine the instream wastewater concentration, or permit limit, which is also compared to the applicable water quality criterion. A parameter fails the screening comparison test when the appropriate instream wastewater concentration (or existing effluent concentration, whichever is more stringent) exceeds the applicable water quality criterion.

When fewer than 12 effluent samples are available, the historical effluent data value is multiplied by a factor of 10. Where effluent sample concentrations are reported as non-detect or less than the appropriate quantitation levels, permit writers assume a value of zero in the screening procedure. In accordance with the state regulations, where there are no instream background data, permit writers assume a value of zero. EPD staff indicated that zero background concentration was assumed historically; however, as actual ambient background data become more available, EPD encourages the use of actual ambient background data in the screening procedures. EPD stated that all permits contain a generic reopener clause; therefore, if permit writers identify pollutant data that may be a concern after a permit is issued, they will reopen the permit to evaluate the data and consider establishing [new] permit limitations.

Mississippi's regulations allow for mixing zones and EPD indicated that there are no known physical constraints on mixing zone size. This may be contrary to standard conditions generally

stated in the U.S. EPA NPDES Permits Writer's Manual.¹ As such, EPD staff indicated that complete mixing is not always assumed in all cases. For example, if a facility discharges to a medium-sized stream and the discharge would create localized effects, the facility might submit their own mixing zone study, or make a request that the state provide one. EPD encourages applicants to consult with them before conducting a mixing zone study, to ensure that appropriate factors are considered during study development to ensure that the model produces useful information. Upon receipt of a submitted mixing zone study, EPD engineers first evaluate the specific parameters for which it is requested and establish communication with the applicant's engineers who developed the mixing zone study. TMDL staff and permit writers subsequently review the mixing zone studies, and finally, permit writers document the water quality assessment and WQBEL development in the permit rationale.

EPD includes narrative effluent limitations in the Limitations Requirements section of NPDES permits; they generally follow the table(s) of numeric effluent limitations in the permit. Monitoring frequencies are based on the type of effluent limit; e.g., a minimum of monthly monitoring is established for those parameters regulated by an average monthly effluent limitation. Further, reissued permits carry over existing monitoring frequencies, unless a permittee requests a reduction in frequency. Historical compliance is taken into consideration when evaluating the appropriateness of reducing monitoring frequencies. EPD staff noted that for new and industrial facilities, twice per month monitoring is a typical frequency established for each parameter in the permit. For cases where the facility has demonstrated consistent compliance, permit writers may reduce the monitoring frequency to quarterly or semiannually.

Reporting frequencies may be established more or less often depending on monitoring requirements. For permits that require monitoring twice per quarter, the permits require quarterly reporting to EPD. EPD indicated they are interested in reviewing the data in a timely manner—soon after monitoring is conducted—in order to identify any compliance or operational issues. EPD stated there are permits for rural facilities that may have annual reporting requirements, regardless of monitoring frequencies, because of the acknowledgment that smaller communities may lack a large staff to implement more frequent reporting requirements. EPD indicated that monitoring frequencies may increase for facilities that undergo a significant expansion (e.g., from non-major to major categorization). The EPA expects that reporting conditions should improve with the implementation of the Electronic Reporting Rule, or "eRule".

Mississippi is a 403.10(e) state, and is therefore the Control Authority for all pretreatment programs for industrial users who discharge to POTWs in the State. EPD incorporates pretreatment narrative conditions into NPDES permits, and includes most of the specific pretreatment prohibitions required by 40 CFR § 403.5(b) in their municipal permits. Detailed items that may be omitted are included by reference.

Mississippi is not authorized to administer the 40 CFR § 503, Biosolids program; consequently, state issued NPDES permits do not contain Biosolids special conditions, but could bolster their

¹ Reference Permit Writers Manual, Chapter 6.2.2, page 6-15 for mixing zones.

permit language by providing additional annual Biosolids reporting and reference information to assist permittees.

All NPDES permits reviewed as part of the PQR, contained the 40 CFR § 122.41, “Standard and Special Conditions” boilerplate language. EPA’s federal standard conditions serve as the basis for the standard conditions included in Mississippi’s permits; and some standard conditions are written verbatim from the federal standard conditions. EPD recently updated their boilerplate language in their permits to reflect requirements resulting from implementation of EPA’s Electronic Reporting Rule, or “eRule”.

EPD staff indicated they develop fact sheets and permit rationales for all major permits; for other permits, only rationales are developed. Templates are used for fact sheets and permit rationales and include an outline of the major components of each document; permit writers then customize and tailor the documents for each facility. The permit rationale and/or fact sheet is developed concurrently with the draft permit. EPD explained that their permit rationales provide the technical basis for draft [permit] effluent limitations, whereas fact sheets provide more administrative information about the permit and facility activity. Permit rationales cite applicable federal ELGs, provide calculations of ELG-based TBELs, identify applicable WQBELs, and illustrate in a summary table which final effluent limitation is established in the permit as is based on the most stringent applicable effluent limitation—also citing the basis for the final effluent limitation. EPD’s Water Quality Certification Branch administers 401 certifications for NPDES permits.

In preparation for issuance of final NPDES permits, EPD provides a 30-day public notice period for draft NPDES permits. EPD prepares a public notice package which includes informational cover letters and distributes it to various interested parties; e.g., applicant, POTW (including a pretreatment permit). These public notice packages are sent to locations and entities that are local to the applicant or facility such as their county courthouse, library, chancery clerk, board of supervisors, mayor, and newspapers. The public notice document and letters included in the package are created from templates and mail merged from EPD databases. EPD procedures include a chart that identifies which interested parties receive specific documents including detailed posting instructions; certain entities may only receive a portion of the public notice package (e.g., the library receives the full public notice package while other parties may receive just the public notice document).

EPD also links these notices online to their Internet Webpage permit coverage notices for 10 days; similar to the procedures for their general permit application, or NOI. Before processing a NOI application to receive a Notice of Coverage (NOC), EPD holds that NOI for 10 days to verify all submitted information. For the past 15 years, EPD has posted active permit coverages on their Internet Webpage for greater transparency with the public.

EPD staff commented that they do not generally receive a large volume of comments on proposed permits, but can relate the number of comments received is largely associated to the location of the facility and the size and type of discharger (e.g., a coastal facility or large petroleum refinery). EPD addresses comments received either in writing in response to the comments, or orally with the commenter. EPD maintains documentation in the permit record

regarding comments received and resolutions achieved. Contested permits may go to hearings by various means. EPD may schedule meetings with the Environmental Quality Permit Board if issues are not resolved and opposition to the permit remains; EPD invites the opposition to the meeting and provides the Environmental Quality Permit Board with the permit, comments received, and a recommendation for the Environmental Quality Permit Board to resolve the issue.

EPD indicated that previously, if they received significant comments resulting in significant changes to a draft permit (i.e., resulting in a major modification), in accordance with the Memorandum of Agreement (MOA), EPD sends the revised permit to EPA for comment. EPD acknowledged that EPA receives an opportunity to review any permit that has been revised following their initial review. EPD noted they rarely receive an objection from EPA because EPD works closely with EPA to ensure the permits are appropriate and conform to federal regulations. EPD noted they may deal with 2–3 permits per year through the appeal process due to opposition from parties not affiliated with EPA or the permittee; these permits are reviewed through evidentiary hearings and if objected to a second time, move through the circuit court system.

Since the inception of the State's NPDES program EPD has maintained final administrative records in a large file room onsite in the Jackson office. Recently, EPD archived large volumes of historical files, but retains electronic copies of permit records in the Tempo® database system. Permit writers and administrative staff share responsibilities to maintain and manage all administrative records.

Mississippi's regulations for water quality criteria at 11 Mississippi Administrative Code Part 6, Chapter 2, Rule 2.1.A. establishes formal antidegradation implementation policy. Mississippi developed Antidegradation Implementation Methods, dated January 28, 2010, to outline the procedures that the State will use to implement the Antidegradation Policy. Antidegradation reviews are triggered when a permittee indicates there is an expansion of treatment capacity at the facility, or receiving waters may be impacted from increased flows from the facility. EPD indicated that the antidegradation review is initiated upon receipt of the permittee's renewal application, or upon receipt of a modification request indicating an expansion is being planned. An EPD branch manager conducts all antidegradation reviews.

Anti-backsliding conditions are thoroughly reviewed by EPD permit writer staff while developing a new or renewed permit and is not allowed unless the scenario meets one of the federal exceptions.

The TMDL branch has established rules and procedures for permitting discharges to impaired streams, and TMDL staff work closely with permit writers to ensure that permits do not allow for additional impairment to any 303(d)-listed stream in Mississippi. DEQ's regional office staff support this process by conducting site inspections and evaluations of the condition of the receiving stream being addressed to support a case-by-case evaluation as permits are renewed. Where TMDLs have been adopted for a receiving stream, EPD permit writers collaborate with the TMDL modeling branch to identify applicable TMDLs necessary to implement the WLA established to protect that receiving stream. The accompanying permit rationale document

includes an explanation of how the TMDL is implemented in the effluent limitations of the final permit. EPD's modeling group tracks permits where specific TMDL WLA implementation has been established. EPD staff verified that final NPDES permits include analytical methods approved by 40 CFR § 136 and requires that application data identify the analytical methods used. EPD staff indicated that the state regulations generally require analytical methods are sufficiently sensitive to determine adherence to water quality criteria. Also of note, Mississippi standards recently adopted *E. coli* bacterial criteria.

C. State-Specific Challenges

EPD management acknowledged that the NPDES permit program is necessary and noted that additional federal funding—through Section 106 grants—is necessary to continue implementing the permits program and oversight in the State. Management also indicated that as state funds are diminishing; there is additional strain to maintain the program. Preserving their already trained staff remains a challenge with the opportunities available outside of state programs to those highly qualified and skilled individuals. Staff turnover is a constant constraint to the permitting program.

D. Current State Initiatives

Top priority is integrating permit development and issuance(s) with the state's tracking program(s). With the e-Reporting rule fast becoming a daily agenda item, automation of activities to increase accuracy and productivity are goals Mississippi shares with other states.

EPA commends DEQ on improvements to the 2016 Phase II general permit that strengthened requirements for Illicit Discharge and Detection Elimination, and promotion of ordinances that encourage the use of Low Impact Development (LID) and Green infrastructure (GI) practices.

III. CORE REVIEW FINDINGS

A. Basic Facility Information and Permit Application

1. Facility Information

Basic facility information is necessary to properly establish NPDES permit conditions. For example, information regarding facility type, wastewater treatment processes, outfall description, identification and location, and other factors is required by NPDES permit application regulations as found in 40 CFR § 122.21. Application forms for municipal facilities, or the Basic Application Information for all Applicants consists of several parts for information submittal about the respective facility and includes supplemental application parts for treatment works that discharges effluent to surface waters of the United States. Municipal facility applicants must also submit Part D to report their expanded effluent testing data & Part E for reporting required toxicity testing monitoring data for each outfall, and if omitted constitutes an incomplete application for permit shield, (40 CFR § 122.21(e) and § 124.3(c)(g)). This specific information is essential for developing enforceable permits that are technically

sound, clear and complete. Similarly, fact sheets and/or rationales must include a well-defined description of the type of facility and treatment conditions to support the expectations of permit's final requirements.

NPDES permits reviewed during the PQR included basic facility details and identification of receiving stream information. Issued DEQ permits do not explicitly identify the permit effective date; however, during discussions with staff, EPD indicated that the permit effective date has always been understood as the permit issuance date. All permits contain language referencing Mississippi Administrative Code indicating that "the permittee shall achieve compliance with the effluent limitations specified in accordance with the following schedule: Upon Permit Issuance." EPA commented that it is useful for permits to clearly identify the actual permit effective date on the permit cover page along with the permit issuance and expiration dates, given that permit effective and issuance dates can differ when a permit is modified or revised during its five-year term (40 CFR §§ 124.15 & 124.60).

The PQR review identified that facility designation as major or non-major (e.g., minor) facilities was unclear in the final permits and rationales reviewed. In response, EPD staff explained they establish hybrid conditions in permits based on facility designation, e.g., require sampling for whole effluent toxicity (WET) instead of an individual parameter that may not be expected in the discharge based on facility size. EPD acknowledged that some permits currently classified as a non-major, may be more appropriately categorized as a major, or at a minimum, contain requirements typically included in permits for major facilities.

The PQR revealed that a few permits and fact sheets/rationale documents lacked basic facility information such as identification of outfall locations (e.g., latitude and longitude), receiving waterbody name, facility address and official contact information. Reviewers located some outfall location information in permittee applications; however, the application information was not always included in the permit and fact sheets/rationale documents. One permit application lacked the required operational flow diagram, and it could not be found in the permit record.

2. Permit Application Requirements

This portion of the review assesses whether appropriate, complete, and timely application information was received by the state and used in permit development. Overall, the review indicated that EPD permit writers are thorough and do provide a final determination that the application is deemed complete via notification to the applicant and documentation in the permit record.

Federal regulations at 40 CFR §§ 122.21 and 122.22 specify application requirements for permittees seeking NPDES permits. An owner and/or operator must submit a permit application to apply for coverage under a NPDES individual permit. The application form must be submitted to the permitting authority at least 180 days before the expected commencement of the discharge. Although federal forms are available, authorized states are permitted to use their own forms provided they include all information required by the federal regulations. Mississippi uses Federal applications for their NPDES permit program.

The PQR review team observed that most initial applications were submitted in a timely manner. Application forms for municipal facilities, or the Basic Application Information for all Applicants, consists of several parts for information about the respective facility and includes supplemental application parts for treatment works that discharges effluent to surface waters of the United States. EPA Form 2A also requires applicants to submit Part D to report their expanded effluent testing data and Part E for reporting required toxicity testing monitoring data for each outfall.

In several permits, the permittee submitted effluent data required in Parts D and E as part of their existing permits but failed to mention this on the permit applications. This gave the appearance of an incomplete application, but DEQ explained this is typical practice for smaller municipalities and industries with resource constraints. In another permit, the record lacked detail on why the application was determined to be deficient and what information was requested in order to complete the application submittal. The review indicated the initial deficiency appeared as though the application lacked reported data for whole effluent toxicity (WET); however, the permit record later concluded WET data had been submitted throughout the permit term. Clarification in permits should be provided to indicate if effluent testing is being performed and reported when a permit application is submitted or was collected as part of routine monitoring during the previous permit term. .

Verification of the official signature (40 CFR § 122.22) on the application was not confirmed for three permit records reviewed. Further conversations with DEQ indicated these signatures were found in their records. As a best practice, DEQ might consider adding a line under the signatory block for the applicant to print their name and title for those instances when the signature is illegible.

Complete application approvals from the state were not confirmed for four permits. One permit was found to have been expired for two years before a complete application was indicated. For one permit renewal, priority pollutant scans (PPS) from a previous permit cycle had been used for establishing permit parameters. New data was not provided and verification of what conditions may have changed since the previous permit issuance was not found.

B. Technology-based Effluent Limitations

NPDES regulations at 40 CFR § 125.3(a) require that permitting authorities develop technology-based requirements where applicable. The selected 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.

1. TBELs for POTWs

POTWs must meet secondary or equivalent to secondary standards, including limits for BOD₅, Total Suspended Solids (TSS), pH, and percent pollutant removal, and permits must contain numeric limits for all of these parameters (or authorized alternatives) in accordance with the

secondary treatment regulations at 40 CFR § 133. Seven POTW permits were reviewed as part of the PQR.

Typically, TSS and BOD₅ parameters are identified as TBELs. The PQR revealed several instances where TBEL permit limits for TSS and BOD₅ were identified as WQBELS. Clarification to identify which parameter is being applied as the most stringent standard as a TBEL or applied as a WQBEL would assist the reader. Further, treatment exceptions for TSS and BOD₅ were allowed in permits without any justifying explanation(s). In those instances, the PQR also identified other occurrences where reasonable potential analysis was not performed.

The PQR also identified that rationale documents for permits issued to facilities that operate lagoon treatment systems lacked discussion of the appropriateness of equivalent-to-secondary treatment standards applied to that facility (e.g., minimum of 65 percent removal of BOD₅). Monitoring requirements and/or bacteria limits were also missing from several of the lagoon systems reviewed.

2. TBELs for Non-POTW Dischargers

Permits issued to non-POTWs [Industrial] 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, consistent with New Source Performance Standards (NSPS) for new sources [as applicable]. Where federal effluent limitations guidelines (ELGs) have been developed for a category of dischargers, the TBELs must be based on the application of these guidelines. If ELGs are not available, a permit must include limits 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).

The review indicated that in most rationale documents for non-municipal permits where ELGs were applicable, permit writers included a robust discussion of the applicability of the ELGs, identifying specific outfalls to which they applied, and provided illustration of TBEL development calculations. However, in one permit production-based ELGs were incorrectly applied. In another permit, the applicant requested that EPD establish effluent limitations for carbonaceous biochemical oxygen demand (CBOD) instead of BOD₅ and the rationale for allowing this was not explained in the fact sheet. In general, when alternative effluent limits are applied instead of ELGs, a fundamentally different factors (FDF) variance is necessary and must be submitted to the EPA for a review and approval prior to granting to the permittee. The record for this particular permit lacked documentation on why alternative limits were selected over the ELGs.

C. Water Quality-Based Effluent Limitations

The NPDES regulations at 40 CFR § 122.44(d) require [that] permit limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality

standard, including State narrative criteria for water quality. Water quality standards and State requirements: any requirements 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 water quality standards established under section 303 of the CWA, including State narrative criteria for water quality.

When determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and where appropriate, the dilution of the effluent in the receiving water.

The PQR assessed the processes employed by permit writers and water quality modelers 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 water quality standards 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, those that may be included on the CWA 303(d) list, the PQR also assessed whether and how permit writers consulted and developed limits consistent with the assumptions of applicable EPA-approved total maximum daily loads (TMDLs).

The close relationship between EPD and the Water Quality Branch (TMDL and Modeling team) is evident and commended. The teams meet weekly and coordinate well during permit development, sharing information on receiving water quality, applicable TMDLs, and specific WLAs for point source discharges; however, documentation of this coordination was lacking from five of the permits reviewed. Existing documentation generally includes a WLA cover sheet. In the permits reviewed, the cover sheet lacked detail about specific calculations used to derive the WLAs and the calculations were not included in the permit records. In one permit reviewed, details were missing on how a WLA for ultimate BOD (UBOD) translates to an effluent limitation for BOD₅. In three of the permits, the critical conditions for development of an ammonia WLA were not evident in the records.

The PQR review team suggests that a WLA summary table in the factsheet/rationale is a good example of documentation that could identify the modeling used to generate the WLA and provide the supporting rationale for the Water Quality Branch's recommendations for a specific WLA for discharges.

D. Monitoring and Reporting

NPDES regulations at 40 CFR 122.41(j) require permittees to periodically evaluate compliance with the effluent limitations established in their permits 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 and where applicable, internal processes, and report the analytical results to the permitting authority with information necessary to evaluate discharge characteristics and compliance status. It was noted that Biocides and/or other process anti-scaling additives are not identified or addressed in any of the major facility permits where they might be used. These chemical additives can have negative effects on receiving streams when not well managed for volume and application methods. Whole Effluent Toxicity (WET) testing is a good method of monitoring for any possible [adverse] issues.

Specifically, 40 CFR § 122.44(i) requires NPDES permits to establish, at minimum, annual 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. And, 40 CFR § 122.48 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.

The monitoring and reporting procedures review identified one permit where monitoring and reporting frequencies may not have been appropriate for the discharge. Specifically, monthly monitoring was established in a permit for a major POTW, whereas more frequent [daily or weekly] monitoring is the industry standard and more appropriate. Further, the rationale lacked justification for the monthly monitoring frequency. The PQR review team noted that for the permits issued to hydraulically-controlled release (HCR) facilities, it is especially important to understand the quality of the discharge, particularly regarding bacteria concentrations. Mississippi recently adopted water quality standards for *E. coli* bacteria, which should also be included in future permit reissuance.

E. Standard and Special Conditions

Federal regulations at 40 CFR § 122.41 require that all NPDES permits, including NPDES general permits, contain an enumerated list of "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 required by the federal regulations.

In addition to standard permit conditions, permits may also contain additional requirements that are unique to a particular permittee or 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 pollutant management plan or 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.

For most of the permits the Standard Conditions were clear and appeared to uphold the magnitude and convention of the federal regulatory intent. However, the “Duty to Comply” standard was not clear as to whether Mississippi regulations contain administrative penalties and if so, are these penalty amounts keeping [up] with inflation and the revisions in the federal guidelines.

F. Administrative Process

The administrative process includes documenting the basis of all permit decisions (40 CFR §§ 124.5 and 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 124.12); responding to public comments (40 CFR § 124.17); and, modifying a permit (if necessary) after issuance (40 CFR § 124.5). EPA discussed each element of the administrative process with Mississippi, and reviewed materials from the administrative process as they related to the core permit review.

The PQR review team commended EPD on the implementation of the public notice process. EPD maintains well-organized files of comments received during the public notice period as well as EPA’s review period. Where EPD’s procedures require widespread noticing, it was evident that the public is afforded ample opportunity to participate in the permitting process.

In the routing of the final permit for the Director’s signature, EPD staff complete Permit Action Form memorandums that document the public notice process. These memorandums indicate whether or not public hearings were requested and held and if any public comments were received. Several of the permit records reviewed did not include these memorandums.

G. Administrative Record

The administrative record is the foundation that supports the development and enforceability of an NPDES permit. If the 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 as found in 40 CFR §§ 123.1 – 123.3. As previously stated, the permit record should contain the necessary documentation to justify all permit conditions. At a minimum, the administrative

record for a final permit should contain the permit application and supporting data; draft permit; fact sheet or statement of basis; all items cited in the statement of basis or fact sheet including calculations used to derive the permit limitations; meeting reports; correspondence between the applicant and regulatory personnel; all other items supporting the file; final response to comments; and, for new sources or 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 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 previous or current permit and corresponding application(s), 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 final permit.

The PQR review team indicated that development of a template for the permit rationale, in conjunction with an improved, more robust permit limitation discussion, will provide new permit writers with greater understanding of the reasoning for specific permit limitations and requirements. EPD is encouraged to continue developing templates for permits and permit rationale documents, and to allow time for their [new] permit writers to review the NPDES technical modules² available on the EPA's Internet website(s) for additional training assistance where travel may not be fiscally available.

1. Documentation of Effluent Limitations

This topic has been fully addressed in previous paragraphs, but it is essential to reiterate that permit records for POTWs and industrial facilities should contain comprehensive documentation of the development of all effluent limitations. TBELs should be based on the assessment of applicable guidelines and standards. The data used, and actual calculations performed to develop the final limitations should be clearly defined and documented in the permit record. The procedures implemented for determining the need for water quality-based effluent limitations as well as the basis for establishing, or for not establishing, water quality-based effluent limitations should be clear and straight forward. The permit writer should thoroughly document any and all changes from a previous permit to ensure draft and final limitations match the basis for a revised, renewed, or modification of an existing permit.

For some permit rationales, a table is included to summarize the comparative permit limits based on either TBELs, WQBELs, or WLA as needed, which then identifies the most stringent final permit limitation. However, this was not consistent in the permits reviewed; therefore, it was not evident that permit writers selected the most stringent effluent limitation. In addition,

² Go to, <https://www.epa.gov/npdes/npdes-training>.

rationale documents lacked consistent discussion of the basis of existing, or former effluent limitations, and the justification for reissuing those existing limitations.

H. National Topic Areas

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 compared for all state PQRs. The national topics areas are: nutrients, pesticides, pretreatment and stormwater.

1. Nutrients

For more than a decade, both nitrogen and phosphorus pollution has consistently ranked as one of the top causes of degradation of surface waters in the U.S. Since 1998, the EPA has worked at reducing the levels and impacts of nutrient pollution. A key part in this effort has been the support the EPA has provided to States to encourage the development, adoption and implementation of numeric nutrient criteria as part of their water quality standards (see the EPA's *National Strategy for the Development of Regional Nutrient Criteria*). In a 2011 memo to the EPA regions titled *Working in Partnerships with States to Address Nitrogen and Phosphorus Pollution through use of a Framework for State Nutrient Reductions*, the Agency announced a framework for managing nitrogen and phosphorus pollution that, in part, relies on the use of NPDES permits to reduce nutrient loading in targeted or priority watersheds.

To assess how nutrients are addressed in Mississippi's NPDES program, the PQR review team reviewed the basic nutrient limitations included in their permitting program. The State responded to programmatic interview questions prior to the site visit with the following:

Specifically, Mississippi has adopted narrative criteria for Nitrogen (as N, nitrate, etc.), Phosphorus (as P, other), and for biological impact (chlorophyll a, clarity, dissolved oxygen (DO), Submerged Aquatic Vegetation (SAV), algae formation, etc.), with statewide numeric DO criteria having a daily average of 5.0 mg/L; instantaneous minimum of 4.0 mg/L. Additionally, narrative criteria are applied as "no nuisance species, no substances that produce undesirable effects/eutrophic conditions, etc." Understanding that at the time of the state visit and program review, the state has not adopted numeric water quality criteria for nutrients the status of their management program, is as follows:

"DEQ is currently working to develop numeric nutrient criteria (TN and TP) for state surface waters. Although numeric criteria are still in development, DEQ is actively working to manage nutrients through many various programs.

If waterbodies are found to be impaired due to nutrients, TMDLs are developed and implemented making reductions in nutrients to the waterbody as needed. Nutrient permit limits are issued to NPDES facilities within the watersheds as needed based on these TMDLs.

Currently, all commercial and municipal facilities are required to monitor for nutrients as DEQ develops WLAs for NPDES permits,

The Nonpoint Source Program at DEQ is very active as well working to collaborate with local stakeholders to develop and implement numerous nutrient reduction strategies (BMPs, Education and Outreach, etc.) across the entire state.”³

Finally, the State’s response to adopting implementation procedures specific to nutrient-based permitting is as follows:

“Procedures are in place to incorporate nutrient limits into NPDES permits based on existing nutrient TMDLs. In addition to the existing procedures, DEQ is working to develop a numeric nutrient criteria implementation plan that will detail how the numeric criteria will be incorporated and applied within all relevant surface water programs.”³

Program Strengths:

To implement specific numeric-based limits in permits, Mississippi has shown progress and determination to complete that task utilizing all manner of methods and criteria available at this time. However, as addressed above, this report has identified that DEQ has not yet translated narrative criteria into numeric permit limits, but continues to capture data by monitoring for future translations. There are no obstacles in State law preventing DEQ or EPD from fully implementing nutrient permit requirements once they are established.

Critical Findings: Mississippi has not adopted numeric water quality criteria for nutrients, and until criteria are developed, Mississippi should continue robust monitoring of nitrogen and phosphorus in permits to better understand effluent quality.

2. Pesticides

On January 7, 2009, the Sixth Circuit vacated the EPA’s 2006 NPDES Pesticides Rule on Aquatic Pesticides (71 Fed. Reg. 68483, November 27, 2006) and found that point source discharges of biological pesticides and chemical pesticides that leave a residue, into waters of the U.S. were pollutants under the CWA. *National Cotton Council of America v. EPA*, 553 F.3d 927 (6th Cir., 2009). As a result of the Court’s decision to vacate the 2006 NPDES Pesticides Rule, NPDES permits are required for discharges of biological pesticides and of chemical pesticides that leave a residue, to waters of the United States. In response to this decision, on April 9, 2009, the EPA requested a two-year stay of the mandate to provide the EPA time to develop general permits, to assist NPDES-authorized states to develop their NPDES permits, and to provide outreach and education to the regulated community. On June 8, 2009, the Sixth Circuit granted the EPA the two-year stay of the mandate. On March 28, 2011, the U.S. Court of Appeals for the Sixth Circuit granted the EPA's request for an extension to allow more time for pesticide operators to obtain permits for pesticide discharges into U.S. waters. The court's decision extended the deadline for when permits would be required from April 9, 2011 to October 31, 2011.

³ These comments captured from the questionnaire, Attachment F.1. as returned by DEQ to EPA.

Program Strengths:

The PQR team reviewed DEQ's pesticide general permit with a focus on verifying its consistency with NPDES program requirements. The Permit Board on Environmental Quality reissued the statewide Pesticide General Permit (PGP) (MSG23) on August 18, 2017. The new PGP covers the State of Mississippi and authorizes operators who discharge to waters of the State from the application of pesticides under the terms and conditions of the PGP. Activities covered by the permit include the application of pesticides to control: 1/ mosquito and other flying insects; 2/ weeds, algae, and pathogens; 3/ nuisance animal pests in water and at water's edge; 4/ forest canopy pests; and 5/ other pests on a "case by case" basis to be evaluated individually. In addition to being consistent with product label application rates (authorized under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)), the permit requires eligible operators to implement site-specific control measures that minimize discharges of pesticides to waters of the State. In addition, "large operators" (operators who are "decision-makers" for large entities and exceed the annual treatment thresholds) must develop and implement Pesticide Discharge Management Plans to prevent or mitigate pollutants from entering State waters. Large operators must also complete a PNOI (Pesticide Notice of Intent). The term of the new permit is for a five-year period.

The new general permit replaces the previous general permit that expired September 30, 2016. There are no obstacles in state law preventing the state NPDES permitting authority, from fully implementing the pesticide permit requirements.

Critical Findings: None

3. Pretreatment

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:

The goal of the pretreatment program review was to assess the status of Mississippi's pretreatment program, as well as assess specific language in POTW NPDES permits. Unlike most Region 4 states, Mississippi is the control authority for its pretreatment program, the State does not delegate the program down to POTWs rather it manages each program at the State level. With respect to NPDES permits, focus is 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);

- 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).

Comprehensive State Pretreatment Program Audits (CSPPA) include: (1) on-site visits to all appropriate state offices, including central and field offices; (2) compliance oversight visits to a statistically significant percentage of public utility (i.e., POTW) pretreatment programs and, if appropriate, state-controlled significant industrial users; and (3) a desk audit of the legal authorities, formal procedures, and resources available to the state's industrial pretreatment program. The PQR did not include a review of pretreatment elements because the CSPPA takes a more comprehensive look at the pretreatment program. The EPA's evaluation and findings of the state's pretreatment permitting activities performed in 2014 were communicated verbally to the State Director and the CSPPA was closed out by letter dated March 28, 2018.

Critical Findings: None

4. Stormwater

The NPDES program requires stormwater discharges from certain municipal separate storm sewer systems (MS4s), industrial activities, and construction sites to be permitted. Generally, EPA and NPDES-authorized states issue individual permits for medium and large MS4s and general permits for smaller MS4s, industrial activities, and construction activities.

Background:

The EPA Region 4 staff reviews all draft MS4 and construction permits in Mississippi as per the Memorandum of Agreement (MOA) with the State of Mississippi. The Region makes its official comments and recommendations about permit quality during these reviews. As part of the PQR, EPA reviewed the MS4 permit for Phase I and Phase II communities, the large construction stormwater general permit (MSR10), the small construction stormwater general permit (MSR15) and the industrial stormwater general permit (MSR00).

Phase I MS4 communities are issued individual MS4 permits while Phase II communities are regulated under a general permit, MSRMS4. In 2016, there was one Phase I MS4 community covered under an individual permit and 36 communities or designated entities covered under the Phase II MS4 general permit. For the PQR, the Jackson Phase I permit, MSS049786, and the general stormwater permit applicable to all Phase II municipalities, MSRMS4, were reviewed. For construction stormwater permits and industrial stormwater permits, EPA reviewed the general permits and did not review any information pertaining to any individual coverage requests.

Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s)

Phase 1 MS4s: The city of Jackson represents the only Phase I MS4 within the state of Mississippi. The Jackson permit was issued on July 2, 2012 and expired on June 30, 2017. The

City of Jackson is the primary agency responsible for managing the City's NPDES stormwater permit, its MS4, Stormwater Management Program (SWMP), and Stormwater Management Plan.

The Jackson Phase I MS4 permit issued by DEQ contains all the required elements of an effective program including the development of the SWMP. The SWMP, which is routinely reviewed and updated, contains various elements and directives that must be reported on in an annual report. The City's permit contains all the specifics and details about each core element required of the Phase I program.

Phase II MS4s: There are 36 Phase II MS4s within the State of Mississippi covered under a general permit, MSRMS4, including 32 communities, and four designated MS4s: Keesler Air Force Base, the Naval Construction Battalion Center, the University of Southern Mississippi, and the Mississippi Department of Transportation. Unlike the Phase I MS4 community, the Phase II rules take a slightly different approach for implementing local stormwater management programs by requiring the SWMP to consist of six "minimum control measures."

Program Strengths:

Mississippi's Phase I and II MS4 permit programs continue to be well-administered and meet the EPA's expectations and the federal regulations. DEQ staff are proactive in keeping MS4s up to date on State and federal initiatives/policies, and meet with the MS4s on a scheduled basis. Plans and Annual reports are reviewed and updated as necessary. Also noted are the improvements to the 2016 Phase II general permit, including: specific site design standards for new development and redevelopment post-construction stormwater management, strengthened requirements for Illicit Discharge and Detection Elimination, promotion of ordinances that encourage the use of Low Impact Development (LID) and Green infrastructure (GI) practices, and numerous references to the Mississippi Handbook for Erosion Control, Sediment Control and Stormwater Management on Construction Sites and Urban Areas.

Critical Findings: None

As a general matter, EPA suggests that future iterations of MS4 permits incorporate clear, specific, measurable, and enforceable requirements. Over the past several years, EPA has been taking a closer look at MS4 permits within the Region with an expectation that permit requirements are consistent with the statutory and regulatory maximum extent practicable requirement, and that the development of appropriate performance standards should be specified in the permit and not be left to the permittee. DEQ should refer to EPA's MS4 Permit Improvement Guide for examples of permit provisions and rationales to see what level of detail and specificity EPA is looking for during our permit reviews, especially as DEQ begins reauthorization of the Jackson Phase I permit.

General Permit for Stormwater Discharges from Construction Activity

DEQ issues two general permits for construction activities: MSR10, for large construction land disturbing activities of five acres or greater, or that are part of a larger common plan of development or sale; and MSR15, for small construction land disturbing activities of one acre to less than five acres, or less than one acre if part of a larger common plan of development or sale. The Small Construction Storm Water General Permit (SCGP) was issued on April 18, 2013, and will expire on March 31, 2018. The Large Construction Storm Water General Permit (LCGP) was issued on January 13, 2017 and will expire on December 31, 2021. As part of the PQR, EPA reviewed both general permits for stormwater discharges from construction activity.

Program Strengths:

DEQ ensures that under its delegation, all construction sites are inspected routinely and permits include specific timelines to address deficiencies. The general permits emphasize the application of best management practices to control erosion and sedimentation processes during the construction phase for all developments disturbing an area equal to or greater than one acre. The newly reissued LCGP includes the requirement of a 50-foot undisturbed natural buffer next to waters of the United States, or a combination of buffer and additional erosion and sediment controls whose sediment load reduction would be equivalent to an undisturbed 50-foot buffer. The LCGP also requires applicants to submit Large Construction Notices of Intent and Requests for Termination of Coverage electronically beginning December 21, 2020, per 40 CFR 127.16 - Implementation of electronic reporting requirements for NPDES permittees, facilities, and entities.

Mississippi's Construction General Permits require the development of site-specific storm water pollution prevention plans (SWPPPs) that require the design, installation, implementation and maintenance of effective pollution prevention measures. SWPPPs must describe and ensure the implementation of best management practices that will reduce pollutants in stormwater discharges, in accordance with those standards set forth in the most current edition of the Mississippi Handbook for Erosion Control, Sediment Control and Stormwater Management on Construction Sites and Urban Areas.

Critical Findings: None

Stormwater Discharges Associated with Industrial Activity (MSR00)

As noted from the Mississippi DEQ Website.

"The Permit Board on Environmental Quality reissued the statewide Baseline Storm Water General Permit for Industrial Activities (MSR00) on November 17, 2015. The Baseline General Permit covers the State of Mississippi and authorizes the discharge of storm water runoff into waters of the State from regulated industrial activities in accordance with the provisions of the Mississippi Air and Water Pollution Control Law. The reissued general permit allows the continued discharge of storm water from regulated industrial activities for an additional five-year period. Instruction letters have been sent out to all active coverage recipients outlining the instructions for obtaining recoverage or terminating their coverage. Recipients had 45-days from the

date of the instruction letter to respond. Facilities with an active coverage that did not receive an instruction letter should contact their DEQ permitting representative. Regulated industrial facilities seeking initial coverage may do so by submitting a Baseline Notice of Intent Form (and any required supporting documents). Please note that the Baseline Forms Package contains new forms that must be completed to satisfy the recordkeeping requirements of the general permit. Coverage recipients under the re-issued Baseline General Permit have until April 1, 2016 to begin using the new forms.”

Program Strengths:

DEQ’s industrial stormwater permit contains SWPPP requirements that are thorough and concise. The additional detail provided in the permit on developing SWPPPs can be an effective mechanism for minimizing adverse environmental impacts. This is a good permitting practice EPA applauds the State for implementing.

Critical Findings:

This review recognizes the multimedia general permit for Mining under MSR32, but found only the expired permit available for review.

Baseline Industrial Stormwater permitting is described in the Phase I stormwater regulations as published at 55 Fed. Reg. Page No. 47990, (Nov. 16, 1990). The rule described a preliminary strategy to establish a framework for developing permitting priorities and includes a four-tier set of priorities for issuing permits to be implemented over time. Baseline permitting is identified as Tier I and was intended to provide initial permit coverage and for information gathered through this initial permit to be used in more specific permitting down the road.

EPA reviewed the MS MSGP as part of this PQR. DEQ uses the term “baseline” in the title of the general industrial stormwater permit and this term is used during the beginning stages of issuing permits. The review revealed that there should be a more robust discussion of permit requirements for the list of industrial operations this permit is intended to cover. Reliance on minimal pollutants defined in receiving stream TMDLs may not be protective enough for all industrial operations found at certain facilities. Since the issuance of the initial “baseline” permit additional tier level developments as described in 40 CFR 122.26 should be included in future iterations of the industrial stormwater general permit.

IV. REGIONAL TOPIC AREA FINDINGS

A. Implementation of TMDLs

Background:

The NPDES regulations at 40 CFR § 122.44(d)(1)(vii)(B) require that NPDES permits include effluent limitations developed consistent with the assumptions and requirements of any WLA that has been assigned to the discharge as part of an approved TMDL. A TMDL is a calculation of the maximum quantity of a pollutant that may be added to a waterbody from all sources, without exceeding its applicable Water Quality Standards (WQS). States must establish TMDLs for all impairing pollutants – pollutants that prevent waters from attaining WQS after implementing applicable technology-based requirements. Where a TMDL has been established for a waterbody, WQBELs must also be consistent with the assumptions and requirements of any WLA for point source dischargers.

For this PQR, EPA reviewed six permits and fact sheets to verify that permits implement the assumptions and requirements of applicable TMDL WLAs. The TMDLs reviewed in these permits addressed fecal coliform impairments, mercury, DO, nutrients and organic enrichment. More specifically, one TMDL was developed for total phosphorus to address an impairment to a fishing designated use. All but one of the permits reviewed for TMDL implementation were discharges from major POTWs.

Program Strengths:

DEQ permit writers and TMDL developers collaborate on the derivation of permit limits when a TMDL has been developed for a receiving waterbody. This collaboration ensures that permit limits are sufficiently stringent to meet the requirements of the TMDL.

Critical Findings:

The PQR review identified permits where TMDLS were not included, or could have been better implemented. In some cases, the TMDL was not identified by the permit writer, or the allocations were improperly applied in the conditions of the permit, which allows ineffective reductions of the pollutant load to the receiving stream.

DEQ permit writers should consider *any* pollutant associated with an impairment of the receiving water to be a pollutant of concern, regardless of whether an approved TMDL has been developed for that pollutant, a WLA has been assigned to the permitted facility, or the permitted facility has demonstrated that the pollutant is present in its effluent. long term average (LTA) flow values derived from TMDLs should not to be used to develop permit limits for other pollutants of concern..

B. Lagoon Flow (HCR)

Background:

The focus of the Lagoon Flow with Hydrograph Controlled Release (HCR) review was to verify whether or not permits and fact sheets authorize discharges only during certain flows in receiving stream(s), require monitoring of specific pollutants during discharge, have seasonal limits for any pollutants of concern, allow for alternate limits of BOD₅ and/or TSS and percent removal values, require limits equivalent to Secondary Treatment Standards, have narrative criteria for control of algae and/or floating vegetation; contain any specific requirements for detecting leaks from the lagoon system, and do the permit[s] require the permittee to contact the state before applying herbicides and/or other water treatment additives to the lagoon.

To better clarify the findings of the lagoon permits review, the federal regulations pertaining to HCR Lagoons is included here from the Federal Register publication at: 49 FR 37006, Sept. 20, 1984; 49 FR 40405, Oct. 16, 1984.

§133.105 Treatment equivalent to secondary treatment.

This section describes the minimum level of effluent quality attainable by facilities eligible for treatment equivalent to secondary treatment (§ 133.101(g)) in terms of the parameters - BOD₅, SS and pH. All requirements for the specified parameters in paragraphs (a), (b) and (c) of this section shall be achieved except as provided for in § 133.103, or paragraphs (d), (e) or (f) of this section.

(a)BOD₅. (1) The 30-day average shall not exceed 45 mg/l.

(2) The 7-day average shall not exceed 65 mg/l.

(3) The 30-day average percent removal shall not be less than 65 percent.

(b)SS. Except where SS values have been adjusted in accordance with § 133.103(c):

(1) The 30-day average shall not exceed 45 mg/l.

(2) The 7-day average shall not exceed 65 mg/l.

(3) The 30-day average percent removal shall not be less than 65 percent.

(c)pH. The requirements of § 133.102(c) shall be met.

(d)Alternative State requirements. Except as limited by paragraph (f) of this section, and after notice and opportunity for public comment, the Regional Administrator, or, if appropriate, State Director subject to EPA approval, is authorized to adjust the minimum levels of effluent quality set forth in paragraphs (a)(1), (a)(2), (b)(1) and (b)(2) of this section for trickling filter facilities and in paragraphs (a)(1) and (a)(2) of this section for waste stabilization pond facilities, to conform to the BOD₅ and SS effluent concentrations consistently achievable through proper operation and maintenance (§ 133.101(f)) by the median (50th percentile) facility in a representative sample of facilities within a State or appropriate contiguous geographical area that meet the definition of facilities eligible for treatment equivalent to secondary treatment (§ 133.101(g)).

(e)CBOD₅ limitations:

(1) Where data are available to establish CBOD₅ limitations for a treatment works subject to this section, the NPDES permitting authority may substitute the parameter CBOD₅ for the parameter BOD₅ in §§ 133.105(a)(1), 133.105(a)(2) and 133.105(a)(3), on a case-by-case basis provided that the levels of CBOD₅ effluent quality are not less stringent than the following:

- (i)** The 30-day average shall not exceed 40 mg/l.
- (ii)** The 7-days average shall not exceed 60 mg/l.
- (iii)** The 30-day average percent removal shall not be less than 65 percent.

(2) Where data are available, the parameter CBOD₅ may be used for effluent quality limitations established under paragraph (d) of this section. Where concurrent BOD effluent data are available, they must be submitted with the CBOD data as a part of the approval process outlined in paragraph (d) of this section.

(f)Permit adjustments. Any permit adjustment made pursuant to this part may not be any less stringent than the limitations required pursuant to § 133.105(a)-(e). Furthermore, permitting authorities shall require more stringent limitations when adjusting permits if: (1) For existing facilities the permitting authority determines that the 30-day average and 7-day average BOD₅ and SS effluent values that could be achievable through proper operation and maintenance of the treatment works, based on an analysis of the past performance of the treatment works, would enable the treatment works to achieve more stringent limitations, or

(2) For new facilities, the permitting authority determines that the 30-day average and 7-day average BOD₅ and SS effluent values that could be achievable through proper operation and maintenance of the treatment works, considering the design capability of the treatment process and geographical and climatic conditions, would enable the treatment works to achieve more stringent limitations.

Program Strengths:

Current DEQ water quality standards and criteria allow for alternate state requirement (ASR) limits for TSS based on the revised secondary treatment regulations (adopted in 1984). The ASR provisions give states flexibility to modify the percent removal criteria for TSS for HCR lagoon facilities. ASRs must be set at levels consistently achievable through proper operation and maintenance [§ 133.101(f)] by the median facility in a representative sample of facilities within a state or appropriate continuous geographical area that meet the definition of facilities eligible for treatment equivalent to secondary treatment. Qualifying facilities are eligible to receive limitations up to the concentrations specified by the ASRs. In addition, DEQ has a document entitled "Requirements for Closure and Periodic Clean-Out of Municipal Wastewater Treatment Lagoons," dated April 23, 2010.

DEQ classifies municipal permits with HCR discharges based on their design flow and as a result most are classified as minors (i.e., design flow less than 1 MGD). EPA has been encouraging states to consider treating HCR lagoons as majors when the actual flows are greater than 1 MGD. In our real time review of draft HCR permits, we have noted that MS has started

implementing this recommendation in their current permits. This is a best practice that we applaud the state for adopting.

Critical Findings:

Of the 11 permits reviewed, five permits were initially identified as HCR lagoon facilities. Of those five reviewed, two were specifically identified as HCR types and the comments for both permits contained similar issues. At issue is multiple variations of percent removal criteria found in the permits reviewed. Alternate or “ASR” limits were presented in the limitations tables with little to no discussion or clarification in the fact sheets or rationales to explain reasons for allowing the altered limits. Additional findings are presented below and will be included as action items.

- Some permit applications could not be confirmed as signed by the cognizant authority or signed at all, or were incomplete.
- Comparison of TBELs and WQBELs (or ELGs) was not included in the fact sheets, and it was difficult to verify whether limits equivalent to Secondary Treatment Standards were appropriately applied.
- The permits should contain narrative criteria for control of algae and/or floating vegetation.
- Permits should include requirements for detecting leaks from the lagoon system, and
- the permit should require the permittee to contact the state before applying herbicides and/or other water treatment additives to the lagoon.
- Antibacksliding could not be verified because previous permit(s) were not available in the state files.
- Monthly Average (30-day) and Weekly Average (7-day) limitations were not always appropriately applied for BOD₅ and TSS for two HCR Lagoons serving as POTWs. It was unclear in the fact sheet/rationales if the weekly limits were not applicable because the facilities were intermittent discharges.

These findings indicate a need for additional documentation in the factsheets and rationales for permits issued to facilities with HCR lagoons.

V. ACTION ITEMS

This section provides a summary of the main findings of the review and provides proposed action items to improve Mississippi NPDES permit programs. This list of proposed action items will serve as the basis for ongoing discussions between Region 4 and Mississippi as well as between Region 4 and EPA HQ. These discussions should focus on eliminating program deficiencies to improve performance by enabling good quality, defensible permits issued in a timely fashion.

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

- **Critical Findings** (Category One) - Most Significant: Proposed action items will address a current deficiency or noncompliance with respect to a federal regulation.
- **Recommended Actions** (Category Two) - Recommended: Proposed action items will address a current deficiency with respect to EPA guidance or policy.
- **Suggested Practices** (Category Three) - Suggested: Proposed action items are listed as recommendations to increase the effectiveness of the state's or Region's NPDES permit program.

The critical findings and recommended actions proposed should be used to augment the existing list of "follow up actions" currently established as an indicator performance measure and tracked under EPA's Strategic Plan Water Quality Goals or may serve as a roadmap for modifications to the Region's program management.

A. Basic Facility Information and Permit Application

Basic facility information is necessary to properly establish NPDES permit conditions. DEQ's permits reviewed during the PQR included basic facility details and identification of receiving stream information but additional facility information was missing from some of the permit files reviewed. Permit applications were submitted in a timely manner and the permit writers maintain checklists to ensure they are complete. Proposed action items to help Mississippi strengthen its NPDES permit program include the following:

- Ensure that basic facility information is included in the fact sheet/rationale and in the permit. (Category One)
- DEQ should not allow a permittee to collect and submit application data post permit issuance (40 CFR 122.21(j)). (Category One)
- Provide additional documentation in fact sheets/rationales explaining when a permittee has already submitted effluent and toxicity data as part of a permit application requirement. (Category Two)
- As a best practice, consider including the permit effective date on the cover page rather than in the body of the permit. (Category Two)
- Some permit applications could not be confirmed as signed by the cognizant authority as the signature was illegible. Considering adding a line under the signatory block for the cognizant authority to print their name and title. (Category Two)
- Include documentation in the permit record indicating the facility designation as a major/non-major. This could include a recent facility rating sheet. (Category Two)
- Advise applicants to indicate on the application forms that data that were previously submitted and on file with EPD are not included with the application submittal. (Category Three)

B. Technology-based Effluent Limitations

Permits were reviewed to assess whether technology based effluent limitations (TBELs) represent the minimum level of control that must be imposed in a permit. TBELs for POTWs must meet secondary or equivalent to secondary standards whereas TBELs for non-POTWs must meet ELGs, if available. In general, the review indicated that TBELs were appropriately evaluated and documented; however, several of the fact sheets/rationales for facilities with lagoon treatment systems lacked discussion of the appropriateness of equivalent-to-secondary treatment standards applied to that facility. Proposed action items to help Mississippi strengthen its NPDES permit program include the following:

- Provide documentation in fact sheets explaining when alternative effluent limitations deviate from ELG requirements and thus do not trigger a fundamentally different factors (FDF) variance, per 40 CFR 125, Subpart D. (Category One)
- For facilities subject to equivalent-to-secondary treatment standards, document in the permit record the basis for the specific treatment standards. (Category Two)

C. Water Quality-Based Effluent Limitations

The permit records reviewed lacked documentation of how WLAs were derived for specific discharges as detailed calculations were lacking in the permit records. EPA acknowledged that Mississippi's regulations allow permit writers to assume ambient background values of zero; however, actual water quality data should be considered when available. Proposed action items to help Mississippi strengthen its NPDES permit program include the following:

- Provide documentation in the fact sheets of the link between water quality standards, TMDLs, WLAs, and final permit limitations, as well as calculations used to develop effluent limitations. (Category Two)
- Document in the permit record whether ambient surface water quality data was available to evaluate reasonable potential. (Category Three)

D. Monitoring and Reporting

Certain permits reviewed established monitoring frequencies that may not provide sufficient effluent characterization data for pollutants of concern. Proposed action items to help Mississippi strengthen its NPDES permit program include the following:

- Provide documentation ensuring that monitoring frequencies are established appropriate for the specific facility, considering facility operations, discharge frequency, and pollutants of concern. (Category Two)
- Include documentation in the fact sheets when biocides and/or other process anti-scaling additives are used. (Category Three)

E. Standard and Special Conditions

The Standard and Special Conditions comply with federal regulations with the exception of the Duty to Comply standard condition which does not contain administrative penalties. Proposed action item to help Mississippi strengthen its NPDES permit program includes the following:

- Update standard conditions language to reference relevant state penalty statute and/or regulation to ensure that penalty amounts are corrected for inflation. (Category Two)

F. Administrative Process (including public notice)

EPD permit writers employ a “project awareness checklist” as a tool to guide and track permit development. Proposed action items to help Mississippi strengthen its NPDES permit program include the following:

- Consider updating the permit development tools and documents to ensure that all facility information and available data are considered and evaluated during permit development. (Category Three)
- Include in the permit records the Permit Action Form memos that indicate whether hearings and/or comments were received during the public notice. (Category Three)

G. Documentation (including fact sheet)

Documentation in the permit record was not consistent in how the most stringent effluent limits were selected. Proposed action items to help Mississippi strengthen its NPDES permit program include the following:

- Permit rationales should include a comparison of TBELs and WQBELs and show where implementation of the most stringent effluent limitation is applied based on a comparison of TBELs and WQBELs per 40 CFR § 124.56. Consider including a summary table in the fact sheets to document this. (Category One)
- Provide documentation in the permit fact sheet/rationale for the basis of existing effluent limitations and the justification for carrying over existing limitations. (Category Three)

H. National Topic Areas

Proposed actions items for core topic areas are provided below.

1. *Nutrients*

- None

2. *Pesticides*

- None

3. *Pretreatment*

- None

4. *Stormwater*

- DEQ should ensure that when the MSGP is renewed in 2020, the permit addresses the latest applicable regulations and is consistent with requirements in 40 CFR 122.26. (Category One)
- Suggest removing the term “Baseline” from the permit title as this term is only relevant for initial permit coverage and for informational gathering for use in future iterations of the permit. (Category Two)

I. *Regional Topic Areas*

Proposed action items for special focus areas are provided below.

1. *Implementation of TMDLs*

Proposed action items to help Mississippi strengthen its NPDES permit program include the following:

- Where TMDLs have been adopted for a receiving stream, documentation should be included in the fact sheets/rationales describing how the TMDL WLAs were implemented in the permits. (Category One)
- Long term average (LTA) flow values derived from TMDLs should not be used to develop permit limits for other pollutants of concern. (Category Two)

2. *Lagoon Flow (HCR)*

Lagoon systems should have a relatively low variability compared to other facility designs. Proposed action items to help Mississippi strengthen its NPDES permit program include the following:

- Document in the fact sheet/rationale the basis for relaxation of percent removal requirements. (40 CFR § 122.44(1)) (Category One)
- Document how monitoring requirements are sufficiently stringent to evaluate Monthly Average (30-day) and Weekly Average (7-day) limitations for BOD₅ and TSS. (40 CFR § 122.45)(d) (Category One)
- DEQ should require the permittee to contact the state before applying herbicides and/or other water treatment additives to lagoons. (Category Two)
- Consider including narrative criteria to control algae and/or floating vegetation. (Category Two)
- Consider including additional requirements in the permit for detecting leaks or breaches from lagoon systems. (Category Two)