

Region 1 NPDES Program and Permit Quality Review Vermont

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Executive Summary

EPA Region 1 conducted a Program and Permit Quality Review (PQR) for Vermont in November 2021. The PQR examined 12 individual permits along with 1 general permit issued by the Vermont Department of Environmental Conservation (VT DEC), 4 pretreatment permits, and state permitting policies. The PQR also focused on three national topic areas:

- 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.

The PQR did not include any optional Regional topic areas.

This PQR was initiated on August 5, 2021, and focused on the core elements of Vermont's National Pollutant Discharge Elimination System (NPDES) program and the national topic review areas listed above. After the core aspects of the review were substantially completed, EPA received a petition on March 16, 2022, requesting that EPA require the implementation of corrective measures or withdraw the NPDES program from Vermont. This petition focused specifically on agricultural issues, a topic area that was not within the scope of EPA's review for this PQR. EPA plans to evaluate the merits of this petition on a separate review track and it is not discussed further in this document.

VT DEC has made significant strides over the last few years to improve their NPDES program. For example, recent efforts to develop implementation guidance for reasonable potential determinations and the draft permit development process are significant positive steps towards a program that consistently issues defensible permits that are protective of water quality. Fact sheets are clearer and contain more information than they did in the past. EPA applauds the additional measures Vermont has taken to move files and forms to an online system and make the entire permitting process more transparent to the public. A comparison of permits from before 2018 with those more recently issued demonstrates the significant procedural improvements and greater consistency with federal regulations.

However, EPA has several concerns surrounding efforts taken to address issues identified in the previous PQR (2014) such as permit application deficiencies, as well as current practices related to developing water quality-based effluent limits. Some of the issues EPA identified can be readily fixed by updating forms and templates or developing training for state staff. Other actions may take time to realize; for example, improvements in how data are collected and analyzed will not be seen for at least five years, when permits are up for renewal.

EPA recognizes the many state and region-specific challenges faced by Vermont, particularly with staff turnover and concerns over emerging contaminants such as Per- and Polyfluoroalkyl Substances (PFAS). EPA is committed to working with VT DEC to resolve these items.

Vermont reviewed and provided comprehensive comments and corrections on the draft PQR report and the status of changes to their program. Overall, the state agreed with many of the draft PQR's findings and recommendations. Vermont has already taken action to address the following items:

- Updating permit application and public notice forms;
- Including a baseline of annual WET testing in all renewed wastewater permits, as well as increased testing frequencies for those facilities with larger instream waste concentrations; and
- Including sufficiently sensitive test method requirements in renewed permits.

While these action items have been resolved pending confirmation by EPA, this PQR Report has not removed any findings unless they were in error. EPA will continue to work with Vermont to address the remaining action items. Since the interview was conducted in November 2021, Vermont and EPA Region 1 have been meeting every two months to work through and address the findings identified in the PQR. These meetings will continue until both agencies determine the remaining action items have been resolved.

I. PQR BACKGROUND

The National Pollutant Discharge Elimination System (NPDES) Program and Permit Quality Reviews (PQRs) are an evaluation of a select set of NPDES permits to determine whether permits are developed in a manner consistent with applicable requirements established in the Clean Water Act (CWA) and NPDES regulations. Through this review mechanism, EPA promotes national consistency, and identifies successes in implementation of the NPDES program as well as opportunities for improvement in the development of NPDES permits.

EPA previously conducted a PQR of the Vermont NPDES permitting program on November 5-6, 2014. The PQR summary report is available on EPA's *Regional and State NPDES Program and Permit Quality Review (PQR) Reports* webpage.¹ The evaluation team proposed various action items to improve the Vermont NPDES permitting program. As part of the current PQR, EPA requested updates from the Vermont Department of Environmental Conservation (VT DEC) on the progress on those action items. Several essential action items had yet to be fully addressed at the time of EPA's 2021 PQR. Of the 14 action items identified during the 2014 PQR as Essential², 9 (primarily relating to stormwater and pretreatment) have been addressed while 5 remain ongoing areas of improvement that EPA has highlighted again during this PQR process. Sections V and VI of this report contain a detailed review of the progress on the action items identified during the last PQR.

During the current PQR, the evaluation team identified action items to improve Vermont's NPDES permit program. The proposed action items are identified in 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 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.

For the current Vermont PQR, EPA's review team consisted of five staff from EPA Region 1 and two contractor staff. The PQR was conducted remotely, meaning a review of materials was conducted off-site, with materials that VT DEC was able to provide electronically. Further, the

¹ Direct hyperlink: https://www.epa.gov/sites/default/files/2016-03/documents/vt_pqr_reportfinal_9_23_15.pdf

² During the 2012-2017 PQR cycle, these action items were known as "Category 1" and address deficiencies or noncompliance with respect to federal regulations. EPA is now referring to these action items going forward, as Essential. In addition, previous PQR reports identified recommendations as either "Category 2" or "Category 3" action items. EPA is now consolidating these categories of action items into a single category: Recommended.

remote PQR included interviews and discussions conducted over conference calls. An opening interview was held on November 1 and 3, 2021, a discussion with VT DEC staff regarding specific permit questions on November 8, 2021, and a closing meeting on November 10, 2021.

The Vermont PQR included reviews of core permit components and national topic areas, as well as discussions between the PQR review team and Vermont 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 state on program status, the permitting process, responsibilities, organization, staffing, and program challenges the state is experiencing.

Thirteen permits were reviewed as part of the PQR: twelve individual permits and one general permit. Of these, ten were reviewed for the core review, five of these were reviewed for the nutrient topic review area, and four for POTWs with food processors (along with the corresponding industrial user permits). The general permit was reviewed for the Municipal Separate Storm Sewer System (MS4) national topic area. Some permits were reviewed for both the core review and one or more topic areas. Permits were selected based on issue date and the review categories 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*³ to evaluate the Vermont 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 Vermont NPDES program were: Permit Controls for Nutrients in Non- total maximum daily load (TMDL) Waters, Small MS4 Permit Requirements, and Effectiveness of POTW NPDES Permits with Food Processor Contributions.

Region 1 elected not to conduct an optional, regional topic area review.

³ <https://www.epa.gov/npdes/central-tenets-npdes-permitting-program>

II. STATE PROGRAM BACKGROUND

A. Program Structure

Within VT DEC, the permitting programs under the Watershed Management Division (WSMD) are divided into wastewater management, stormwater, and a newly created concentrated animal feeding operation (CAFO) program. The Wastewater Management Program administers permits for discharges directly to surface waters from wastewater facilities as well as the pretreatment program, while the Stormwater Management Program is generally split into federal and state permits. The CAFO program previously resided under the stormwater program, but has been elevated to its own program. The main office for VT DEC is in Montpelier. VT DEC has five regional offices throughout the state, with some Stormwater Program staff in regional offices and NPDES Direct Discharge Program staff in the main office. VT DEC is authorized to administer the core NPDES program, as well as general permits and the pretreatment program. EPA Region 1 administers NPDES permits for federal facilities. The Biosolids Section in the Waste Management and Prevention Division administers the biosolids program for Vermont pursuant to the Vermont Solid Waste Management Rules.

The Vermont NPDES program has 16 full-time permit writers, 6 are dedicated to wastewater permits and 10 are dedicated to stormwater permits. The CAFO program has two staff. Permit writers receive training through EPA's NPDES Permit Writers' Course, EPA's NPDES Permit Writers' Manual, and VT DEC standard operating procedures (SOPs), as well as internal mentoring to support their professional development. The Vermont NPDES program is also supported by staff in the Monitoring and Assessment Program (MAP), administrative services, wastewater treatment facilities operations and maintenance staff, water quality staff, and TMDL modelers. The Business and Operation Support Services (BOSS) program provides technical support in database development, electronic reporting, and compliance.

Direct discharge, pretreatment, and stormwater permits are typically assigned to permit writers according to regional districts, but some stormwater staff specialize in MS4, Multi-Sector General Permit (MSGP), and state transportation permits. For the past five years, priority was given to permits that would be impacted by the Lake Champlain TMDL. VT DEC develops a five-year plan for permit assignments, generally with the workload delineated by river basin. Permit writers typically develop a permit from start to finish (as opposed to a team approach), except where a permit is located outside of a permit writer's geographic region. In those cases, the permit writer will consult with other staff. Permit writers also coordinate with MAP staff, who provide a review of the reasonable potential (RP) analysis. As needed, permit writers also consult with TMDL or water quality standards staff. WSMD is relatively small, enabling efficient communication between all the water programs.

For permit renewals that do not involve changes to permit requirements, permit writers review effluent data and inspection reports to verify the facility is practicing proper operation and maintenance. Permit writers will develop calculations for effluent limitations for metals and nutrient parameters and conduct a RP analysis. Following internal review by MAP and the

program manager, the wastewater permit writer will finalize the draft permit and provide a 30-day public notice period for the draft permit.

VT DEC has a policy to develop permits on a specific timeline under a permit expediting program. However, due to staff shortages and historic backlog (some permits have been administratively continued for extended periods, mostly due to TMDL-related delays), the schedule is not usually met for permit renewals. For new permit applications, staff strive to maintain the schedule. Staff also track the time required to process each application and other steps.

Vermont permit staff use electronic databases, models, spreadsheets, and document templates during various phases of permit development. WSMD maintains separate databases for wastewater permits (Wastewater Inventory) and stormwater permits (Stormwater Database). Wastewater Inventory is a central repository for all permit data and is intended to be comprehensive. It houses permittee information and permit files, but also allows the permit writer to enter information for the system to generate the permit. The system also tracks inspections, compliance data (including Discharge Monitoring Reports [DMRs]), permit requirements, proficiency testing results, and basic facility information, such as the type of treatment. VT DEC developed their own forms for entering data into Wastewater Inventory.

The Stormwater Database performs similar functions. It houses permittee information, permit files, public notice timeframes, fee payments, and other administrative information. The system also feeds into an automatic authorization process for the Construction General Permit (CGP) and MSGP with specific conditions for a given site. The system also handles operational permits, which are non-NPDES state permits. Permits for MS4 and transportation permits are also housed in the Stormwater Database; these permits are developed manually using data in the system. Some compliance information is tracked in the system, but inspection records are typically maintained on the program's network drive.

Permit writers conduct inspections at the facilities for which they write permits. This allows the permit writer to become very familiar with the facility, its processes, and its waste streams. The inspections also serve as a useful opportunity for the permit writer to remind the facility operators about permit conditions, approaching deadlines, or other permit-related information, and begin to consider whether any compliance schedules may be appropriate in the next permit.

Permit writers have begun using Wastewater Inventory to generate the permits for municipal dischargers. The database houses all the necessary information and uses electronic templates to generate the permit and fact sheet. Permits for industrial facilities will eventually use the same process, but currently permit writers use Word templates to draft permits and fact sheets.

Permit writers use several tools in developing permits. A spreadsheet tool is used to evaluate RP. VT DEC recently developed a series of decision trees to aid permit writers in navigating decisions on RP. Permit writers also use various guidance documents and SOPs.

As part of WSMD's quality assurance/quality control (QA/QC) process, Program Managers review wastewater permits. VT DEC would like to develop a peer review process to strengthen QA/QC, but has not been able to do so due to limited staff resources. As noted above, MAP staff are no longer involved with drafting RP analyses, but do review the analysis done by the permit writer.

Permit files are primarily maintained in the Wastewater Inventory, Stormwater Database, or program network drives, which act as the permanent record. Paper files are kept at the main office in Montpelier. Permit writers maintain temporary copies of files during the permit development and review process, and scan or upload all final materials into the record. Permit staff scan and electronically store all correspondence as it is received. Permit staff retain discharger self-monitoring reports and compliance records in hard copy in the compliance files, for the calendar year, and then in January of each following year, scan and convert discharger self-monitoring reports and compliance records to electronic storage. Further, the Environmental Compliance Division maintains a separate database to track all complaint and compliance enforcement issues. Other permit documents, not specifically categorized, are scanned, and stored electronically upon receipt.

B. Universe and Permit Issuance

The WSMD currently administers individual permits for 34 major facilities (30 POTWs and 4 non-municipal), 148 minor non-stormwater facilities (64 POTWs and 84 non-municipal), and 57 individual stormwater construction permits. In addition to these individual permits, WSMD administers 4 stormwater general permits that cover 14 municipal permittees (Phase II MS4s), 316 construction permittees, 380 industrial permittees, and 1 transportation separate storm sewer system (TS4). WSMD also has three non-stormwater NPDES general permits that address discharges from categories of similar facilities to surface waters: discharges from petroleum remediation (state and NPDES permits), CAFOs, and pesticide applications.

Based on information obtained from VT DEC's responses to the PQR Advance Questionnaire in September 2021, approximately 105 permits of the total universe are backlogged. Of the major permits, 13 are backlogged (38%) and of the minor permits, 92 are backlogged (62%). Both represent a notable improvement since the previous PQR. WSMD staff indicated permit backlog is due to concerns with implementing TMDLs, notably the Long Island Sound TMDL and the Lake Champlain TMDL, as well as staffing issues.

Significant industries in Vermont include semiconductor manufacturing, paper products production, metal finishing, dairy operations, food and beverage, and gravel and quarry operations.

Section 401 Water Quality Certifications are conducted by the program manager in MAP. VT DEC performs certifications for several permits and licenses, including:

- Federal Energy Regulatory Commission (FERC) hydropower licenses (the most common);
- Two Army Corps of Engineers permits;
- NPDES permits;
- Nuclear Regulatory Commission (NRC) licenses; and
- Any other federal license or permit that results in a discharge to a water of the United States.

The MAP program manager organizes the process and coordinates with the applicable VT DEC programs. The WSMD Director oversees the overall certification process.

C. State-Specific Challenges

Vermont's permitting program faces several challenges. The primary issue is significant turnover in the program within the past few years. Previous staff sometimes used best professional judgement (BPJ)-based decision making in permits and did not document the rationale for certain limits. As new staff work to reissue these permits, they are researching certain issues and investigating the basis for permit conditions to develop a defensible fact sheet and rationale. As previously noted, there is also a backlog of permits and many of the backlogged permits have applications that have aged and need additional and updated information, requiring further effort and communication with the dischargers, adding time to the permit renewal process.

VT DEC also identified other challenges that are more technical in nature:

- Vermont is working with the city of Burlington to develop an integrated permit, with a focus on reducing phosphorus loading under the Lake Champlain TMDL. The city has received EPA funding to explore the development of an integrated permit that would merge the MS4 and POTW requirements, but Vermont has struggled with how to structure such a permit. Vermont and EPA may collaborate further to identify some possible solutions.
- Vermont is deliberating on how to incorporate climate change considerations into NPDES permits, especially in terms of managing wet weather flows. Vermont mentioned several possible permitting actions that could be considered, such as assessing facilities in vulnerable locations for flooding, requiring certain best management practices (BMPs), and developing local action plans. EPA intends to develop further guidance on climate change in permitting and will work with Vermont in the coming year.
- Vermont noted that Per- and Polyfluoroalkyl Substances (PFAS) is a highly controversial topic in the state, yet there is very little guidance or research on how to address these pollutants in NPDES permits. EPA has issued the *PFAS Strategic Roadmap: EPA's Commitments to Action 2021-2024* to guide the Agency's actions. The initial focus will

be on research, analytical methods, and developing standards for drinking water. EPA encourages states to undertake their own programs as well.

- Vermont noted the difficulty in permitting gravel and quarry operations, which have both process waste streams (typically direct discharges regulated by an individual permit) and stormwater permits for the non-process areas of the site. Often, the waste streams also become comingled. Integrating and coordinating the two permitting approaches has been a challenge. EPA agreed that these sites can be complex and site-specific details (e.g., whether waste streams can be separated) are often critical. Frequent coordination between the direct discharge and stormwater programs is important.

D. Current State Initiatives

Vermont's program is undergoing a transition to improve transparency and to implement more consistent and defensible procedures to guide permitting decisions. The state is developing tools and documents that aid in this (such as an extensive flow diagram of permitting processes) and is making good progress. In particular, shifting permit applications, reporting, and data availability processes to online platforms offers significant improvements in program processes. Vermont is also looking to improve and update NPDES permit application forms, which do not request information and data consistent with federal application requirements, to convert the application process to be available electronically.

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 Vermont NPDES permits and fact sheets reviewed during the core review include permit issuance, effective, and expiration dates, authorized signatures, and specific authorization-to-discharge information. The fact sheets reviewed include a basic description of the facility, including general location, and the treatment process, although the level of detail varied among the fact sheets reviewed. Fact sheets reviewed for the municipal permits contain descriptions of the wastewater treatment process. Facility descriptions in fact sheets reviewed for the non-municipal permits provide a general description of plant operations and wastewater treatment processes. Permits and fact sheets identify the receiving waterbody by name and surface water classification. Some fact sheets lack specific location of the outfall using latitude and longitude

information; however, this information is included in the applications for the permits reviewed. Generally, fact sheets also lack a clear description of the location within the receiving waterbody where the discharge occurs. Permits and fact sheets do not consistently state whether a facility is a major or minor facility. Some permits list “pretreaters” that are authorized to discharge to POTWs, but neither the permit nor fact sheet further describe pretreatment requirements or indicate if the development of a pretreatment program is required.

Program Strengths

Using permit writers to also conduct inspections helps in developing familiarity and experience with the facility, its processes, and its waste streams.

Areas for Improvement

Permits and fact sheets should include the latitude and longitude of the discharge to provide accurate identification of the “end-of-pipe” for discharges to surface waters, which ensures that permits include appropriate and effective permit limitations. Permits and fact sheets should also describe the location of the discharge, such as a brief description of the receiving water. Permits and fact sheets should identify whether the facility is a major or minor discharger. Permits and fact sheets should clearly identify any pretreatment requirements.

Action Items

Essential	•The PQR did not identify any essential action items for this section.
Recommended	•Add a brief description of the location of the discharge and receiving water, in addition to the latitude and longitude. •Identify whether a facility is a major or minor facility. •Add more information on any applicable pretreatment requirements.

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.

WSMD administrative staff use a quarterly report to identify upcoming permit renewals and send out renewal reminder emails to permittees approximately 180 days prior to the

application due date as required by state rule, with a follow-up letter approximately 30 days prior to the application due date. VT DEC accepts both electronic and hard copy applications. State law also sets deadlines for interim steps, which are tracked in Wastewater Inventory. VT DEC must also notify adjoining or affected permittees.

In January 2018, Vermont established the Environmental Notice Bulletin (ENB), an online platform to increase the transparency of permitting. Any permit application (renewal or new discharger) is visible to the public through the ENB, except for those permits that are backlogged and submitted their applications prior to 2018.⁴ Users can use ENB to check the application status, request a hearing, or submit comments on a draft permit.

VT DEC uses state application forms, some of which were updated as recently as May 2021. Permit application form WR-82 (10 V.S.A. Chapter 47) is required for all direct discharge applicants. Schedule A (WR-82A) is required for applicants for municipal treatment plants and Schedule B (WR-82B) is required for applicants for industrial/commercial/institutional facilities. For stormwater permits, applicants submit the appropriate Notice of Intent (NOI).

Upon receipt of the wastewater discharge application, VT DEC sends an email acknowledging receipt of the application to the applicant. Administrative staff review the application for administrative completeness, verify fee payments, and ensure all required items have been submitted. This review occurs within 15 days of receipt of the application. Administrative staff send applicants a letter indicating the application is administratively complete and their permit is administratively extended and authorization to operate continues. After the administrative review, staff forward the application to a permit writer to review it for technical completeness. As noted above, most renewal applications and all applications for a new discharge are processed through the ENB. The review of technical completeness is typically incorporated into the permit development process and is completed as the permit is being developed.⁵ Wastewater discharge permits are assigned to the wastewater discharge permit writers. If a POTW permit has industrial contributions, the permit writer will coordinate with pretreatment staff to develop appropriate permit requirements.

VT DEC staff noted that the permit application is an area of improvement for the agency, acknowledging that this was a deficiency that EPA identified during the last PQR. They hope to increase the amount of information that is collected as part of the application to reduce the need to gather additional information during permit development. VT DEC is currently developing an online platform that will eventually include application forms for NOIs, municipal NPDES permits, industrial NPDES permits, and pretreatment. At present, the online tool simply replicates the existing applications, but staff hope it will provide a vehicle for improved data collection in the future.

⁴ Many of the permit applications for backlogged permits were deemed administratively complete when the application was originally submitted years ago. As a result, staff noted that they often need to request additional information from the permittee, despite the application being designated as complete.

⁵ Due to limited staff resources, most applications are not reviewed for technical completeness before the permit expires.

NOIs for coverage under general permits are also reviewed for administrative completeness. Incomplete or incorrect NOIs are returned to the applicant for correction. Complete NOIs receive a permit number, are logged into the database, and are then posted for public notice for 14 days prior to being assigned to technical staff. Stormwater program staff also review Stormwater Pollution Prevention Plans (SWPPPs) for completeness. Staff then send the applicant a letter issuing authorization to discharge.

Program Strengths

The development of the ENB platform is a positive step in organizing and increasing the transparency of the permitting process.

Areas for Improvement

There are several aspects of the permit application process that require improvement. Primarily, VT DEC's permit application does not meet federal regulations and is inconsistent with federal versions of the forms. The most significant deficiency is that the application does not request adequate effluent monitoring data. POTWs are not required to submit any effluent data with their application, conflicting with 40 CFR 122.21(j). Of particular concern is the lack of mandatory whole effluent toxicity (WET) testing data, which is required of certain POTW dischargers under 40 CFR 122.21(j)(5)(iv)(A). The state forms require industrial dischargers to submit some monitoring data, but they still do not meet the federal requirements under 40 CFR 122.21 (for example, 40 CFR 122.21(g). This finding was also identified in the 2014 PQR. During the current PQR, VT DEC asked to work with EPA to review federal application requirements to ensure DEC's online applications are consistent with federal requirements before they are finalized for applicant use.

EPA concurs that the ENB and the shift to implementing an online permit application process are a positive step. However, the permit forms that are being uploaded for use are essentially the same as the paper forms that have been identified as deficient.

Vermont's administrative review and review for technical completeness are separate processes. The process of reviewing an application for technical completeness is combined with permit development. As a result, an application can be marked administratively complete, but still be missing technical details required to draft a permit (e.g., effluent data). This delays the determination of completeness. EPA recommends that each application undergo both administrative and technical completeness review as a distinct, initial step in the permitting process. This will ensure that applications have all the required information, including effluent monitoring data, prior to permit development. During the PQR, VT DEC requested support from EPA with providing guidance to permit writers on the process of reviewing permit applications and determining whether they are technically complete.

For permits that are expired, and administratively continued, for an extensive period (e.g., 5 years or more), VT DEC should request an updated permit application, as the information may have changed since the application was submitted.

Action Items

Essential	<ul style="list-style-type: none"> • Ensure the permit application is consistent with all federal requirements under 40 CFR 122.21, including requirements to submit effluent monitoring data.
Recommended	<ul style="list-style-type: none"> • Establish processes for reviewing applications for technical completeness prior to developing the permit. • Ensure permits are developed using accurate, up-to-date information about the facility by requesting a new application for outdated applications.

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 these parameters (or authorized alternatives) in accordance with the secondary treatment regulations at 40 CFR Part 133.

A total of seven POTW permits were reviewed as part of this PQR. POTW permits contain TBELs based on secondary treatment standards. VT DEC has incorporated these standards into its SOP for permit development.

Program Strengths

Permits correctly identified and implemented secondary treatment standards. Some fact sheets provided a detailed discussion of the regulatory background, how limits were developed, and other information. Some POTW permits included limits that were more stringent than secondary standards.

Areas for Improvement

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

Action Items

<p>Essential</p>	<ul style="list-style-type: none"> •The PQR did not identify any essential action items for this section.
<p>Recommended</p>	<ul style="list-style-type: none"> •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 BPJ in accordance with the criteria outlined at 40 CFR 125.3(d).

TBELs for industrial facilities are based on applicable ELGs and standards or effluent limitations based on BPJ and examination of permits for similar facilities and discharges. Permit writers strive to be familiar with ELGs and implement them correctly. VT DEC noted that this part of permit development may need to be added to the SOP. VT DEC also noted that frequently a facility might be too small to meet the applicability requirements for a given ELG; in these cases, the permit writer will use the ELG as a guide to develop BPJ-based permit conditions.

Generally, VT DEC prefers to avoid developing BPJ-based permits, if possible, as they take more time to develop and tend to require data that may not be available in the initial permit application submission. VT DEC noted that it is considering BPJ limits for PFAS, as it is a rapidly growing pollutant of concern and may require specific limits in the near future.

MS4 permits contain TBELs based on the minimum control measures. Further, MS4 permits contain language requiring the discharge to not cause or contribute to a stream impairment. Applicants are required to indicate in the NOI if the discharge is to an impaired waterbody. The construction general permit uses a risk factor assessment that drives which BMPs are required to be implemented.

Program Strengths

Permits correctly identified the appropriate ELG to implement TBELs.

Areas for Improvement

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

Action Items

The image shows two action item boxes. The first box is labeled 'Essential' and contains the text: '•The PQR did not identify any essential action items for this section.' The second box is labeled 'Recommended' and contains the text: '•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) 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 VT DEC 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; and
- calculated such limits or other permit conditions.

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

Process for Assessing Reasonable Potential

Previously, MAP staff developed all RP analyses and provided them to permit writers, but more recently the permitting program has shifted to conducting RP analyses in-house, then uses MAP staff to review each analysis.⁶ WSMD staff, within the MAP, developed the *Procedure for Development of WQBELs in NPDES Permits* in 2010 – 2011, which was signed by VT DEC's Commissioner on December 3, 2012. The document supports permit writers in evaluating RP and developing WQBELs during permit development. Recently, VT DEC also developed a series of decision trees to aid permit writers in navigating decisions on RP (although VT DEC does not currently have a decision tree specifically for WET RP analysis). Collectively, permit writers use these tools to conduct a stepwise evaluation of water quality and waste concentrations to assess whether the receiving waters upstream and downstream of permitted discharges to determine if there is RP for the discharge to cause, have the reasonable potential to cause, or contribute to an excursion of the state's water quality standards and, if so, develop WQBELs for the permitted discharge.

Permit writers use a spreadsheet to evaluate RP. The RP spreadsheet incorporates data for stream flow and specific pollutants. Permit writers compile relevant discharge information (e.g., outfall location, previous permit and fact sheet, proposed changes in effluent limitations, new incorporation of TMDL wasteload allocations (WLAs), receiving stream flows, significant industrial users, sludge quality, summary of recent effluent monitoring data, initial in-stream dilution calculations, summary of WET data, and results of any dissolved oxygen modeling) for their evaluation of the need for WQBELs. Permit writers consult the Wastewater Inventory database that houses all available facility data to provide a summary of relevant information. Permit writers develop effluent limitations based on DMR effluent data, using design flows and ambient background data. Agency policy also dictates that RP determinations be based on worst case scenarios (i.e., maximum flow and maximum pollutant concentration). In addition, permit writers consult guidance and procedural documents addressing the Vermont WLA rule, water quality standards, anti-degradation policy, combined sewer overflow (CSO) policy, waste management zone designation policy, and the water pollution control regulations. Further, WSMD uses CORMIX, QUAL2, and a modified Streeter-Phelps model to calculate mixing zones.

Permit writers use data from DMRs to supplement application data in assessing RP. Staff identify pollutants of concern from a water quality protection perspective and based on the activity the applicant proposes (e.g., nutrient-based parameters are identified as pollutants of concern at quarry operations). The process to identify pollutants of concern varies by the facility type. POTWs tend to be more straightforward, as the pollutants are typically well-known. Non-major POTWs can be more challenging since they provide less monitoring data. For

⁶ Permit writers also coordinate with MAP staff in other aspects of the RP analysis, such as reviewing ambient water quality data, assessing biological sampling results, and planning future monitoring to clarify or inform decisions in future permits.

industrial dischargers, site visits can help the permit writer (who is also the inspector) understand the raw materials, processes, chemicals in use, and treatment at the facility. WSMD staff evaluate stream monitoring data to assess the receiving water quality and effluent monitoring data, including compliance information, to identify and evaluate pollutants of concern to propose effluent limitations. MAP staff maintain the Watershed Management Data Portal, an extensive database of water quality monitoring data across the state. Multiple water quality monitoring groups contribute data to the database. Further, a staff hydrologist recalculates stream low-flows regularly, based on current monitoring data. WSMD staff use the low median monthly flow value for nutrient-based parameters and the 7Q10 for other parameters (e.g., toxics, metals, dissolved oxygen). For dam-controlled water bodies, WSMD staff use the lowest flow value allowed by the permit. It should be noted that VT water quality standards do specify the applicable flow conditions (i.e., low median monthly flow or 7Q10) for certain criteria parameters.

Each year, VT DEC hosts an internal meeting to coordinate ambient water quality monitoring for the forthcoming year. MAP typically uses a 5-year rotation, where each waterbody is sampled for 1 year out of every 5, although additional sampling at specific locations can be built into the schedule. Sampling occurs at both wadeable and non-wadeable streams and includes water chemistry data. VT DEC also continues to consider how to supplement its ambient monitoring data with monitoring data generated from permittees but is mindful of ensuring that any monitoring that is required of permittees is necessary and would be used in permit development.

Process for Developing WQBELs

In general, VT DEC establishes WQBELs only when there is sufficient data to support the decision; this process aims to ensure reliable data exists to support a finding of RP and avert permit appeals. Additional monitoring can be added as a permit condition to provide the necessary data for the subsequent permit cycle.

The decision trees establish a series of decision points that are informed by the data collected.⁷ For example, an initial step is to compare instream waste concentrations to a minimum threshold, below which it is assumed that there is no RP due to the magnitude of dilution. Permit writers then continue through the decision tree responding to the prompts, such as evaluating whether sufficient data is available to derive a calculated limit or whether conservative assumptions will be used. When the use of conservative assumptions indicates there is RP, permit writers may prefer to first collect more data to confirm the initial analysis, instead of establishing a permit limit based on assumptions. If the additional monitoring confirms RP, then the permit writer will reopen the permit and add limits. For phosphorus, the data must indicate that both the phosphorus water quality criteria and the biocriteria have been exceeded.

⁷ VT DEC developed four decision trees that address 1) assessing RP risk and data adequacy, 2) RP for phosphorus, 3) RP for ammonia, and 4) RP for metals.

Permit writers first determine the assessment status of the upstream and downstream waters by reviewing the water quality assessment database, applying professional judgment to evaluate downstream waters, and reviewing TMDLs and WLAs applicable to the waterbody. Next, staff assemble biomonitoring and water quality data. Water quality data are reviewed and summarized for nutrients, dissolved oxygen, pH, hardness, and metals as available. At a minimum, staff will consult Vermont's Integrated Watershed Information System (IWIS), a database combining four data sources: Water Quality (maintained by MAP staff), Biomonitoring (maintained by WSMD BASS staff), LaRosa Partnership (maintained by MAP staff), and the Stormwater Monitoring database. Permit writers will also consult other external databases if data quality is adequate (e.g., Fish and Wildlife database, universities, and private organizations). Staff will then evaluate the "expected, mixed, in-stream concentrations" of specific pollutants: total phosphorus, total nitrogen, ammonia, total chlorine residual, metals, and other toxics of specific concern for the discharge. Permit writers then develop a written summary of the data reviewed and provide a statement regarding the status of the receiving water with respect to WQS and the potential for the discharge to cause or contribute to a water quality violation. The RP analysis is reviewed by staff from MAP as a QA check. The written summary becomes a part of the administrative record.

For permits to new facilities, permit writers collaborate with operations and maintenance staff as well as engineers to review the applicant's basis for final design to ensure the facility can meet required effluent limitations. Permit writers also work with the applicant to conduct an antidegradation review for the discharge. Permit writers develop dilution calculations and collect relevant discharge information (e.g., outfall location, previous permit and fact sheet, proposed changes in effluent limitations, new incorporation of TMDL WLAs, receiving stream flows, significant industrial users, sludge quality, summary of recent effluent monitoring data, initial in-stream dilution calculations, summary of WET data, and results of any dissolved oxygen modeling) for the evaluation of the need for WQBELs. Upon completion of the RP analysis, permit writers determine whether water quality is protected and antidegradation requirements have been met, then develop permit conditions accordingly.

Permit writers and MAP staff review the Integrated Report to identify impaired water bodies and applicable TMDLs. WSMD staff noted they have delayed permit issuance for some facilities awaiting approval of a TMDL for phosphorus; the permits were administratively continued at the current discharge levels. For example, Vermont delayed issuance of several permits in the Lake Champlain watershed until the TMDL was finalized. In addition, Vermont has resumed reissuing the Long Island Sound permits after the Long Island Sound Permitting Plan was approved. WSMD and MAP staff indicated they will still conduct a RP evaluation even where a TMDL is in effect, for evaluation of effects further downstream.

VT DEC does not frequently use mixing zones, as water quality standards require compliance at the discharge point. The most common use is for lakes, where standards allow for a 200-foot mixing zone. Permit writers typically assume instantaneous mixing within the mixing zone.

For waters that are impaired or that have a TMDL, WSMD's coordination with MAP would identify these waters and any permit conditions that would need to be included (e.g., implementation of WLAs). VT DEC staff noted, however, that most of the state's impaired waters do not have any NPDES permittees in those reaches (except for a few CSOs). As a result, there is no formal process for this coordination, but the programs do strive to coordinate early in the permitting process to capture any impaired waters. Similarly, there is very little pollutant trading in Vermont.

For bacteria and other pathogens, Vermont only has water quality criteria for *E. coli*. However, VT DEC staff noted that most POTW permits have a bacteria limit that is below the criterion. This may be due to applying a bacteria TMDL more broadly than it was intended but the more protective limits are now in place and cannot be removed due to anti-backsliding. In general, this may be highly protective, but VT DEC does not sample bacteria often, leaving open the possibility that bacteria exceedances may still be occurring. VT DEC staff noted that if the compliance history for the facility has been good, frequent monitoring typically hasn't been required. Vermont also has waste management zones, which are somewhat similar to mixing zones, but are applicable to bacteria standards and are intended to protect human health.

Program Strengths

Reasonable Potential

Shifting the development of RP analyses to the permitting team is a logical and positive step. It trains new staff on a critical part of the permitting process.

WQBEL Development

Including recurring WET testing in newly developed permits is an improvement from past practices. It ensures that WET data are collected through the permit term to enable WQBEL assessments to be made when the permit is to be reissued.

Areas for Improvement

Reasonable Potential

Collection and analysis of WET data (as required under 40 CFR 122.21 and 122.44 (d)(1), respectively) is deficient. While VT DEC is making progress by including WET monitoring requirements in more permits and by increasing testing frequencies in permits with pre-existing requirements, there is often insufficient WET data to conduct a proper analysis. Further improvements include accounting for species sensitivity, dilution, and variability of the pollutants present in setting WET testing requirements and evaluating reasonable potential to violate water quality standards. Specific observations include:

- WET testing should be conducted at least annually as a minimum monitoring frequency for facilities with WET limitations (see 40 CFR 122.44(i)(6)), however, monitoring is to be conducted in a manner that is "...representative of the monitored activity" (see 40 CFR 122.41(j)(1)) and that meets the WET requirements of 40 CFR 122.21(j)(5) and 40 CFR 122.41(j)(4). A permit condition can be included that allows the permittee to reduce the

WET testing frequency if the results consistently show no toxicity, but where limits exist the frequency should not be less than annual.

- If permits expire, WET testing should continue under the administratively continued permit.
- Even in cases where a facility may be granted significant dilution, if the facility's effluent is found to be acutely toxic, the permit writer should consult Vermont's mixing zone policy and determine if the discharge is toxic to organisms transiting through the mixing zone.
- Numeric determinations of WET RP are needed. EPA's *Technical Support Document for Water Quality-Based Toxics Control (TSD)*⁸ has guidance on how to conduct these analyses in the absence of state water quality criteria.

Further comments on RP determinations for nutrients can be found below in the National Topic Review Area section IV.A.

WQBEL Development

As part of the RP process, a permit writer might establish monitoring-only requirements instead of a permit limit when reasonable potential is determined based on conservative factors. This is inconsistent with federal regulations at 40 CFR 122.44(d)(1), which requires a WQBEL when RP is determined. This practice is observed in some permits with nutrient discharges that appear to have not established limits for phosphorus where documentation indicates RP was found. This is discussed further in Section IV.A of this report (Permit Controls for Nutrients in Non-TMDL Waters).

VT DEC is not collecting sufficient bacteria data to capture the variability that may be present. EPA recommends VT DEC consider establishing internal guidance for baseline monitoring frequencies that adequately characterize the discharge relative to the pollutant type.

⁸ 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>

Action Items

<p>Essential</p>	<ul style="list-style-type: none"> • <u>Reasonable Potential</u> <ul style="list-style-type: none"> • Ensure that sufficient WET data, that are representative of the permitted discharge, are collected to conduct an RP analysis consistent with 40 CFR 122.44(d)(1). • <u>WQBEL Development</u> <ul style="list-style-type: none"> • Ensure that WQBELs are developed for parameters that demonstrate RP, consistent with 40 CFR 122.44(d)(1)(i).
<p>Recommended</p>	<ul style="list-style-type: none"> • <u>Reasonable Potential</u> <ul style="list-style-type: none"> • Develop consistent discussions of RP analyses, including identification of pollutants of concern, the timeframe of data evaluated, and a clear discussion of results. • Review the state mixing zone policy, EPA’s TSD, and permits developed by Region 1 for further guidance on developing and implementing appropriate WET permit conditions. • Include WET data and any supplemental data (e.g., a pollutant scan) in summary tables in the permit fact sheet. • Update the VT DEC decision tree to include a process for WET data and RP analysis that complies with state WQS. • <u>WQBEL Development</u> <ul style="list-style-type: none"> • Evaluate whether bacteria sampling frequencies are sufficient to capture effluent variability.

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 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 water quality standards 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.

VT DEC's permits properly establish TBELs appropriate for the type of facility and discharge (e.g., POTW, non-POTW) and fact sheets provide an understanding of facility and wastewater treatment operations. Fact sheets identify applicable technology-based standards. However, VT DEC's permit fact sheets consistently lacked a demonstration that permit writers evaluated the most stringent effluent limitation of TBELs and WQBELs, and then established the most stringent effluent limitation as the final permit limit.

The state's Antidegradation Policy is contained in Section 29A-105 of the Water Quality Standards. DEC's commissioner signed the interim implementation policy ("Vermont Agency of Natural Resources, Department of Environmental Conservation, Interim Anti-degradation Implementation Procedure") on October 12, 2010. WSMD staff indicated an anti-degradation review is not conducted if there are no changes and no increase in discharge. Further, if an applicant sought an expansion or increase in flow, WSMD would retain the limit from the previous permit and require the facility to install treatment to maintain compliance with the existing effluent limitations. Decisions arising from antidegradation reviews are documented in the fact sheet.

Antidegradation is a primary consideration in developing new discharge permits; the Antidegradation Policy guides this process. Quarries and other discharges related to dewatering comprise a large percentage of Vermont's new permits. As noted above, the overlap of stormwater and process water at a quarry is complex to capture in developing a permit. VT DEC is in the process of updating their Interim Antidegradation Implementation Procedure in advance of rulemaking that has been required by the state legislature.

WSMD staff indicated that anti-backsliding requirements are rarely triggered in permits; typically, limitations from the previous permit are carried forward unless there is justification for a less stringent effluent limitation. WSMD staff indicated an anti-backsliding justification has not been necessary since permit development in 2007 when new standards for *E. coli* were instituted.

VT DEC considers anti-backsliding in all permits. Generally, VT DEC would prefer to wait to establish an effluent limit until it has collected enough data to support the limit and ensure that the facility can reasonably comply. This helps to avert backsliding issues later. When a less stringent limit is derived, WSMD staff coordinate with MAP staff to develop the necessary calculations and compare the old and new limits. Typically, the end product is a memo, but VT DEC would like this information to be incorporated into the fact sheet.

Program Strengths

Fact sheets provide a working understanding of facility operations and wastewater treatment processes and identify the regulatory basis for effluent limitations. Permits and fact sheets correctly implement Vermont’s antidegradation and anti-backsliding policies.

Areas for Improvement

As noted above, permit writers must conduct a WET RP analysis that accounts for several items as required by 40 CFR 122.44(d)(1)(ii). The industrial permit fact sheets reviewed lacked sufficient detail to explain the applicability of ELGs and whether TBELs were more stringent than WQBELs. Fact sheets should also contain additional details, such as the performance level to determine whether ELGs are implemented appropriately. Fact sheets should contain a clear discussion or summary of how pollutants of concern are identified. Fact sheets should contain an appropriate explanation (per 40 CFR 124.56) of the basis for a limit; in some cases, the only support for a limit was to cite the previous permit and note that anti-backsliding prevents a less stringent limit.

Action Items

Essential	<ul style="list-style-type: none"> •Ensure that fact sheets contain a discussion of how ELGs were considered, as well as a comparison of limits derived under TBELs and WQBELs (and which was selected as the final limit), to align with requirements of 40 CFR 124.56.
Recommended	<ul style="list-style-type: none"> •Strengthen fact sheets with detailed discussion, such as how pollutants of concern are identified and the rationale for establishing (or continuing) a limit. •In cases where both long-term and short-term effluent limits per 40 CFR 122.45 are not applicable, the fact sheet should provide the justification for why only one limit (e.g. instantaneous maximum) would be applicable.

C. Monitoring and Reporting Requirements

Background and Process

NPDES regulations at 40 CFR 122.41(j) require permittees to 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(b) requires

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

NPDES permits should specify appropriate monitoring locations to ensure compliance with the permit limitations and provide the necessary data to determine the effects of 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.

WSMD developed a monitoring protocol in 2007 – 2008 that describes the method by which monitoring requirements are determined. Permit writers consider the facility's size, compliance history, discharge location relative to a water quality-affected segment, and the facility's disinfection practice. Staff also verify the appropriateness of the previous permit's monitoring requirements (including frequency, sampling location, and other elements) during permit development. The facility's compliance history is also reviewed. WSMD staff indicated that with newer application requirements, all major facilities are required to conduct four WET tests and three priority pollutant scans. This is an improvement from the previous PQR. In addition, WSMD staff noted that for WET monitoring in previous permits, the application requirements are the minimum requirements established. Permit writers would historically require more frequent WET monitoring if the facility has demonstrated toxicity issues, or if there are compliance issues. WSMD staff noted that few facilities have exhibited toxicity concerns. Permits contain corresponding reporting requirements for all monitoring requirements; generally, reports are submitted on a quarterly basis. Permits may also specify specific monitoring studies as appropriate.

Vermont permits contain typical reporting requirements that specify the frequency of DMRs and other information. VT DEC will review the previous permit, identify any new activities or other information that would require reporting, and determine if any special studies are needed. Reporting may also depend on seasonality of field data collection (e.g., fall is the typical time to conduct instream biomonitoring) or WET testing schedules. In cases where the permit has been extended for a significant period, the permit writer may meet with the facility to ensure the information is accurate prior to publishing the draft permit.

VT DEC also requires a comprehensive engineering report at least every 20 years; this report examines the physical infrastructure at the facility, evaluates its useful remaining service life, and helps to project future capital expenses and maintenance.

Permits require the use of analytical methods authorized in 40 CFR Part 136. VT DEC has begun to incorporate language requiring sufficiently sensitive methods into all new and reissued permits. VT DEC reviewed how other states were implementing these requirements and developed specific permit language (as a general permit condition) and a supporting spreadsheet to help permittees interpret the requirements, especially when water quality criteria are very low concentrations and documentation of sufficiently sensitive methods might be challenging.

Program Strengths

For bacteria, many permits have a short-term limit that is well below the EPA recommended long-term average, making them very protective. VT DEC has taken proactive steps to ensure that requirements to use sufficiently sensitive methods are being incorporated into reissued permits.

Areas for Improvement

As noted above, a lack of facility monitoring data (as required by 40 CFR 122.21(g)(7), 122.41(j)(1) and 122.48(b)) affects multiple aspects of the permitting program, such as inhibiting a thorough analysis of RP. In addition, ambient water quality data are lacking, which affects permitting of discharges to impaired waters and facilities with high loadings of specific pollutants.

Permits and fact sheets must contain a description of the specific location for sampling; this helps to ensure that all parties understand the point of compliance and sample at the appropriate location.

Permits must require the use of sufficiently sensitive methods. VT DEC has begun this process with some permits but must ensure that all permits reflect these requirements. Additional language in the permit may be useful to ensure that appropriate data is collected.

As noted above, many permits have conservative limits for bacteria; however, the monitoring frequency may not be sufficient to adequately capture the variability that is commonly found in bacteria levels at POTWs and other dischargers. One solution may be to develop a protocol for monitoring frequency that would apply to all permits and be highly visible and transparent and could be based on EPA guidance.

Action Items

Essential

- Ensure that sufficient monitoring data (especially ambient data for nutrients, metals of concern, and WET) are collected to properly evaluate reasonable potential and develop appropriate permit conditions, consistent with 40 CFR 122.41(j)(1), 122.44(d)(1)(ii), and 122.48.
- Ensure that all permits and fact sheets identify the specific sampling location for any monitoring, to ensure the monitoring location is representative of the activity and discharge, consistent with 40 CFR 122.41(j) and 40 CFR 122.48(b).
- Continue to ensure that appropriate language for requiring sufficiently sensitive methods is included in all permits, consistent with 40 CFR 122.44(i)(1)(iv).

Recommended

- Consider shifting some of the monitoring burden to the dischargers, who can help fill data gaps and ensure more thorough analysis and compliance.
- Consider developing guidance for what monitoring frequencies are appropriate for different size facilities, recognizing that increased frequency may be necessary for discharges to impaired waterbodies and discharges containing certain pollutants.

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; a toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) to resolve measured toxicity; 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.

Vermont NPDES permits include narrative conditions to implement narrative water quality standards (e.g., “free from floating debris, oil, scum, and other floating materials...”) within the effluent limitations section of the permit. Further, narrative conditions in Vermont permits

generally address requirements related to pollution prevention, dry weather flows, influent monitoring, WET (e.g., no toxics in toxic amounts), and sewer ordinance and contributing waste streams. For sites engaging in some level of pretreatment, permit writers include details about the pretreatment process in the fact sheet to promote awareness.

WSMD staff use boilerplate language, revised in 2020, to generate the standard conditions for the permit. Standard conditions are included in the General Conditions section of the permit and are based on Federal and State regulations. However, some standard conditions are lacking from the permits and some are not verbatim to the 40 CFR 122.41 standard conditions. Permits also contain standard definitions.

Some facilities are also required to develop special studies. For example, dischargers in the Lake Champlain watershed must develop a phosphorus reduction plan. Facilities that have CSOs must prepare a Long-Term Control Plan (LTCP). In some cases, the facility may also conduct a diffuser or mixing zone study.

Program Strengths

Automation of the standard conditions (by issuing permits through Wastewater Inventory) will improve consistency.

Areas for Improvement

There are discrepancies between Vermont’s standard conditions and the federal requirements at 40 CFR 122.41 and 122.42, which was also an area for improvement identified during the last PQR. Certain federal standard conditions appear absent from permits and for others, the language is not verbatim to the federal standard condition language. In particular, Vermont permits lack the following standard conditions required by: 40 CFR 122.41(l)(6)(iii) (waiver of written report); 40 CFR 122.41(m)(1)(ii) (bypass definitions); 122.41(m)(2) (bypass not exceeding limitations); 122.41(m)(4)(ii) (approval of anticipated bypass); 122.41(n)(1) (upset definition); and 122.42(a) (additional reporting for existing manufacturing, commercial, mining, and silvicultural dischargers). Certain language related to penalties differs from federal standard condition language.

Action Items

Essential

- Ensure that standard conditions are consistent with federal requirements contained in 40 CFR 122.41 and 122.42.

Recommended

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

E. Administrative Process

Background and Process

The administrative process includes documenting the basis of all permit decisions (40 CFR 124.5 and 40 CFR 124.6); coordinating EPA and state review of the draft (or proposed) permit (40 CFR 123.44); providing public notice (40 CFR 124.10); conducting hearings if appropriate (40 CFR 124.11 and 40 CFR 124.12); responding to public comments (40 CFR 124.17); and modifying a permit (if necessary) after issuance (40 CFR 124.5). EPA discussed each element of the administrative process with Vermont, and reviewed materials from the administrative process as they related to the core permit review.

WSMD staff are responsible for providing the public notice of the draft permit. For permits developed through ENB, the public notice is automatically issued; staff load the draft permit and other materials into ENB to make them available and the system notifies local town clerks and the nearest major newspaper. For backlogged permits (pre-ENB), the historic process of issuing the notice is still used; WSMD staff issue a public notice via email to the town clerks and newspaper. The public comment period lasts 30 days for general and individual permits and 14 days for NOIs and comments received during that period are included in the administrative record. Notices are distributed to the town clerk, permittee, and list of interested parties; the draft permit and public notice are posted in ENB or on VT DEC's website. Public comments can also be submitted through ENB. WSMD's responses to comments received are included as an attachment to the final permit. Changes made to a permit also result in changes to the fact sheet; WSMD staff use italicized font to indicate where changes were made in response to a comment.

Stakeholders can also request a hearing. VT DEC does not routinely schedule a hearing for every permit, as attendance by the public can be inconsistent. As a result, hearings are scheduled on a case-by-case basis. Some permits that are known to have significant public interest (e.g., a leachate permit for a landfill) may have a hearing scheduled preemptively.

Members of the public who commented during the public comment period have 30 days to appeal a permit. The appeal is limited to issues raised in the comments. VT DEC has only had two appeals in recent years. The first was an appeal by a non-government organization to dispute the implementation of the Lake Champlain TMDL. The second was an appeal from a permittee related to the pretreatment program. The first appeal was decided in favor of VT DEC, while the second was settled following clarification of the permit language. Appeals are usually heard before an environmental court, unless the case involves a public utilities commission, which would be heard in a different court.

Wastewater Inventory is used to develop the draft permit and serves as the permanent record for the permit, draft permit, fact sheet, and other key documents. The permit and fact sheet are also available on VT DEC's website. Hard copy comments on the draft are scanned and loaded into Wastewater Inventory. Comments are also received through ENB and via email.

Program Strengths

The ENB provides a structured, transparent method for informing the public about draft permits and providing materials for review.

Areas for Improvement

The public notice text for several permits did not include all the required information. The notice must include information on how to request a hearing, the location of the existing (or proposed) discharge point, a description of sludge use and disposal practices (40 CFR 124.10(d)(1)(vii)), and the name of a person to contact for more information (40 CFR 124.10(d)(1)(iv)). A cover page to the final permit (or transmittal letter or other record) could document whether any public comments were received on the draft permit.

Action Items

Essential

- Ensure that the public notice template includes all the information required by 40 CFR 124.10(d).

Recommended

- Consider developing or revising a permit cover sheet or other document that would describe whether any public comments were received on the draft permit.

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;⁹ 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.

⁹ 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.

Current federal 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 (see 40 CFR 124.56). 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.

VT DEC permit writers draft fact sheets for municipal facilities using a built-in template in Wastewater Inventory. A different template is used for industrial facilities; at the present time, this template is not housed in Wastewater Inventory, so a Word template is used. Using Wastewater Inventory helps to ensure consistency in the permit and fact sheet, as information flows from the same source. This also helps to ensure accurate data is provided from Wastewater Inventory to DMRs and ICIS. State law requires a fact sheet be developed only for facilities that discharge more than 0.5 MGD, but VT DEC staff would prefer to develop fact sheets for all permits if possible. Permit writers indicate the presence of the previous fact sheets only in the permit file inventory; typically, fact sheets do not reference previous fact sheets. WSMD staff noted archived permit documents are retained electronically as far back as 1971.

WSMD's administrative record is kept primarily in Wastewater Inventory, the Stormwater Database, and the programs' network drives. Files have two basic components: the permit development file and enforcement and compliance file. The permit development file contains the permit, fact sheet, application, correspondence, public notice documents, comments received during the public comment period, and other documents supporting the development of the draft permit conditions. DMRs and inspection reports are maintained in chronological order in the enforcement and compliance file as part of the administrative record.

Program Strengths

Using Wastewater Inventory to generate permits and fact sheets, as well as for records retention, provides greater transparency and improves the consistency and quality of the permits and supporting documents.

Areas for Improvement

While the fact sheets have seen significant improvements over the years, some elements of the fact sheets remain insufficiently detailed. Fact sheets should include the information below to strengthen the rationales and basis for permit decisions, conditions and requirements or changes in requirements.

- The description of the receiving water should include a discussion of any water quality impairments or ambient data. This information is in the memo from MAP staff, but it would be valuable for permit writers to review and acknowledge directly in the fact sheet that they considered receiving water conditions in drafting permit conditions.

Adding the stream segment would help the public locate the relevant waterbody on the State’s 303(d) list.

- As noted in section III.B.3, the description of ELGs should be expanded upon and fact sheets should be more explicit in comparing and calculating TBELs relative to WQBELs.
- The fact sheet should explicitly discuss whether mixing zones or other engineering elements of a facility’s process factored into permit conditions.
- Even if limits are carried forward from the previous permit, the fact sheet should clearly discuss the basis for any permit conditions. This could include a link to the original decision document where one exists.
- The fact sheet should include the permit writer’s contact information.

Action Items

Essential	<ul style="list-style-type: none"> • Ensure that fact sheets contain sufficient documentation to support the basis for all effluent limitations, in particular data and other related information that factored into the development of WQBELs, consistent with the requirements of 40 CFR 124.56.
Recommended	<ul style="list-style-type: none"> • Consider providing a clearer link between the current permit and the rationale for any limits or permit conditions. • Consider adding more detailed information to the fact sheets, such as the receiving water description, presence of mixing zones, monitoring location identification, and information specific to effluent limitation development.

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)(1) require permit limits to be developed for any pollutant which causes, has the reasonable potential to cause, or contributes to an excursion of state water quality standards, whether those standards are narrative or numeric.

Hydrologically, Vermont can be divided into four major drainage basins: Lake Champlain Drainage Basin, Connecticut River Drainage Basin, the Hudson River Drainage Basin, and the Lake Memphremagog Drainage Basin. The 2016 issuance of the Lake Champlain phosphorus TMDL has focused the State's efforts in recent years on implementing wasteload allocations for permits discharging within the Lake Champlain Drainage Basin.¹⁰ The Lake Memphremagog Drainage Basin is subject to an active TMDL for phosphorus. The Hudson River Drainage Basin is not currently subject to any nutrient TMDLs; however, EPA was not able to identify any recently issued permits with nutrient concerns within this basin to review for this PQR. The Connecticut River Drainage Basin has an individual TMDL for phosphorus in the Black River watershed. In addition, EPA has encouraged VTDEC (and other upstream states) to develop effluent limits and permit controls for out-of-basin sources in the Long Island Sound watershed (which contains the Connecticut River Drainage Basin) on discharges of total nitrogen within the watershed.

To assess how nutrients are addressed in the VT NPDES program, EPA Region 1 reviewed five permits. Due to the prevalence of TMDLs and the prioritization of dischargers to Lake Champlain, EPA's review focused on permits with nutrient concerns that were issued within the last four years. Two of those permits were in watersheds not yet listed as impaired for nutrient pollution and three of those permits were for facilities discharging upstream of a waterbody impaired by nutrient pollution (upstream of Lake Champlain). Additionally, EPA reviewed the Total Phosphorus Reasonable Potential Determination decision tree used by permit writing staff and interviewed MAP staff who review RP determinations.

Vermont Water Quality Standards (WQS) were updated in 2017. They contain water quality criteria for phosphorus (§ 29A-302(2)) and nitrates (§ 29A-302(3)), generally and for specific waterbody types. For phosphorus, all waterbodies are subject to the following narrative criterion, "*In all waters, total phosphorous loadings shall be limited so that they will not contribute to the acceleration of eutrophication or the stimulation of the growth of aquatic biota in a manner that prevents the full support of uses.*" See § 29A-302(2)(A). Numeric criteria are stipulated for lakes, ponds, and reservoirs of a certain size and also for segments within the Lake Champlain and Lake Memphremagog watersheds. Water quality criteria for nitrates also contain a narrative criterion for all waters and numeric criterion for lakes, ponds, and reservoirs. For rivers and streams, numeric criteria (nitrate-nitrogen concentrations of 0.2, 2.0, 5.0 mg/L) are stipulated based on waterbody classification, not to be exceeded at flows greater than the low median monthly flows.

¹⁰ Since the vast majority of recently issued permits with nutrient concerns were in the Lake Champlain drainage area, EPA Region 1 reviewed many permits with an active, applicable TMDL. However, as discussed below, many findings from this review could similarly be applied to non-TMDL waters.

Vermont WQS stipulate additional use-specific nutrient criteria. See § 29A-306. These are combined criteria with numeric control criteria expressed as concentrations of total phosphorus and numeric response conditions for pH, turbidity, dissolved oxygen, and aquatic biota. The total phosphorus criteria vary based on waterbody classification (A(1), B(1), and A(2)/B(2)) and stream-type (small, high-gradient; medium, high-gradient; and warm-water, medium gradient). See Table 2 in the Vermont WQS.

In addition, State law (10 V.S.A. § 1266a) includes requirements for discharges of phosphorus to Lake Champlain and Lake Memphremagog. One is a cap on the discharge of any waste to these waterbodies of no more than 0.80 milligrams per liter on a monthly average basis; albeit with a few exceptions.

WSMD has developed a RP determination decision tree for assessing phosphorus discharges for wastewater permits. Since the adoption of the WQS and the development of the decision tree, permit writers have begun taking greater responsibility for RP determinations (a process that was previously conducted by MAP). MAP still has a significant role in assessing the effects of nutrient discharges. Permits with water quality effluent limits or monitoring conditions are accompanied by a MAP memo that summarizes MAP's own findings based on receiving water data.

The decision tree helps WSMD staff to determine whether the discharge causes, has the reasonable potential to cause, or contributes to an excursion of the state WQS (per 40 CFR 122.44(d)(1)). It focuses on whether there is enough data to determine RP, how to calculate relevant values for the analysis, and how to evaluate combined nutrient criteria. The procedure closely follows the one outlined in EPA's Technical Support Document for Water Quality-Based Toxics Control (TSD) and EPA did not find any technical deficiencies with how it was structured; however, actual implementation of RP determinations for total phosphorus seemed to differ from the chart.

Facilities Discharging to Unimpaired Waterbodies

EPA reviewed two permits discharging to waterbodies not yet listed as impaired for nutrients: (1) the St. Johnsbury Wastewater Treatment Facility's discharge to the Passumpsic River and (2) the Weidmann Electrical Technology, Inc. facility's discharge to the Passumpsic River. The Passumpsic River flows into the Connecticut River, which eventually drains into Long Island Sound (LIS) in Connecticut. In 2000, New York and Connecticut finalized a TMDL to address dissolved oxygen impairments in LIS due to excessive nitrogen loading. While out-of-basin facilities were not assigned WLAs, an assumption was built into that TMDL that controls would be placed on out-of-basin sources. EPA has worked with upstream states to implement such controls, including enforceable permit requirements. While the permits for both facilities contained nitrogen monitoring requirements for the first time, the St. Johnsbury permit also required a nitrogen optimization plan to optimize the removal of nitrogen from the facility's discharge. The requirements for both facilities to track discharges and for the POTW to optimize are significant steps in reducing nitrogen loading to LIS.

In addition to nitrogen, these facilities discharge phosphorus to the Passumpsic River and their permits require monthly effluent monitoring. In the case of St. Johnsbury, this monitoring requirement is new. No ambient monitoring was required in either permit. Both fact sheets were accompanied by a MAP memo that contained total phosphorus RP determinations. The memo for the St. Johnsbury permit presents a clear ambient monitoring record of increasing total phosphorus concentrations downstream of the discharge. The observed downstream concentration closely matches what would be expected based on a worst-case mass-balance calculation. However, given the lack of impairment of biocriteria and the lack of an exceedance of the phosphorus numeric criterion, no reasonable potential was found. This appears to be an appropriate application of the State WQS.

For Weidmann, the MAP memo outlines a slightly different RP framework than St. Johnsbury because this segment of the receiving water is non-wadeable. For non-wadeable rivers, biocriteria for macroinvertebrates are not available, so the WSMD relies on calculated instream concentrations. In this case, the numeric data indicates minimal phosphorus addition to the receiving water and no reasonable potential to result in an excursion of the state's WQS was found. This approach is of note as a counter-example to some of the approaches below where discharges to non-wadeable streams were being assessed and calculated instream concentrations were not relied on.

Facilities Discharging Upstream of Lake Champlain

Given the lack of recently issued permits to non-TMDL waters, EPA reviewed additional permits that are subject to the Lake Champlain TMDL but do not authorized discharges directly to Lake Champlain. EPA did not assess compliance with the TMDL, but instead focused its review on whether the permit had assessed RP with respect to the immediate receiving water and not just the downstream WLA requirements. EPA reviewed three permits discharging nutrients upstream of Lake Champlain: (1) the Benson Wastewater Treatment Facility's discharge to Hubbardton Brook; (2) the Shelburne (Harbor Road) Wastewater Treatment Facility's discharge to McCabes Brook; and (3) the Hinesburg Wastewater Treatment Facility's discharge to the LaPlatte River.

The Benson permit contains an annual mass limit based on the Lake Champlain phosphorus TMDL WLA, quarterly phosphorus effluent monitoring, a phosphorus optimization plan requirement, and a phosphorus reduction plan requirement. These requirements are all derived from requirements of the Lake Champlain TMDL and provide for "a period of time for optimization to be pursued and the corresponding load reduction results to be realized, and then commencement of the process to upgrade phosphorus treatment facilities will be required when actual phosphorus loads reach 80% of the LC [*Lake Champlain*] TMDL limits." Separate from the implementation of the TMDL, the MAP memo provides an analysis of the RP determination in the immediate receiving water. The memo highlights the impaired status of the immediate receiving water (not just the downstream Lake Champlain) for both total phosphorus and biocriteria. However, it does not conclude that there is reasonable potential for the discharge to contribute to an excursion of the state's water quality criteria. Instead, the analysis finds that "biological criteria have not been analyzed specifically with respect to their

specific sensitivity to total phosphorus.” Given that pH, turbidity, and dissolved oxygen are being attained, the analysis concludes that the narrative standard is being met. EPA finds this discussion convoluted with significant dissonance between the data, analysis, and final conclusions. The primary problem is not relying on biocriteria that are written into the WQS. Either the WQS need to be revised or the appropriate biocriteria need to be revisited. If applicable data to assess whether biocriteria are impaired or not have not been collected by the State, the program should consider requiring the permittee to collect such data. Additional requirements for the permittee to collect ambient data are justified given the lack of timely, representative data available from MAP’s analysis. EPA finds the nutrient reasonable potential analysis deficient for the Benson permit.

Similar to Benson, the Shelburne permit includes annual average load limits for total phosphorus in addition to optimization and reduction reports based on the Lake Champlain TMDL. Monitoring is more frequent – weekly versus quarterly for Benson – and a concentration limit of 0.8 mg/L is also included based on State law (10 V.S.A. § 1266a). Again, the MAP memo confirms the impaired status of the receiving water. The analysis has a few deficiencies. For one, the estimated downstream phosphorus concentration calculated based on facility design flow and the current permit limit results in a high value (460 ug/L) relative to criteria; a value that is overlooked because the facility is currently discharging below their design flow. The other issue, similar to the Benson discussion above, is the fact that the MAP memo indicates the biocriteria (which indicate an impairment) should not be used since they are not suitable for assessing compliance with the narrative nutrient WQS. These findings and the lack of follow through with a conclusive RP determination appear contradictory.

The Hinesburg permit mirrors many of the issues seen above, including insufficient ambient data from which to base RP analyses, lack of numeric RP analysis, and dismissal of biocriteria. The MAP memo did recommend collection of additional ambient monitoring data; however, no clear plan was put in place to ensure that data was collected in time for a future permit reissuance. The permit did not require the permittee to conduct ambient monitoring.

The major findings from this portion of the review can be summarized as follows:

- Reasonable potential procedures appear to overlook the numeric comparisons between Vermont WQS nutrient criteria and calculated downstream concentrations.
- Ambient data on response variables and biota are often insufficient to make a combined-criteria analysis consistent with WQS. Where ambient data is lacking, permits do not contain additional data collection requirements.
- Biocriteria and narrative standards are inconsistently applied. MAP memos highlight the inapplicability of biocriteria in evaluating violations of the narrative nutrient criterion. Appropriate biocriteria data need to be collected, the WQS need to be revised, and/or the reasonable potential determinations should not rely on these criteria and instead rely on numeric control criteria.

- The addition of nutrient controls in permits based on the Lake Champlain TDML should not negate findings that additional controls (e.g., more stringent limits) are necessary to protect the immediate downstream receiving water from nutrient impairments.

Program Strengths

- The development of the total phosphorus decision tree and consolidation of the reasonable potential determinations within the Wastewater Management Section are positive steps in improving the logical justification for nutrient conditions and implementation consistency among different dischargers.
- The program is beginning to require the collection of nitrogen data for out-of-basin dischargers to Long Island Sound and has started to include optimization requirements in permits.

Areas for Improvement

- Ambient monitoring data is collected exclusively by the State. However, data is consistently insufficient to conduct a complete reasonable potential analysis in line with State WQS (see 40 CFR 122.44(d)(1)). Increased ambient data collection is necessary on the part of either the permittee or the State.
- Fact sheets should directly document reasonable potential analysis (see 40 CFR 124.56) conducted for nutrients – rather than being included in a separate memo, with analysis conducted by non-permitting staff.
- Biocriteria need to be re-assessed as they pertain to nutrient criteria and more consistently applied or, potentially, revised.

<p>Essential</p>	<ul style="list-style-type: none"> •Permit writers must conduct RP analyses and implement effluent limits for nutrients in a defensible fashion using the combined nutrient criteria in accordance with 40 CFR 122.44(d)(1). •Permit writers must assess whether a downstream TMDL applies <i>and</i> if more stringent controls (e.g., effluent limits) on nutrients are needed beyond TMDL requirements to protect the immediate receiving water. See 40 CFR 122.44(d)(1)(vii).
<p>Recommended</p>	<ul style="list-style-type: none"> •VT DEC must ensure that sufficient, timely, and representative ambient data for response variables and biota exist to conduct reasonable potential determinations for nutrients either through their own sampling efforts or by including additional monitoring requirements in permits. •Fact sheets should document reasonable potential analysis, per 40 CFR 124.56, conducted for nutrients, rather than included in a separate memo. •VT DEC must ensure that biological indices referenced in § 29A-305 of State WQS can be used to conduct reasonable potential determinations for nutrients as required by Table 2 of Vermont's WQS.

B. Effectiveness of POTW NPDES Permits with Food Processor Contributions

The general pretreatment regulations (40 CFR Part 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 Vermont 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).

VT DEC began implementing its approved pretreatment program in 1982. The State has assumed, under 40 CFR 403.10(e), the responsibility for implementing the requirements set forth at 40 CFR 403.8(f) in lieu of requiring POTWs to develop and implement an individual pretreatment program. As such, the State serves as the control authority for all industrial users (IUs) subject to pretreatment program requirements in Vermont. Therefore, the State is required to implement its pretreatment program in accordance with the general pretreatment regulations at 40 CFR Part 403; the state also follows the NPDES Memorandum of Understanding between EPA Region 1 and VT DEC signed on March 16, 1982, and modified May

7, 1992, to define State and EPA responsibilities and enforcement of national pretreatment standards.

For this round of the PQR, the pretreatment program review focused on industrial users within the food processing industry. Facilities within this category have gained national attention in recent years because of the deleterious effects their discharges can have on POTW operations. This can be particularly significant when the domestic-only wastewater sources to the receiving POTW are relatively small compared to the food processor’s discharge. In instances where the food processor contributes greater than 50% of the average daily hydraulic flow or mass load into the plant, the characteristics of that single source can dominate the ability of the POTW to treat to the levels required achieve and maintain compliance with its own discharge permit.

Four pretreatment permits and fact sheets from food processors within the state were chosen for evaluation, as well as the permits and fact sheets of the receiving POTWs.

The following Significant Industrial User (SIU) and receiving POTW permits were reviewed:

- Alchemist (Brewery), discharging to the Town of Stowe POTW,
- Ben and Jerrys (Ice Cream), discharging to the Edward Farrar Utility District (formerly Town of Waterbury),
- Franklin Foods (Cheese and Dairy), discharging to the Enosburg Falls Wastewater Treatment Facility, and
- Swan Valley Cheese (Cheese and Dairy), discharging to the Village of Swanton Wastewater Treatment Facility.

All SIU permits were issued in a timely manner and none were expired. Comments for each permit are as follows:

Alchemist

BOD, TSS and phosphorus limits were incorporated into the permit. Those limits are based on the organic capacity of the treatment plant allotted by the Town of Stowe on July 31, 2014. The hydraulic capacity and permit limit are based on the request by the SIU and approved by the Town in 2014. The permit contained the following limitations and requirements:

Pollutant	Monthly Average (lbs/day)	Daily Maximum (lbs/day)	Monitoring Frequency
BOD	-----	11.5	Monthly
TSS	-----	11.5	Monthly
Phosphorus	-----	0.2	Monthly

Ben & Jerry’s

The permit contained the following limitations and requirements:

Pollutant	Monthly Average (lbs/day)	Daily Maximum (lbs/day)	Monitoring Frequency
BOD	100	150	Monthly
TSS	Monitor	Monitor	Monthly

The BOD limit was based on the allocation by the POTW and is within the organic capacity of the POTW.

Franklin Foods

The permit contained the following limitations and requirements:

Pollutant	Monthly Average (lbs/day)	Daily Maximum (lbs/day)	Monitoring Frequency
BOD	275	375	2/week
Phosphorus	2.6	3.8	1/week

The phosphorus limit is based on the Lake Champlain Total Maximum Daily Load which is further explained in the permit. Wasteload allocations for phosphorus have been established for POTWs that discharge into the Lake Champlain Watershed.

Swan Valley Cheese

The permit contained the following limitations and requirements:

Pollutant	Monthly Average (lbs/day)	Daily Maximum (lbs/day)	Monitoring Frequency
BOD	95	90	1/week
Phosphorus	Monitor	Monitor	1/month

There is a requirement that the SIU sample BOD on the day the POTW samples its influent.

Program Strengths

EPA is encouraged by the incoming support from new hires directed to the industrial pretreatment program by VT DEC and is optimistic that any action items identified in recently performed audit report are being addressed. VT DEC's proposed approaches to previously identified actions items in the audit report will only strengthen the state program.

EPA applauds VT DEC's efforts towards potential delegation of certain industrial pretreatment program responsibilities to POTWs, via Memorandum of Understanding, such as inspections and sampling. Among other things, this delegation of oversight at the local level will allow VT DEC to focus on SIUs with any compliance issues as well as increase its inspection and monitoring frequency of existing SIUs. EPA offers its support and assistance to any delegation initiative.

While not a federal requirement, all SIU permits are public noticed for 30 days to allow interested parties an opportunity to comment. The State should be commended on its transparency and public notice procedures.

The SIU permit applications were very in-depth and contained valuable information for VT DEC to develop a defensible pretreatment permit.

All SIU files reviewed contained fact sheets which were outstanding. Among many other things, the fact sheets provided facility descriptions as well as background information to include wastewater treatment practices at each facility. Additionally, the fact sheet provided a permit limit basis and explanation of effluent limit derivations.

VT DEC has issued permits with technically based local limits approved by the POTW for many conventional pollutants. In the absence of an approved pretreatment program in a 403.10(e) program, a collaborative effort between the POTW and State is a huge benefit to the success of a local program.

SIU permits included weekly and monthly monitoring frequencies, which is more stringent than the federal requirement of at least twice per year.

All SIU permits were issued in a timely manner and effective as of the date of this review.

Section 7 (Sewer Use Ordinance) of the POTW permits require the permittee to have in effect a sewer use ordinance that meets certain requirements. VT DEC should be commended on this requirement.

VT DEC included all 40 CFR 122.42 notification requirements in its permits with respect to pretreatment.

Areas of Improvement

Some of the Vermont NPDES fact sheets reviewed referenced SIUs that discharge to the POTW, while others did not. A review of the most recently issued POTW permit (South Burlington) under the Description of Discharge Section 4 states, "There are no pretreaters permitted under the NPDES program discharging to the collection system." This is acceptable if the POTW does not receive any discharges from SIUs. Since some of the POTW permits did not reference any known SIUs discharging into the POTW, the permit writer should include the names of any permitted industrial users, if applicable, discharging to the POTW in the future.

Since some of the permits reviewed were issued several years ago, EPA reviewed the most recently issued municipal permit, South Burlington, for the Industrial Waste Survey requirement. There is language that states, "The Permittee and Co-Permittees shall submit to the Secretary the Industrial Waste Survey report that, at a minimum, includes the following:". However, that language appears to only refer to industries that discharge copper. VT DEC should require all POTWs to complete the section of the NPDES Permit Application Form that

requires identification of Industrial User Dischargers consistent with 40 CFR 122.21 (j)(6)(i). POTWs have an obligation to conduct an industrial waste survey to identify all SIUs discharging into the collection system. Given that, EPA encourages VT DEC to require the POTW to include any industry that has the potential to cause pass through and/or interference or could be designated as an SIU in the Industrial Waste Survey Report.

While the POTW permits (Section 7) require the POTW to develop a sewer use ordinance, EPA recommends VT DEC include language in that section that prohibits the introduction by any person into the permittee and co-permittee’s sewerage system or WWTF of any pollutant which “may cause pass through and/or interference”.

Action Items

Essential	<ul style="list-style-type: none"> •VT DEC should require all POTWs to complete the section of the NPDES Permit Application Form that requires identification of Industrial User Dischargers consistent with 40 CFR 122.21(j)(6)(i).
Recommended	<ul style="list-style-type: none"> •Permit writers should include the names of any permitted industrial users, if applicable, discharging to the POTW. •VT DEC should require the POTW to include in the Industrial Waste Survey Report any industry that has the potential to cause pass through and/or interference or could be designated as an SIU. •Permit writers should include language in POTW permits prohibiting the introduction by any person into the Permittee and Co-Permittee's sewerage system or WWTF of any pollutant which "may cause pass through and/or interference."

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

Background

As part of this PQR, EPA reviewed the state of Vermont’s Small MS4 General Permit 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)).

Program Strengths

1. The permit is written consistent with the Two-Step permitting process outlined in 40 CFR 122.28(d)(2)
2. The two-step permitting process is clear in the permit and includes appropriate public review and comment of each applicant’s NOI and stormwater management program (SWMP) submitted to VTDEC and the authorization process incorporates actions detailed in the SWMP as permit conditions upon authorization
3. The permit requires additional action for those discharges subject to a TMDL or those discharges to impaired waters and VTDEC reviews and approves those additional activities as part of the authorization process
4. The permit includes requirements that each applicant address the 6 minimum control measures as required by 40 CFR 122.34 and submit plans to meet the six minimum control measures with its SWMP for approval and authorization

Areas for Improvement

The requirements in the “Construction Site Runoff Control” part of the permit do not meet the requirements of 40 CFR 122.34(b)(4). In particular, the permit must require the development, implementation, and enforcement of a program to reduce pollutants in any storm water runoff to the small MS4 from construction activities, not just require controls on those construction activities undertaken by the MS4, as outlined in the permit. Future permits must include requirements that the permittees develop a program that fully implements the requirements of 40 CFR 122.34(b)(4)(i)(A-F) including requirements that the permittee undertake site plan review and inspection of *all* construction sites disturbing greater than one acre of land and that discharge to the MS4.

Action Items

The graphic consists of two horizontal bars. The top bar has a blue rounded rectangle on the left containing the word 'Essential' in white. To its right, in a light blue rounded rectangle, is a bullet point: '• Incorporate all requirements of 40 CFR 122.34(b)(4)(i)(A-F) into future MS4 general permits.' The bottom bar has a blue rounded rectangle on the left containing the word 'Recommended' in white. To its right, in a light blue rounded rectangle, is a bullet point: '• The PQR did not identify any recommended action items for this section.'

V. REGIONAL TOPIC AREA FINDINGS

Region 1 has elected not to include the optional Regional Topics in this review.

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

This section provides a summary of the main findings from the last PQR and provides a review of the status of the state’s efforts in addressing the action items identified during the last PQR, conducted November 5-6, 2014. As discussed previously, during the 2012-2017 PQR cycle, EPA referred to action items that address deficiencies or noncompliance with respect to federal regulations as “Category 1”. EPA is now referring to these action items going forward, as Essential. In addition, previous PQR reports identified recommendations to strengthen the state’s program as either “Category 2” or “Category 3” action items. EPA is consolidating these two categories of action items into a single category: Recommended.

Table 1. Essential Action Items Identified During 2014 PQR

Program Area	Action Item Title	Status Update
Applications	VT DEC should review Schedule A and B application forms to ensure applicants are required to submit additional information, including data analyses and outfall location information, to comply with NPDES regulations at 40 CFR 122.21	(In progress) This is an ongoing action item and has been raised again as an essential action item for the 2021 PQR. EPA is planning on holding regular meetings with VT DEC staff to ensure application forms are updated.
	VT DEC should ensure applications, including a copy of all submitted data, are submitted on-time (i.e. – at least 180 days prior to permit expiration) and are included in the administrative record.	(In progress) This is an ongoing action item and has been raised again as an essential action item for the 2021 PQR. EPA is planning on holding regular meetings with VT DEC staff to ensure application forms are updated.
Standard Conditions	VT DEC should ensure that permits contain all federal standard conditions and that standard conditions reflect the correct requirements.	(In progress) This is an ongoing action item and has been raised again as an essential action item for the 2021 PQR. EPA is planning on holding regular meetings with VT DEC staff to ensure standard conditions are updated.
Nutrients	Vermont needs to conduct Reasonable Potential Analyses for nutrients in all municipal permits and in industrial permits that discharge a significant level of nutrients. This has been done for most permits since the adoption of the MAP memo.	(Resolved)

Program Area	Action Item Title	Status Update
	Reasonable Potential Analyses need to be based on worst case permitted/discharge levels of nutrients and upstream levels of nutrients that are representative of the flow condition under which criteria are being evaluated.	(Resolved)
	Overriding a finding of Reasonable Potential based on projected downstream concentrations of nutrients needs to be based on a more comprehensive assessment of downstream biological responses than just bioassessment data from a single downstream site. Vermont also needs to consider downstream reaches that might be more sensitive to nutrient loads.	(In progress) This is an ongoing goal and a modified version of this item has been raised again for this PQR cycle. This is of particular concern for the combined nutrient criteria and WET RPA. EPA Region 1 plans to work with VT DEC to ensure consistent implementation of State WQs.
Pretreatment	In accordance with 40 CFR 122.44(J)(1), permits issued to POTWs need to contain a pretreatment requirement to identify significant industrial users (i.e. the industrial waste survey).	(Resolved)
	Vermont needs to perform annual monitoring of each of its Significant Industrial Users.	(In progress) This item is a yearly goal and inspections in FY21 have been impacted in the past year by the pandemic. Overall, they have done a good job and should meet the FY22 target.
	Vermont needs to annually publish all SIUs that meet the federal definition of Significant Non Compliance in the newspaper of general circulation that provides meaningful public notice within the jurisdiction served by the POTW.	(Resolved)
Stormwater	Future MS4 permits should contain clear milestones for complete system inspection and requirements and milestones for illicit connection removal	(Resolved)
	The construction site stormwater runoff control minimum control measure needs to include a requirement that the permittee develop an ordinance	(Resolved)

Program Area	Action Item Title	Status Update
	or other mechanism imposing sanctions or enforcement policies to ensure compliance.	
	Future MS4 permits should contain a requirement to train employees on stormwater management under the pollution prevention minimum control measure as required by 40 CFR 122.34(b)(6).	(Resolved)
	Since the construction general permit expired in 2013, it needs to be reissued. The reissued permit should include limits from the C&D (Construction and Development) rule which became effective on February 1, 2010. These new enhanced environmental protections are applicable to construction stormwater discharges.	(Resolved)
	The construction general permit should include requirements to prevent spills and leaks (consistent with 40 CFR § 450.21(d)(3)) and to minimize exposure of likely sources of pollution to precipitation and stormwater (consistent with 40 CFR § 450.21(d)(1)).	(Resolved)

VII. RECOMMENDED ACTION ITEMS FROM LAST PQR

This section provides a summary of the recommendations from the last PQR, conducted November 5-6, 2014, and notes any state efforts to act on those recommendations. As discussed previously, during the 2012-2017 PQR cycle, EPA referred to action items that are recommendations to strengthen the state’s program as either “Category 2” or “Category 3” action items. EPA is consolidating these two categories of action items into a single category: Recommended.

Table 2. Recommended Action Items Identified During 2014 PQR

Program Area	Action Item Title	Status
<i>Basic Facility Information and Permit Application</i>	VT DEC should include greater detail regarding facility operations and treatment processes, in particular for non-municipal facilities. Greater detail enables straightforward facility categorization and identification of applicable ELGs.	(In progress)
Technology-Based Effluent Limitations	VT DEC should ensure the permit record demonstrates the permit writer considered applicable ELGs. Additionally, VT DEC should consider developing standard language for fact sheets to address the applicability of ELGs to industrial facilities.	(In progress)
Water Quality-Based Effluent Limitations	VT DEC should describe how pollutants of concern are identified and how RP is evaluated to clarify the evaluation is being conducted for each permit renewal.	(In progress)
Monitoring and Reporting	VT DEC should identify the location for effluent and influent monitoring in permits.	(In progress)
Documentation (including fact sheet)	<ul style="list-style-type: none"> • VT DEC should ensure that permit documentation clearly indicates the basis and/or rationale for all TBELs and WQBELs. Further, the fact sheet should describe the permit writer’s consideration and evaluation that WQBELs are more appropriate than TBELs for a specific discharge. • VT DEC should ensure permit files include complete documentation of RP analyses and effluent limitation calculations. • EPA strongly encourages the development of a fact sheet (or statement of basis) for all permits. • VT DEC should ensure the permit record, including the fact sheet, includes documentation regarding development of ELF based effluent limitations. Information that would strengthen the fact sheet and permit record could include a detailed facility description, categorization as it relates to the ELG, identification and illustration of any factors that are involved in calculating production based effluent limitations, and an illustration of the calculation of final ELG based effluent limitations. 	(In progress)

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 Vermont 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 3. Essential Action Items from FY 2018-2022 PQR Cycle

Topic	Action(s)
Permit Application Requirements	Ensure the permit application is consistent with all federal requirements under 40 CFR 122.21, including requirements to submit effluent monitoring data.
Reasonable Potential	Ensure that sufficient WET data, that are representative of the permitted discharge, are collected to conduct an RP analysis consistent with 40 CFR 122.44(d)(1).
WQBEL Development	Ensure that WQBELs are developed for parameters that demonstrate RP, consistent with 40 CFR 122.44(d)(1)(i).
Final Effluent Limitations and Documentation	Ensure that fact sheets contain a discussion of how ELGs were considered, as well as a comparison of limits derived under TBELs and WQBELs (and which was selected as the final limit), to align with requirements of 40 CFR 124.56.
Monitoring and Reporting Requirements	<ul style="list-style-type: none"> • Ensure that sufficient monitoring data (especially ambient data for nutrients, metals of concern, and WET) are collected to properly evaluate reasonable

	<p>potential and develop appropriate permit conditions, consistent with 40 CFR 122.41(j)(1), 122.44(d)(1)(ii), and 122.48.</p> <ul style="list-style-type: none"> • Ensure that all permits and fact sheets identify the specific sampling location for any monitoring, to ensure the monitoring location is representative of the activity and discharge, consistent with 40 CFR 122.41(j) and 40 CFR 122.48(b). • Continue to ensure that appropriate language for requiring sufficiently sensitive methods is included in all permits, consistent with 40 CFR 122.44(i)(1)(iv).
Standard and Special Conditions	Ensure that standard conditions are consistent with federal requirements contained in 40 CFR 122.41 and 122.42.
Administrative Process	Ensure that the public notice template includes all the information required by 40 CFR 124.10(d).
Administrative Record and Fact Sheet	Ensure that fact sheets contain sufficient documentation to support the basis for all effluent limitations, in particular data and other related information that factored into the development of WQBELs, consistent with the requirements of 40 CFR 124.56.
Nutrients	<ul style="list-style-type: none"> • Permit writers must conduct RP analyses and implement effluent limits for nutrients in a defensible fashion using the combined nutrient criteria in accordance with 40 CFR 122.44(d)(1). • Permit writers must assess whether a downstream TMDL applies <i>and</i> if more stringent controls (e.g., effluent limits) on nutrients are needed beyond TMDL requirements to protect the immediate receiving water. See 40 CFR 122.44(d)(1)(vii)
Pretreatment: Food Processing Sector	VT DEC should require all POTWs to complete the section of the NPDES Permit Application Form that requires identification of Industrial User Dischargers consistent with 40 CFR 122.21(j)(6)(i).
Municipal Separate Storm Sewer Systems (MS4s)	Incorporate all requirements of 40 CFR 122.34(b)(4)(i)(A-F) into future MS4 general permits.

Table 4. Recommended Action Items from FY 2018-2022 PQR Cycle

Topic	Action(s)
Facility Information	<ul style="list-style-type: none"> • Add a brief description of the location of the discharge and receiving water, in addition to the latitude and longitude. • Identify whether a facility is a major or minor facility. • Add more information on any applicable pretreatment requirements.
Permit Application Requirements	<ul style="list-style-type: none"> • Establish processes for reviewing applications for technical completeness prior to developing the permit. Ensure permits are developed using accurate, up-to-date information about the facility by requesting a new application for outdated applications.
Reasonable Potential	<ul style="list-style-type: none"> • Develop consistent discussions of RP analyses, including identification of pollutants of concern, the timeframe of data evaluated, and a clear discussion of results. • Review the state mixing zone policy, EPA’s TSD, and permits developed by Region 1 for further guidance on developing and implementing appropriate WET permit conditions. Include WET data and any supplemental data (e.g., a pollutant scan) in summary tables in the permit fact sheet. Update the VT DEC decision tree to include a process for WET data and RP analysis that complies with state WQS.
WQBELs Development	<p>Evaluate whether bacteria sampling frequencies are sufficient to capture effluent variability.</p>
Final Effluent Limitations and Documentation	<ul style="list-style-type: none"> • Strengthen fact sheets with detailed discussion, such as how pollutants of concern are identified and the rationale for establishing (or continuing) a limit. • In cases where both long-term and short-term effluent limits per 40 CFR 122.45 are not applicable, the fact sheet should provide the justification for why only one limit (e.g. instantaneous maximum) would be applicable.
Monitoring and Reporting Requirements	<ul style="list-style-type: none"> • Consider shifting some of the monitoring burden to the dischargers, who can help fill data gaps and ensure more thorough analysis and compliance. • Consider developing guidance for what monitoring frequencies are appropriate for different size facilities, recognizing that increased frequency may be necessary for discharges to impaired waterbodies and discharges containing certain pollutants.
Administrative Process	<p>Consider developing or revising a permit cover sheet or other document that would describe whether any public comments were received on the draft permit.</p>
Administrative Record and Fact Sheet	<ul style="list-style-type: none"> • Consider providing a clearer link between the current permit and the rationale for any limits or permit conditions.

	<ul style="list-style-type: none"> • Consider adding more detailed information to the fact sheets, such as the receiving water description, presence of mixing zones, monitoring location identification, and information specific to effluent limitation development.
<p>Nutrients</p>	<ul style="list-style-type: none"> • VT DEC must ensure that sufficient, timely, and representative ambient data for response variables and biota exist to conduct reasonable potential determinations for nutrients either through their own sampling efforts or by including additional monitoring requirements in permits. • Fact sheets should document reasonable potential analysis, per 40 CFR 124.56, conducted for nutrients, rather than included in a separate memo. • VT DEC must ensure that biological indices referenced in § 29A-305 of State WQS can be used to conduct reasonable potential determinations for nutrients as required by Table 2 of Vermont's WQS.
<p>Pretreatment: Food Processing Sector</p>	<ul style="list-style-type: none"> • Permit writers should include the names of any permitted industrial users, if applicable, discharging to the POTW. • VT DEC should require the POTW to include in the Industrial Waste Survey Report any industry that has the potential to cause pass through and/or interference or could be designated as an SIU. • Permit writers should include language in POTW permits prohibiting the introduction by any person into the Permittee and Co-Permittee's sewerage system or WWTF of any pollutant which "may cause pass through and/or interference."