Region 3 NPDES Permit Quality Review

Maryland

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Contents

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, 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 one EPA Regional III representative, three Headquarters (HQs) representatives from the EPA's National Office of Water program, and one consultant conducted a review of the Maryland NPDES permitting program. The review team competed an on-site visit to the Maryland Department of the Environment (MDE) in Baltimore on September 21, 2017 and a follow-up conference call was held on September 28, 2017. The on-site visit and follow-up conference call provide the basis for gathering information on Maryland NPDES permit program.

Each PQR consists of two components: permit reviews and special focus area reviews. The Maryland PQR permit reviews focused on determining whether permits meet NPDES regulatory requirements 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 involved the evaluation of selected permits[1] and supporting materials using basic NPDES program criteria in the NPDES regulations, the Central Tenets of the NPDES Permitting program[2], and the PQR tools[3]. Reviewers completed the core review by examining selected permits and supporting documentation, assessing these materials using standard PQR tools, and talking with permit writers regarding the permit development process. The core review focused on the Central Tenets to evaluate the Maryland NPDES program. 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 similar issues or types of permits in all states. The national topics reviewed in the Maryland NPDES program included: nutrients, the pesticide general permit, pretreatment, and stormwater.

Regional topic area reviews target regionally specific permit types or particular aspects of permits.[4] The regional topic areas selected by EPA Region 3 included: implementation of the

[1] For permit identification methods, see NPDES Permit Quality Review (PQR) Standard Operating Procedures, July 2013. P. 6. This document is online at https://www.epa.gov/sites/production/files/2015-09/documents/pqr_draft_sop.pdf/.
[2] Central Tenets of the National Pollutant Discharge Elimination System (NPDES) Permitting program. This document is online at https://www.epa.gov/sites/production/files/2015-09/documents/tenets.pdf
[3] PQR Tools for the FY 2012- FY 2017 Cycle are online at https://www.epa.gov/npdes/npdes-program-and-permit-quality-review-standard-operating-procedures#pqr2012-17
[4] Supra 1 at P. 10.

Chesapeake Bay Total Daily Maximum Load (TMDL), permitting for Concentrated Animal Feeding Operations (CAFOs) and TMDLs. These reviews provide important information to Maryland, EPA Region 3, EPA's Office of Water and the public on specific program areas.

A total of 22 permits were reviewed as part of the PQR. Ten permits were reviewed for the core review—of these, 9 permits were also reviewed for regional topic areas. Permits were selected based on issue date and the review categories that they fulfilled.[5]

II. STATE PROGRAM BACKGROUND

A. Program Structure

The Maryland Department of the Environment (MDE) is authorized by EPA to implement the Federal National Pollutant Discharge and Elimination System (NPDES) permit program. At the time of the PQR, MDE Water and Science Administration (WSA) and MDE's Wastewater Permits Program (WWPP) issued individual municipal, industrial, and general industrial permits. WWPP issued and processed general permit notices of intent (NOIs) for eight general permits regulating discharges from the following categories: mineral mine, seafood, swimming pool, coal mine, marina, hydrostatic testing (non-oil facilities), pesticide, and industrial stormwater. WWPP was also responsible for issuing permits for combined sewer overflows (CSOs) and water treatment plants. The Municipal Stormwater unit within the WMA issued both the Phase I and Phase II municipal separate storm sewer system (MS4) permits, with the Phase II permit being implemented via a general permit. The Construction Stormwater unit of the WMA issued the construction stormwater general permit and processes the NOIs for the general permit. The Construction Stormwater unit also issued individual construction stormwater permits, when appropriate. MDE's Land and Materials Administration (LMA) issued and processed permits for oil-related discharges only. The LMA issued individual permits for discharges from oil terminals. The LMA also issued and processed NOIs for two oil-related general permits; the stormwater

"Regional topic areas are program areas of particular relevance in a given EPA region or state. These regional topic areas may be unique to each state PQR, and there is no standard list from which to select focus areas. In choosing the regional topic areas, regions should consider challenges the state programs are facing, and also consider other factors, such as:

- If there are significant levels of activity in the state or region;
- Whether new regulatory requirements exist;
- Weak state requirements or weak program implementation; or, PQR Standard Operating Procedures
- If activities within the state or region pose a potential for significant environmental impact.

Based on these factors, regions should choose two to four regional topics to conduct select permit reviews to assess state implementation of these programs against NPDES regulations. There are no standardized assessment criteria (i.e., checklists) for these reviews and thus applicable NPDES requirements and guidance should be used. Regions will be expected to summarize findings of the reviews in the final state PQR report."

[5] Supra 1 at 7. "To capture current permitting practices, the permits reviewed should be draft or permits issued within two years of the state visit, when possible. If there is an insufficient number of permits meeting this criteria, permits issued up to four years prior to the review may be used. If draft permit reviews are being utilized for a PQR, the draft permits reviewed should be ones that are expected to be finalized by the time of the planned state visit so that the final version of the permit and full permit issuance process can be assessed."

and hydrostatic test water from oil terminals and treated groundwater from oil contaminated groundwater sources. The LMA also included the Animal Feeding Operations Division, which regulated Maryland's CAFOs through the CAFO general permit. Since the 2017 site visit, MDE has changed the name of its Water Management Administration to "Water and Science Administration" and changed the name of its Land Management Administration to "Land and Materials Administration". MDE also moved regulation of Animal Feeding Operations into the Resource Management Program within the Land and Materials Administration. MDE has a main office located in Baltimore and four field offices located in Frostburg, Hagerstown, Cambridge, and Salisbury. Staff located in the main office administer all NPDES-related activities, except for inspection and compliance activities, which are implemented by staff in the four field offices.

At the time of the review, MDE had twenty-six (26) permit writers across the five (5) program areas within the WMA. MDE also had thirteen (13) staff in the TMDL, including water quality modelers, that support NPDES permitting activities. Permit writers receive training through internal mentoring and attendance at EPA's NPDES Permit Writers' Course. Permit writers may also attend other external training events, as available. MDE does provides additional administrative and technical staff to support NPDES permitting activities. Additional technical staff that provide support include specialists in information technology, pretreatment, and water quality planning. MDE assigns WWPP permits based on staff workload, areas of technical expertise, and the type and complexity of the permit. Oil control and MS4 permits are assigned to staff based on geographical location. CAFO permits are prioritized based on new facility construction or expansions, followed by renewals.

At the time of the review, MDE used various data systems to manage data and information to support NPDES permit development. The WWPP uses internal or departmental databases, including: Tools for Environmental Management and Protection Organizations (TEMPO) which served as a central repository for all facility data, including permits, compliance, and enforcement activities information; and the Wastewater Information Management System (WIMS). TEMPO is used for tracking the status of permitting projects, while WIMS is used for tracking various meta and geographic data associated with projects. MDE also uses Fortis for electronic document management. In addition, MDE maintains internal ad hoc databases for TMDL and GIS information, as well as specific program databases (i.e., MS4 and construction stormwater). MDE flows permit information to EPA's Integrated Compliance Information System- NPDES (ICIS-NPDES) and permittees use NetDMR to electronically submit discharge monitoring reports (DMRs). MDE has also developed tools to support NPDES permitting, including spreadsheet models, IT tools, and accompanying guidance documents. The WWPP uses templates to develop major and non-major permits, as well as accompanying fact sheets and statement of basis documents. Templates are updated regularly. Templates include guidance language and prompts for permit writers, as well as standard boilerplate language. MDE uses permit and fact sheet templates in the MS4 and Oil Control Programs, and registration letter and certificate templates in the CAFO Program. MDE does not use a database or other information system to generate draft NPDES permits; however, may use database tools to generate letters or general permit registrations. MDE does not widely use models to calculate mixing zones; however, WWPP staff may use CORMIX to model mixing zones. If

modeling is not implemented to determine mixing zones, WWPP staff may impose acute water quality criteria at end-of-pipe or conduct simplistic modeling for chronic water quality criteria.

MDE's WWPP staff use various checklists and templates in the development of draft NPDES permits and upon completion, the draft is distributed for internal review by a lead permit writer, a unit supervisor, and the program manager. Complex permits receive frequent review by a team of managers from across the WWPP. Further, if the permit involves program-specific issues, WWPP routes the draft permit to specific teams for review and approval (e.g., compliance staff and water quality standards staff). Following review by the applicant, the permit is distributed for public comment. Oil Control and Construction Stormwater permits are reviewed by WMA management and the Attorney General's office, prior to the public comment period. Final permit approval is through the Office of the WMA Director. WWPP staff use a permit review summary checklist during permit development, as well as processing of permit applications and general permit NOIs.

The WWPP, Oil Control, and CAFO programs retain permit files in hard and electronic copy. Upon issuance of final general permits issued by the WWPP, the entire record, including registration letters, is indexed into the electronic document management database (FORTIS). Individual permit development documents are retained in hard copy, with certain records indexed into FORTIS. Construction stormwater and MS4 permit records are maintained entirely in electronic copy. WWPP permit correspondence files are rarely indexed into FORTIS; therefore, are maintained in hard copy at the main office. WWPP monitoring and reporting and compliance records are maintained by staff in the Compliance Program, either at the main office in Baltimore, or in the respective field offices.

B. Universe and Permit Issuance

At the time of the review Maryland's permitting universe consisted of 7,324 individual permits and registrations under general permits. Specifically, MDE permits 276 municipal facilities (56 major, 216 non-major, and 4 Combined Sewer Overflows) and 794 non-municipal facilities (26 major, 143 non-major, and 564 CAFOs). MDE's universe of stormwater permitees includes 63 municipal, 1,480 industrial stormwater, and 3,689 construction stormwater. MDE regulates 2,547 permittees under non-stormwater general permits. MDE administers 13 general permits across five permitting program areas, including CAFOs (1), oil control (2), industrial and construction stormwater (1), MS4 (1), and WWPP (8). The eight WWTP permits regulate discharges from the following: industrial sources that discharge stormwater only; pesticides application; surface coal mining and related facilities; hydrostatic testing of tanks, pipes, and other non-oil containment structures; mineral mines, quarries, borrow pits, and concrete and asphalt plants; seafood processing facilities; marinas (including boat yards and yacht basins); and swimming pools and spas.

MDE indicated that 28 of 52 (54%) major WWPP permits and 137 of 363 (38%) non-major WWPP permits are backlogged. In addition, 3 of 23 (13%) MS4 permits and 215 of 625 (34%) CAFO permits are backlogged.[6]

MDE identified electric power generation, mineral mining, military bases, general manufacturing, coal mining, landfills, groundwater remediation, port operations, and small aquaculture significant industries as significant sectors regulated under its NPDES permits program. In addition, MDE identified retail service stations and heating oil companies as the main industries regulated by its oil control program.

MDE uses EPA's application forms for industrial facilities and municipal facilities with a design capacity greater than or equal to 0.1 million gallons per day (MGD); for those less than 0.1 MGD, MDE uses a state application short form (Form No. MDE/WMA/PER.012[7]). The application form was last updated on September 14, 2015. WWPP staff send applicants reminders 18 months in advance of the permit expiration date, that a permit renewal application is due. Upon receipt of the application, staff log the application into the TEMPO system and division chiefs review their respective applications to determine whether they are technically complete. Following the supervisors' review of the application, the permit is assigned to a permit writer. If an application is incomplete, the supervisor directs the permit writer assigned to the permit to conduct appropriate follow-up with the applicant to obtain required information and notifies the applicant of the due date for receiving the additional information. Upon determining the application is technically complete, MDE staff draft a public notice of application and provides an opportunity for an informational meeting. MDE may hold an informational meeting if one is requested; otherwise, permit writers begin drafting the permit. MDE staff also provide the application to the county in which the facility is located, as well as the Maryland Department of Natural Resources (DNR) to inform the agencies of the application for a permit. MDE staff also share the application with staff in the Compliance Program, for their review and to identify whether there are existing compliance issues concerning the facility.

For new permits, following review of the permit application, permit writers initially assess appropriate wasteload allocations (WLAs), based on site-specific receiving waterbody information. Permit writers meet with applicants and conduct a preliminary site visit to identify potential receiving waterbody concerns and obtain specific information regarding discharge configurations and receiving stream characteristics. Permitting staff work closely with water quality standards (WQS) and TMDL staff during development of the WLAs. For renewal of existing permits, permit writers review data submitted with the permit renewal application and DMR data submitted during the permit term via ICIS-NPDES, to begin to evaluate the need for effluent limitations.

[6] With regard to NPDES permit backlogs, EPA's national goal is to achieve a 90 percent current rate (10 percent or less backlog rate) for NPDES permits. See https://www.epa.gov/npdes/pre-fy-2018-npdes-oversight-initiatives.

[7] The application form is available at: http://www.mde.state.md.us/programs/Permits/WaterManagementPermits/Documents/MDE-WMA-PER012form.pdf

Permit writers review applicable federal standards as they develop technology-based effluent limitations (TBELs)—effluent limitations guidelines (ELGs) for non-municipal facilities and federal secondary treatment standards established at 40 CFR 133 for publicly-owned treatment works (POTWs). Permit writers review historical operations and effluent monitoring data as they determine how to appropriately implement ELGs. For discharges where multiple ELGs apply, if it is possible to monitor the waste streams separately, permit writers will apply the ELGs individually. Permit writers may also develop final effluent limitations based on the most restrictive ELG-based limitation or develop a flow-weighted effluent limitation. Typically permit writers use spreadsheets to develop ELG-based TBELs. Where no federal ELGs exist, MDE permit writers may use their engineering judgment and apply ad hoc effluent limitations based on values historically implemented by MDE permit writers (e.g., oil and grease or volatile organic compounds) based on limitations in permits for similar discharges. In addition, permit writers may develop performance based TBELs where ELGs or other standards are absent. Permit writers also consult the ELG development documents to determine if there is a need to consider additional pollutants of concern.

MDE permits for POTWs generally do not establish minimum percent removal requirements for biochemical oxygen demand (BOD) and total suspended solids (TSS); MDE staff indicated that only those facilities that experience excessive infiltration and inflow (I&I) receive requirements for minimum percent removal. Municipal permits also include enhanced nutrient removal (ENR) requirements as a floating cap. MDE provides financial assistance to POTWs that contribute nutrient loading to the Chesapeake Bay, for upgrading wastewater treatment plants (WWTPs) in order to achieve ENR. The Bay Restoration Fund Act and Maryland's ENR Strategy set forth to reduce nutrients discharged to annual average nutrient goals of WWTP effluent quality of Total Nitrogen (TN) at 3 mg/L as Nitrogen and Total Phosphorus (TP) at 0.3 mg/L as Phosphorus, where feasible, for all WWTPs with a design capacity of 0.5 MGD or greater. MDE is authorized to select and upgrade other WWTPs with a design capacity of less than 0.5 MGD on a case-by-case basis based on the cost effectiveness of the upgrade and other factors. MDE establishes a grant agreement with municipalities selected for ENR.

Permit writers develop water quality-based effluent limitations (WQBELs) based on pollutants of concern identified through review of application and DMR data, as well as examination of the receiving waterbody's designated uses. Permit writers evaluate available effluent monitoring data, requiring a minimum of four data points, and compare reported concentrations to applicable state WQS and listed waterbody impairments, to determine if there is a need for WQBELs. Where TMDLs exist, permit writers include those pollutants in their evaluation and where there is an approved WLA, the WLA is implemented in the NPDES permit. Where data are greater than applicable WQS but there is no impairment, permit writers determine whether there is a need for a WQBEL; permit writers may require permittees to conduct a special study to collect additional data to support a determination. Permit writers use the best available ambient data, generated by the state's monitoring efforts, and may ask the permittee to collect receiving stream ambient data. Maryland's mixing zone regulations are provided in the Code of Maryland Regulations (COMAR) Sections 26.08.02.05. The mixing zone regulations provide different restrictions, depending on pollutant type (i.e., thermal,

conventional, or toxic pollutants). Permit writers use state-developed modeling software ("INPRG") when determining whether a discharge causes, has the reasonable potential (RP) to cause, or contributes to an excursion above a narrative or numeric water quality criterion. Further, staff develop WQBELs using the INPRG software program. MDE may also use EPA's Water Quality Analysis Simulation Program (WASP) to evaluate RP. Permit writers rely on whole effluent toxicity (WET) testing data to address and comply with the state's narrative WQS. Permit writers include thorough discussions specific to effluent quality, receiving water quality, waterbody impairments, RP assessment, and resulting WQBELs in the "Narrative Summary" document that accompanies POTW permits and fact sheets. Permit writers include hard copies of modeling results and project file checklists, that support development of effluent limitations. Similar evaluations occur for industrial permits but because there are fewer industrial facilities and are generally smaller facilities, the RP assessment is a less formal process. Therefore, MDE staff may not necessarily produce the same "Narrative Summary" document for industrial permits; however, do retain supporting information.

Maryland's antidegradation regulations are provided in COMAR Sections 26.08.02.04, 26.08.02.04-1 (implementing procedures), and 26.08.02.04-2. The regulation explains how Maryland identifies Tier II waters, when a Tier II antidegradation review is required for certain State permits and approvals, and how to determine current Tier II water quality status based on new data. The regulation also describes the social and economic justification procedure that would be necessary to permit the lowering of water quality in a Tier II water.

Permit writers consider anti-backsliding with each permit renewal. MDE revised their fact sheet and statement of basis templates based on findings presented during the last PQR, to include discussions of anti-backsliding and antidegradation.

Permit writers develop monitoring and reporting requirements based on the previous permit requirements and additionally for municipal permits, an internal memorandum (last updated: July 11, 2017) identifying minimum monitoring requirements for certain pollutants. For municipal permits, frequency is generally based on facility design capacity. For industrial permits, monthly monitoring is the frequency typically established. Discharges subject to TMDLs or ENR requirements may be monitoring more frequently.

MDE includes general narrative conditions in NPDES permits, including limitations that implement the narrative WQS for floating solids and foam, as well as "no toxics in toxic amounts." Maryland's standard NPDES permit conditions are established within three sections of the permit—Limits, Special Conditions, and General Conditions. General conditions were first developed during the initial program authorization and were reviewed recently to include requirements for electronic DMR reporting (NetDMR).

MDE permit writers draft fact sheets and statement of basis documents concurrently with permit development. MDE currently develops fact sheets for all permits, but staff indicated they may phase out fact sheets for minor permits and begin preparing a statement of basis for minor permits. The fact sheet is developed based on a permit development checklist; it addresses state-specific issues (e.g., nutrients and TMDLs) and builds from the previous permit

requirements. As described previously, permit writers may also prepare a "Narrative Summary" document that details the water quality assessment conducted for the discharge; this document is maintained with other permit development documents, in the administrative record.

Staff in MDE's Wetlands and Waterways Program processes requests for Section 401 water quality certifications. Where there are issue-specific consultations requested (e.g., Clean Water Act Section 316(b)), MDE NPDES permit writers will participate in consultations.

MDE public notices complete permit applications in newspapers of general circulation in the area of the discharge. The public notice on the application is also sent to the permittee, local politicians, and parties having expressed interest in the permit. MDE issues a public notice on the Tentative Determination to renew the permit; sent to a newspaper of general circulation in the vicinity of the discharge. The public notice contains the proposed effluent limitations, compliance schedules (as applicable), discussion of compliance with applicable TMDLs, and procedures for the submitting comments to MDE. Permits are available for public comment for 30 days. MDE receives comments and prepares a response document containing a brief description of the permit action, a summary of changes to the permit from the tentative determination, and a summary of public comments received and responses provided. MDE estimated that they receive comments on approximately 10 to 20 percent of tentative determinations. If permits are contested and go through an issuance hearing process, permits go through an administrative process where a state judge will determine if the permit should be issued. MDE commented that the judicial review process may last 1 to 2 years. MDE indicated they have not received any objections on permits; typically, issues can be resolved with EPA during the review process. If substantive comments are received, permit writers need to prepare a final determination for the permit, including development of a response to comments document; they will not revise the fact sheet for the draft permit, but will include the response to comment document that includes all comments received, MDE's responses, and an indication of how the permit was changed to address the comment.

C. State-Specific Challenges

MDE indicated staff encounter challenges with permitting power plants, in light of the uncertain timeline for resolution and final rule and requested an update from EPA. MDE noted that third parties have sued MDE and threaten that requests for judicial review will be issued for the power plant permits. MDE staff also requested guidance and support with hastening the permitting process, specifically supporting the decision-making process regarding permits that incorporate water quality trading and offset provisions. In addition, MDE staff described challenges associated with point source-to-nonpoint source trading and ensuring compliance with approved TMDLs, given the uncertainty of nonpoint source pollutant reductions. Industrial permitting staff expressed interest in guidance for situations where TBELs are required, but no federal ELGs apply to the discharge—developing case-by-case effluent limitations using best professional judgment (BPJ). MDE staff inquired as to EPA's expectation for developing TBELs in the absence of federal ELGs; asking EPA when it is necessary and what is the specific guidance for these scenarios.

D. Current State Initiatives

As discussed previously, MDE provides financial assistance to POTWs that contribute nutrient loading to the Chesapeake Bay, for upgrading wastewater treatment plants (WWTPs) in order to achieve ENR. The Bay Restoration Fund Act and Maryland's ENR Strategy work to reduce nutrient loadings through limiting discharges from facilities of a certain design capacity. MDE establishes a grant agreement with municipalities selected for ENR, to work towards achieving desired reductions in nutrient loading to the Chesapeake Bay.

Also, MDE implements a thorough public notice process, in that the agency publicly notices the availability of the permit application and draft permit and sends the notices to a broad stakeholder list. MDE provides sufficient notice to interested parties and the general public regarding permit actions.

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). This information is essential for developing technically sound, complete, clear and enforceable permits. Similarly, fact sheets must include a description of the type of facility or activity subject to a draft permit.

MDE's permit records and fact sheets are clear and concise in providing a thorough discussion of facility location, operations, and treatment processes. Further, fact sheets clearly authorize appropriate outfalls as well as identify and discuss outfall location and receiving stream information, including a description of receiving stream impairment status and applicable TMDLs.

MDE's permits do not clearly indicate the permit issuance date, as they do the permit effective and expiration dates. Often, the permit issuance date was observed in the cover letter or memorandum to the file, a document entitled "Current Status." If the cover letter were to become separated from the Permit, it may not be clear what date the permit was issued. MDE may want to consider adding the permit issuance date to the permit cover page, with the other relevant dates.

2. Permit Application Requirements

Federal regulations at 40 CFR122.21 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.

MDE's permit applications were generally thorough, complete, and timely submitted. Permit records consistently included copies of the permit applications; however, in some cases, it was difficult to locate WET test calculation data required by the permit application. Further, some permit records were not well organized, in that the reviewer encountered difficulty locating topographical location maps or flow diagrams. MDE should ensure that appropriate maps and diagrams are attached to the application as required by EPA application instructions.

In addition, some applications reviewed indicated data were below detection limits by marking "ND," but did not list the actual detection limit. Applicants should be reporting the detection limit where results are reported as "non-detect" or below detection limits, in order to understand whether appropriate analytical methods are employed and if the facility is discharging pollutants at concentrations of concern. Further, reviewers indicated that it was not always possible to identify if the applicant used Sufficiently Sensitive Methods (SSMs) in their effluent monitoring and analyses. It was not clear if MDE required applicants to use SSMs for the application submittal. Moreover, some permit records did not contain laboratory analytical reports attached to the permit application; thus, it was difficult to determine if the data submitted were collected during an appropriate time frame and met EPA's application data requirements. Including laboratory reports with the application in the permit record provides clarity and ease for performing an efficient and thorough application review.

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, TSS, pH, and percent pollutant 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. A total of seven POTW permits were reviewed as part of the PQR.

Reviewers generally identified a complete effluent data record in the permit record. Further, some municipal permits included a very helpful "Narrative Summary" document that summarized the effluent equations/calculations. This is a strong practice and EPA recommends that it be carried over for all municipal and industrial permits, because in some cases the fact sheets did not contain all of the information included in the Narrative Summary document.

MDE permit records and fact sheets provided useful descriptions of facility and treatment processes and applied effluent limitations in appropriate units and limit bases (e.g., average weekly and average monthly). However, permits reviewed lacked the minimum percent removal requirements established by 40 CFR 133 (i.e., 85% minimum removal). In addition,

permits lacked influent monitoring required to demonstrate compliance with minimum percent removal requirements. Further, fact sheets generally lacked references to federal secondary treatment standards (i.e., 40 CFR 133), as a basis for TBELs at POTWs.

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 effluent limitations guidelines (ELGs) have been developed for a category of dischargers, the TBELs in a permit must be based on the application of these guidelines. If ELGs are not available, a permit must include requirements at least as stringent as BAT/BCT developed on a case-by-case using best professional judgment (BPJ) in accordance with the criteria outlined at 40 CFR 125.3(d).

The PQR included review of three non-POTW permits.

Reviewers noted that fact sheets for non-POTW permits contained useful descriptions of facility operations and wastewater treatment processes as well as summaries and rationales for TBELs. One of the three non-POTW permits was subject to federal ELGs. For that facility, the fact sheet and record appropriately explained how the facility categorization and performance levels were determined and sufficiently documented the calculations used to develop ELG-based TBELs. The permit implemented ELG-based TBELs appropriately; however, the it appears that the fact sheet discussion of the origin of TSS limits is mistaken in that BPT limitations (in addition to BAT) are applicable, but it references historical use of NSPS limitations, which are the same values as BPT limitations. ELG-based TBELs were established in appropriate forms and limit bases (i.e., maximum daily and average monthly limitations).

Some permits appear to have effluent limitations that were less stringent than the previous permit, and the Fact Sheet did not provide a discussion of backsliding. For example, one permit rescinded limits for certain parameters at Outfall 002 (e.g., chromium, nickel, copper) and the fact sheet includes a general statement that the removal of such limits is allowable by anti-backsliding regulations based on “Material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation.” However, the fact sheet does not address each parameter specifically, demonstrating that the relaxation of effluent limitations is permissible. A more specific and robust discussion of anti-backsliding regulations and applicable exceptions specific to each parameter would strengthen the fact sheet.

Fact Sheets state that certain effluent limitations are based on BPJ; however, the fact sheet discussion is sparse as to the basis for the BPJ limits. The term “BPJ” has specific meaning in the federal regulations and current fact sheets do not consistently address the federal requirements for meeting the criteria for BPJ-based limitations. Where limitations may be based on MDE’s ad hoc limitations (e.g., oil and grease or volatile organic compounds limits), a general statement on the overall basis for those limitations is desirable. Including a statement

specific to the basis of the BPJ-based effluent limitation would strengthen the fact sheet discussion.

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" (WQBEL), 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 Maryland 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; and
- Calculated such limits or other permit conditions.

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

MDE's fact sheets adequately identify the receiving stream, applicable water quality standards, impairment status, and applicable TMDLs. Permits reviewed appropriately develop WQBELs. However, the fact sheets reviewed did not consistently include a thorough or in-depth discussion of antidegradation or anti-backsliding. Certain discussions of antidegradation were minimal and generic; the discussion was thin and lacked relevance to the specific discharge.

The review of MDE's permit records indicates that the Department maintains strong partnerships other water quality programs, which is especially evident where the permit record has a Narrative Summary. MDE may want to consider including discussions in the fact sheets to illustrate the cooperation and collaboration MDE has with other water quality offices and programs during permit development. The MDE TMDL WLA look-up tool on the website is a useful tool for permit writers. Also, based on the discussion during the onsite PQR, MDE's biological nutrient removal (BNR) program appears to have benefits to it and to be an

innovative program with the goal to achieve nutrient pollutant loading reductions in discharges to the Chesapeake Bay.

Permit records reviewed onsite included supporting documentation of the reasonable potential analysis. However, fact sheets did not consistently include a discussion of how pollutants of concern were identified for the discharge.

In at least one permit reviewed, the permit appeared to establish effluent limitations that were effective during specific time frames that were less stringent than previous effluent limitations. The fact sheet did not appear to discuss anti-backsliding. For example, a permit established BOD_5 limits for May 1–September 30 (20 mg/L average monthly effluent limit (AMEL) and 30 mg/L maximum daily effluent limit (MDEL)) and for October 1–April 30 (30 mg/L AMEL and 45 mg/L MDEL). The reissued permit established BOD_5 limits for April 1–May 31, June 1–October 31, and November 1–March 31, (all at 30 mg/L AMEL and 45 mg/L MDEL). The reissued fact sheet stated that the November 1–March 31 limit will remain in effect due to anti-backsliding. The reissued fact sheet did not appear to address the removal of the BOD_5 limits for May 1–September 30 (20 mg/L AMEL and 30 mg/L MDEL). As stated previously, fact sheets reviewed did not consistently contain an in-depth discussion of anti-backsliding. MDE's fact sheets would be strengthened through development of boilerplate or template language that consistently addressed antidegradation and anti-backsliding for each discharge.

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.

Generally, MDE permits established appropriate monitoring requirements based on the type of discharge and corresponding limit basis. All permits reviewed provided proper identification of monitoring locations and frequencies. However, all POTW permits reviewed lacked influent monitoring of TSS to determine compliance with the technology-based standard that requires minimum percent removal requirements for TSS. As stated previously, all POTW permits reviewed lacked the minimum percent removal requirements for BOD and TSS; an inconsistency with federal requirements for discharges from POTWs. Further, of the permits

reviewed, at least three non-POTW permits lacked monitoring requirements for WET and contained minimum reporting and recordkeeping requirements.

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.

MDE permits reviewed contained many of the standard conditions required by federal regulations; however, some standard conditions were either missing, difficult to locate in the permit, or are worded less stringently than the standard conditions in 40 CFR 122.41 and 122.42. Reviewers were unable to locate the following standard conditions:

- Need to halt or reduce activity 122.41(c);
- Reporting Requirement, Compliance Schedules (122.41(I)(5));
- Reporting Requirement, Other Non-Compliance (122.41 (I)(7));
- Reporting Requirement, Other Information (122.41(I)(8)); and
- Bypass definition of "severe property damage" (122.41(m)(1)(ii)).

In addition, the review of standard conditions in MDE permits revealed that for the duty to comply condition (40 CFR 122.41(a)), language is dispersed throughout sections of special and general conditions and is not clearly defined; it appears as though it is paraphrased from the federal requirements. In addition, the proper operation and maintenance requirements (122.41(e)) are not exactly consistent with federal regulations. For instance, the condition in MDE permits does not extend to laboratory controls and quality assurance requirements. Language contained in the standard condition for permit actions (122.41(f)) generally includes requirements of 40 CFR 122.41(f); however, does not state "The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition." Finally, the standard condition for the reporting requirement for Planned Changes (122.41(I)(1)) includes general planned changes requirements; however, does not specifically call out change that may constitute a "new discharge" or "changes in sludge use or disposal practices." EPA

required MDE to review the standard conditions established in NPDES permits and ensure that they are consistent with the federal standard conditions established in 40 CFR 122.41 and 122.42.

MDE permits established appropriate special conditions, such as implementation of specific best management practices, development and implementation of stormwater pollution prevention plans, conducting mixing zone studies, toxicity reduction evaluation studies, and biomonitoring study plans. One municipal permit was listed as a "non-pretreatment wastewater treatment plant" in the fact sheet; however, the permit lists pretreatment program requirements.

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 (40 124.5). EPA discussed each element of the administrative process with Maryland, and reviewed materials from the administrative process as they related to the core permit review.

MDE's Information Management System (e.g., electronic copies of documents) is a useful program component and provides uniform administrative record storage and management. Public notices were consistently included in the permit records; MDE has a very thorough practice of publicly noticing the availability of an application and the draft permit and sends notices to a broad stakeholder list. However, most public notice documents reviewed for POTW permits lacked a description of sludge use and disposal practices, as required by 40 CFR 124.10(d)(vii). EPA urged MDE to revise their template public notice documents to include statements that provide a description of sludge use and disposal practices.

For permits where comments have been received, MDE permit writers prepare a comprehensive response to comments document and retain it in the permit record. However, in cases where MDE did not receive public comments on a permit and therefore did not make changes between the draft and final, MDE documents in the final executive summary memo for the permit that no comments were received and no hearing was requested. a best practice would be to note in the record that no comments were received and no hearing was requested. Further, where there have been changes made between the draft and final permits, MDE permit writers develop a revised final Fact Sheet that describes the changes made pursuant to the public comments; this is an outstanding program strength.

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 a final permit. Authorized state programs should have equivalent documentation. The record should contain the necessary

documentation to justify permit conditions. At a minimum, the administrative record for a permit should contain the permit application and supporting data; draft permit; fact sheet or statement of basis; 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 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.

Fact sheets contain the required elements of fact sheets and adequately identify the facility and discharge location, describe the facility operation and wastewater treatment processes, and the overall basis for final effluent limitations. While Fact Sheets included a clear basis for effluent limitations, they did not demonstrate that MDE compared TBELs and WQBELs, and then established the most stringent limitation. The comparison should be explicit; a statement in the fact sheet indicating such for each parameter would be useful. MDE's fact sheets provide clear information on the public comment and response process and availability of and process for requesting public hearings.

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 as well as the procedures explaining the basis for establishing, or for not establishing, water quality-based effluent limitations should be clear and straight forward. 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.

MDE's documentation of permit development is generally adequate; however, fact sheets would be improved with stronger discussions of the basis of TBELs. In particular, the fact sheets for POTWs lacked a link to federal secondary treatment standards as the basis for TBELs. Further, while fact sheets for non-POTWs well document the basis for ELG-based TBELs, the fact sheets would be improved with a more detailed discussion of the basis of TBELs established on a case-by-case basis, using BPJ. Fact sheets for non-POTW permits do not consistently explicitly discuss the expected waste streams and pollutants in the discharge; fact sheets would be

strengthened with improved discussions of expected pollutants of concern, both in terms of TBELs and WQBELs. However, effluent limitations based on ELGs were appropriately applied in the permits reviewed and the development of ELG-based effluent limitations was clear.

While the review of permit records allowed for an understanding how MDE coordinates with other water quality programs during permit development, fact sheets lacked a clear discussion of the basis for selected pollutants of concern. Fact sheets describe how WQBELs are developed, including a thorough and clear discussion of the receiving stream water quality, applicable water quality standards and impairment-related conditions, and inputs that factor into the reasonable potential evaluation. Some files had a "Narrative Summary" document that contained many calculations, but it was not consistently included in files for POTWs and non-POTW permits. Further, WET test calculation data should be readily available; in some cases, it was, but it is strongly recommended that the inclusion of data be consistent.

As discussed previously, MDE fact sheets did not consistently include a detailed and relevant discussion of antidegradation and anti-backsliding. Fact sheets would be strengthened with a consistent discussion of the applicability of antidegradation and anti-backsliding to the permitted discharge. The review of MDE's permit records demonstrated how MDE engages a broad array of stakeholders during permit development—providing public notice of both the application for a permit and the draft permit itself.

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 reviewed 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, EPA has worked at reducing the levels and impacts of nutrient pollution. A key part in this effort has been the support 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 the State Pollutant Discharge Elimination System (SPDES) permitting program in Maryland and implementation of this framework.

Background

MDE water quality standards are comprised of designated uses, narrative water quality standards, and numeric water quality criteria. Nitrogen and phosphorous are nutrients that are natural parts of aquatic ecosystems. Unlike many water contaminants, nutrients do not typically exert primary effects as toxicants. Too much nitrogen and phosphorous can cause algae to grow faster than ecosystems can handle; therefore, many nutrient control efforts in still and tidal waterbodies use chlorophyll-a as an indicator criterion to control nutrients. This phenomenon is often called eutrophication. Studies including "Data Analysis to Support Development of Nutrient Criteria for Maryland Free-Flowing Waters" have been done in support of numeric criteria for nutrients although no specific numeric criteria have been implemented by MDE. MDEs main approach to reduce eutrophication has been through the development of TMDLs. This approach assigns nutrient load allocations to allochthonous sources within the impaired waterbodies watershed. MDE has also established both narrative and/or numeric nutrient response-based criteria for water clarity, dissolved oxygen (DO), submerged aquatic vegetation (SAV) and chlorophyll-a which are all applicable to the Chesapeake Bay TMDL, whose watershed overlays the majority of the state, and other smaller localized watersheds such as man-made reservoirs and non-tidal streams.

The Chesapeake Bay TMDL was developed because the Bay was not fully supporting aquatic life use due to nutrient enrichment. Point source dischargers discharging to the Chesapeake Bay watershed have been assigned nutrient loads for nitrogen and phosphorous, which were established based on modelling the effects of nutrients on dissolved oxygen, chlorophyll-a and overall ecosystem health. As per Maryland's Chesapeake Bay Tributary Strategy Statewide Implementation plan, MDE allocates individual WLAs to both major and minor dischargers in the Chesapeake Bay Watershed. More stringent nutrient limitations are implemented when a facility has installed technology for the control of nitrogen and phosphorus via new construction, expansion, or upgrade. Maryland has committed to upgrading 67 of the significant treatment plants with state-of-the-art ENR technology that accounts for 95% of Maryland total wastewater flow. The installation of the ENR systems allows for WLAs to be technologically based on an annual average concentration of 4.0 mg/l total nitrogen (TN) and 0.3 mg/l total phosphorus (TP).

To assess how nutrients are addressed in the MDE NPDES program, EPA Region 3 reviewed the following three permits, the Maryland Correctional Institution WWTP (MD0023957), the Willards WWTP (MD0051632) and the Pittsville WWTP (MD0060348).

Program Strengths:

The Maryland Correctional Institution (MCI) WWTP (MD0023957) has nutrient requirements laid out by the Chesapeake Bay TMDL Watershed Implementation Program (WIP). MCI WWTP is considered a significant Chesapeake Bay discharger of municipal wastes and has recently undergone upgrades to its biological nutrient removal (BNR) on or before December 1, 2017. This is the first upgrade of the facilities BNR process which was first installed in the mid-1990s. The MCI WWTP has been assigned with the annual WLAs of 19,492 lbs./year for TN and 1,462 lbs./year for TP, which are based on a TN concentration of 4.0 mg/l, a TP concentration of 0.3

mg/l and the current design capacity of 1.6 MGD; the WLAs are consistent with the Chesapeake Bay WIP and Maryland's ENR strategy. The permit also contains various monitoring requirements for Nitrate-Nitrite as N, Organic Nitrogen as N and Orthophosphate as P in order to meet the water quality requirements of the Bay TMDL.

MCI WWTP is also covered by the TMDL of Phosphorus in the Antietam Creek Watershed. Although the current NPDES permit was issued before the Antietam Creek TMDL was approved, the phosphorus limit in the permit is consistent with the WLA assigned by the TMDL and is considered protective. The MCI NPDES permit is proactively protective of the effects of eutrophication in both the Chesapeake Bay and the nested Antietam Creek watershed. This is accredited to the ENR strategy Maryland uses to address allochthonous nitrogen and phosphorus from direct dischargers.

Willards WWTP (MD0051632) is a minor discharge facility that includes several nutrient requirements. The facility at current design flow (0.2 MGD) includes a monthly average concentration and loading limit for Total Kjeldahl Nitrogen (TKN) of 2.9 mg/l and 8.4 lbs./day for months May through September. This limit was implemented to protect the in-stream DO Water Quality Criterion, of no less than 5 mg/l at any time (see COMAR 26.08.02.03-3A(2)) and is intended to provide a quality effluent that protects against ammonia toxicity. The facility is also covered as a non-significant discharger by the Chesapeake Bay TMDL and has monitoring requirements for Nitrate-Nitrite as N, Organic Nitrogen as N, TN, TP and Orthophosphate as P. The Point Source Element of Maryland's Tributary Strategy which assigns the annual maximum nutrient loads, assigned Willards a yearly goal of 4,386 lbs./year for total TN and 730 lbs./year for TP. As long as the design flow of the WWTP does not increase, these loads will remain as goals only, not limitations since this facility is included in the Chesapeake Bay aggregate WLA for non-significant dischargers. Willards WWTP discharges directly to Burnt Mill Branch which also listed as being impaired for nutrients among other pollutants although no local nutrient TMDL has been approved.

The Pittsville WWTP permit (MD0060348) is a minor discharge facility and also includes a variety of nutrient requirements. The facility at current design flow (0.115 MGD) includes a monthly average concentration and loading limit for Total Kjeldahl Nitrogen (TKN) of 10 mg/l and 17 lbs/day) for months May through September which is consistent with MDE's SOP. The facility is also covered as a non-significant discharger by the Chesapeake Bay TMDL and has monitoring requirements for Nitrate-Nitrite as N, Organic Nitrogen as N, TN, TP and Orthophosphate as P. Maryland's Tributary Strategy assigned Pittsville a yearly goal of 4,733 lbs/year for total TN and 457 lbs/year for TP. As long as the design flow of the WWTP does not increase, these loads will remain as goals only, not limitations, since this facility is included in the Chesapeake Bay aggregate WLA for non-significant dischargers.

Areas for Improvement:
We recommend that MDE continue its efforts to development statewide numeric nutrient criteria for nitrogen and phosphorus.

2. Pesticides

On October 31, 2011, the EPA issued a final NPDES *Pesticide General Permit (PGP) for Discharges from the Application of Pesticides*. This action was in response to a 2009 decision by the U.S. Sixth Circuit Court of Appeals (National Cotton Council of America v. EPA, 553 F.3d 927 (6th Circuit 2009)) in which the court vacated EPA's 2006 Final 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. The federal PGP applies where the EPA is the permitting authority. Approximately 40 authorized state NPDES authorities have issued state pesticide general permits as of November 2011.

Background

On January 7, 2009, the Sixth Circuit vacated the EPA's 2006 NPDES Pesticides Rule under a plain language reading of the CWA. National Cotton Council of America v. EPA, 553 F.3d 927 (6th Circuit 2009). The Court held that the CWA unambiguously includes "biological pesticides" and "chemical pesticides" with residuals within its definition of "pollutant." In response to this decision, on April 9, 2009, 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 EPA the two-year stay of the mandate. On March 28, 2011, the U.S. Court of Appeals for the Sixth Circuit granted 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.

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. EPA proposed a draft pesticide general permit on June 4, 2010 to cover certain discharges resulting from pesticide applications. EPA Regional offices and state NPDES authorities may issue additional general permits or individual permits if needed.

In June 2011, the Maryland Department of the Environment (MDE) published a notice of the availability of a final statewide general permit that provides authorization to entities with control over the decision to perform pesticide applications to discharge under the federal National Pollutant Discharge Elimination System (NPDES) program. The general permit has an effective date of October 31, 2011 and an expiration date of October 30th, 2016. The permit has since been administratively extended indefinitely.

For this PQR, EPA Region 3 reviewed Maryland's pesticide GP with a focus on verifying its consistency with NPDES program requirements. The general permit, titled "General Permit for

Discharges from the Application of Pesticides, General Discharge Permit No. 11PE, NPDES Permit No. MDG87" (MDG87), is intended to provide coverage under the Clean Water Act and State Water Control Act to operators who discharge directly to waters of the state from the application of biological pesticides or chemical pesticides that leave a residue (collectively called pesticides), when the pesticide application is for one of the following pesticide use patterns: (1) mosquito and other flying insect pest control; (2) weed and algae pest control; (3) nuisance animal control; and (4) forest canopy pest control. Pesticide applications that will not result in a direct discharge to waters of the state do not need permit coverage.

The Pesticide General Permit mirrors the EPA National Pesticide General Permit in both structure and content except for the following differences:

1. MDE does not require the submission of an NOI. MDE will instead rely on Maryland Department of Agriculture's Integrated Pest Management (IPM) Program for information dissemination and collection. This is intended to ensure the permittees are aware of permitting conditions and their duty to comply through existing communications channels that have already been. MDE regularly provides training to applicators through Maryland Department of Agriculture's Integrated Pest Management (IPM) Program.

2. MDG87 also does not make a distinction between "decision makers and non-decision makers" and holds all involved parties responsible.

3. MDG87 does not contain a blanket Tier 3 exclusion, allowing government resource management agencies to discharge. MDE currently does not have any Tier 3 waters.

Program Strengths:
Maryland is able to use resources and experienced personnel from different program areas to support its pesticide program. The general permit is fully compliant with federal regulations.

MDE is planning to issue a new pesticide general permit this calendar year. Currently, Maryland requires applicators who want to control nuisance aquatic life in ponds, ditches or waterways by the use of chemical products to obtain a Toxic Materials Permit (TMP) and comply with MDG87.

MDE is planning to incorporate the TMP requirements into the pesticide general permit with the next reissuance. They are also planning to begin requiring an NOI and exclude certain categories from the general permit and require individual permits for these exceptions. This consolidation is expected to simplify the pesticide permitting process and reduce the administrative burden.

Areas for Improvement:
EPA recommends MDE reissue the pesticide general permit as it has expired. Further EPA recommends MDE consider taking steps to ensure future pesticide general permits are issued before the previous permit expires.

In addition, an expired general permit that does not require the submission of NOIs, may require additional controls to prevent unauthorized new coverages. A general permit can continue to cover permittees that were granted coverage before the general permit expiration date. Once the permit has expired, however, no new permittees can be granted coverage under the expired permit. Since no NOI is required for coverage under the PGP, it is unclear how MDE can ensure that new permittees are not being granted coverage under the expired permit.

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 this pretreatment program review was to assess the status of the pretreatment program in Maryland, as well as assess specific language in POTW NPDES permits. With respect to NPDES permits, focus was placed on the following regulatory requirements for pretreatment activities and pretreatment programs:

- 40 CFR 122.42(b) (POTW requirements to notify Director of new pollutants or change in discharge);
- 40 CFR 122.44(j) (Pretreatment Programs for POTWs);
- 40 CFR 403.8 (Pretreatment Program Requirements: Development and Implementation by POTW);
- 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).

The PQR also summarizes the following: program oversight, which includes the number of audits and inspections conducted; number of significant industrial users (SIUs) in approved pretreatment programs; number of categorical industrial users (CIUs) discharging to municipalities that do not have approved pretreatment programs; and the status of implementation of changes to the general pretreatment regulations at 40 CFR part 403 adopted on October 14, 2005 (known as the streamlining rule).

Three (3) POTW permits with approved pretreatment programs were selected for this review, including the town of Elkton (MD0020681), City of Havre de Grace (MD0021750), and the Washington County Conococheague Waste Water Treatment Plant (WWTP) (MD0063509). MDE provided information on the SIU permits for all three of the permitted facilities listed

above which Region 3 reviewed as well. The Town of Ocean City (MD0020044) permit was also reviewed as a POTW without an approved program.

POTW program oversight (audits and PCIs)

The State is authorized to administer the Pretreatment Program (1989) and delegates the program administration responsibility to the POTWs. Most of the required data is entered into ICIS. A copy of the approved MDE program and the MOA are available. Currently, the MDE regulates twenty (20) approved pretreatment programs. Nineteen (19) of these programs have a capacity of greater than 5 MGD. In Calendar year 2016 MDE conducted nine (9) pretreatment program audits and eleven (11) Pretreatment Inspections which ensures and exceeds the compliance monitoring strategy (CMS) of auditing POTWs at least once and inspecting twice a permit cycle. MDE also inspected 15 SIUs in approved programs during 2016. This translates to 100% of the CMS goal. The most recent EPA audit of the MDE Pretreatment Program was conducted in August 2010. MDE reports the necessary information in their 106 semi-annual grant reports to allow EPA to better track MDE's compliance information.

There are 182 SIUs in POTWs with approved programs. None of these SIUs have an expired Industrial User (IU) permit. Of the 182 SIUs in approved programs, 88 of them are CIUs. None of these permits are expired. There are 4 SIUs located in 4 individual POTWs without an approved pretreatment programs.

The State has not specifically updated its regulations to incorporate the Pretreatment Streamlining revisions but they were incorporated by reference and the state has informally asserted that additional processing was unnecessary for legal enforceability of the regulations. Incorporation by reference means that, in the event the regulation changes, the changes are not part of the legal requirements. MDE cannot incorporate future changes in a current incorporation by reference. COMAR may need to be revised to that effect. All discharge monitoring reports (DMRs) and required reports are reportedly received and comprehensively reviewed by MDE.

Review of POTW NPDES Permits, Fact Sheets and Delegation Agreements

MDE incorporates by reference both 40 CFR 403 regulations and its own code of regulations COMAR 26.08.08 within its pretreatment permit conditions. For purposes of this section, the NPDES permits and fact sheets for the Town of Elkton (MD0020681), the City of Havre de Grace (MD0021750), and Washington County, Conococheague Waste Water Treatment Plant (WWTP), (MD0063509) were reviewed for compliance with the federal pretreatment standards. All permits and fact sheets shared the same discrepancies listed below. COMAR 26.08.08 and delegation agreements were also reviewed as part of this process.

The permits EPA reviewed do contain requirements for submitting an annual pretreatment report to the Department (40 CFR 403.12(i)) although, they do not specify a date or frequency for submission. This information is housed in MDE's delegation agreements, which is a document MDE issues to a POTW when a pretreatment program is approved. The agreement is an amendable document the that describes the Authority's and Departments responsibilities.

The delegation agreements describe many of the program requirements including; POTW responsibilities, enforcement, confidentiality, modifications to Categorical pretreatment standards (removal credits and other variances) and reporting requirements. MDE uses this document instead of discussing program responsibilities within the permit and fact sheet.

For POTWs with pretreatment programs; permits, COMAR and delegation agreements do not contain the federal requirement to calculate and reevaluate local limits every permit reissuance (40 CFR 122.44(j)(2)(ii)). They also do not contain all 40 CFR 122.42(b) requirements; POTW pretreatment notification requirements. The most representative condition, within the POTW NPDES permits, of the notification requirements is the "Change in Discharge" requirement but it does not specify changes affected by indirect dischargers. Maryland permits would be strengthened by addition of the exact language at 40 CFR 122.42, even though under the "Change in Discharge" section the permits require reporting of changes resulting in increased or different discharge of pollutants. Neither the permits, COMAR or the delegation agreements contain a requirement to conduct an industrial waste survey (40 CFR 122.44(j)(1)).

The permits reviewed have accompanying fact sheets. The fact sheets designate the requirement for a pretreatment program and the reason behind its approval. The fact sheets do not specify when the pretreatment program was approved, document any subsequent modifications or list the SIUs located within the service area. While the fact sheets provided do not describe the types of industrial users within the service area, they do evaluate pollutants from these industry sectors using reasonable potential analysis for water quality-based standards. NPDES permits contain the program approval date which is atypical of other Region 3 states.

The Town of Ocean City (MD0020044) permit was also reviewed as a POTW without an approved program. The fact sheets explained that no SIU were located within the POTWs service area and MDE concluded that no pretreatment program was needed. The permit did not include a reopener clause (40 CFR 122.42(b)) which warrants reopening a permit to include development of a pretreatment program. Maryland permits for POTWs without pretreatment programs would improve with inclusion of a reopener clause requiring pretreatment program development. Neither the permits nor COMAR contained a requirement to conduct an industrial waste survey (40 CFR 122.44(j)(1)).

Industrial User Permit Reviews

Industrial permits reviewed included Dynamis Inc., Smucker Natural Foods Inc., and Transwheel Corporation; all discharge to approved programs. Generally, the required elements of an IU permit were included. Individually, some of the permits reviewed had several discrepancies where an element was either missing (not covered) or was found but may have been not covered adequately. For purposes of our review, a Permit Review Checklist was used for each permit. One consistent deficit that was noted was the lack of requirement for the name of samplers and analysts when it came to recordkeeping of sampling and analyses (40 CFR part 136 and 40 CFR 403.12(o)(1) and 40 CFR 403.12(g)(3)).

Program Strengths:
MDE exceeds compliance goals by conducting more Pretreatment Inspections and audits than needed to fulfill the CMS. The audits of the approved programs included inspections at 1 or 2 of the SIUs discharging to these POTWs. MDE may also review draft IU permits before issuance by its approved programs which is described in the delegation agreements.

Areas for Improvement:
Many of the issues stated in the following paragraphs are recurring and have not been resolved since EPA's pretreatment audit in 2010. Solving these issues would strengthen Maryland's pretreatment program and protect MDE against litigation. Region 3 looks forward to working with MDE to resolve these issues and help protect Maryland's treatment plants, water quality and a healthy Chesapeake Bay.

1. MDE needs to include requirements at 40 CFR 122.42(b) in all POTW NPDES permits. MDE needs to review its standard pretreatment program condition to ensure that it meets the requirement of 40 CFR 122.42(b). MDE needs to include requirements at 40 CFR 122.42(b)(1) and (b)(3) in all POTWs NPDES permits, and, where such information must be submitted, ensure that all information required per 40 CFR 122.42(b)(2) is received. The easiest way to accomplish this is to include the regulatory language or incorporate it by reference.

2. MDE needs to include the industrial wastewater user survey requirement of 40 CFR 122.44(j)(1) in all POTW permit(s) or delegation agreements accordingly.

3. MDE also needs to review POTW issued IU permits to ensure inclusion of the samplers and analysts recordkeeping requirements (40 CFR part 136 and 40 CFR 403.12(o)(1) and 40 CFR 403.12(g)(3)).

4. MDE needs to revise its POTW pretreatment program legal authorities to include the direct incorporation of the 2005 streamlining revisions. Region 3 also highly recommends adding the delegation agreements to the permit record as an attachment to the fact sheet. Maryland permits would be strengthened by addition of the exact language at 40 CFR 122.42(b)(2), even though under the "Change in Discharge" section the permits require reporting of changes resulting in increased or different discharge of pollutants.

5. If results of 40 CFR 122.42(b) warrant reopening a permit to include development of a pretreatment program, Maryland permits for POTWs without pretreatment programs would improve with inclusion of a reopener clause requiring pretreatment program development.

6. Maryland fact sheets for POTWs with pretreatment programs could be improved with inclusion of the numbers and types of their industrial dischargers from which they accept process wastewater.

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 small MS4s, industrial activities, and construction activities.

For Maryland, Region 3 selected three NPDES stormwater permits to review. These permits include:

- General Permit for Discharges from Stormwater Associated with Industrial Activities (MDR0000)
- General Permit for Stormwater Associated with Construction Activities (MDRC)
- Prince George's County Phase I Permit for Stormwater Discharges from its Municipal Separate Storm Sewer System (MD0068284)

General Permit for Discharges from Stormwater Associated with Industrial Activities (MDR0000)

Background

Federal regulations in 40 CFR Section 122.26(c) contain the NPDES permit application requirements for discharges of stormwater associated with industrial activities. Part 122.26(b)(14) defines the types and categories of industrial discharges that require NPDES permit coverage. These industrial categories have been regrouped in Maryland's general permit into 32 sectors based upon similarities in the nature of the industrial activity, the type of materials handled and material management practices employed. Industrial permits generally require industries to reduce the level of pollutants in stormwater runoff from their sites through the development and proper implementation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP describes best management practices, procedures for spill prevention, inspection requirements, and training of employees which the industrial facility will implement to prevent pollutants from making their way into stormwater runoff. The focus of the Industrial Stormwater review is to verify that the general permit and fact sheet comply with federal regulations, are consistent with EPA's MSGP, and are protective of water quality.

The NPDES Permit for Discharges from Stormwater Associated with Industrial Activity is a general permit issued by the Maryland Department of the Environment. The permit became effective January 2, 2014. It will expire January 1, 2019.

Program Strengths:
The permit closely aligns with EPA's MSGP and in some instances, contains requirements beyond those found in the MSGP.

The permit requires analytical monitoring for discharges from certain classes of industrial facilities that have a higher potential to discharge pollutants at concentrations of concern, the point at which a stormwater discharge could potentially impair water quality or impact human health. Permittees are required to meet benchmarks that are specified in the permit for certain sectors. These benchmark values represent the target levels which MDE uses to determine if a stormwater discharge from any given facility merits further monitoring to ensure that the

facility has been successful in implementing a SWPPP. The permit also addresses discharges to impaired waters in advance of a TMDL and contains antidegradation requirements for new or increased dischargers.

The permit contains a specific sector for Public Works Maintenance Facilities and School Bus Maintenance Facilities. These sectors are not included in EPA's MSGP and are not required by regulations to be incorporated into the permit; however, MDE has decided that because of the potential to be significant contributors of pollutants that they be regulated. Similarly, the permit contains conditions for minimizing exposure from salt storage piles.

The permit contains a special requirement for Chesapeake Bay restoration. Facilities larger than 5 acres located within the Chesapeake Bay watershed and located within an MS4 jurisdiction are required to select, design, install and implement practices to achieve restoration of 20% of the untreated impervious surface area at the facility or perform equivalent control measures for the reduction of nutrients as defined in the permit.

Areas for Improvement:
The permit does not specify the qualifications that are required for the preparer of the SWPPP.

General Permit for Stormwater Associated with Construction Activities (MDRC)

Background

Federal regulations in 40 CFR Section 122.26(c) contain the NPDES permit application requirements for discharges of stormwater associated with small construction activities. Part 122.26(b)(15) defines the types of activities (including land disturbing operations such as clearing, grubbing, grading and excavating) that require NPDES permit coverage. The Storm Water Pollution Prevention Plan (SWPPP) describes best management practices, procedures for spill prevention, inspection requirements, and training of employees which the site will implement to prevent pollutants from making their way into stormwater runoff. The focus of the Construction Stormwater review is to verify that the general permit and fact sheet comply with federal regulations, are consistent with EPA's Construction General Permit (CGP) and are protective of water quality.

In 2009, EPA published a new Construction and Development Effluent Limitations Guidelines rule (C&D Rule), which established numeric and non-numeric effluent limitations for stormwater discharges associated with construction activity. The numeric limitations have been stayed pending further study; however, the non-numeric limitations remain in effect and are reflected in this permit.

The NPDES Permit for Discharges of Stormwater associated with Construction Activity is a general permit issued by the Maryland Department of the Environment. The permit became effective January 1, 2015. It will expire December 31, 2019.

Program Strengths:
The permit contains a number of conditions to comply with the C&D Rule that was recently promulgated by EPA, including but not limited to implementing sediment and erosion controls;

minimizing the discharge of pollutants from vehicle washing, wheel wash water, pavement wash water and other wash waters; minimizing exposure of building materials and wastes; minimizing the discharge of pollutants from spills and leaks; and implementing chemical spill and leak prevention and response procedures. The permit further requires that applicants that discharge to impaired waters list those waters in their NOI (application). The permit contains specific requirements for discharges to impaired waters if MDE determines that the permittee's discharge may cause, have reasonable potential to cause, or contribute to an excursion above any applicable water quality standard. Additionally, permittees must implement measures to ensure that the discharge of pollutants from a site is consistent with the assumptions and meets the requirements or wasteload allocation of any approved TMDL, including the Chesapeake Bay TMDL and the Maryland Watershed Implementation Plan.

Areas for Improvement:

1. The permit does not contain all of the specific conditions required by the checklist. Instead, the permit references a number of existing state laws and regulations. While these referenced policies may contain the information required by federal regulations, it is recommended that future permits contain the specific conditions so that there is no question as to what is required of permittees.
2. The permit does not contain language for how to handle discharges to sensitive waters (antidegradation).
3. The permit should include requirements to target discharges to waters with PCB impairments, similar to the EPA CGP.

Prince George's County Phase I MS4 Permit (MD0068284)**

Background

Federal regulations in 40 CFR Section 122.26(d) outline the NPDES permit requirements for discharges of stormwater from large and medium municipal separate storm sewer systems (MS4s). The regulatory requirements include a description of the information that operators of MS4s must maintain and implement. This information includes: Adequate legal authority to control discharges to the MS4; Identification of sources of pollutants, locations of outfalls, and land use designation; Field screening guidelines and criteria; Management programs to control pollutants, Fiscal Resources to maintain the programs; and Assessment of Controls-including estimated pollutant load reductions. Urban stormwater runoff is a source of various pollutants and the MS4 program was designed to control pollution from the continual development and urbanization of metropolitan areas. The focus of the MS4 Stormwater review is to verify that the permit and fact sheet comply with federal regulations and are protective of water quality.

The Phase I MS4 permit for Prince George's County is an individual permit issued by the Maryland Department of the Environment. The permit became effective January 2, 2014. It expired January 1, 2019.

Program Strengths:

The permit requires that the permittee develop, implement, and enforce a comprehensive suite of stormwater management programs for reducing pollutants to the MEP. The components of the permit are derived from the list of application requirements listed above and shall describe the written plans and best management practices (BMPs) to be implemented to achieve compliance with the permit.

The permit requires compliance with several long-standing Maryland regulations, including the Stormwater Management Act of 2007, and stormwater management requirements from COMAR regulating construction site runoff from new development and redevelopment, erosion and sediment control, and post-construction BMPs.

Discharges to a waterbody with an approved TMDL are required to meet the applicable wasteload allocation. As such, the PG County permit contains a numeric limit for the discharge of trash to the Anacostia River. In addition, the permit requires the County to complete detailed watershed assessments for each watershed in the entire County for purposes of identifying water quality problems and prioritizing water quality improvement projects. Furthermore, since the County controls discharges to receiving waters within the Chesapeake Bay watershed, the permit requires development of a Restoration Plan that outlines the projects that the County will undertake to reduce untreated impervious surfaces by 20% from the approved baseline number or treat them to resemble the runoff from forested conditions.

Areas for Improvement[8]:

1. The permit does not address discharges to Tier Three waters or contain any antidegradation requirements. It is recommended that the permit specify requirements for discharges to high quality waters.
2. The permit does not require proper reporting in the event of non-compliance with the permit which may endanger human health and/or the environment.
3. The permit should contain a specific frequency for street sweeping and inlet cleaning.
4. The permit should contain specific audiences or pollutants that should be targeted for public education other than trash.
5. The permit should require compliance with state and local public notice requirements.
6. The permit should include an evaluation of the public education efforts undertaken by the permittee.

****NOTE**: EPA did not review the April 27, 2018 small MS4 general permits (MDR055500 and MDR055501) because they were not finalized prior to the PQR evaluation. Additionally, the permits were not reviewed for consistency with the MS4 General Permit Remand Rule issued

[8] Since the time that this permit was reviewed and this PQR was conducted, EPA has engaged in negotiations with MDE regarding the reissuance of expired Phase I MS4 permits. While EPA has concurred on the terms of those permits that were submitted for review, a draft of the Prince George's County MS4 permit was not formally submitted. Although EPA expects that most of these concerns will be addressed when the permit is reissued if it is written consistent with the other permits that EPA has reviewed, these items will continue to be tracked using the PQR Action Item process and procedures until the permit is reissued.

on December 9, 2016 (81 Fed. Reg. 89320) because MDE had proposed its small MS4 permits prior to the rule's promulgation and the state was at an advanced stage of the permit issuance process. When the next small MS4 general permits are issued, EPA will review any draft permits for compliance with the MS4 General Permit Remand Rule.

IV. REGIONAL TOPIC AREA FINDINGS

A. Chesapeake Bay

The NPDES regulations at 40 CFR 122.44(d)(1)(vii)(B) require that effluent limits be developed consistent with the assumptions and requirements of any wasteload allocations (WLAs) established by approved TMDLs. The Chesapeake Bay TMDL was developed and allocations were established within the entire watershed to ensure protection of in-stream water quality standards established by the State of Maryland within the Bay itself. The focus of the Chesapeake Bay review is to verify that permits and fact sheets have been developed to incorporate proper effluent requirements to meet the intent of the TMDL established WLAs assigned to facilities in Maryland.

Background

On December 29, 2010, EPA established the Chesapeake Bay TMDL, a historic and comprehensive "pollution diet" with rigorous accountability measures to initiate sweeping actions to restore clean water in the Chesapeake Bay and the region's streams, creeks and rivers. The TMDL established WLAs for NPDES point sources throughout the watershed, including a large percentage of Maryland's NPDES permitted facilities. Watershed Implementation Plans (WIPs) were developed by the Bay jurisdictions to detail how and when the jurisdictions will meet TMDL allocations. The Chesapeake Bay TMDL identifies 86 "significant" wastewater dischargers in MD with assigned individual WLAs for TP, TN, and TSS. Maryland has committed to upgrading 67 of the Chesapeake Bay significant treatment plants with state-of-the-art ENR technology that accounts for 95% of Maryland total wastewater flow.

According to a tracking system hosted by MDE's website, as of 2015: 41 treatment plants have been upgraded, 20 are currently under construction, 4 are in the design phase and 2 are in the planning phase. Once upgraded, the significant wastewater treatment plants are expected to reduce nitrogen and phosphorus in their effluent down to 3 mg/l total nitrogen and 0.3 mg/l total phosphorus as stated by Maryland's Chesapeake Bay Tributary Strategy Statewide Implementation Plan. Plant upgrades allow Treatment plants to meet WLAs listed in Maryland's WIP.

Although not discussed in this section, there are other point sources assigned WLAs besides WWTPs, e.g., CAFOs, MS4s, whose programs are discussed in other sections of this report.MDE issues individual WLA to both significant and non-significant dischargers in the Chesapeake Bay watershed. For significant dischargers, any municipal discharger discharging greater than 500,000 GPD, WLAs are based on an annual average concentration of 4.0 mg/l TN and 0.3 mg/l TP and the approved design capacity of the plant. For non-significant dischargers, treatment plants with a design capacity less than 500,000 gallons per day, annual nutrient loads are based

on design capacity or projected 2020 flow, whichever is less, and a concentration of 18 mg/l TN and 3 mg/l TP. Significant industrial wastewater dischargers are those with a minimum TN discharge of 75 pounds per day or a minimum TP discharge of 10 pounds per day, which are equivalent loads of 500,000 gallons per day at 18 mg/l TN or 3 mg/l TP for a municipal wastewater treatment plant.

Annual loads are based on a combination of 1) recent performance levels, after having already achieved significant loading reductions since the initial baselines established in 1985; and, 2) identification and/or negotiation on a case-by-case basis of additional potential loading reductions. This information can all be found in Maryland's Chesapeake Bay Tributary Strategy Statewide Implementation Plan. With regard to TSS, the Chesapeake Bay TMDL established TSS WLAs for wastewater treatment facilities based on 30 mg/l at design flow, but the actual TSS mass loads for facilities in MD are well below the WLA. Maryland recognizes this and addresses this within the MD Phase II WIP by changing the loading from being based on the allowable loading limits in the permit to using actual discharge data.

Program Strengths:
As part of EPA Region 3's oversight responsibilities, MDE is required to submit for EPA review draft permits for all significant dischargers in the Bay watershed. For this PQR report, Region 3 reviewed four permits: 1) City of Crisfield (MD0020001), 2) Aberdeen Proving Ground, Aberdeen Area WWTP (MD0021237), 3) Naval Support Activity Annapolis (MD0023523) and 4) Allen Harim Foods, LLC (MD0067857). The NPDES permits properly included effluent limitations that are consistent with the assumptions and requirements of the wasteload allocations in the Chesapeake Bay Watershed TMDL. The City of Crisfield Treatment Plant (MD0020001) is considered a significant Chesapeake Bay discharger of municipal wastes and has recently undergone upgrades to add biological nutrient removal (BNR) in August of 2010. Crisfield has been assigned an annual WLA of 12,182 pounds/year for TN and 914 pounds/year for TP, which are based on a TN concentration of 4.0 mg/l, TP concentration of 0.3 mg/l and current design capacity of 1 MGD. These are consistent with both Maryland's ENR strategy and the Chesapeake Bay TMDL WLA.

The Aberdeen Proving Ground, Aberdeen Area WWTP (MD0021237) is considered a significant Chesapeake Bay discharger of municipal wastes and has also undergone upgrades to add BNR in March of 2006. The TN and TP limits of TN=20,710 lbs./yr and TP=1,553 lbs./yr are based on the current design capacity of 1.7 MGD, which are more stringent then the WLAs assigned in the Chesapeake Bay TMDL WIP. The WWTP has been assigned an annual WLA in the TMDL of 34,110 pounds/year for TN and 2,558 pounds/year for TP which are based on a TN concentration of 4.0 mg/l, TP concentration of 0.3 mg/l for an expanded design capacity of 2.8 MGD. The treatment plant is scheduled for construction to increase the design flow up to 2.8 MGD. The current WLAs are set to compensate the increased design capacity and are consistent with the Chesapeake Bay TMDL WLA once the treatment plant undergoes expansion. The Naval Support Activity (NSA) Annapolis (MD0023523) WWTP is a minor municipal wastewater treatment plant that is categorized as a Chesapeake Bay significant discharger. The treatment plant is scheduled to receive upgrades to add BNR consistent with Maryland's ENR strategy. The Chesapeake Bay TMDL WLA initially allocated TN of 12,182 lbs./yr and TP of 914

lbs./yr. During the most recent permit renewal process NSA Annapolis negotiated and MDE agreed to a lower permitted flow of 0.7 MGD instead of the 1.0 MGD design capacity. As a result, the Chesapeake Bay TMDL TN and TP WLA initially allocated were reduced by 30 % to TN=8,527 lbs./yr and TP=640 lbs./yr. The state is retaining custody of the difference between the permitted WLAs for future use determination and made a note of it in the MD Chesapeake Bay Phase II WIP. The permit limits were adjusted for a diminished actual flow of 0.3 MGD, TN=3,653 lbs./yr and TP=274 lbs./yr. The permit limits for TN and TP are more stringent than the WLAs assigned to this facility by the Chesapeake Bay TMDL. Allen Harim Foods, LLC (MD0067857) is a significant Chesapeake Bay discharger of industrial wastes. The facility is a poultry processing plant that processes approximately 750,000 chickens per week. The average discharge occurring at the facility is equal to 750,000 GPD. Allen Harim Foods has been assigned an annual WLAs of 4,500 pounds/year for TN and 370 pounds/year for TP. These values are consistent with the Chesapeake Bay TMDL WLA and are based on modeling conducted during prior permit cycles.

Areas for Improvement:
There are no areas for improvement identified.

B. Concentrated Animal Feeding Operations (CAFOs)

Background

Federal regulations at 40 CFR 122.23 define an Animal Feeding Operation (AFO) as a lot or facility where animals are stabled or confined and fed for at least 45 days per year and where crops, vegetation, forage growth, or post-harvest residue are not sustained in the normal growing season over any portion of the lot or facility. Concentrated Animal Feeding Operations (CAFOs) are the largest of these facilities and are defined as point sources by the CWA. Federal regulations authorize the permitting authority to designate any animal feeding operation as a CAFO subject to permitting if the facility is a significant contributor of pollution to waters of the United States.

EPA first developed federal effluent limitations guidelines (ELGs) for CAFOs in 1974. In 2003, the EPA revised the CAFO requirements at 40 CFR 122.23 and the ELGs at 40 CFR Part 412. The 2003 CAFO Rule stated all CAFOs are subject to the development and implementation of a nutrient management plan (NMP) and annual reporting requirements. Following challenges in federal court to the 2003 CAFO regulations, the EPA published revisions to the CAFO regulations and ELGs (73 Fed. Reg. 70418, November 20, 2008). The revised 2008 CAFO rule required that CAFOs apply for a permit if they discharge or propose to discharge to a surface water. In addition, NMPs have to be reviewed by the permitting authority and the terms of the NMP must be incorporated into the permit, making it a requirement to public notice the NMP. On July 19, 2012, EPA issued a final rule to revise its CAFO permit regulation to remove the requirement that CAFOs that "propose to discharge" must seek NPDES permit coverage. This rule revision is in response to a 2011 U.S. Court of Appeals for the Fifth Circuit decision in *National Pork Producers Council v. EPA*, which vacated portions of the Agency's 2008 CAFO rule. In addition, this action removed from the CAFO permit regulation the option to voluntarily certify that a CAFO does not discharge or propose to discharge.

MDE administers an authorized program to issue NPDES permits for point source wastewater discharging to waters of the State of Maryland, including from CAFOs. EPA retains general oversight of MDE's NPDES permit program. As part of its oversight role, EPA has authority under Section 402(d) of the CWA to review those permits and program, which are submitted by MDE pursuant to a Memorandum of Agreement (MOA). Under this MOA, MDE is required to submit the NPDES individual and general permits to EPA for its review.

In Maryland, MDE is responsible for administering the NPDES program. Maryland's NPDES CAFO regulations became effective January 12, 2009. Maryland issued an NPDES CAFO general permit (NPDES Permit No. MDG01) on December 1, 2009 as Maryland's General Discharge Permit for Animal Feeding Operations (General Discharge Permit). The General Discharge Permit expired on November 30, 2014, and Maryland re-issued the General Discharge Permit on December 1, 2014. The current GDP expires on November 30, 2019. The General Discharge Permit regulates three types of facilities: CAFOs, Maryland Animal Feeding Operations (MAFOs), and Certification of Conformance (COC) facilities. MDE may require an operation to apply for an individual permit coverage if the General Discharge Permit will not adequately protect waters of the state.

Following review and acceptance by EPA, Maryland issued the general permit on December 1, 2014, and a subsequent amendment on August 1, 2016. The general permit, as written, conforms to federal NPDES regulations, and requires that CAFOs develop and implement an NMP pursuant to Section 122.42(e)(1) of the Title 40 of the Code of Federal Regulations.

In its oversight capacity, as described above, EPA has reviewed Maryland's general permit and four NMPs and evaluated whether the permit and NMPs, taken together, (1) are enforceable and

consistent with applicable legal requirements, and (2) are effectively implementing the Bay TMDL and Maryland's Watershed Implementation Plan (WIP). Overall, the four NMPs were generally complete with respect to the general permit requirements. Therefore, EPA finds that the general permit and the NMPs, taken together, are consistent with federal NPDES regulations and are supportive of the best management practices required by Maryland's WIP in order to achieve reductions necessary under the Chesapeake Bay TMDL.

Program Strengths:
Improvements made from the previous NPDES CAFO general permit include the addition of new definitions (e.g., required plan(s)), the incorporation of new requirements (e.g., inspection and entry, land and no-land manure application, winter spreading, and Chesapeake Bay TMDL), an updated annual report form, and an updated fact sheet.

EPA conducted an assessment of MDE's NPDES CAFO program in 2014-2015 and found that MDE's NPDES CAFO program was well-implemented. MDE had an effective CAFO general permit, had registered over 500 CAFOs under their CAFO general permit, was conducting inspections of the permitted CAFOs once every permit term, and was issuing NOVs, penalties and orders to address noncompliance.

Areas for Improvement:
EPA is currently working with MDE to optimize MDE's NPDES CAFO permitting quality assurance controls, such as NMP review check lists, to ensure that NMPs receive consistent scrutiny to meet regulatory requirements.

1. Reissue NPDES CAFO general permit before November 2019.
2. Implement Phase 2 of the e-reporting rule.
3. Optimize permit NMP review and issuance processes

C. Total Maximum Daily Loads (TMDLS)

The NPDES regulations at 40 CFR 122.44(d)(1)(vii)(B) require that effluent limits be developed consistent with the assumptions and requirements of any WLAs established by approved TMDLs. Section 303(d) of CWA requires states to develop TMDLs for impaired waterbodies. A TMDL establishes the amount of a pollutant that a waterbody can assimilate without exceeding its water quality standard for that pollutant. TMDLs develop water quality-based allocations for point and non-point source discharges. Allocations for point source discharges are implemented through the NPDES permitting process. These WLAs, once incorporated into permits, intend to reduce pollution from point sources as part of the practices to restore and maintain the quality of a state's water resources. The focus of the TMDL review is to verify that permits and fact sheets have been developed to incorporate proper effluent requirements to meet the intent of the TMDL WLAs assigned to facilities in Maryland. Three permits were reviewed to determine whether MDE is developing permits consistent with the assumptions and requirements of approved TMDLs.

Background

EPA reviewed three MDE NPDES permits for point sources with applicable assumptions and requirements set forth in TMDLs approved either by EPA or MDE.

Kelly Foods Corporation, Inc. (MD0001309) located on Route 246 in Berlin, Maryland, manufactures animal food. The facility discharges process wastewater from the cooking and de-watering processes, wash water from the cleaning of equipment and floor drainage. All process, wash wastewater, and floor drainage are treated in a wastewater treatment plant. The treated wastewater is then discharged to Kitts Branch which is part of the Newport Bay. The Newport Bay is listed on the 303(d)-list for the following parameters: Nitrogen, BOD, and Bacteria/Fecal Coliform. These impairments are relevant to this facility. The TMDL for the Nitrogen and BOD was completed and approved on October 30, 2003. The bacterial impairment was delisted from the 303(d)-list based on the Water Quality Analysis approved by EPA on May 9, 2005. Thus, all the impairments have been dealt with in this permit. The Nitrogen limits imposed in this permit are in conformance with the assumptions and requirements set forth in the Newport Bay TMDL approved on October 20, 2003 by EPA.

Town of Cecilton WWTP (MD0020443) is a POTW located on 258 North Bohemia Avenue in Cecilton, Maryland. This is a minor POTW discharging domestic treated wastewater to the Black

Duck Creek River which flows into the Little Bohemia Creek. As per the approved Integrated Report of Surface Water Quality (formerly known as the 303(d) List and 305(b) Report), Bohemia River is on the 303(d)-list as the impaired waters for TN, TP, and PCBs. Thus, all the impairments have been dealt with in this permit. A TMDL, approved by the EPA on January 2001, allocated limitations for TN and TP to this facility. The TN and TP limits imposed in this permit are in conformance with the assumptions and requirements set forth in the TMDL.

Frederick County Division of Utilities and Solid Waste Management (MD0056481) is a POTW located on 3456 Kemptown Church Road in Monrovia, Maryland. This is a minor POTW discharging domestic treated wastewater to an Unnamed Tributary of Farhney Branch which flows into Monocacy River. As per the approved Integrated Report of Surface Water Quality (formerly known

as the 303(d) List and 305(b) Report), the streams in the Lower Monocacy River sub-watershed are listed as impaired water bodies due to Fecal Coliform, Total Phosphorus, and Total Suspended Solids. TMDLs for Fecal Coliform and Total Suspended Solids for the Lower Monocacy River watershed were approved by EPA on September 27, 2009 and September 29, 2008 respectively. The Fecal Coliform and TSS limits imposed in this permit are in conformance with the assumptions and requirements set forth in the TMDL.

Program Strengths:
The Kelly Foods Corporation, Inc. (MD0001309), Town of Cecilton WWTP (MD0020443), and Frederick County Division of Utilities and Solid Waste Management (MD0056481) properly included effluent limitations to comply with the assigned WLAs. The permits and fact sheets document that the permits are consistent with the assumptions and requirements of the approved TMDLs.

Areas for Improvement:
There are no areas for improvement identified.

V. ACTION ITEMS

This section provides a summary of the main findings of the review and provides proposed action items to improve Maryland's NPDES permit programs. This list of proposed action items will serve as the basis for ongoing discussions between EPA Region 3 and MDE as well as between EPA Region 3 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

Permits lacked clear identification of the permit issuance date. Certain applications did not include required maps and flow diagrams. Applicants indicated pollutants were not detected in the effluent; however, neglected to indicate a method detection limit. Proposed action items to help Maryland strengthen its NPDES permit program include the following:

- Consider adding the permit issuance date to the permit cover page, with other relevant dates. (Category Three)
- Ensure that appropriate maps and diagrams are attached to the application as required by EPA application instructions. (Category Two)
- Ensure that permit records demonstrate that the applicant provided a complete application package, including required monitoring data. (Category Two)
- Ensure that applicants report actual method detection limits used during sample analyses, in particular when a sample is reported as not detected above method detection limits. (Category Two)

B. Technology-based Effluent Limitations

Permits reviewed lacked the minimum percent removal requirements established by 40 CFR 133 (i.e., 85% minimum removal). Fact sheets generally lacked references to federal secondary treatment standards (40 CFR 133), as a basis for TBELs at POTWs. Proposed action items to help Maryland strengthen its NPDES permit program include the following:

- Ensure that permits establish all applicable technology-based effluent limitations for POTWs, contained at 40 CFR 133. (Category One)
- Present a clear basis for all TBELs included in permits. (Category Two)

C. Water Quality-Based Effluent Limitations

Fact Sheets did not consistently include a discussion of how pollutants of concern were identified for the discharge. Proposed action items to help Maryland strengthen its NPDES permit program include the following:

- Ensure permit writers consistently use available data for identifying pollutants of concern. (Category Three)
- Consider developing standard operating procedures or guidance documents for MDE's modeling, RPA, and limit development approaches. (Category Three)

D. Monitoring and Reporting

Permits lacked influent monitoring required to demonstrate compliance with minimum percent removal requirements for BOD_5 and TSS in discharges from POTWs. Proposed action items to help Maryland strengthen its NPDES permit program include the following:

- Ensure that permits establish influent monitoring requirements to demonstrate compliance with minimum percent removal requirements (40 CFR 133). (Category One)

E. Standard and Special Conditions

Some standard conditions were either missing, difficult to locate in the permit, or are worded less stringently than the federal standard conditions in 40 CFR 122.41 and 122.42. Proposed action items to help Maryland strengthen its NPDES permit program include the following:

- Ensure that permits establish standard NPDES permit conditions consistent with the federal standard conditions contained in 40 CFR 122.41 and 122.42. (Category One)

F. Administrative Process (including public notice)

Most public notice documents reviewed for POTW permits lacked a description of sludge use and disposal practices, as required by 40 CFR 124.10(d)(vii). Permit records for permits that did not receive public comments and subsequent revisions, permit records did not consistently indicate that no comments were received.

G. Documentation (including fact sheet)

Permit records did not consistently include documentation of the rationale and basis for all effluent limitations and permit requirements. Fact sheets for POTW permits lacked sufficient reference to the basis for TBELs. Proposed action items to help Maryland strengthen its NPDES permit program include the following:

- Ensure consistent documentation of rationale and basis for all effluent limitations and requirements (including minimum percent removal rationale, stepwise process for evaluating RP, and model inputs and results). (Category Two)
- Ensure that fact sheets reference the basis for TBELs at POTWs. (Category Two)

H. National Topic Areas

Proposed actions items for core topic areas are provided below.

1. Nutrients

MDE has also established both narrative and/or numeric nutrient response-based criteria for water clarity, Dissolved Oxygen (DO), submerged Aquatic Vegetation (SAV) and chlorophyll-a, and is engaged in developing numeric nutrient criteria. MDE implements nutrient requirements for these types of receiving waters based on the TMDL WLAs, state policy, or the state's regulatory requirements for technology-based limitations for installation of ENR. Proposed action items to help MDE strengthen its NPDES permit program include the following:

We recommend that MDE shall continue its efforts to the development process of statewide numeric nutrient criteria. (Category 3)

2. Pesticides

Maryland is able to use resources and experienced personnel from different program areas to support its pesticide program. The general permit is fully compliant with federal regulations. Proposed action items to help Maryland strengthen its NPDES permit program include the following:

Recommended actions:

- MDE should take actions to ensure new permittees are not granted coverage under an expired permit. MDE does not require permittees to submit NOIs. An expired general permit that does not require the submission of NOIs, may require additional controls to prevent unauthorized new coverages. A general permit can continue to cover permittees that were granted coverage before the general permit expiration date. Once the permit has expired, however, no new permittees can be granted coverage under the expired permit. Since no NOI is required for coverage under the PGP, it is unclear how MDE can ensure that new permittees are not being granted coverage under the expired permit. (Category Two)

Suggested Practices:

- EPA recommends MDE reissue the pesticide general permit as it has expired. Further EPA recommends MDE consider taking steps to issue future pesticide general permits before the previous permit expires. (Category 3)

3. Pretreatment

Many of the issues stated in the following paragraphs are recurring and have not been resolved since EPA's pretreatment audit in 2010. Solving these issues would strengthen Maryland's pretreatment program and protect MDE against litigation. R3 looks forward to working with MDE to resolve these issues and help protect Maryland's treatment plants, water quality and a healthy Chesapeake Bay. Proposed action items to help Maryland strengthen its NPDES permit program include the following:

- Maryland needs to include requirements at 40 CFR 122.42(b) in all POTW NPDES permits. Maryland needs to review its standard pretreatment program condition to ensure that it meets the requirement of 40 CFR 122.42(b). Maryland needs to include

requirements at 40 CFR 122.42(b)(1) and (b)(3) in all POTWs NPDES permits, and, where such information must be submitted, ensure that all information required per 40 CFR 122.42(b)(2) is received. The easiest way to accomplish this is to include the regulatory language or incorporate it by reference. (Category 1)

- Maryland needs to revise its POTW pretreatment program legal authorities to include the direct incorporation of the 2005 streamlining revisions. (Category 1)
- Maryland needs to include the reevaluation of local limits requirements in COMAR, delegation agreements or NPDES permits (40 CFR 122.44(j)(2)(ii)). (Category 1)
- Maryland needs to include the industrial wastewater user survey requirement of 40 CFR 122.44(j)(1) in all POTW permits or delegation agreements. (Category 1) Review POTW issued IU permits to ensure inclusion of the samplers and analysts recordkeeping requirements (40 CFR part 136 and 40 CFR 403.12(o)(1) and 40 CFR 403.12(g)(3)). (Category 1)
- If MDE continues to use delegation agreements to describe the POTW's and the Department's responsibilities, the agreement should be included as part of the permit record as an attachment to the fact sheet; or cite where to obtain the document in the fact sheet. (Category 2)
- If results of 40 CFR 122.42(b) warrant reopening a permit to include development of a pretreatment program, Maryland permits for POTWs without pretreatment programs would improve with inclusion of a reopener clause requiring pretreatment program development. (Category 3)
- Maryland fact sheets for POTWs with pretreatment programs could improve with inclusions by these POTWs of the numbers and types of their industrial dischargers. (Category 3)

4. Stormwater

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

Critical Findings (Category 1):

- Include anti-degradation language/requirements in the MRDC pursuant to 40 CFR 131.12. (Category 1)

Include language in MD0068284 that requires proper reporting in the event of non-compliance with the permit.

<u>MDRC</u>

- Include anti-degradation language/requirements in the permit. (40 CFR 131.12)

<u>MD0068284</u>

- Include language that requires proper reporting in the event of non-compliance with the permit. (40 CFR 122.41(l)(6))

Recommended Actions (Category 2):

MDR0000

- Include language in the permit specifying qualifications required for the preparer of the SWPPP (see EPA MSGP Part 5.1)

MDRC

- Include specific conditions required by regulations in the permit itself instead of referencing state laws and regulations.

MD0068284

- Include specific frequencies in the permit for street sweeping and inlet cleaning.
- Include specific audiences and pollutants that should be targeted for public education.
- Include language that requires compliance with state and local public notice requirements.

Suggested Practices (Category 3):

MDRC

- Include requirements to target discharges to waters with PCB impairments (see EPA CGP Part 3.2)

MD0068284

- Include a requirement to perform an evaluation of public education efforts undertaken by the permittee.

I. Regional Topic Areas

Proposed action items for special focus areas are provided below.

1. Chesapeake Bay TMDL

MDE authorizes the Chesapeake Bay TMDL WLAs for significant dischargers and new or expanding dischargers under Chesapeake Bay WIP. Significant wastewater dischargers are also issued individual permits by MDE, which may incorporate technology-based nutrient limits for facilities installing ENR to meet the TMDL WLAs. Non-significant dischargers have monitoring requirements for Nitrate-Nitrite as N, Organic Nitrogen as N, TN, TP, TSS and Orthophosphate as P consistent with the assumptions of the WLA requirements of the Chesapeake Bay TMDL. There are no action items proposed to help MDE strengthen the NPDES program related to the Chesapeake Bay.

2. CAFOs

MDE's CAFO regulations conform to the 2008 CAFO Rule. MDE also requires individual permits for operations that meet specific criteria. EPA is currently working with MDE to optimize MDE's NPDES CAFO permitting quality assurance controls, such as NMP review check lists, to ensure that NMPs receive consistent scrutiny to meet regulatory requirements. Because of Maryland's

efforts and the changes made to its NPDES CAFO general permit, there are no proposed action items to help MDE strengthen its NPDES permit program.

3. TMDLs

The permits reviewed during this PQR properly included effluent limitations to comply with the assigned WLAs and were consistent with the assumptions and requirements of the approved TMDLs. There are no proposed action items to help MDE strengthen its NPDES permit program.