

FINAL

**REGION 4 NPDES PERMIT QUALITY  
REVIEW  
ALABAMA**

May 13-14, 2013

Region 4  
Sam Nunn Atlanta Federal Center (SNAFC)  
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## **I. PQR BACKGROUND**

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

EPA's review team, consisting of two EPA Regional staff, one Headquarters staff, and one contractor conducted a review of the Alabama NPDES permitting program which included an on-site visit to the Alabama Department of Environmental Management (ADEM) office in Montgomery on May 13-14, 2013.

The Alabama PQR consisted of two components: permit reviews and special focus area reviews. The permit reviews focused on core permit quality 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.

The core permit review included a review of publicly owned treatment works (POTWs) and non-POTWs. The review involved the evaluation of selected permits and supporting materials using basic NPDES program criteria. The core review focused on the Central Tenets of the NPDES Permitting program to evaluate the Alabama NPDES program. 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. In addition, discussions between 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 specific issues or types of permits in all states. The national topics reviewed in the Alabama 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 reasonable potential and municipal stormwater management. These reviews provide important information to Alabama, EPA Region 4, EPA HQs and the public on specific program areas.

Seventeen permits were reviewed as part of the PQR. Permits were selected based on issuance date and the review categories that they fulfilled.

## **II. STATE PROGRAM BACKGROUND**

### **A. Program Structure**

ADEM's Field Operations and Water Divisions administer the NPDES Program. The Pretreatment Program is administered by the Water Division. On October 19, 1979, ADEM was

authorized to administer the NPDES Program and the Pretreatment Program for Alabama. The EPA administers the biosolids program for Alabama. The Water Division is divided into four branches: Industrial/Municipal Branch, Water Quality Branch, Drinking Water Branch, and Stormwater Management Branch, and also includes the Office of Water Services. The Field Operations Division administers the NPDES Concentrated Animal Feeding Operations (CAFO) program (permitting/inspection/enforcement), Coastal Programs, Section 401/404 Water Quality Certification Program, NPDES construction stormwater program (inspection/enforcement), Ambient Monitoring Programs for Water/Air, and Emergency Response. Field Operations Division also provides various support functions for the Water Division by conducting NPDES and Pretreatment compliance inspections. ADEM's main office is located in Montgomery and the Field Operations Division utilizes four field offices, located in Montgomery, Decatur, Birmingham, and Mobile.

ADEM retains permits, inspection reports, complaints, compliance reports, enforcement actions, and other permit-related documents electronically. ADEM manages electronic document storage through Filenet and uses eFile for electronic document search and retrieval. The eFile system (direct web link: <http://edocs.adem.alabama.gov/eFile/>) allows the public to view permit documents, inspection and compliance reports, enforcement actions, and other reports. ADEM uses two internal databases to manage permit information, effluent limitations, and monitoring data: the NPDES Management System (NMS) for municipal and industrial permits in the NPDES and Pretreatment Programs and the Animal Feeding Operation Information System (AFOIS) to support the Animal Feeding Operations Program. ADEM transfers data from NMS and AFOIS to ICIS daily. At the time of the review, approximately 52% of all permittees entered data into NMS and ADEM permits include language that requires permittees to use their web-based electronic environmental reporting system for submittal of discharge monitoring reports (DMRs). As of January 2016, 85% of permittees utilize the eDMR system. Water Quality staff also use a database to manage wasteload allocation information that supports permit development. ADEM also maintains an ORACLE water quality database to manage stream monitoring data, known as the Alabama Water-Quality Assessment and Monitoring Data Repository (ALAWADR).

ADEM has developed permitting tools to support overall permit development including the NMS, a reasonable potential spreadsheet, and a permit writer spreadsheet that is used by the Municipal Section primarily to assist in the establishment of some effluent limitations. ADEM uses guidance to support permit development including guidance that addresses water quality-based permitting, industrial permitting complexities, and establishing monitoring requirements. ADEM uses permit and fact sheet templates that are a combination of a database-generated document and one that is then customized by the permit writer for each specific facility. The permit and fact sheet templates contain standard boilerplate language and are based in the NMS which allows the permit and fact sheet to be populated by basic facility information and effluent limitations stored in the NMS. Permit writers then customize the permit and fact sheet for the specific facility and discharge requirements. Templates are revised periodically when there are updates to policies, regulations, or standards.

All draft permits (individual and master general permits) undergo technical review by three levels of management and the permittee (for individual permits) prior to issuance. In addition, some permits may undergo additional pre-public notice review or receive a more thorough review by management based on specific issues such as water quality impairments, Total Maximum Daily Loads (TMDLs), and high-profile projects. Coverages under general permits are also reviewed by management. Peer review is utilized occasionally based on peer training needs or similarity between industries.

All permit files, including permit documents, correspondence, monitoring and reporting, and compliance documents, are maintained in the Filenet system and are available through eFile. Files containing confidential information are maintained in hard copy confidential files. Water quality modeling records are maintained in Filenet or hard copy files in the Water Quality Branch.

## **B. Universe and Permit Issuance**

As of March 2013, ADEM is responsible for administering 6,953 permits, including 189 major permits, comprised of 126 major public-owned treatment works (POTWs) and 63 majors (non-POTWs), 717 minor individual permits, comprised of 430 POTWs and 287 non-POTWs, and 655 mining permits. ADEM's general permit universe, which cover 4,755 permittees, is comprised of 25 general permit categories including, but not limited to Non-Contact Cooling Water and Boiler Blowdown, Offshore, Hydroelectric, Water Treatment Plant (filter backwash), Hydrostatic Test Water, Pesticide General Permit, Phase II Municipal Separate Storm Sewer System (MS4) permits, and Construction General Permit.

As of March 2013, ADEM had 31 major individual permits (industrial, municipal, and mining) backlogged (i.e., expired more than 180 days), and 96 minor individual permits backlogged meaning the NPDES program at that time was 84% current for major and 93% current for minor individual permits. Significant industries in the state include pulp and paper, metals, chemicals manufacturing, coal mining, and power plants.

ADEM uses state permit application forms in conjunction with EPA forms for municipal and industrial permit applications. Municipal application packages are comprised of EPA Form 2A, 2F, and ADEM Form 188 (Municipal, Semi-Public, and Private Facilities Application Form) and industrial application packages include EPA Form 2C, 2F, or 2D accompanied by EPA Form 1 and ADEM Form 187 (Permit Application Supplemental Information). For mining operations, ADEM uses ADEM Form 315 and a modified EPA Form 2C, which focuses on specific pollutants of concern (e.g., metals, cyanide, and phenols) and asks for some additional information that Form 2C does not. ADEM updates the state application forms if additional information is required for permit development. For example, ADEM modified the state's industrial supplemental information application to include parameters commonly addressed through 316(b) permitting. In addition, ADEM indicated coal-related facilities are required to conduct upstream sampling once, for the same parameters that are included on the truncated application Form 2C, to be submitted during the application process.

ADEM typically sends permittees a letter 12 to 18 months in advance of permit expiration requesting submittal of the permit application package within 180 days of the permit expiration date. Upon receipt of the permit application, ADEM enters information into the NMS. Permit writers review the application for completeness and follow up with the permittee if there is a need for additional information. The application review is typically completed within 30 days of receipt. Following review of the application and entry of application information into the NMS, the permit writer begins drafting the permit. Permit writers draft the permit, fact sheet, rationale, and administrative letters during the permit development process. Generally, the permit development is completed approximately 180 days from the date the application is deemed complete.

Following review of the permit application, permit writers request water quality modeling support from staff in the Water Quality Branch for ammonia, biochemical oxygen demand (BOD), and dissolved oxygen, when appropriate. Water Quality Branch staff also provide permit writers with supporting information for specific issues related to TMDLs, impairments such as those included in the 303(d) List, and antidegradation analyses. Permit writers consult with the Water Quality Branch to obtain current stream flows (i.e., 7Q10 flows) and TMDL and impaired waters information, necessary for use in evaluating the need for and development of water quality-based effluent limitations (WQBELs). Permit writers conduct the reasonable potential analyses (RPAs) and develop WQBELs; however, they seek supporting information from staff in the Water Quality Branch.

Permit writers identify pollutants of concern following evaluation of application forms, discharge monitoring report (DMR) data, effluent limitation guidelines (ELGs), water quality data including stream impairments and TMDLs, emerging pollutants of concern, and discharge characteristics from similar facilities. ADEM permit writers include in the rationale a discussion of the basis for every parameter limited in the permit.

Permit writers review Federal ELGs to identify technology-based effluent limitations that apply to the facility. Further, permit writers apply Best Professional Judgment (BPJ) on a case-by-case basis to establish some technology-based effluent limitations, by referring to EPA guidance documents, permits for similar facilities, ELGs, or other appropriate information

Permit writers develop WQBELs using stream flow data (7Q10, 1Q10, annual average) and water quality information (including ambient water quality data, 303(d), TMDLs, etc.) provided by staff in the Water Quality Branch. ADEM recalculates the 7Q10 stream flow data with each permit renewal; values are not automatically carried forward from the evaluation conducted during the previous permit renewal.

ADEM enters maximum and average effluent concentrations, compiled from application and DMR data, into a spreadsheet to evaluate reasonable potential (RP). Generally, ADEM determines an effluent limitation is required if the effluent concentration is 20 percent of the effluent limitation calculated based on the water quality criterion. For cases where the data for a municipal facility is insufficient, ADEM may establish a monitor-only requirement, to provide additional data for reassessment.

Mixing zones are allowed by ADEM Admin. Code rule (r.) 355-6-10-.05 and specific requirements regarding mixing zone size are outlined in ADEM Admin. Code r. 355-6-6-.15(10). Mixing zones are implemented on a parameter-by-parameter basis in certain scenarios, e.g., discharges to large streams that allow adequate mixing. The Water Quality Branch provides ADEM permit writers with facility-specific mixing zone modeling results, where applicable.

With each permit renewal, ADEM reviews the impairment and TMDL status of the receiving stream and identifies the pollutant of concern to determine if it is present in the discharge. In scenarios where a TMDL has not been developed, ADEM may require monitoring for the pollutant of concern to verify its presence in the discharge. If the pollutant of concern is present in the discharge, the permittee is generally held to the existing effluent limitation until ADEM determines the appropriate WLA for that facility. In scenarios where a TMDL has been developed, ADEM establishes the TMDL-based effluent limitation in the permit. ADEM may allow a compliance schedule, if it is appropriate and in accordance with regulations and the TMDL. Where a compliance schedule extends beyond the permit term, the permit includes the final compliance date and requires annual updates regarding progress towards achieving the final TMDL-based effluent limitation.

Requirements for permit limitations in reissued permits are addressed in ADEM Admin. Code r. 355-6-6-.14(3) (l). Anti-backsliding is typically triggered by an increase in discharges and is more prevalent in industrial permits. ADEM indicated that existing effluent limitations are typically retained in cases where those limitations are achieved, even if production has increased. ADEM also indicated that permit rationales should address exceptions, such as where there has been new information considered in the evaluation, or there has been a change in operational processes at the facility.

ADEM's antidegradation policy and implementation procedures are contained in ADEM Admin. Code r. 355-6-10-.04 and 355-6-10-.12, respectively. For new or increased discharges to Tier 2 waters, as defined in 355-6-10-.12(4), permit writers conduct an antidegradation evaluation. Applicants are required to demonstrate that the proposed discharge is necessary for important economic or social development as a part of the permit application process. Supplementary information permit application forms (ADEM Forms 188, 311, and 312 or 313) contains questions specific to the antidegradation evaluation; applicants are required to identify economic or social benefits in conjunction with the economic evaluation. All permit rationales include statements regarding whether antidegradation applies to the discharge, a determination generally based on a review of the application; e.g., if it specifies it is a new or expanded discharge.

Monitoring and reporting requirements for municipal discharges are generally determined based the specific type of treatment employed and the effluent limitations established for the POTW. ADEM establishes monitoring requirements at non-municipal facilities after considering general requirements, including if the facility is a new or existing facility, the type of loading on the stream, and compliance history. In addition, ADEM considers the water quality of the stream; if the stream is impaired, a facility may be required to conduct more monitoring than a similar facility discharging to a non-impaired stream. Generally, municipal and non-municipal facilities



are required to submit monitoring reports once per month. Some industrial facilities, such as power plants and post-mining activities, may be required to monitor once per month; however, are required to submit monitoring reports once per quarter.

Narrative conditions are generally included in Part IV of the permit and may address requirements related to 316(a) and (b), whole effluent toxicity (WET), best management practices (BMPs), freeboard, or ash ponds. Municipal permits may also include specific requirements that allow discharges only when there is adequate stream flow in the receiving stream. General discharge prohibitions regarding introduction of certain pollutants by industrial users are contained in Part II of municipal permits. Permits contain broad language related to pretreatment and sludge management requirements. Narrative effluent limitations which are included in most permits (e.g., “The discharge shall have no sheen, and there shall be no discharge of visible oil, floating solids or visible foam in other than trace amounts.”) are included in Part I with other effluent limitations. Further, Part III of permits contain general narrative conditions regarding compliance with Alabama water quality standards (WQS) (e.g., “On the basis of the Permittee’s application, plans, or other available information, the Department has determined that compliance with the terms and conditions of this permit should assure compliance with the applicable WQS.”).

Standard conditions are based on 40 CFR section 122.41, are developed using boilerplate language, and are updated as necessary to remain consistent with any changes in requirements. ADEM indicated the most recent update to standard conditions occurred in April 2013 to address groundwater requirements.

ADEM drafts rationale documents for all NPDES permits and drafts fact sheets for major facilities. Fact sheets include a brief synopsis of the application, general procedures regarding public comment, hearings, and appeals, and refer to the permit rationale for the basis for effluent limitations. The permit rationale indicates the original draft date as well as subsequent revision dates. The permit rationale provides a general discussion that identifies the type of facility, receiving stream, describes the treatment process or facility operation, and addresses parameters that are limited in the permit. Revisions to the rationale are generally captured at the end of the document and identify the reason for the change and the actual revision to the permit requirement.

ADEM’s Field Operations staff conduct 401 certifications for Clean Water Act section 404 permits issued by the Army Corps of Engineers for dredge and fill activities and seek comments from ADEM’s main office prior to final certification. The Water Quality Branch in the Montgomery office conducts 401 certifications on Federal Energy Regulatory Commission dam operations permits. The Water Quality Branch also assists ADEM’s Field Operations Division on 401 certifications for projects that involve modeling or flow calculations.

ADEM’s administrative process involves public notice of the draft permit. ADEM provides the permittee the draft permit (individual permits) for review and comment in advance of the public notice period and typically allows the permittee 30 days to review the draft permit. The public notice period also lasts 30 days, following publication by the Permits and Services Division in

appropriate newspapers and on ADEM's website. ADEM generally groups public notices together for efficiency. ADEM includes the fact sheet and/or rationale, and the permittee's application in the permit package available for public review and comment. If ADEM receives comments, a response to comment document is developed and, if applicable, changes are incorporated into the permit. ADEM may allow a second public notice period for the revised permit based on the substance of the changes made to the permit. The draft permit document includes public notice information. ADEM's director determines if a public hearing is needed following receipt of a request for a hearing. If a permit is appealed, in most cases, a hearing officer hears the appeal and makes a recommendation decision to the seven-member Environmental Management Commission (EMC), which then makes a final determination to approve, disapprove, or modify ADEM's issuance of the permit. Pursuant to the Alabama Environmental Management Act, such an order by the EMC is appealable to the Alabama circuit courts. ADEM indicated they work with EPA to work through comments during the permit development process.

ADEM's final administrative record, which includes the application, fact sheet and/or rationale, draft and final permit, copies of public notices, comments received, and response to comments is maintained in their eFile system. ADEM assigns specific designators to electronic files to identify the file type (e.g., PNOT for public notices, COMM for comments and response to comments, and FPER for the final permit document). Detailed water quality modeling records are maintained in eFile and/or hard copy files in the Water Quality Branch library. Further, compliance-related files are maintained in eFile; however, any files containing confidential information are retained in hard copy in specifically marked confidential folders.

### **C. State-Specific Challenges**

ADEM indicated the state budget has not been increased in the recent past; therefore, there has not been an abundance of state resources to focus on increasing the scope of administering the NPDES and Pretreatment Programs.

### **D. Current State Initiatives**

ADEM manages electronic document storage for permit and supporting documents (final and in-development), correspondence, permit applications, compliance, inspection, and public comment through the Filenet system and uses eFile for electronic document search and retrieval. The eFile system allows the general public to access the administrative permit record at any time. ADEM currently uses the NMS to manage facility-level information, including effluent limitations, and discharge monitoring data as well as to generate templates for permits and rationales.

ADEM has been proactive with coal bed methane permitting and has remained ahead of EPA's promulgation of ELGs in terms of permit requirements. ADEM has revised the effluent data requirements to address a wider scope of pollutants of concern in applications for coal bed methane permits and has required whole effluent toxicity monitoring. Further, ADEM is incorporating RPAs and Cornell Mixing Zone Expert System (CORMIX) modeling in the permit development process for coal bed methane facilities, where appropriate.

### **III. CORE REVIEW FINDINGS**

#### **A. Basic Facility Information and Permit Application**

##### **1. Facility Information**

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) because it 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.

The 12 permits reviewed for the core review consistently included identification of outfalls and receiving waters. The permits reviewed included permit issuance, effective dates, expiration dates, authorized signatures, and contained specific authorization-to-discharge information. Permit terms were five years or less.

Discussions of facility operations and treatment processes were generally brief in permits and rationale documents reviewed. ADEM indicated that if facility and treatment process descriptions are included in the permit application, for efficiency purposes the information is not always repeated in the permit rationale, because applications are available for public notice along with the draft rationale and permit.

Permits and rationale documents reviewed identified the receiving streams; however, some of the permits reviewed lacked clear identification of the discharge outfall relative to receiving waters. This information was available for some facilities in a Waste Load Allocation (WLA) summary document. Discharge outfall latitude and longitude locations are included in the permit application forms which are part of the permit package and Administrative Record.

##### **2. Permit Application Requirements**

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.

For the 17 core permits that were reviewed, applications were generally submitted on-time. In one application reviewed, data provided in application forms lacked detailed information regarding method detection limits; applications that contained “Non-Detect” in the field (versus an indication of method detection limit) were deemed complete. An indication of Non-Detect is

insufficient to determine if sufficiently-sensitive analytical methods were employed and thus, quantifying the pollutant with respect to applicable water quality standards.

## **B. 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.

### **1. TBELs for POTWs**

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

Effluent limitations were established using the appropriate units, averaging periods, and expression (i.e., concentration or mass; average weekly and average monthly). However, the permits reviewed did not consistently apply secondary treatment standards appropriately; the permits reviewed lacked requirements for minimum percent removal of carbonaceous oxygen demand (CBOD<sub>5</sub>). Supporting documentation lacked detailed discussion of minimum percent removal requirements for CBOD<sub>5</sub>; therefore, the basis for the lack of requirements in some permits was unknown during the review. Some rationales indicated that the concentration effluent limitation for CBOD<sub>5</sub> was significantly more stringent than the conventional limitation based on secondary treatment standards. These items were the result of ADEM utilizing a letter from EPA dated November 27, 1995 from Beverly Banister to Mr. R. Bruce Scott allowing such exclusions. ADEM has indicated that they now include all percent removal limitations applicable to the subject sources. An approved alternative state standard for effluent concentration limitations for TSS were based on adjusted equivalent-to-secondary treatment standards for lagoons.

### **2. TBELs for Non-POTW Dischargers**

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 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).

For parameters where ELG-based effluent limitations were established, effluent limitations were established in the appropriate units and forms. Some rationale documents provided a limited

discussion regarding the applicability of ELGs, sometimes lacking any mention of ELGs that are applicable to the discharge (e.g., Callen Enterprises AL0061344). Some of the rationale documents lacked discussion of facility categorization (processes and existing versus new source), discussion of treatment processes, implementation of technology-based standards, and resulting effluent limitations development. The rationale for the Ascend Performance Materials (AL0000116) permit included a limited discussion of ELG-based effluent limitations; however, it did not discuss facility categorization.

Two permits for sand and gravel mining operations (Carmeuse Lime and Stone, Inc. and Cheney Lime & Cement Co.) established effluent limitations for TSS based on BPJ; however, the record did not provide an explanation of the development of those effluent limitations. Further, the rationale for one of the operations indicated the pH limit was identical to that promulgated in 40 CFR Part 436 and that it was established in the permit based on BPJ; no further explanation was provided in the rationale document.

### **C. Water Quality-Based Effluent Limitations**

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 water quality standards, including narrative criteria for water quality. To establish such “water quality-based effluent limits” (WQBELs), the permitting authority must evaluate the proposed discharge and determine whether technology-based requirements are sufficiently stringent, and whether any pollutants or pollutant parameters could cause or contribute to an excursion above any applicable water quality standard.

The PQR for ADEM 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.

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

Permits reviewed as part of the core review consistently identified the receiving stream and the designated uses of the receiving stream. When applicable, permits and rationale documents discuss impairment status or identify whether a TMDL had been developed for the receiving water body.

Some of the rationale documents for the permits reviewed do not specify how pollutants of concern are selected. The rationale document for one permit specifically indicated how all pollutants of concern were chosen (Ascend Performance Materials Operations, AL0000116), but this was unique during the review. The rationale document includes statements regarding Reasonable Potential (RP) determinations for specific pollutants. The rationale document for the City of Dothan (AL0022764) indicated RP for lead; however, a monitor-only requirement was established in the permit. According to ADEM, the RP analysis for the City of Dothan permit was revised based on additional data and the results indicated no RP for lead was found, hence the monitoring only requirement in the permit.

The permit for the City of Columbiana (AL0024589) included only a maximum daily effluent limitation for zinc, based on a demonstration of RP, and not an average monthly limit. During the onsite interview, ADEM staff indicated the chronic water quality criterion for zinc is greater than the acute water quality criterion; therefore, ADEM determined it is appropriate to establish a single effluent limitation for zinc using the more stringent limit represented by the maximum daily value.

The permit for a non-municipal facility (Shell Chemical LP, AL0055859) did not include an effluent limitation for benzene, toluene, ethyl benzene and xylenes (BTEX) that was established in a previous permit, rather, monitoring-only requirements were established. The rationale document indicated the determination to remove the effluent limitation was made based on available historical DMR data located in ADEM's eFile system. Further, the rationale document noted compliance with the water quality criteria for the BTEX components is not an issue of concern in the view of the size of the receiving stream as compared to the volume of discharge. The rationale document is silent regarding anti-backsliding requirements for this permit.

The rationale document for the City of Dothan (AL0022764) and City of Evergreen (AL0047503) indicated, through a cross-reference to a supporting document ("Toxicity and Disinfection Rationale"), the less stringent effluent limitation for total residual chlorine was established based on a corrected application of chronic and acute water quality criteria; therefore, backsliding would not occur.

## **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.

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. In addition, 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 12 permits reviewed included appropriate monitoring requirements based on the facility type, type of discharge, and corresponding limit basis. Further, the permits required at least annual monitoring for all limited parameters. Permits contained a general requirement that monitoring must be conducted according to test procedures approved under 40 CFR Part 136.

In some of the permits reviewed, the analytical methods were specified in the permit; otherwise, the permit contained a general requirement that monitoring must be conducted according to test procedures approved under 40 CFR Part 136. Some of the permits reviewed required monitoring for WET; however, discussion of the basis for WET requirements was not consistent among those permits reviewed. The permit record for some of the permits reviewed contained a “Toxicity and Disinfection Rationale” that identified factors that trigger toxicity testing requirements (e.g., facility design flow and contributions from significant industrial discharges), based on the Municipal Branch’s toxicity permitting strategy. The Toxicity and Disinfection Rationale includes a statement indicating if toxicity testing is required. For the permits where this stand-alone piece was available, WET monitoring requirements were consistent with the determination in the Toxicity and Disinfection Rationale.

## **E. Special and Standard 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 (e.g., pollutant management plan, 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.

The permits reviewed did not have separate sections specifying standard permit conditions or special conditions; however, permits were organized into four general sections: Part I – Discharge Limitations, Conditions, and Requirements, Part II – Other Requirements, Responsibilities, and Duties, Part III – Other Permit Conditions, and Part IV – Additional Requirements, Conditions, and Limitations. Generally, standard conditions were established in Parts I through III and special conditions were included in Part IV of the permit.

Standard conditions established at 40 CFR 122.41 and 122.42 were included in the permits reviewed in the core review. For the most part, standard conditions included in the ADEM permits were consistent with standard conditions established at 40 CFR 122.41 and 122.42.

## **F. Administrative 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). EPA discussed each element of the administrative process with ADEM, and reviewed materials from the administrative process as they related to the core permit review.

ADEM’s internal review process is noted as a program asset; draft permits and rationale documents undergo three levels of internal review. In addition, the comments that permit writers include at the end of the rationale document to note revisions to the draft document are useful in that they provide a clearer explanation of changes made and the basis for those revisions.

For the permits reviewed during the PQR, the supporting record included documentation that demonstrated that public notice procedures were implemented accordingly (e.g., a copy of the public notice announcement). If ADEM receives comments during the public notice period, they prepare a response to comments document and send this document to the permittee with the final permit. The response to comments is also submitted to all commenters. A copy of ADEM’s response to comment document is placed in the permit files.

## **G. Administrative Record**

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 final permits. 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, 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 where EPA issues the permit, any Environmental Assessment, Environmental Impact Statement, or Finding of No Significant Impact.

Current regulations require that fact sheets (also referred to as Rationale documents) 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 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.

ADEM manages permit records electronically through the FileNet system and most files are available to the public through eFile. Files are assigned a file type designator which assists the public in understanding the relationship of the file to the permit; e.g., FPER indicates the final permit document, PNOT indicates public notice documentation, and COMM indicates comments received on the draft permit. However, during the review, in a limited number of cases, it was not possible to locate supporting water quality-based analyses or calculations. Further, ADEM uses the NMS to track permit information and develop permit template documents. Use of a database system promotes consistency and transparency.

## **1. Documentation of Effluent Limitations**

Permit records for POTWs and industrial facilities should contain comprehensive documentation of the development of all effluent limitations. Technology based effluent limits 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 water quality-based effluent limitations, whether contained in the fact sheet or permit record, should be clear and straightforward in explaining the basis for establishing water quality-based effluent limitations, or for determining that water quality-based effluent limitations are not necessary for the discharge. 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.

For the permits reviewed, the accompanying rationale documents consistently addressed every limited parameter. The rationale document cover page includes basic facility information (i.e., NPDES Permit Number and facility address), permit status (i.e., permit is a new issuance, reissuance, or modification), and a brief listing of the basis for limitations. The categories of limit bases include water quality model, toxicity-based, secondary treatment levels, or other

category, which is described in more detail in the rationale discussion. In addition, the rationale documents reviewed included statements indicating a comparison between technology-based effluent limitations and water quality-based effluent limitations was conducted to establish the more stringent effluent limitation in the permit.

During the on-site review, some documentation of effluent limitation development calculations was lacking. For example, for a non-municipal permit (Shell Chemical LP, AL0055859), the file lacked documentation of the technology-based effluent limitations based on ELGs. The rationale document indicated the effluent limitations were carried forward from the previous permit; however, the rationale lacked a detailed discussion of the basis for those limitations. The effluent limitations are production-based and development of effluent limitations involves determining various size and process factors; however, there is no discussion of those specific factors or calculations. In general, the permit record lacked documentation supporting the development of technology-based effluent limitations. At the time of the onsite review, updated calculations were provided; however, since the new calculated limitations were less stringent than the existing permit limits, the existing permit limits were applied. ADEM has since updated the permit package to include these calculations.

A permit issued for a privately-owned treatment works included effluent limitations that were based on secondary treatment standards; however, the rationale did not clarify that BPJ applied on a case-by-case basis to the privately-owned treatment works.

Rationale documents consistently indicated the *E. coli* effluent limitations were based on the recently amended regulations to change the bacterial indicator organisms and associated criteria to be consistent with EPA's recommendations.

The RP discussions included in the rationale document generally lacked detail; two rationale documents noted RP was evaluated because they were a major municipal wastewater treatment plant and the evaluation was based on data provided in the permit renewal application and then indicated RP existed for specific parameters. The discussions in the rationale documents did not provide detail regarding applicable water quality criteria used in the RP evaluation, or specific statistical data used for the evaluation. ADEM indicated that assumptions and applicable water quality criteria used in the RP analyses are well documented in their RP spreadsheets, included with the permit rationale, and included in the state regulations. Copies of the RP spreadsheets were included in most of the permit records reviewed. The spreadsheet formulae used to calculate RP was available at the site visit upon request.

## H. National Topic Areas

Core topic areas are specific 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 level. Core topic areas are reviewed for all state PQRs.

## 1. Nutrients

### Background:

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 and, as a key part in this effort, has provided support 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 the Alabama NPDES program, seven permits were reviewed during the PQR, as well as ADEM's Nutrient Criteria Implementation Plan (2009).

Alabama is making progress towards development of numeric water quality standard as outlined in ADEM's Nutrient Criteria Development Plan. Currently, ADEM has only general narrative WQSs for nutrients; there are no numeric WQS for nitrogen or phosphorus. The State uses numeric values for dissolved oxygen and *chlorophyll a* as response variables for determining impacts from nutrients.

The state intends to include nutrient limits in permits, when nutrients are a pollutant of concern and when a determination is made what the appropriate levels are to protect water quality. These determinations are made when TMDLs are developed; when nutrient standards are implemented for waterbodies and modeling or other methods are available to translate the instream number to an allowable level; where an impairment is known to occur; or an alternate approach where a technically justifiable limitation is determined.

### Program Strengths:

ADEM works collaboratively with the U.S. Tennessee Valley Authority (TVA) to conduct water quality monitoring of main stem reservoir locations in the Tennessee River system. TVA provides water quality monitoring results to ADEM through program reports and data exchanges. ADEM also incorporates public participation into its nutrient criteria development, which includes publishing notices, holding public hearings, and receiving comments. ADEM includes nutrient monitoring in all domestic wastewater NPDES permits, both major and minor which is greater than the national average.

### Critical Findings:

None.

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## 2. Pesticides

### Background:

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 Agency 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.

EPA proposed a draft pesticide general permit on June 4, 2010, to cover certain discharges resulting from pesticide applications. The EPA Regional offices and State NPDES authorities may issue additional general permits or individual permits, if needed. On October 31, 2011, the EPA issued the final NPDES Pesticide General Permit (PGP) for Discharges from the Application of Pesticides. The federal PGP applies where the EPA is the permitting authority. All delegated state NPDES authorities have issued state pesticide general permits as of April 2013.

### Program Strengths:

Existing state law provides the authority to issue NPDES permits for discharges from the application of pesticides. ADEM issued its pesticide general permit, and it has been effective since October 31, 2011. Region 4 reviewed ADEM's pesticide general permit with a focus on verifying its consistency with NPDES program requirements. It was found that this permit meets the requirements to obtain coverage for all discharges from the application of pesticides including all pesticide use patterns described in the EPA pesticide permit, all operators of discharges, including decision-makers and applicators. The review found that the permit was consistent with CWA requirements.

### Critical Findings:

None.

### 3. Pretreatment

#### Background:

The EPA Region 4 industrial pretreatment program routinely performs comprehensive audits of the state's permitting, compliance, and enforcement activities to assure consistency with the Clean Water Act, state law, the MOA, the state grant workplan, and all applicable federal regulations.

These 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 (POTW) pretreatment programs and state industrial users; and (3) a desk audit of the legal authorities, formal procedures, and resources available to the state's industrial pretreatment program.

The CSPPA is currently underway in Alabama. Since the CSPPA takes a more comprehensive look at the pretreatment program, the EPA's evaluation of the state's pretreatment permitting activities will be included in that report and provided separately to the state Director. The CSPPA report is expected to be finalized in the future. As part of this PQR, the NPDES boilerplate language was reviewed for necessary elements, including those for the pretreatment program. The EPA found no discrepancies pertaining to the pre-treatment language.

### 4. Stormwater

#### Background:

The NPDES program requires stormwater discharges from certain municipal separate storm sewer systems (MS4s), industrial activities, and construction sites to be permitted. Generally, the EPA and NPDES-authorized states issue individual permits for medium and large MS4s and general permits for smaller MS4s, industrial activities, and construction activities. Region 4 selected three NPDES stormwater general permits to review: stormwater discharges from construction activity (ALR100000); stormwater discharges from MS4s (ALR04000); and multi-sector general permit for stormwater discharges associated with industrial activity (ALG020000).

#### **General Permit for Stormwater Discharges from Construction Activity (ALR100000)**

#### Background:

In early 2010, ADEM initiated the development of a "stand alone" Construction General Permit (CGP). Effective April 1, 2011, ADEM established General NPDES Permit No. ALR100000 for discharges associated with regulated construction activity that will result in land disturbance equal to or greater than one acre or from construction activities involving less than one acre and which are part of a common plan of development or sale equal to or greater than one acre.

The 2011 CGP includes a number of new provisions relating not only to the non-numeric effluent limitations from the Construction and Development rule, but is a departure from the previous general permit-by-rule format. The final permit also shows significant improvement in

terms of providing readability, clarity, and enforceability. Some of the more specific improvements include new requirements for:

- Permit Authorization/Notice of Intent (NOI)
- More specificity to Sediment and erosion controls
- Soil Stabilization
- Pollution Prevention Plan Development/Construction Best Management Practices Plan
- Prohibited Discharges
- Inspections
- Termination of Coverage

#### Program Strengths:

Operators / owners of all regulated construction sites must implement and maintain effective erosion and sediment controls in accordance a Construction Best Management Practices Plan (CBMPP) prepared and certified by a Qualified Credentialed Professional (QCP). The CBMPP must be submitted to ADEM for review along with the NOI for priority construction sites which include sites that discharges to: (1) a waterbody which is listed on the most recently EPA approved 303(d) list of impaired waters for turbidity, siltation, or sedimentation; (2) any waterbody for which a TMDL has been finalized or approved by EPA for turbidity, siltation, or sedimentation; (3) any waterbody assigned the Outstanding Alabama Water use classification in accordance with ADEM Admin. Code r. 335-6-10-.09; and (4) any waterbody assigned a special designation in accordance with ADEM Admin. Code r. 335-6-10-.10,

A QCP or Qualified Credentialed Inspector (QCI) must conduct regular inspections of regulated construction activities to ensure effective erosion and sediment controls are being maintained. In certain circumstances, the QCI or QCP must also monitor construction site discharges for turbidity.

Construction sites discharging directly to an impaired waterbody or 303(d) listed water, and those within any identified watershed areas, will be required to submit a CBMPP with any request for permit coverage. For waters where only the stream segment is identified, ADEM may still, on a case-by-case, designate sites within the surrounding watershed as priority construction sites. EPA considers the current Alabama CGP a positive step forward over the permit-by-rule previously implemented by the State. The CGP is consistent with the EPA's CGP.

#### Critical Findings:

None.

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**Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s)  
(ALR04000)**Background:

In August, 2010, EPA Region 4 formally objected to ADEM's draft Phase II municipal separate storm sewer system (MS4) permit of May 18, 2010. In response, in November, 2010, ADEM substantially revised the proposed Phase II MS4 permit and submitted it to EPA for approval. EPA approved the draft Phase II permit as proposed by ADEM, and the Phase II permit was issued on January 31, 2011. The permit was subsequently modified on March 24, 2012. Currently, approximately 31 small MS4 permits have been issued covering 44 small MS4s.

Program Strengths:

Despite staff and resource shortages, ADEM continues to commit itself to reducing permit backlog. At the time of the PQR, all Phase II issued MS4 permits were up to date; however, not all small MS4 programs are equally progressive as they represent different degrees of maximum extent practicable (MEP). Under the permit, all MS4s are required to submit updated management plans within one year of permit issuance. ADEM staff continues to work closely with the MS4s in the review of both stormwater management plans and annual reports, while providing technical assistance to the MS4s. In addition, ADEM staff continues to coordinate with EPA personnel in the update of policy and technical support. ADEM has updated its MS4 designations to coincide with the 2010 census.

Critical Findings:

At the time of the PQR, all Phase I MS4s permits were expired and under administrative continuance. Since that time, ADEM has worked diligently to reissue expired Phase I and II MS4 permits. In addition, as a result of the 2010 census, there are newly designated Phase II MS4s that will need to be issued. The Department has evaluated the majority of the possible new Phase II MS4s, which has resulted in waiver letters being sent to all but four of these entities. The Department has drafted an individual Phase II permit for one municipality and continues to evaluate the need for permit coverage for the remaining three. The State has already issued several Phase I MS4 permits and is working on the reissuance of the Phase II general permit. The pace of issuing and reissuing permits will rely on several factors, including the level of resources at ADEM, the degree and level of responses to be addressed by ADEM as a result of the public comment period for each permit, water quality, TMDLs, and other environmental drivers to be addressed in the permits. ADEM has been very transparent with EPA in providing a current status on the schedule of permits and updates, as deemed necessary.

**Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity Asphalt General permit ALG020000**Background:

ADEM does not issue one multi-sector general permit for stormwater discharges in the state. Instead it issues sector wide industrial stormwater general permits depending upon the industry

categories. One such sector permit, Asphalt General Permit ALG020000, was selected for the PQR review. The permit was issued on February 3, 2012 and is effective since October 1, 2012. The permit expires on September 30, 2017.

#### Program Strengths:

This permit requires coverage for discharges associated with the manufacture of asphalt concrete, asphalt roofing, linoleum and printed asphalt felt and of hot mix asphalt from asphalt cement consisting of storm water, non-contact cooling water, cooling tower and boiler blowdown, demineralizer wastewater, exterior vehicle and equipment wash water, and storm water from petroleum storage and handling and equipment storage and maintenance areas.

#### Critical Findings:

None.

## **IV. REGIONAL TOPIC AREA FINDINGS**

### **A. Reasonable Potential Analyses**

The CWA requires that NPDES permitted facilities not cause, have the reasonable potential to cause, or contribute to water quality violations. Generally this requirement is met by performing a reasonable potential analysis (RPA) of the pollutants discharging from a permitted facility. The permits reviewed during the PQR were evaluated to determine the extent to which existing water quality was incorporated into the RPA calculations. ADEM typically performs a RPA using readily available instream water quality data; however, in the absence of background concentrations in the receiving stream, ADEM's practice is to assume a background concentration of zero. The permits reviewed during the PQR all lacked instream data to characterize the background concentration and therefore in the RPA the permit writers assumed the background concentration for the pollutant of interest was set at zero.

### **B. Municipal Stormwater Management**

Section 402(p) of the CWA requires Phase II regulated small MS4s to submit permit applications and obtain coverage under an NPDES storm water permit. Under the permit, MS4s are required to develop and implement a storm water management program that includes the six minimum control measures, evaluation/assessment and reporting efforts, and recordkeeping. Small MS4s are required to design a storm water management program that:

- Reduces the discharge of pollutants to the "maximum extent practicable" (MEP);
- Protects water quality; and
- Satisfies the appropriate water quality requirements of the Clean Water Act.

MEP is the standard that establishes the level of pollutant reductions that MS4 operators must achieve through implementation of a storm water management program. The strategies used to



reduce pollutants to the MEP may be different for each small MS4 because of unique local hydrologic, geologic, and water quality concerns in different areas. For purposes of this report, the permits issued to the cities of Auburn (ALR040003) and Daphne (ALR040039) were reviewed in terms of their management plans and annual reports for consistency to program requirements.

City of Auburn, AL (ALR040003)

#### Background:

ADEM issued the permit to the City of Auburn in December 2010, effective February 1, 2011. Under this permit, the City was required to submit an updated stormwater management plan to ADEM by August 1, 2011. The management plan was submitted on July 21, 2011. The City is approximately 53 square miles with a population of 55,000. With regard to the stormwater infrastructure, the City contains about 86 miles of storm pipe with 4,500 inlets and 3,000 manhole/junction boxes.

There are three major watersheds that encompass the Auburn area. These are the Chewacla Creek Watershed, the Sougahatchee Creek Watershed, and the Uphapee Creek Watershed. All drain to the Tallapoosa River. Within these watersheds, Choctafaula Creek, Moores Mill Creek, and Paterson Mill Creek are 303(d) listed. All three creeks are directly addressed in the City's management plan, via implementation of specific projects and strategies. Water quality monitoring has shown improvements in Moore's Mill Creek.

#### Program Strengths:

The City of Auburn has a highly refined and developed stormwater management program that represents one of the stronger municipal programs in the southeast. The EPA commends the City for establishing a stormwater management program that meets the expectations of Region 4. The MS4 Program contains elements called *minimum control measures* that when implemented should result in a significant reduction in pollutants discharged into receiving waters. Program strengths are highlighted below in terms of the six minimum controls measures as required in the permit.

##### 1. Public Education and Outreach

This element generally focuses on pollutants for which waterbodies within the City are currently listed as impaired. These include:

- Nutrients
- Sediments
- Pathogens

The City has a Phase II Stormwater website which contains policies, ordinances, water quality sampling data, and design manuals. City personnel provide a minimum of two presentations per

year. The City has initiated a series of workshops aimed at educating the regulated community; informative articles are provided in the City's two local newspapers.

## 2. Public Involvement and Participation

The City has established a citizen's advisory committee to gain community support. The advisory committee serves Auburn, Lee County, Opelika, and Auburn University (ALOA). ALOA meets quarterly to review and provide public input on current policies, brochure content, educational material, and proposed ordinances. The City has also included a storm drain marking program, a recycling program, and engaging the public on special projects.

## 3. Illicit Discharge Detection and Elimination

The City is currently in the process of updating its storm sewer system maps. Annual evaluations are made on the City's stormwater ordinances, and the ordinances contain escalating procedures for repeat violators. A stormwater outfall reconnaissance inventory program inspects each watershed in the City's MS4, conducts inspections at each outfall, and prepares detailed documentation of each outfall. Also highlighting this program element is a grease trap inspection program of local area restaurants, a household hazardous waste collection day, and a hazardous waste emergency response team.

## 4. Construction Site Stormwater Runoff Control

The City has implemented an aggressive construction site program to effectively manage all aspects of construction for sites one acre or greater. All construction sites within the City are inspected after each  $\frac{3}{4}$  inch, 24-hour storm event or a minimum of once per month. Inspectors have the ability to escalate enforcement procedures, including issuing stop work orders. All inspectors performing erosion and sediment control inspections in the City go through qualified credentialed inspector (QCI) program.

## 5. Post-Construction Stormwater Management

The City has a well-developed post-construction program, primarily designed at addressing stormwater pollution from nutrients, sediments, pathogens, and other pollutants. The City has a stormwater design manual that addresses both structural and non-structural control BMPs. The City has a stream buffer ordinance aimed at addressing water quality concerns. The City requires that a water quality plan be submitted for all developments located in an impaired watershed, or with the potential to discharge to a waterbody where a TMDL has been developed. Comprehensive conservation subdivision regulations promoting water resource protection have been developed by the City. A variety of post-construction ordinances and regulations are in place for managing green infrastructure and low impact development. Inspections and support is also given by the City to ensure the long term maintenance of structural BMPs.

## 6. Pollution Prevention/Good Housekeeping for Municipal Operations

The City has implemented a program intended to reduce stormwater pollution and promote good housekeeping measures in municipal operations. The program includes a routine stormwater

management training and a certified pesticides applicator program. Also, a risk management manual was developed which includes specific requirements for dealing with hazardous chemicals. The City conducts monthly street sweeping and encourages departmental participation in the City's recycling program.

Critical Findings:

None.

City of Daphne, AL (ALR040039)

Background:

ADEM issued the permit to the City of Daphne in December 2010, effective February 1, 2011. Under this permit, the City initially submitted a stormwater management plan to ADEM in 2011; the management plan was subsequently updated on March 21, 2013.

The City of Daphne is located on the eastern shore of the Mobile Bay. It is one of Alabama's fastest growing cities, experiencing a 30% increase in population based on the census data from 2000 to 2010. The City's total area is 16.38 square miles of land and 0.02 square miles of water. The City expands across four (4) watersheds: the Tensaw River-Apalachee River Sub-watershed, D'Olive Creek, Yancey Branch, Fly Creek, and the Upper Fish River. The D'Olive Creek Watershed is the City's largest watershed, and consists of three principal tributaries: D'Olive Creek, Tiawasee Creek, and Joe's Creek. All three Creeks and their tributaries are 303(d) listed for silt (sediment) due to changing land use. It is anticipated the TMDLs for these impaired streams will be developed by 2018. The City's land use is comprised of 46.2% residential, 21.5% forest, 13.3% commercial, and 0.3% industrial.

Program Strengths:

Program strengths reflecting the MEP level of control are summarized in each of the six minimum control measures as described in the following paragraphs.

1. Public Education and Outreach

The City of Daphne has an ongoing program that allows for the distribution of new and existing stormwater education materials for targeted groups. The City also displays several flyers and brochures in municipal office buildings for distribution. The City also has an environmental webpage that includes a link to the City's Stormwater Management Plan (SWMP), the Annual Reports, as well as information on existing and future stormwater related activities. The City is actively involved in conducting periodic workshops, school presentations and environmental awareness signage.

2. Public Involvement and Participation

The City has a Citizen's Environmental Advisory Committee (EAC) consisting of consultants, biologists, engineers, City staff, and private business owners. The Committee's responsibilities

include, but are not limited to, reviewing the SWMP to environmental ordinance promulgation and review. At least four EAC meetings are held annually. In addition, several watershed groups meet and address local watershed issues within priority areas in the City.

The City has several key annual events to promote greater public participation. These include the following:

- Community Clean-Up Day and Household Waste Amnesty Day
- Curbside Recycling and Used Motor Oil Recycling Programs
- Arbor Day Tree Give Away
- Baldwin County Water Festival, and
- Environmental Web Page

The City has also expanded its coordination with other Agencies and groups on environmental efforts, including the Clean Water Act Partnership, the Mobile and Baldwin County Stormwater Summit, Mobile Bay National Estuary Program Community Action Committee, and the Mobile Bay National Estuary Program Project Implementation Committee.

### 3. Illicit Discharge Detection and Elimination

The City has initiated efforts to locate all existing stormwater data and update the current stormwater map of the City. The City is also in the process of developing a stormwater inspection form and database to track the location, description, and condition of outfalls with an additional layer to track inspections and notes.

The City currently reviews and updates the City's New Development Illicit Discharge Detection and Elimination (IDDE) language in its City ordinances. This includes procedures for enforcement, mitigation, and code enforcement. The City will also include the development of standard operating procedures (SOPs) for IDDE inspections and reporting, including additional ordinance development and enforcement.

### 4. Construction Site Stormwater Runoff Control

The City employs a number of strategies for erosion control. In 2007, the City developed and adopted an Erosion and Control ordinance which regulates land disturbances exceeding 1,000 square feet of exposed soils associated with land disturbance with the exception of agricultural operations.

For single family residential construction sites, the owner or contractor are required to submit a detailed site specific Best Management Practice (BMP) plan for each home site. The BMP plan is submitted to the City for review and approval. Site inspections are prioritized based on the status of construction, site conditions, location and size of the site, and proximity of the site to sensitive areas, such as streams and wetlands. Priority construction sites include those sites with the potential to discharge to an impaired waterbody or an Outstanding Alabama Water.

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The construction inspection staff are routinely trained and certified, and have the ability to initiate and execute tiered enforcement, including stop work orders. In 2012, the City conducted 496 construction inspections, and maintains a database of inspections. This database will be updated to track inspections per priority watershed.

#### 5. Post –Construction Stormwater Management

The City has a land use and development ordinance (LUDO) that establishes requirements including the use of structural and non-structural BMPs for new and redeveloped projects. The LUDO contains general provisions to address the quantity of post construction runoff and the treatment of the first flush discharge of stormwater. Post development peak outflow rates cannot exceed the pre-development peak outflow rates. All stormwater detention structures must attenuate the post-development peak flow rates from the 2,5,10, 25, 50, and 100 year 24 hour design storms to release a graduated discharge at, or below, pre-development peak flow rates.

All newly developed and re-development sites have an environmental and engineering review conducted by City staff. Reviews are presented to the Planning Commission for consideration during the monthly site plan and subdivisions review meeting.

The LUDO requires any development within the City to have a Stormwater Management Identification Form. This document requires the landowner to manage their site BMPs and perform all necessary maintenance. In addition, the City conducts field inspections verifying the adequacy of construction of the BMPs. Future field inspections will include an evaluation of the BMPs and how well BMPs are maintained after construction. Both performance and potential improvements will be noted.

#### 6. Pollution Prevention/Good Housekeeping for Municipal Operations

The City keeps an inventory of all bridges within the municipality, tracking inspections in conjunction with Alabama Department of Transportation (ALDOT). During each inspection, areas of erosion and stream degradation are recorded. Results are recorded in the Annual Report. In addition, the City owns a street sweeper, and has a tracking system for streets swept and the quantity of material collected.

The City has implemented a recycling program in its municipal buildings for paper, plastic, and cardboard. Recycling containers are maintained at all sports fields and City-sponsored events. The City has also inventoried all of its own facilities and is in the process of conducting a baseline assessment for pollutants from stormwater runoff. This inventory is to include buildings, parks, vacant property, parking areas, and ancillary storage areas. A completed assessment is planned by year three of the permit. All assessments will result in the development of standard operating procedures during the first permit cycle. The EPA commends the City of Daphne for establishing a stormwater management program that meets the expectations of Region 4.

#### Critical Findings:

None.

## V. ACTION ITEMS

This section provides a summary of the main findings of the review and provides proposed Action Items to improve ADEM's NPDES permit programs. This list of proposed Action Items will serve as the basis for ongoing discussions between Region 4 and ADEM as well as between EPA 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 states or Region's NPDES permit program.

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

### A. Basic Facility Information and Permit Application

The PQR revealed that some applications reviewed for POTWs did not include whole effluent toxicity data or the required amount of sampling data (e.g., at least three sets). Further, some applicants did not include analytical methods or method detection limits on application forms, causing ambiguity regarding appropriate methods and detection limits employed during analysis. Rationale documents did not consistently include detailed facility and treatment process descriptions; however, this information was available in the permit application which was included in the permit package. Proposed action items to help ADEM strengthen their NPDES permit program include the following:

- ADEM should update template documents used for developing the permit and statement of basis and include boilerplate language directing discussions of facility operations and relation to ELGs. (Category 3)

### B. Technology-based Effluent Limitations

One of the permit records reviewed for an industrial facility lacked documentation of the calculations used to develop the effluent limitations based on ELGs, which were production-based values incorporating facility process factors. In addition, the rationale documents for the industrial facilities reviewed were not as detailed as EPA would prefer in their explanation of

facility categorization and determination of applicable ELGs. Proposed action items to help ADEM strengthen their NPDES permit program include the following:

- ADEM should consider developing boilerplate language for statements of basis to address the applicability of ELGs to industrial facilities. (Category 3)
- ADEM should ensure the permit record includes documentation of the development of ELG-based effluent limitations. (Category 3)

### **C. Water Quality-Based Effluent Limitations**

Records reviewed did not appear to contain calculations of WQBELs. In addition, the rationale document was not always clear as to why effluent limitations were not established for all parameters for which it was determined that RP existed. ADEM indicated this information is in the RP spreadsheet (which is part of the permit record) and not repeated in the rationale document. Proposed Action Items to help ADEM strengthen its NPDES permit program include the following:

- ADEM should ensure that rationale documents address anti-backsliding requirements, especially in permits where an effluent limitation is less stringent than the limitation contained in the previous permit. (Category 2)
- ADEM should ensure that calculations and copies of spreadsheets supporting WQBELs are included with the rationale document. (Category 3)

### **D. Monitoring and Reporting**

Generally, monitoring and reporting conditions were adequate. ADEM permits do not specify analytical methods for certain parameters to ensure methods are sufficiently sensitive; permits require compliance with 40 CFR 136. Proposed action items to help ADEM strengthen their NPDES permit program include the following:

- ADEM should work with permittees to ensure adequate data are submitted during the permit term to provide for RP evaluation. (Category 3)

### **E. Special and Standard Conditions**

For the most part, standard conditions included in the ADEM permits were consistent with standard conditions established at 40 CFR 122.41 and 122.42. No action items are proposed based on this PQR.

### **F. Administrative Process (including public notice)**

ADEM's internal review process is noted as a program asset. Draft permits and rationale documents undergo three levels of internal review. Of the permit files reviewed during the PQR, only one draft permit was revised to include less stringent effluent limitations than previously proposed. According to ADEM this change was made during the public notice period so it was not necessary to public notice the draft permit a second time. Supporting records included for

this permit demonstrated the public notice procedures were implemented accordingly. It was not always clear whether any comments had been received and addressed. Proposed Action Items to help ADEM strengthen its NPDES permit program include the following:

- ADEM could continue implementing the process of technical and administrative review of draft permits. (Category 3)
- ADEM could strengthen their administrative process by consistently including a statement regarding receipt of comments during the public notice period, to provide clarity that comments were received and addressed. (Category 3)

## **G. Documentation (including fact sheet)**

Rationale documents consistently addressed every limited parameter. Some of the supporting documentation for municipal permits did not include a detailed discussion of the lack of application of minimum percent removal requirements for CBOD<sub>5</sub>. However, ADEM provided documentation from the EPA showing their procedure was consistent with EPA guidance. Another rationale document indicated the effluent limitations were carried forward from the previous permit; however, the rationale lacked a detailed discussion of the basis for those limitations. In some cases, where effluent limitations are production-based and development of effluent limitations involves determining various size and process factors, the rationale lacked discussion of those specific factors or calculations. The RP discussions included in the rationale document generally lacked detail as this information is included in the RP spreadsheets that are attached to the rationale documents. Proposed Action Items to help ADEM strengthen its NPDES permit program include the following:

- ADEM could ensure the permit record, including the rationale document, includes documentation regarding development of ELG-based effluent limitations. Information that would strengthen the rationale document and permit record could include a detailed facility description, categorization as it relates to the ELG, identification and illustration of any factors that are involved in calculating production-based effluent limitations, and an illustration of the calculation of final ELG-based effluent limitations. (Category 3)
- ADEM could consider additional modifications to their template documents so that a more developed discussion of industrial facility information is provided in the permit record that would enable a clearer understanding of the applicability of technology-based standards (e.g., ELGs). (Category 3)
- ADEM could strengthen the administrative record by including files related to water quality-based evaluations. Records of the RP evaluation and calculations supporting development of effluent limitations (TBELs and WQBELs) would create a more complete administrative record. (Category 3)
- ADEM could improve the quality of the rationale document through a clearer discussion of the application of BPJ on a case-by-case basis to a privately-owned treatment works,



where the permit established effluent limitations based on secondary treatment standards. (Category 3)

- ADEM could strengthen the rationale and permit record by including a discussion of the basis for each effluent limitation, especially in cases where the permit does not contain both acute and chronic effluent limitations and where the rationale states the effluent limitation is based on the previous permit, without further explanation. (Category 3)

## H. National Topic Areas

Proposed Action Items for core topic areas are provided below.

### 1. Nutrients

Effluent monitoring for nitrogen-based and phosphorous-based constituents is placed in permits for facilities that treat nutrient bearing wastewaters. Proposed Action Items to help ADEM strengthen its NPDES permit program include the following:

- ADEM could supplement effluent monitoring nutrient data by including a requirement in permits for permittees to sample for temperature and dissolved oxygen both up- and down-stream of their facilities. These monitoring results could be used to develop appropriate permits limits, as deemed necessary. (Category 3)

### 2. Pesticides

On October 31, 2011, the EPA issued the final NPDES Pesticide General Permit (PGP) for Discharges from the Application of Pesticides. The federal PGP applies where the EPA is the permitting authority. All delegated state NPDES authorities have issued state pesticide general permits as of April 2013. ADEM issued its pesticide general permit which has been effective since October 31, 2011. There are no obstacles in state law preventing the state NPDES permitting authority from fully implementing the pesticide permit requirements. No action items are proposed based on this PQR.

### 3. Pretreatment

No action items are proposed based on this PQR.

### 4. Stormwater

Proposed Action Items to help ADEM strengthen its NPDES permit program include the following:

- ADEM could explore additional means to reduce the backlog of MS4 permits. (Category 3)

## I. Regional Topic Areas

Proposed Action Items for special focus areas are provided below.

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## 1. Reasonable Potential Analyses

ADEM typically performs a RPA using readily available instream water quality data; however, in the absence of background concentrations in the receiving stream, ADEM's practice is to assume a background concentration of zero. The permits reviewed during the PQR all lacked instream data to characterize the background concentration and therefore the permit writers assumed the background concentration for the pollutant of interest was set at zero. No action items are proposed based on this PQR.

## 2. Municipal Stormwater Management

At the time of the PQR, all Phase I MS4s permits were expired and under administrative continuance. Since that time, ADEM has worked diligently to reissue expired Phase I and II MS4 permits. Proposed Action Items to help ADEM strengthen its NPDES permit program include the following:

- ADEM could explore additional means to reduce the backlog of MS4 permits. (Category 3)
- ADEM should continue working closely with Region 4 to include 'post-construction' standards that require post-development hydrology that mimic pre-development hydrology for all flow variables (frequency, duration, volume, and rate). This emphasis include municipalities and ADEM collaborating to remove barriers for developing effective green infrastructure and low impact development programs. (Category 3)