

Region 1

NPDES Program and Permit Quality Review

Massachusetts and New Hampshire

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Executive Summary

EPA Headquarters' (HQ) National Pollutant Discharge Elimination System (NPDES) Program and Permit Quality Review (PQR) for EPA Region 1, Massachusetts and New Hampshire, found that permits issued were of high quality and consistent with federal regulations. We found that the Region establishes water quality-based effluent limitations (WQBELs) as a single limit basis (e.g., average monthly or maximum daily), based on the specific water quality criterion for which the discharge demonstrates reasonable potential.

The PQR examined 16 permits for discharges in Massachusetts and New Hampshire and 2 Small Municipal Separate Storm Sewer System (MS4) permits issued by the Region. The PQR also focused on several national and regional priority areas including:

- Permit Controls for Nutrients in Non- Total Maximum Daily Load (TMDL) Waters,
- Effectiveness of Publicly Owned Treatment Works (POTW) NPDES Permits with Food Processor Contributions, and
- MS4 Permit Requirements.

The Region permits 214 individual facilities in Massachusetts and 84 individual facilities in New Hampshire. As of May 2021, 27 and 31 percent of Massachusetts's and New Hampshire's permits, respectively, are current.

The PQR recognizes the many region-specific challenges faced by Region 1 in its administration of the Massachusetts and New Hampshire NPDES programs, including significant permit backlog and addressing concerns that negotiations resulting from financial capability assessments could create environmental justice issues. The Region has incorporated an innovative team approach for developing municipal and industrial individual permits and continues to implement EPA's Lean Management System (ELMS) to streamline permit development.

The PQR identified areas for improvement that address standard conditions and minor permit and fact sheet template revisions to provide additional detail for certain permit conditions. In addition to the items listed above, the report provides an overview of the Massachusetts and New Hampshire NPDES permitting programs.

The Region reviewed and provided comments on the draft PQR report in May 2022. The Region agreed with many of the draft PQR's findings and recommendations, and has already begun to address several of the essential findings, as noted by Regional responses added throughout the report.

I. PQR BACKGROUND

The NPDES PQRs are an evaluation of a select set of NPDES permits to determine whether permits are developed in a manner consistent with applicable requirements established in the Clean Water Act (CWA) and NPDES regulations. Through this review mechanism, EPA promotes national consistency, and identifies successes in implementation of the NPDES program as well as opportunities for improvement in the development of NPDES permits. Massachusetts and New Hampshire are not authorized to administer the NPDES program; therefore, EPA Region 1 issues NPDES permits in these states. EPA conducted a PQR of the Massachusetts and New Hampshire NPDES permitting program on June 22–25, 2015 and drafted findings; however, a PQR summary report was not completed.

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

- **Essential Actions** - Proposed “Essential” action items address noncompliance with respect to a federal regulation. EPA has provided the citation for each Essential action item. The permitting authority must address these action items in order to comply with federal regulations.
- **Recommended Actions** - Proposed “Recommended” action items are recommendations to increase the effectiveness of the state’s or Region’s NPDES permit program.

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

EPA’s review team, consisting of three EPA HQ staff and two contractors conducted a review of the Massachusetts and New Hampshire NPDES permitting program. The PQR was conducted remotely, meaning a review of materials was conducted off-site, with materials Region 1 was able to provide electronically. Further, the remote PQR included interviews and discussions conducted via several conference calls. An opening interview was held on May 3, 2021, a discussion with Region 1 staff regarding specific permit questions on May 5, 2021, and a closing meeting on May 6, 2021.

The Massachusetts and New Hampshire PQR included reviews of core permit components and national and regional topic areas, as well as discussions between the PQR review team and Region 1 staff addressing their program status and permit issuance process. The permit reviews focused on core permit quality and included a review of the permit application, permit, fact sheet, and any correspondence, reports or documents that provide the basis for the development of the permit conditions and related administrative process. The PQR also included conversations between EPA and the Region on program status, the permitting process, responsibilities, organization, staffing, and program challenges the Region and two states are experiencing. This report discusses the Region’s administration of the Massachusetts and New Hampshire programs jointly, unless there is a need to make an obvious distinction in the manner in which the Region addresses a specific topic.

A total of 18 permits were reviewed as part of the PQR. Of these, 15 permits were reviewed for the core review and 11 permits were reviewed for national topic areas. Some permits were reviewed for both the core review and one or more topic areas reviews. Permits were selected based on issue date and the review categories that they fulfilled.

Core Review

The core permit review involved the evaluation of selected permits and supporting materials using basic NPDES program criteria. Reviewers completed the core review by examining selected permits and supporting documentation, assessing these materials using standard PQR tools, and talking with permit writers regarding the permit development process. The core review focused on the *Central Tenets of the NPDES Permitting Program*¹ to evaluate the Massachusetts and New Hampshire NPDES program. Core topic area permit reviews are conducted to evaluate similar issues or types of permits in all states.

Topic Area Reviews

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

II. STATE PROGRAM BACKGROUND

A. Program Structure

EPA Region 1 implements the NPDES program for Massachusetts and New Hampshire. The Region 1 Water Division includes the Water Permits Branch, Drinking Water and Municipal Assistance Branch, and Surface Water Protection Branch. The Water Permits Branch is comprised of three sections: Municipal Permits, Industrial Permits, and Stormwater and Construction Permits. The Massachusetts Department of Environmental Protection (MassDEP) and the New Hampshire Department of Environmental Services (NHDES) assist Region 1 with implementation of their respective NPDES programs. MassDEP and NHDES conduct certifications of NPDES permits under Section 401 of the CWA, to reasonably ensure that the permitted activities will be conducted in a manner that will comply with applicable water quality standards. Following EPA's permit issuance, MassDEP and NHDES consider the permits as state surface water discharge permits under their own state laws and share the inspection and enforcement responsibilities with EPA.

Within Region 1, the Water Permits Branch manages the permitting aspects of the NPDES program for Massachusetts and New Hampshire. The main office is located in Boston, Massachusetts. NPDES staff in the main office are responsible for issuing permits, defending appeals, tracking and reporting monitoring results, responding to Freedom of Information Act

¹ <https://www.epa.gov/npdes/central-tenets-npdes-permitting-program>

(FOIA) requests, overseeing authorized states' NPDES programs, and providing assistance to the public, permittees, states, and other EPA offices. Region 1 has one field office, the New England Regional Laboratory, in Chelmsford, Massachusetts. Staff in the field office provide field measurement, sampling, and monitoring assistance. Region 1 employs 15 permit writers that work on Massachusetts and New Hampshire permits. Permit writers attend the five-day U.S. EPA NPDES Permit Writers' Course, receive specialized training, as well as internal mentoring and guidance from team leaders to support their development. Further, Region 1 maintains the *NPDES Clearinghouse*, an internal repository of documents that include regulations, policies, guidance, administrative guidelines and written procedures for developing NPDES permits, and template documents for permits and fact sheets. Other Regional staff that support the NPDES permit program include biologists, staff from the Offices of Regional Counsel and the Regional Administrator (Office of Public Affairs), administrative staff for public notice procedures, and information technology staff for web-based programs. Region 1 NPDES permit writers are led by team leaders, Section Chiefs, and a Branch Chief.

The Region has implemented an innovative team approach for developing both POTW and non-POTW permits. The Region develops non-POTW permits using a team approach, assigning roles and permit development components to specific staff. For example, there may be three permit writers assigned to paper mill facilities, with tasks delegated to specific permit writers: one senior permit writer ensures appropriate application of effluent limitation guidelines and standards (ELGs) and assists junior staff with questions related to site visits; a new permit writer conducts data analyses and develops effluent limitations; and a student assistant develops permit templates, transferring all information from the previous permit to the renewal permit template document. Permitting is a team-based approach with permit writers focused on distinct tasks, and then assisting each other with peer review of permit components. In the case of power plant permitting, the Region developed a separate team because of the unique and complex nature of power plants. Power plant permitting teams are comprised of an overall permit writer and 1-2 biological staff who may either be permit writers or biological staff from other sections to support development of aspects related to thermal discharges. Additionally, an attorney supports the power plant permitting team with the comment response and subsequent litigation. Even with this team-based approach, there are the rare cases where permit writers retain individual permits and work on them as time allows.

The Region also implements a team approach for POTW permit development, which was enacted in 2019; however, the approach differs in that permits are assigned by watershed, prioritizing older permits. For instance, the Massachusetts Water Resources Authority (MWRA) permit is developed by one team of permit writers because it is a complex permit—it is a large permit document, held by numerous co-permittees, and with combined sewer overflows (CSOs) consolidating into one permit. Another permitting team manages the priority New Hampshire coastal permits, while another team administers permits that discharge to the Long Island Sound watershed. Within the team approach, the Region works towards balancing the varying levels of expertise across the permitting teams. In addition, new permit writers are assigned permits to develop entirely, to learn the entire permit development process.

The Region reported that staff appreciate the team approach to permitting because it enhances and emphasizes collaboration, which enables staff, especially new permit writers, to learn permit writing through teamwork and mentoring. Permit writers collaborate regularly in real-time; previously staff would meet one day every week to share information and work together in the same room on permit development. Throughout 2020 and 2021, staff collaborate virtually using Microsoft Teams chat features.

Region 1 managers and staff have been implementing the ELMS process and each team has a draft-to-issuance tracking process that includes a timeline for permit development and preparation for public noticing. The municipal team strives to balance and sequence draft permits that are out for public comment with upcoming permits. Permits may not always be developed fully, without interruption, based on permitting activities. For example, a permit was appealed and the Region decided to pause on finalizing certain components and directed efforts to drafting other permits while the permit was under appeal. Region 1 sets an ideal target for draft permit development of approximately 88 days, that accounts for permit development efforts, review by Massachusetts and New Hampshire, and time to coordinate staff and distribute the draft permit for public notice.

Regional permit staff use spreadsheets and document templates during various permit development phases of permit development. The Region maintains separate permit templates for POTW and non-POTW permits. In addition, Regional permit staff develop fact sheets based on templates and boilerplate language. Region 1 uses spreadsheets for individual and general permit tracking purposes, and for application reviews. Regional staff consult data systems during permit development that include compliance data in EPA's Integrated Compliance Information System (ICIS-NPDES), whole effluent toxicity (WET) test results, state 303(d) lists and TMDL reports, state water quality assessment reports, U.S. Geological Survey (USGS) data, and volunteer environmental monitoring data for surface waters. Region 1 uploads permit information and data to the Records Center database as well as ICIS-NPDES. Regional permitting staff use spreadsheets to analyze whole effluent toxicity (WET) data, calculate applicable freshwater metals criteria, and conduct reasonable potential (RP) analyses. In addition, Regional staff may use Cornell Mixing Zone Expert System (CORMIX) to calculate mixing zones or to verify the results from other mixing zone models.

Various Regional staff provide quality assurance and quality control (QA/QC) reviews during permit development. Within Region 1, team leaders, Section Chiefs, ICIS and enforcement staff, and Branch Chiefs review draft permits, final permits, and response to comment documents. Staff with a particular expertise may review certain permits; e.g., pretreatment coordinator, biosolids coordinator, and biologists. Further, staff from the Office of Regional Counsel review permits where the Region believes a legal challenge is likely. Following a team leader review, the Section Chief and Branch Chief sign off on draft permits. The Section Chief, Branch Chief, and Office Director sign off on final permits. In addition, staff from MassDEP and NHDES review draft permits and provide comments.

Region 1 retains permit development and correspondence files in working files, the official paper file, and the administrative record at the Region 1 office. The Region 1 website² lists all draft permits, fact sheets, final permits, responses to comments, and related attachments to these NPDES documents. Region 1 maintains separate paper files for WET test results and monitoring and reporting permit files, in addition to the data that is stored in ICIS. Region 1 receives hard copy Discharge Monitoring Reports (DMRs) from permittees where NetDMR is not yet used. Region 1 retains certain monitoring and reporting and compliance files in the Enforcement and Compliance Assurance Division's files.

B. Universe and Permit Issuance

Based on information provided by Region 1, as of April 15, 2021, the Massachusetts universe of individual, non-stormwater NPDES permits includes 102 POTWs (83 major permits, 19 non-major permits) and 110 non-POTWs (32 major permits, 78 non-major permits). The New Hampshire universe of individual, non-stormwater NPDES permit includes 46 POTWs (35 major permits, 11 non-major permits) and 38 non-POTWs (14 major permits, 24 non-major permits).

The Region also administers several general permits in Massachusetts and New Hampshire. The number of permits in each category are in the table below.

Table 1. General Permits administered by EPA Region 1 in Massachusetts and New Hampshire

NPDES Permit No.	Permit Name/Category	Number of Permittees
MAG130000	MA Aquaculture	6
NHG130000	NH Aquaculture	6
MAG910000	MA Remediation General Permit	134
NHG910000	NH Remediation General Permit	9
MAG580000	MA Small POTW Sanitary Systems ³	5
NHG580000	NH Small POTW Sanitary Systems ⁴	18
MAG360000	MA Hydroelectric ⁵	29
NHG360000	NH Hydroelectric	30
MAG250000	MA Non-Contact Cooling Water ⁶	25
NHG250000	NH Non-Contact Cooling Water	2
MAR041000	MA Small MS4	270
MAR042000		
MAR043000		
NHR041000	NH Small MS4	46
NHR042000		
NHR043000		
MAG640000	MA Potable Water Treatment Facilities	66
NHG640000	NH Potable Water Treatment Facilities	6

² For Massachusetts New England Region-issued permits, refer to: <https://www.epa.gov/ma/environmental-information-massachusetts>. For New Hampshire New England Region-issued permits, refer to: <https://www.epa.gov/nh/environmental-information-new-hampshire>.

³ Expired June 30, 2016.

⁴ Expired July 6, 2016.

⁵ Both MAG360000 and NHG360000 expired December 31, 2014.

⁶ Both MAG250000 and NHG250000 expired October 31, 2019.

Significant industries within Massachusetts and New Hampshire include power plants, specialty paper mills, fish hatcheries (aquaculture), bulk petroleum storage, and water treatment.

As of May 2021, 27 and 31 percent of Massachusetts's and New Hampshire's individual permits, respectively, are current.

C. State-Specific Challenges

During the interviews, Region 1 staff did not identify any significant challenges facing their administration of the Massachusetts and New Hampshire permitting programs. However, they noted several topics for further coordination or discussion with EPA Headquarters:

- Desire to reduce the focus on permitting backlog.
- Additional financial and contractor support is always welcome.
- Greater autonomy for the regions in the CWA Section 401 certification process (especially 401(a)(2)) would be good.
- The focus on Financial Capability Assessment (FCA) may inadvertently create environmental justice concerns, as relaxed timelines for system upgrades (due to a lack of financial resources at the state and local level) could be disproportionately felt in economically challenged municipalities. These entities frequently have legacy systems with CSOs and require significant capital upgrades.

D. Current State Initiatives

During the interviews, Region 1 staff noted that the Region has made major organizational changes recently, and that these changes will take time to be fully adopted. First, Region 1 conducted an internal review, implemented ELMS, and revised its workflow within the permit team to be more efficient. In addition, as discussed in section II.B, the municipal and industrial sections enacted a team approach to permit development. Other changes included designating specific staff to review permit applications to promote greater consistency and accountability, and having a single staffer conduct the entire review for a given application (instead of piecemeal between several staff). Further, the division recently reorganized from three sections down to two; adjustments in workflow and operations are still being sorted out.

III. CORE REVIEW FINDINGS

A. Basic Facility Information and Permit Application

1. Facility Information

Background

Basic facility information is necessary to properly establish permit conditions. For example, information regarding facility type, location, processes and other factors is required by NPDES permit application regulations (40 CFR 122.21). This information is essential for developing

technically sound, complete, clear, and enforceable permits. Similarly, fact sheets must include a description of the type of facility or activity subject to a draft permit.

The permits reviewed specifically authorize the discharge subject to specified permit conditions, contain authorized signatures, identify the permit issuance, effective and expiration dates, and provide for a term of 5 years or less.⁷ Permits for Massachusetts and New Hampshire clearly identify the facility name, location, receiving waterbody, authorized discharge points, and type of wastewater discharged.

Fact sheets for POTWs provided a clear description of the facility and its wastewater treatment process, while those for non-POTWs contained general information with respect to facility operations and wastewater treatment processes.

Fact sheets consistently identify the physical location of the facility and usually provide outfall location information using latitude and longitude coordinates. Permits and fact sheets identify the receiving waterbody by name, reach segment or hydrologic basin code, and surface water classification. Further, fact sheets reviewed generally identify the location of the discharge relative to the receiving water.

Program Strengths

Overall, the permits and fact sheets reviewed were very comprehensive. The permits are easy to follow and contain the necessary information. Fact sheets are thorough and include robust descriptions of facility operations, history, location, outfalls, and similar information. They also include information on the receiving stream and may include a water flow diagram.

Areas for Improvement

Permits include general sludge requirements applicable to all permittees; however, for one POTW permit, the fact sheet lacks discussion of sewage sludge management and disposal practices. Region 1 staff noted that this facility rarely needs to address its sludge, and typically handles sludge management on a case-by-case basis; but acknowledged that further information in the permit and fact sheet would be beneficial.

For one permit, the outfall was described as discharging to “Little Brook.” Upon discussion with Region 1 staff, this was found to be incorrect; this is placeholder language from the permit template and should have been deleted. Further, the fact sheet could include a more specific description of the outfall location, such as latitude and longitude coordinates.

One non-POTW permit lists the same latitude and longitude for each permitted outfall; however, the site maps included in the permit record suggest they are not co-located. Another non-POTW permit discharges some or all of its waste as indirect, to a POTW; however, the fact

⁷ For effective and expiration dates, Region 1 typically uses language such as “effective on the first day of the calendar month immediately following 60 days after signature” or “expires at midnight, five years from the last day of the month preceding the effective date.”

sheet lacks statements to this effect. The fact sheet would be strengthened with an acknowledgment that the facility's wastewater is directed to a POTW.

Action Items

Essential

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

Recommended

- Region 1's fact sheets should include a brief discussion of sludge handling and management practices for all POTWs that generate sludge, even when sludge disposal is infrequent.
- Region 1 should implement adequate QA/QC for permits and fact sheets to ensure they contain accurate information such as outfall location and receiving water names.
- Region 1 should consider expanding the facility description in fact sheets to identify when industrial wastewater is discharged indirectly to a POTW.

2. Permit Application Requirements

Background and Process

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

Region 1 uses the federal NPDES permit application forms for POTW and non-POTW NPDES permits.

Region 1 staff send out an application reminder letter approximately 18 months prior to permit expiration. In response to an assessment of the most common application deficiencies, this letter has recently been revised to include additional guidance on minimum detection levels required for analyses. This letter also addresses the use of sufficiently sensitive methods. Upon receipt of the application, administrative staff perform a completeness review of the application to determine if the application is complete. The application is then passed to technical staff (one person for all municipal permits, and one for all industrial permits) to conduct a technical review of the application. As appropriate, staff will issue a letter stating the application is complete, or if it has omissions or deficiencies. For incomplete applications, staff will work with the applicant to submit the required information prior to the expiration date of the permit. Staff and managers enter data into the internal tracking system, including the dates that the Region: sent the application reminder letter, received an application, finalized a

completeness review, and sent an application complete letter to the permittee. The Region completed a LEAN evaluation in 2018/2019 to increase efficiency and revamped the process to review permit applications and have already realized process improvements.

The application is then ready for permit development. Permit writers review the permit application, extract available DMR data from ICIS and the Region's internal data system, and evaluates any additional data the permittee may have provided. During permit development, Region 1 permit writers consult with the permittee and the respective state staff as issues arise. In addition, team leaders specifically review analyses related to development of WQBELs. Subsequently, Region 1 permit writers incorporate revisions into the draft permit prior to submittal to the team leaders for review and finalizing the permit for public notice. Region 1 administrative staff prepare the public notice documents. Milestone dates are entered into the tracking spreadsheet, including the permit expiration dates, public notice dates, and final issuance dates.

The permit application for several of the permits were not available for review (MA0040177, MA0026247, MA0031551, NH0100447, NH0000116). EPA recognizes that certain permit records are only in hard copy and due to many staff working remotely full-time during the COVID-19 pandemic, these files were not accessible or otherwise not able to be retrieved by staff working in the office; therefore, materials provided for review under this PQR have been more limited than in past PQRs.

For those applications available for review, all the required application forms were present for the non-POTW permits, and Form 2A (Municipal Facilities) was present for all the POTW permits reviewed. Files reviewed for the core review included applications that were complete and submitted mostly on-time.⁸ 40 CFR 122.21(d) requires any permittee with a currently effective individual permit must submit an application to the permitting authority at least 180 days before the expiration of its existing individual permit. Further, 40 CFR 122.21(e) states that a complete application must be received prior to the permitting authority issuing a permit. The Region requested additional information from the applicants and subsequently all permit applications were eventually determined to be complete prior to permit reissuance (or being administratively extended).

Program Strengths

The records reviewed generally indicated that applications were received in a timely manner, and that Region 1 appropriately reviewed the applications and documented that they were complete. Staff work with applicants ahead of the application deadline to promote higher quality applications, and also work with applicants to correct any missing information.

⁸ However, as noted below, even if applications were received in a timely manner, permits may have been administratively extended, with some extensions lasting many years.

Areas for Improvement

Applications for certain POTWs appear to lack complete effluent characterization data. In one case, it appears that the POTW reported only two samples for certain priority pollutants and in another, insufficient WET data are submitted with the application.

Action Items

Essential

- Ensure that major POTW applications include a complete data set for priority pollutants (40 CFR 122.21(j)(4) and (5)).

Recommended

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

[Regional response to essential action item: Region 1 will work to address this essential action item, and any reasons for an exception will be documented in the fact sheet or permit record.]

B. Developing Effluent Limitations

1. Technology-based Effluent Limitations

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

TBELs for POTWs

Background and Process

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

The fact sheets for the POTW core permits reviewed include basic descriptions of the respective facilities and good descriptions of the treatment processes employed. Massachusetts and New Hampshire POTW permits consistently establish appropriate TBELs based on secondary treatment standards and in appropriate units and forms. Further, the accompanying fact sheets clearly identify the basis for TBELs, whether they are based on secondary treatment standards or a more stringent water quality-based assessment.

40 CFR 133.102(a) and (b) require the 30-day average percent removal shall not be less than 85% for BOD₅ and TSS. Massachusetts and New Hampshire permits for municipal facilities

establish minimum percent removal requirements consistent with secondary treatment standards.

Program Strengths

POTW permits reviewed include appropriate effluent limitations based on or at least as stringent as federal secondary treatment standards. Effluent limitations are established in appropriate units and forms. POTW permit fact sheets contain a useful description of facility and treatment processes, a general understanding of industrial contributions to the POTW, and identify applicable regulatory citations for effluent limitation the basis for final effluent limitations.

Areas for Improvement

The PQR team did not identify any areas for improvement for this PQR component.

Action Items

Essential

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

Recommended

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

TBELs for Non-POTW Dischargers

Background and Process

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

Eight non-POTW permits were reviewed during the core review (four in each state); five of which were subject to ELGs (three in Massachusetts and two in New Hampshire). ELGs were applied in the development of effluent limitations in the permit for an electrical generating facility (40 CFR Part 423), a centralized waste treatment facility (40 CFR Part 437), a mineral mining/paving and roofing facility (40 CFR Parts 436 and 443), a Concentrated Aquatic Animal Production facility (40 CFR Parts 451), and a plastics molding facility (40 CFR Parts 463). The effluent limitations in the non-POTW permits are in the correct units and form.

For the three non-ELG facilities, limits were established based on BPJ, demonstrated performance, and anti-backsliding requirements.

Fact sheets contain boilerplate language identifying the need to establish TBELs and consider federal technology standards (including ELGs). Fact sheets for non-POTWs consistently identified the ELGs (part and subpart) applicable to the discharge.

Program Strengths

The permits reviewed establish appropriate TBELs based on the applicable ELGs and in appropriate units and forms. Fact sheets for these facilities include a thorough description of facility operations, waste streams produced, wastewater treatment processes, and discussion of applicable ELGs. The fact sheets reviewed included comprehensive discussions of expected pollutants in the discharge.

Areas for Improvement

The review team did not identify any areas for improvement for this PQR component.

Action Items

Essential

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

Recommended

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

2. Reasonable Potential and Water Quality-Based Effluent Limitations

Background

The NPDES regulations at 40 CFR 122.44(d)(1)(i) and particularly 122.44(d)(1)(vii)(A)(2) require permits to include any requirements in addition to or more stringent than technology-based requirements where necessary to achieve state water quality standards, including narrative criteria for water quality. To establish such “water quality-based effluent limits” (WQBELs), the permitting authority must evaluate whether any pollutants or pollutant parameters cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard (WQS).

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

- determined the appropriate water quality standards applicable to receiving waters,

- evaluated and characterized the effluent and receiving water including identifying pollutants of concern,
- determined critical conditions,
- incorporated information on ambient pollutant concentrations,
- assessed any dilution considerations,
- determined whether limits were necessary for pollutants of concern and, where necessary,
- calculated such limits or other permit conditions.

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

Process for Assessing Reasonable Potential

Region 1 permit writers identify pollutants of concern based on an analysis of data provided as part of the permit application and data provided through WET testing as well as pollutants contributing to water quality impairments. Fact sheets identify pollutants for which effluent limitations or monitoring-only requirements are established and provide a justification for the requirement. Region 1 requires permittees to collect and analyze data for hardness, ammonia, cadmium, copper, lead, nickel, zinc, and certain other non-conventional pollutants in the effluent and receiving water, during WET testing. Region 1 staff analyze these data to evaluate the RP of the facility's discharge to cause or contribute to an exceedance of water quality criteria. Region 1 permit writers evaluate effluent and receiving water data from the previous five years, unless there is justification to examine a smaller data set. For example, if a significant plant upgrade occurred during the permit term, the permit writer would consider data representing the time period for which the upgraded plant was operational. For industrial facilities, Region 1 also reviews site cleanup databases regarding historical releases reported from the facility, to identify additional pollutants of concern. In addition, Region 1 reviews ELG documents to identify pollutants typically found at similar facilities in similar types of discharges. Region 1 reviews multiple data sources to identify available receiving water quality data, with which to conduct an RP analysis. Sources of surface water quality data include Massachusetts and New Hampshire water quality assessment reports, USGS database, Massachusetts Estuaries Project, New Hampshire's One Stop Environmental Monitoring Program, and the New Hampshire Volunteer River Assessment Program.

Region 1 uses Excel spreadsheets to calculate applicable criteria and to conduct a statistical analysis to determine RP. Fact sheets indicate that permit writers use a mass balance to project in-stream metal concentrations downstream of the discharge, to determine whether the effluent has the RP to cause or contribute to an exceedance above the in-stream water quality criteria for metals and other toxic pollutants. Further, Region 1 reserves 10 percent assimilative capacity in evaluating RP in New Hampshire permits in accordance with NH Surface Water Quality Standards. Region 1 considers receiving stream water quality data from various sources and effluent data from the previous permit term to use in the mass balance equation. Region 1

evaluates the need for WQBELs consistent with the methods in EPA's *Technical Support Document for Water Quality-based Toxics Control (TSD)*⁹, identifying the 95th percentile effluent value assuming a lognormal distribution, and median receiving water value as representative of background water quality. Region 1 permit writers include statements regarding the results of the RP analysis for each pollutant.

Process for Developing WQBELs

Region 1 authorizes mixing zones on a pollutant-specific basis and mostly for temperature in discharges from power plants. Region 1 assumes instantaneous mixing in most cases and refers to Massachusetts and New Hampshire water quality standards for specific implementation requirements. Region 1 does not allow mixing zones for bacterial indicators.

To implement an integrated strategy for controlling toxic pollutants in effluent discharges and to protect the “no toxics” provisions in the Massachusetts and New Hampshire water quality standards, Region 1 developed a toxicity control policy that requires all municipal wastewater treatment facilities to perform toxicity bioassays on their effluents. Further, MassDEP requires bioassay toxicity testing for state certification. The Region 1 policy requires toxicity testing with the type of toxicity test and effluent limitation based on a range of available dilution. For example, Region 1's policy requires that secondary treatment facilities with a dilution factor between 10 and 20 meet an acute (LC₅₀) toxicity limitation of 100 percent effluent, and a chronic no-observed effect concentration (NOEC) toxicity limitation equal to the receiving water concentration. In addition, the toxicity strategy requires a testing frequency based on available dilution; for example, with a dilution factor greater than 100 (based on the 7Q10 and plant design flow), bioassay testing is required twice per year. Permits include conditions that allow Region 1 to modify toxicity testing requirements, either creating more stringent conditions if test results cause an exceedance of state water quality criteria, or alternately, reduced toxicity testing if data consistently demonstrate the discharge does not cause acute and chronic toxicity. Region 1 includes individual attachments to the Massachusetts and New Hampshire permits prescribing the toxicity test procedures and protocol applicable to the permit.

MassDEP and NHDES develop TMDLs for their respective water bodies. The Long Island Sound Nitrogen TMDL is the most prominent TMDL affecting Massachusetts and New Hampshire permits. For permits subject to an approved TMDL, permit writers establish effluent limitations that implement the wasteload allocations in the TMDL. In the absence of an approved TMDL for nutrients, Region 1 considers factors such as the applicable water quality guidelines (e.g., Gold Book and Ecoregional Nutrient Criteria) and establishes effluent limitations that ensure that the narrative state water quality standards are not exceeded. Nutrient effluent limitations are applied monthly or seasonally depending on the basis of the limits and temporal aspects of the impacts. Permittees typically are required to conduct nutrient effluent sampling throughout the year at specified frequency intervals ranging from once a week to once a month. Some permits

⁹ U.S. EPA. (March 1991). *Technical Support Document for Water Quality-based Toxics Control* (EPA/505/2-90-001). <https://www3.epa.gov/npdes/pubs/owm0264.pdf>

also require twice per month sampling of the upstream receiving water. Region 1 may reopen permits if a TMDL is completed mid-permit cycle or if a detailed study demonstrates that a revised limitation is necessary to ensure compliance with water quality standards. Region 1 permit writers include a discussion of receiving water impairments and TMDL status in fact sheets.

Massachusetts water quality standards establish criteria for *E. coli* and enterococcus. Fecal coliform criteria are established to protect waters supporting a shellfishing designated use. New Hampshire water quality standards establish criteria for *E. coli*.

Program Strengths

Reasonable Potential

Region 1's NPDES permit fact sheets are of high quality and provide plentiful detail regarding the Region's RP evaluation and resultant WQBELs. Fact sheets clearly identify the receiving stream, applicable water quality standards, impairment status, and applicable TMDLs. Fact sheets also discuss pollutants of concern in great detail and describe and provide a useful summary of the data set considered in the RP evaluation. Fact sheets include thorough discussions of the RP evaluation and resulting WQBELs, as well as appendices containing explanation of and basis for the RP evaluation.

WQBEL Development

Permits include WQBELs when determined necessary through an RP evaluation and they are calculated appropriately and in correct form and units. Fact sheets include an abundance of documentation regarding development of WQBELs, including explanation of the Region's application of mixing zones, any models employed, and determinations regarding consistency with anti-backsliding and antidegradation provisions.

Areas for Improvement

Reasonable Potential

The review team did not identify any areas for improvement for this PQR component.

WQBEL Development

For multiple permits, there were continuous discharges that did not include a maximum daily effluent limitation for certain nonconventional and priority pollutants even though reasonable potential to exceed water quality criteria had been demonstrated; instead, there was only an average monthly effluent limitation. NPDES regulations at 40 CFR 122.45(d) require both average weekly and average monthly limits for POTWs, and maximum daily and average monthly limits for non-POTWs. Region 1 staff indicated that it is a long-standing practice that if the discharge does not demonstrate RP for acute water quality criteria, the Region will not establish a short-term (i.e., maximum daily) effluent limitation. The fact sheets for the permits lacked documentation that the Region determined that establishing maximum daily effluent limitations is impracticable, per 40

CFR 122.45(d). EPA recommends that at a minimum, the Region should describe in the permit fact sheet the basis for the determination that establishing both short- and long-term effluent limitations is impracticable, per 40 CFR 122.45(d).

Action Items

Essential

- Reasonable Potential
 - The PQR did not identify any essential action items for this section.
- WQBEL Development
 - Region 1 must ensure that short-term (e.g., maximum daily/average weekly) as well as long-term (e.g., average monthly) effluent limitations are established consistent with 40 CFR 122.45(d).

Recommended

- Reasonable Potential
 - The PQR did not identify any recommended action items for this section.
- WQBEL Development
 - The Region should work with HQ to ensure their approach to establishing a single, long-term, WQBEL based on the water quality criterion that was the basis for RP determination is appropriate.

[Regional response to essential action item: Region 1 has facilitated a work group to address this essential action item, and will either incorporate both limits in permits going forward or provide documentation in the fact sheet when it is infeasible to include both limits.]

3. Final Effluent Limitations and Documentation

Background and Process

Permits must include all applicable statutory and regulatory requirements, including technology and water quality standards, and must include effluent limitations that ensure that all applicable CWA standards are met. The permitting authority must identify the most stringent effluent limitations and establish them as the final effluent limitations in the permit. In addition, for reissued permits, if any of the limitations are less stringent than limitations on the same pollutant in the previous NPDES permit, the permit writer must conduct an anti-backsliding analysis, and if necessary, revise the limitations accordingly. In addition, for new or increased discharges, the permitting authority should conduct an antidegradation review, to ensure the permit is written to maintain existing high quality of surface waters, or if appropriate, allow for some degradation. The NPDES regulations at 40 CFR 131.12 outline the common elements of the antidegradation review process.

In addition, permit records for POTWs and industrial facilities should contain comprehensive documentation of the development of all effluent limitations. 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 WQBELs as well as the procedures explaining the basis for establishing, or for not establishing, WQBELs 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. The permit writer should sufficiently document determinations regarding anti-backsliding and antidegradation requirements.

Permits reviewed during the PQR included effluent limitations appropriate to the facility and discharge and included effluent limitations that are at least as stringent as those in the previous permit. Fact sheet and accompanying appendices discuss pollutants of concern and summarize the reasonable potential analysis and WQBEL development. The RP evaluation and WQBEL calculations are retained in electronic format but summaries of both are included in the permit fact sheet and related appendices. Fact sheets discuss applicable standards and identify the most stringent effluent limitation which is then established in the permit.

As required by 40 CFR 124.8, the Region's fact sheets describe the facility operations and wastewater treatment processes; the description is useful. The Region's fact sheets clearly and consistently identify the regulatory basis for each effluent limitation. Further, fact sheets identify the applicable basis of effluent limitations (i.e., TBELs or WQBELs) and provide the regulatory basis for TBELs.

The Massachusetts antidegradation regulations are found at 314 Code of Massachusetts Regulations (CMR) 4.04. The New Hampshire antidegradation regulations are contained in Chapter Env-Wq 1708 of the New Hampshire Code of Administrative Rules. Region 1 consults the respective antidegradation protocols and contacts the state permitting staff to discuss if the permitted discharge is a new or increased discharge that may degrade water quality. Region 1 reserves the right to the final determination regarding antidegradation. Antidegradation reviews are conducted in specific cases and generally when facilities expand. New Hampshire's antidegradation procedures examine the assimilative capacity of a waterbody; at a minimum, 10 percent of the total assimilative capacity above the water quality criteria is held in reserve as a safety factor to protect the waterbody and maintain its high water quality (Tier 2) status. Fact sheets normally describe the review and findings of antidegradation analyses that may have been conducted. In one case, a New Hampshire permit authorized an increase in discharge flow; however, the draft permit retained effluent limitations from the previous permit. The fact sheet indicates that Region 1 analyzed the flow increase from the facility with respect to New Hampshire's antidegradation policy and determined the permit will not result in lowering of water quality or loss of existing uses.

Region 1 routinely considers anti-backsliding restrictions when developing or revising permit limits. Anti-backsliding is triggered if there is a change in an effluent limitation where it becomes less stringent than the limitation in the previous permit. Region 1 staff require a justification to change the effluent limitation, sometimes justified by the consideration of new information during an evaluation of RP. Fact sheets document consideration of anti-backsliding by indicating that limits remain the same or by explaining the basis for any limits that were eliminated or made less stringent.

Program Strengths

Region 1 establishes appropriate TBELs for POTWs and non-POTWs, presents effluent limitations clearly in permits, and provides sufficient documentation regarding the basis for TBELs. Fact sheets contain a useful discussion of facility operations, expected waste streams, and treatment processes, as this information is related to the basis for effluent limitation development. Fact sheets also discuss in appropriate detail the development of TBELs based on ELGs, where applicable. Permit fact sheets contain thorough documentation of the water quality assessment, including regulatory basis and protocols, receiving stream information, data evaluated for RP, assumptions for the evaluation, application of dilution and mixing zones, RP determination, and subsequent WBELs. As described in the preceding section, Region 1's NPDES permit fact sheets are of high quality and provide copious detail regarding the Region's determination and development of effluent limitations, addressing TBELs, RP evaluation, and resultant WQBELs.

Areas for Improvement

The review team did not identify any areas for improvement for this PQR component.

Action Items

Essential

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

Recommended

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

C. Monitoring and Reporting Requirements

Background and Process

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 reporting of monitoring for all limited parameters sufficient to assure compliance with permit limitations, including specific requirements for the types of information to be provided and the methods for the collection and analysis of such samples. In addition, 40 CFR 122.48 requires that permits specify the type, intervals, and frequency of monitoring sufficient to yield data

which are representative of the monitored activity. The regulations at 40 CFR 122.44(i) also require reporting of monitoring results with a frequency dependent on the nature and effect of the discharge. 40 CFR Part 127 requires NPDES-regulated entities to submit certain data electronically, including discharge monitoring reports and various program-specific reports, as applicable.

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

Region 1 establishes monitoring requirements in New Hampshire permits based on state guidance for developing monitoring frequencies for POTWs; Region 1 maintains the guidance in the NPDES Clearinghouse for reference during permit development. Region 1 develops monitoring requirements in Massachusetts permits on a case-by-case basis, and in some cases, requirements are based on specific factors or regulations (e.g., nitrogen monitoring required by the Long Island Sound Nitrogen TMDL is based on facility design flow and type of industry). Generally, Region 1 establishes monitoring requirements based on the existing monitoring frequency and adjusts the frequency as appropriate given the discharge type, facility compliance history, and receiving water quality status. Region 1 requires industrial permittees to conduct effluent and receiving water sampling of the metals required during WET testing and selected non-conventional pollutants as related to receiving stream impairments, to provide data to evaluate RP to cause an exceedance of water quality criteria. Region 1 updated the application reminder letter when EPA's rule, *Use of Sufficiently Sensitive Test Methods for Permit Applications and Reporting*, was finalized to require applicants to use sufficiently sensitive analytical methods. Region 1 permits for Massachusetts and New Hampshire include certain parameter-specific analytical methods (e.g., total residual chlorine, polycyclic aromatic hydrocarbons, and polychlorinated biphenyls) either in the footnotes to the effluent limitations and monitoring requirements table or in a separate narrative condition. Further, in permits that contain effluent limitations that are below achievable detection levels, the permit also identifies the level of compliance for that parameter.

Program Strengths

Permits clearly identify monitoring locations, sampling frequency, and sample type that are appropriate for the type of facility and discharge. Permits reviewed consistently include requirements to use EPA-approved test methods that are sufficiently sensitive and include Minimum Levels for certain pollutants. In addition, permits include straightforward reporting

requirements, including electronic reporting of DMRs. The region’s fact sheets discuss the overall basis for monitoring requirements.

Areas for Improvement

The review team did not identify any areas for improvement for this PQR component.

Action Items

Essential

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

Recommended

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

D. Standard and Special Conditions

Background and Process

Federal regulations at 40 CFR 122.41 require that all NPDES permits, including NPDES general permits, contain certain “standard” permit conditions. Further, the regulations at 40 CFR 122.42 require that NPDES permits for certain categories of dischargers must contain additional standard conditions. Permitting authorities must include these conditions in NPDES permits and may not alter or omit any standard condition, unless such alteration or omission results in a requirement more stringent than those in the federal regulations.

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

Narrative conditions in municipal permits for Massachusetts and New Hampshire address requirements related to pollution prevention, sludge management, influent monitoring, WET, and pretreatment. In addition, Region 1 has added a narrative condition in municipal permits for Massachusetts and New Hampshire that specifically address sewer system operation and maintenance. In addition to general operation and maintenance required by federal standard conditions, Region 1 permits for Massachusetts and New Hampshire specify permittees are required to: provide adequate maintenance staff, maintain ongoing preventative maintenance program to prevent overflows and bypasses, control infiltration and inflow, prepare maps of the sewer collection systems, prepare and submit collection system operation and maintenance plans, and submit an annual report to Region 1 summarizing the activities related to implementation of the collection system operation and maintenance plan during the previous

calendar year. In addition to the requirement to develop, implement, and maintain a stormwater pollution prevention plan (SWPPP), industrial permits may contain stormwater-related non-numeric TBELs and additional requirements, including implementation of the following: control measures and best management practices (BMPs) to minimize the discharge of pollutants in stormwater, spill control BMPs, stormwater system BMPs, facility inspections, and corrective actions. Region 1 also establishes narrative effluent limitations in both municipal and industrial permits for Massachusetts and New Hampshire.

Region 1 uses a standard conditions template and last updated the template in July 2018. Generally, 40 CFR 122.41 and 122.42 provide the basis for Region 1’s standard conditions. Standard conditions are contained in Part II of Massachusetts and New Hampshire permits.

Program Strengths

Permits reviewed consistently included part II, Standard Conditions, and the language is consistent with federal language at 40 CFR 122.41 and 122.42(a).

Areas for Improvement

The standard condition for duty to comply lacks certain language from 122.41(a)(2) that references sections of the CWA and portions of statements from 40 CFR 122.41(a)(2) related to the pretreatment program. Certain permits establish requirements to develop and implement BMPs; however, permits appear to lack the requirement for the permittee to develop a BMP plan. Permits that require implementation of BMPs would be strengthened with clear language regarding requirements and means of demonstrating compliance with the permit condition.

Action Items

Essential

- The Region must ensure that all standard conditions language at 40 CFR 122.41 is included in permits for Massachusetts and New Hampshire.

Recommended

- The Region should, for permits that require implementation of BMPs, include clear language regarding requirements and means of demonstrating compliance with the permit condition.

[Regional response to essential action item: Region 1 acknowledges the discrepancy addressed in the essential action item and will add the appropriate language to their Standard Conditions.]

E. Administrative Process

Background and Process

The administrative process includes documenting the basis of all permit decisions (40 CFR 124.5 and 40 CFR 124.6); coordinating EPA and state review of the draft (or proposed) permit (40 CFR

123.44); providing public notice (40 CFR 124.10); conducting hearings if appropriate (40 CFR 124.11 and 40 CFR 124.12); responding to public comments (40 CFR 124.17); and, modifying a permit (if necessary) after issuance (40 CFR 124.5). EPA discussed each element of the administrative process with Massachusetts and New Hampshire, and reviewed materials from the administrative process as they related to the core permit review.

MassDEP and NHDES provide state certification pursuant to Section 401 of the CWA on the respective final draft permits. Region 1 permit writers draft the letters that request the state certification and administrative staff assemble the package and send it to the respective parties. The 401 certification process occurs concurrently with the notice of the draft permit to the permittee; the draft permit is transmitted to the State Director of MassDEP or NHDES seeking certification of consistency with state requirements and compliance with water quality standards. In addition, for discharges to coastal waters, Region 1 seeks certification from Massachusetts and New Hampshire for consistency with Coastal Zone Management (CZM) requirements. Region 1 indicated that the CZM agencies typically prefer to receive the states' 401 certification prior to their sign-off on the draft permit; however, the CZM agencies' signature follows soon after receiving the states' 401 certification on the draft permits. Special state conditions are usually incorporated into the permits, but in some cases, special state conditions may stand alone in the 401 certifications.

Region 1 permitting staff assemble the draft permit package for distributing for public notice and comment; administrative staff send the draft permit package to the respective interested parties. Two-page public notices for Massachusetts and New Hampshire draft permits are posted with the copy of the draft permit on the Region 1 website for the respective state. The public notice is a joint public notice between Region 1 and either MassDEP or NHDES. Public notices for major permits may be published in newspapers of general circulation in the area where the discharge is to occur; however, the Region is mostly using electronic posting methods. Region 1 maintains a standard mailing list of interested parties for Massachusetts and New Hampshire draft permits. In addition, permittees may identify specific interested parties, in which case, Region 1 would also provide them the draft permit package. Administrative staff designate the public notice period and coordinate the publishing with the newspapers, when applicable. For permits where environmental justice is a concern, Region 1 makes a concerted effort to identify interested parties to ensure opportunity for review and comment on the draft permit. Draft permit packages for Massachusetts and New Hampshire posted on Region 1's website include Part I (the permit), Part II (standard conditions), the fact sheet (with maps, flow diagrams, and DMR data), and the public notice. Final permit packages posted on the website include Parts I and II, the fact sheet, and the response to comments document. Response to comment documents follow a standard format where the permit writer will state the comment and provide a customized response to every comment submitted. Permit writers may also group comments based on topic and then respond to multiple comments with a consolidated response. Current efforts by Region 1 to standardize responses to comments include compilation of all prior response to comments document and tagging the comment and response with topics or key words, for streamlined research and use.

Region 1 indicated requests for hearings are few, approximately three per year. Region 1 may determine in advance of the public notice period based on the issues encountered during permit development that a hearing will be conducted. Further, for permits where environmental justice is a concern, Region 1 conducts enhanced public outreach to facilitate public comments and responses. Region 1 indicated that the Environmental Appeals Board (EAB) hears permit appeals for individual permits. EAB does not notify Region 1 if an appeal has been made; however, staff regularly check the EAB website to determine if any Massachusetts or New Hampshire permits have been appealed. Region 1 attorneys routinely review draft permits which Region 1 feels are likely to be appealed. Region 1 indicated parties may appeal a permit within 30 days of issuance of the final permit, then EAB has 30 days to respond to an appeal, and rebuttals are required within 15 days after issuance of EAB's response. Parties may appeal an EPA-issued general permit to a U.S. Circuit Court of Appeals.

Program Strengths

The permit records reviewed were well-organized and generally comprehensive. Files reviewed consistently include documentation that proper public notice was provided. The files reviewed typically contained the response to comments document developed by Regional permit staff. In addition, the response to comments document developed is well-presented and a very useful part of the administrative record. It was clear when the draft permit was revised and the basis for the revisions.

Areas for Improvement

Certain public notices reviewed lack a general description of sewage sludge disposal practices.

Action Items

Essential

- Region 1 must ensure that public notices include a general description of the sludge use and disposal practice(s) and the location of each sludge treatment works treating domestic sewage and use or disposal sites known at the time of permit application consistent with 40 CFR 124.10(d)(1)(vii), including for permits where the facility has infrequent or irregular sludge disposal, such as lagoons.

Recommended

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

[Regional response to essential action item: Region 1 typically would not include sludge disposal activities in the Public Notice for facilities such as lagoons, where sludge disposal is not a regular occurrence, but will add standard language to the Public Notice for future issuance of lagoon facilities.]

F. Administrative Record and Fact Sheet

Background and Process

The administrative record is the foundation that supports the NPDES permit. If EPA issues the permit, 40 CFR 124.9 identifies the required content of the administrative record for a draft permit and 40 CFR 124.18 identifies the requirements for a final permit. Authorized state programs should have equivalent documentation. The record should contain the necessary documentation to justify permit conditions. At a minimum, the administrative record for a permit should contain the permit application and supporting data; draft permit; fact sheet or statement of basis;¹⁰ 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.

Region 1 develops fact sheets for most Massachusetts and New Hampshire permits; however, statements of basis may be prepared in place of a fact sheet for permit modifications or certain minor facilities. Permit writers work from fact sheets recently developed for similar facilities and consult the NPDES Clearinghouse for boilerplate language; the NPDES Clearinghouse includes an index of updated boilerplate language, based on fact sheet sections and topics. Region 1 commented that fact sheets developed for Massachusetts and New Hampshire permits maintain generally the same organization and content and the PQR Team observed this during the review. Region 1 has developed an individual fact sheet template to accompany Massachusetts and New Hampshire permits.

The Region retains the administrative records for Massachusetts and New Hampshire permits in the Region's office in Boston. Hard copy documents are retained onsite for one permit cycle, after which, files are relocated to the Federal Records Center in Waltham, Massachusetts. The administrative record contains the final permit, draft permit, public notice, permit application, 401 certifications and CZM consistency letters from the respective state, response to

¹⁰ Per 40 CFR 124.8(a), every EPA and state-issued permit must be accompanied by a fact sheet if the permit: Incorporates a variance or requires an explanation under 124.56(b); is an NPDES general permit; is subject to widespread public interest; is a Class I sludge management facility; or includes a sewage sludge land application plan.

comments, and any correspondence related to the permit. DMR (including WET test results) and enforcement files are kept in separate storage rooms at the Region 1 office.

Program Strengths

The fact sheets developed by Region 1 are thorough and are very high quality overall. They contain all of the minimum elements, but frequently go above and beyond to fully explain a rationale, address special topics, or otherwise provide a comprehensive record. Region 1 has noted the legal and technical defensibility is a key element of their administrative record; this is reflected in the high quality of the fact sheets and supporting documents.

Areas for Improvement

The PQR team did not identify any areas for improvement for this PQR component.

Action Items

Essential

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

Recommended

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

IV. NATIONAL TOPIC AREA FINDINGS

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

A. Permit Controls for Nutrients in Non-TMDL Waters

Background

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

Federal regulations at 40 CFR 122.44(d)(vii)(A) require permit limits to be developed for any pollutant which causes, has the reasonable potential to cause, or contributes to an impairment of water quality standards, whether those standards are narrative or numeric.

To assess how nutrients are addressed in the Massachusetts and New Hampshire NPDES programs, the PQR included four permits.

Massachusetts has narrative nutrient criteria that are applicable to all surface waters at 4.05(5)(c). This section of the water quality standards stipulates, in addition to the narrative nutrient criteria, that any existing point source discharge containing nutrients in concentrations that would cause or contribute to cultural eutrophication in any surface water "...shall be provided with the most appropriate treatment..., including, where necessary, highest and best practicable treatment (HBPT) for POTWs and BAT for non-POTWs, to remove such nutrients to ensure protection of existing and designated uses." New Hampshire's narrative nutrient criteria are found at N.H. Code Admin. R. Env-Wq 1703.14(a-e) and specify different criteria for Class A and B waters (1703-14(a) and (b), respectively). Section 1703-14(c) requires that existing discharges containing nutrients (phosphorus or nitrogen, or both) which encourage cultural eutrophication be treated to remove the nutrient(s) to ensure attainment and maintenance of water quality standards. Further, 1703-14(d) prohibits new or increased discharges of phosphorus into lakes or ponds while 1703-14(e) prohibits new or increased discharges containing phosphorus or nitrogen to tributaries of lakes or ponds that would contribute to cultural eutrophication or growth of weeds or algae.

For two of the permits, the receiving waters were impaired for nutrients (Brox Industries MA0040177 and Greater Lawrence Sanitary District MA0100447). For these permits, an RPA was conducted to evaluate the nutrient discharges from the facility. For Brox Industries (MA0040177), there was no need for additional effluent limits; for Greater Lawrence Sanitary District (MA0100447), WQBELs were developed.

One facility (New England Detroit Diesel MA0026247) did not have a permit application for review. However, there was little indication in the permit and fact sheet that nutrients are of concern from the discharge; the facility has ceased conducting operations that generate process water, leaving stormwater as the only discharge. As a result, the permit writer did not conduct a formal RPA for nutrients; the fact sheet states that the "non-numeric TBELs and the BMPs required in the SWPPP are designed to minimize the discharge of these pollutants, which are common in stormwater, and likely present in the NEDDA stormwater discharge." There are no monitoring requirements for nutrients.

One facility (Hillsborough Wastewater Treatment Facility NH0100111) permit noted that, although the receiving water was not impaired, phosphorus was a pollutant of concern. This led to an RPA and the subsequent development of WQBELs.

Three of the four permits reviewed required periodic monitoring for nutrients; POTWs appropriately had far more frequent monitoring than industrial sites due to the potential variable nature of their discharge. In two cases (Greater Lawrence Sanitary District MA0100447,

Hillsborough Wastewater Treatment Facility NH0100111), additional nutrient monitoring was added to the permit to collect sufficient data to conduct an RPA for the next permit renewal.

Program Strengths

Permits and accompanying fact sheets developed for both states properly identify the impairment status of receiving waters, applicable water quality criteria, and discuss whether the impairment is due to nutrient pollution. Further, permit writers appropriately consider the need for an RPA and WQBELs and documented the determination in fact sheets. In the case of Hillsborough Wastewater Treatment Facility NH0100111, the permit included a WQBEL despite the waterbody not being listed as impaired.

Areas for Improvement

The PQR team did not identify any areas for improvement for this PQR component.

Action Items

Essential

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

Recommended

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

B. Effectiveness of POTW NPDES Permits with Food Processor Contributions

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

Background

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

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

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

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

The PQR national topic area *Effectiveness of POTW NPDES Programs with Food Processor Contributions* evaluates successful and unique practices with respect to food processor industrial users (IUs) by evaluating whether appropriate controls are included in the receiving POTW's NPDES permit and documented in the NPDES permit fact sheet or statement of basis. This topic area aligns with the EPA Office of Enforcement Compliance and Assurance National Compliance Initiative, [Reducing Significant Noncompliance with National Pollutant Discharge Elimination System Permits](#) by gathering information that can be used to provide permit writers with tools to maintain or improve POTW and IU compliance with respect to conventional pollutants and nutrients.

The food processing sector manufactures edible foodstuffs such as dairy, meat, vegetables, baked goods, and grains from raw animal, vegetable, and marine material. The main constituents of food processing wastewaters are conventional pollutants (biochemical oxygen demand [BOD], total suspended solids [TSS], oil and grease [O&G], pH, and bacteria) and non-conventional pollutants (such as phosphorus and ammonia). These pollutants are compatible with POTW treatment systems. However, POTWs may not be designed or equipped to treat the intermittent or high pollutant loadings that can result from food processing indirect discharges.

The General Pretreatment Regulations at 40 CFR 403.5(c)(1) require POTWs with approved pretreatment programs to continue to develop and apply local limits (LLs) as necessary to control any pollutant that can reasonably be discharged into the POTW by an IU in sufficient amounts to pass through or interfere with the treatment works, contaminate its sludge, cause problems in the collection system, or jeopardize workers. POTWs that do not have approved pretreatment programs may also be required to develop specific LLs as circumstances warrant (see 40 CFR 403.5(c)(2)). LLs and other site-specific requirements are enforced by the POTW through IU control mechanisms. *POTWs with approved pretreatment programs have the authority to issue permits to industrial users discharging to the POTW. In addition, or alternatively, many POTWs*

surcharge the pollutant loading from food processors and other high-strength conventional pollutant dischargers.

The General Pretreatment Regulations require an Approval Authority to ensure that all substantive parts of the POTW's pretreatment program are fully established and implemented, including control mechanisms a POTW issues to its IUs to reduce pollutants in the indirect discharge (see 40 CFR 403.11). EPA Region 1 issues NPDES permits directly to POTWs in both Massachusetts and New Hampshire. MassDEP and NHDES do not have the authority to implement the pretreatment program in each state; therefore, EPA Region 1 is the Approval Authority for both Massachusetts and New Hampshire POTW pretreatment programs. As the Approval Authority, EPA Region 1 is responsible for administering the NPDES program consistent with provisions of the Clean Water Act, including identifying appropriate conditions to be incorporated into POTW NPDES permits concerning pretreatment requirements, approving pretreatment programs established by local Control Authorities, and reviewing and approving modifications of existing approved program elements, such as sewer use ordinances (SUOs), local effluent limitations, and enforcement response plans (ERPs). EPA Region 1 also reviews POTW annual pretreatment program reports and takes enforcement actions when necessary.

Table 2 identifies the pretreatment and NPDES requirements considered during this PQR. In this table, the terms Director and Permitting Authority refer to EPA Region 1. The term Control Authority refers to the four POTWs with approved pretreatment programs, or to EPA Region 1 for the four POTWs without approved pretreatment programs.

Table 2. Regulatory Focus for this Section of the PQR

Citation	Description
40 CFR 122.42(b)	POTW requirements to provide adequate notice of new pollutants to the Director
40 CFR 122.44(j)	Pretreatment Programs for POTW
40 CFR 124.3(a) and (c)	The POTW must submit a timely and completed application for an NPDES permit or NPDES permit renewal
40 CFR 124.8(a) and (b)	The permitting authority must prepare a fact sheet for every draft permit for a major NPDES facility. Fact sheets must briefly set forth the principal facts and the significant factual, legal, methodological and policy questions considered in preparing the draft permit including references.
40 CFR 403.5(a), (b) and (c)	National pretreatment standards: Prohibited discharges
40 CFR 403.3	Definitions
40 CFR 403.8	Pretreatment program requirements: Development and implementation by POTW
40 CFR 403.10	Development and submission of NPDES state pretreatment programs

40 CFR 403.11	Approval procedures for POTW pretreatment programs and POTW granting of removal credits
40 CFR 403.12	Annual POTW reports

Pretreatment Program Coverage

As shown in Table 3, 50 POTWs in Massachusetts, or approximately 49 percent of all Massachusetts NPDES-permitted POTWs, receive indirect discharges from one or more significant industrial user (SIU). Among them, 45 POTWs have an approved pretreatment program; those POTWs are the Control Authority for a total of 667 non-categorical SIUs and 276 categorical industrial users (CIUs).

Table 3. Massachusetts SIUs by Pretreatment Program Status

SIU Description	Number of SIU(s) Controlled by an Approved Pretreatment Program (45 POTWs) ¹	Number of SIU(s) Not Controlled by an Approved Pretreatment Program (5 POTWs) ^{1, 2}	Total
CIU	276	11	287
Non-CIU	667	0	667
Total SIU	943	11	954

¹ Data source: EPA Region 1 email communication on June 16 and 29, 2021.

² EPA Region 1 receives required reports from 11 CIUs discharging to POTWs without approved programs.

As shown in Table 4, 27 POTWs in New Hampshire, or approximately 60 percent of all New Hampshire NPDES-permitted POTWs, receive indirect discharges from one or more SIUs. Among them, 13 POTWs have an approved pretreatment program; those POTWs are the Control Authority for a total of 101 non-categorical SIUs and 59 CIUs.

Table 4. New Hampshire SIUs by Pretreatment Program Status

SIU Description	Number of SIU(s) Controlled by an Approved Pretreatment Program (13 POTWs) ¹	Number of SIU(s) Not Controlled by an Approved Pretreatment Program (14 POTWs) ^{1, 2}	Total
CIU	59 ¹	Not determined (ND)	ND
Non-CIU	101 ¹	ND	122
Total SIU	160	21	ND

¹ Data source: EPA Region 1 email communication on June 16 and 21, 2021.

² EPA Region 1 receives required reports from 21 SIUs in unapproved programs.

Materials available for review, and research using EPA's ICIS-NPDES and Enforcement and Compliance History Online (ECHO) databases and other online resources, suggest that only a small number of SIUs in Massachusetts and New Hampshire are food processors. EPA Region 1 helped to select the permits for POTWs that receive process wastewater from food processing facilities. These POTWs were selected based on a review of data retrieved from EPA's ECHO and ICIS-NPDES databases, annual reports submitted to EPA Region 1 by POTWs with federally approved pretreatment programs, and discussions with state and local officials. EPA was not

able to find nonapproved POTWs¹¹ with food processors discharging to their systems in Massachusetts. Therefore, two nonapproved Massachusetts POTWs without food processors were reviewed for this PQR. Those permits were reviewed to determine whether they comply with POTW requirements to notify the Director of changes in influent and effluent and requirements to identify any SIUs at 40 CFR 122.42(b) and 40 CFR 122.44(j)(1).

EPA Region 1 does not issue permits to any SIUs or CIUs discharging to POTWs without an approved pretreatment program, but some of these IUs do periodically report to EPA to fulfill administrative orders or other requirements. The reviewers were not provided an example of these administrative orders and were therefore unable to verify that they contained all the required conditions of a control mechanism per 40 CFR 403.8(f)(1)(B)¹².

EPA Region 1 Permitting Process - Pretreatment

In EPA Region 1, staff from the pretreatment, NPDES, and enforcement programs reside in separate branches, but coordinate frequently to administer the pretreatment program¹³. For example, when a permit writer is developing an NPDES permit for a POTW with an approved pretreatment program, the permit writer consults with the pretreatment coordinator to ensure the appropriate pretreatment permit language is included and provides the draft permit to the pretreatment coordinator for review prior to public notice.¹⁴

To determine if a POTW needs to develop a pretreatment program, EPA Region 1 analyzes whether the SIUs have a reasonable potential to impact the POTW and considers the 5 million gallons per day (MGD) threshold in 40 CFR 403.8(a). EPA Region 1's enforcement staff also maintains a list of SIUs and CIUs that are in nonapproved programs and reviews monitoring and other information to identify and track compliance at these IUs.

Most of EPA Region 1's Approval Authority activities, including reviewing annual POTW pretreatment program reports, LLs, ERPs, SUOs, and program modifications, are carried out by the pretreatment staff. Pretreatment staff share annual report reviews with enforcement staff, who enter certain data into ICIS. Enforcement staff conduct inspections, while pretreatment

¹¹ "Nonapproved POTWs" or "nonapproved program" in this section refers to POTWs that do not have approved pretreatment programs.

¹² Information provided by EPA indicated that 6 SIUs and 20 CIUs in New Hampshire are required to periodically self-monitor and report to Region 1. One such SIU is Craft Brewing in Portsmouth; the IU permit is issued by Portsmouth, but through the monitoring and reporting, some oversight remains with EPA.

¹³ In 2007, a detailed list of tasks for administering the pretreatment program was developed to clarify the coordination between pretreatment and enforcement staff. This division of labor remains in effect today.

¹⁴ The permit writer and pretreatment coordinator also usually collaborate on permits for POTWs that do not have an approved pretreatment program. Standard language is included in permits for both approved and nonapproved programs.

staff conduct audits. EPA Region 1’s activities also include approving pretreatment programs established by local Control Authorities.

NPDES Permits Reviewed

EPA reviewed four Massachusetts POTW NPDES permits and two control mechanisms for Massachusetts food processors. Two of the Massachusetts POTWs have approved pretreatment programs and one discharging food processor each. The remaining two Massachusetts POTWs do not have pretreatment programs (“nonapproved”) and do not receive discharges from food processors.

EPA reviewed four New Hampshire POTW NPDES permits, three of which have food processors (five total control mechanisms for New Hampshire food processors discharging into the POTWs were reviewed). Four of the New Hampshire POTWs whose permits were reviewed have approved pretreatment programs and the other two are nonapproved New Hampshire POTWs.

Materials that were considered in the review included the NPDES permit application (for municipal POTWs with or without an approved program), current NPDES permit and fact sheet, the response to comments from the current permit, the current SUO, the most recent pretreatment program annual report, any previous audit or inspection results, and a selection of IU permits and fact sheets. SUOs were found online for review for five of the eight POTWs. Tables 4 and 5 identify the NPDES permits selected for this topic area, as well as the types of controls for IUs established in the SUOs for POTWs with pretreatment programs. The tables show LLs for conventional pollutants, nutrients, and other pollutants of concern.

As shown in Table 5, SUOs for the nonapproved Massachusetts POTWs were not available online. Links to the SUOs are provided, where available. SUOs reviewed for the two Massachusetts POTWs with approved pretreatment programs contained controls on conventional pollutants. The SUO for Marlborough has LLs for pH, BOD, TSS, phosphorus, and ammonia. Greater Lawrence Sanitary District (GLSD) surcharges for BOD and TSS and has LLs for pH, oil and grease, and phosphorus. The design average flow among these four POTWs ranges from 0.8 MGD to 52 MGD.

Table 5. Massachusetts NPDES Permits Selected for the Pretreatment Topic Area

Permittee	Permit No.	Approved Pretreatment Program?	Design Flow Average (MGD)	No. of SIUs ²	No. of Food Processors ²	Example of SUO Controls
City of Marlborough	MA0100480 ¹	Yes	4.15	11	1	LLs for pH, BOD, TSS, phosphorus, ammonia, As, Be, Cd, Cr, Cu, CN, Pb, Mn, Hg, Ni, Se, Ag, Th, TTO, Zn

Permittee	Permit No.	Approved Pretreatment Program?	Design Flow Average (MGD)	No. of SIUs ²	No. of Food Processors ²	Example of SUO Controls
Greater Lawrence Sanitary District	MA0100447	Yes	52	33	1	LLs for pH, O&G. Surcharge for BOD & TSS. LLs for As, Cd, Cr, Cu, CN, Pb, Hg, Mo, Ni, Ag, Zn IU monitoring includes: COD, TDS, ammonia, N, TKN, nitrate, nitrite, among many. ³
Town of Rockport	MA0100145	No	0.8	0	0	Only pH (in 1977 SUO)
Town of Athol	MA0100005	No	1.75	0	0	SUO with LLs not available

¹ The draft NPDES permit for the City of Marlborough was reviewed for this PQR.
² Based on the information provided in the annual report or permit application.
³ GLSD SUO Appendix B, Analysis and Sampling Frequency of Industrial Wastes states, "Measurement and analyses of industrial wastes are to include items from the following lists where applicable." The list includes many pollutants in addition to those shown here.

Table 6 identifies the New Hampshire NPDES permits selected for this topic area. Of the three New Hampshire POTW SUOs reviewed, none contain limits for nutrients. Each has a different approach for controlling BOD, TSS, and O&G; Manchester and Portsmouth establish numeric limits for some pollutants, while Greenville uses a simpler headworks limitation. Manchester's SUO also includes a specific formula for calculating surcharge for BOD and TSS, while Portsmouth cross-references another document. Greenville's SUO does not reference surcharging. The design average flow among these POTWs ranges from 0.23 million gallons per day (MGD) to 34 MGD.

Table 6. New Hampshire NPDES Permits Selected for Pretreatment Topic Area

Permittee (SUO is linked)	Permit No.	Approved Program?	Design Average Flow (DAF) (MGD)	No. of SIUs ¹	No. of Food Processor IUs ¹	Example of SUO Controls
Manchester	NH0100447	Yes	34.0	15	3 ²	Cu, CN, Pb, Hg, Ag, Zn have numeric limits. Over a dozen other pollutants (including BOD, TSS, O&G) have screening levels.
Milford	NH0100471	Yes	2.15	5	1 ²	N/A ³
Greenville	NH0100919	No	0.23	N/A	N/A	BOD, TSS, O&G MAHLs ⁴
Portsmouth	NH0100234	No	4.8	1 ⁵	N/A	CN, pH, O&G have numeric limits. Fe, Cr, Cu, Zn, Hg, Cl have narrative limits. ⁶

¹ Based on the information provided in the permit application, unless otherwise noted.
² None are SIUs.
³ The SUO for Milford was not provided and could not be located online.

Permittee (SUO is linked)	Permit No.	Approved Program?	Design Average Flow (DAF) (MGD)	No. of SIUs ¹	No. of Food Processor IUs ¹	Example of SUO Controls
⁴ Greenville’s SUO only includes maximum allowable headworks loadings; the SUO also contains general, narrative prohibition on discharges that will cause issues with upset or pass through (including specific mention of BOD and O&G). ⁵ Total number is unclear (permit application was unavailable), but at least one SIU (Craft Brewing) exists. ⁶ Narrative limits generally prohibit discharges to a level that may interfere with the POTW operations or effluent, are in unusual quantities, etc.						

IU Permits Reviewed

EPA reviewed two Massachusetts food processing industrial user permits as part of the PQR; they are identified in Table 7 below. EPA reviewed these IU discharge permits issued by the POTWs to identify how, and if, IU controls on conventional pollutants are being implemented.

Table 7. Summary of Massachusetts Industrial User Discharge Permit Conditions

Facility Name	Permit Number	Receiving POTW	Type of Food Processor	Classification by POTW	Average Process Wastewater Discharge (gallons per day [gpd])	Monitored Pollutants ¹
Ken’s Foods, Inc.	SIU4857540-1	City of Marlborough	Manufacturer of sauces and condiments	SIU	82,000 ²	Flow, pH, TSS, BOD, COD, phosphorus, ammonia as N, O&G, 14 metals, EPA 624 & 625 list of pollutants, Al, An, Be, Cd, Cr, Cu, CN, Pb, Hg, Ni, Se, Ag, Th, Zn, phenol
Bake N Joy	33	Greater Lawrence Sanitary District	Bakery of bread, cookies, and other baked goods	SIU	25,000 ³	pH, BOD surcharge, TSS surcharge, As, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Ag, Zn, CN, O&G

¹ Includes parameters identified in the permit with numerical discharge limits, applicable surcharge values, and those identified as ‘monitor only’.

² Source: NPDES permit application

³ Source: GLSD IU List Updated September 2016. Not available in NPDES permit application.

EPA reviewed five New Hampshire IU discharge permits issued by the POTWs to identify how, and if, IU controls on conventional pollutants are being implemented; Table 8 lists these IU permits.

Table 8. Summary of New Hampshire Industrial User Discharge Permit Conditions

Facility Name	Permit Number	Receiving POTW ¹	Type of Food Processor	Classification by POTW	Average Process Wastewater Discharge (gallons per day [gpd]) ²	Monitored Pollutants ³
Blake's Manchester Creamery	2015	Manchester	Ice cream	Class II IU ⁴	2,000	Flow, BOD, TSS, chlorides, O&G, sulfate, sulfide, sulfite, Cu, CN, Pb, Hg, Ag, Zn, pH, TTOs
Mrs Budds Foods	2016	Manchester	Frozen pies	Class II IU ⁴	10,000	Flow, BOD, TSS, chlorides, O&G, sulfate, sulfide, sulfite, Cu, CN, Pb, Hg, Ag, Zn
Western Foods	2005	Manchester	Bakery	Class II IU ⁴	4,000	Flow, BOD, TSS, chlorides, O&G, pH, sulfate, sulfide, sulfite, Cu, CN, Pb, Hg, Ag, Zn, TTOs
The Loft Event Center	M23	Milford	Brewery	Class III IU ⁴	100	pH
Craft Brewing ⁵	13010	Portsmouth	Brewery	SIU	48,000 ⁶	Flow, TKN, TP, BOD, TSS, COD, sulfate, sulfide, As, Be, Cd, Cr, Cu, Fe, Pb, Mo, Hg, Ni, Se, Ag, Zn, Al

¹ No food processing IUs were identified for Greenville.

² Based on information included in the POTW's NPDES permit application.

³ Includes parameters identified in the permit with numerical discharge limits or monitoring only requirements.

⁴ Class II and Class III IUs are not Significant Industrial Users, as defined by 40 CFR 403.3(v).

⁵ Portsmouth has two WWTPs. The permit files for one WWTP (Pierce Island) were provided for review. Craft Brewing discharges to the other WWTP (Pease).

⁶ Based on information in a permit modification letter, referencing 2018 data.

Insufficient monitoring of a potentially inconsistent-quality IU discharge may prevent a POTW from detecting and expeditiously reacting to influent quality changes. EPA compared IU effluent limitations and discharge monitoring frequencies for food processors with those for the receiving POTWs to evaluate the adequacy of IU discharge monitoring frequencies to support timely detection of discharges with the potential to cause problems in the POTW collection or treatment systems.

Table 9 shows discharge permit conditions for the Massachusetts IU permits reviewed for this PQR compared to the Massachusetts NPDES permits conditions for the receiving POTWs. The two nonapproved Massachusetts POTWs reviewed (Athol and Rockport) do not have food processors, and therefore are not included in Table 9. In each case, the monitoring required of the IU is comparable to or more frequent than the monitoring conducted by the POTW.

Table 9. Comparison of Massachusetts POTW and Industrial User Discharge Permit Conditions

IU and Receiving POTW	Pollutant Monitoring Frequency and Limit ¹									
	Total P		Ammonia		BOD		TSS		O&G	
	frequency	limit	frequency	limit	frequency	limit	frequency	limit	frequency	limit
City of Marlborough										
City of Marlborough POTW	Apr 1-Oct 31: 1/week	0.1 mg/L MA;	Apr 1 – Mar 31: 2/week	0.1 mg/L MA, WA;	Apr 1 – Oct 31: 2/week	15 mg/L, 362 lb/day MA, WA;	Apr 1 – Oct 31: 2/week	15 mg/L, 362 lb/day MA, WA;	N/A	N/A
	<u>Interim limit²:</u> Nov 1 – Mar 31: 1/month	1 mg/L MA;		3 mg/L DM;	Nov 1 – Mar 31: 2/week	25 mg/L, 603 lb/day MA;	Nov 1 – Mar 31: 2/week	30 mg/L, 723 lb/day MA;		
	Nov 1 – Mar 31: 1/month	0.2 mg/L MA	Nov 1 – Mar 31: 1/week	Report lb/day MA, WA; 10 mg/L, Report lb/day MA; Report mg/L DM		40 mg/L, 964 lb/day WA		45 mg/L, 1,085 lbs/day WA		
Ken’s Foods, Inc.	1/Qtr	25 mg/L	1/Qtr	50 mg/L	1/Qtr	600 mg/L DM	1/Qtr	750 lbs/day DM	1/Qtr	100 mg/L
Greater Lawrence Sanitary District (GLSD)										
GLSD POTW	Apr 1 – Oct 31: 1/week	240 lb/day MA;	N/A	N/A	5/week	30 mg/L, 13,000 lb/day MA;	5/week	30 mg/L, 13,010 lb/day MA;	N/A	N/A
		Report mg/L MA;				45 mg/L, 19,516 lb/day WA;		45 mg/L, 19,516 lb/day WA;		
	Nov 1 – Mar 31: 1/month	Report mg/L and lb/day DM				50 mg/L, Report lb/day DM		50 mg/L, Report lb/day DM		
Bake N Joy	N/A	N/A	N/A	N/A	2/year	250 mg/L surcharge	2/year	300 mg/L surcharge	2/year	200 mg/L

¹ For this table, not applicable is abbreviated N/A, daily maximum is abbreviated DM, weekly average is abbreviated WA, monthly average is abbreviated MA.

² The permit has a compliance schedule and interim monitoring requirements for total phosphorus from November to March.

Table 10 shows discharge permit conditions for the New Hampshire IU permits reviewed for this PQR compared to the New Hampshire NPDES permit conditions for the receiving POTWs. In each case, the monitoring required of the IU is comparable to or more frequent than the monitoring conducted by the POTW.

Table 10. Comparison of New Hampshire POTW and Industrial User Discharge Permit Conditions

IU and Receiving POTW	Pollutant Monitoring Frequency and Limit ¹									
	Total P		Ammonia		BOD		TSS		O&G ³	
	frequency	limit	frequency	limit	frequency	limit	frequency	limit	frequency	limit
Manchester										
Manchester POTW	2/Month	Report only	Quarterly	Report only (as part of WET)	Daily	[CBOD] 45 mg/L DM, 40 mg/L WA, 25 mg/L MA, 12,770 lb/day DM, 11,350 lb/day WA, 7,090 lb/day MA	Daily	50 mg/L DM, 45 mg/L WA, 30 mg/L MA, 14,190 lb/day DM, 12,770 lb/day WA, 8,510 lb/day MA	N/A	N/A
Blake's Manchester Creamery	N/A	N/A	N/A	N/A	Annual	15 lb/day DM, 6.7 lb/day AA	Annual	15 lb/day DM, 6.7 lb/day AA	Annual	O&G (petro): 3.8 lb/day DM, 1.7 lb/day AA, O&G (animal): 13.1 lb/day DM, 5.8 lb/day AA
Mrs Budds Foods	N/A	N/A	N/A	N/A	Annual	37.9 lb/day DM, 29.2 lb/day AA	Annual	37.9 lb/day DM, 29.2 lb/day AA	Annual	O&G (petro): 10.8 lb/day DM, 8.3 lb/day AA, O&G (animal): 37.9 lb/day DM, 29.2 lb/day AA
Western Foods	N/A	N/A	N/A	N/A	Annual	33.4 lb/day	Annual	33.4 lb/day DM, 13.3 lb/day AA	Annual	O&G (petro): 8.3 lb/day

IU and Receiving POTW	Pollutant Monitoring Frequency and Limit ¹									
	Total P		Ammonia		BOD		TSS		O&G ³	
	frequency	limit	frequency	limit	frequency	limit	frequency	limit	frequency	limit
						DM, 13.3 lb/day AA				DM, 3.3 lb/day AA, O&G (animal): 29.2 lb/day DM, 11.7 lb/day AA
Milford										
Milford POTW	Weekly	3 lbs/day MA	2/Week	10 mg/L DM, 4.1 mg/L MA, 179 lb/day DM ²	2/Week	[CBOD] 16 mg/L DM, 14 mg/L WA, 7 mg/L MA, 287 lb/day DM, 251 lb/day WA, 126 lb/day MA ²	2/Week	30 mg/L DM, 25 mg/L WA, 15 mg/L MA, 538 lb/day DM, 448 lb/day WA, 269 lb/day MA ²	N/A	N/A
The Loft Event Center	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Portsmouth										
Portsmouth POTW	N/A	N/A	Quarterly	Report only (as part of WET)	2/Week	50 mg/L DM, 45 mg/L WA, 30 mg/L MA, 2,002 lb/day DM, 1,801 lb/day WA, 1,201 lb/day MA	2/Week	50 mg/L DM, 45 mg/L WA, 30 mg/L MA, 2,002 lb/day DM, 1,801 lb/day WA, 1,201 lb/day MA	N/A	N/A
Craft Brewing	Weekly	Report only	N/A	N/A	Three/week	900 mg/L DM, 1200 lb/day MA	Five/week	900 mg/L DM, 1200 lb/day MA	N/A	N/A

¹ For this table, not applicable is abbreviated N/A, daily maximum is abbreviated DM, weekly average is abbreviated WA, monthly average is abbreviated MA, and annual average is abbreviated AA.

² CBOD, TSS, and ammonia limits listed are from June 1 to October 31. Less stringent limits are in effect for the remaining months.

³ Oil and grease is split into two parameters for monitoring: oil and grease of a petroleum or mineral origin (O&G petro) and oil and grease of an animal or vegetable origin (O&G animal).

Program Strengths

All Programs

The NPDES permits reviewed for Massachusetts and New Hampshire POTWs contain appropriate effluent limitations for BOD, TSS, and pH. All the POTW NPDES permits contain a more stringent upper limit for pH ranging from 8.0 to 8.5 instead of the pH of 9.0 stated in the secondary treatment standards. Two of the New Hampshire POTWs (Manchester and Milford) use the alternative standard for Carbonaceous Biochemical Oxygen Demand (CBOD).

The POTWs generally appear to have adequate procedures in place to identify SIUs, including food processors, and issue control mechanisms of some type to control these discharges. Generally, the POTWs require IU self-monitoring of pollutants of concern for food processing (such as BOD, TSS, and nutrients) that are consistent with the size of the IU and the risk the IU presents to the POTW. None of the programs reviewed appear to have any issues with POTW performance related to waste from food processors, nor did any food processors appear to have a history of significant compliance issues. However, as noted below, further documentation of the rationale for why and how IUs, including food processors, are characterized and regulated would strengthen the permit records.

All the IU permits reviewed contain appropriate language for dischargers to notify the POTW about new pollutants or changes in the volume or nature of their discharge, per 40 CFR 122.42(b). This helps to ensure that the current contribution from food processors remains relatively consistent, maintaining stable POTW operations.

Approved Programs

The Massachusetts NPDES permits contain seasonal limits or reporting requirements for phosphorus, ammonia, total nitrogen, TKN, and total nitrate and nitrite. In addition, the Milford, NH permit includes monitoring only requirements for total nitrogen, total Kjeldahl nitrogen (TKN), and total nitrate and nitrite. Inclusion of nutrient limits in NPDES permits is a strength because it resulted in development of local limits for these nutrients. As noted above in Table 3, the City of Marlborough, MA has adopted LLs for pH, BOD, TSS, phosphorus, and ammonia. GLSD, MA has adopted LLs for pH and O&G and calculates a user surcharge based on BOD & TSS loadings. The reviewers could not locate the SUO for Milford, NH and were therefore unable to identify local limits for Milford.

The NPDES permits for Massachusetts and New Hampshire POTWs with approved pretreatment programs state that the permittees must operate a POTW pretreatment program in accordance with the federal General Pretreatment Regulations at 40 CFR Part 403, state, and local laws and regulations, and the approved pretreatment program and any approved modifications. Additionally, the permits include the requirement for the identification of SIUs discharging to the POTW, sampling at SIUs, permit renewal timelines, noncompliance remedies, and maintaining adequate resources for implementing the pretreatment program.

NPDES permits for New Hampshire and Massachusetts POTWs with approved programs have specific timeframes for reviewing and revising LLs following permit reissuance (40 CFR

122.44(j)(2)(ii)). The New Hampshire permits require: “Within 180 days of the effective date of this permit, the permittee shall prepare and submit a written technical evaluation to the EPA analyzing the need to revise local limits. Should the evaluation reveal the need to revise local limits, the permittee shall complete the revisions within 120 days of notification by EPA and submit the revisions to EPA for approval.” The Massachusetts NPDES permits require: “Within 90 days of the effective date of this permit, the Permittee shall prepare and submit a written technical evaluation to the EPA analyzing the need to revise local limits. Should the evaluation reveal the need to revise local limits, the Permittee shall complete the revisions within 120 days of notification by EPA and submit the revisions to EPA for approval.”

Nonapproved Programs

No specific strengths were identified in only the POTW NPDES permits with non-approved programs.

Areas for Improvement

All Programs

Several POTWs have incomplete NPDES permit applications. GLSD, MA did not complete Part F of the NPDES permit application. The POTW indicated that they have an approved pretreatment program, including 17 non-categorical SIUs and 15 CIUs. However, the POTW did not provide responses to questions F.3 through F.8 which request information on each SIU including name, mailing address, industrial processes, products, raw materials, flow, pretreatment standards, and whether any SIUs have caused problems at the POTW. Further, in responding to questions F.3 through F.8 in its application, Manchester, NH references its pretreatment program annual report, which contains some, but not all, of the requested information. The annual report contains the name, type of industry, the applicability of categorical limits, and average flow, but does not describe the industrial process, raw materials used, or waste streams generated. Further, Portsmouth, NH (nonapproved program) only responded to question F.1 and left the remaining questions blank. While this is presumably to indicate that the POTW has no contributing SIUs, the application should definitively state this information. Additionally, questions F.9 through F.15 are not related to the response to question F.1 and should also be completed. It is noted that the pretreatment regulations at 40 CFR 122(j)(6)(iii) allow an approved POTW pretreatment program to reference a recently submitted annual report in its NPDES permit application in lieu of repeating already submitted information to the permitting authority. Permit writers need this information to review all potential industrial user impacts with respect to POTW capacity to ensure that POTWs do not accept excess loading. Permit writers must ensure that NPDES permit applications (or annual reports) contain all the necessary information (required by 40 CFR 122.21(j)(6)) to comprehensively evaluate the POTW and the potential need for a pretreatment program, including identifying all SIUs, industrial processes, flows, and hauled industrial waste, and identifies any applicable categorical classifications.

Although all the POTW NPDES permits reviewed require dischargers to meet the notification requirements of 40 CFR 122.42(b), none of the permits identify the timeframe for “adequate” notice under 40 CFR 122.42(b). While a timeframe for this notification is not required by federal regulations, a timeframe in the permit would improve POTW accountability and permit enforceability. It is recommended that permit writers include a timeframe for notification of any new introduction of pollutants and substantial changes in the volume or character of pollutants being introduced into that POTW.

“Significant industrial user” is not defined in the Definitions sections of the Standard Conditions attached to all permits. It is recommended that permit writers include the definition for SIU in the Definitions section.

Approved Programs

The NPDES permit fact sheets for the Massachusetts and New Hampshire POTWs do not specify the basis for requiring the POTW to implement a pretreatment program. Inclusion of this information in the POTW NPDES permit fact sheets is important for documenting the rationale for the POTW’s monitoring and sampling requirements. Fact sheets should specify the basis for requiring a pretreatment program (see 40 CFR 403.8(a)).

None of the NPDES permit fact sheets reviewed identify the POTW organic (conventional) and nutrient pollutant capacity. Fact sheets should include this information.

The fact sheets do not thoroughly identify and characterize the contributing IU discharges and the volume of pollutants. The fact sheets should include information characterizing IU discharges (e.g., type of facility, volumes of discharge, raw materials, etc.) to document the permit writer’s reasonable potential analysis to assess if industrial loading exceeds what the POTW can safely accept and treat. Fact sheets should specify whether the reasonable potential analysis conducted to develop water quality-based limits included analysis of pollutants common for the types of industries discharging to the POTW.

None of the fact sheets describe how each approved program identifies new or expanded industrial discharges, including the development of an industrial waste survey. Fact sheets should provide information about how the POTW identifies new and expanded industrial discharges.

The permit fact sheets reviewed do not specify whether the POTW accepts hauled waste. For example, the fact sheet for Manchester, NH has a brief note that septic waste is a small portion of the facility’s total flow, but there is no mention of hauled waste in the application or permit, or elsewhere in the fact sheet. The fact sheet, permit, and application for Milford, NH do not discuss hauled waste, but an internet search suggests that Milford’s POTW has a dump station. Permit writers should include information about whether the POTW accepts hauled waste in the fact sheets and discuss hauled waste types, volumes, discharge locations, and whether hauled waste contributions are included in the reasonable potential analysis.

The Massachusetts NPDES permits and permit fact sheets for Marlborough and GLSD do not include program modification dates. It is recommended that the permit writer specify the modification dates, if applicable, as a means of determining whether the program includes current federal regulations.

The fact sheet for Milford, NH does not state when LLs were last evaluated and the date that the current limits were adopted. Permit writers should specify the POTW's most recent LLs submission date in the permit fact sheet to ensure that the program is adequately evaluating its LLs, in compliance with the federal regulations.

Both Massachusetts NPDES permits contain requirements for submittal of annual reports in Attachment D. Attachment D in the Marlborough, MA permit is titled NPDES Permit Requirement for Industrial Pretreatment Annual Report. Attachment D in the GLSD, MA permit is titled Industrial Pretreatment Program Annual Report Requirements. The attachment in the Marlborough, MA permit appears to be an older version. The GLSD permit has updated language per the 2005 streamlining rule; for example, it references reduced reporting requirements and nonsignificant CIUs. The GLSD attachment also requires information about hauled waste, description of changes made to the pretreatment program and "any other info deemed necessary by Approval Authority". It is recommended that permit writers use the updated, more comprehensive version of Attachment D (annual report requirements) in the NPDES permits for POTWs with approved pretreatment programs to ensure all annual report requirements at 40 CFR 403.12(i) are met.

Manchester, NH and Portsmouth, NH and GLSD MA use surcharges for higher strength industrial discharges. These surcharges help to encourage dischargers to install and maintain appropriate treatment systems; however, surcharge levels are not equivalent to a limitation. It is recommended that the POTWs consider establishing an upper local limit, that is technically-based, for each of the surcharge pollutants (BOD and TSS) to ensure stability of the treatment works.

Nonapproved Programs

All permits for nonapproved POTWs reviewed lack requirements at 40 CFR 122.44(j)(1) to identify, in terms of character and volume of pollutants, any SIUs discharging into the POTW subject to Pretreatment Standards under section 307(b) of CWA and 40 CFR Part 403. Permit writers must ensure that requirements at 40 CFR 122.44(j)(1) are included in all permits.

The Town of Athol is not required to have a pretreatment program. However, the 2020 NPDES permit fact sheet states that two CIUs discharge to the Athol WWTF: L.S. Starrett¹⁵, a manufacturer of precision tools; and Filtrona, an extruder for medical tubing. There is no other mention of these CIUs in the permit, fact sheet or in the explanation of the decision to not

¹⁵ EPA Region 1 provides regulatory oversight via administrative order for L.S. Starrett.

require a pretreatment program. The fact sheet for Athol specifically states, “The Permittee does not have any major industries contributing industrial wastewater to the WWTP, and thus is not required to have a pretreatment program.”¹⁶ Also, Part F of the NPDES permit application is blank and does not list either of these CIUs, therefore, the application is incorrect. According to documentation provided by EPA Region 1, L.S. Starrett is required to submit reports to EPA; however, Filtrona was not included on the list of users reporting to EPA Region 1. As mentioned previously, permit writers must ensure that NPDES permit applications contain all information, including any significant dischargers. Permit writers must identify POTWs required to develop pretreatment programs, or not, in accordance with 40 CFR 403.8(a) and notify these POTWs of the need to develop a POTW Pretreatment Program, when warranted. If Region 1 confirms that a POTW with a CIU is not required to develop a pretreatment program, the fact sheet should document this decision. In the absence of a POTW Pretreatment Program, EPA Region 1 is the Control Authority and must have procedures to carry out the activities set forth in 40 CFR 403.8(f)(2) [40 CFR 403.10(f)(2)(i)] to receive reports and assess compliance.

EPA Region 1 permit writers should revise the permit reopener clause for POTWs without approved pretreatment programs to specifically state that the permit could be reopened to require a pretreatment program, if deemed necessary.

The fact sheets for the New Hampshire POTWs without approved programs do not discuss the rationale for not requiring a pretreatment program. Both fact sheets simply state that the POTW is not required to develop a pretreatment program (in addition to requirements to ensure proper POTW operation, etc.). Portsmouth has a known food processor (Craft Brewing, note that the fact sheet and permit application were not available, so this review was unable to confirm this is an SIU). However, the permit establishes flow limits well above the 25,000 gpd threshold and the facility is identified in ECHO as an SIU. Greenville has Pilgrim Foods listed as a SIU in its NPDES permit application. Neither Greenville or Portsmouth’s files discuss how the existing POTW operations adequately address the discharges from food processing (and other) IUs. Permit writers should explain the rationale for not requiring a pretreatment program when there are likely discharging SIUs.

Both Portsmouth and Greenville’s NPDES permits require the POTWs to submit every five years: “A copy of its current sewer use ordinance. The sewer use ordinance shall include local limits pursuant to Env-Ws 904.04 (a).” The permits do not contain language that require them to conduct a technical review of their LLs. While not required of Portsmouth or Greenville, as they are not approved programs, it is recommended that the permits require the POTWs to conduct a technical review every five years to ensure that the LLs continue to be protective of the POTW.

¹⁶ The Athol permit does have requirements to sample specific industry sectors including platers/metal finishers, paper and packaging manufacturers, tanneries and leather/fabric/carpet treaters manufacturers of parts with polytetrafluoroethylene (PTFE) or Teflon type coatings, landfill leachate, centralized waste treaters, contaminated sites, firefighting training facilities.

Action Items

Essential

- Permit writers must ensure that permits for POTWs without an approved pretreatment program contain requirements at 40 CFR 122.44(j)(1) to identify, in terms of character and volume of pollutants, any SIUs discharging into the POTW.

Recommended

- Permit writers should revise the fact sheet to reference that the applications and annual reports have been submitted and reviewed prior to issuance of the NPDES permit.
- Permit writers should include a timeframe for notification of any new introduction of pollutants and substantial changes in the volume or character of pollutants being introduced into that POTW (40 CFR 122.42(b)).
- Permit writers should include the definition for SIU in the Definitions section of the permits.
- Permit writers should specify the basis for requiring a pretreatment program (see 40 CFR 403.8) in the permit fact sheet. Conversely, the fact sheet should also explain the rationale for not requiring a pretreatment program, especially when SIUs are present in a nonapproved program.
- Permit writers should include information about POTW conventional and nutrient pollutant capacity in fact sheets.
- Permit writers should include information in fact sheets characterizing IU discharges (e.g., type of facility, volumes of discharge, raw materials, etc.) to document the permit writer's reasonable potential analysis to assess if industrial loading exceeds what the POTW can safely accept and treat.
- Permit writers should specify in fact sheets whether the reasonable potential analysis conducted to develop water quality-based limits included analysis of pollutants common for the types of industries discharging to the POTW.
- Permit writers should provide information in fact sheets about how the POTW identifies new and expanded industrial discharges.
- Permit writers should include information about whether the POTW accepts hauled waste in the fact sheets and discuss hauled waste types, volumes, discharge locations, and whether hauled waste contributions are included in the reasonable potential analysis.
- Permit writers should specify the most recent modification dates of pretreatment programs, including evaluation and modification of local limits, in the permit fact sheet, when applicable.
- Permit writers should ensure that all annual report requirements, per 40 CFR 403.12(i), are included in the reporting requirements outlined in Attachment D.
- Permit writers should encourage POTWs to establish an upper local limit, that is technically-based, for the surcharge pollutants (BOD and TSS) to ensure stability of the treatment works.
- Permit writers should revise the permit reopener clause for nonapproved POTWs to state that the permit could be reopened to require a pretreatment program, if deemed necessary.
- Permit writers should ensure that POTWs without approved programs conduct a LL technical review to ensure that the LLs continue to be protective of the POTW.
- Permit writers should identify POTWs required to develop Pretreatment Programs in accordance with 40 CFR 403.8(a), document reasoning in the permit fact sheet, and notify these POTWs of the need to develop a POTW Pretreatment Program. Permit writers should work with their pretreatment coordinator to determine if a pretreatment program is necessary.

[Regional response to essential action item: Region 1 will ensure that permits for nonapproved POTWs contain the requirements of 40 CFR 122.44(j)(1)]

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

Background

As part of this PQR, EPA reviewed New Hampshire (NHR040000) and Massachusetts (MAR040000) small MS4 general permits for consistency with the Phase II stormwater permit regulations. EPA recently updated the small MS4 permitting regulations to clarify: (1) the procedures to be used when coverage is by general permits (see 40 CFR 122.28(d)); (2) the requirement that the permit establish the terms and conditions necessary to meet the MS4 permit standard (i.e., “to reduce the discharge of pollutants from the MS4 to the maximum extent practicable (MEP), to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act”), including conditions to address the minimum control measures, reporting, and, as appropriate, water quality requirements (see 40 CFR 122.34(a) and (b)); and (3) the requirement that permit terms must be established in a “clear, specific, and measurable” manner (see 40 CFR 122.34(a)).

The New Hampshire permit reviewed is a general permit to be used by small MS4s (Phase II, traditional cities and towns, state, federal, county, and other publicly-owned properties, and the State transportation agency) located in New Hampshire.

The Massachusetts permit reviewed is a general permit to be used by small MS4s (Phase II, traditional cities and towns, state, federal, county, and other publicly-owned properties, and the State transportation agency (except for except for MassDOT- Highway Division)) located in Massachusetts.

While both the New Hampshire and Massachusetts permits do not necessarily follow the template of the Remand Rule, they do conform to the Remand Rule.

Both the New Hampshire and Massachusetts permits appear to do good job of clearly identifying which provisions apply to which types of permittees, and what the expectations are for each in development and implementation. The permits include different timelines on certain elements for different types of permittees (i.e., new or existing).

All entities in the New Hampshire and Massachusetts permits are required to have a stormwater management program (SWMP). The New Hampshire permit provides for flexibility in allowing other entities to take on responsibility for one or more permit-required SWMP elements; this would need to be coordinated accordingly amongst the co-permittee group(s) involved. All New Hampshire and Massachusetts MS4s are still required to develop their own SWMP unique to their entity, but those in New Hampshire can include parts of the program being implemented by another MS4.

The New Hampshire and Massachusetts permits identify measurable outcomes or required performance requirements explicitly in some cases, but in others, quantifiable goals and metrics are to be defined in the SWMP. The New Hampshire and Massachusetts permits appear to clearly state the specific program elements that need to be developed, and in some cases

provide definitive implementation strategies and metrics. However, in some cases, the New Hampshire and Massachusetts permits allow the permittee to develop their own elements, procedures, and goals, which are to be defined in the SWMP.

The New Hampshire permit uses conditional language, such as the phrase “to the extent feasible” or “to the extent necessary” when referring to the implementation of regulatory mechanisms for illicit discharges and post-construction.

The Massachusetts permit uses conditional language, such as the phrase “to the extent feasible” or “to the extent practicable” when referring to the implementation of regulatory mechanisms for illicit discharges and pollution prevention/good housekeeping.

The New Hampshire and Massachusetts permits appear to provide a well-thought-out and methodical approach for addressing water quality concerns, including TMDLs and other impairments by requiring routine monitoring and evaluating the effectiveness of best management practices (BMPs). The New Hampshire and Massachusetts permits include clear discussion on how to develop and implement program elements related to impaired waterbodies with or without TMDLs.

Permittees in New Hampshire and Massachusetts are to monitor the effects their program and BMPs are having on water quality and assess whether changes need to be made to ensure progress. In some cases, the permit requires the permittee to develop their own program elements and measurable goals as part of the SWMP (with clear guidelines set forth by the permit), and in other cases the permit provides more specific language.

Program Strengths

The New Hampshire and Massachusetts permits appear to clearly identify which provisions apply to which types of permittees, and what the expectations are for each with respect to development and implementation. The permits include different timelines on certain elements for different types of permittees. Further, the New Hampshire and Massachusetts permits appear to provide a well-thought-out and methodical approach for addressing water quality concerns, including TMDLs and other impairments by requiring routine monitoring and evaluating the effectiveness of BMPs.

Areas for Improvement

Permits reviewed were issued before e-Reporting requirements consistent with 40 CFR Part 127 and the Final MS4 General Permit Remand Rule became effective. At the next permit reissuance, the Region must ensure that permits include these additional requirements. In addition, the permits would be strengthened with clearer identification of the type of general permit (i.e., comprehensive or two-step).

Action Items

Essential

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

Recommended

- Region 1 should more clearly identify the type of MS4 general permit (i.e., comprehensive or two-step).
- Region 1 must ensure that the next MS4 permit reissuance include the new requirements to address e-Reporting consistent with 40 CFR Part 127 and the Final MS4 General Permit Remand Rule.

V. REGIONAL TOPIC AREA FINDINGS

No regional topic areas were reviewed for this PQR.

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

A PQR of Region 1 for Massachusetts and New Hampshire was conducted in June 2015. As discussed previously, a draft report was developed but not finalized. No action items from the previous PQR are being reviewed.

VII. RECOMMENDED ACTION ITEMS FROM LAST PQR

A PQR of Region 1 for Massachusetts and New Hampshire was conducted in June 2015. As discussed previously, a draft report was developed but not finalized. No action items from the previous PQR are being reviewed.

VIII. ACTION ITEMS FROM FY 2018–2022 PQR CYCLE

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

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

- **Essential Actions** - Proposed “Essential” action items address noncompliance with respect to a federal regulation. EPA has provided the citation for each Essential action item. The permitting authority is expected to address these action items in order to comply with federal regulations. As discussed earlier in the report, prior PQR reports identified these action items as Category 1. Essential actions are listed in Table 3 below.
- **Recommended Actions** - Proposed “Recommended” action items are recommendations to increase the effectiveness of the state’s or Region’s NPDES permit program. Prior reports identified these action items as Category 2 and 3. Recommended actions are listed in Table 4 below.

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

Table 11. Essential Action Items from FY 2018-2022 PQR Cycle

Topic	Action(s)
Permit Application Requirements	Ensure that major POTW applications include a complete data set for priority pollutants (40 CFR 122.21(j)(4) and (5)).
WQBELs Development	Region 1 must ensure that short-term (e.g., maximum daily/average weekly) as well as long-term (e.g., average monthly) effluent limitations are established consistent with 40 CFR 122.45(d).
Standard and Special Conditions	The Region must ensure that all standard conditions language at 40 CFR 122.41 is included in permits for Massachusetts and New Hampshire.
Administrative Process	Region 1 must ensure that public notices include a general description of the sludge use and disposal practice(s) and the location of each sludge treatment works treating domestic sewage and use or disposal sites known at the time of permit application, consistent with 40 CFR 124.10(d)(1)(vii), including for permits where the facility has infrequent or irregular sludge disposal, such as lagoons.
Pretreatment: Food Processing Sector	Permit writers must ensure that permits for POTWs without an approved pretreatment program contain requirements at 40 CFR 122.44(j)(1) to identify, in terms of character and volume of pollutants, any SIUs discharging into the POTW.

Table 12. Recommended Action Items from FY 2018-2022 PQR Cycle

Topic	Action(s)
Facility Information	<ul style="list-style-type: none"> • Region 1's fact sheets should include a brief discussion of sludge handling and management practices for all POTWs that generate sludge, , even when sludge disposal is infrequent. • Region 1 should implement adequate QA/QC for permits and fact sheets to ensure they contain accurate information such as outfall location and receiving water names. • Region 1 should consider expanding the facility description in fact sheets to identify when industrial wastewater is discharged indirectly to a POTW.
WQBELs Development	The Region should work with HQ to ensure their approach to establishing a single, long-term, WQBEL based on the water quality criterion that was the basis for RP determination is appropriate.

<p>Final Effluent Limitations and Documentation</p>	<p>The Region should work with HQ to ensure their approach to establishing a single, long-term, WQBEL based on the water quality criterion that was the basis for RP determination is appropriate.</p>
<p>Standard and Special Conditions</p>	<p>The Region should, for permits that require implementation of BMPs, include clear language regarding requirements and means of demonstrating compliance with the permit condition.</p>
<p>Pretreatment: Food Processing Sector</p>	<ul style="list-style-type: none"> • Permit writers should revise the fact sheet to reference that the applications and annual reports have been submitted and reviewed prior to issuance of the NPDES permit. • Permit writers should include a timeframe for notification of any new introduction of pollutants and substantial changes in the volume or character of pollutants being introduced into that POTW (40 CFR 122.42(b)). • Permit writers should include the definition for SIU in the Definitions section of the permits. • Permit writers should specify the basis for requiring a pretreatment program (see 40 CFR 403.8) in the permit fact sheet. Conversely, the fact sheet should also explain the rationale for not requiring a pretreatment program, especially when SIUs are present in a nonapproved program. • Permit writers should include information about POTW conventional and nutrient pollutant capacity in fact sheets. • Permit writers should include information in fact sheets characterizing IU discharges (e.g., type of facility, volumes of discharge, raw materials, etc.) to document the permit writer’s reasonable potential analysis to assess if industrial loading exceeds what the POTW can safely accept and treat. • Permit writers should specify in fact sheets whether the reasonable potential analysis conducted to develop water quality-based limits included analysis of pollutants common for the types of industries discharging to the POTW. • Permit writers should provide information in fact sheets about how the POTW identifies new and expanded industrial discharges. • Permit writers should include information about whether the POTW accepts hauled waste in the fact sheets and discuss hauled waste types, volumes, discharge locations,

	<p>and whether hauled waste contributions are included in the reasonable potential analysis.</p> <ul style="list-style-type: none"> • Permit writers should specify the most recent modification dates of pretreatment programs, including evaluation and modification of local limits, in the permit fact sheet, when applicable. • Permit writers should ensure that all annual report requirements, per 40 CFR 403.12(i), are included in the reporting requirements outlined in Attachment D. • Permit writers should encourage POTWs to establish an upper local limit, that is technically-based, for the surcharge pollutants (BOD and TSS) to ensure stability of the treatment works. • Permit writers should revise the permit reopener clause for nonapproved POTWs to state that the permit could be reopened to require a pretreatment program, if deemed necessary. • Permit writers should ensure that POTWs without approved programs conduct a LL technical review to ensure that the LLs continue to be protective of the POTW. • Permit writers should identify POTWs required to develop Pretreatment Programs in accordance with 40 CFR 403.8(a), document reasoning in the permit fact sheet, and notify these POTWs of the need to develop a POTW Pretreatment Program. Permit writers should work with their pretreatment coordinator to determine if a pretreatment program is necessary.
<p>Municipal Separate Storm Sewer Systems (MS4s)</p>	<ul style="list-style-type: none"> • Region 1 should more clearly identify the type of MS4 general permit (i.e., comprehensive or two-step). • Region 1 must ensure that the next MS4 permit reissuance include the new requirements to address e-Reporting consistent with 40 CFR Part 127 and the Final MS4 General Permit Remand Rule.